

## **FERMI, the new Italian supercomputing system in the top ten of June 2012 Top500 ranking list**

18 Giugno 2012

The Italian supercomputer *FERMI*, based on IBM Blue Gene/Q, available to the Italian and European scientific community, today is the 7<sup>th</sup> most powerful system worldwide **Casalecchio di Reno, Italy - 18/06/2012** - The *FERMI* computing system installed at CINECA in June 2012 for the Italian and European scientific and industrial research is the fastest supercomputer available in Italy today. The [Top500 list of June 2012](#) published today, ranks *FERMI*, the Italian national supercomputer, at the 7<sup>th</sup> position among the most powerful in the world.

The *FERMI* new Italian computing system is an **IBM Blue Gene/Q** configured with 10.240 PowerA2 sockets running at 1.6GHz, with 16 cores each, for a total of 163.840 compute cores and a **system peak performance of 2.1 PFlops**. Each processor comes with 16Gbyte of RAM (1Gbyte per core). A complex I/O storage subsystem with a total capacity in the order of ten PByte and a front-end bandwidth in excess of 100 GByte/s complements the computing system.

In particular, great attention has been applied to the **design of the cooling infrastructure** of the CINECA data center for the hosting of the *FERMI* system, combining liquid cooling with air free cooling capability. The combination of data center infrastructure with the high level of Flops per Watt of the Blue Gene/ Q system results in a very effective PUE in the order of 1.15.

**With the investments funded by the Ministry of Education, University and Research for this system, Italy is back in the top positions of the world-class ranking list** and this is a great success that confirms the lead role of CINECA as national supercomputing center serving the Italian scientific community.

As from the mandate of the Italian Ministry of Education University and Research, **CINECA represents Italy in PRACE** (the Partnership for Advanced Computing in Europe) and, with *FERMI*, CINECA becomes a **Tier-0 hosting site** as provided in the PRACE roadmap, positioning its computing infrastructures in the first 10 positions of the Top500, together with other PRACE system as SUPERMUC (at LRZ in Munich), JUQUEEN (at FJZ in Juelich as first stage of the next PRACE Tier-0 installation cycle) and CURIE (at CEA in France).

With this BG/Q petascale system, CINECA reinforces its position of large-scale facility and its institutional mission of HPC service infrastructure at disposal of the National and European research.

The Interuniversity Consortium structure of CINECA and the collaboration framework agreement with National Research Institute of the Italian research system, such as CNR, INFN, OGS, INAF, ICTP, SISSA, IIT and the role of Tier-0 hosting site in PRACE reinforce a stable and persistent action of service provided by CINECA in the last decades in the field of high performance computing, service aiming at the construction and strengthening of a pan-European research area.

### **Quote CINECA**

*"FERMI represents a renovated effort to make available a diverse and powerful offer to the Research community in terms of computational resources," said Sanzio Bassini, Director of CINECA Supercomputing Department. "Our main mission, with this new large system, is to give a breakthrough support to the European research key-players to face the unsolved societal and scientific challenges."*

*"I am very proud of the brilliant results achieved due to the looking-forward vision of the Ministry of Education, University and Research which confirmed and supported our initiatives in the strategic field of high performance computing, a CINECA institutional mission to the benefit of National and European scientific community" stated Marco Lanzarini CINECA General Director.*

### **About CINECA**

*CINECA is a non-profit Interuniversity Consortium of 54 Italian Universities, The National Institute of Oceanography and Experimental Geophysics - OGS, the National Research Council - CNR, and the Ministry of Education, University and Research - MIUR. It is the largest Italian computing centre, one of the most important worldwide, operating in the technological transfer sector through high performance scientific computing and the development of complex information systems for treating large volume of data. It develops advanced Information Technology applications and services, acting like a trait-d'union between the academic world, the sphere of pure research and the world of industry and Public Administration.*