



## Barcelona Supercomputing Center to Deploy ARM-Based CPU/ GPU Hybrid Supercomputer

November 14, 2011 -- **NVIDIA** today announced that the Barcelona Supercomputing Center (BSC) is developing a new hybrid supercomputer that, for the first time, uses energy-efficient, low-power NVIDIA Tegra ARM CPUs, together with high-performance NVIDIA CUDA GPUs. BSC is planning to develop the first large-scale system based on this technology, with a near-term goal of demonstrating two to five times improvement in energy efficiency compared with today's most-efficient systems. BSC is showing the system design publicly for the first time at this week's SC11 Conference, which runs Nov. 14-17 in Seattle, Wash.

BSC's ultimate research goal is to deliver exascale-level performance while using 15 to 30 times less power than current supercomputer architectures. This so-called EU Mont-Blanc Project will explore next-generation HPC architectures and develop a portfolio of exascale applications that run efficiently on these kinds of energy-efficient, embedded mobile technologies.

"In most current systems, CPUs alone consume the lion's share of the energy, often 40 percent or more," said Alex Ramirez, leader of the Mont-Blanc Project. "By comparison, the Mont-Blanc architecture will rely on energy-efficient compute accelerators and ARM processors used in embedded and mobile devices to achieve a four- to 10-times increase in energy-efficiency by 2014."

To support growing demand for similar ARM-based initiatives around the world, NVIDIA also announced plans to develop a new hardware and software development kit. The kit, with hardware developed by SECO, will feature a quad-core NVIDIA ARM CPU accelerated by a discrete NVIDIA GPU. It is expected to be available in the first half of 2012, and will be supported by the NVIDIA CUDA parallel-programming toolkit.

BSC joins an elite network of 14 institutions around the world that are advancing awareness of parallel computing and empowering academics and scientists to conduct world-changing research.

### About the Mont-Blanc project

The Mont-Blanc project brings together a purely European consortium which joins industrial technology providers and research supercomputing centers: Bull, as the major HPC system vendor, ARM, as the leader in embedded high-performance processors, and Gnodal, as interconnect partner that focuses its new product on scalability and power efficiency. Besides the technology providers, Mont-Blanc unites the supercomputing centres from the four Tier-0 hosting partners in PRACE who have leading roles in system software and exascale application development: Germany (Forschungszentrum Juelich, BADW-LRZ), France (GENCI, CNRS), Italy (CINECA), and Spain (BSC).

### About BSC

The Barcelona Supercomputing Center (BSC) houses MareNostrum, one of the unique supercomputers in a renovated old chapel-style building. Its mission is to research, develop and manage information technology in order to facilitate scientific progress. With this objective, the center counts with research areas in computer sciences, life sciences, earth sciences and computational applications in science and engineering. In the context of this multi-disciplinary approach, the BSC has a large number of researchers and experts in HPC (high-performing computing), which facilitate scientific progress together with state-of-the-art supercomputing resources. More than 350 people work at BSC on research and 100 of those are from outside Spain.

This Spanish multi-disciplinary supercomputing center was established by a consortium made up by the current Ministry of Science and Innovation (MICINN), by the Ministry of Economy and Knowledge of the local Government of Catalonia and by the Universitat Politècnica de Catalunya/ Barcelona Tech (UPC) and is headed by Professor Mateo Valero.

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