

Intel and Barcelona Supercomputing Center announce Exascale R&D Lab

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The Intel and BSC Exascale Laboratory will be Intel's fourth European exascale R&D lab.

The new lab will focus on scalability issues in the programming and runtime systems of exascale supercomputers.

The Intel and BSC Exascale Laboratory as well as the other European exascale labs are part of Intel's strategy to reach exascale performance in the next ten years.

BARCELONA, November 16, 2011 –Today, Intel Corporation and the Barcelona Supercomputing Center (BSC) have signed a multi-year agreement to create the Intel and BSC Exascale Laboratory in Barcelona. The new lab will be located at the premises of BSC and focus on software and extraordinary levels of parallelism which will be needed to utilize future Intel-architecture based supercomputers. Exascale supercomputers will deliver up to 1,000 times the performance of today's fastest systems using as many as 100 million processor cores to do so.

The Intel and BSC Exascale Laboratory will be the latest member of Intel's European research network -- [Intel Labs Europe](#) – which consists of 25 R&D centers employing more than 1500 R&D professionals.

Breakthroughs in exascale computing will result in, for instance, the ability to simulate extremely complex health care and biochemical phenomena such as the design of drugs which target very specific proteins or certain mutants of cancer genes. Exascale supercomputers could help solve other grand challenge problems in the areas of quantum physics, weather forecasting, climate research, biological modeling and physical simulations including the simulation of airplanes in wind tunnels or research of nuclear fusion. The results

could mean breakthrough and life changing solutions to these grand challenges.

When building a system consisting of millions of cores, getting all of them to work together for an extended period of time also represents a major problem. Hence, completely new software concepts and methods will be required to bring power consumption to acceptable levels and to make the system fault tolerant. The Intel and BSC Exascale Laboratory will focus on highly scalable parallel run-time systems to support the enormous amount of parallelism. Future exascale supercomputers will be hugely complex and challenging to understand and to control. The new lab will try to solve many of these challenges in conducting R&D that will enable better software tools to analyze and predict performance and behavior of highly complex exascale systems.

“We are looking forward to working with BSC on the challenges of exascale computing” said **Stephen Pawlowski**, Intel Senior Fellow and general manager of Intel’s Datacenter and Connected Systems Pathfinding. “BSC is one of Europe’s most renowned HPC labs and offers very interesting technology to scale run time systems, tools and applications up to exascale level. This cooperation is another proof-point of Intel’s commitment to exascale R&D in Europe.”

The Intel and BSC Exascale Laboratory will employ about a dozen R&D professionals and augment Intel’s European exascale R&D strategy. Previously Intel created new exascale research centers in [Paris](#) (France), [Jülich](#) (Germany) and [Leuven](#) (Belgium). All four European exascale R&D centers will seek close collaboration among each other as well as with the [CERN openlab](#) in Geneva (Switzerland).

“We feel delighted about this collaboration because it is a great challenge for our institution,” said BSC Director, Professor **Mateo Valero**. “With this joint center we intend to address new problems emerging from exascale machines, such as programming models and tools. The vast expertise of both Intel and BSC will set this joint center up for success.”

About Intel Labs Europe

Intel R&D/Innovation in Europe is driven by a network of research labs, product development labs and innovation labs spanning the region as well as a variety of Intel business units. Intel Labs Europe was formally established in early 2009 as the central means of coordinating activities across this diverse and extensive network, and to strengthen and improve Intel’s alignment with European R&D. Today, Intel Labs Europe consists of 25 R&D centers employing more than 1500 R&D professionals.

About Intel

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