

Intel Unveils New Product Plans for High-Performance Computing

May 31 2010

During the International Supercomputing Conference (ISC), Intel Corporation announced plans to deliver new products based on the Intel Many Integrated Core (MIC) architecture that will create platforms running at trillions of calculations per second, while also retaining the benefits of standard Intel processors.

Targeting high-performance computing segments such as exploration, scientific research and financial or climate simulation, the first product, codenamed "Knights Corner," will be made on Intel's 22-nanometer manufacturing (nm) process - using transistor structures as small as 22 billionths of a meter - and will use Moore's Law to scale to more than 50 Intel processing cores on a single chip. While the vast majority of workloads will still run best on award-winning Intel Xeon processors, Intel MIC architecture will help accelerate select highly parallel applications.

Industry design and development kits codenamed "Knights Ferry" are currently shipping to select developers, and beginning in the second half of 2010, Intel will expand the program to deliver an extensive range of developer tools for Intel MIC architecture. Common Intel software tools and optimization techniques between Intel MIC architecture and Intel Xeon processors will support diverse programming models that will place unprecedented performance in the hands of scientists, researchers and engineers, allowing them to increase their pace of discovery and preserve their existing software investments. The Intel MIC architecture is derived from several Intel projects, including "Larrabee" and such

Intel Labs research projects as the Single-chip Cloud Computer.

"The CERN openlab team was able to migrate a complex C++ parallel benchmark to the Intel MIC software development platform in just a few days," said Sverre Jarp, CTO of CERN openlab. "The familiar hardware programming model allowed us to get the software running much faster than expected."

"Intel's Xeon processors, and now our new Intel Many Integrated Core architecture products, will further push the boundaries of science and discovery as Intel accelerates solutions to some of humanity's most challenging problems," said Kirk Skaugen, vice president and general manager of Intel's Data Center Group. "The Intel MIC architecture will extend Intel's leading HPC products and solutions that are already in nearly 82 percent of the world's top supercomputers. Today's investments are indicative of Intel's growing commitment to the global HPC community."

TOP500

The 35th edition of the TOP500 list, which was announced at ISC, shows that Intel continues to be the platform of choice in high-performance computing, with 408 systems, or nearly 82 percent, powered by Intel processors. More than 90 percent of quad-core-based systems use Intel processors, with the Intel Xeon 5500 series [processor](#) nearly doubling its presence with 186 systems. Intel chips also power three systems in the top 10, and four out of five new entrants in the top 30. Seven systems contain the recently announced Intel Xeon 5600 series processor, codenamed "Westmere-EP," and two systems are powered by the new Intel Xeon 7500 series processor, codenamed "Nehalem-EX."

The [Intel](#) Xeon processor 5600 series is playing the vital role in the highest-ranked system from China in the history of the Top500. The No.

2 system, located at the National Supercomputing Center (NSCS) in Shenzhen, reached 1.2 petaflops on the Linpack benchmark with a Dawning TC3600. NSCS is a hub for research and innovation in China.

The semi-annual TOP500 list of supercomputers is the work of Hans Meuer of the University of Mannheim, Erich Strohmaier and Horst Simon of the U.S. Department of Energy's National Energy Research Scientific Computing Center, and Jack Dongarra of the University of Tennessee. The complete report is available at www.top500.org .

Source: Intel

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