



IT4Innovations national supercomputing center pushes parallel computing

Intel® Xeon Phi™ Coprocessors 7120P
Intel® Xeon® Processor E5-2680 v3 Product Family
High-Performance Computing

“Intel® Xeon Phi™ coprocessors are capable of delivering the beneficial performance per Watt ratio that is crucial for the path towards exascale systems. Contemporary scientific applications are starting to benefit from using this type of coprocessor and IT4Innovations wants to be at the forefront of this development.”

Martin Palkovic,
Managing Director,
IT4Innovations national supercomputing center

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national
supercomputing
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Organization

The IT4Innovations national supercomputing center at VŠB - Technical University of Ostrava operates supercomputing resources in the Czech Republic and provides open access to those resources on scientific merit. IT4Innovations offers services that include user and application support, code enabling and optimization, training activities, dedicated HPC research, and a contact point for international HPC infrastructures. IT4Innovations supports research that has significant socioeconomic impact, for example in flood prevention, crash tests, drug design, chemical catalysis and personalized medicine.

Challenge

Before establishing IT4Innovations national supercomputing center in 2011, the Czech Republic had to rely largely on high-performance computing (HPC) capacity from abroad, which was a constraint on research work. In 2013, the center introduced its first supercomputer Anselm, which supported hundreds of projects up to 2015. However, the capacity of the Anselm supercomputer was far too limited in performance to satisfy the growing demand.

Solution

The new Salomon supercomputer is based on the SGI® ICE™ X HPC platform, SGI's distributed memory supercomputer. The computer has 1,008 nodes containing 2,016 Intel® Xeon® processors E5-2680 v3, a total of 24,192 cores. These are supported by 864 Intel® Xeon Phi™ coprocessor 7120P, with 52,704 cores, and 13.8 terabytes of RAM in 432 accelerated nodes. The investment in Salomon was supported by EU structural funds (85 percent) and the Czech Republic state budget (15 percent).

Benefits

Czech academics and businesses now have access to a supercomputer and HPC expertise within their country that they can use for furthering their research and development. SGI has measured a maximum performance of 1.457 petaFLOPS using the Linpack* benchmark and according to the rules of the TOP 500 supercomputer rankings¹ (www.top500.org). In June 2015, Salomon ranked as #40 in this ranking. It was the first time the Czech Republic had appeared among TOP 100 supercomputers in the 22 year history of the list.

“The SGI® ICE™ X system, coupled with the Intel® Xeon Phi™ coprocessor, provides customers with the speed, scale and flexibility to achieve computational breakthroughs across diverse industries. We’re committed to working with Intel to push the boundaries of HPC and look forward to seeing the breakthroughs achieved by researchers using Salomon.”

**Gabriel Broner,
Vice President and General
Manager, SGI**

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