

## PRESS RELEASE

**The European supercomputer ranking 3<sup>rd</sup> on the TOP500 list has taken USA down to 4<sup>th</sup> position**

**The most powerful Czech supercomputer maintains its position in the top 100**

**Frankfurt/Ostrava, 19<sup>th</sup> June – The top position in the TOP500 list remains occupied by China with its two supercomputers - Sunway TaihuLight and Tianhe-2 with their Linpack performance of 93 and almost 34 petaflops, respectively. Third position is occupied by the Swiss Piz Daint supercomputer, which has climbed up from 8<sup>th</sup> position as a result of a significant upgrade. Having its current Linpack performance of 19.6 petaflops, the most powerful European supercomputer is operated at the Swiss National Supercomputing Centre (CSCS). In the top 10, there are also supercomputers from the United States of America and Japan. Salomon, the most powerful Czech supercomputer operated by the IT4Innovations National Supercomputing Center in Ostrava, maintains its position in the top 100, currently ranking 78<sup>th</sup>.**

The TOP500 list is based on a single LINPACK benchmark program. This program solves large systems of linear equations using a supercomputer. The equations are solved by Gaussian elimination with partial pivoting (or using another method while the number of floating point operations are always normalized to a Gaussian elimination). In the end, the size of the system of equations and solution time, however, is what matters most. The program, which allows the computing performance of devices from mobile phones to the world's largest supercomputers to be measured, is available on the Internet. The program outputs can be sent anytime to TOP500.org, which checks the solution correctness and compiles the TOP500 list. The list is compiled twice a year, in June and November. The results are then released at the two most important supercomputing conferences, namely the International Supercomputing Conference in Germany and the Supercomputing Conference in the USA.

Salomon, the most powerful supercomputer in the Czech Republic, has a LINPACK-measured performance of 1.45 petaflops. It is currently ranked the 78<sup>th</sup> most powerful supercomputer in the world. At the time Salomon was put into operation in June, 2015, it ranked 40<sup>th</sup>. Moreover, IT4Innovations also operates a smaller cluster called Anselm, the theoretical peak performance of which is 94 teraflops. It was installed in 2013. In 2016, IT4Innovations submitted a project proposal titled "IT4Innovations National Supercomputing Center – path to exascale" within the Research, Development and Education Operational Programme. The aim of this project is to upgrade the currently operated supercomputers and support IT4Innovations own research activities. This year, the project has been recommended for funding and the funding decision is currently being administered. The project is to be implemented from September, 2017 to August, 2021. Its estimated costs approximately amount to CZK 503,031,000. Almost 80 % of the project costs will be spent

on modernization and upgrade of the existing supercomputers and the relevant infrastructure as well. The remaining resources will be used to support the researchers from IT4Innovations.

**IT4Innovations National Supercomputing Center** provides state-of-the-art HPC technology and services to Czech and foreign research teams from both academia and industry. IT4Innovations is currently operating two supercomputers – Anselm (installed in the summer of 2013) and Salomon (installed in the summer of 2015). IT4Innovations is also a research centre with strong international affiliations. The key research areas of IT4Innovations include big data processing and analysis, development of parallel scalable algorithms, engineering problems, and nanotechnology.

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