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ТОП 10 СУПЕРКОМП'ЮТЕРІВ

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TOP 10 SUPERCOMPUTERS

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The TOP500 project ranks and details the 500 most powerful (non-distributed) computer systems in the world. The project was started in 1993 and publishes an updated list of the supercomputers twice a year. The project aims to provide a reliable basis for tracking and detecting trends in high-performance computing and bases rankings on HPL. The TOP500 list is compiled by Hans Meuer of the University of Mannheim, Germany, Jack Dongarra of the University of Tennessee, Knoxville, and Erich Strohmaier and Horst Simon of NERSC/Lawrence Berkeley National Laboratory.

The only surprise in the top ten this year is Piz Daint, a Cray XC30 system installed at the Swiss National Supercomputing Centre (CSCS) in Lugano, Switzerland, which now holds the title of the most powerful system in Europe. Piz Daint achieved 6.27 Pflop/s on the Linpack benchmark. Piz Daint is also the most energy efficient system in the TOP10 consuming a total of 2.33 MW and delivering 2.7 Gflops/W.

Tianhe-2, at China's National University of Defense Technology, retained its position as the world's No. 1 system with a performance of 33.86 petaflop/s (quadrillions of calculations per second). Titan, the Cray XK7 system installed at the Department of Energy's (DOE) Oak Ridge National Laboratory, remains the No. 2 system. It achieved 17.59 Pflop/s on the Linpack benchmark. Titan is one of the most energy efficient systems on the list consuming a total of 8.21 MW and delivering 2.143 gigaflops/W. Sequoia, an IBM BlueGene/Q system installed at DOE's Lawrence Livermore National Laboratory, is again the No. 3 system. Rounding out the TOP10 are Stampede at the Texas Advanced Computing Center of the University of Texas, Austin, which slipped to No. 7, a BlueGene/Q system called JUQUEEN installed at the Forschungszentrum Juelich in Germany is No. 8, No. 9 is taken by Vulcan, another IBM BlueGene/Q system at Lawrence Livermore National Laboratory and No. 10 is the third system in Europe, the SuperMUC, installed at Leibniz Rechenzentrum in Germany.

Given the current speed of progress, industry experts estimate that supercomputers will reach 1 exaflops (10¹⁸, one quintillion FLOPS) by 2018. China has stated plans to have a 1 exaflop supercomputer online by 2018. Using the Intel MIC multi-core processor architecture, which is Intel's response to GPU systems, SGI plans to achieve a 500-fold increase in performance by 2018, in order to achieve one exaflop.