

Home > Lists

June 2012

MANNHEIM, Germany, BERKELEY, Calif., and KNOXVILLE, Tenn.—For the first time since November 2009, a United States supercomputer sits atop the TOP500 list of the world's top supercomputers. Named Sequoia, the IBM BlueGene/Q system installed at the Department of Energy's Lawrence Livermore National Laboratory achieved an impressive 16.32 petaflop/s on the Linpack benchmark using 1,572,864 cores. Sequoia is also one of the most energy efficient systems on the list, which will be released Monday, June 18, at the 2012 International Supercomputing Conference in Hamburg, Germany. This will mark the 39th edition of the list, which is compiled twice each year.

On the latest list, Fujitsu's "K Computer" installed at the RIKEN Advanced Institute for Computational Science (AICS) in Kobe, Japan, is now the No. 2 system with 10.51 Ptflop/s on the Linpack benchmark using 705,024 SPARC64 processing cores. The K Computer held the No. 1 spot on the previous two lists.

The new Mira supercomputer, an IBM BlueGene/Q system at Argonne National Laboratory in Illinois, debuted at No. 3, with 8.15 petaflop/s on the Linpack benchmark using 786,432 cores. The other U.S. system in the Top 10 is the upgraded Jaguar at Oak Ridge National Laboratory in Tennessee, which was the top U.S. system on the previous list and now clocks in at No. 6.

The newest list also marks a return of European systems in force. The most powerful system in Europe and No.4 on the List is SuperMUC, an IBM iDataPlex system installed at Leibniz Rechenzentrum in Germany. Another German machine, the JuQUEEN BlueGene/Q at Forschungszentrum Juelich, is No. 8.

Italy makes its debut in the Top 10 with an IBM BlueGene/Q system installed at CINECA. The system is at No. 7 on the list with 1.72 Ptflop/s performance. In all, four of the top 10 supercomputers are IBM BlueGene/Q systems. France occupies the No. 9 spot with a homegrown Bull supercomputer.

China, which briefly took the No. 1 and No.3 spots in November 2010, has two systems in the Top 10, with Tianhe-1A at the National Supercomputing Center in Tianjin in No. 5 and Nebulae at the National Supercomputing Centre in Shenzhen No. 10.

Total performance of all the systems on the list has increased considerably since November 2011, reaching 123.4 Ptflop/s. The combined performance of the last list was 74.2 Ptflop/s. In all, 20 of the supercomputers on the newest list reached performance levels of 1 Ptflop/s or more. The No. 500 machine on the list notched a performance level of 60.8 teraflop/s, which was enough to reach No. 332 just seven months ago.

TOP 10 Sites for June 2012

For more information about the sites and systems in the list, click on the links or view the [complete list](#).

Rank	Site	Computer
1	DOE/NNSA/LLNL United States	Sequoia - BlueGene/Q, Power BQC 16C 1.60 GHz, Custom IBM
2	RIKEN Advanced Institute for Computational Science (AICS) Japan	K computer, SPARC64 VIII fx 2.0GHz, Tofu interconnect Fujitsu
3	DOE/SC/Argonne National Laboratory United States	Mira - BlueGene/Q, Power BQC 16C 1.60GHz, Custom IBM
4	Leibniz Rechenzentrum Germany	SuperMUC - iDataPlex DX360M4, Xeon E5-2680 8C 2.70GHz, Infiniband FDR IBM
5	National Supercomputing Center in Tianjin China	Tianhe-1A - NUDT YH MPP, Xeon X5670 6C 2.93 GHz, NVIDIA 2050 NUDT
6	DOE/SC/Oak Ridge National Laboratory United States	Jaguar - Cray XK6, Opteron 6274 16C 2.200GHz, Cray Gemini interconnect, NVIDIA 2090 Cray Inc.
7	CINECA Italy	Fermi IBM - BlueGene/Q, Power BQC 16C 1.60GHz, Custom IBM
8	Forschungszentrum Juelich (FZJ) Germany	JuQUEEN - BlueGene/Q, Power BQC 16C 1.60GHz, Custom IBM
9	CEA/TGCC-GENCI France	Curie thin nodes - Bullx B510, Xeon E5-2680 8C 2.700GHz, Infiniband QDR Bull
10	National Supercomputing Centre in Shenzhen (NSCS) China	Nebulae - Dawning TC3600 Blade System, Xeon X5650 6C 2.66GHz, Infiniband QDR, NVIDIA 2050 Dawning

Contents

Release

- Top500 List
- Press Release (PDF)
- Press Release
- List highlights
- Performance Development

Related Files

- TOP500 List (XML)
- TOP500 List (Excel)
- TOP500 Poster
- Poster in PDF

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- Statistics
- Development Over Time
- Tree Maps

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- November 2011
- June 2011
- November 2010
- June 2010

HPCWire

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- NVIDIA GPUs Assist in Prevention of Future H1N1 Outbreaks
- New InfiniBand Architecture to Incorporate Direct GPU Communication
- New Mellanox Interconnect to Break 100G Throughput
- European Systems Increase Standing in TOP500
- Mellanox InfiniBand Adoption Increased Among TOP500 Systems
- Stampede Supercomputer to Run 56G IB Interconnect
- Mellanox Announces 40GbE Aimed at Storage, Datacenter Applications
- Australian Research Organization to Deploy Mellanox InfiniBand
- Cray to Use Intel Phi Chips in Cascade Systems

Inside HPC

- Podcast: Jack Dongarra on the June 2012 TOP500
- Video: Allinea DDT Debugger Support for the New Intel Xeon Phi Accelerator
- Video: Achieving Ultra-low Latency in the Cloud: How Low Can We Go?
- IBM US Nuke-lab Beast 'Sequoia' is Top of the Flops (Petaflops, that is)
- Video: HPC at the University of Colorado and the Student Cluster Competition
- US Leads TOP500 Once Again with 16 Petaflop Sequoia from IBM
- HPC Market Trends from the 451 Group
- CAPS to Demo OpenACC Portability at ISC'12
- Video: Xyratex - The Next Gen in Storage Performance and Efficiency
- Video: Running GPPS over Obsidian
- Interview: Addison Snell on the All-New HPC500 Organization
- Video: Opening Session - HPC Advisory Council European Workshop
- Podcast: SCINET Derives 100 Teraflops from InfiniBand Upgrade
- Job of the Week: Senior HPC Consultant at Shell Oil
- IDC: HPC Server Market Continues Growth in Q1

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#3 pencils and quadrille pads.
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Seymour Cray [when he was told that the Cray-1 memory system, which did not have parity checking, was malfunctioning at Los Alamos due to the altitude.]

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