World's Greenest Petaflop Supercomputers Built With NVIDIA Tesla GPUs

GPU Supercomputers Deliver World Leading Performance and Efficiency in Latest Green500 List

[Leaders in GPU Supercomputing talk about their Green500 systems](#)

[Tianhe-1A Supercomputer at the National Supercomputer Center in Tianjin](#)

[Tsubame 2.0 from Tokyo Institute of Technology](#)

[Tokyo Tech talks about their Tsubame 2.0 supercomputer - Part 1](#)

[Tokyo Tech talk about their Tsubame 2.0 supercomputer - Part 2](#)

NEW ORLEANS, LA--(Marketwire - November 18, 2010) - [SC10](#) -- The "[Green500](#)" list of the world's most energy-efficient supercomputers was released today, revealed that the only petaflop system in the [top 10](#) is powered by [NVIDIA® Tesla™ GPUs](#).

The system was [Tsubame 2.0](#) from [Tokyo Institute of Technology](#) (Tokyo Tech), which was ranked number two.

"The rise of GPU supercomputers on the Green500 signifies that heterogeneous systems, built with both GPUs and CPUs, deliver the highest performance and unprecedented energy efficiency," said [Wu-chun Feng](#), founder of the Green500 and associate professor of Computer Science at [Virginia Tech](#).

GPUs have quickly become the enabling technology behind the world's top supercomputers. They contain hundreds of parallel processor cores capable of dividing up large computational workloads and processing them simultaneously. This significantly increases overall system efficiency as measured by performance per watt. "[Top500](#)" supercomputers based on [heterogeneous architectures](#) are, on average, almost three times more power-efficient than non-heterogeneous systems.

Three other Tesla GPU-based systems made the Top 10. The National Center for Supercomputing Applications (NCSA) and Georgia Institute of Technology in the U.S. and the National Institute for Environmental Studies in Japan secured 3rd, 9th and 10th respectively. Tesla GPU-based systems also secured 11th, 12th and 13th; [CSIRO](#) in Australia, [Tianhe-1A](#) in Tianjin and Nebulae in Shenzhen, China.

The complete Top 10 list (with Tesla GPU-powered systems in bold face):

Rank	Site	Linpack Perf.	# of Tesla GPUs	Megaflops per watt
1	IBM Research	653 Teraflops	n/a	1684 Mflops/watt
2	GSIC Center, Tokyo Tech	1.192 Petaflops	4200	948
3	NCSA	33.6 Teraflops	128	933 Mflops/watt
4	RIKEN AICS	58 Teraflops	n/a	828 Mflops/watt
5	Forschungszentrum Juelich	45 Teraflops	n/a	773 Mf
6	Universitaet Regensburg	45 Teraflops	n/a	773 Mflo
7	Universitaet Wuppertal	45 Teraflops	n/a	773 Mflo
8	Universitaet Frankfurt	94 Teraflops	n/a	741 Mflop
9	Georgia Institute of Technology	64 Teraflops		360
10	National Institute for Environmental Studies	74.84 Teraflops		

About NVIDIA

Since 1993, [NVIDIA](#) (NASDAQ : NVDA) has pioneered the art and science of [visual computing](#). The company's technologies are transforming a world of displays into a world of interactive discovery — for everyone from gamers to scientists, and consumers to enterprise customers. More information at http://nvidianews.nvidia.com/ and http://blogs.nvidia.com/.

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