

IBM posts best ever TPC-E benchmark performance result

IBM System x3850 X6 achieves world-record performance on TPC-E

February 18, 2014 ... IBM® has published the best performance result ever on the TPC-E™ benchmark. This new result showcases the ability of IBM's exclusive sixth-generation Enterprise X Architecture (EXA), in combination with the latest Intel® Xeon® E7 processor technology and Microsoft® SQL Server® 2014, to deliver industry-leading performance results on System x® servers. The TPC-E benchmark is designed to enable clients to more objectively measure and compare the performance and price of various OLTP systems.

The IBM System x3850 X6 server achieved the following score:

- **5,576.27 tpsE™** (transactions per second E) at **\$188.69 USD / tpsE**. (1)

This is at least 73% faster than the results published on previous-generation 4-processor systems, (2) and in fact is faster than all the results published on 8-processor systems. (3)

The x3850 X6 achieved this record level of OLTP performance using Microsoft SQL Server 2014 Enterprise Edition and Microsoft Windows Server® 2012 Standard Edition. The x3850 X6 was configured with four Intel Xeon E7-4890 v2 processors at 2.80 GHz with 37.5 MB shared L3 cache per processor (4 processors/60 cores/120 threads) and 2 TB of memory.

The IBM System x3850 X6 is a flagship, 4-socket, 4U rack server, designed for maximum performance and uptime for business-critical applications and cloud deployments. The X6 solution provides a powerful platform for mission-critical applications. Integrating hardware, software and memory advancements, the X6 enterprise servers are designed to be FAST, AGILE and RESILIENT.

As the first server designed and optimized for new IBM eXFlash memory-channel storage, the x3850 X6 delivers FAST application performance. This system can deliver up to 12.8 TB of ultra-low latency flash storage—unmatched storage performance in an x86 server. The x3850 X6 can deliver up to 6.0 TB of memory and 60 cores of processing power for essential business-critical applications, for implementing large virtual machines or for running sizeable in-memory databases. eXFlash memory-channel storage offers significantly lower write latency than any other flash offering on the market—less than 5 microseconds write latency.(4)

The unique, adaptive modular rack design of the new x3850 X6 is AGILE, enabling the design of fit-for-purpose solutions and the ability to realize infrastructure cost savings by hosting multiple generations of technology in a single platform—without compromising performance or capacity. X6 platforms enable customers to:

- configure the server to fit the unique requirements of specific applications and workloads and add, modify or upgrade X6 platforms easily with selectable modular book components;
- scale capacity and performance from 4-socket to 8-socket, to deliver twice the performance for growing applications without creating IT sprawl;
- use IBM Fast Setup software for automated provisioning of a cluster of servers to realize time-to-value in minutes rather than days;
- capitalize on agile system design that provides the ability to host multiple generations of technology in a single server.(5)

X6 enterprise platforms are RESILIENT. Through differentiated X6 self-healing technology, the x3850 X6 maximizes uptime by proactively identifying potential failures and transparently taking necessary corrective actions. Four unique IBM features proactively protect applications from corrupt pages in memory; allow the platform to maintain access to networking and storage and server management during a processor failure; enable concurrent updating of the system firmware with no impact on application

performance or availability; and enable the creation and management of policies to maintain high availability of virtual machines. These built-in technologies drive the outstanding system availability and uninterrupted application performance needed to host business-critical applications.

X6 platforms help reduce costs and complexity and deliver the breakthrough performance and capacity that enterprise applications demand. X6 servers are the result of more than 15 years of EXA investment and innovation in industry-standard servers. X6 platforms are backed by a 100-year history of market-leading IBM technology designed to solve customers' most pressing business problems.

Results referenced are current as of February 18, 2014. To view all TPC results, visit www.tpc.org.

(1) The total solution availability for this TPC-E benchmark result is April 15, 2014. See the details for this result here: <http://www.tpc.org/4067>

(2) The fastest previous-generation 4-processor TPC-E result is the IBM System x3850 X5, which measured 3218.46 tpsE at \$225.30 USD / tpsE using four Intel Xeon E7-4870 processors at 2.40 GHz (4 processors/40 cores/80 threads), Microsoft SQL Server 2012 Enterprise Edition, and Microsoft Windows Server 2012 Standard Edition. Total solution availability of November 28, 2012. Result details are at: <http://www.tpc.org/4061>

(3) The fastest previous-generation 8-processor TPC-E result is the IBM System x3850 X5, which measured 5457.20 tpsE at \$249.58 USD / tpsE using eight Intel Xeon E7-8870 processors at 2.40GHz (8 processors/80 cores/160 threads), Microsoft SQL Server 2012 Enterprise Edition, and Microsoft Windows Server 2012 Standard Edition. Total solution availability of March 8, 2013. Result details are at: <http://www.tpc.org/4063>

(4) Laboratory testing shows eXFlash DIMMs can deliver 3 times lower latency (<5 μ s) than PCIe based flash (15-19 μ s).

(5) When a newer generation of processor and memory technology becomes available, Compute Books can be replaced with newer ones. (All Compute Books must use matching technology.)

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