

## **IBM posts industry's first 4-processor/40-cores/80-thread kernel-based virtual machine (KVM) result on two-tier SAP SD standard application benchmark**

*KVM result achieved on two-tier SAP SD standard application benchmark on IBM System x3850 X5 demonstrates performance within 15% of leadership performance achieved on same system with Linux*

April 20, 2012 ... IBM® today announced a 4-processor/ 40-cores/80-thread kernel-based virtual machine (KVM) result on the two-tier SAP® Sales and Distribution (SD) standard application benchmark. This new result was achieved on the IBM System x®3850 X5, running IBM DB2® 9.7 and Red Hat® Enterprise Linux 6 on a KVM hypervisor and SAP enhancement package 4 for the SAP ERP application Release 6.0.

The x3850 X5 achieved 10,700 SAP SD benchmark users with 0.93 seconds average dialog response time, 58,750 SAPS, measured throughput of 3,525,000 dialog steps per hour (or 1,175,000 fully processed line items per hour), and an average CPU utilization of 99% for the central server. (1)

The x3850 X5's result with a kernel-based virtual machine on Linux® demonstrated 85% performance compared to the leadership result achieved on the x3850 X5 with Linux.(2)

The x3850 X5's result is more than double the previous-best result achieved by Cisco on a virtual machine with 5,100 SAP SD benchmark users on Cisco UCS B230 M2. (3)

The x3850 X5 server leverages fifth-generation IBM Enterprise X-Architecture®, delivering innovation with enhanced reliability and availability features to enable optimal performance for databases, enterprise applications, and virtualized environments. The x3850 X5 is a versatile 4-socket, 4U rack optimized scalable enterprise server that supports up to 2TB of memory and up to 3TB of memory with the optional IBM MAX5 for System x. The x3850 X5 offers up to 8-socket (80-core) SMP operations with powerful 6-, 8- and 10-core Intel Xeon MP processors and up to 6TB of system memory in an 8-socket (80-core) complex with the optional IBM MAX5 for System x. The MAX5 is a scalable, 1U, memory expansion drawer that provides an additional 32 DIMM slots with a memory controller for added performance and a node controller for x3850 scalability.

The x3850 X5 was configured with four Intel® Xeon® E7-8870 processors at 2.40GHz with 30MB shared L3 cache per processor (4 processors/40 cores/80 threads), 512GB of memory, 64-bit DB2 9.7, Red Hat Enterprise Linux 6 on KVM, and SAP enhancement package 4 for SAP ERP 6.0. The server accessed the IBM DB2 9.7 database on an IBM System Storage® DS4800 disk system.

Results referenced are current as of April 30, 2012. For the latest SAP benchmark results, visit:

<http://www.sap.com/benchmark>.

(1) This benchmark fully complies with the SAP Benchmark Council regulations and has been audited and certified by SAP AG (certification number 2012020). Details can be obtained from IBM and SAP. The benchmark was performed at IBM in Austin, TX, USA, by IBM engineers.

(2) Statement of comparison is based on **world-record 4-processor result on Linux** and the SAP enhancement package 4 for SAP ERP 6.0 by IBM on same system. Minimum data for the IBM x3850 X5 results on the two-tier SAP SD standard application benchmark: 4 processors/40 cores/80 threads, Intel Xeon Processor E7-8870, 2.4 GHz, 64KB L1 cache and 256 KB L2 cache per core, 30MB L3 cache per processor, 256 GB main memory, Red Hat Enterprise Linux 6, IBM DB2 9.7, and SAP enhancement package 4 for SAP ERP 6.0. Certification number 2012006.

(3) Statement of comparison is based on highest-performing result on Linux on a KVM and the SAP enhancement package 4 for SAP ERP 6.0. Minimum data for the Cisco UCS B230 M2 results on the two-

tier SAP SD standard application benchmark: 2 processors/20 cores/40 threads, Intel Xeon Processor E7-2870, 2.40GHz, 64KB L1 cache and 256 KB L2 cache per core, 30MB L3 cache per processor, 128 GB main memory, Red Hat Enterprise Linux 6.1 on KVM, SAP MaxDB™ database 7.8, and SAP enhancement package 4 for SAP ERP 6.0. Certification number 2012013.

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