HP ProLiant BL685c server blade achieves best single node number for an x86 base server on SPECjAppServer2004™ benchmark

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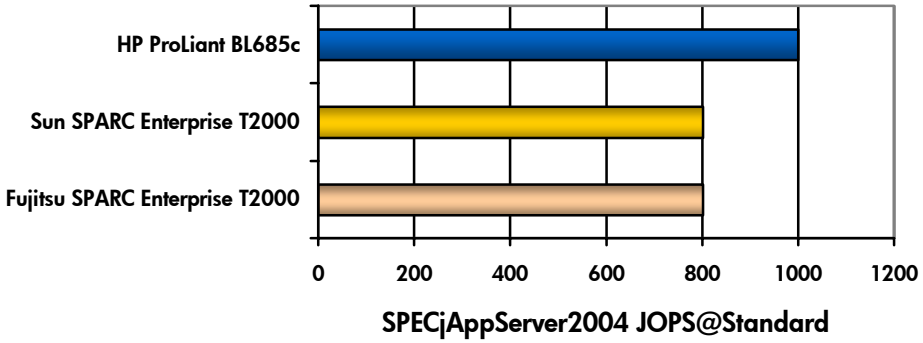
Executive Summary

The HP ProLiant BL685c server blade achieved the leading x86 base server performance on the SPECjAppServer 2004 benchmark.

Equipped with 4x2.8-GHz Dual-Core AMD Opteron™ processors Model 8220, the ProLiant BL685c achieved the world-record x86 base server performance SPECjAppServer2004 result of 1,000.34 JOPS (jAppServer operations per second), beating the result posted by the Sun SPARC Enterprise T2000 and the Fujitsu SPARC Enterprise T2000.

Top single-system SPECjAppServer 2004 results



Interpreting the results

In April 2007, the Business Applications Engineering Team in HP's Industry Standard Server Group set up a ProLiant system of two BL685c servers to run the SPECjAppServer2004 benchmark, using one server for the application and one for the benchmark. Running the Oracle Application Server Release 3, Oracle Database 10g Release 2 Enterprise Edition software, and RedHat Enterprise Linux 4U4 EMT64 operating system, the HP ProLiant BL685c produced a leading x86 base server result on the SPECjAppServer2004 benchmark of 1,000.37 JOPS@Standard (jAppServer Operations Per Second). Linux Red Hat Enterprise Server 4U4 EMT64 combined with Oracle Database 10g Release 2 Enterprise Edition, provided the software platform. The application server, a ProLiant BL685c, was configured with Oracle Application Server Release 3, with 4 Dual-Core AMD Opteron 2.8 GHz processors Model 8220, (8 cores, 4 chips, 2 cores/chip), 16 GB RAM, and (3) 1000 BaseT Ethernet network interface controllers. The database server was configured with 4 Dual-Core AMD Opteron 2.8 GHz processors Model 8220, (8 cores, 4 chips, 2 cores/chip), 32 GB RAM, and (2) 1000 BaseT Ethernet network interface controllers connected to (2) MSA1000 SAN Storage enclosures controlling 14x73GB 15K U320 drives.

With these results, HP offers the leading solution for x86 base server performance on the SPECjAppServer2004 benchmark. This result defeated the Sun SPARC Enterprise T2000 and the Fujitsu SPARC Enterprise T2000. Compared with the single node result published by Sun and Fujitsu, the ProLiant BL685c system running the Oracle 10g database achieved the following superior performance delta:

- **24.7% faster than Sun SPARC Enterprise T200 with BEA**
- **24.7% faster than Fujitsu SPARC Enterprise T2000 with BEA**

Configuration details	JOPS	App/Database/OS
HP ProLiant BL685c, 8 cores, 4 chips, single node	**1,000.37**	**Oracle Application Server Release 3, Oracle Database 10g Release 2 EE, Red Hat Enterprise Server 4U4**
Sun SPARC Enterprise T2000, 8 cores, 1 chip, single node	**801.70**	**BEA WebLogic Server 9.2, Solaris 10 11/06 64-bit**
Fujitsu SPARC Enterprise T2000, 8 cores, 1 chip, single node	**801.70**	

About the HP ProLiant BL685c

The HP ProLiant BL685c server blade delivers no-compromise performance and expansion in the densest 4P server blade form factor available. With up to four AMD Opteron™ 8000 Series processors, 64GB of DDR2 memory, two hot-plug Serial Attached SCSI (SAS) or Serial ATA (SATA) hard-drives, four embedded Gigabit NICs and three I/O expansion slots, the HP ProLiant BL685c delivers the density you want with the performance you need to handle the most demanding enterprise class applications.

About the HP Smart Array MSA 1000

As with most all of the ProLiant record setting results, Smart Array technology was integral in delivering a high IO storage subsystem. The HP StorageWorks 1000 Modular Smart Array (MSA1000) is a 2Gb Fibre Channel storage system for the entry-level to midrange storage area network (SAN). It provides the customer with a low-cost, scalable, high performance storage consolidation system with investment protection. It is designed to reduce the complexity and risk of SAN deployments. The powerful but easy to use management software makes it ideal for departmental and remote location SANs. The ability to easily move most data, disks, and enclosures currently directly attached to Ultra 320 Smart Array controllers (DAS) to a shared storage environment (SAN) will save the user both money and time. With the addition of two more drive enclosures, it can control up to 42 enterprise-class U320 SCSI drives allowing capacity of twelve terabytes. All configuration, management, and partitioning and licensing software come standard with no extra charges. The MSA1000 is available as part of several different Kits including the MSA1000 SAN Starter Kit and the MSA1000 Small Business SAN Kit featuring low overall cost and an easy to use install wizard especially for the first time SAN implementer.

HP's exclusive optional embedded 8-port SAN switch or 3-port hub give cost effective and space saving methods of creating a SAN environment. The MSA1000 supports Windows (32- & 64-bit), NetWare, and Linux (32- & 64-bit) operating systems. It also supports HP-UX, Tru64 UNIX, OpenVMS, or SCO operating systems.

About SPECjAppServer2004

SPECjAppServer2004 (Java Application Server) is an industry standard multi-tier benchmark for measuring the performance of Java 2 Enterprise Edition (J2EE) technology-based application servers. SPECjAppServer2004 is an end-to-end application which exercises all major J2EE technologies implemented by compliant application servers as follows:

1. The web container, including servlets and JSPs
2. The EJB container
3. EJB2.0 Container Managed Persistence
4. JMS and Message Driven Beans
5. Transaction management
6. Database connectivity

SPECjAppServer2004 also heavily exercises all parts of the underlying infrastructure that make up the application environment, including hardware, JVM software, database software, JDBC drivers, and the system network.

SPECjAppServer2004 was developed by the Java subcommittee's core design team. BEA, Borland, Darmstadt University of Technology, HP, IBM, Intel, Oracle, Pramati, Sun and Sybase participated in design, implementation and testing phases of the product.

The performance metric is jAppServer Operations Per Second (SPECjAppServer2004 JOPS), which is the number of manufacturing work orders divided by the measurement period in seconds. Another metric with this benchmark but which is not part of the discussion in the paper is price/JOPS, which is the price of the System Under Test (including hardware, software, and support) divided by the JOPS.

SPEC® and the benchmark name SPECjAppServer® are registered trademarks of the Standard Performance Evaluation Corporation. Competitive benchmark results stated above reflect results published on http://www.spec.org as of July 20, 2007. For the latest SPECjAppServer2004 benchmark results, please visit http://www.spec.org/jAppServer2004/results/. All other brand names are trademarks of their respective owners. Full information on HP Products is available at www.hp.com. The information contained in this document is subject to change without notice.

For more information

HP ProLiant BL685c

Results detailed in this paper:
http://www.spec.org/jAppServer2004/results/res2007q2/

HP Storage
http://www.hp.com/products/smartarray

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