# HP ProLiant servers show excellent performance scalability with new Quad-Core AMD Opteron™ processors on two-tier SAP® Sales and Distribution (SD) Standard Application Benchmark

hp

Key results at a glance:

- 1st HP ProLiant AMD Opteron™ Quad-Core results.
- HP ProLiant DL385 G5 with latest processors achieves outstanding 2 processor result.
- HP ProLiant BL685c G5 with latest processors achieves outstanding 4 processor result.
- Excellent scalability of HP ProLiant AMD Opteron-based servers moving from dual-core to quad-core processing.
- Comparative performance providing quality choices for HP ProLiant customers. [1]
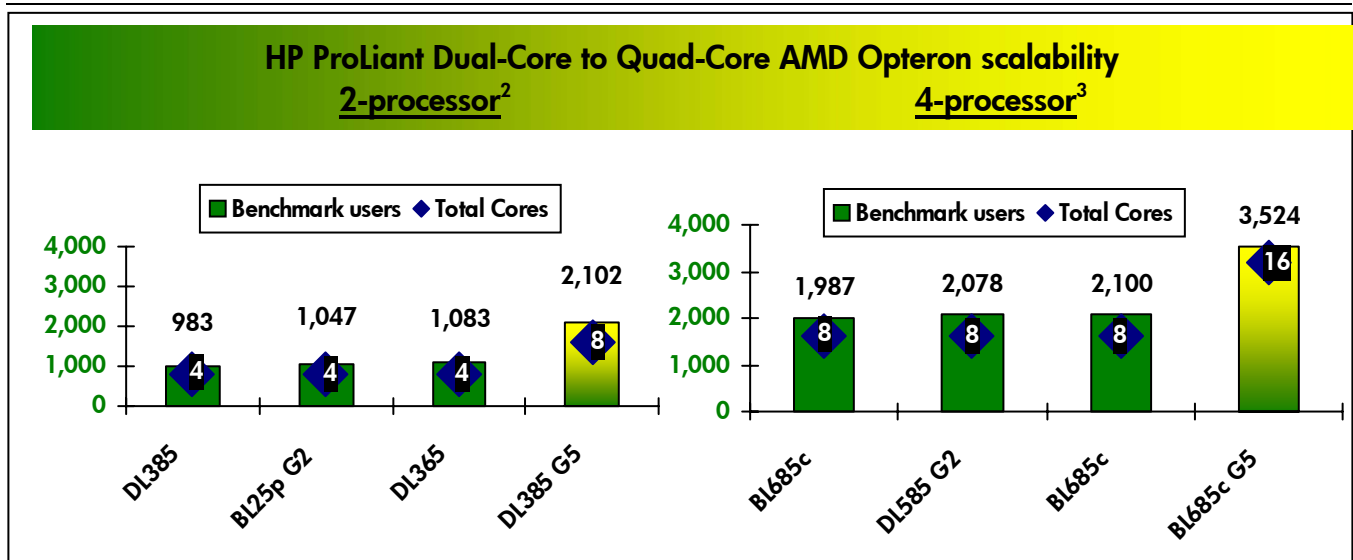
Tests were performed on the ProLiant DL385 G5 and BL685c G5 servers by HP's Houston Solution Alliances SAP Engineering lab in Houston, TX. HP received certification from SAP AG of the results on the two-tier SAP® Sales and Distribution (SD) Standard Application Benchmark for the ProLiant DL385 G5 (#2008015) on March 28, 2008. The server was configured as a two-processor system with 2 x 2.33GHz Quad-Core AMD Opteron Processors (2 processors/8 cores/8 threads), with 128 KB L1 cache per core, 1MB L2 cache per core, and 2 MB L3 cache, and 32GB main memory. The server was running Microsoft® Windows Server® 2003 Enterprise Edition x64 SP2 operating system, Microsoft SQL Server 2005 x64 SP1 database, and the SAP ERP 6.0 application. **The ProLiant DL385 G5 achieved 2,102 SAP SD Benchmark users, equivalent to a throughput of 210,330 fully processed order line items per hour or 10,520 SAPS.**
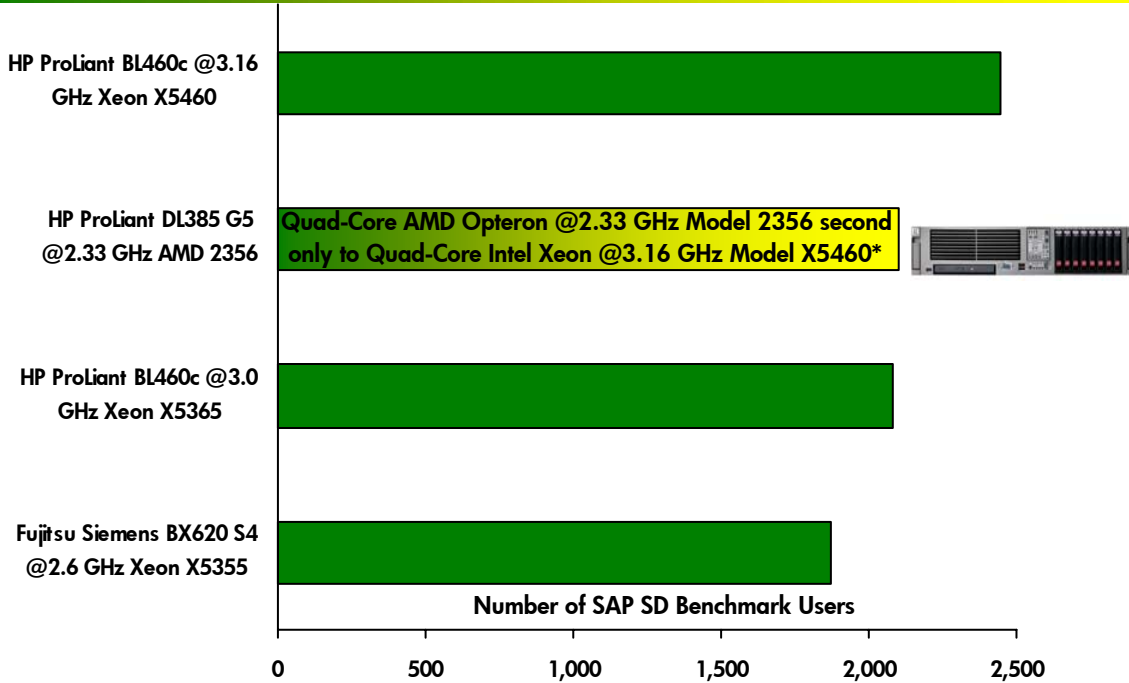
HP received certification from SAP AG of the results on the two-tier SAP SD Standard Application Benchmark for the ProLiant BL685c G5 (#2008016) on March 28, 2008. The server was configured as a four-processor system with 4 x 2.33GHz Quad-Core AMD Opteron Processors (4 processors/16 cores/16 threads), with 128 KB L1 cache per core, 1MB L2 cache per core, and 2 MB L3 cache, and 64GB main memory. The server was running Microsoft Windows Server 2003 Enterprise Edition x64 SP2 operating system, Microsoft SQL Server 2005 x64 SP1 database, and SAP ERP 6.0. **The ProLiant BL685c G5 achieved 3,524 SAP SD Benchmark users, equivalent to a throughput of 353,300 fully processed order line items per hour or 17,650 SAPS.**

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[1]All results as of 03-31-2008; details can be found at http://www.sap.com/benchmark
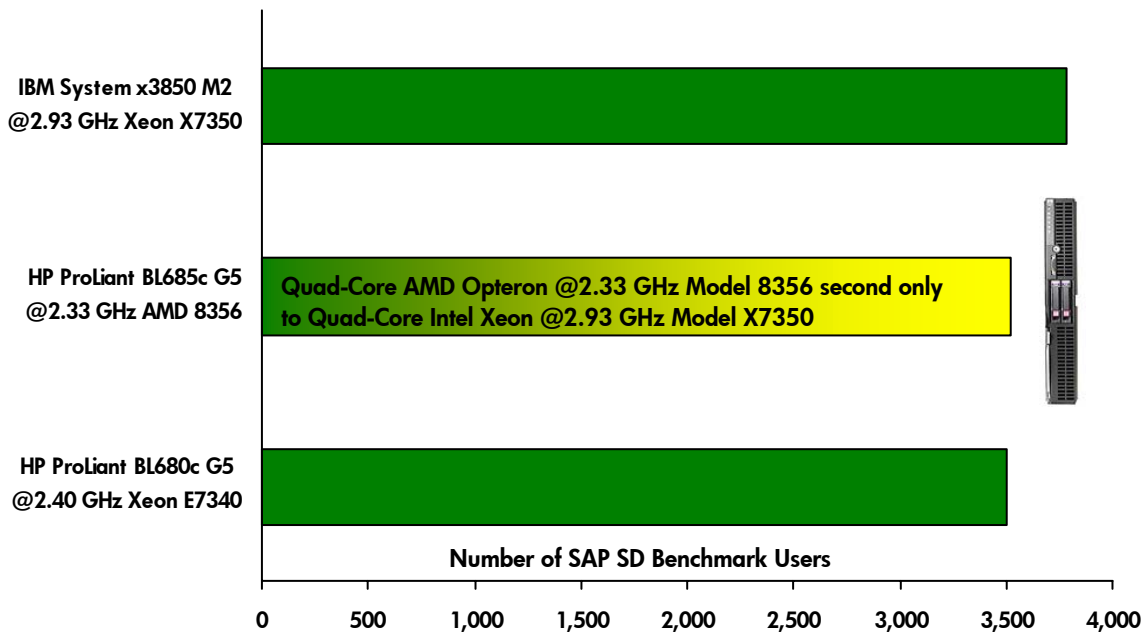
AMD Opteron competitive positioning

The first published Quad-Core AMD Opteron results for ProLiant servers on the two-tier SAP SD Standard Application Benchmark show that customers have multiple choices for achieving quality performance with ProLiant servers and processors. **The following graphs show the leading result for each of several specific processor models.**

Quad-Core Leaders by Processor Model type (2 processor, 8 core, 8 thread)[4]

HP ProLiant BL460c @3.16 GHz Xeon X5460

HP ProLiant DL385 G5 @2.33 GHz AMD 2356
> Quad-Core AMD Opteron @2.33 GHz Model 2356 second only to Quad-Core Intel Xeon @3.16 GHz Model X5460*

HP ProLiant BL460c @3.0 GHz Xeon X5365

Fujitsu Siemens BX620 S4 @2.6 GHz Xeon X5355

Number of SAP SD Benchmark Users

0   500   1,000   1,500   2,000   2,500

Quad-Core Leaders by Processor Model type (4 processor, 16 core, 16 thread)[5]

IBM System x3850 M2 @2.93 GHz Xeon X7350

HP ProLiant BL685c G5 @2.33 GHz AMD 8356
> Quad-Core AMD Opteron @2.33 GHz Model 8356 second only to Quad-Core Intel Xeon @2.93 GHz Model X7350

HP ProLiant BL680c G5 @2.40 GHz Xeon E7340

Number of SAP SD Benchmark Users

0   500   1,000   1,500   2,000   2,500   3,000   3,500   4,000

The servers behind the results

HP ProLiant DL385 G5

The new ProLiant DL385 G5 delivers on the DL385 performance and the DL380's history of design excellence with enterprise-class uptime and manageability, and now with Quad-Core AMD Opteron performance, power efficiency, and 2U density for a variety of rack deployments and applications.

HP ProLiant BL685c G5

The HP ProLiant BL685c G5 server blade delivers no-compromise performance and expansion in the densest four-processor server blade form factor available. With up to four Quad-Core AMD Opteron processors, 64GB of DDR2 memory, two hot plug serial 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.

The HP difference

HP provides all of the tools and services required for customers to plan their deployment of the SAP ERP application as well as the best practices and experience to help implement the application successfully without disruption to business operations. Thousands of deployments of SAP solutions worldwide run mission-critical environments on HP servers.

Unlike many other service providers, HP Services shares with its customers solid expertise in HP technology for flexible management, virtualization, consolidation, and integration of SAP solution-based environments.

In addition:

- HP is a global SAP partner offering leading support for SQL implementations. HP's strong technology capabilities are demonstrated through the results of these benchmarks. HP's SAP Consulting and Integration services practice also has strong expertise with SAP solution-based deployments, and hundreds of successful customer implementations.
- From a platform perspective, HP servers are the market leader in the SQL Server space with nearly 50% share – double our nearest competitor.

SAP and HP Partnership

HP has been partnering with SAP AG for over 20 years and is one of the largest SAP customers in the world. In fact, SAP selected HP output management technology as a recommended strategic platform. Together, SAP and HP created a remarkable legacy providing world-class business solutions to global clients. They offer a unique combination of open, flexible technologies and broad expertise. That's why nearly half of the worldwide implementations of SAP applications run on HP infrastructure.

- HP servers host almost 50% of all SAP solution-based installations with more than 60,000+ installations and more than 25,000 customers.
- HP is a worldwide leader in SAP operations, with 250+ outsourcing customers managing over 850,000 users.
- We integrate, certify, and optimize new solutions by utilizing:
  - Six SAP Solutions Centers located in Atlanta, Georgia and Houston, Texas, USA; and in Asia in Singapore, India, China, and Korea.
  - One SAP Competency Center, Walldorf, Germany.
  - 24x7 support through globally connected SAP support centers in more than 15 countries worldwide.
  - Four engineering labs located in Walldorf, Germany; Houston, Texas, USA; Marlborough, MA., USA; and Redmond, Washington, USA.
- HP uses SAP solutions for Enterprise Resource Planning and Supply Chain Management.

- HP's output management technology is a proven and recommended platform for output management in the context of SAP solutions.
- HP has been awarded SAP's highest level of partnership in 3 out of 4 key areas, including HP's SAP customer support process, which has won both the SAP Pinnacle Award and the SAP Award of Excellence. [2]

Summary

With HP's commitment to standards-based solutions and joint testing of SAP applications on HP systems, HP customers have a wide choice in comprehensive, proven solutions that meet their specific business requirements.

For more information

HP ProLiant DL385 G5: www.hp.com/servers/dl385

HP ProLiant BL685c G5: www.hp.com/servers/bl685c

HP ProLiant storage solutions: www.hp.com/go/serial and
http://h18004.www1.hp.com/products/servers/platforms/storage.html

SAP benchmark details: http://www.sap.com/benchmark

Appendix A

[2]**2-processor ProLiant AMD Opteron scalability graph, page 1**

HP ProLiant DL385 results on the two-tier SAP SD Standard Application Benchmark. The HP ProLiant DL385 **(Certification #2005026)** was configured as a 2-processor server (2 processors/4 cores/4 threads) with Dual-core AMD Opteron 2.2 GHz processors with 128KB L1 cache and 1 MB L2 cache, and 16 GB main memory. The HP ProLiant DL385 server was running the SAP ERP Release 4.70 (64-bit) application with Microsoft Windows Server 2003 Enterprise Edition (64-bit) operating system and Microsoft SQL Server 2000 (32-bit) database and achieved 983 SAP SD Benchmark users, equivalent to a throughput of 98,330 fully processed line items per hour and 4,920 total SAPS.

HP ProLiant BL25p G2 results on the two-tier SAP SD Standard Application Benchmark. The HP ProLiant BL25p G2 **(Certification #2006064)** was configured as a 2-processor server (2 processors/4 cores/4 threads) with AMD Opteron Model 2218 2.6 GHz processors with 128KB L1 cache and 1 MB L2 cache per core, and 16 GB main memory. The HP ProLiant BL25p server was running the mySAP™ ERP 2004 application with Microsoft Windows Server 2003 Enterprise Edition (64-bit) operating system and Microsoft SQL Server 2005 (32-bit) database and achieved 1,047 SAP SD Benchmark users, equivalent to a throughput of 105,000 fully processed line items per hour and 5,250 total SAPS.

HP ProLiant DL365 results on the two-tier SAP SD Standard Application Benchmark. The HP ProLiant DL365 **(Certification #2007006)** was configured as a 2-processor server (2 processors/4 cores/4 threads) with AMD Opteron Model 2220 2.8 GHz processors with 128KB L1 cache and 1 MB L2 cache per core, and 32 GB main memory. The HP ProLiant DL365 server was running SAP ERP 6.0 (formerly known as mySAP ERP 2005) with Microsoft Windows Server 2003 Enterprise Edition operating system and Microsoft SQL Server 2005 database and achieved 1,083 SAP SD Benchmark users, equivalent to a throughput of 108,670 fully processed line items per hour and 5,430 total SAPS.

[3]**4-processor ProLiant AMD Opteron scalability graph, page 1**

The HP ProLiant BL685c server results on the two-tier SAP SD Standard Application Benchmark. The HP ProLiant BL685c server **(Certification #2007007)** was configured as a 4-processor server (4 processors/8 cores/8 threads) with AMD Opteron Model 8220 2.8 GHz processors with 128 KB L1 cache and 1 MB L2 cache per core and 32 GB main memory. The HP ProLiant BL685c server was running SAP ERP 6.0 with Microsoft Windows Server 2003 Enterprise Edition operating system and Microsoft SQL Server 2005 database and achieved 1,987 SAP SD Benchmark users, equivalent to a throughput of 199,000 fully processed line items per hour and 9,950 total SAPS.

The HP ProLiant DL585 G2 server results on the two-tier SAP SD Standard Application Benchmark. The HP ProLiant DL585 G2 server **(Certification #2007034)** was configured as a 4-processor server (4 processors/8 cores/8 threads) with AMD Opteron Model 8222SE 3.0 GHz processors with 128 KB L1 cache and 1 MB L2 cache per core and 32 GB main memory. The HP ProLiant DL585 server was running SAP ERP 6.0 with Microsoft Windows Server 2003 Enterprise Edition operating system and Microsoft SQL Server 2005 database and achieved 2,078 SAP SD Benchmark users, equivalent to a throughput of 210,000 fully processed line items per hour and 10,500 total SAPS.

The HP ProLiant BL685c server results on the two-tier SAP SD Standard Application Benchmark. The HP ProLiant BL685c server **(Certification #2007053)** was configured as a 4-processor server (4 processors/8 cores/8 threads) with AMD Opteron Model 8222 3.0 GHz processors with

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128 KB L1 cache and 1 MB L2 cache per core and 32 GB main memory. The HP ProLiant BL685c server was running SAP ERP 6.0 with Microsoft Windows Server 2003 Enterprise Edition operating system and Microsoft SQL Server 2005 database and achieved 2,100 SAP SD Benchmark users, equivalent to a throughput of 210,670 fully processed line items per hour and 10,530 total SAPS.

[4]**8-core graph, page 2 (DL385 G5 results detailed on page 1)**

The Fujitsu Siemens Computers PRIMERGY Model BX620 S4 server results on the two-tier SAP SD Standard Application Benchmark. The HP Fujitsu Siemens Computers PRIMERGY Model BX620 S4 server **(Certification #2007049)** was configured as a 2-processor server (2 processors/8 cores/8 threads) with Quad-Core Intel Xeon Processors X5365 3.0 GHz with 64 KB L1 cache per core and 4 MB L2 cache per 2 cores and 32 GB main memory. The Fujitsu Siemens Computers PRIMERGY Model BX620 S4 server was running SAP ERP 6.0 with Microsoft Windows Server 2003 Enterprise Edition operating system and Microsoft SQL Server 2005 database and achieved 1,940 SAP SD Benchmark users, equivalent to a throughput of 194,000 fully processed line items per hour and 9,700 total SAPS.

The HP ProLiant BL460c server results on the two-tier SAP SD Standard Application Benchmark. The HP ProLiant BL460c server **(Certification #2007054)** was configured as a 2-processor server (2 processors/8 cores/8 threads) with Quad-Core Intel Xeon Processors X5365 3.0 GHz with 64 KB L1 cache per core and 4 MB L2 cache per 2 cores and 32 GB main memory. The HP ProLiant BL460c server was running SAP ERP 6.0 with Microsoft Windows Server 2003 Enterprise Edition operating system and Microsoft SQL Server 2005 database and achieved 2,080 SAP SD Benchmark users, equivalent to a throughput of 208,000 fully processed line items per hour and 10,4000 total SAPS.

The HP ProLiant BL460c server results on the two-tier SAP SD Standard Application Benchmark. The HP ProLiant BL460c server **(Certification #2007065)** was configured as a 2-processor server (2 processors/8 cores/8 threads) with Quad-Core Intel Xeon Processors X5460 3.16 GHz with 64 KB L1 cache per core and 6 MB L2 cache per 2 cores and 32 GB main memory. The HP ProLiant BL460c server was running SAP ERP 6.0 with Microsoft Windows Server 2003 Enterprise Edition operating system and Microsoft SQL Server 2005 database and achieved 2,449 SAP SD Benchmark users, equivalent to a throughput of 245,000 fully processed line items per hour and 12,250 total SAPS.

[5]**16-core graph, page 2 (BL685c G5 results detailed on page 1)**

The HP ProLiant BL680c G5 server results on the two-tier SAP SD Standard Application Benchmark. The HP ProLiant BL680c G5 server **(Certification #2007055)** was configured as a 4-processor server (42 processors/16 cores/16 threads) with Quad-Core Intel Xeon Processors E7340 2.4 GHz with 64 KB L1 cache per core and 4 MB L2 cache per 2 cores and 642 GB main memory. The HP ProLiant BL680c G5 server was running SAP ERP 6.0 with Microsoft Windows Server 2003 Enterprise Edition operating system and Microsoft SQL Server 2005 database and achieved 3,500 SAP SD Benchmark users, equivalent to a throughput of 351,000 fully processed line items per hour and 17,550 total SAPS.

The IBM x3850 M2 server results on the two-tier SAP SD Standard Application Benchmark. The IBM x3850 M2 server **(Certification #2007068)** was configured as a 4-processor server (4 processors/16 cores/16 threads) with Quad-Core Intel Xeon Processors X7350 2.93 GHz with 64 KB L1 cache per core and 4 MB L2 cache per 2 cores and 64 GB main memory. The IBM x3850 M2 server was running SAP ERP 6.0 with Microsoft Windows Server 2003 Enterprise Edition operating system and IBM DB2 9 database and achieved 3,780 SAP SD Benchmark users, equivalent to a throughput of 378,330 fully processed line items per hour and 18,920 total SAPS.