



HP ProLiant DL580 G5 earns #1 overall four-processor performance; ProLiant BL680c takes #2 four-processor performance on Windows in two-tier SAP® Sales and Distribution Standard Application Benchmark



HP leadership with ProLiant servers



The latest HP ProLiant DL580 G5 rack server is the best in class platform for compute



intensive applications, combining Intel's new multi-core Xeon® processor technology, maximum scalability and high availability features. This four processor server offers unsurpassed flexibility and serviceability in a versatile, 4U, rack-optimized form factor.

The HP ProLiant BL680c G5 server blade is ideal for hosting larger databases, applications and many virtual machines, and delivers no-compromise performance and expansion in one of the densest four processor server blade form factors available.

Customer value

Q. What are the benefits of using HP ProLiant servers and SAP applications?



SAP Standard Application Benchmarks test the hardware and database performance of SAP applications and components.

As one of the largest technology partners for SAP, HP is a global technology partner, software solution partner, global support alliance partner, global services partner, and global hosting partner. HP ProLiant servers consistently earn leading results on the two-tier SAP SD Standard Application Benchmark.

HP ProLiant servers have proven to be reliable and cost-effective. HP servers host almost 50% of all installations of SAP solutions, with more than 55,000 installations and 20,000 customers.

HP BladeSystem infrastructures offer a highly flexible and scalable environment that enables enterprises to embrace change while dramatically reducing their total cost of ownership.

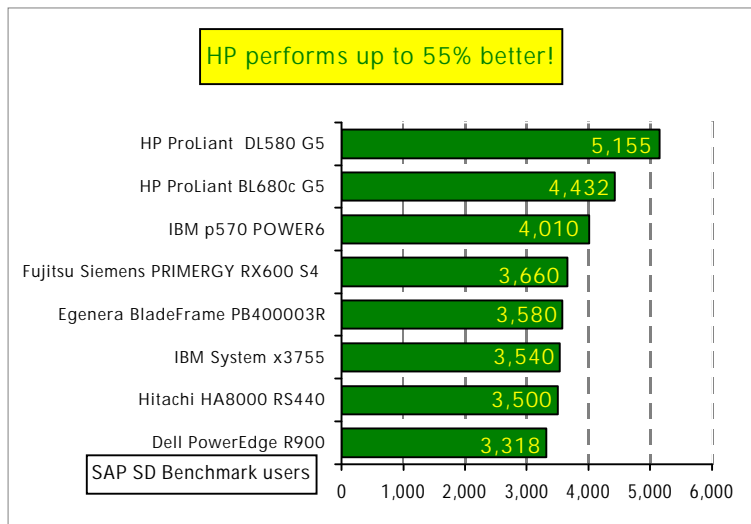
HP's strong technology capabilities for four processors are demonstrated through the results of these benchmarks.

All results as of 09-12-2008. Details can be found at <http://www.sap.com/benchmark>.

Key points

- #1 worldwide four-processor performance on the two-tier SAP® Sales and Distribution (SD) Standard Application Benchmark for the DL580 G5
- #2 worldwide four-processor performance on Windows on the two-tier SAP SD Standard Application Benchmark for the BL680c G5
- 38% scaling from 4-processor 4-core to 4-processor 6-core

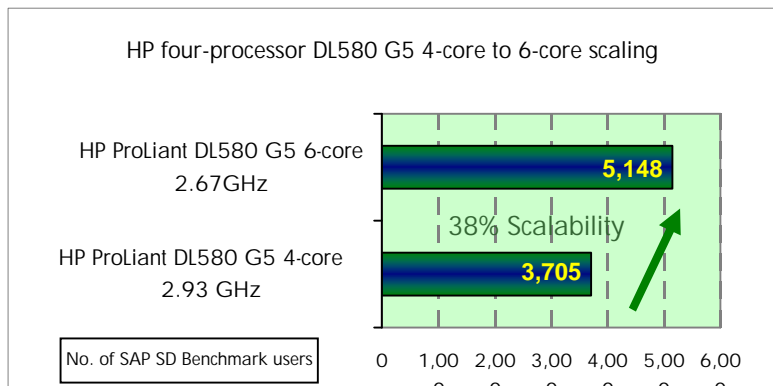
Figure 1. Several four-processor results on SAP SD Standard Application Benchmark (Comparative details in Appendix)



Scalability increases with Multi-Core technology

In addition to achieving the highest number of SAP SD Benchmark users for four-processor servers, the HP ProLiant DL580 G5 showed excellent scalability results with 6-Core processors. The server showed 38% scaling in performance when it achieved 5,155 SAP SD Benchmark users (25,830 SAPS) for its current 6-Core result as compared to the most recent 4-core result of 3,705 SAP SD Benchmark users (18,350 SAPS).

All results as of 09-12-08. Details in Appendix.



HP ProLiant leading four-processor performance results

The HP ProLiant DL580 G5 server achieved performance leadership advantage above other four-processor competitors.

In addition, HP posted the industry's first 6-core results with the ProLiant DL580 G5 and BL680 G5 servers on the two-tier SAP SD Standard Application Benchmark.

HP maintained its leading streak of providing high performance by earning the #1 and #2 spots for four-processors running Microsoft Windows Server 2003 Enterprise Edition x64 on the two-tier SAP SD Standard Application Benchmark. The HP ProLiant DL580 G5 took the #1 four-processor lead with 5,155 SAP SD Benchmark users, equivalent to a throughput of 1,516,670 fully processed order line items per hour and 25,830 SAPS. In addition, the HP ProLiant BL680c G5 attained the #2 four-processor on Windows position with its 4,432 SAP SD Benchmark users, running Microsoft Windows Server 2003 Enterprise Edition x64, equivalent to a throughput of 443,670 fully processed order line items per hour and 22,180 SAPS.

ProLiant server testing configurations

Tests were performed on the HP and ProLiant DL580 G5 rack server and ProLiant BL680c G5 server blade 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 SD Standard Application Benchmark for the ProLiant DL580 G5 (Certification #2008050) and ProLiant BL680c G5 (Certification # 2008049) on September 12, 2008.

The ProLiant DL580 G5 rack server was set up as a four-processor system with four 2.67-GHz 6-Core Intel Xeon X7460 Processors (4 processors/24 cores/24 threads), with 16 MB Cache and 256 GB (32 x 8 GB) FBD main memory. The server was running Microsoft Windows Server 2003 Enterprise Edition x64 SP2 operating system, Microsoft SQL Server 2005 Enterprise Edition x64 SP1 database, and the SAP ERP application Release 6.0. The HP ProLiant DL580 G5 achieved 5,155 SAP SD Benchmark users, equivalent to a throughput of 1,516,670 fully processed order line items per hour or 25,830 SAPS.

The ProLiant BL680c G5 server blade was configured as a four-processor system with four 2.4-GHz 6-Core Intel Xeon X7460 Processors (4 processors/24 cores/24 threads), with 12 MB Cache and 64 GB (32 x 8 GB) FBD main memory. The server was running Microsoft Windows Server 2003 Enterprise Edition x64 SP2 operating system, Microsoft SQL Server 2005 Enterprise Edition x64 SP1 database, and the SAP ERP application Release 6.0. The server was running Microsoft Windows Server 2003 Enterprise Edition x64 SP2 operating system, Microsoft SQL Server 2005 Enterprise Edition x64 SP1 database, and the SAP ERP application Release 6.0. The HP ProLiant BL680c G5 server blade achieved 4,432 SAP SD Benchmark users, equivalent to a throughput of 443,670 fully processed order line items per hour or 22,180 SAPS.

All results as of 09-12-2008; details can be found at <http://www.sap.com/benchmark>

The ProLiant advantage

HP ProLiant DL580 G5

The HP ProLiant DL580 G5 is the best in class platform for compute intensive applications, combining Intel's new multi-core Xeon® processor technology, maximum scalability and high availability features. This four-processor server offers unsurpassed flexibility and serviceability in a versatile, 4U, rack-optimized form factor. Based upon the latest industry standard processing, memory, I/O and networking technologies, the ProLiant DL580 G5 provides the highest levels of performance demanded by today's compute intensive applications and virtualization. Unparalleled high availability features, including hot-plug redundant components, promotes maximum uptime. Remote management is made easy with Integrated Lights-Out 2 (iLO 2) technology which allows remote administration from a standard web-browser without ever having to visit the server. It's highly expandable architecture provides maximum application deployment flexibility with the ability to add PCI-Express, PCI-X or battery-backed write cache options. Innovative features, such as the ability to access processors, memory, hard drives, and power supplies while the unit remains secured in the rack, enable rapid response to service events, radically decreasing overall IT costs and server downtime.

HP ProLiant BL680c G5 server blade

The HP ProLiant BL680c G5 server delivers no-compromise performance and expansion. With two or four Intel Xeon 7400 or 7300 Series processors, 128 GB of fully buffered memory, two hot-plug serial attached SCSI (SAS) or serial ATA (SATA) hard drives, four embedded Gigabit Ethernet adapters and three I/O expansion slots, the HP ProLiant BL680c G5 delivers density with the performance 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 customers its 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 SAP Consulting and Integration services practice also has strong expertise with SAP solution-based deployments, and hundreds of successful customer implementations.

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. 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.¹

HP market leadership¹

HP ProLiant servers and server blades are a vital part of the HP success story. For the 47th consecutive quarter, HP ProLiant is the x86 server market share leader in both factory revenue and units, shipping 1 out of every 3 servers in this market.²

- HP's x86 revenue share was 11.7 points higher than its nearest competitor, Dell.
- HP remains the leading provider of AMD Opteron processor-based servers and server blades, with a 35.8% of factory revenue share.

For the 24th consecutive quarter, 6 years, HP is the #1 vendor in worldwide server shipments. HP shipped 1 out of every 3 servers worldwide as HP captured 33.6 percent total unit shipment share.

- HP shipped over 165,000 more servers than #2 Dell.
- HP shipped over 400,000 more servers than #3 IBM and 8.1 times as many as #4 Sun.

Appendix

Configuration details from Chart 1 versus ProLiant DL580 G5 and BL680c G5 servers:

IBM System p570 results on the two-tier SAP SD Standard Application Benchmark. The IBM System p570 (Certification #2007038) was configured as a 4-processor server (4 processors/8 cores/16 threads) with Dual-Core POWER6 Processors 4.7GHz with 128 KB L1 cache per core, 4 MB L2 cache per core, 32 MB L3 cache per processor, and 64 GB main memory. The server was running SAP ERP 6.0 with AIX 5L Version 5.3 operating system and Oracle 10g database and achieved 4,010 SAP SD Benchmark users, equivalent to a throughput of 402,330 fully processed line items per hour and 20,120 total SAPS.

Fujitsu Siemens Computers PRIMERGY Model RX600 S4 results on the two-tier SAP SD Standard Application Benchmark. The Fujitsu Siemens RX600 (Certification #2008004) 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 server was running SAP ERP 6.0 with Microsoft Windows Server 2003 Enterprise Edition operating system and Microsoft SQL Server 2005 database and achieved 3,660 SAP SD Benchmark users, equivalent to a throughput of 366,330 fully processed line items per hour and 18,320 total SAPS.

Egenera BladeFrame Model PB400003R results on the two-tier SAP SD Standard Application Benchmark. The Egenera BladeFrame PB400003R (Certification #2007075) 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 server was running SAP ERP 6.0 with Microsoft Windows Server 2003 Enterprise Edition operating system and Microsoft SQL Server 2005 database and achieved 3,580 SAP SD Benchmark users, equivalent to a throughput of 360,670 fully processed line items per hour and 18,030 total SAPS.

IBM System x3755 results on the two-tier SAP SD Standard Application Benchmark. The IBM System x3755 (Certification #2008032) was configured as a 4-processor server (4 processors/16 cores/16 threads) with Quad-Core AMD Opteron Processors Model 8356 2.3 GHz with 128 KB L1 cache, 512 MB L2 cache per core, and 2 MB L3 cache per processor, and 64 GB main memory. The server was running SAP ERP 6.0 with Windows Server 2003 operating system and IBM DB2 9.5 database and achieved 3,540 SAP SD Benchmark users, equivalent to a throughput of 354,330 fully processed line items per hour and 17,720 total SAPS.

¹ Source: IDC Worldwide Quarterly Server Tracker May 2008

² Includes Compaq ProLiant from Q196 through Q202 and HP ProLiant from Q302 through Q306.

Hitachi HA8000 Model RS440 results on the two-tier SAP SD Standard Application Benchmark. The Hitachi HA8000 RS440 (Certification #2008028) 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 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 350,330 fully processed line items per hour and 17,520 total SAPS.

Dell PowerEdge R900 results on the two-tier SAP SD Standard Application Benchmark. The Dell PowerEdge R900 (Certification #2008027) 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 94 GB main memory. The server was running SAP ERP 6.0 with Microsoft Windows Server 2003 Enterprise Edition operating system and Microsoft SQL Server 2005 database and achieved 3,318 SAP SD Benchmark users, equivalent to a throughput of 333,670 fully processed line items per hour and 16,680 total SAPS.

ProLiant DL580 G5 Quad-Core scalability configurations and results on the two-tier SAP SD Standard Application Benchmark from Chart 2

ProLiant DL580 G5 September 2007 Quad-Core. The HP ProLiant DL580 G5 (Certification #20070056) was configured as a four-processor server (4 processors/16 cores/16 threads) with Intel Xeon X7350 Quad-Core 2.93GHz processors with 64 KB L1 cache per core and 4 MB L2 cache per 2 cores, and 64 5GB main memory. The HP ProLiant DL580 G5 was running SAP ERP 6.0 with Microsoft Windows Server 2003 Enterprise Edition operating system and Microsoft SQL Server 2005 database and achieved 3,705 SAP SD Benchmark users, equivalent to a throughput of 370,670 fully processed line items per hour and 18,530 total SAPS.

For more information

HP ProLiant DL580 G5: www.hp.com/servers/proliantdl580

HP ProLiant BL680c G5: www.hp.com/servers/bl680c

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>

<http://h71028.www7.hp.com/ERC/downloads/4AA0-9971ENW.pdf> and <http://h71028.www7.hp.com/enterprise/cache/13419-0-0-0-121.html>