HP ProLiant DL785 G5 earns #1 eight-processor Linux OS performance on two-tier SAP® Sales and Distribution Standard Application Benchmark

HP leadership with ProLiant servers

The latest **HP ProLiant DL785 G5 rack server,** the newest and most expandable addition to the award-winning HP ProLiant line, is an 8-socket x86 server, supporting up to 8 AMD Opteron™ Quad-Core processors, 512 GB of memory and 11 PCI-e I/O slots. With this highly scalable feature set the DL785 G5, is an ideal choice for the growing enterprise class database, consolidation and virtualization environments seeking to improve server utilization and reduce server sprawl, while continuing to leverage all the familiar and easy-to-use ProLiant management tools and options.

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 60,000 installations and 25,000 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 are demonstrated through the results of these benchmarks.
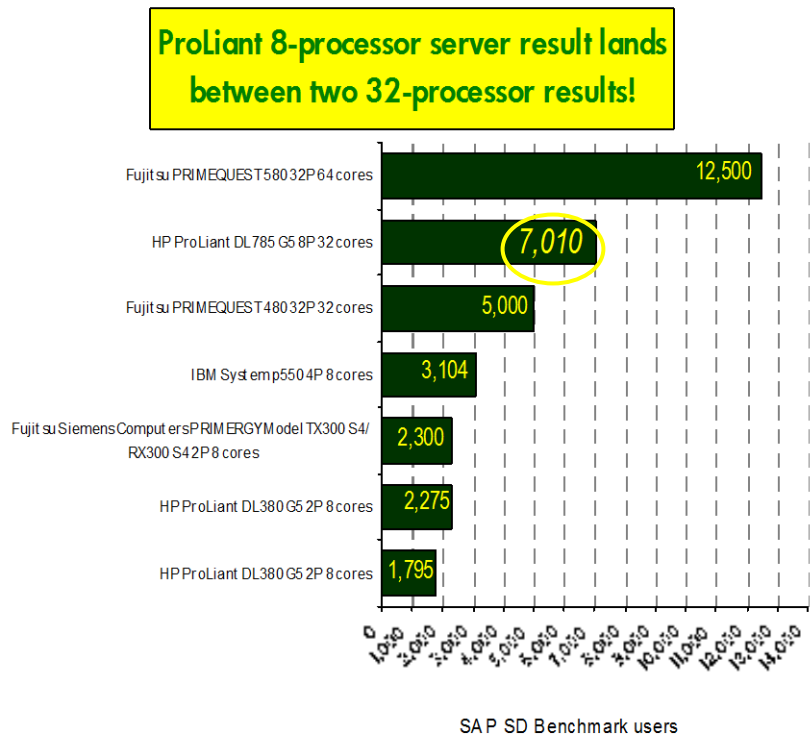
All results as of 11-12-2008. Details can be found at http://www.sap.com/benchmark.

Technology for better business outcomes

Key points regarding this DL785 G5 performance result on two-tier SAP Sales and Distribution (SD) Standard Application Benchmark

- **#1 eight-processor performance with Linux operating system**
- **#1 eight-processor/32-core performance**

Figure 1. Top results on two-tier SAP® SD Standard Application Benchmark for servers running Linux OS (comparative details in Appendix)[1]

ProLiant 8-processor server result lands between two 32-processor results!

Server	SAP SD Benchmark users
Fujitsu PRIMEQUEST 580 32P 64 cores	12,500
HP ProLiant DL785 G5 8P 32 cores	7,010
Fujitsu PRIMEQUEST 480 32P 32 cores	5,000
IBM System p550 4P 8 cores	3,104
Fujitsu Siemens Computers PRIMERGY Model TX300 S4/RX300 S4 2P 8 cores	2,300
HP ProLiant DL380 G5 2P 8 cores	2,275
HP ProLiant DL380 G5 2P 8 cores	1,795

SAP SD Benchmark users

All results as of 11-12-08. Details in Appendix.

*Note: The DL785 G5 has posted the only eight-processor result on Linux with the two-tier SAP SD Standard Application Benchmark.

Interpreting the performance results

Leading performance at a lower cost for some software licenses

Because some server software, such as Microsoft® server software, is licensed by number of processors and not by number of cores, the DL785 G5 may help the customer to achieve desired performance with lower software costs with eight processors as compared to servers that need larger numbers of processors to achieve similar performance. The next best 32-core performance result on the two-tier SAP SD Benchmark is a Sun 16-processor result at just 4 percent higher user count of 7,300 SAP SD Benchmark users (36,570 SAPS) than that achieved by the HP ProLiant DL785 G5. [2]

8-Processor/32-Core overall leader

In addition to achieving #1 eight-processor performance for servers running Linux operating system on the two-tier SAP SD Standard Application Benchmark, the HP ProLiant DL785 G5 server achieved the highest number of SAP SD Benchmark users overall in the 8-processor and 32-core category on the two-tier SAP SD Standard Application Benchmark. This result exceeded by 6 percent or 395 users (2,300 SAPS) the previous 8-processor/32-core result achieved by the IBM System x3950 M2 running Microsoft ® Windows® Server 2003 operating system and IBM DB2 9.5 database.

Figure 2. #1 eight-processor/32-core performance (details in Appendix)[3]
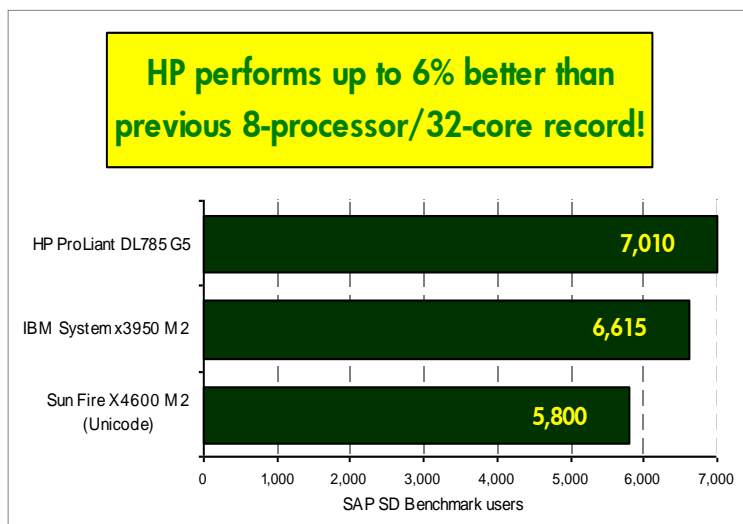
ProLiant server testing configurations

Tests were performed on the HP ProLiant DL785 G5 rack server and by HP's Marlboro Solution Alliances SAP Engineering lab in Marlboro, MA. HP received certification from SAP AG of the results on the two-tier SAP SD Standard Application Benchmark for the ProLiant DL785 G5 (Certification #2008064).

The ProLiant DL785 G5 rack server was set up as an eight-processor system with eight 2.7-GHz Quad-Core AMD Opteron 8384 Processors (8 processors/32 cores/32 threads), with 128 KB L1 cache and 512 KB L2 cache per core, 6MB L3 cache per processor, and 128 GB (32 x 4 GB) FBD main memory. The server was running SuSE 10 SP2 operating system, Oracle 10g database, and the SAP ERP application Release 6.0. The HP ProLiant DL785 G5 achieved 7,010 SAP SD Benchmark users, equivalent to a throughput of 708,000 fully processed order line items per hour or 35,400 SAPS.

All results as of 11-12-2008; details can be found at http://www.sap.com/benchmark

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.[i]

Appendix

[1]Configuration details from Figure 1 versus ProLiant DL785 G5 server

Fujitsu PRIMEQUEST 580 results on the two-tier SAP SD Standard Application Benchmark. The Fujitsu PRIMEQUEST 580 (Certification #2006071) was configured as a 32-processor server (32 processors/64 cores/128 threads) with Dual-Core Intel® Itanium® 2 9050 processors 1.6 GHz with 32 KB + 32 KB L1 cache, 2 MB + 512 KB L2 cache, and 24 MB L3 cache, and 512 GB main memory. The Fujitsu PRIMEQUEST 580 was running the mySAP™ ERP 2004 application with SuSE Linux Enterprise Server 9 operating system and Oracle 10g database and achieved 12,500 SAP SD Benchmark users, equivalent to a throughput of 1,268,000 fully processed line items per hour and 63,400 total SAPS.

Fujitsu PRIMEQUEST 480 results on the two-tier SAP SD Standard Application Benchmark. The Fujitsu PRIMEQUEST 480 (Certification #2006023) was configured as a 32-processor server (32 processors/32 cores/32 threads) with Intel Itanium 2 9050 processors 1.6 GHz with 32 KB L1 cache, 256 KB L2 cache, and 9 MB L3 cache, and 256 GB main memory. The Fujitsu PRIMEQUEST 480 was running mySAP ERP 2004 with SuSE Linux Enterprise Server 9 operating system and Oracle 9i database and achieved 5,000 SAP SD Benchmark users, equivalent to a throughput of 501,000 fully processed line items per hour and 25,050 total SAPS.

IBM System p550 results on the two-tier SAP SD Standard Application Benchmark. The IBM System p550 (Certification #2008002) was configured as a four-processor server (4 processors/8 cores/16 threads) with IBM POWER6 4.2 GHz processors with 128 KB L1 cache, 4 MB L2 cache per core, and 32 MB L3 cache per processor, and 64 GB main memory. The IBM System p550 was running SAP ERP 6.0 with Redhat Enterprise Linux 5 operating system and IBM DB2 9.5 database and achieved 3,104 SAP SD Benchmark users, equivalent to a throughput of 312,670 fully processed line items per hour and 15,630 total SAPS.

Fujitsu Siemens Computers PRIMERGY TX300 S4 / RX300 S4 results on the two-tier SAP SD Standard Application Benchmark. The Fujitsu Siemens Computers PRIMERGY TX300 S4 / RX300 S4 (Certification #2008039) was configured as a two-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 Fujitsu Siemens Computers PRIMERGY TX300 S4 / RX300 S4 was running SAP ERP 6.0 and SuSE Linux Enterprise Server 10 operating system and MaxDB 7.7 database and achieved 2,300 SAP SD Benchmark users, equivalent to a throughput of 230,330 full processed line items per hour and 11,520 total SAPS.

HP ProLiant DL380 G5 results on the two-tier SAP SD Standard Application Benchmark. The HP ProLiant DL380 G5 (Certification #2008025) was configured as a two-processor server (2 processor/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 DL380 G5 was running SAP ERP 6.0 and SuSE Linux Enterprise Server 10 and MaxDB 7.7 database and achieved 2,275 SAP SD Benchmark users, equivalent to a throughput of 228,000 fully processed line items per hour and 11,400 total SAPS.

HP ProLiant DL380 G5 results on the two-tier SAP SD Standard Application Benchmark. The HP ProLiant DL380 G5 (Certification #2007028) was configured as a two-processor server(2 processor/8 cores/8 threads) with Quad-Core Intel Xeon Processors X5355 2.66 GHz with 64 KB L1 cache per core and 4 MB L2 cache per 2 cores and 32 GB main memory. The HP ProLiant DL380 G5 was running SAP ERP 6.0 and SuSE Linux Enterprise Server 10 and Oracle 10g database and achieved 1,795 SAP SD Benchmark users, equivalent to a throughput of 180,000 fully processed line items per hour and 9,000 total SAPS.

[2]Sun SPARC Enterprise Server M8000 results versus ProLiant DL785 G5 server

Sun SPARC Enterprise Server Model M8000 results on the two-tier SAP SD Standard Application Benchmark. The Sun SPARC Enterprise Server Model M8000 (Certification #2007026) was configured as a sixteen-processor server (16 processors/32 cores/64 threads) with SPARC64 VI 2.4 GHz processors with 256 KB L1 cache per core and 6 MB L2 cache per processor, and 256 GB main memory. The Sun SPARC M8000 was running SAP ERP 6.0 and Solaris 10 operating system and Oracle 10g database and achieved 7,300 SAP SD Benchmark users, equivalent to a throughput of 731,330 fully processed line items per hour and 36,570 total SAPS.

³Configuration details from Figure 2 versus ProLiant DL785 G5

IBM System x3950 M2 results on the two-tier SAP SD Standard Application Benchmark. The IBM System x3950 M2 (Certification #2008035) was configured as an eight-processor server (8 processors/32 cores/32 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 128 GB main memory. The server was running SAP ERP 6.0 with Microsoft Windows Server 2003 Datacenter Edition operating system and IBM DB2 9.5 database and achieved 6,015 SAP SD Benchmark users, equivalent to a throughput of 662,000 fully processed line items per hour and 33,100 total SAPS.

Sun Fire X4600 M2 results on the two-tier SAP SD Standard Application Benchmark. The Sun Fire X4600 M2 (Certification #2008026) was configured as an eight-processor server (8 processors/32 cores/32 threads) with AMD Opteron Quad-Core processors 8360SE 2.5 GHz with 128 KB L1 cache and 512 KB L2 cache per core, 2 MB L3 cache per processor, and 128 GB main memory. The Sun Fire X4600 M2 was running SAP ERP 6.0 (Unicode) with Solaris 10 operating system and MaxDB 7.6 database and achieved 5,800 SAP SD Benchmark users, equivalent to a throughput of 593,330 fully processed line items per hour and 29,670 total SAPS.

For more information

HP ProLiant DL785 G5: www.hp.com/servers/proliantdl785
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

---

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