



HP ProLiant BL460c G6 achieves #1 two-processor Windows result on two-tier SAP® Sales and Distribution Standard Application Benchmark with SAP Enhancement Package 4 for SAP ERP 6.0



HP ProLiant DL380 G6 earns #2 spot. New generation ProLiant servers run Windows 2008.

HP Leadership with ProLiant servers



» The HP ProLiant BL460c G6 server blade to provide enterprise-class features for high performance and reliability without compromising energy efficiency or density.



» The latest HP ProLiant DL380 G6 rack server extends its history of design excellence with enterprise-class uptime and manageability, proven two-processor Intel Xeon performance, and 2U density.

Customer Value

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

HP ProLiant servers consistently deliver excellent performance results on two-tier SAP SD Standard Application Benchmarks.

HP ProLiant servers have also proven to be reliable and cost-effective. HP servers host almost half of all installations of SAP solutions.

HP runs SAP benchmarks, testing different business application scenarios on specific hardware. The primary objective is to use the results to determine an optimal hardware configuration for a customer system. The benchmarks analyze system configurations and parameter settings.

With the HP ProLiant BL460c G6 and ProLiant DL380 G6 servers running SAP applications that optimize business operations, no matter where they're located or who they involve, customers can deliver their services while operating their environment—without compromising reliability, performance, or growth.

All results as of 03/30/2009. Details can be found at <http://www.sap.com/benchmark>



Technology for better business.

Key Points

- » The HP ProLiant BL460c G6 earned a #1 two-processor performance result for the two-tier SAP® Sales and Distribution (SD) Standard Application Benchmark running on the SAP enhancement package 4 for the SAP ERP application Release 6.0 on Windows, achieving 3,310 SAP SD Benchmark users with 18,070 SAPs. The ProLiant DL380 G6 also posted a leading two-processor performance spot for the two-tier SAP SD Standard Application Benchmark, achieving 3,300 SAP SD Benchmark users with 18,030 SAPs. Both benchmarks ran Microsoft Windows Server 2008 Enterprise Edition with Microsoft SQL Server 2008 Enterprise Edition.
- » In addition, and continuing its legacy as a two-processor performance leader, the HP ProLiant DL380 G6 recently achieved 4,995 SAP SD Benchmark users with 25,000 SAPs on the two-tier SAP Sales and Distribution (SD) Standard Application Benchmark on SAP ERP 6.0 and Microsoft Windows Server 2003 with Microsoft SQL Server 2005.
- » The HP ProLiant DL380 server maintains its dominant share in the 2U, two-processor Microsoft Windows market with its innovative Generation 6 features and key options that allow for greater system efficiency, flexibility, and scalability.
- » Also, the performance scalability for Quad-Core processors for the ProLiant DL380 G6 was 98% better when compared to its previous Quad-Core generation.

All details for above points can be found on the following pages of this paper.

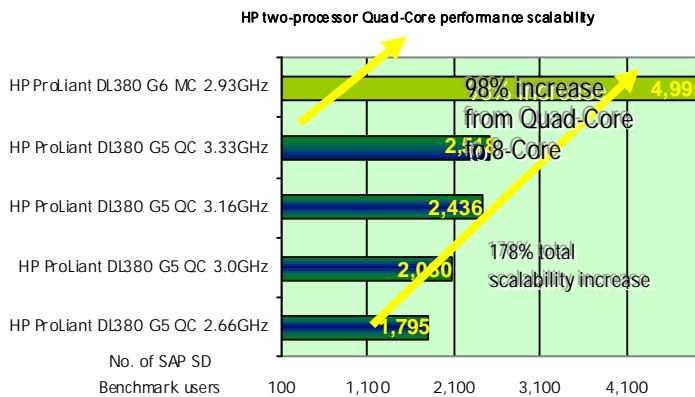
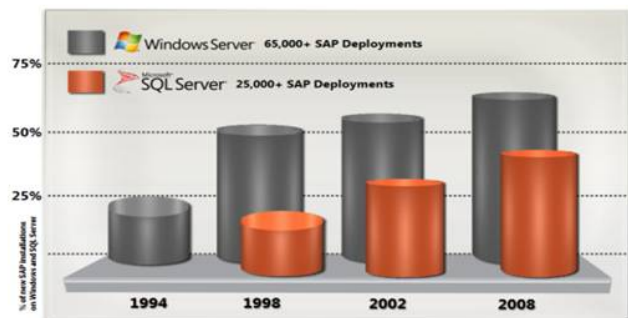


Figure 1. HP ProLiant DL380 G5/G6 QC performance scalability results compared to the last four generations. For more details, please see page 3.

The Market Leadership Advantage of Solutions from HP and SAP

In 2008, more than half of all new systems running SAP solutions were installed with Microsoft Windows. And more than half of the new installations of SAP applications on Windows were installed on Microsoft SQL Server. HP servers host more than 50% of all installations of SAP solutions, with more than 60,000 installations and



25,000 customers. These figures show that HP, with SAP, has a leading market share with SAP solutions on Microsoft Windows and Microsoft SQL Server. In addition, the HP ProLiant DL380 G6 is the best-selling server in the world, a proof point demonstrating customers trust and depend on the server for its continuance in delivering on its heritage of engineering excellence with increased flexibility and performance, enterprise-class uptime, and manageability.

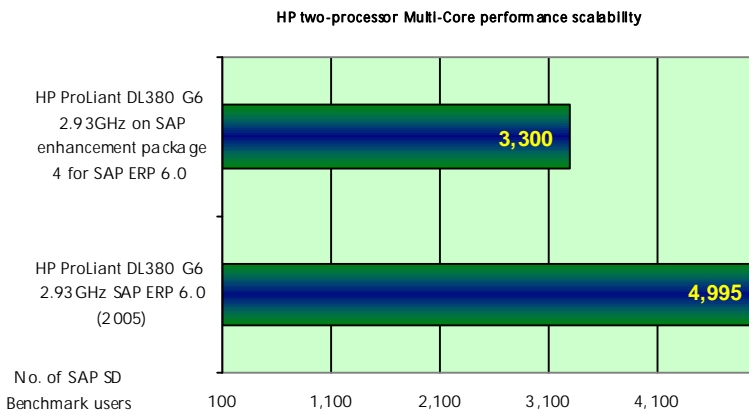
What's New

The SAP SD Standard Application Benchmark was performed in Houston, Texas, on the ProLiant BL460c G6 and ProLiant DL380 G6 configured with several variables from its previous benchmark in December 2008. These variables include an SAP update to the SAP SD Standard Application Benchmark and the usage of Microsoft Windows Server 2008 Enterprise Edition and Microsoft SQL Server 2008 Enterprise Edition. In addition, the benchmark utilized the ProLiant BL460c with its latest generation, G6.

SAP Enhancement Package 4 for SAP ERP 6.0

On January 1, 2009, SAP upgraded the SAP SD Standard Application Benchmark to the SAP enhancement package 4 for the SAP ERP application Release 6.0, part of SAP Business Suite 7 software. These enhancements make the SAP SD Standard Application Benchmark more resource intensive, which has a direct impact on the benchmark results, according to SAP. The steps of the benchmark scenario remain unchanged. The updates include utilizing a Unicode codepage, a change in the subsecond response time to below one second, use of the new general ledger, and the activation of credit limit check functionality that marks a date of change for the SAP ERP benchmarks.¹

Figure 2. Comparison of ProLiant DL380 G6 performance utilizing SAP enhancement package 4 for SAP ERP 6.0 and without



Although the ProLiant DL380 G6 showed less performance with the SAP enhancement package 4 for SAP ERP while running Microsoft Windows Server 2008 and Microsoft SQL Server 2008 when compared to an earlier leading result without the upgrade running Microsoft Windows Server 2003 Enterprise Edition x64 SP2 and Microsoft SQL Server Enterprise Edition 2005 x64 SP1, the outcome is still a leading result.

Table 1. Comparison of ProLiant DL380 G6 performance with variables.

	DL380 G6 with Enhancement Package 4 for SAP ERP 6.0	DL380 G6 with SAP ERP 6.0
Number of SAP SD Benchmark users	3,300	4,995
Fully processed order line items per hour	360,670	500,000
SAPS	18,030	25,000
Operating System	Microsoft Windows Server 2008 Enterprise Edition	Microsoft Windows Server 2003 Enterprise Edition x64 SP2
Database System	Microsoft SQL Server Enterprise Edition 2008	Microsoft SQL Server Enterprise Edition 2005 x64 SP1

¹ <http://www.sap.com/solutions/benchmark/pdf/January2009newsfaq.pdf>

HP performance scalability increases with Quad-Core technology, new server generation

In addition to achieving leading performance results on the two-tier SAP SD Standard Application Benchmark on Windows, the ProLiant DL380 G6 rack server showed excellent two-processor performance scalability results with its next server generation and with the next generation of Quad-Core processors.

The ProLiant DL380 server showed a 98% increase in performance when it achieved 4,995 SAP SD Benchmark users (25,000 SAPS) for its Quad-Core result from its previous result of 2,518 SAP SD Benchmark users (12,600 SAPS). Overall, the ProLiant DL380 server showed a performance scalability progression of 178% going from a Quad-Core 2.66GHz result with 1,795 SAP SD Benchmark users (9,000 SAPS) to the 4,995 SAP SD Benchmark users (25,000 SAPS) result.

All results as of 03-30-09. Details in Appendix A.

Table 2. Comparison of performance scalability from processor generation progression.

	Number of SAP SD Benchmark users	Scalability from one processor to the next
ProLiant DL380 G6 QC 2.93GHz	4,995	98% performance improvement
ProLiant DL380 G5 QC 3.33GHz	2,518	3% performance improvement
ProLiant DL380 G5 QC 3.16GHz	2,436	17% performance improvement
ProLiant DL380 G5 QC 3.0GHz	2,080	15% performance improvement
ProLiant DL380 G5 QC 2.66GHz	1,795	178% total performance improvement from DL380 G5 QC 2.66GHz to DL380 G6 MC 2.93GHz

The HP ProLiant G6 Advantage



ProLiant BL460c G6. The VALUE you get with the new HP ProLiant BL460c G6:

Trusted: The HP ProLiant BL460c is the most popular blade in the world, representing 1 in 4 of all new blades deployed.

Compatible: From Windows and Linux to Citrix XenServer and VMWare, the ProLiant BL460c supports the broadest array of operating systems and applications of any blade.

Performance: New high-performance with Intel X5570 processors and 10 gigabit Ethernet adapters.

Capacity: Up to 96GB of DDR3 memory with 2X the memory footprint.

Flexibility: Storage options include hot-plug SAS drives, iHypervisors, Direct Attach Shared storage, iSCSI and SAN attach, and more.

HP Innovation with Fine-Tune Networking: Flex-10 Technology to reduce network costs.

More Control and Efficiency: Power Capping and Insight Dynamics – VSE, Solid State Drives, Modular Smart Array Controllers, and Trusted Platform Module.

ProLiant DL380 G6. Known as the versatile, dependable workhorse, the HP ProLiant DL380 G6 2P rack server has unmatched flexibility with a vast array of applications that is sold to businesses of all sizes. And with the latest ProLiant DL380 generation, G6, comes the opportunity to continue the DL380 leadership with a server that:

- is flexible, ready to deploy for complex, dynamic environments
- has increased performance and durability
- is focused on energy efficiency

The ProLiant DL380 G6 includes features that provide:

- Leading Efficiency
 - Increased power efficiency over G5
 - Ultimate power management
 - Right-sized power supplies
- Extreme adaptability
 - Flexible storage – with more servers with a choice of LFF or SFF drives and a choice of SDD support
 - Common power slot – which reduces the number of spares needed and simplifies ordering
 - Flexible I/O – more slots/more I/O choice (PCI-E x8, x16, and PCI-X), and more 10GbE options
 - Flexible Smart Array Controller – mix and match cache with batteries for performance and availability
- Scalable Performance
 - Application needs are changing
 - Configure to get the most out of the application
 - Common design for simple (File/Print) to complex (Virtualization)

ProLiant server testing configurations on the two-tier SAP SD Standard Application Benchmark

The ProLiant BL460c G6 server blade was set up as a two-processor system with two 2.93GHz Quad-Core Intel Xeon X5570 Processors (2 processors/8 cores/16 threads), with 64 KB L1 cache and 256 KB L2 cache per core, 8MB L3 cache per processor, and 48GB main memory. The server was running Microsoft Windows Server 2008 Enterprise Edition operating system, Microsoft SQL Server Enterprise Edition 2008 database, and the SAP enhancement package 4 for SAP ERP 6.0. The HP ProLiant BL460c G6 achieved 3,310 SAP SD Benchmark users, equivalent to a throughput of 361,330 fully processed order line items per hour or 18,070 SAPS. The server also utilized one Smart Array P410i/512MB BBWC to 2 x 72GB 15K SAS internal drives and one QLogic HBA to an MSA2012fc with 12 x 146GB 15K SAS external drives. (Certification No. 2009003)

The ProLiant DL380 G6 rack server was also configured as a two-processor system with two 2.93GHz Quad-Core Intel Xeon X5570 Processors (2 processors/8 cores/16 threads), with 64 KB L1 cache and 256 KB L2 cache per core, 8MB L3 cache per processor, and 48GB main memory. The server was running Microsoft Windows Server 2008 Enterprise Edition operating system, Microsoft SQL Server Enterprise Edition 2008 database, and the SAP enhancement package 4 for SAP ERP 6.0. The HP ProLiant DL380 G6 achieved 3,300 SAP SD Benchmark users, equivalent to a throughput of 360,670 fully processed order line items per hour or 18,030 SAPS. The server also utilized one Smart Array P410i/512MB BBWC to 8 x 72GB 15K SAS internal drives and one Smart Array P800/512MB to an MSA70 with 25 x 72GB 15K SAS external drives. (Certification No. 2009004)

All results as of 03/30/2009. 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 solution-based 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 and one SAP Competency Center in Walldorf, Germany.
 - 24x7 support through globally connected support centers in support of SAP solutions in more than 15 countries worldwide.
 - Four engineering labs located in Walldorf, Germany; Houston, Texas, USA; Marlborough, MA., USA; and Redmond, Washington, USA.

For more information

HP ProLiant BL460c G6: www.hp.com/servers/proliantbl460c

HP ProLiant DL380 G6: www.hp.com/servers/proliantdl380

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

ProLiant DL380 Quad-Core scalability configurations and results on two-tier SAP SD Standard Application Benchmark

ProLiant DL380 G6 December 2008 Quad-Core. The ProLiant DL380 G6 (Certification #2008071) was set up as a two-processor system with two 2.93GHz Quad-Core Intel Xeon X5570 Processors (2 processors/8 cores/16 threads), with 64 KB L1 cache and 256 KB L2 cache per core, 8MB L3 cache per processor, and 48GB 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 SAP ERP 6.0. The HP ProLiant DL380 G6 achieved 4,995 SAP SD Benchmark users, equivalent to a throughput of 500,000 fully processed order line items per hour or 25,000 SAPS. The server also utilized one Smart Array P410i/512MB BBWC to 8 x 72GB 15K SAS internal drives and one Smart Array P800/512MB to an MSA70 with 25 x 72GB 15K SAS external drives.

ProLiant DL380 G5 September 2008 Quad-Core. The HP ProLiant DL380 G5 (Certification #20070079) was configured as a two-processor server (2 processors/8 cores/8 threads) with Quad-Core Intel Xeon X5470 Processors 3.33GHz with 64KB L1 cache per core and 6MB L2 cache per 2 cores, and 32GB main memory. The HP ProLiant DL380 G5 was running SAP ERP 6.0 with Microsoft Windows Server 2003 Enterprise Edition operating system and Microsoft SQL Server 2005 database and achieved 2,518 SAP SD Benchmark users, equivalent to a throughput of 252,000 fully processed line items per hour and 12,600 total SAPS.

ProLiant DL380 G5 November 2007 Quad-Core. The HP ProLiant DL380 G5 (Certification #20070064) was configured as a two-processor server (2 processors/8 cores/8 threads) with Quad-Core Intel Xeon X5460 Processors 3.0GHz with 64KB L1 cache per core and 6MB L2 cache per 2 cores, and 32GB main memory. The HP ProLiant DL380 G5 was running SAP ERP 6.0 with Microsoft Windows Server 2003 Enterprise Edition operating system and Microsoft SQL Server 2005 database and achieved 2,436 SAP SD Benchmark users, equivalent to a throughput of 243,670 fully processed line items per hour and 12,180 total SAPS.

ProLiant DL380 G5 November 2007 Quad-Core. The HP ProLiant DL380 G5 (Certification #20070057) was configured as a two-processor server (2 processors/8 cores/8 threads) with Quad-Core Intel Xeon X5365 Processors 3.0GHz with 64KB L1 cache per core and 4MB L2 cache per 2 cores, and 32GB main memory. The HP ProLiant DL380 G5 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 208,670 fully processed line items per hour and 10,430 total SAPS.

ProLiant DL380 G5 April 2007 Quad-Core. The HP ProLiant DL380 G5 (Certification #20070028) was configured as a two-processor server (2 processors/8 cores/8 threads) with Quad-Core Intel Xeon X5355 Processors 2.66GHz with 64KB L1 cache per core and 4MB L2 cache per 2 cores, and 32GB main memory. The HP ProLiant DL380 G5 was running SAP ERP 6.0 with SUSE Linux Enterprise Server 10 operating system and Oracle 10g database and achieved 1,795 SAP SD Benchmark users, equivalent to a throughput of 180,000 fully processed order line items per hour and 9,000 SAPS.

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