

HP holds #1 position for two-processor Linux performance on the two-tier SAP® Sales and Distribution (SD) Standard Application Benchmark with the HP ProLiant DL380 G5 using SAP MaxDB™ and SUSE Linux Enterprise Server



The HP Difference

The newest Quad-Core Intel Xeon version of the HP ProLiant DL380 G5 model is designed for improved server responsiveness, enhanced multi-tasking capabilities, and improved performance for the most demanding applications and virtualization projects.

The servers use the latest Intel x5460 45 nm Quad-Core technology.

Key results at a glance:

- Continued ProLiant leadership with the #1 two-processor Linux performance results on the two-tier SAP® Sales and Distribution (SD) Standard Application Benchmark running the SAP MaxDB™ database and Novell SUSE® Linux Enterprise Server. The HP ProLiant DL380 G5 also holds the #2 two-processor Linux performance result.¹
- The HP ProLiant DL380 G5, optimized with SAP MaxDB and SUSE Linux Enterprise Server into one package, helps midsize companies drive down TCO with higher performance.
- The benchmark results show a 26.7% increase in performance for the HP ProLiant DL380 G5 when compared to its previous Quad-Core benchmark results.¹
- The performance result displays how the HP ProLiant two-processor servers (2 processors / 8 cores / 8 threads) optimize the latest Quad-Core Intel® Xeon® technology utilizing the x5460 series processors.

HP 2P, Quad-Core ProLiant DL380 G5 servers take the lead

... AGAIN



HP ProLiant DL380 G5

More information about SAP benchmark results for all servers can be found at the following

Web page:

<http://www.sap.com/benchmark>

SME Customer Benefits

HP recognizes that to succeed in the Small, Midsize Enterprise (SME) business market, hardware and software vendors must have optimized combined components for performance and manageability while also reducing complexity and total cost of ownership (TCO). With the HP ProLiant DL380 G5 using Intel Xeon processors; SAP MaxDB, that offers a complete set of administration and development tools for small businesses and midsize companies; and the flexibility of the SUSE Linux Enterprise Server operating system solution from Novell, the vendors have addressed this need in the market for rapid and simple implementation, yet scalable, high-performing solutions.

Midsize companies are expected to see significant benefits from this comprehensive offer, as it allows quick time to deployment of end-to-end business processes with high performance at a low cost.

Although some analysts believe this type of proposal may not be easy, the HP ProLiant DL380 G5 performance result on the two-tier SAP SD Standard Application Benchmark, using SUSE Linux Enterprise Server and SAP MaxDB, illustrates that such an offering can be done and done well. Taking first position in the two-processor Linux class for the highest number of SAP SD Benchmark users, the HP ProLiant DL380 G5 delivers the in-depth functionality customers need to run their entire business efficiently. HP continues to demonstrate why the HP ProLiant DL380 G5 is the world's best selling server.

¹ Results for data listed on Appendix A in this document

Scalability increases with Quad-Core technology

In addition to highest number of users, the HP ProLiant DL380 G5 also showed excellent two-processor scalability results with the next generation of Quad-Core processors on the two-tier SAP SD Standard Application Benchmark. The server showed a 26.7% increase in performance when it achieved 2,275 SAP SD Benchmark users (11,400 SAPS) for its current Quad-Core result from its previous result of 1,795 SAP SD Benchmark users (9,000 SAPS).

All results as of 04-30-08. Details in Appendix A.

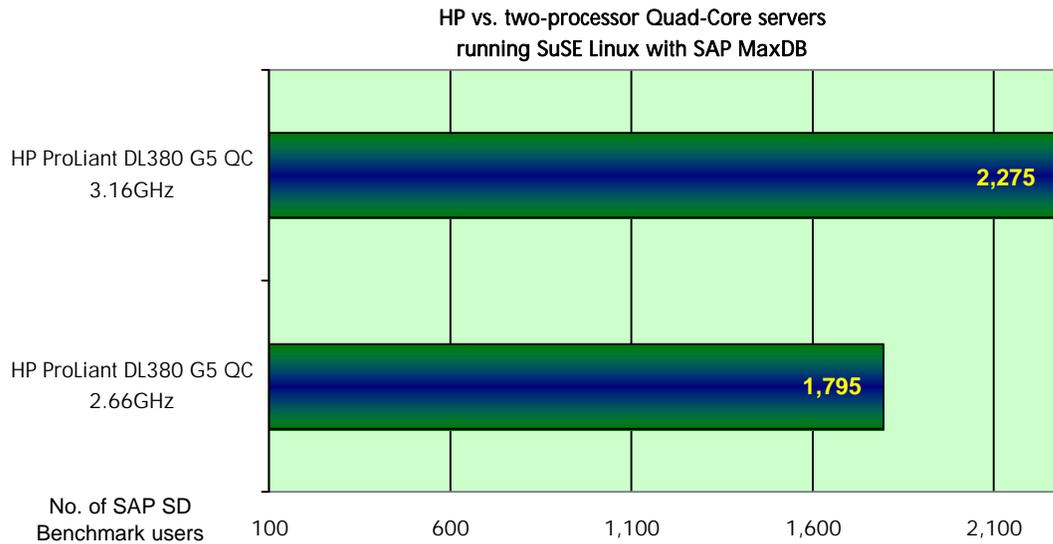


Figure 1. Comparison of performance results of the HP ProLiant DL380 G5 two-processor Quad-Core servers on the two-tier SAP SD Standard Application Benchmark. (All results as of 4-30-08. Details in Appendix A.)

ProLiant server configurations

The HP ProLiant DL380 G5 rack server, with its history of design excellence, maintained its leading streak of providing high performance by earning the #1 and #2 spots for two-processors running SUSE Linux Enterprise Server on the two-tier SAP SD Standard Application Benchmark. The HP ProLiant DL380 G5 took the #1 lead with 2,275 SAP SD Benchmark users, equivalent to a throughput of 684,000 fully processed order line items per hour and 11,400 SAPS. In addition, the HP ProLiant DL380 G5 also retained second position with its 1,795 SAP SD Benchmark users, running Novell SUSE Linux Enterprise Server, equivalent to a throughput of 180,000 fully processed order line items per hour and 9,000 SAPS.

The benchmark was performed by HP's SAP Engineering lab in Nashua, NH. HP received certification from SAP AG for the HP ProLiant DL380 G5 (#2008025) on April 30, 2008. The server was running Novell SUSE Linux Enterprise Server 10 SP1 with SAP MaxDB Release 7.7 and the SAP ERP Release 6.0 application. The server was configured with 2 x 3.16GHz Quad-Core Intel Xeon x5460 processors (2 processors/8 cores/8 threads), with 2 x 6MB L2 cache per 2 cores and 32GB main memory.

The HP ProLiant DL380 G5 used an HP Smart Array P400i Controller connected to 8 x 72GB 15K SAS internal drives, a Smart Array P800 Controller connected to an HP MSA70 storage cabinet with 25 x 72GB 15K SAS external drives and a Smart Array P600 Controller connected to an HP MSA50 storage cabinet with 10 x 72GB 15K SAS external drives.

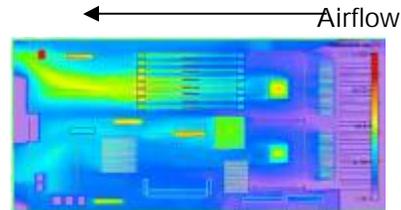
The HP ProLiant Advantage

HP SFF SAS: leading the future of storage



The transition to SFF SAS drives appears as one of the most significant transitions in the industry's history, fueled by the biggest required increase in storage capacity ever experienced along with the need for faster access to stored data.

- Higher reliability
 - 1.7 million mean time between failures (MTBF) vs. 1.5 million for 3.5" SCSI
- Better performance
 - Serial point-to-point connections
 - More spindles per platform
- Greater efficiency and improved thermals with SFF drives
 - Half the power consumption – 9 Watts
 - SFF enables better airflow



HP Smart Array Controller P400

The HP Smart Array P400, used by the HP ProLiant DL380 G5 in this benchmark, is HP's first PCI-E SAS RAID controller and provides new levels of performance and reliability for HP servers, through its support of the latest SCSI technology and advanced RAID capabilities. The Smart Array P400 is ideal for SAS-based servers and storage enclosures that require mission-critical reliability and high performance.

HP StorageWorks 70 Modular Smart Array



The HP StorageWorks 70 Modular Smart Array is an end-to-end flexible storage array, offering data availability, enhanced reliability, enhanced performance, and tiered storage capability with SAS and SATA drives and investment protection. Small and midrange business growing storage needs can be managed by deploying this low cost, flexible tiered storage system with up to 14.4TB capacity supporting SAS or SATA.

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.

SAP and HP Partnership

HP has been partnering with SAP AG for over 20 years. Together, we've created a remarkable legacy providing world-class business solutions to global clients. Our offer is 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 55,000+ installations and more than 20,000 customers.
- HP is the global disk storage market leader with 23.6% market share with a No.1 position in Storage Area Networks.
- 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 in 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; Nashua, New Hampshire, USA; and Redmond, Washington, USA.
- HP is one of the largest SAP customers in the world. 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.²

²<http://h71028.www7.hp.com/enterprise/cache/13419-0-0-0-121.html>

Novell and HP Partnership

HP and Novell are partnering across the enterprise to give customers a solid operating system and product offerings, as well as support and certification. HP and Novell's 20 year alliance continues with products and support on SUSE Linux Enterprise Server (SLES), NetWare®, and Open Enterprise Server (OES). Our product offerings can be purchased standalone or with a ProLiant or BladeSystem server.³

HP supports SLES and has made it available for sale with ProLiant servers. Delivered as one product, SLES supports x86, AMD64, and EM64T-based ProLiant servers. The high end version of SLES also extends the rights of the purchased upgrade protection to systems with up to 16 CPUs. SLES is a secure, reliable platform for open-source computing in the enterprise. SLES offers unmatched performance and scalability, comprehensive open-5 source functionality and support for a broad range of hardware platforms and software packages. Any of the SLES offerings from HP can be conveniently purchased with an HP ProLiant server or as a standalone product.

Key benefits

The HP commitment to Linux begins at the strategic level and extends to specific functionality enhancements to and support for applications and operating systems.

- HP understands what's required for a complete Linux solution. Offering robust solutions to address the business needs of an enterprise demands a keen understanding of the software, hardware, and services components of an enterprise business solution ... and HP "gets it."
- HP works to address all aspects of an enterprise solution. Together we will reach the point where the right combination of applications, middleware, hardware, services, training, and support are all identified and assembled for a successful launch of a customer's new business solution. We are experts in identifying and putting in place the right partnerships, in understanding the relationship between the solution components, and in addressing the practical implications of achieving a successful solution implementation. Not only do customers benefit from our pre-tested, high quality solutions with excellent TCO savings, but they also get solutions implemented correctly the first time, allowing them to benefit more quickly.
- HP delivers both commercial and technical applications from industry leading ISVs.
 - All commercial Linux distributions tested and certified across all industry-standard platforms
 - Bilateral support agreements to provide single point of accountability
 - Broadest range of applications and solutions tested and supported on HP platforms
 - Reseller agreements and integrated services with a broad range of partners
 - Industry-standard HP Linux Reference Architectures for volume applications with key commercial and open source partners

For more information

HP ProLiant DL380 G5: 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>.

³ <http://h20000.www2.hp.com/bc/docs/support/SupportManual/c00649972/c00649972.pdf>

Appendix A

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

[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 Intel Xeon X5355 Quad-Core 2.66GHz processors 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.

Appendix B

Table 1. Comparison of two performance results of the HP ProLiant DL380 G5 Quad-Core, two-processor servers running SUSE Linux Enterprise Server on the two-tier SAP SD Standard Application Benchmark.

Processor	SAP SD Benchmark Users	Fully processed order line items/hour	SAPS
HP ProLiant DL380 G5 3.16GHz	2,275	228,000	11,400
HP ProLiant DL380 G5 2.66GHz	1,795	180,000	9,000

All results as of 4-19-08

© 2008 Hewlett-Packard Development Company, L.P. The information contained herein is subject to change without notice. The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

SAP, MaxDB and all SAP logos are trademarks or registered trademarks of SAP AG in Germany and in several other countries.

Other product and company names mentioned herein are the property of their respective owners.

April 2008