HP ProLiant DL580 G5 server: #1 4P on TPC-C benchmark

HP Leadership

TPC-C

DL580 G5: best in class platform for compute intensive applications

Key Points

- **#1 worldwide 4P performance and price/performance**
- **#1 4P performance at less than half the cost of the closest competitor**
- **230% scaling at 30% lower cost from HP ProLiant 2P to 4P**

Customer Value

What are the benefits of using HP ProLiant servers for online transaction processing?

HP announced new record-breaking results on the TPC-C benchmark for the HP ProLiant DL580 G5 on August 19, 2008.

This latest result is one of many historical world record results that have been achieved by ProLiant servers on the TPC-C benchmark.

HP posts a very large number of results on the TPC-C benchmark, regularly updating benchmark standings on top selling rack, tower, and blade servers. This shows the HP commitment to providing information that customers need for sizing decisions.

More information about TPC-C results can be found at the following Web page: http://www.tpc.org.

Results as of 08-19-08.

Figure 1. Top 3 four-processor results

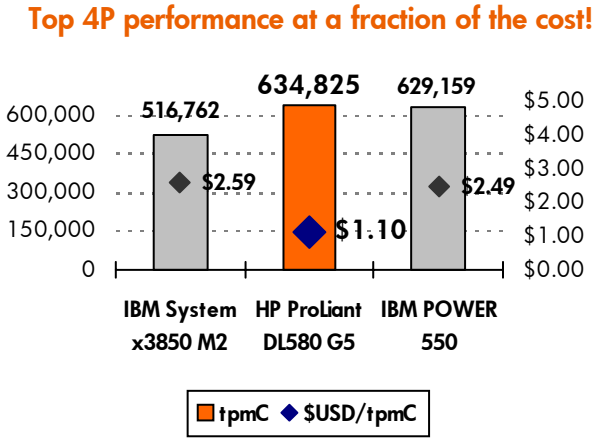

Figure 2. HP ProLiant 2P to 4P scaling

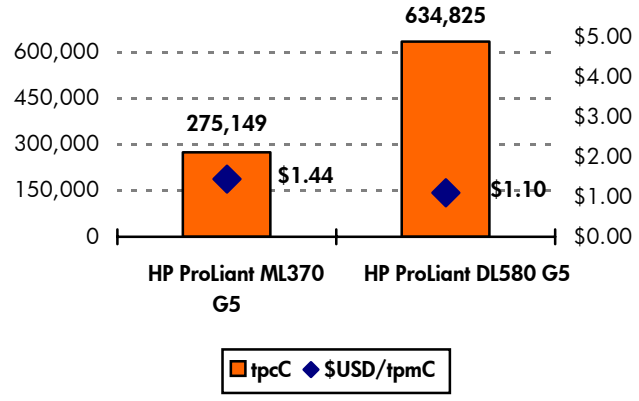

Table 1. Configuration for system results

System (processors/cores/threads)	tpmC	USD$/tpmC	Availability	Database	OS
HP ProLiant DL580 G5 4P six-core Intel Xeon X7460 2.67 GHz (4 processors/ 24 cores/24 threads	634,825	$1.10 USD	09/15/08	Microsoft SQL Server 2005 Enterprise x64 Edition SP2	Windows Server 2003 R2 Enterprise x64 Edition
IBM Power 550 Express Model 8204-E8A Dual-Core IBM Power6 4.2 GHz (4 processors/8 cores/ 16 threads)	629,159	$2.49 USD	04/20/08	IBM DB2 9.5 Enterprise Edition	IBM AIX 5L V5.3
IBM System x3850 M2 4P QC Intel Xeon X7350 2.93 GHz (4 processors/16 cores/16 threads)	516,752	$2.59 USD	03/14/08	IBM DB2 9.5 Enterprise Edition	Red Hat Enterprise Linux Adv. Platform 5 for x86_64
HP ProLiant ML370 G5 Intel X5460 QC 3.16 GHz (2 processors/8 cores/8 threads)	275,149	$1.44 USD	01/07/08	Microsoft SQL Server 2005 x64 Enterprise Edition SP2	Microsoft Windows Server 2003 Enterprise x64 Edition R2

ProLiant server testing configurations

The HP ProLiant DL580 G5, configured with 4 x 2.67GHz Six-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, achieved 634,825 tpmC @ USD $1.10/tpmC running Windows Server 2003 R2 Enterprise x64 Edition operating system and Microsoft SQL Server 2005 Enterprise x64 Edition SP2 database. The server utilized 1 Smart Array E500 SAS RAID controller connected to 32 x 146GB 10K SFF SAS drives contained in 2 HP StorageWorks MSA70 Enclosures for the log files, 8 Smart Array P800 SAS RAID controllers and 2 E500 SAS RAID controllers to drive 1000 15K SFF SAS drives housed in 40 HP StorageWorks MSA70 Enclosures. The internal drive bays which housed the operating system drives were connected to the P400i SAS RAID controller.

Scalability increases with Multi-Core technology

In addition to highest number of transactions for a four-processor server, the HP ProLiant DL580 G5 also showed excellent four-processor/six-core scalability results as compared to the highest result with an HP two-processor quad-core Intel Xeon server. The server showed a 230% increase in performance and achieved this outstanding result at 30% less cost.

The HP advantage: HP innovative technology behind the results

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 4 socket 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 Smart Array Controller P800

The HP Smart Array P800 is a 16-port, PCI-E SAS controller. It ships standard with 512 MB cache, dual batteries and RAID 6 (ADG) support. This controller supports up to 108 hard drives and is the highest performing controller in the Smart Array portfolio.

HP Smart Array Controller E500

The HP Smart Array E500 is HP's first external connect only, entry level PCI Express (PCIe) Serial Attached SCSI (SAS) RAID controller. The full size card has 8 ports (2 x4 mini SAS external connectors) and utilizes DDR2-533 memory. The E500 offers RAID 0, 1 and 0+1 and can be upgraded with the battery-backed write cache (BBWC) module for RAID 5. This low-profile card is ideal for customers needing a low-cost external connect for HP ProLiant servers to tape, JBODs, and intelligent Modular Storage Arrays (MSA).

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 14.4 TB capacity supporting SAS or SATA.

TPC information

A full disclosure report describing these benchmark results has been filed with the Transaction Processing Performance Council (TPC) and is available upon request. The full disclosure report describes the benchmark hardware and software configuration in detail, provides costs, and lists the code actually used to perform the test. Similar reports from other vendors are the source of the price/performance comparisons provided above. Summaries of all tests are published each month by the TPC. Summaries are also posted on the Internet on the TPC's World Wide Web Server. With these benchmarks, customers can objectively compare the performance of different vendors' servers in specific areas such as database throughput in transactions per minute (tpmC) and cost per transactions per minute ($/tpmC).

For more information

HP ProLiant DL580 G5: www.hp.com/servers/dl580

HP ProLiant storage solutions: www.hp.com/go/serial

ProLiant benchmarks: www.hp.com/servers/benchmarks

TPC-C Overview White Paper:
ftp://ftp.compaq.com/pub/products/servers/benchmarks/HP_ProLiant_tpcc_Overview.pdf