



HP ProLiant BL480c server blade takes #1 performance record on Lotus Domino Web Access with Lotus Domino 7.0.2



The HP ProLiant BL480c server blade is the industry's only two-processor server blade that offers 12 DIMMs, four hot-plug SAS or SATA drives, and three PCI-Express I/O expansion slots.

Key results at a glance:

- ▣ The HP ProLiant BL480c topped all other competitors in the two-processor, 8-core performance benchmark category with 27,000 users.
- ▣ The results prove ProLiant leadership over major competitor IBM with its System 5p 550Q and Sun with its Sun Fire TX2000.

Continuing its remarkable performance achievements, the HP ProLiant BL480c server blade earned a #1 performance result on the Lotus Domino Web Access test in March 2007. Two-socket Quad-Core HP ProLiant BL480c server blades, using running Microsoft® Windows® Server 2003 R2 x64 Enterprise Edition, performed 27,000 Users creating 23,272 Transactions per minute with a response time of .408 seconds while measuring an average CPU load of 92% over the length of the test.

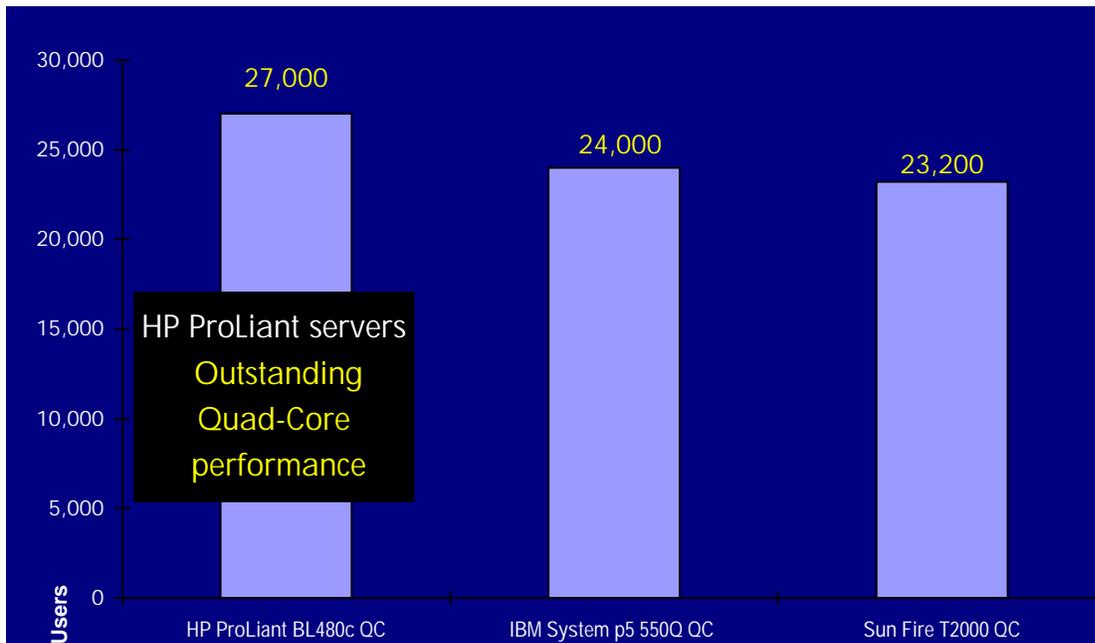


Figure 1. Comparison of performance results of HP ProLiant BL480c Quad-Core servers vs. IBM and Sun Quad-Core competitors on the Lotus Domino Notesbench Benchmark.

More information about all servers can be found at the following Web page: <http://www.notesbench.org/bench.nsf?OpenDatabase> Results as of 4-19-07.

Note: HP believes that the information provided in this report will help customers in their planning processes. Based on testing performed in the Nashua, New Hampshire labs during March 2007, HP provides this unofficial, non-audited performance results document for use in comparing the performance of this server with other Lotus Domino results. It is not intended to be used as a sizing guideline, as many Domino Server tasks are removed to help facilitate a smoother run from the testing tool. In real world sizing, items like variable mail box sizes, third-party applications (such as Virus Scanning), and transaction logging should be taken into consideration before making a sizing decision.

ProLiant server configurations

HP engineers installed Microsoft® Windows® Server 2003 R2 x64 Enterprise Edition, on an HP ProLiant BL480c server blade configured with two Intel Xeon® 5355 processors (2.66GHz Quad-Core) and 12GB of PC2-5300 DDR2 Fully Buffered RAM for testing. Using the HP Smart Array P400i controller with 512MB battery-backed write cache, and two internal 36GB Serial Attached SCSI disks, the operating system was installed on a two-disk RAID 1 disk set. HP ProLiant Support Pack for Microsoft Windows Server 2003 x64 version 7.60 was applied. By using the 64-bit versions of Windows 2003 Server, no additional configuration was required to address all 12GB of memory installed in this server.

Using the optional QLogic QMH2462 4Gb FC Host Bus Adapter for the HP c-Class BladeSystem, the server was connected to an HP StorageWorks 8000 Enterprise Virtual Array (EVA 8000) configured with 168 x 72GB 15K rpm dual-ported 2 Gb FC disk drives. All 168 drives were placed in a single disk group, from which three 300GB Vraid1 sets were created and presented to the Host Bus Adapter in the ProLiant BL480c server blade.

ProLiant BL480c server leads competitors

Table 1. Results of ProLiant BL480c transactions and response times vs. competitors

| System | Users | Transactions | Response Times | OS |
|---|--------|--------------|----------------|--|
| HP BladeSystem ProLiant BL480c Intel Xeon X5355 2.66GHz, 12GB RAM, QC | 27,000 | 23,272 | 408 ms | Microsoft Windows Server 2003 R2 x64 Enterprise Edition |
| IBM System p5 550Q; POWER5+ 1.5GHz, 32GB RAM, QC | 24,000 | 20,108 | 932 ms | IBM AIX 5L™ V5.3 |
| SunFire T2000 UltraSPARC T1 1.4GHz; 64GB RAM, 8 cores | 23,200 | 19,518 | 692 ms | Sun Solaris 10 |

Interpreting the results

The ProLiant BL480c accomplished the following superior performance deltas vs. its competitors:

- Defeated the 4P IBM p5 550Q POWER5+
 - by 3,000 users (11% faster)
 - by 3,164 transactions (13.5% faster)
 - by 524 milliseconds response time (56% faster)¹
- Bested the SunFire T2000
 - by 3,800 users (14% faster)
 - By 3,754 transactions (16% faster)
 - By 284 milliseconds response time (41% faster)²

¹ Note: This p5-550Q POWER5+ architecture places four processors cores on a single chip module (Quad-Core Module - QCM). There are two QCMs in this system configuration. IBM System p5 identifies processors as the number of cores per system. Thus, this 8-way system contains two QCMs (4-core chips) for a total of eight cores. Since IBM System p5 considers each core a processor, the system is described as an 8-way which contains eight cores.

² The UltraSPARC T1 processor with CoolThreads technology offers up to eight processing cores with four threads per core with SPARC V9 implementation.

The HP ProLiant Advantage

HP ProLiant 480c



The HP ProLiant BL480c was introduced as a new category of server blade that delivers an unmatched combination of two processors, Multi-Core performance, and expansion. Designed to keep pace with high computing demands, the HP ProLiant BL480c now offers the latest outstanding Quad-Core Intel Xeon processing power, up to 48GB of PC2-5300 DDR2 Fully Buffered DIMMs, mirrored memory, online spare capability, three PCI-Express I/O expansion slots via mezzanine cards, support for up to four hot-plug small form factor (SFF) SAS or SATA hard disk drives, and management tools that make it easy to deploy and maintain. The HP ProLiant BL480c has more than you've come to expect from a two-processor server blade, and can handle your most challenging applications.

Other reasons we win in performance and price-performance

HP Smart Array P400i



The HP Smart Array P400i, used 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 P400i is ideal for SAS-based servers and storage enclosures that require mission-critical reliability and high performance.

QLogic QMH2462 4Gb FC HBA Adapter BladeSystem



The QLogic QMH2462 4Gb FC HBA Adapter provides the c-Class BladeSystem with two 4Gb Fibre Channel ports for fast and reliable SAN connectivity. Through the implementation of a SAN with the HP BladeSystem, customers can achieve improved data availability, easily scale capacity, and realize management cost savings from consolidating disk resources.

HP StorageWorks 8000 Enterprise Virtual Array (EVA 8000)



The HP StorageWorks 8000 Enterprise Virtual Arrays (EVAs), used in the Lotus Domino Web Access benchmark, continue to offer customers in the mid-range to enterprise-sized market place leading, high performance, high capacity, and high availability "virtual" array storage solutions. Not only does this solution reduce IT costs and complexity, it saves time, space, and costs as compared to traditionally architected storage, and it is supported by a powerfully simple suite of management software making it easy for users to achieve the highest level of productivity.

The benefits of partnership between HP and Lotus Domino

Today's Lotus Domino server products make it easier to manage the complexities of your business, reliably deliver information, increase employee productivity, and communicate/collaborate in real time with tools that simplify system management tasks and increase network performance and uptime. Coupled with the latest and powerful HP ProLiant servers and Adaptive Infrastructure technologies, customers can now build robust environments that are second-to-none in manageability, serviceability, availability, and cost efficiency.

Why HP?

- ▮ ProLiant servers are the #1 server platform for Lotus Domino, hosting more than 40 million Lotus Notes seats globally.
- ▮ ProLiant servers consistently set new standards of Lotus Domino performance in two-, four-, and eight-processor servers.
- ▮ HP has 20 years of experience developing and improving high availability solutions and implementations – more than any other company.

<http://h71028.www7.hp.com/enterprise/cache/3838-0-0-225-121.html>

For more information

HP ProLiant BL480c: www.hp.com/servers/proliantbl480c

Details about IBM Lotus software are available at the following URL:

<http://www.lotus.com/engine/jumpages.nsf/wdocs/aboutlotus>

For more information on HP solutions for IBM Lotus software, visit:

<http://www.hp.com/go/activeanswers/lotus>

For more information on the Lotus Domino Notesbench result, visit:

<http://www.notesbench.org/bench.nsf?OpenDatabase>

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