
# HP ProLiant BL480c server blade secures #1 overall performance for Intel and blade servers for NotesBench 7.0.1 benchmark

The HP ProLiant BL480c server blade is the industry's only 2P server blade that offers 12 DIMMs, four hot-plug drives, and three I/O expansion slots in a single server solution.

## Key results at a glance:

- The HP ProLiant BL480c server blade topped all other Intel and blade competitors in the two-processor, Dual-Core performance Lotus 7.0.1 benchmark category with 27,000 users.
- The results also proved ProLiant leadership over competitors Sun with its Sun Fire T2000 UltraSPARC T1 server and IBM with its p550Q POWER5+ server.

The HP ProLiant BL480c server blade has more performance and expansion than any other 2P server blade to handle your most challenging applications. This was evident in the October 4, 2007 benchmark result on the Lotus Domino NotesBench test when the ProLiant BL480c server blade earned the #1 overall Intel and blade server performance record with 27,000 users.

An HP ProLiant BL480c server blade was configured to run a single test, NotesBench R6iNotes, on the Microsoft Windows Server 2003 Enterprise Edition operating system. The NotesBench R6iNotes workload is designed to replicate an average group of users performing everyday web-based mail tasks. The test measured the performance participating in Domino Web Access (DWA)-related activities simultaneously connected to three Domino 7.0.2 Servers, on a single HP ProLiant BL480c server blade.

The test ran 6 ½ hours during which the system under test achieved 23,117 NotesMark (transactions per minute or tpm) with an average response time of 0.764 seconds. Based on these results, the price/performance ratio is $13.27/User and $15.50/NotesMark.

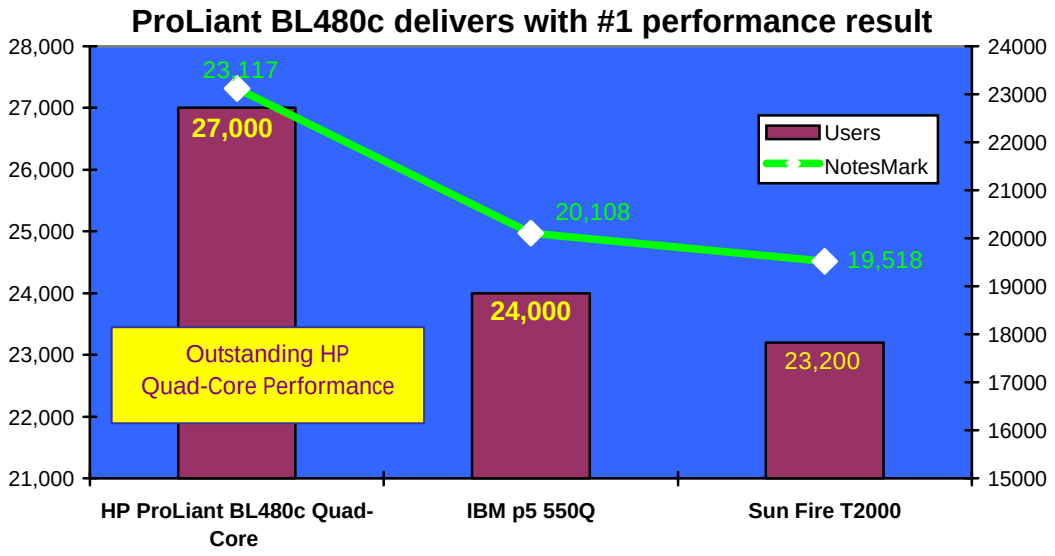



Figure 1. Comparison of performance results of HP ProLiant BL480c server blade R6iMail workload vs. IBM and Sun competitors' R6iNotes workload on the Lotus Domino NotesBench Benchmark

More information about all servers can be found at the following Web page: http://www.notesbench.org/bench.nsf?OpenDatabase
Results as of 10-9-07.

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 August 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

The server was configured with two Quad-Core Intel Xeon X5355 (2.66GHz, 1333MHz FSB) processors with 8GB RAM and two 72GB SAS hard disks. Using the included HP Smart Array P400i controller with 256MB read cache, and two internal 72GB SAS disks, the operating system was installed on a two-disk RAID 1 disk set. Using the optional Emulex LPe1105-HP 4Gb FC HBA for HP c-Class BladeSystem, the server was connected via two Brocade 4Gb SAN Switches for the HP c-Class BladeSystem to an HP StorageWorks 8000 Enterprise Virtual Array (EVA8000) configured with 168 x 72GB 15K rpm dual-ported 2 Gb FC disk drives.

## ProLiant BL480c server blade leads competitors in users, transactions

Table 1. Results of ProLiant BL480c server blade R6iMail transactions and response times vs. IBM p5 550Q and Sun Fire T2000 R6iNotes transactions and response times

| System | Users | NotesMark Transactions | Response Times | OS |
|---|---|---|---|---|
| HP ProLiant BL480c Intel Xeon 5355 2.6GHz, 8GB RAM, QC | 27,000 | 23,695 | 0.764 sec | Microsoft Windows Server 2003 |
| IBM p5 550Q POWER5+, 1.5GHz, 32GB RAM, DC[1] | 24,000 | 20,108 | 0.932 sec | AIX 5L V5.3 |
| SunFire T2000, UltraSPARC TI 1.4GHz, 32GB RAM, DC[2] | 23,200 | 19,518 | 0.692 sec | Solaris 10 |

### Interpreting the results

The ProLiant BL480c server blade accomplished the following excellent performance deltas vs. the IBM p5 550Q surpassing it by:

- 3,000 users (12.5% faster)
- 3,587 transactions (17.% faster)
- .168 seconds (18% faster)

The ProLiant BL480c server blade also tested faster than the Sun Fire T2000 by:

- 3,800 users (16.3%)
- 4,177 transactions (20.7%)

[1] 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 BL480c server blade*

The latest ProLiant BL480c server blade continues to excel in two-processor performance demonstrating a versatile and dependable backbone for enterprise-class datacenters, expanding businesses, and dedicated workgroup environments.

Experience the difference with the HP ProLiant BL480c server blade, the industry's only 2P server blade that offers 12 DIMMs, four hot-plug drives, and three I/O expansion slots. The HP ProLiant BL480c server blade features two Quad-Core or Dual-Core Intel Xeon processors, up to 48GB of ECC 667MHz DDR2 memory, four network adapters, and your choice of four hot-plug SAS or SATA drives.

The HP ProLiant BL480c server blade has more than you've come to expect from a 2P server blade, and can handle your most challenging applications. It is designed for large enterprise data centers, mainstream/mid-sized data centers and departments, and branch offices.

# Other reasons we win in performance

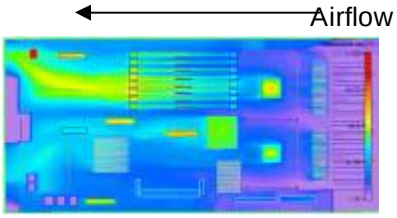
### HP Smart Array P400i

The HP Smart Array P400i is the integrated version of the P400, HP's first PCI-Express (PCI-Express) serial attached SCSI (SAS) RAID controller, that provides new levels of performance and reliability for HP servers through its support of the latest SCSI technology and advanced RAID capabilities.

### HP SFF SAS: leading the future of storage

The transition to SFF SAS drives is one of the most significant transitions in the industry's history, fueled by the biggest required leap 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 StorageWorks 8000 Enterprise Virtual Array (EVA 8000)

The HP StorageWorks 8000 Enterprise Virtual Array (EVAs), used in the Lotus Domino benchmark, continues 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 cluster technology 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 server blade
http://h18004.www1.hp.com/products/servers/proliant-bl/c-class/480c/index.html

HP BladeSystem c-Class portfolio
http://h18004.www1.hp.com/products/blades/components/c-class-components.html

HP Enterprise Class Storage Portfolio
http://h18006.www1.hp.com/storage/enterprisestorage.html

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



October 2007