



HP ProLiant DL580 G5 6-core with BL685c: #1 result across all 4 metrics on Oracle E-Business Suite benchmark



HP Leadership



HP ProLiant DL580 G5 and BL685c

Customer Value

What are the benefits of using HP ProLiant servers for Oracle applications?



HP infrastructure is modular, so it's easy to expand and repurpose. In the same way, Oracle E-Business Suite gives you the capability to add applications as your business expands.

You can implement with confidence, knowing that you are backed by the full strength of the HP/Oracle Alliance. With over 25 years of partnership between HP and Oracle, including executive alignment at the highest levels, it's not surprising that HP is a leading infrastructure partner across all Oracle application suites—including Oracle E-Business Suite.

HP's engineering investment in Oracle applications and technologies has produced significant customer benefits. For example, HP continually publishes leading benchmark results for Oracle Application environments, and HP and Oracle host 13 technology and competency centers worldwide. As a result, HP and Oracle have over 140,000 joint customers across the globe.

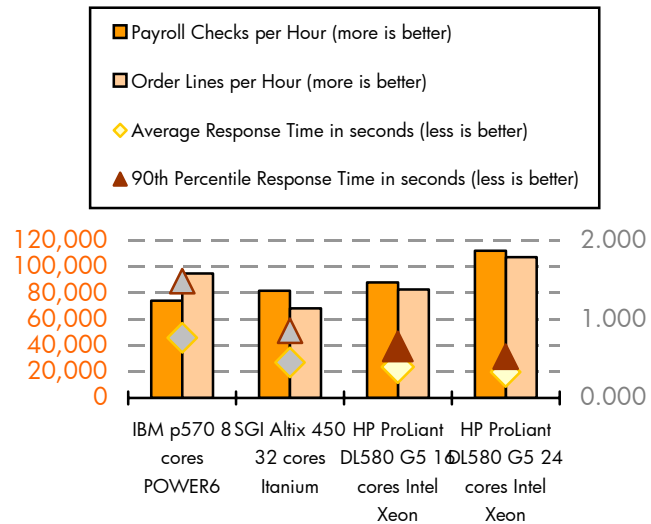
By helping businesses reduce risk, cut costs, and generate growth, HP and Oracle—together with our partners—provide you with outstanding technology for better business outcomes.

Results as of 9-8-08.

Key Points

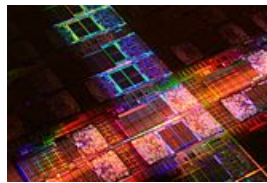
- #1 in the industry across all 4 benchmark metrics
- Excellent Price/Performance – Beats all competitors at a fraction of the cost

Figure 1. HP ProLiant DL580 G5 6-core OASB Medium Model performance comparison with IBM, SGI, and quad-core DL580 G5 platforms



HP provides multiple performance proof points for Intel's first 6-core server processor on ProLiant MP servers, helping customers plan for success.

ProLiant servers have posted results with Dunnington processors on Oracle E-Business Suite and other benchmarks.



The Dunnington processor is expected to provide an excellent platform with investment protection for virtualization environments because of its FlexMigration technology, which allows a single compatible virtualization pool that supports live VM (Virtual Machine) migration across both 65nm

and 45nm high-k Intel Core™ microarchitecture-based servers and 45nm-based servers. The 6-core Intel Xeon X7460 delivers strong gains across a range of server workloads, scaling up to 1.43 times as compared to 4-core results.¹

Table 1. Result summary of the HP ProLiant DL580 G5 four-processor six-core server compared to other platforms on the 3,000-user Oracle E-Business Suite 11i Medium Model Benchmark.

	IBM System p570	SGI Altix 450	DL580 G5 16 cores 4 cores/chip	DL580 G5 24 cores 6 cores/chip
Online Users	3,000	3,000	3,000	3,000
Average Response Time (lower is better)	0.764 sec	0.453	0.393	0.328
90 th percentile Response Time (lower is better)	1.484 sec	0.854	0.655	0.524
Order-to-Cash Lines/Hour Batch Throughput (higher is better)	94,757	68,353	82,713	107,373
Payroll Checks/Hour Batch Throughput (higher is better)	74,257	81,744	88,106	112,150
Scaling compared to 6-core Intel Xeon				
Average Response Time	2.32	1.38	1.19	←Excellent performance deltas
90 th percentile Response Time	2.83	1.62	1.27	
Order-to-Cash Lines/Hour Batch Throughput	1.13	1.57	1.29	
Payroll Checks/Hour Batch Throughput	1.51	1.37	1.27	

Results valid as of 9-8-08. More information on published benchmark results is available at: http://www.oracle.com/apps_benchmark/html/results.html#medium.

The HP advantage: HP innovative technology behind the results

On September 8, 2008, HP announced new record-breaking results on the Oracle E-Business Suite 11i Medium Model benchmark for the HP ProLiant DL580 G5 and four ProLiant BL685c server blades. These stellar results were achieved using the HP ProLiant DL580 G5 server as the database tier and four HP ProLiant BL685c server blades for the application tier. The HP ProLiant DL580 G5 server with six-core Intel Xeon processors delivers maximum performance, industry leading management solutions, flexibility for a variety of enterprise deployments, and maximum performance per watt. The HP ProLiant BL685c 4-processor, multi-core server blade has features equal to standard 1U rack mount servers, combining power-efficient compute power and high density with expanded memory and I/O for maximum performance. Also included in the achievement of these results are high quality HP storage products, such as the HP Smart Array P400i Controller and an HP Storage Works EVA6000 disk array.

The HP ProLiant DL580 G5 server

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. Different customers have different needs...The DL580 G5 is simply designed to meet them all. The Key Benefits of the DL580 G5 are:

- Proven performance for demanding scale-up and scale-out applications
- Enterprise Class high availability features for critical deployments
- Unprecedented in-class flexibility and serviceability.

New with the September refresh of the DL580 G5: support for Intel series Xeon Processors with up to 6 cores and up to 16 MB shared L3 cache, and new SSE4 instruction support.

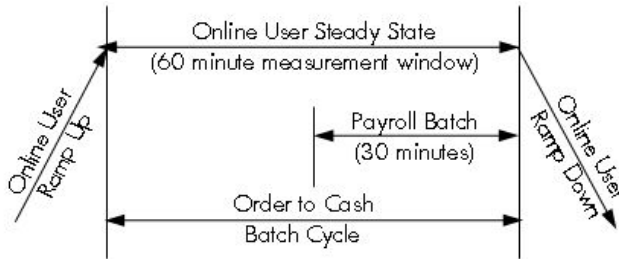
The HP ProLiant BL685c server blade

The HP ProLiant BL685c server blade delivers no-compromise performance and expansion in the densest 4P server blade form factor available. With up to four AMD Opteron™ 8000 Series processors, 128GB of DDR2

memory, two hot-plug serial hard-drives, four embedded Gigabit NICs and three I/O expansion slots, the HP ProLiant BL685c delivers the density you want with the performance you need to handle the most demanding enterprise class applications.

About the Oracle Applications Standard Benchmark (OASB)

The Oracle Applications Standard Benchmark seeks to demonstrate performance and scalability of Oracle E-Business Suite on a variety of platforms. A representative workload is maintained with end-to-end business flows, including both online and batch components.



The benchmark simulates different workloads with variable data model sizes (small, medium, large).

Model Size	Payroll Batch	Order-to-Cash Batch
Small (up to 1000 users)	5,000 employee paychecks	10,000 order lines
Medium (1001-3000 users)	10,000 employee paychecks	50,000 order lines
Large (> 3000 users)	50,000 employee paychecks	100,000 order lines

Benchmark results are generated to provide representative sizing guidelines and best practices. All results are reviewed and certified by an independent auditor before Oracle publishes the benchmark report. Benchmark tuning is documented and generic for all hardware vendors to ensure reproducible results.

Four primary metrics are reported from the benchmark:

1. Average Online Response Time
2. 90th Percentile Response Time
3. Order-to-Cash Batch Throughput as measured by number of order lines processed per hour
4. Payroll Batch Throughput as measured by number of employee paychecks processed per hour

Server configurations

HP ProLiant DL580 G5 6-core server 3,000-user results on Oracle E-Business Suite 11i Benchmark: In August 2008, Oracle and Hewlett-Packard conducted a benchmark in Cupertino, California, to measure the online and batch performance of the Oracle Applications Standard Benchmark processes in an environment running Oracle E-Business Suite (EBS) 11i (11.5.10) with Oracle Database 10g™ (10.2.0.3) 64-bit and Oracle® Enterprise Linux® 4 update 4, and achieved 107,373 Lines per Hour, 112,150 Checks per Hour, a 90th percentile response time of 0.524 seconds, and an average response time of 0.328 seconds. This result, submitted 9-8-08, was achieved on a Hewlett-Packard® ProLiant™ DL580 G5 database server configured with 4 x 2.67-GHz 6-Core Intel® Xeon™ X7460 processors (4 processors/24 cores/24 threads) each with 3 x 3 MB Level 2 cache and 16 MB Level 3 cache, 128GB memory, and PC2-5300 fully-buffered DDR2-667MHz DIMMs. The system used 2 x 72GB SFF SAS internal disk drives attached to an integrated HP Smart Array P400i Controller, and one HP Storage Works EVA6000 disk array attached to a single HP Storage Works 4Gb PCI-e Fibre Channel controller for data and logs. Three HP ProLiant BL685c server blades each with 4 x 3.0GHz Dual-Core AMD Opteron 8222 processors (4 processors/8 cores/8 threads) and 32 GB memory were used as application/web servers and one HP ProLiant BL685c server blade with 4 x 3.0GHz Dual-Core AMD Opteron 8222 processors and 32 GB memory was used as a Concurrent Manager server.

HP ProLiant DL580 G5 4-core server 3,000-user results on Oracle E-Business Suite 11i Benchmark: In July and August 2008, Oracle and Hewlett-Packard conducted a benchmark in Cupertino, California, to measure the online and batch performance of the Oracle

Applications Standard Benchmark processes in an environment running Oracle E-Business Suite (EBS) 11i (11.5.10) with Oracle Database 10g™ (10.2.0.3) 64-bit and Red Hat® Enterprise Linux® Advanced Server release 4.0 Update 6, and achieved 82,713 Lines per Hour, 88,106 Checks per Hour, a 90th percentile response time of 0.655 seconds, and an average response time of 0.393 seconds. This result, submitted 08-22-08, was achieved on a Hewlett-Packard® ProLiant™ DL580 G5 database server configured with 4 x 2.93GHz Quad-Core Intel® Xeon™ X7350 processors (4 processors/16 cores/16 threads) with 2x4MB Level 2 cache per core, 128GB memory, and PC2-5300 fully-buffered DDR2-667MHz DIMMs. The system used 2 x 72GB SFF SAS internal disk drives attached to an integrated HP Smart Array P400i Controller, and one HP Storage Works EVA6000 disk array attached to a single HP Storage Works 4Gb PCI-e Fibre Channel controller for data and logs. Three HP ProLiant BL685c server blades each with 4 x 3.0GHz Dual-Core AMD Opteron 8222 processors (4 processors/8 cores/8 threads) and 32 GB memory were used as application/web servers and one HP ProLiant BL685c server blade with 4 x 3.0GHz Dual-Core AMD Opteron 8222 processors and 32 GB memory was used as a Concurrent Manager server.

vs. SGI Altix 450 3,000-user results on Oracle E-Business Suite 11i Benchmark: In September and October 2007, Oracle and SGI conducted a benchmark in Mountain View, California, to measure the online and batch performance of the Oracle Applications Standard Benchmark processes in an environment running Oracle E-Business Suite (EBS) 11i (11.5.10) with Oracle Database 10g™ (10.2.0.3) and Red Hat Enterprise Linux AS for Itanium 4.4 (64-bit) operating system, and achieved 68,353 Lines per Hour, 81,744 Checks per Hour, a 90th percentile response time of 0.854 seconds, and an average response time of 0.453 seconds. This result, submitted 10/18/07, was achieved on an SGI Altix 450 database server configured with 16 x 1.66GHz Dual-Core Itanium Processor 950 (16 processors/32 cores/32 threads) with 24MB cache per socket, and 128GB memory. An SGI IS4500 was used for data storage. Five SGI Altix XE240 two-processor Dual-Core servers were used as application/web servers.

vs. IBM System p570 3,000-user results on Oracle E-Business Suite 11i Benchmark: In March and April 2007, Oracle and IBM conducted a benchmark in Beaverton, Oregon, to measure the online and batch performance of the Oracle Applications Standard Benchmark processes in an environment running Oracle E-Business Suite (EBS) 11i (11.5.10) with Oracle Database 10g™ (10.2.0.2) and IBM AIX 5L V5.3 TL06 operating system, and achieved 94,757 Lines per Hour, 74,257 Checks per Hour, a 90th percentile response time of 1.484 seconds, and an average response time of 0.764 seconds. This result, submitted 05/01/07, was achieved on an IBM System p570 database server configured with 4 x 4.7GHz Dual-Core IBM POWER 6 processor chips (4 processors/8 cores/16 threads) with 4MB L2 cache per Core, L3 cache of 32 MB per single core, and 128GB memory. An IBM TotalStorage DS4800 was used for data storage. Two IBM System p570 POWER5 four-processor Dual-Core servers were used as application/web servers.

For more information

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

HP ProLiant BL685c G5 Server Blade: www.hp.com/servers/bl685c

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

h18004.www1.hp.com/products/servers/platforms/storage.html

OASB information and results: www.oracle.com/apps_benchmark/html/results.html

HP and Oracle partnership: http://h71028.www7.hp.com/enterprise/cache/4281-0-0-0-121.aspx?jumpid=hpr_R1002_USEN

*IBM p570 (POWER5) pricing from TPC-C results report:

http://www.tpc.org/results/individual_results/IBM/IBM_P570_Linux_Oracle_071005_ES.pdf

HP Oracle E-Business Solution brief for midsize businesses: <http://h71028.www7.hp.com/ERC/downloads/4AA1-5108ENW.pdf>

ProLiant server benchmark performance briefs, including additional results with Dunnington processors:

<http://h18000.www1.hp.com/products/servers/benchmarks/index.html>

¹ Data source: Intel Internal measurements – April 2008. Performance tests and ratings are measured using specific computer systems and/or components and reflect the approximate performance of Intel products as measured by those tests. Any difference in system hardware or software design or configuration may affect actual performance. Buyers should consult other sources of information to evaluate the performance of systems or components they are considering purchasing. For more information on performance tests and on the performance of Intel products, visit <http://www.intel.com/performance/resources/limits.htm>.

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