HP ProLiant BL460c– the fastest, highest performing leader on Siebel CRM Release 8.0 Benchmark Industry Applications running Linux

HP server blade shows excellent scale-out architecture

HP Leadership

» The HP ProLiant BL460c server blade continues to provide enterprise-class features for high performance and reliability without compromising energy efficiency or density.

» The HP ProLiant BL680c G5 server blade delivers no-compromise performance and expansion in an Intel Xeon 2-Core to 6-Core 4P BladeSystem Server.

Customer Value

What are the customer benefits of using HP ProLiant servers and the Siebel benchmark running Oracle and Linux?

The test simulated real-world requirements of a large organization, consisting of 10,000 concurrent, active users in a call center organization. Test conditions simulated service representatives running Siebel Financial Services Call Center and partner organizations running Siebel Partner Relationship Management (Web Sales and Web service).

The test system demonstrated that Oracle's Siebel CRM Release 8.0 architecture and HP ProLiant BL460c and ProLiant BL680c G5 servers form a very powerful and cost-effective business solution.

Siebel on HP servers. This benchmark demonstrated the versatility and flexibility of HP Blades hardware. All tiers of the Siebel CRM Release 8.0 architecture ran on Red Hat Enterprise Linux, including the Oracle 10gR2 Database Server.

Low network utilization. The Siebel CRM Release 8.0 Application Server showed excellent scalability on an HP ProLiant BL460c server with 5,000 users per server. Many users can be supported with minimal hardware.

Horizontal scalability. The Siebel CRM Release 8.0 Application Servers showed 100% horizontal scaling by adding a second HP BL460c Application Server. Load balancing was achieved utilizing the built-in features of the Siebel Web Server extensions with the Oracle HTTPD server.

Key Points

- The HP ProLiant BL460c server blades continues with their leadership streak by holding the #1 result on Siebel CRM Release 8.0 Benchmark Industry Applications running Linux with 10,000 users.

- This result shows the highest number of users on a Linux benchmark on a single two-socket, 8 core HP ProLiant BL460c server.

- The ProLiant BL460c defeated the Sun SPARC Enterprise T5440 by a faster response time of more than 71%!

- The benchmark also showcased the HP ProLiant BL680c G5 server blade with the new Intel® Xeon™ E7450 6-Core processor and SB40c storage blade running the backend database with an impressive processor utilization of only 9.1%.

Figure 1. Comparison of total average response time results* of the HP ProLiant BL460c dual-processor Quad-Core server blade to the Sun SPARC Enterprise server and the IBM x3850 server in the Oracle Siebel CRM Release 8.0 Benchmark Industry Applications.
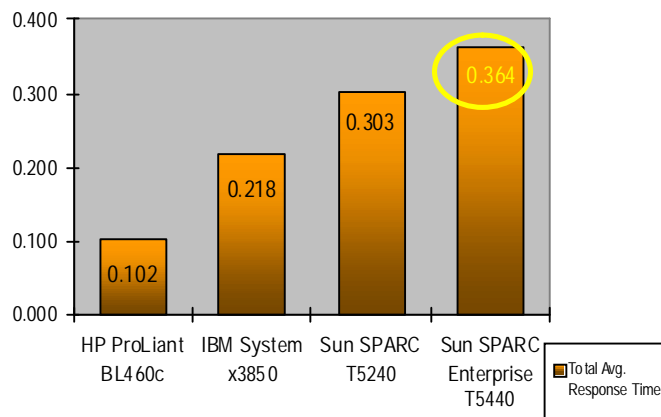
*These values are the average of the Average Response Times for Financial Services Call Center, the Partner Relationship Management, and the EAI - Web Servers

The HP ProLiant BL460c is up to 71.9% faster in average response time, demonstrating its efficiency advantage for real business platforms.

Technology for better business outcomes.

HP sets the standard

HP, in conjunction with Linux and Oracle Corporation, completed the Siebel CRM 8.0 benchmarks on infrastructures designed to deliver a high-performance and cost-effective solution for mid-sized users of Siebel software. The tested configurations were built on HP infrastructures running Red Hat Enterprise Linux 4.5 and Oracle backend database. Completed as part of the CRM 8.0 Platform Sizing and Performance Program (PSPP), this benchmark, validated by Oracle Corporation, demonstrated that enterprises requiring up to 10,000 concurrent CRM application users can confidently deploy their CRM software in a complete HP server infrastructure and gain the advantage of an easily-managed, cost-effective infrastructure solution optimized for efficiency and change. This PSPP benchmark is an excellent indication of the capacity of the HP ProLiant BL460c server blade and the HP ProLiant BL680c G5 in a controlled environment and an important data point in assisting HP in sizing real customer environments.

Low network utilization

The Siebel CRM Release 8.0 Smart Web Architecture and Smart Network Architecture efficiently managed the network, consuming only 7.5 KBps per user. Siebel CRM Release 8.0 Smart Database Connection Pooling and Multiplexing allowed the database to service 10,000 concurrent users and the supporting Siebel CRM Release 8.0 server application services with only 559 database connections. The HP ProLiant BL680c G5 server with four processors ran at only 9.1% processor utilization even under this heavy benchmark load. These servers take advantage of the new Intel® Xeon™ E7450 6-Core processors with 12MB L3 Cache. Database storage was located on a highly available and efficient storage blade, the HP SB40C, using RAID 0+1.

Benchmark comparison

Table 1. Result comparison summary of the HP ProLiant BL460c server blade to the Sun SPARC Enterprise T5440, T5240, and the IBM System X3850 on the Siebel CRM Applications Release 8.0

Application server	ProLiant BL460c	Sun SPARC Enterprise T5440	IBM x3850	Sun SPARC Enterprise T5240
Configuration	2 x 3.16GHz Intel Xeon X5460 Quad-Core (8 CPU cores total); 32GB RAM; Red Hat Enterprise Linux 4.0, 32-bit, Oracle 10gR2 Database Client v10.2.0.1	4 x 1.4GHz UltraSPARC T2 Plus (8 CPU cores total); 128GB RAM; Sun Solaris 10 5/08, 64-bit; Oracle 10g R2 Database Server v10.2.0.3.0; Sun Java System Web Server 6.1 SP10, 32-bit	4 x 3.0GHz Intel Xeon MP Dual-Core (8 CPU cores total); 32GB RAM; Red Hat Enterprise Linux 4 AS U2, 32-bit, Hyperthreading enabled; Oracle 10gR2 Database Client v10.2.0.2.0	2 x 1.2GHz UltraSPARC T2 Plus (16 cores total), 74GB RAM; Solaris 10 4/08, 64-bit; Siebel CRM 8.0 SIA (20204) ENU
Avg. Response Time	.102	.364	.218	.303
Response Times Financial Services Call Center	.071	.349	.173	.315
Partner Relationship Management	.194	.558	.394	.459
EAI - Web Servers	.041	.186	.089	.136
No. of users	10,000	14,000	3,500	10,000
Business Transactions Throughput/Hour	143,983	200,137	52,972	141,205
Projected Daily Transactions	1,151,864	1,601,096	423,776	1,129,640

All results as of 11-20-08. For details on all configurations, see:

http://www.oracle.com/apps_benchmark/html/white-papers-siebel.html

HP ProLiant BL460c White Paper: http://www.oracle.com/apps_benchmark/doc/hp-siebel8-12000-pspp-on-linux-white-paper.pdf
Sun SPARC Enterprise T5440 White Paper: http://www.oracle.com/apps_benchmark/doc/sun-siebel-8-14000-pspp-on-solaris-benchmark-white-paper.pdf
System x3850 White Paper: http://www.oracle.com/apps_benchmark/doc/IBM_Siebel8_3500_PSPP_On_Linux_Final.pdf
Sun SPARC Enterprise T5120/T5240 White Paper: http://www.oracle.com/apps_benchmark/doc/sun-siebel8-10000-pspp-on-solaris-t52401.pdf

HP ProLiant BL460c scalability

In addition to achieving highest and fastest performance results, the ProLiant BL460c server blade showed excellent average response times even while the load was increased from 4,000 users to 10,000 users. There was a 28.4% increase in average response time and a processor utilization of only 9.1% with the deployment of the HP ProLiant BL680c G5 as a backend database server.

Figure 1. Overall average response time scalability comparing the ProLiant BL460c with 4,000 users to 10,000 users.
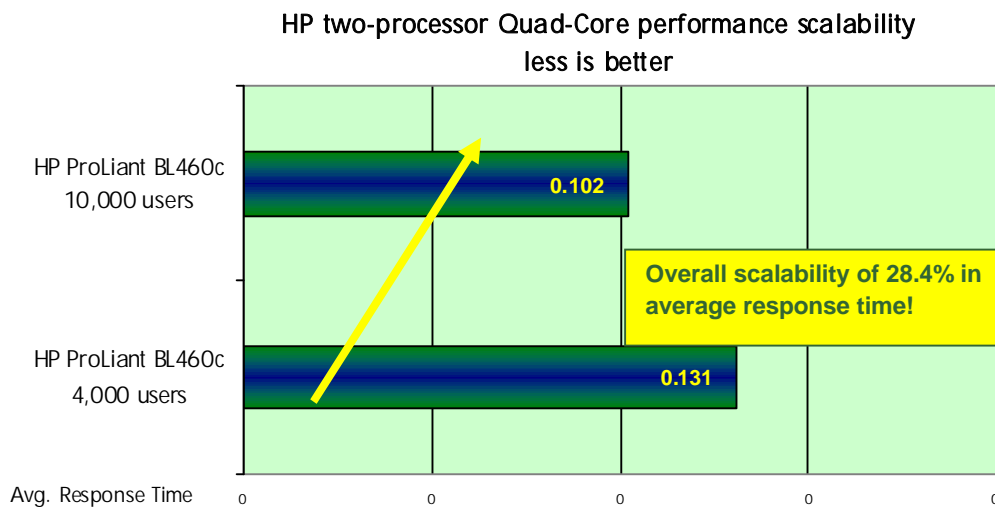

HP two-processor Quad-Core performance scalability
less is better

HP ProLiant BL460c 10,000 users: 0.102

Overall scalability of 28.4% in average response time!

HP ProLiant BL460c 4,000 users: 0.131

Avg. Response Time

Table 2. Result comparison summary of the HP ProLiant BL460c server blade with 4,000 users to 10,000 users.

Application server	ProLiant BL460c 10,000 users	ProLiant BL460c 4,000 users
Configuration	2 x 3.16GHz Intel Xeon (X5460) Quad-Core (8 CPU cores total); 32GB RAM; Red Hat Enterprise Linux 4.0, 32-bit, Oracle 10gR2 Database Client v10.2.0.1	2 x 3.16GHz Intel Xeon (X5460) Quad-Core (8 CPU cores total); 16GB RAM; Red Hat Enterprise Linux 4.0, 64-bit; Oracle 10gR2 Database Server v10.2.0.1.0
Avg. Response Time	.102	.131
No. of users	10,000	4,000
Business Transactions Throughput/Hour	143,983	58,177
Projected Daily Transactions	1,151,864	465,416

What makes it work

The Siebel CRM 8.0 Industry Applications performance result was achieved with one two-socket HP ProLiant BL460c server blade configured as the application tier with 2 x 3.16GHz Intel Xeon X5460 Quad-Core processors with 32GB of memory, while running Red Hat Enterprise Linux 4.0, 32-bit, and Oracle 10gR2 Database Client v 10.2.0.1. One four-socket HP ProLiant BL680c G5 with 4 x 2.4GHz Intel Xeon E7450 6-Core processors (24 processor cores total) with 32GB of memory was used as the database server, running the Oracle 10gR2 Database v10.2.0.4.0. One two-socket HP ProLiant BL460c server blade was used as the web server with 2 x 3.16GHz Intel Xeon X5460 Quad-Core processors (8 processor cores) with 16GB of memory. This compact enterprise solution demonstrates outstanding throughput, processing 143,983 complex business transactions per hour. Complete configuration details are listed in Appendix A.

The ProLiant Advantage

The HP ProLiant BL460c server blade continues to provide enterprise-class features for high performance and reliability without compromising energy efficiency or density. With features equal to standard 1U rack mount servers, the two-processor, multi-core HP ProLiant BL460c server blade combines power-efficient compute power and high density with expanded memory and I/O for maximum performance The ProLiant BL460c server blade now features the latest models of Intel Xeon 5200 and 5400 series processors with optional hot-plug hard drives, Advanced ECC memory with support for memory mirroring and memory online spare, and much more to ensure high availability. The BladeSystem c7000 enclosure supports up to 16 ProLiant BL460c server blades with Intel Xeon processors, two more servers than the IBM BladeCenter H.

The ProLiant BL460c server blade key benefits include:

- [Concentrated compute power](#)
- [Deployment versatility in an efficient dense form factor](#)
- [Industry-leading management and configuration tools](#)

HP ProLiant BL680c G5

Designed to keep pace with strenuous computing demands, the HP ProLiant BL680c G5 server blade is equipped with outstanding 4P processing power and expansion capabilities, enterprise-class availability features, and industry-leading management tools that make it easy to deploy and maintain.

With two or four Intel Xeon 7200, 7300, or 7400 series processors with up to 24 processor cores, 128GB of fully buffered memory, two bays supporting hot-plug serial attached SCSI (SAS) and serial ATA (SATA) hard drives, integrated HP Smart Array RAID controller, four embedded Gigabit Ethernet adapters, and three I/O expansion slots, the HP ProLiant BL680c G5 delivers the density customers want with the performance they need to handle the most demanding enterprise class applications.

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The advantages of the partnership between HP and Oracle

The Oracle Applications Standard Benchmark is focused on ERP applications and represents a mixed workload intended to model the most common transactions operating on the most widely-used enterprise application modules. Definitions of transactions that compose the benchmark load were obtained through collaboration with functional consultants and are representative of typical customer workloads, with batch transactions representing 25% of the total workload. HP, unlike several competitors, uses this real-world benchmark to focus on customer core transactions.

Strategic partners for over 25 years, HP and Oracle have more than 100,000 joint customers. Our accomplishments together are numerous. Here are just a few:

- A strong breadth and depth of platform, software, and services offerings
- Joint development, testing, and optimization
- Performance and price/performance leadership validated by industry and Oracle Applications benchmarking
- HP Consulting and Integration Services deliver solutions for Enterprise Integration and Service-Oriented Architecture with Oracle Fusion Middleware
- HP is a leading Oracle Applications Infrastructure Partner
- There are 13 HP/Oracle solution and demo centers worldwide
- Oracle Fusion Middleware is showcased in HP's SOA Competency Centers around the world
- The partners provide executive alignment that starts at the top and runs through both organizations

HP and Oracle aim to address today's business challenges by enabling the synchronization of infrastructure, applications, services, and business processes – from suppliers through to customers – to help organizations reduce the cost of change, reduce total cost of ownership, simplify IT management complexity, and rapidly implement solutions that provide a competitive advantage.

Partnership between HP and Linux

HP and Oracle Enterprise Linux

The strategic alliance between HP and Oracle stems from over a quarter century of close cooperation. Together we have over 100,000 joint customers and 13 joint solution demo centers around the globe. Our targeted HP Consulting and Integration service offerings for customers encompass enterprise integration and Service Oriented Architecture. As key partner in the Oracle Validated Configurations program, HP tests a variety of configurations and scenarios for Oracle products on HP server and storage platforms. This provides customers the assurance that their choices will work together smoothly when they select from the validated options.

Partnership between HP and Siebel

HP is the leading platform provider for customers implementing Siebel applications. HP and Oracle understand what drives your business. With Oracle's Siebel System applications, we focus on deploying flexible CRM solutions for your environment and fine-tuning them, while providing the best performance with your infrastructure. The HP and Oracle's Siebel Applications enable you to increase the lifetime value of your customers, decrease your total cost of ownership, and leverage your existing technologies and business assets – allowing you to respond quickly to ever-changing customer needs.

Recognizing the bottom-line benefits of being customer-driven, today's chief executives are focusing their IT investments on Customer Relationship Management (CRM) applications to enable their organizations to deliver a superior customer experience. Siebel Systems offers best-in-class software for customer relationship management, derived from more than 3,500 customer deployments, and has documented hundreds of industry-specific best practices for more than 20 industries and industry segments and embedded them directly into Siebel eBusiness Applications.

HP proven performance

Proven performance is part of the reason that HP is #1 in server shipments. HP has posted hundreds of benchmark results on the most commonly used benchmarks on hundreds of ProLiant servers and blades, helping customer to identify reasons to be confident in HP.

For more information

HP ProLiant BL460c server blade: www.hp.com/servers/proliant/bl460c

HP ProLiant BL680c G5 server blade: www.hp.com/servers/proliant/bl680c

HP ProLiant IBM System x3850: www.ibm.com/servers

Sun Ultra SPARC T5440: http://www.sun.com/servers/coolthreads/t5440/

HP BladeSystem storage solutions: http://h18006.www1.hp.com/storage/bladesystem/index.html

HP performed the benchmark project at the HP Enterprise Solutions Partner Labs in Houston, TX. Performance and solutions engineers from HP, Linux, and Siebel participated in the benchmark efforts. For full technical details and disclosure:

http://www.siebel.com/products/performance_benchmark/index.shtm

For complimentary sizing and configuration support from HP, please contact the HP Siebel Solutions Center at siebel.hp@hp.com.

For further information on HP and Siebel Systems working together to deliver industry-leading solutions, please visit: http://www.hp.com/go/siebel

Appendix A

The following configurations were used in this benchmark:

PSPP Components

- Siebel CRM Release 8.0 Industry Applications
- Red Hat Enterprise Linux 4.0
- Oracle 10gR2 Database Server v10.2.0.4.0

Gateway/Application Server 1

- 1x2-way HP ProLiant BL460c configured with:
  - 2 x 3.16GHz Intel Xeon (X5460) Quad-Core processors (8 cores total)
  - 32GB RAM
  - Red Hat Enterprise Linux 4.0, 32-bit
  - Oracle 10gR2 Database Client v 10.2.0.1
  - Siebel CRM 8.0 SIA [20204] ENU

Application Server 2

- 1x2-way HP ProLiant BL460c configured with:
  - 2 x 3.16GHz Intel Xeon (X5460) Quad-Core processors (8 cores total)
  - 32GB RAM
  - Red Hat Enterprise Linux 4.0, 32-bit
  - Oracle 10gR2 Database Client v 10.2.0.1
  - Siebel CRM 8.0 SIA [20204] ENU

Database Server

- 1x4-way HP ProLiant BL680c G5 server configured with:
  - 4 x 2.4GHz Intel Xeon E7450 6-Core processors (24 cores total)
  - 32GB RAM (installed)
  - Red Hat Enterprise Linux 4.0, 64-bit
  - Oracle 10gR2 Database Server v10.2.0.4.0

Web Server

- 1x2-way HP ProLiant BL460c configured with:
  - 2 x 3.16GHz Intel Xeon (X5460) Quad-Core processors (8 cores total)
  - 16GB RAM
  - Red Hat Enterprise Linux 4.0, 32-bit
  - Oracle HTTPD Server (OHS) Version 10.1.3.0.0
  - Siebel CRM 8.0 SIA [20204] ENU

HP LoadRunner Controller 1

- 1x HP ProLiant BL480c configured with:
  - 2 x 3.0GHz Intel Xeon Dual-Core CPUs (4 cores total)
  - 24GB RAM
  - Microsoft Windows Server 2003 Enterprise Edition SP1
  - LoadRunner version 8.1

HP LoadRunner Host 2

- 2x HP ProLiant BL460c configured with:

  – 2 x 2.66GHz Intel Xeon Quad-Core processors (8 cores total)

  – 4GB RAM

  – Microsoft Windows Server 2003 Enterprise Edition SP1

  – LoadRunner version 8.1

HP LoadRunner Host 3

- 2x HP ProLiant BL460c configured with:

  – 2 x 2.66GHz Intel Xeon Quad-Core processors (8 cores total)

  – 4GB RAM

  – Microsoft Windows Server 2003 Enterprise Edition SP1

  – LoadRunner version 8.1