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Contents

**ProLiant 8-way servers a true
midrange alternative.....3**
 Functional categories of
 midrange servers.....3
Conclusion10

ProLiant 8-way Servers Play Key Role in Midrange Competition

***Abstract:** This paper emphasizes the advantage of the Compaq ProLiant 8-way systems over other systems as a midrange replacement.*

With the debut of the new Compaq ProLiant 8000 server, midrange customers now have a better option: getting the same performance, reliability, availability, and serviceability as proprietary systems – at 1/3 the cost! And with the launch of 8-way ProLiant servers, Compaq expects to change the competitive landscape for eBusiness infrastructure, redefine the midrange server market place, and bring a new economic value to enterprise customers.

The combination of the new ProLiant 8000 and ProLiant 8500 servers, coupled with strong enterprise storage solutions and compelling new, business-critical services, provides midrange customers with a complete solution. The Compaq 8-way design offers the easiest path to installation, maintenance, and upgradability.

Compaq ProLiant 8-way servers deliver maximum reliability, scalability, manageability, serviceability, availability, storage, and price:performance at a lower start-up cost than any other vendor can deliver today.

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ProLiant 8-way Servers Play Key Role in Midrange Competition
White Paper prepared by Industry Standard Server Division

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ProLiant 8-way servers a true midrange alternative

In the enterprise space, Compaq has merged the low cost and easy-to-use advantages of PCs with the high reliability, serviceability, manageability and availability advantages of the midrange computers. These qualities are needed to address today's customer needs.

That's why we have provided a new 8-way server for these customer requirements AND also added cluster technology and comprehensive services package to complete an extensive midrange solution.

INTRODUCING AN ALTERNATIVE MIDRANGE SOLUTION: With a balanced system Profusion architecture that includes 1-8 Pentium III Xeon 550MHz processors, 16GB SDRAM memory, and multi-bus 66MHz 64-bit PCI hot-plug slots, customers can now extend their IT dollar with a real alternative to proprietary midrange solutions with Compaq 8-way servers - **at a fraction of the cost!**

“The writing is on the wall.”

– *Jonathan Eunice, an analyst with market research firm, Illuminata, referring to the challenge new ProLiant systems present to the proprietary systems from Sun and IBM that can cost three times as much.*



EASE-OF-USE

Functional categories of midrange servers

A study by D.H. Brown Associates, Inc.¹ assembled 11 functional categories of midrange servers that vendors offered. These categories included:

- Cluster Backup and Recovery
- Cluster Failover Configurability
- In-System Failure Recovery
- Cluster Concurrent Database Access
- Cluster High-Availability Administration
- Cluster Single-Systems Image
- Disaster Recovery
- Hardware and Software RAID
- In-System Failure Avoidance

¹ <http://weblib.lkg.dec.com/DHBBrown/RASC.html>

- In-System Online Service and In-System Service Processor Features

Compaq 8-way servers incorporate these customer benefits for ease-of-use as well as the following features and advantages:



MIDRANGE CLASS

Compaq 8-way servers offer true midrange class features with the flexibility of industry standards:

RELIABILITY

- Compaq ProLiant 8-way servers offer increased uptime with its reliability features that include auto processor bus recovery, remote-flash redundant ROM, redundant NIC, redundant Processor Power Modules, PCI hot-plug hardware and software capabilities, ECC memory, hot-plug drives, redundant hot-plug system fans, and optional redundant intelligent hot-plug power supplies. These features keep your servers easier to maintain and enhance nonstop business activity. In addition, many of these features were first offered on the industry standard server and THEN transitioned to proprietary servers.
- *RISC/Unix systems have long enjoyed a reputation for providing remarkable stability and can feature increased uptime. However, many of these systems do not provide the same reliability features that the Compaq 8-way systems can.*

MANAGEABILITY

- Compaq Insight Manage provides the industry with the most comprehensive systems management across the widest range of operating systems, ensuring leading management capabilities. Compaq Insight Intelligent Manager monitors over 1000 management parameters in the server that include temperature, power supplies, etc. The new version of Compaq Insight Manager, Web-Based Compaq Insight Manager XE, allows management from all points, not just from a centralized single console. It provides predictive failure alerts for memory, processors, hard drives, and Processor Power Modules, and integrates tightly with preferred third-party management software.
- Other outstanding Compaq manageability features include SmartStart, Compaq Insight Manager, Diagnostic Interlocks, Front Panel LED status indicators, Remote-Flash Redundant ROM, Integrated Remote Console, and support for Remote Insight Board providing lower total ownership costs.
- The Integrated Management Display on the ProLiant server line provides critical system information on the server. This is especially useful in data centers with a large number of installed servers.
- Remote-Flash Redundant ROM allows ROM to be flashed from a remote site with a backup ROM always stored on the local server. In a mission critical environment,

loss of the ROM can be disastrous. The ProLiant 8000 and ProLiant 8500 allow remote ROM upgrades with confidence.

- For cluster management, Compaq now offers two important tools for web-based administration of clusters, Intelligent Cluster Administrator and Cluster Monitor.
- *Midrange competitors do not provide as extensive a level of details or the level of integration that Compaq Insight Intelligent Manager provides. Competitors' servers also do not offer a redundant ROM and Remote Insight Boards do not operate on RISC servers.*

SERVICEABILITY

- The ProLiant 8-way server family gives customers the choice of two optimized form factors - the maximum capacity ProLiant 8000 and the maximum density ProLiant 8500 modular form factor. The ProLiant 8500 provides advance modular construction which allows an easily accessible and removable mid-plane. This provides virtually cable-free construction internal to the server, modular upgrades for future technology, and optimized serviceability using levered extraction, insertion, and containment of modules. These modules use self-aligning connectors for maximum reliability.
- The lightweight and easy-to-move ProLiant 8000 and ProLiant 8500 provide excellent serviceability and ease-of-use with diagnostic LED indicators, two different rack form factors (14U with 21 drives and 7U with 4 drives), and Push Button PCI hot-plug slots. In addition, the ProLiant 8000 has two available half-height media bays, allowing installation of backup storage devices within the server. The ProLiant 8500 consists of three easily-accessible modules and two power supplies.
- Compaq also designed a comprehensive service plan to save time and training for customers. By offering a wide variety of high-availability service packages for the ProLiant 8-way servers, Compaq assures customers of maximum uptime. Compaq can service any major component failure in 15 minutes or less.
- *RISC servers provide a limited amount of service personnel. RISC systems offer a proprietary service that is controlled and expensive.*

“The Compaq ProLiant 8500 8-way server is solid in every category and its modular design is innovative and utilitarian.”

– PC Week, August 23, 1999 Review on how the ProLiant 8500 is easy to upgrade, easy to maintain, easy to troubleshoot, and how it provides robust hardware redundancy.



AVAILABILITY

- Both Compaq ProLiant 8-way servers are cornerstones of *Compaq NonStop™* solutions that provide failover clustering and backup configurations for higher availability. Compaq 8-way servers feature Pentium III Xeon processors in all 512K, 1M, and 2M cache sizes and include Push Button PCI hot-plug slots, redundant NIC, redundant Processor Power Modules, redundant array controllers (ProLiant 8000), integrated array controllers, and power supply redundancy and power supply cords for maximum availability.

- Additional high availability is gained for the customer through clustering. Clustering links servers and storage devices managed by cluster management software to increase availability of applications and data, and also to achieve performance scalability. Eight-way clusters in various configurations fit together into an architecture fit together into an architecture that provides the highest levels of availability, the Compaq Distributed Internet Server Array (DISA) architecture. The key components of a DISA architecture include load balancing, application servers, data resource servers, management, and security.
- *UNIX systems have much more expensive maintenance costs, operating system costs, and software licensing costs than Compaq 8-way systems. Clustered ProLiant 8-way systems still offer a lower cost of ownership when compared to just one RISC system.*

STORAGE

- New disk drive technology and a new extended SCSI controller with redundancy capability allow both the ProLiant 8000 and ProLiant 8500 server to deliver maximum highly available internal storage capacity.
- All Smart Array products have a single consistent configuration tool (ACU), and a single management tool (Compaq Insight Manager) for the entire server and storage solutions to update with ease. This reduces the cost of training for each successive generation of products and takes much of the guesswork out of trouble-shooting field problems, unlike the other current midrange systems.

The ProLiant 8500 will support up to four 1" Ultra2 hard drives for up to 72.8GB (4 x 18.2GB) of internal storage. The server also supports over 11.6TB of SCSI attached storage using Smart Array 4200 controllers and over 35.2TB of fibre channel attached storage using Fibre Channel controllers. Using the ESA 12000s, the maximum storage is 59TB.

- *No midrange system can match the capability or the data consistency of Compaq Smart Array controllers. Competitors do not have the same configuration, upgradability, management, and drive trays for all of their controllers as Compaq does. Compaq's seamless engineering design integration for its storage features provides customers a lower cost of ownership.*

“Today we’re the fourth largest shopping site on the Web and offer more than 8 million titles. As we continue to focus on our response time, the implementation of a solution that includes Compaq’s industry standard 8-way servers is important if we’re going to meet the needs of that growing customer base.”

–Gary King, Chief Information Office, barnesandnoble.com

8-way server advantages over midrange systems



PRICE:PERFORMANCE

- Proving the power of the new Compaq Profusion architecture, the ProLiant 8000 and 8500 were the first industry-standard servers to break the 40,000 transactions per minute barrier AND the first industry-standard cluster servers to break the 100,000 transactions per minute barrier based on TPC-C results. For the first time, industry-standard servers can now offer the raw processing power of midrange servers - at a much superior price:performance point.
- The Compaq ProLiant Xeon 8-way processor redefines midrange price:performance by driving record-breaking standards-based computing even further, with their most recent performance announcement of TPC-H results. At 1,233 query per hour metric (QphH), the ProLiant 8500 set a record, achieving the best performance for Windows NT and SQL Server. And at 1,253.3QphH at just \$241/QphH@100GB, the ProLiant 8000 achieved the best price: performance for any systems. In addition, it provides comparable performance against Sun UE 4500 at 1/3 the cost.²
- The ProLiant 8500 also achieved the highest ever MAPI Messaging Benchmark (MMB), the highest number of MMBs for any server vendor, and the top 8P and overall leadership numbers for Microsoft Exchange benchmarking.³
- ProLiant 8-way servers also attained a retail benchmark number of 3.014 million sales data line items per hour resulting in the best numbers ever published for the SAP R/3 4.0b Benchmark on any platform.
- With 160 Heavy Users, ProLiant 8-way servers took the best performance spot on the Microsoft Windows Terminal Benchmark.
- ProLiant 8-way servers also achieved a 61% increase on the Novell NetWare 5.0 ServerBench, setting another best performance record.

Summing up all the achievements, customers can see that ProLiant 8-way servers feature:

- **BEST PERFORMANCE FOR ANY 8-WAY INTEL PROCESSOR SERVER.**
- **BEST PRICE:PERFORMANCE FOR ANY 8-WAY SYSTEMS.**

Customers can upgrade from their performance record-breaking ProLiant 8000 4-way server to a performance record-breaking ProLiant 8000 8-way server.

These results prove the balanced nature of the Profusion architecture provides breakthrough linear scalability.

² For more information, please refer to the website at <http://www.tpc.org>

³ For more information, please refer to the website at: <http://www.microsoft.com/exchange/55/gen/PerfScal.htm>

“In the second quarter of 1999, our revenue grew 126% over the previous quarter, so scalability is a challenge. Staying ahead of Internet growth isn’t easy. That is why we need scalability Compaq ProLiant 8-way provides.”

–Ron Rose, Chief Information Office, priceline.com

In addition, customers can also benefit from ProLiant 8-way cluster advantages:



**Compaq 8-way
Cluster vs.
one
IBM RS/6000 S70**



Even with **two** 8-way servers
vs. one IBM RISC server,
Compaq customers will still enjoy:

**Compaq
Value
Advantage**

**Higher Performance
Lower Cost
Higher Availability
Single Point of Manageability**

Customers can now extend their IT dollar with a real alternative to proprietary midrange solutions with Compaq 8-way servers - **at a fraction of the cost!**



COST ADVANTAGE

Intel systems typically cost less than other midrange systems. The value-added software and hardware costs are also typically lower.

Key drivers of lower costs include:

- Initial systems and software costs
- Installation, integration, and training costs
- Systems and hardware upgrades
- Ongoing management costs
- Ongoing applications development and maintenance costs
- Technical support and upgrades

Using one example, Business Research Group quantified the comparative cost of ownership of Microsoft Windows NT Server running on Compaq servers and Sun Solaris servers running on SPARC systems by surveying 400 IS managers responsible for managing these systems.⁴ BRG's analysis identified substantially lower costs among Microsoft Windows NT Server users.

Specifically, Windows NT Server users running on Compaq:

- **Spent 50% less overall on labor, equipment, and services than Solaris/SPARC users for similar environments;**
- **Spent 36% less per server; and**
- **Spent 46% less per user.**

Table 2. Total Cost of Ownership

	Total Cost (\$K)	Cost per Server	Cost per User
Windows NT Server/COMPAQ	\$492.95	\$16.64	.53
Solaris/SPARC	\$986.08	\$25.97	1.00

The results of the study emphatically indicate that Windows NT Server on Compaq delivers lower total cost of ownership than Solaris.

“It (Intel-based systems running Windows NT) gives us as much uptime (as competing offerings) and it costs us less.”

-David George, director of business development at Data Return, an applications service provider based in Texas

⁴ BRG White Paper, “Windows NT Server: Delivering Value to the Enterprise.” March 15, 1998

Conclusion

Once again, Compaq offers customers what they want: performance, scalable headroom, and availability. That's why Compaq not only provides a new 8-way server for these customer requirements but also adds cluster technology and comprehensive services package to complete an extensive midrange solution. Midrange customers now have a better option with Compaq at a lower start-up cost than any other vendor can deliver today.

“The introduction of Compaq ProLiant 8500 into our Data Centers allows us to stay ahead of our customers’ growing transaction volumes. The combination of the 8-way servers and Microsoft’s Windows 2000 Data Center will introduce a new level of enterprise scalability and performance with significant cost savings over Unix-based solutions.”

-Max Latriz, Director of Data Center Operations
