HP 9000 Superdome

Data sheet

From entry-class 2-processor systems up to the high-end, 128-way HP 9000 Superdome, the HP 9000 server family delivers world-class, high-performance computing to the Adaptive Enterprise. Powered by the new PA-8900 processor with increased performance—and running the HP-UX 11i operating environment—HP 9000 servers add greater strength to HP's industry-leading server portfolio by integrating seamlessly into your existing IT infrastructure and providing the type of longevity that's crucial to protecting your investment.

The HP 9000 Superdome delivers world-leading performance density, unmatched investment protection, and the ideal platform to reduce complexity through enhanced server consolidation. The HP 9000 Superdome, with the new PA-8900 processor, delivers breakthrough performance improvements based on increased clock speeds and cache levels over the previous generation of PA-RISC processors—and a level of value well beyond anything previously offered. Featuring unmatched processor density of up to 128 processors per system, the HP Super-Scalable Processor Chipset sx1000, flexible hard and virtual partitioning, and outstanding memory scalability, the HP 9000 Superdome provides high-performance, high-availability, 64-bit UNIX® computing to handle your most demanding workloads.

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Key features: HP 9000 Superdome

- New PA-8900 processors, cell-based technology, and the HP Super-Scalable Processor Chipset sx1000
- Enterprise-proven HP-UX 11i operating environment with built-in binary, source, and data compatibilities and with Linux® and Windows® interoperability
- Scalable to 128 processors
- In-chassis upgrades to HP 9000 servers and HP Integrity servers based on Intel® Itanium® processors
- HP-UX 11i Virtual Server Environment with HP Workload Manager
- Broad portfolio of ISV applications
- Consistent management tools

Key benefits: HP 9000 Superdome

- Blazing-fast application performance to meet your demanding business needs
- Superior performance, rock-solid security, unmatched functionality, investment protection, and lasting value for future growth
- Reduced costs, increased server utilization, ideal for consolidation
- Seamless upgrades without costly box swaps
- Allocates resources automatically, simplifies management, and improves system usage while maintaining service levels
- Wide range of choices to meet critical business and IT requirements
- Common, simplified management

HP 9000 Superdome: a great system just got better

The high-end scalability of the HP 9000 Superdome—with PA-8800 and new PA-8900 processors—provides customers with more than twice the compute power in the same system compared with the previous-generation HP 9000 Superdome. This enables a much higher level of server consolidation: more power in each partition means additional lower-power servers can be consolidated, for increased cost savings and lower total cost of ownership (TCO). In addition, the power and scalability of the HP 9000 Superdome mean that it can handle both planned and unexpected growth in high-end compute loads exceptionally well.

For existing HP 9000 Superdome customers, this new level of performance can be achieved through in-box upgrades to the PA-8900 processor, bringing significant improvements to IT capabilities at an incremental cost. You can upgrade an existing HP 9000 Superdome to a PA-8900-powered HP 9000 Superdome simply by 1) removing the PA-8600, PA-8700, PA-8700+, or PA-8800 cell boards and transferring the memory to new PA-8900–based cell boards; 2) plugging the new PA-8900 cell boards back into the cabinet; 3) updating the software; and 4) resuming operations.

The HP 9000 Superdome is built to deliver unprecedented levels of high availability through such features as redundant and hot-swappable fans and power supplies, the online addition and replacement of PCI-X I/O cards, and dynamic processor and memory de-allocation.

Taking the HP 9000 Superdome to the next level

HP has designed the HP 9000 Superdome to get the most out of the powerful PA-8900 processor by integrating the processor with our own HP Super-Scalable Processor Chipset sx1000. This chipset offers decreased memory latency and increased memory bandwidth, enabling the server to achieve even greater performance.

What's more, this same chipset is specifically designed for use with both the PA-8900 and PA-8800 processors as well as with the Intel® Itanium® 2 processor. In other words, the PA-8900-based HP 9000 Superdome incorporates the very same leading-edge chipset technology that is used in the HP Integrity Superdome, offering easy upgrades to industry-standard computing.

The HP 9000 Superdome is an ideal platform on which to consolidate multiple smaller servers, which leads to lower total cost of ownership (TCO) and reduced IT complexity. The HP 9000 Superdome's flexibility in application and server consolidation is enhanced by the server's hard and virtual partitioning capabilities—as well as by the resource- and workload-management capabilities of the HP-UX 11i operating system. When business challenges demand even more performance, in-box upgrades to the HP Integrity Superdome are simple and affordable.

The HP 9000 Superdome delivers the performance and high availability necessary for your mission-critical applications.

HP-UX 11i, the industry's leading UNIX operating environment

The capabilities of HP's PA-8900-based family of servers are further bolstered by HP-UX 11i, the secure, robust, and critically acclaimed enterprise UNIX operating environment. With leadership workload management, high availability, and the innovative server-virtualization capabilities—such as partitioning—that are part of the HP Virtual Server Environment, HP-UX 11i makes the best use of system resources while it maintains service levels.

For HP 9000 systems, HP-UX 11i is a high-quality, proven, mission-critical operating environment that increases productivity, improves agility, and helps build a foundation for growth and lasting value.

HP 9000 servers offer flexible choices for the future

The ability to scale to meet new challenges is key to enabling an Adaptive Enterprise, in which business and IT are synchronized to capitalize on change. That means having a clear roadmap for the future of your IT infrastructure. The release of PA-8900-based systems underscores HP's commitment to delivering strong PA-RISC-based solutions as it expands the HP Integrity server solution ecosystem. You can choose PA-RISC-based systems today—realizing enhanced PA-8900 performance now—and assure yourself of a smooth transition to future technology later on.

The PA-8900 processor completes HP's long PA-RISC processor roadmap, reinforcing the company's strategy to protect and enhance your investments in HP solutions. HP's commitment to simple and modular technologies is embodied in the HP 9000 server series, and your HP 9000 servers will be an ideal stepping stone to HP Integrity servers and Itanium-based computing. When you're ready to move to the next level of computing performance, the same chassis can be upgraded with Intel Itanium processors (via swapping of cell boards). HP Integrity servers offer new degrees of performance, flexibility in operating-system choice, application support, and services. That means as your performance needs grow, you can continue to enjoy the world-class investment protection of your HP 9000 server as you move to the industry-leading performance of the HP Integrity platform—at an affordable, incremental cost.

On top of this, HP plans to support mixed Intel Itanium/PA-RISC architecture environments by the end of 2005 in the Superdome server. PA-8900 processors will be able to coexist with Intel Itanium 2 processors in the same cabinet but in separate partitions. This capability will provide significantly greater flexibility as users test and subsequently migrate all or a portion of their infrastructure to the Intel Itanium architecture.

HP's primary competitor does not offer this in-box upgrade capability to the next several generations of even-more-powerful processors. In fact, it is superiority in engineering and design (an HP core competency) that allows the HP 9000 Superdome to be in-box upgraded to multiple generations of faster processors—either PA-RISC or Intel Itanium processors.

Solutions running on the HP 9000 Superdome enable you to further reduce complexity and increase efficiency via intelligent management tools. And, by utilizing the server's hard and virtual partitioning capabilities and HP Utility Pricing offerings, you can dynamically realign your resource utilization with your business needs and budget.

HP StorageWorks solutions: putting information to work

HP StorageWorks helps businesses put information to work. Our industry-leading portfolio of network storage solutions makes it easier for you to keep the right information at your fingertips, quickly adapt to change and exploit new opportunities, and increase information availability while radically cutting costs. For more information on StorageWorks, please contact your HP sales representative or visit:
www.hp.com/storage

Technical specifications

Configuration options	HP 9000 Superdome 16 sockets (32 CPUs)	HP 9000 Superdome 32 sockets (64 CPUs)	HP 9000 Superdome 64 sockets (128 CPUs)
PA-RISC processors			
No. of PA-8900 processors	4–32 CPUs	4–64 CPUs	12–128 CPUs
No. of 8-CPU cell boards[1]	1–4	1–8	3–16
Minimum/Maximum memory	2 GB/256 GB	2 GB/512 GB	6 GB/1 TB
Partitions			
No. of hard partitions	4	8	16
No. of virtual partitions	32	64	128
Maximum memory per partition	256 GB	512 GB	1 TB
Maximum processors per partition	32	64	128
Total hot-swap PCI-X I/O slots	48 slots (32 slots @ 533 MB/s, 16 slots @ 1066 MB/s)	48 or 96 slots (64 slots @ 533 MB/s, 32 slots @ 1066 MB/s)	96 or 192 slots (128 slots @ 533 MB/s, 64 slots @ 1066 MB/s)
Hot-swap, redundant power supplies (N+1 included)	4	6	12
Fans			
I/O fans	6	6	12
Hot-swap, redundant blowers or fans (N+1 included)	4	4	8
Bandwidth			
Crossbar (peak)	16 GB/s	32 GB/s	64 GB/s
Cell controller to I/O subsystem (peak) per I/O chassis	2.0 GB/s	2.0 GB/s	2.0 GB/s
I/O (peak)	8 GB/s	16 GB/s	32 GB/s
Memory (peak)	64 GB/s	128 GB/s	256 GB/s
Operating system	HP-UX 11i v2 with HP Virtual Server Environment (choice of Mission-Critical, Enterprise, or Foundation Operating Environment)	HP-UX 11i v2 with HP Virtual Server Environment (choice of Mission-Critical, Enterprise, or Foundation Operating Environment)	HP-UX 11i v2 with HP Virtual Server Environment (choice of Mission-Critical, Enterprise, or Foundation Operating Environment)
HP Instant Capacity	CPUs and memory (cell level)	CPUs and memory (cell level)	CPUs and memory (cell level)
Cell local memory for faster memory access and faster application performance	Yes	Yes	Yes
Virtual Server Environment	Workload management, partitions, availability software, and utility pricing (optional)	Workload management, partitions, availability software, and utility pricing (optional)	Workload management, partitions, availability software, and utility pricing (optional)

[1] Online addition and replacement capability will be offered with a future HP-UX release.

Technical specifications *(continued)*

Management	HP Systems Insight Manager provides a single point of administration across all operating systems supported on HP Integrity servers. In addition, the following tools are available to manage the HP 9000 Superdome under HP-UX 11i:
HP-UX 11i	**Software deployment** • HP Ignite-UX for installation and deployment of the HP-UX 11i Operating System • HP Software Distributor-UX for software and patch management • Update-UX automates updates to HP-UX 11i Operating Environments • Software Package Builder packages software into SD-UX packages **Configuration management** • HP System Administration Manager for HP-UX 11i system administration • Partition Manager to manage nPartitions • HP-UX 11i webmin-based Admin allows easy plug-in of open source management tools • HP-UX 11i Bastille provides security hardening and lockdown • Security Patch Check efficiently improves system security • Serviceguard Manager monitors and manages Serviceguard clusters • Management Processor enables comprehensive remote server management • WBEM for consistent management **Options** • HP Serviceguard Extension for RAC for HP-UX 11i • HP Serviceguard Extension for SAP for HP-UX 11i • HA Monitors for Event Monitoring Service for HP-UX 11i • High-availability toolkits for HP-UX 11i • HP Mirrordisk/UX for HP-UX 11i • HP Extended Campus Cluster for HP-UX 11i **Workload management** • Management Processor enables comprehensive remote server management • Global Workload Manager for resource optimization
Support and services	• Analysis, design, and implementation of infrastructure, IT processes, and IT organization • Education services • Smart Set integration services • Implementation services • Mission-critical services and support • Proactive and reactive support services • Outsourcing and business recovery services • Financial services

Environmental specifications

Altitude	Operating: 10,000 ft. (3000 m) maximum Non-operating: 15,000 ft. (4500 m) maximum		
Temperature	Operating: 68 to 86°F (20 to 30°C) Non-operating: –40 to +158°F (–40 to +70°C) Maximum rate of temperature change: 36°F (20°C) per hour		
Humidity	Operating: 15% to 80% RH @ 86°F (30°C) Non-operating: 90% RH @ 149°F (65°C)		
Dimensions	**16/32 processors** Height: 77.2 in. (1,960 mm) Width: 30 in. (762 mm) Depth: 48 in. (1,220 mm)	**32/64 processors** Height: 77.2 in. (1,960 mm) Width: 30 in. (762 mm) Depth: 48 in. (1,220 mm)	**64/128 processors** Height: 77.2 in. (1,960 mm) Width: 60 in. (1,524 mm) Depth: 48 in. (1,220 mm)
Weight	1,102 lb. (500 kg)	1,318 lb. (598 kg)	2,636 lb. (1,196 kg)
Power requirements	Typical power dissipation: 3800 VA (maximum configuration) Input current: 10.2 A @ 200 VAC AC input power: 200–240 V, 50–60 Hz		
Regulatory			
Safety	UL listed, CUL certified, TÜV GS Mark, compliant with EN 60950		
Electromagnetic interference	Complies with FCC rules and regulations, Part 15, as a Class A Digital Device; manufacturer's declaration to EN 55022 Level A, VCCI registered, Class I, Korea RLL		
Power line LF emissions	EN 61000-3-2 (Europe); EN 61000-3-3 (Europe)		

Evolve your infrastructure confidently with a partner that stands accountable.

HP Services professionals take a collaborative approach to helping you reduce IT complexity. We will work with you to build an agile IT infrastructure that can respond to change and more closely align IT with business goals. Our customers consistently achieve higher levels of performance when using HP's Solution Lifecycle (SLC) process. The SLC process helps organizations achieve rapid productivity and maximum availability by examining their specific needs at each of five distinct phases (plan, design, integrate, install, and manage) and then designing HP 9000 Superdome solutions around those needs. Drawing from our portfolio of Superdome Service Solutions, we can help you build an Adaptive Enterprise that provides greater business value with reduced risk. You'll realize higher, more predictable service levels and lower total cost of ownership while increasing the value of your IT investments. Superdome Service Solutions include:

- **Design services** that translate your business and technical needs into a solution, including all necessary hardware and software
- **Comprehensive site preparation** to verify that your environment is ready for the physical requirements of the Superdome system

For more information on these services, please contact your HP sales representative or visit:
www.hp.com/hps/support

Flexible financing options

Take advantage of HP's special financing offers to further enhance your return on IT. Leasing your HP 9000 server is cost-effective and offers you an easy transition path to the new PA-RISC processors or to an Itanium-based solution with HP Integrity servers, making it the smartest way to invest in IT.

HP Financial Services offers a full range of IT transition, acquisition, management, and disposition services—helping you to remove existing equipment and paying you for technology that has remaining market value.

Companies interested in lowering their total costs may take advantage of Pay per use. When you acquire your HP servers on a Pay-per-use basis, you pay according to your level of usage—you'll never pay more than you would with a traditional lease, and you'll likely pay less. Available on a wide range of HP servers, Pay per use increases your agility, improves your level of service, and lowers your total cost of computing. For more information on these services, please contact your HP sales representative or visit:
www.hp.com/go/hpfinancialservices

To learn more

For more information about the HP 9000 Superdome, please contact any of our worldwide sales offices or visit:
www.hp.com/go/superdome
www.hp.com/go/hp9000

For more information

HP Financial Services provides innovative financing and financial asset management programs to help you cost-effectively acquire, manage, and ultimately retire your HP solutions. For more information on these services, contact your HP sales representative or find us on the Web at:
www.hp.com/go/hpfinancialservices

HP Customer Support provides a broad spectrum of services to commercial and enterprise customers, including performance and availability services such as proactive mission-critical services and support management services for deployment of the entire IT infrastructure, including HP and multivendor environments. For more information on these services, contact your HP sales representative or visit:
www.hp.com/hps/support

To learn more, visit www.hp.com

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