

HP Integrity Superdome server



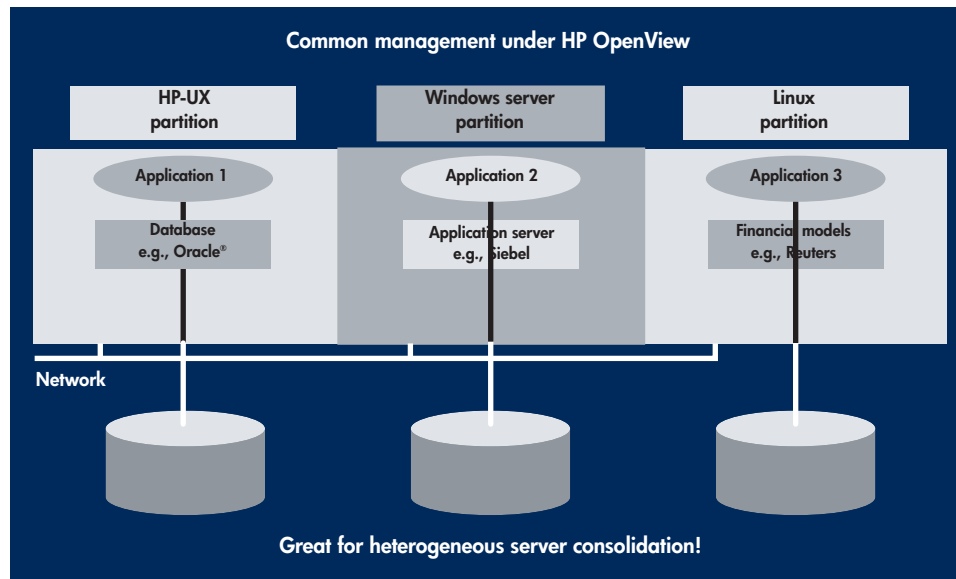
Demand more: more agility, more accountability, and a better return on IT—for building an adaptive enterprise

HP Integrity Superdome servers provide breakthrough performance, flexibility, and lasting value

Based on the Intel® Itanium® architecture, the HP Integrity Superdome is the only high-end server available worldwide that provides multiple-operating-system (OS) capability, allowing you to run all of the leading OSs on the same system, even concurrently. By making this all possible via in-box upgrades to existing PA-RISC-based HP 9000 Superdome systems, HP delivers unprecedented investment protection and a better return on IT (RoIT). The HP Integrity Superdome delivers a significant performance increase over the existing PA-8700+ HP 9000 Superdome while offering 512 GB of memory capacity for running large enterprise and technical computing applications. Its new cell board design and the accompanying sx1000 chipset, enable this record-breaking performance and also deliver enhanced high-availability (HA) features.

The HP Integrity Superdome server, featuring the new Intel® Itanium® 2 processor, is the only high-end server available worldwide that can simultaneously run HP-UX in one partition, Microsoft® Windows® Server 2003 in another, and Linux in yet another. This breakthrough technology makes the HP Integrity Superdome server uniquely useful for heterogeneous server consolidation—and that is just the beginning of exciting technological advances this server brings to the table for enabling our customers to build an adaptive enterprise. The HP Integrity Superdome delivers world-leading performance, simplified management architecture, and best-in-class solution deployment—a level of functionality and value well beyond anything the industry has previously offered.





Features and benefits

Agility

Multiple-OS support—Enables rapid deployment of applications; can be a UNIX®-only server, a Windows-only server, a Linux-only server, or any combination of these operating systems

New sx1000 chipset—Delivers higher performance and future expansion to 128 CPUs

Cell local memory—Offers faster memory access and higher performance

Greater computing "headroom"—We're at the leading edge of Intel Itanium processor technology and it will continue to make performance gains for many years to come

Accountability

Enhanced high-availability features (via selected redundant cell board components)—For continuous operation

Complete solutions—Hardware, software, services, and support, including best-in-class partners

Return on IT (RoIT)

Common management under HP OpenView—Provides operational simplification, reduction in training requirements, and lower operating cost

Cell board iCOD (instant capacity on demand) (HP-UX only)—Adds CPUs and memory nearly instantaneously and allows IT resources to be aligned with utilization requirements and business/cost model

In-box processor upgrade capability, from PA-RISC to Itanium to future Itanium—Enhanced investment protection, providing a greater RoIT

Superior performance and scalability

The HP Integrity Superdome server delivers exceptional performance across a variety of industry-standard and software-application benchmarks, including the world-record Windows TPC-C benchmark of 707,102 tpmC (at \$9.13/TPC-C, available 10/23/03) based on Microsoft Windows Server 2003, Datacenter Edition for 64-bit Itanium-based systems and SQL Server 2000 (64-bit). The HP Integrity Superdome also offers a choice of several configurations, to meet your performance needs. With up to 64 CPUs, 512 GB of memory, 16 hard partitions, and 32 GB/s of I/O bandwidth, the HP Integrity Superdome is the best solution for supporting your business and technical requirements.

HP is committed to helping you manage costs, increase quality, mitigate risk, and improve agility by delivering the three elements that are essential for building an adaptive enterprise: more accountability, more agility, and a better RoIT.

Multiple operating systems

The HP Integrity Superdome provides a superior solution in a single operating system environment. For a highly scalable 64-processor Windows-only server, it provides a growth path for scaling up to accommodate large databases. It is a function-rich, highly scalable, 64-way HP-UX UNIX-only server as well. The HP Integrity Superdome is also outstanding if you want to run an enterprise-class Linux-only server dedicated to complex financial models. In addition to these superior single operating system uses, the HP Integrity Superdome features the capability to run multiple operating systems, which provides several advantages:

- **Rapid deployment of applications:** Your applications can run on UNIX, Windows, or Linux, providing greater enterprise agility.
- **Wider choice of applications:** Select your applications from a broad portfolio across three operating systems.
- **Higher levels of performance optimization:** Pick the combination of application and operating system that gives the highest level of performance.
- **Wider choice of databases:** You can run Oracle, Microsoft SQL Server, or other databases.
- **Investment protection:** Your applications will run even if your ISV decides to switch the operating system it supports.

- **Growth opportunity for smaller Windows servers:** As current Windows servers need more processing power, or as multiple Windows servers need to be consolidated, HP Integrity Superdome provides these capabilities.

High availability

The HP Integrity Superdome is built to deliver unprecedented levels of high availability for your most critical applications. This is achieved through features such as redundant and hot-swappable fans and power supplies, error checking and correcting (ECC) on CPU and memory paths, the online addition and replacement (HP-UX only) of PCI-X I/O cards, and dynamic processor (HP-UX only) and memory de-allocation (HP-UX only).

Industry-leading investment protection

The HP Integrity Superdome is designed to scale as your business needs change and grow, with in-box scalability up to 64 CPUs. You can upgrade an existing HP 9000 Superdome to an HP Integrity Superdome by simply removing the cell boards and transferring the memory to the new Intel Itanium 2-based processor cell boards, plugging the cell boards back into the cabinet, updating the software, and then resuming operation. With the new sx1000 chipset, Superdome soon will support up to 128 processors for even greater performance levels—and, of course, you can get all this via an in-box upgrade. This upgradability is due to the highly modular cell board that contains approximately 80 percent of the intelligence of the Superdome server.

	Features	Benefits
Capacity	Single node: 16, 32, or 64 Intel Itanium 2 1.5 GHz processors with 6 MB L3 on-chip cache	Superior performance and scalability for enterprise and Internet applications
	Industry leadership across a variety of benchmarks	Provides easy capacity guidance
	Partitioning capability (1 to 16 hard partitions) for resource allocation, multiple operating environments, or application scaling	<ul style="list-style-type: none"> Optimizes resource allocation between competing workloads Runs multiple operating systems, including different platforms for test, development, and deployment Scalable resources optimize application performance and protect hardware investment
	Up to 512 GB memory (1 GB DIMMs) and peak memory bandwidth 128 GB/s per 64-way cabinet	Fast, reliable processing of high-performance applications
	64-bit 133 MHz industry-standard PCI-X I/O cards (Note: PCI-X throughput is 1 GB/s as compared to PCI throughput of 528 MB/s.)	Easily handles I/O-intensive applications and scales quickly to accommodate higher demands
Availability	Storage options including JBOD, Fibre Channel, or HP StorageWorks disk arrays (Vraid, Vsnap, snapclones, and HP AutoRAID), HP StorageWorks SANs, and tape drives and libraries	Flexible, scalable, high-capacity storage that protects critical data
	<ul style="list-style-type: none"> Online addition and replacement of PCI-X I/O cards, I/O card cages¹, and cells (CPU/memory¹) (HP-UX only) 6 or 12 fans and 4, 6, or 12 power supplies; all hot-swap, N+1 included Error checking and correction on all CPU and memory paths Parity-protected I/O data paths Dual power source 	Built-in high-availability features deliver superior levels of: <ul style="list-style-type: none"> Reliability Supportability Repairability Single-system availability Multi-system availability
	Hard partitions (up to 16)	Enables multiple-OS consolidation opportunities and separates applications for higher availability
	Support for MC/Serviceguard and MC/Lockmanager in a Superdome cluster (HP-UX and Linux only)	Complete solutions for clustered high availability that eliminates single points of failure
	Security	Host-based intrusion detection (HP-UX only)
IPSec end-to-end virtual private network capability (HP-UX)		Application-independent network-layer security
Manageability	Support Management Station (SMS)	Centralized, remote access to firmware and scan diagnostic tools for use across all Superdome systems in the data center
	Partition Manager (parmgr) for hard partitions	Intuitive GUI interface to easily manage and modify all partitions on a Superdome system
	Extended Fault Management System (HP-UX only)	Console to display system status (local and remote), reset system; control power to turn on/off
	Integrated HP Servicecontrol Manager (HP-UX only)	Cost-effective, rapid central control of server resources for the highest degree of efficiency in system administration
	HP-UX Workload Manager, the only goal-based resource management in the UNIX industry for high-end servers (HP-UX only)	Automatically reconfigures CPU allocations based on customers' service-level objectives (SLOs)
Investment protection and flexibility	Designed for future upgrades to more powerful Intel Itanium processors	Superior investment protection and longevity
	Support for Microsoft Windows and Linux (as well as HP-UX 11i v2)	Offers a choice of environments with easy transition to production on the robust HP-UX 11 platform
	Windows System Resource Manager for Windows Server 2003	<ul style="list-style-type: none"> Set CPU and memory allocation policies on applications, which includes selecting processes to be managed and setting resource usage targets or limits Manage CPU utilization (percent CPU in use) Limit the process working set size (physical resident pages in use) Manage committed memory (pagefile usage) Apply policies to users or groups on a Terminal Services application server Apply policies on a date/time schedule Generate, store, view, and export resource utilization accounting records for management, service-level agreement (SLA) tracking, and charge-back purposes

Configuration options	HP Superdome 16-way	HP Superdome 32-way	HP Superdome 64-way
No. of Intel Itanium 2 1.5 GHz processors	2–16 CPUs	2–32 CPUs	6–64 CPUs
4-CPU cell boards ¹	1–4	1–8	3–16
Minimum/maximum memory	2 GB/128 GB	2 GB/256 GB	16 GB/512 GB
Total hot-swap PCI-X I/O slots (hot-swap is HP-UX only)	48 slots (32 slots @ 533 MB/s, 16 slots @ 1066 MB/s)	48/96 slots (64 slots @ 533 MB/s, 32 slots @ 1066 MB/s)	96/192 slots (128 slots @ 533 MB/s, 64 slots @ 1066 MB/s)
Hot-swap, redundant power supplies (N+1 included)	4	6	12
I/O fans	6	6	12
Hot-swap, redundant blowers or fans (N+1 included)	4	4	8
nPartitions	4	4/8	8/16
Crossbar bandwidth (peak)	16 GB/s	32 GB/s	64 GB/s
Cell controller to I/O subsystem bandwidth (peak)	2.0 GB/s	2.0 GB/s	2.0 GB/s
I/O bandwidth (peak)	8 GB/s	16 GB/s	32 GB/s
Memory bandwidth (peak)	64 GB/s	128 GB/s	256 GB/s
Operating systems	HP-UX 11i v2; Microsoft Windows Server 2003, Datacenter Edition; Linux	HP-UX 11i v2; Microsoft Windows Server 2003, Datacenter Edition; Linux	HP-UX 11i v2; Microsoft Windows Server 2003, Datacenter Edition; Linux
Instant capacity on demand (iCOD) (HP-UX only)	CPUs and memory (cell iCOD)	CPUs and memory (cell iCOD)	CPUs and memory (cell iCOD)
Cell local memory for faster memory access and faster application performance	On 4 cells	On 8 cells	On 16 cells
Physical dimensions:			
Height	1,960 mm (77.2 in.)	1,960 mm (77.2 in.)	1,960 mm (77.2 in.)
Width	762 mm (30 in.)	762 mm (30 in.)	1,524 mm (60 in.)
Depth	1,220 mm (48 in.)	1,220 mm (48 in.)	1,220 mm (48 in.)
Weight	500 kg (1,102 lb.)	598 kg (1,318 lb.)	1,196 kg (2,636 lb.)
Operating temperature	20°C to 30°C (68°F to 86°F)	20°C to 30°C (68°F to 86°F)	20°C to 30°C (68°F to 86°F)
Non-operating temperature	–40°C to 70°C (–40°F to 158°F)	–40°C to 70°C (–40°F to 158°F)	–40°C to 70°C (–40°F to 158°F)
Maximum rate of temperature change	20°C/hr (36°F/hr)	20°C/hr (36°F/hr)	20°C/hr (36°F/hr)
Operating relative humidity	15% to 80% @ 30°C (86°F)	15% to 80% @ 30°C (86°F)	15% to 80% @ 30°C (86°F)
Non-operating relative humidity	90% @ 65°C (149°F)	90% @ 65°C (149°F)	90% @ 65°C (149°F)
Operating altitude	0–3,100 m (10,000 ft.)	0–3,100 m (10,000 ft.)	0–3,100 m (10,000 ft.)
Non-operating altitude	0–4,600 m (15,000 ft.)	0–4,600 m (15,000 ft.)	0–4,600 m (15,000 ft.)

¹ Online addition and replacement capability offered with a future HP-UX release.

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Evolve your infrastructure confidently with a partner that stands accountable

When you're ready to take advantage of the performance improvements and agility that HP Integrity servers offer, HP has a full range of services to help make the evolution as seamless and painless as possible. We'll help you quickly and confidently introduce HP Integrity-based solutions into your existing IT environment and maximize their potential for your business. We offer assessment services to precisely define porting requirements and chart a course to deployment; implementation services to install and configure equipment rapidly; and education services to provide your staff with the expertise required to achieve optimal system performance. Throughout the transition process, HP accepts full accountability for delivering on the service commitments that we and our partners have made. And our commitment to your satisfaction doesn't stop with the evolution process itself. Our support offerings—from simple reactive to comprehensive mission critical—reduce the risks associated with downtime once your HP Integrity systems are installed. We are looking

ahead to ensure your long-term success by working with leading independent software vendors (ISVs) in both the commercial and technical markets to optimize their applications to the Intel Itanium 2 architecture, thereby gaining the full potential of your HP Integrity Superdome systems.

Find out how you can join the long list of customers using Superdome for solving your mission-critical computing needs by contacting any of our worldwide sales offices or HP Channel Partners (in the U.S. call 1-800-637-7740).

For more information

Contact any of our worldwide sales offices or HP Channel Partners (in the U.S. call 1-800-637-7740) or visit our HP Superdome servers Web site at www.hp.com/go/superdome

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HP product information and technical documentation is available online at www.docs.hp.com

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5981-7795EN Rev. 1, 06/16/2003

