# HP Superdome 2: The ultimate mission-critical platform

Defining the next decade of mission-critical computing

Data sheet

## HP mission-critical Converged Infrastructure

HP combines innovation, partnerships, and expertise to deliver an industry-proven mission-critical Converged Infrastructure. This newest generation of HP Integrity systems leverages the industry's #1 blade platform, runs HP-UX 11i v3, and offers a common, bladed platform from x86 to Superdome 2.[1] Moreover, the architecture embodies FlexFabric, a virtual fabric that can address any workload through rapid scale-up, scale-out, and scale-within capabilities.

## HP Superdome 2: Superdome resiliency meets BladeSystem efficiency

HP Superdome 2 pioneers a new category of modular, mission-critical systems that scale to consolidate all tiers of applications on a common platform. Its unique blend of reliability, efficiency and virtualization features make it the ideal foundation for mission-critical apps—whether they be in traditional IT or private cloud environments.

Superdome 2 includes:

- Trusted Superdome resiliency with 100+ new mission-critical innovations such as the Superdome 2 Crossbar Fabric and Power-on-once technologies
- Bladed design, common components, and standard racks
- A common server management framework, supported from x86 to Superdome 2

Superdome 2 sets the standard for the next decade of mission-critical computing

## Key features and value

**Power-on-once technology keeps critical applications up and running**

For enterprise customers, planned downtime can be just as problematic as unplanned downtime. Power-on-once is a complete resiliency framework which keeps the system running and provides up to 4.5x boost to infrastructure reliability. Key features include:

- The ability to hot-swap fans, power supplies, without tools, and without bringing the system down
- Electrically-isolated, passive backplane, which is designed to remove single points of failure and active components along signal paths
- Superdome 2 Analysis Engine, which delivers predictive error-handling to reduce time and cost of error management

[1] Source: Q4/09 IDC Quarterly Server Tracker, February 2011.

**Crossbar fabric for extreme scalability and reliability**

The innovative Superdome 2 Crossbar Fabric is both flexible and fault tolerant. It is the only UNIX® server in the industry that enables flexible scaling, allowing I/O to scale independent of processors. IT architectures can be built to the exact application needs—CPU intensive, I/O intensive, or anything in between. The SD2 Crossbar Fabric is also fault tolerant. This means that the fabric can survive a complete crossbar failure, re-route data, and recover immediately. This is done through an end-to-end transaction retry innovation that self-diagnoses and self-heals any errors in communication through the fabric. This unique combination of features makes Superdome 2 a highly reliable and flexible foundation for mission-critical applications.

**Common, modular components for improved efficiency**

HP Superdome 2 offers enhanced features to increase scalability, improve memory, and provide better compute power without compromising performance. Designed to scale from 8 to 256 cores and more, this newest generation of Superdome offers:

- Up to a 4x improvement in performance, in half the size[2]
- A modular, bladed design, based on 16 socket building blocks (each with up to 16 Intel® Itanium® 9300 series processors and 64 cores of compute power)
- Scale-as-you-grow configurations, including an 8-, 16-, and 32-socket server
- 256 DIMM slots with up to 2 TB of DDR3 memory, with double-chip spare, providing a large memory footprint for the most demanding applications
- 64 built-in 10GbE ports
- A full suite of capacity-on-demand capabilities: pay per use (PPU), iCAP, GiCAP, and TiCAP
- Built-in shared DVD

[2] Source: HP Internal Analysis, 2010.

**Technical specifications-HP Superdome 2**

| | SD2-8s | SD2-16s | SD2-32s |
|---|---|---|---|
| **Processors** | Intel Itanium 9350 4c<br>Intel Itanium 9340 4c | Intel Itanium 9350 4c<br>Intel Itanium 9340 4c | Intel Itanium 9350 4c<br>Intel Itanium 9340 4c |
| **Processor/Cores per system** | 16/64 | 16/64 | 32/128<br>designed to scale from 8 to 256 cores and more |
| **Processor/Cores per partition** | 8/32 | 16/64 | 32/128 |
| **Module type** | Quad-core processor | Quad-core processor | Quad-core processor |
| **9340 Clock speed with Turbo** | 1.60 GHz up to 1.73 GHz | 1.60 GHz up to 1.73 GHz | 1.60 GHz up to 1.73 GHz |
| **9350 Clock speed with Turbo** | 1.73 GHz up to 1.86 GHz | 1.73 GHz up to 1.86 GHz | 1.73 GHz up to 1.86 GHz |
| **QuickPath Interconnect** | 19.2 GB/s | 19.2 GB/s | 19.2 GB/s |

| | SD2-8s | SD2-16s | SD2-32s |
|---|---|---|---|
| **L1 cache** | 32 KB per core | 32 KB per core | 32 KB per core |
| **L2 cache (instruction)** | 512 KB per core | 512 KB per core | 512 KB per core |
| **L2 cache (data)** | 256 KB per core | 256 KB per core | 256 KB per core |
| **L3 cache**[3] | 24 MB per socket | 24 MB per socket | 24 MB per socket |
| **L4 cache** | 64 MB per socket | 64 MB per socket | 64 MB per socket |
| **Memory minimum/maximum** | Minimum: 32 GB (8 x 4 GB)<br>Maximum: 2 TB (256 x 8 GB) | Minimum: 32 GB (8 x 4 GB)<br>Maximum: 2 TB (256 x 8 GB) | Minimum: 32 GB (8 x 4 GB)<br>Maximum: 4 TB (512 x 8 GB) |
| **Memory type** | Registered PC3-10600 DDR3 1,333 MHz ECC DIMMs | | |
| **Memory protection** | Error checking and correcting (ECC) on memory and caches; double-chip spare | | |
| **Supported operating system** | HP-UX 11i v3[4] | HP-UX 11i v3 | HP-UX 11i v3 |
| **External I/O slots** | 48 external PCIe x8 Gen2 | 96 external PCIe x8 Gen2 | 96 external PCIe x8 Gen2 |
| **Internal I/O slots** | 24 PCIe Mezzanine[5]<br>16 Type II and 8 Type I, PCIe x8 Gen2 | 24 PCIe Mezzanine<br>16 Type II and 8 Type I, PCIe x8 Gen2 | 48 PCIe Mezzanine<br>32 Type II and 16 Type I, PCIe x8 Gen2 |
| **Built-in networking** | 32 10GbE ports<br>Pass-through or Switch interconnect module | 32 10GbE ports<br>Pass-through or Switch interconnect module | 64 10GbE ports<br>Pass-through or Switch interconnect module |
| **Partitioning** | 8 socket electrically isolated nPARs, vPARs, HP-VMs, Secure Resource Partitions | 16 socket electrically isolated nPARs, vPARs, HP-VMs, Secure Resource Partitions | 32 socket electrically isolated nPARs, vPARs, HP-VMs, Secure Resource Partitions |
| **Capacity on Demand** | PPU: iCAP, TiCAP, GiCAP | | |
| **Form factor** | 18U Enclosure<br>4U I/O Expansion Enclosure<br>HP 600 mm wide 10K-G2 racks in 36U & 42U heights<br>Standard rack door | 18U Enclosure<br>4U I/O Expansion Enclosure<br>HP 600 mm wide 10K-G2 racks in 36U & 42U heights<br>Superdome 2 door with active status display | 2 18U Enclosures in single 19" rack<br>4U I/O Expansion Enclosure<br>HP 600 mm wide 10K-G2 racks in 36U & 42U heights<br>Superdome 2 door with active status display |
| **High availability—standard server features** | 2N (N+N) redundant power supplies<br>N+1 fans (or greater depending on the load)<br>Online replaceable and redundant OA, utilities, clock, and service processor subsystems<br>Fault-Tolerant Crossbar Fabric built on dynamic multipathing and end-to-end retry technology<br>Enhanced MCA recovery (Automated Processor Recovery) with Intel Cache Fail-Safe Technology<br>ECC on caches, memory ECC, and double-chip spare<br>ECC, re-tries, and Link Width Reduction on data paths<br>Automatic de-configuration of memory and processors<br>I/O Advanced Error Recovery, PCIe OL,[6] and I/O isolation off Crossbar Fabric<br>Redundant network paths<br>Redundant Fibre Channel paths | | |
| **HP Matrix Operating Environment with HP-UX** | Provides industry-leading workload and resource-management solutions to accelerate complex IT projects and simplify daily operations. **www.hp.com/go/insightdynamics/integrity** | | |
| **Interfaces** | VGA and 2 USB ports for local human interface; 1 RS-232 serial port and 10/100Base-T LAN for Integrity Integrated Lights-Out (iLO 3) management | | |
| **Removable media** | Built-in DVD-ROM, accessible from all partitions | | |

[3] L3 cache size for 9340 = 20 MB

[4] Choice of Data Center, High Availability, Virtual Server or Base Operating Environment

[5] Mezzanine I/O supported in future release

[6] PCIe OL in future release

(Note: All expected availability dates are subject to change without prior notice.)

**Product specifications—HP Superdome 2**

| | | |
|---|---|---|
| **Altitude** | Operating: 3050 m (10,000 ft) | Non-Operating: 4500 m (15,000 ft) |
| **Temperature** | Operating: +15°C to +32°C | Non-Operating: –40°C to +70°C |
| **Relative humidity** | Operating: 20% to 80% @ 30°C | |
| **Dimensions** | **Superdome 2 BladeSystem Enclosure**<br>Height: 798 mm/31.4" (18U)<br>Width: 447 mm/17.6"<br>Depth: 828 mm/32.6" | **IOX Enclosure**<br>Height: 173 mm/6.8" (4U)<br>Width: 437 mm/17.2"<br>Depth: 572 mm/22.5" |
| **Weight** | Maximum 274 kg/733 lb (estimate, fully populated);<br>IOX weight: 29.5 kg/65 lb fully loaded | |
| **Power** | 9000 VA, IOX: 535VA at PF .98 or better | |
| **Cooling airflow** | 800 CFM minimum; 1100 CFM @ 32°C; 1900 CFM maximum | |
| **Voltage tolerance range** | 200-240V AC | |
| **Frequency tolerance range** | 50/60 Hz | |
| **Regulatory model number** | FCLSB-1001 Enclosure, FCLSB-BB31 Blade | |

## HP Financial Services

HP Financial Services provides innovative financing and financial asset management programs to help customers cost-effectively acquire, manage, and ultimately retire their HP solutions. For more information on these services, please contact your HP representative or visit: **www.hp.com/go/hpfinancialservices**.

## HP Services

**HP Technology Services**

**Recommended Services**

**3-Year HP Critical Service:** Provides comprehensive proactive and reactive support for mission-critical applications.

**HP Installation and Startup Service for HP Superdome 2:** Onsite installation; can be complemented by Factory Express Services for additional design and factory integration.

**HP Factory Express Package 5 Service:** Provides consulting for solution configuration, complex configuration, racking and onsite installation; includes onsite installation and handover session.

**HP Insight Remote Support:** Available at no additional cost to warranty customers, this automated tool provides secure, reliable 24x7 remote monitoring, diagnosis and problem resolution.

**Related Services**

**3-Year HP Proactive 24:** Provides improved availability, and operational effectiveness with integrated hardware and software support; combines industry-leading reactive technical assistance with proactive account services.

**HP Installation and Startup Service for Matrix Operating Environment:** Provides assistance in setting up Superdome 2 virtualization. Customers can choose assistance with select tools in the Matrix Operating Environment suite or with the complete suite of tools, as needed.

Trust the Services professionals at HP; for more information, contact your HP sales representative or HP-authorized Channel Partner or, visit **www.hp.com/hps**.

To learn how the HP Superdome 2 can help your business move to a Converged Infrastructure, please visit: **www.hp.com/go/superdome2**.




4AA1-1678ENW, Created April 2010; Updated May 2011, Rev. 3