product

HEWLETT® PACKARD

HP N-Class HP 9000 Servers

Simply More . . .
Power, Control, and Confidence

Today's business professionals are coping with more demands and fewer resources. The solution isn't just more IT, but simply more—of the right technology.

The HP 9000 N-Class Enterprise Servers deliver simply more power, control, and confidence in a smaller, faster, more reliable, and more affordable system than any other midrange UNIX® server.

All this makes the N-Class the ideal platform for today's demanding business applications—e-commerce and emerging e-services, advanced Web hosting, messaging, supply chain management, ERP, data warehousing, and technical computing.

Fit for Today and the Future

The N-Class is the world's first IA-64 ready server. Its state-of-the-art IA-64 system bus is designed to support generations of PA-RISC and IA-64 processors. When you are ready to grow, it's easy to make in-chassis upgrades to HP PA-RISC or future IA-64 processors. We created the IA-64 architecture jointly with Intel® to offer more flexibility in the future. So whichever path you choose, you can be confident your investment is sound.

More Power. Twice the performance and up to half the cost of competitive systems.

More Control. Built-in Web management and Internet tools.

More Confidence. Superior high availability, investment protection, and instant capacity upgrades.

With a flexible architecture, unmatched performance density, and unsurpassed affordability, the HP 9000 N-Class sets a new standard that will instantly change your expectations of a midrange UNIX server.

The HP 9000 N-Class delivers

- High-end performance at a midrange price
- Growth path to next-generation PA-RISC and IA-64 technologies
- Superior I/O bandwidth without trade-offs in performance or memory capacity
- Midrange application performance leadership across the board
- Unprecedented rackability, delivering four servers per standard two-meter rack
- Built-in Web Internet management tools
- End-to-end high availability at an affordable price
- Industry-tested and customer-proven 64-bit HP-UX 11 operating environment
- Instant capacity upgrades with Instant Capacity on Demand (iCOD)
- Ideal platform for: e-commerce, advanced Web hosting, service providers, supply chain management, ERP, data warehousing, and technical computing

Simply More Power, Control, and Confidence

The HP 9000 Family

The N-Class is part of the business-critical proven HP 9000 Enterprise Server family, designed to meet a broad range of enterprise, service provider, and technical computing needs.

- **A-Class**—low-cost, hyper-rack optimized entry-level servers
- **R-Class and D-Class**—entry-level, SMP enterprise workgroup servers
- **L-Class**—scalable, rack-optimized entry-level servers
- **K-Class**—the industry's most popular midrange UNIX servers
- **N-Class**—setting the new standard for midrange computing
- **V-Class**—high-end e-serviceCenter and data center servers

These servers deliver industry-leading performance, scalability, and high availability. Most utilize high-performance, 64-bit PA-RISC technology and the highly regarded 64-bit HP-UX operating environment. And all offer a smooth application transition to the next-generation IA-64 architecture.

The HP 9000 Enterprise Servers deliver industry-leading performance, scalability, and high availability, backed by superior solutions capabilities and HP's global infrastructure.

NEW!

Table 1. HP 9000 N-Class Enterprise Server Performance

	360MHz			440MHz			550MHz[1]		
	1-way	4-way	8-way	1-way	4-way	8-way	1-way	4-way	8-way
SPECweb96	2,800[2]	9,200[2]	16,000[2]	3,865	13,051	24,139	4,600	15,000	28,000
SPECint_rate95	215	830	1,650	306	1,209	2,408	376	1,479	2,939
SPECfp_rate95	355	1,055	1,720	462	1,495	2,075	528	1,682	2,336
OLTP[3]	0.32	1	1.73	0.36	1.14	2	0.42	1.25	2.20
TPC-C (tpmC @ $/tpmC)	N/A	N/A	N/A	N/A	N/A	49,308 @ 56.67	N/A	N/A	N/A

[1] All 550MHz performance figures are estimates.

[2] Performance estimates.

[3] HP relative OLTP performance as compared to K580 6-way.

Table 2. Features and Benefits

Power	
1–8 high-speed 64-bit 360MHz, 440MHz, or 550MHz PA-8500 and PA-8600 CPUs with 1.5MB on-chip cache per CPU	The world's fastest microprocessor, based on HP's Precision Architecture (PA-RISC), delivers superior performance over other midrange systems, with plenty of headroom for growth
Up to 32GB SDRAM memory with advanced ECC protection	Huge memory capacity for handling complex applications; very fast and reliable processing power for frequently accessed data
12 PCI I/O slots, with up to 5.8GB/s of aggregate I/O bandwidth and an independent I/O channel per PCI slot with full parity checking	Reliable, expandable I/O connections that allow the system to scale both CPUs and I/O without compromise or trade-off; easily handles I/O-intensive applications without risk of becoming "I/O bound"
Core I/O including 100Base-T LAN with auto speed sensing and Ultra2 LVD SCSI	Advanced I/O technology built in for easy, ready-to-go networking capabilities
4 servers per standard 2-meter rack	Superior rackability that optimizes use of floor space and delivers unprecedented performance density
Unchallenged performance density, delivering 4x the performance per rack versus competitive midrange systems	More performance per rack to meet service provider and enterprise application needs while maximizing use of data center floor space
7.6GB/s memory bus and 3.8GB/s system bus	Massive bus bandwidth provides a well balanced architecture without bottlenecks
Integrated floating point processor	Accelerated compute-intensive application performance
Control	
Built-in HP WebQoS (Web Quality of Service) Peak	Stabilizes Web traffic for less end-user wait time
Built-in HP SecureWeb Console	Control of servers over the intranet from any location worldwide
Built-in extended fault detection system	Separate support processor and bus for extended fault management of power, cooling, and system board outages; integrated with Event Monitoring Service (EMS) for instant problem notification
Built-in HP Ignite/UX	Easily and quickly launch UNIX installations or upgrades to multiple distributed servers simultaneously from a central location on the corporate intranet
Optional preloading of HP-UX operating environment and layered software products, plus factory integration of CPUs, memory, disk drives, and I/O cards	Expert integration and configuration for a quick, worry-free start
Confidence	
Pay-as-you-grow Instant Capacity on Demand	Instantly turn on more computing power to respond dynamically to changing business demands and new revenue opportunities Instant capacity upgrades with no charge for extra CPUs until they're used No performance compromises and minimized downtime for upgrade and repair
Hot-swap, redundant power supplies with optional third power supply for N+1 protection; redundant AC power inputs; hot-swap, N+1 cooling system; hot-plug[1] PCI I/O subsystem	Single-system high availability features to maximize uptime
Independent, dedicated twin-turbo I/O channels (10 twin-turbo, 2 turbo)	Increased reliability and network stability even under heavy loads
Low-profile, hot-plug Ultra2 SCSI disk drive bays, with one internal Ultra SCSI channel per disk	Internal high-uptime storage to protect critical data and provide mirroring capabilities
Support for 64-bit HP-UX 11, with over 15,000 ported applications	Top-rated UNIX with industry-proven 64-bit capability, plus a high degree of integration with the Internet, Microsoft® Windows NT®, and other operating environments and network management systems
In-chassis board upgrades to future PA-RISC and IA-64 technology	Flexible, cost-effective growth path for maximum investment protection
Support for HP MC/ServiceGuard high availability cluster solution; monitors up to 16 clustered servers and proactively shifts workloads to maximize mission-critical application availability	Leading UNIX clustering solution featuring automatic application failover and rolling upgrade features minimizing both planned and unplanned downtime
Inclusion in Mission Critical Server Suites solution providing 99.95% uptime commitments for HP servers, middleware, HP or EMC storage, Cisco network devices, and the Oracle® database	Unique guarantee of full-solution availability including hardware, operating system, storage, networking, and database in order to sustain business 24x7x365
World-class support, including alliances with SAP, Oracle, Cisco, and Microsoft	Reduce risk with proactive and reactive services

[1] Enabled with next release of HP-UX 11.

Table 3. Configuration Options

	N4000 @ 360MHz	N4000 @ 440MHz	N4000 @ 550MHz
HP PA-RISC Processor	360MHz PA-8500	440MHz PA-8500	550MHz PA-8600
SMP Configuration	1 to 8 CPU	1 to 8 CPU	1 to 8 CPU
Supported HP-UX Versions	11 (64-bit)	11 (64-bit)	11 (64-bit)
Minimum/Maximum Memory	512MB/32GB	512MB/32GB	512MB/32GB
On-Chip Cache (Data/Instr) per CPU	1MB/512KB	1MB/512KB	1MB/512KB
Total I/O Slots	12	12	12
Internal Hot-Plug Disk Drives	2	2	2
Maximum Internal Disk Capacity	36GB (72GB mid '00)	36GB (72GB mid '00)	36GB (72GB mid '00)
Maximum External Storage Capacity	71TB	71TB	71TB
Standard I/O Features	Ultra2 SCSI, 10/100Base-T LAN, Fibre Channel, 3x RS-232 ports for console and UPS connections, integrated Web Console		
Supported I/O Connectivity	Ultra2 SCSI LVD (single and dual port); FWD SCSI (single and dual port); 10/100Base-TX (single and quad port); 100Base-FX; Gigabit Ethernet; FDDI; HyperFabric; Token Ring; ATM 622 and 155Mbps; X.25, SNAplus, Frame Relay, SDLC (dual and quad); Serial Multiplexer (8- and 64-port), Fibre Channel, High Performance Peripheral Interface (HiPPi), Ultra2 SCSI RAID Controller, Dual Ultra2 SCSI/Dual 100Base-T Combo		

Table 4. Environmental Specifications

Electromagnetic Interference	Complies with FCC Rules and Regulations, part 15, as a Class A digital device. Manufacturer's Declaration to EN55022 Level A, VCCI Registered, Class I, Korea RLL
AC Input Power	200V–240V 50/60Hz
Maximum Current Requirements	13.8 Amps at 220V
Maximum Power Dissipation	3000 Watts
Physical Dimensions	Depth: 812 mm (35 in) Width: 482 mm (19 in) Height: 445 mm (17.5 in)/10 EIA units Weight: 90 kg (200 lb)
Operating Temperature	+5° – 35° C (41° – 95° F)
Non-Operating Temperature	–40° – 65° C (–40° – 149° F)
Maximum Rate of Temperature Change	20° C/hour
Operating Relative Humidity	15% to 80%, noncondensing, max. wet bulb = 26° C
Non-Operating Relative Humidity	5% to 90%, noncondensing
Operating Altitude	To 3.0 km (10,000 ft) above sea level
Non-Operating Altitude	To 4.5 km (15,000 ft) above sea level

For More Information

HP technical documentation is available online at **www.eproducts.hp.com**. In addition, configuration tools and pricing information allow registered users to place orders online. For registration, please contact your Hewlett-Packard sales representative.

Contact any of our worldwide sales offices or HP Channel Partners (in the U.S., call 1-800-637-7740) or visit our HP 9000 N-Class Enterprise Servers Web site at **www.hp.com/go/n-class**.

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