

HP NetServer LH 4 and LH 4r

specifications

Entry-level enterprise servers

The HP NetServer LH 4 has the power, reliability, and expansion room to handle everything from Web hosting to ERP applications, for fast-growing workgroups all the way up to corporate data centers.

- Up to four-way processing with Intel® Pentium III 550MHz processors
- Capacity for up to 12 Ultra2 SCSI and Ultra3 SCSI drives driven by an integrated dual-channel HP NetRAID controller with I₂O
- Up to 4GB ECC buffered EDO DRAM with memory scrubbing
- Hot-swap power supplies and redundant hot-swap fans standard
- Automatic hardware-level IRQ re-directs using HP's Smart IRQ technology to ease configuration and boost performance
- Supports industry-leading DAT or DLT technology
- HP TopTools for Servers with Web interface for device management, and HP OpenView™ ManageX/SE for NOS and application management
- Integrated HP Remote Assistant and optional HP TopTools Remote Control card for easiest remote access, advanced security, and diagnostics



As entry-level enterprise servers, the HP NetServer LH 4 and LH 4r close the performance gap for workgroups and departments on the fast track, with four-way processing power, high availability, and excellent value.

Features

Performance

Processor	Up to 4 Intel Pentium III Xeon 550MHz processors with 100MHz system bus
Level 2 Cache	512KB ¹ , 1MB ² , 2MB ³
ECC Memory	<ul style="list-style-type: none"> • 256MB high-performance 50ns ECC buffered EDO DRAM standard • Memory scrubbing reduces accumulated ECC errors that cause system crashes • 4GB maximum capacity
I/O Expansion Slots	8 total full-length PCI (two 64-bit, one occupied by preinstalled 10/100TX NIC, 1 shared with 2/3 length ISA)
Controllers	<ul style="list-style-type: none"> • Integrated dual-channel HP NetRAID controller with I₂O • Integrated dual Ultra2 SCSI controllers • Additional Ultra2 to SE (single-ended) converter
Mass Storage System	<ul style="list-style-type: none"> • 4 front-accessible (half-height) shelves <ul style="list-style-type: none"> – One 3.5-inch flexible disk drive – One CD-ROM drive – Two open common tray (non-hot-swap) shelves, suitable for drives or tape backup (DLT, DDS, autoloader) • 12 front-accessible hot-swap shelves <ul style="list-style-type: none"> – Six low-profile standard (also supports 4 half-height or mixed low-profile and half-height) – Six additional low-profile (or 4 half-height) with optional cage for full duplex capability
Maximum Internal Storage	436.8GB maximum hot-swap (12 x 36.4GB low-profile drives), plus two 36.4GB common tray drives for maximum internal storage of 509.6GB
Video	<ul style="list-style-type: none"> • Integrated; supports 1024x768, 256-color resolution at 60–75Hz • 1MB standard video memory, upgradeable to 2MB • SuperVGA drivers available with operating system
CD-ROM Drive	32x Max EIDE
Flexible Disk Drive	3.5" 1.44MB flexible disk drive
Built-in I/O Ports	<ul style="list-style-type: none"> • Two SCSI knock-outs • One 25-pin parallel port • Two 9-pin serial/RS-232 ports • Video port • Mini-DIN keyboard and mouse ports • Management port (9-pin)
Keyboard and Mouse	Localized keyboard and two-button mouse ⁴

¹ Intel Pentium III Xeon 550MHz processors only

² Intel Pentium III Xeon 550MHz and 700MHz processors only

³ Intel Pentium III Xeon 550MHz processor only

⁴ Not included with HP NetServer LH 4r

Features

Availability

Hot-Swap Power Supplies	<ul style="list-style-type: none"> • 3 hot-swap power supplies standard • N+1 redundancy optional
High-Availability/Clustering Support	Combine HP NetServer LH 4 and LH 4r units with HP NetServer Rack Storage/12 for cluster configurations. See http://www.hp.com/netserver/products/cluster for details
Self-Restart Capability	Automatic Server Restart (ASR) that reboots the server in the event of a NOS hang
Self-Correcting Memory	Manageable Error Checking and Correcting (ECC) system memory and cache memory with memory scrubbing
Hot-Swap Disk Drives	<ul style="list-style-type: none"> • Supports 9.1GB and 18.2GB 7200rpm Ultra2 SCSI and Ultra3 SCSI disk drives • Supports 9.1GB, 18.2GB and 36.4GB 10,000rpm Ultra2 SCSI and Ultra3 SCSI disk drives • Hot-swap and hot-spare support
RAID Controller	<ul style="list-style-type: none"> • Integrated dual-channel HP NetRAID controller with I₂O technology • 16MB write-back cache • Supports RAID 0, 1, 3, 5, 10, 30, 50
Advanced Cooling System	<ul style="list-style-type: none"> • 8 Totally Cool hot-swap fans standard (for redundant system cooling) • Active fan-speed control and failure sensing • Superior air flow design for low internal temperature rise
IPMI (Intelligent Platform Management Interface)	<ul style="list-style-type: none"> • Open specification for system component monitoring • Foundation for self-healing
Network Interface	Preinstalled 10/100TX network interface card with support for optional network interface card to support redundancy, load balancing, and Cisco® Fast EtherChannel®

Manageability

Installation and Configuration	<ul style="list-style-type: none"> • HP NetServer Navigator with automated, menu-driven system setup and configuration • Guided network operating system installation • Automatic installation of monitoring tools
Management Software	<ul style="list-style-type: none"> • HP TopTools for Servers, a comprehensive server management solution with an intuitive browser-based user interface; facilitates troubleshooting, administration, and information collection • Detailed inventory information provided through standard DMI 2.0 protocol • Industry-leading HP OpenView ManageX/SE for NOS and application management • Easy integration with other leading network and system management products
Remote Administration	<ul style="list-style-type: none"> • Integrated HP Remote Assistant provides emergency remote access with a single event log and expanded inventory data collection for faster troubleshooting • Optional HP TopTools Remote Control card for remote LAN access, advanced security, and online diagnostics • File transfer capabilities for secure and easy remote updates

¹ See HP NetServer Management Web site at http://www.hp.com/go/netserver_mgmt



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Features

Expandability

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|-----------------|--|
| Design Features | <ul style="list-style-type: none"> • Tool-free access and interchangeable side covers • All major assemblies easy to remove for upgrades or repair • Simple conversion from pedestal to rack configuration • Physically compatible with standard 19-inch racks |
|-----------------|--|

Flexibility

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| Supported Operating Systems | <ul style="list-style-type: none"> • Microsoft® Windows NT® Server; Microsoft Windows 2000 Server and Advanced Server; Novell® NetWare® and IntranetWare™; Linux; SCO® OpenServer™ and UnixWare® |
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Security and Safety

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| System Security | <ul style="list-style-type: none"> • Startup password • Network server mode • Power/reset switch cover and keyboard lock button • Enable or disable serial port, flexible disk drives, and write operations to flexible disk drives • Chassis intrusion detection • System lock and hot-swap hard disk drive lock |
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Service and Support

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|---------------------------|--|
| Warranty | 3-year, next-business day, onsite limited warranty from HP or authorized resellers (standard business hours) worldwide |
| HP SupportPack Options | <ul style="list-style-type: none"> • Free telephone support for basic setup, installation, and troubleshooting in North America, Europe, and Asia Pacific during warranty • Optional HP SupportPack for 4-hour response during standard business hours • Optional HP SupportPack for 24 hours a day, 7 days a week • Optional HP SupportPack for Comprehensive Technical Support |
| Reseller Support Services | <p>Comprehensive reseller support framework to ensure successful support of HP NetServers includes</p> <ul style="list-style-type: none"> • Proactive Notification e-mail service¹ • Service and support website¹ • Server Management and Hardware Troubleshooting courses (STAR)¹ • Troubleshooting Toolkit¹ • 24x7 telephone support for authorized resellers • HP Business Builders blueprints for new business opportunities |

¹See <http://www.hp.com/netserver/servsup> for details



Features

Regulatory Compliance

Electromagnetic Emissions

- USA: FCC Title 47, Part 15 Class A (Self Declaration)
- EU Countries: EN 55022 Class A
- Korea: M of C Class A
- Japan: VCCI Class A
- Australia/New Zealand: CISPR 22 Class A
- Taiwan: BSMI CNS 13438 Class A
- EN 61000-3-2: Harmonic Current
- EN 61000-3-3: Voltage Fluctuation and Flicker

Electromagnetic Immunity

- Generic Immunity (EN 50082-1, EU Countries), including
- ESD (IEC-801-2): 4KV Contact, 8KV Air
 - Radiated Immunity (IEC-801-3): 3V/m, 80% AM Mod, 27MHz-1000MHz
 - EFT (IEC-801-4): 1.0KV Power, 0.5KV I/O lines

Safety

- EN 60950/IEC 950 Compliance (International)
- UL Listed (USA, File E139742)
- CUL Listed (Canada, File E139742)
- NOM Certified (Mexico)
- TÜV Certified (Germany)
- CE Marking (Europe)
- CSA Certified (Canada, File LR106647)

Accessories

	Product Accessory ¹	Product No.
Memory	• 256MB 50ns EDO DIMM Kit (4x64MB)	D6112A
	• 1GB 50ns EDO DIMM Kit (4x256MB)	D6114A
	• 1MB Video RAM	D4219A
Processors	• Pentium III Xeon 550MHz, 512KB ECC L2 cache	D8529A
	• Pentium III Xeon 550MHz, 1MB ECC L2 cache	D8530A
	• Pentium III Xeon 550MHz, 2MB ECC L2 cache	D8531A
Storage Devices	• 9.1GB Ultra3 SCSI disk drive (7,200rpm—common tray)	P1213A ²
	• 9.1GB Ultra3 SCSI disk drive (10,000rpm—common tray)	P1214A ²
	• 18.2GB Ultra3 SCSI disk drive (7,200rpm—common tray)	P1215A ²
	• 18.2GB Ultra3 SCSI disk drive (10,000rpm—common tray)	P1167A ²
	• 36.4GB Ultra3 SCSI disk drive (10,000rpm—common tray)	P1169A ²
	• 9.1GB low-profile, hot-swap Ultra3 SCSI disk drive (7,200rpm)	P1217A ²
	• 9.1GB low-profile, hot-swap Ultra3 SCSI disk drive (10,000rpm)	P1168A ²
	• 18.2GB low-profile, hot-swap Ultra3 SCSI disk drive (7,200rpm)	P1216A ²
	• 18.2GB low-profile, hot-swap Ultra3 SCSI disk drive (10,000rpm)	P1166A ²
	• 36.4GB low-profile, hot-swap Ultra3 SCSI disk drive (10,000rpm)	D9419A ²
	• 9.1GB UltraWide SCSI disk drive (7,200rpm—common tray)	D4911A
	• 9.1GB UltraWide SCSI disk drive (10,000rpm—common tray)	D7049A
	• 18.2GB UltraWide SCSI disk drive (7,200rpm—common tray)	D7176A
	• 9.1GB low-profile, hot-swap Ultra2 SCSI disk drive (7,200rpm)	D6106A
	• 9.1GB low-profile, hot-swap Ultra2 SCSI disk drive (10,000rpm)	D6107A
	• 18.2GB low-profile, hot-swap Ultra2 SCSI disk drive (7,200rpm)	D7174A
	• 18.2GB low-profile, hot-swap Ultra2 SCSI disk drive (10,000rpm)	D7175A
• 36.4GB half-height, hot-swap Ultra2 SCSI disk drive (10,000rpm)	D8210A	
Internal Storage Expansion	Second drive cage for up to 6 additional hot-swap drives ³	D6077A
Disk Controllers & SCSI Cables	• Integrated dual-channel HP NetRAID controller	Included
	• HP NetRAID-1Si controller (Ultra2 SCSI, 1 channel)	D2140A
	• HP NetRAID-3Si controller (Ultra2 SCSI, 3 channels)	D5955A
	• HP NetRAID-4M controller (Ultra3 SCSI, 4 channels, 64MB cache)	D9161A
	• HP NetRAID-4M controller (Ultra3 SCSI, 4 channels, 128MB cache)	D9351A
	• HP Ultra/Wide SCSI PCI adapter	D5025A
	• 2.5m SCSI Cable to connect from HP NetRAID Family Controller to External Storage ⁴	D6020A
	• HP NetServer LH 3/LH 4 Internal SCSI Cable Kit ⁵	D4282B

¹ Please see the *HP NetServers Configuration Guide* for important technical information when choosing your accessories or go to <http://www.hp.com/go/netserver>. For HP SureStore backup see <http://www.hp.com/storage>.

² Ultra3 SCSI performance can only be achieved by using an Ultra3 SCSI controller or an Ultra3 SCSI RAID Controller with the Ultra3 drives.

³ When used in RAID configuration, additional SCSI HBA (D5025A) is required to support tape devices. This upgrade includes cable to connect to internal SCSI controller.

⁴ 2.5m SCSI Cable 68-pin male ultra-high-density offset connector to 68-pin male high-density connector.

⁵ Use in HP NetServer LH 3/LH 4 when HP NetRAID Family Controller is used with internal storage.

Accessories

	Product Accessory ¹	Product No.
External Storage Solutions	<ul style="list-style-type: none"> HP NetServer Rack Storage/12 (Ultra2) HP NetServer Rack Storage/12 (Ultra3) HP NetServer Rack Storage/12 SCSI Card (Ultra2) HP NetServer Rack Storage/12 SCSI Card (Ultra3) HP NetServer Rack Storage/12FC 	D5989B D5989C D6025B D6025C D5991A
Backup Devices	Internal <ul style="list-style-type: none"> HP SureStore DAT24i 24GB tape drive HP SureStore DAT40i 40GB tape drive HP SureStore DLT40i 40GB DLT HP SureStore DLT80i tape drive External <ul style="list-style-type: none"> HP SureStore DAT24e 24GB tape drive HP SureStore DAT40e 40GB HP SureStore DLT40e 40GB DLT HP SureStore DLT80e Rackable <ul style="list-style-type: none"> HP SureStore DAT24k tape drive HP SureStore DLT40k tape drive HP SureStore DLT40r hot-swap HP SureStore DLT80k tape drive HP SureStore DLT80r hot-swap Autoloaders <ul style="list-style-type: none"> HP SureStore DAT24x6i int autoloader HP SureStore DAT24x6e ext autoloader HP SureStore DAT40x6i int autoloader HP SureStore DAT40x6e ext autoloader HP SureStore DLT autoloader 418 HP SureStore DLT autoloader 718 HP SureStore DLT autoloader 818 LVDS HP SureStore DLT autoloader 818 HVDS 	C1555D C5686A C5647A C5725A C1556D C5687A C1579A C5726A C6525A C6515A C5697A C6529A C5727A C5677B C1559C C5716A C5717A C6280F C6280J C6282NB C6282RA
Redundant Power	<ul style="list-style-type: none"> Redundant hot-swap power supply module 	D6095A
Network Interface Cards	<ul style="list-style-type: none"> HP NetServer 10/100TX PCI LAN adapter HP DeskDirect 10/100VG PCI LAN adapter 	D5013A J2585B
Remote Management	<ul style="list-style-type: none"> Integrated HP Remote Assistant HP TopTools Remote Control Card including battery Optional AC adapter required for remote power on 	Included D6028A D6138A
Uninterruptible Power Supply	UPS devices are available from American Power Conversion (APC). For additional information, contact your local APC reseller, or see APC's web page at http://www.apcc.com	
Conversion Kit	Pedestal-to-rack conversion kit	D6094B

¹ Please see the *HP NetServers Configuration Guide* for important technical information when choosing your accessories or go to <http://www.hp.com/go/netserver>.



Accessories

	Product Accessory ¹	Product No.
Upgrade Kits ²	LH 3 to LH 4 upgrade kit includes 2 Intel Pentium II Xeon or Pentium III Xeon processors, system board, and 256MB 50ns EDO DIMM kit (4 x 64MB)	
	• Intel Pentium III Xeon 550MHz processors with 512K L2 cache	D9330A
	• Intel Pentium III Xeon 550MHz processors with 1MB L2 cache	D9331A
	• Intel Pentium III Xeon 550MHz processors with 2MB L2 cache	D9332A
Monitors	• HP 50 15" Color Monitor	D2826A
	• HP M500 15" Color Monitor	D2832A
	• HP 70 17" Color Monitor	D2837A
	• HP M700 17" Color Monitor	D2838A
Disk Tray	• 3.5" hard disk drive mounting trays (3 pack, non-hot-swap)	D2198B
	• Tape/DAT/CD-ROM mounting trays (3 pack, no front panel)	D2199A
	• HP NetServer low-profile hot-swap disk tray	D6128A
	• HP NetServer half-height hot-swap disk tray	D6127A
Disk/Tape/CD Bays	• HP Rack n Stack 2-bay rack kit holds 2 half-height modules	C6542A
	• HP Rack n Stack 4-bay rack kit holds 4 half-height modules or 2 half-height modules and 1 full-height module	C6543A
HP Racks	For a complete list of racks and rack accessories, download the HP NetServer Rack Assistant tool from http://www.hp.com/netserver/products/racks .	
Keyboard and Mouse	• HP NetServer keyboard	D4950B
	• Mouse	C3751B

HP SupportPack Offering

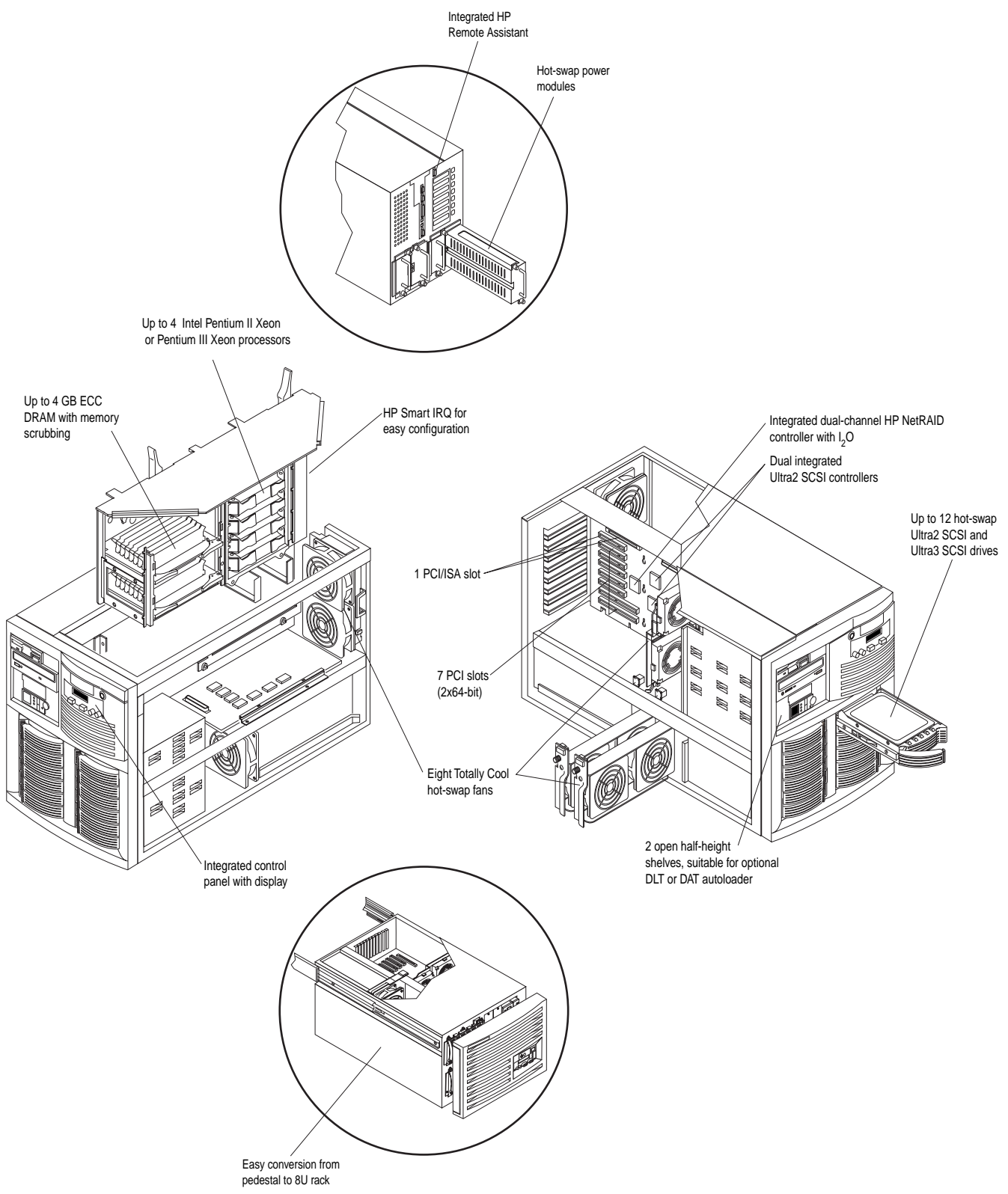
Support can be delivered either by your local reseller or by the Hewlett-Packard Customer Support organization. For more information, visit our Web site at <http://www.hp.com/go/netserver>.

HP SupportPack	Order No.
3-year, onsite with 4-hour response (standard business hours)	H5518A
3-year, onsite with 4-hour response (24 hours/day, 7 days/week)	H5513A
Onsite installation and network configuration	H5751A
Remote NOS, Applications, LAN, WAN, and Management Phone Support	H1847AA

¹ Please see the *HP NetServers Configuration Guide* for important technical information when choosing your accessories or go to <http://www.hp.com/go/netserver>.

² LH 3 to LH 4 upgrade kit requires secondary fan tray and second power supply cage with one power supply module, Product No. D6093A

HP NetServer LH 4 and LH 4r





HP NetServer LH 4 and LH 4r

Specifications	
Operating Temperature	41 to 95 degrees F (5 to 35 degrees C)
Operating Humidity	20% to 80% noncondensing
Acoustic Emissions	Sound pressure (LpA): <55 dB(A), bystander position
Power Supply	Auto-ranging 90 to 132 VAC, or 180 to 264 VAC at 47–63Hz
Power Availability	810W
Power Consumption	1140/1100W maximum with 110/220V supply
System Dimensions	Rack: 19"W x 14"H x 29.5"D (482.6cm W x 354.7cm H x 749.2cm D) Pedestal: 13.8"W x 19.5"H x 28.5"D (350.5cm W x 494.8cm H x 724.2cm D)
System Weight	79–132lbs (36–60kg), depending on configuration

Choose Your HP NetServer LH 4 or LH 4r

Product Number	Processor	Configuration	All models include:
D8552A	Pentium III Xeon 550/512KB	Pedestal	256MB 50ns ECC buffered EDO DRAM with memory scrubbing, integrated dual-channel HP NetRAID controller with I ₂ O driving dual PCI Ultra2 SCSI controllers, bundled 10/100TX NIC, CD-ROM drive, flexible disk drive, hot-swap power supplies and fans, Integrated HP Remote Assistant, HP TopTools for Servers, HP OpenView ManageX/SE
D8553A	Pentium III Xeon 550/512KB	Rack ¹	
D8556A	Pentium III Xeon 550/1MB	Pedestal	
D8557A	Pentium III Xeon 550/1MB	Rack ¹	
D8560A	Pentium III Xeon 550/2MB	Pedestal	
D8561A	Pentium III Xeon 550/2MB	Rack ¹	

¹ Keyboard and Mouse not included with Rack Configurations

Note: All Models Not Available in all Worldwide Regions

HP Select Express Program:
 HP NetServer LH 4 is also available through HP Select Express Program. This program offers custom integration of HP hardware offered at HP's lowest price. For more information visit our Web site at:
<http://www.hp.com/netserver/product/sep>.

STAY IN TOUCH

www.hp.com/go/netserver

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 July 2000

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