

# HP NetServer LH Plus and HP NetServer LH Pro Series



**Best-in-class departmental  
servers**

Uni- and dual Pentium® 133MHz  
Uni- and dual Pentium 166MHz  
Uni- and dual Pentium Pro 200MHz

If your organization's computing needs range from file sharing and high-speed communications, to database and business-critical applications, there's no better solution than HP NetServer LH Plus and LH Pro servers.

These best-in-class servers feature an advanced PCI system architecture and an Extended Data Out (EDO) memory subsystem that delivers powerful performance and maximum I/O bandwidth. Innovative availability features, such as intelligent hot-swap, built-in duplexing, and Smart Redundant Power Supply, protect your data and minimize downtime.

Advanced tools are included to simplify network and server management. And HP protects your valuable investment with timely and comprehensive support, as well as with servers designed for growth, including an affordable upgrade to Pentium Pro.

## These Servers Deliver:

Optimized and scalable performance	<ul style="list-style-type: none"> <li>Scalable from Pentium 133MHz to Pentium Pro 200MHz symmetric multiprocessing (SMP)</li> <li>Advanced memory subsystem with Extended Data Out (EDO) and large memory Dual Inline Memory Module (DIMM) capacity</li> <li>Advanced PCI bus with two Fast and Wide SCSI-2 controllers integrated on system board</li> <li>High-speed disks and network cards for fast I/O throughput</li> </ul>
High system uptime and fault tolerance	<ul style="list-style-type: none"> <li>Hot-swap subsystem allows continuous usage while replacing failed drive</li> <li>Standard internal disk duplexing with dual SCSI backplane</li> <li>Error Checking and Correcting (ECC) memory for automatically checking, correcting, and reporting memory errors</li> <li>PCI Disk Array Controller with dual-channel Fast and Wide SCSI-2 for superior data protection</li> <li>Unattended, automatic reboot (ASR) upon NOS hang to get system back up and running quickly</li> <li>Easy-to-install Smart Redundant Power Supply</li> <li>Comprehensive worldwide service and support available directly from HP or authorized resellers</li> </ul>
Simplified server and network management	<ul style="list-style-type: none"> <li>HP NetServer Navigator bootable CD-ROM with easy-to-use tools to configure, install, and manage these HP NetServers</li> <li>HP NetServer Assistant server management software for proactive alerting and problem resolution</li> <li>Optional HP Remote Assistant card for remote diagnostics and environmental monitoring ®</li> <li>HP OpenView for Windows network management software for network mapping, alarm management, and security</li> </ul>
Maximum investment protection with lots of headroom for system growth	<ul style="list-style-type: none"> <li>Cost-effective upgrade to Pentium Pro</li> <li>Nine I/O slots (up to 5 PCI) for I/O cards</li> <li>Up to 1GB memory capacity (512MB for LH Plus)</li> <li>Easy external storage expansion with built-in Fast and Wide SCSI-2 controller and external SCSI-2 port</li> </ul>

# Features

	LH Plus	LH Pro
Processor	Pentium 133MHz and 166MHz, uni- and dual processors	Pentium Pro 200MHz, uni- and dual processors
Processor Upgrade	Chip upgrade to dual Pentium SMP, board upgrade kit to Pentium Pro	Chip upgrade to dual SMP
External Cache	512KB external write-back cache (shared cache for SMP)	256KB write-back cache per processor (integrated on processor)
Maximum ECC Memory	512MB; 60ns DIMM	1GB; 60ns DIMM
DIMM Memory	16MB, 32MB, 64MB, 128MB	16MB, 32MB, 64MB, 128MB, 256MB
Expansion Slots	Nine bus master slots: Four PCI, Four EISA, One shared PCI/EISA	
HP Disk Array (Standard with Model 1 Array)	<ul style="list-style-type: none"> <li>• PCI Disk Array Controller with dual Fast and Wide SCSI-2 channels</li> <li>• Hot-swap and hot-spare capabilities</li> <li>• Supports RAID 0, 1, 5, 6</li> </ul>	
SCSI Controller	Two PCI Fast and Wide SCSI-2 controllers integrated on system board	
Mass Storage Subsystem	Nine front-accessible shelves: <ul style="list-style-type: none"> <li>• One 3.5-inch 1.44MB flexible disk drive (included)</li> <li>• One for quad-speed CD-ROM (included)</li> <li>• One standard half-height (non-hot-swap)</li> <li>• Six hot-swap (must use hot-swap drives)</li> </ul>	
Smart Redundant Power Supply	Optional RPS with status monitoring and reporting	
Built-In I/O Ports	<ul style="list-style-type: none"> <li>• Fast and Wide external SCSI-2 port</li> <li>• One 25-pin parallel port</li> <li>• Two serial 9-pin RS-232 ports</li> <li>• Video port</li> <li>• Mini-DIN keyboard and mouse port</li> </ul>	
Video	<ul style="list-style-type: none"> <li>• Integrated 1024x768, 16-color, noninterlaced</li> <li>• 512KB standard video memory</li> <li>• Super VGA drivers available with operating system or from HP electronic support services</li> </ul>	
Keyboard and Mouse	Localized keyboard and two-button mouse	
Installation and Configuration Management	HP NetServer Navigator bootable CD-ROM includes: <ul style="list-style-type: none"> <li>• Automated, menu-driven installation and configuration application that helps you install, configure/reconfigure, and optimize the performance of these HP NetServers</li> <li>• Server management software that provides monitoring, proactive alerting, and problem identification for subsystems such as SCSI controllers, hard disk drives, ECC memory, and uninterruptible power supplies</li> <li>• HP OpenView for Windows®, the industry-leading network management platform</li> <li>• Intelligent information retrieval system for quick access to information on HP NetServers and accessories, network operating system installation and tuning, and product service and support</li> <li>• Easy-to-use diagnostic tool for system verification and rapid troubleshooting of hardware issues, such as incorrect SCSI cabling and termination</li> </ul>	
Supported Operating Systems	Banyan® VINES®, IBM® OS/2® Warp and LAN Server, Microsoft® MS-DOS®, Microsoft Windows® NT™ Server, Novell® NetWare®, Novell NetWare SFT™III, and SCO® OpenServer™	
Supported SMP Operating Systems	IBM OS/2 SMP and LAN Server, Microsoft Windows NT Server, Novell NetWare SMP, and SCO MPX®	
HP Advanced Cooling System	Dual fans provide extra cooling for internal components; superior airflow design	



## Features

Rackmounting	Optional rackmount solutions to save valuable space in multiserver environment
Security	<ul style="list-style-type: none"><li>• Startup password</li><li>• Network server mode</li><li>• Keyboard lock button with optional screen blanking</li><li>• Server case lock</li><li>• EISA configuration protection password</li><li>• Enable or disable serial port, flexible disk drives, and write operations to flexible disk drives</li></ul>
Service and Support	<ul style="list-style-type: none"><li>• Three-year, next-business-day, on-site limited warranty from HP or authorized resellers (standard business hours) worldwide</li><li>• Optional 4-hour response during standard business hours, or 7 days a week, 24 hours a day available as HP SupportPack from resellers</li><li>• Free telephone support for basic setup, installation, and troubleshooting in U.S., Canada, and Europe during warranty</li><li>• Network phone-in support (advanced NOS and network support) available in U.S., Canada, Europe, and Australia as optional HP SupportPack from resellers</li><li>• HP NetServer Compatibility Evaluation Guarantee</li></ul>

## Other Specifications

	LH Plus	LH Pro
Operating Temperature	41° to 95° F (5° to 35° C)	41° to 95° F (5° to 35° C)
Operating Humidity	20% to 80% noncondensing	20% to 80% noncondensing
Acoustic Emissions	Sound level (LpA): <58 dB(A)	Sound level (LpA): <58 dB(A)
Power Supply	Auto-ranging 90 to 140 VAC, or 180 to 264 VAC at 47–63Hz	Auto-ranging 90 to 140 VAC, or 180 to 264 VAC at 47–63Hz
Power Availability	350W continuous	410W continuous
Power Consumption	499/479W maximum with 110/220V supply	645/614W maximum with 110/220V supply
A/C Load	1700 BTU/hr (430 KCAL/hr) maximum	2200 BTU/hr (560 KCAL/hr) maximum
System Dimensions	19.3"H x 13.7"W x 18.1"D (49cm x 34.8cm x 46cm)	19.3"H x 13.7"W x 18.1"D (49cm x 34.8cm x 46cm)
System Weight	50–70lb (22.7–31.8kg), depending on configuration	50–70lb (22.7–31.8kg), depending on configuration

## Regulatory Compliance

Electromagnetic Compliance	<ul style="list-style-type: none"><li>• CISPR 22 Class B (International)</li><li>• EN 55022 Class B (EU Countries)</li><li>• EN50082-1, Generic Immunity (EU Countries), includes: IEC 801-2, ESD; IEC 801-3, RI; IEC 801-4, FT</li><li>• FCC Class B Verified (USA)*</li><li>• M of C Class A (Korea)</li><li>• VCCI Class 2 (Japan)</li><li>• ENG1000-3-2 Harmonic Current (LH Pro only)</li></ul> <p>* FCC ID B94HPLS107 pending</p>
Safety Compliance	<ul style="list-style-type: none"><li>• CSA Certified (Canada, File LR106647)</li><li>• EN 60950 Compliance (International)</li><li>• TUV Certified (Germany)</li></ul>

# Accessories

	Product Accessory <sup>1</sup>	Product No.
Memory	<ul style="list-style-type: none"> <li>• HP 16MB 60ns EDO DIMM</li> <li>• HP 32MB 60ns EDO DIMM</li> <li>• HP 64MB 60ns EDO DIMM</li> <li>• HP 128MB 60ns EDO DIMM</li> <li>• HP 256MB 60ns EDO DIMM (For LH Pro only)</li> </ul>	D4294A D4295A D4296A D4297A D4926A
Storage Devices	<ul style="list-style-type: none"> <li>• 1.2MB, 5.25-inch flexible disk drive<sup>2</sup></li> <li>• 2.1GB Fast SCSI-2 disk drive<sup>2</sup></li> <li>• 4.2GB Fast SCSI-2 disk drive<sup>2</sup></li> <li>• 2.1GB hot-swap Fast and Wide SCSI-2 disk module</li> <li>• 4.2GB hot-swap Fast and Wide SCSI-2 disk module</li> <li>• 9.1GB hot-swap Fast and Wide SCSI-2 disk module<sup>3</sup></li> <li>• CD-ROM (internal SCSI-2, tray-load, quad-speed, 190ms average access time)</li> <li>• HP SureStore 6000i Internal DAT drive (8GB)</li> <li>• HP SureStore 5000i Internal DAT drive (4GB)</li> <li>• HP SureStore 2000i Internal DAT drive (2GB)</li> <li>• 3.5-inch hard disk drive mounting trays (3-pack, non-hot-swap)<sup>3</sup></li> <li>• Tape/DAT/CD-ROM mounting trays (3-pack, no front panel)<sup>3</sup></li> <li>• HP NetServer hot-swap tray (for selected non-HP drives only, refer to HP electronic services for supported drives)</li> <li>• SCSI cable kit</li> </ul>	D2036A D2077A D3341A D3582B D3583B D4289A D2992B C1528F C1526G C1525G D2198A D2199A D3349B D4845A
External Storage Solution	HP NetServer Storage System/6	C3604B
Disk Array Controller	PCI Disk Array Controller Adapter with dual Fast and Wide SCSI-2 channels <sup>4</sup>	C3610A
Redundant Power Supply	Smart RPS with status monitoring and reporting <sup>5</sup>	D4921A
Uninterruptible Power Supplies	<ul style="list-style-type: none"> <li>• HP PowerWise 1000VA (US/120V)—15 minute run time (includes software for Windows NT and NetWare)</li> <li>• HP PowerWise 1000VA (Europe/220V)—15 minute run time (includes software for Windows NT and NetWare)</li> </ul> (For other HP PowerWise products, refer to data sheets 5964-9868E, 5964-4000EN)	C4275B C4277B
Network Connectivity	<ul style="list-style-type: none"> <li>• HP DeskDirect 10/100VG PCI LAN adapter</li> <li>• HP DeskDirect 10/100VG Selectable EISA LAN adapter</li> <li>• HP DeskDirect 10/100TX PCI LAN adapter</li> </ul> Server Performance Packs (includes workgroup switch, high-speed NIC, and network management) <ul style="list-style-type: none"> <li>• HP Server Performance Pack 100 (for 100TX)</li> <li>• HP Server Performance Pack 200 (for 100VG)</li> </ul>	J2585B J2577A J3171A J3221A J3220A
HP NetServer Racks and Accessories	<ul style="list-style-type: none"> <li>• 2-meter rack with side panels and rear door</li> <li>• 2-meter rack only</li> <li>• 8-port HP Console Switchbox</li> <li>• 4-port HP Console Switchbox</li> <li>• NetServer Storage System/6 Rack kit</li> <li>• HP NetServer LH Plus/LH Pro Rackmount kit</li> </ul> For additional information, call HP FAX Response system at 1-800-333-1917 (U.S.) or 1-208-344-4809 (worldwide from fax only) and request document #7433.	J1487A J1487A opt AXH J1495A J1494A J1492A J1491A
HP Remote Assistant	EISA server management card for remote diagnostic and environmental monitoring of server <ul style="list-style-type: none"> <li>• HP Remote Assistant (with modem) for U.S./Canada/Latin America</li> <li>• HP Remote Assistant (without modem) for outside of U.S./Canada/Latin America</li> </ul>	D2968B D2967B

<sup>1</sup> Please see the HP NetServer Configuration Guide for important technical information when choosing your accessories.

<sup>2</sup> For use in standard half-height shelf only (one shelf available).

<sup>3</sup> Available 01/1996

# HP NetServer LH Plus and HP NetServer LH Pro Series

## Configuration and Models

	Model	Processor	Cache	ECC Memory	Product No.
HP NetServer LH Plus 5/133	Model 1	Pentium 133MHz	512KB	32MB	D4248A
	Model 1 Array <sup>1</sup>	Pentium 133MHz	512KB	32MB	D4250A
HP NetServer LH Plus 5/166	Model 1	Pentium 166MHz	512KB	32MB	D4251A
	Model 1 Array <sup>1</sup>	Pentium 166MHz	512KB	32MB	D4253A
HP NetServer LH Plus 5/166 SMP	Model 1	Dual Pentium 166MHz	512KB	32MB	D4256A
	Model 1 Array <sup>1</sup>	Dual Pentium 166MHz	512KB	32MB	D4257A
HP NetServer LH Pro 6/200	Model 1	Pentium Pro 200MHz	256KB	32MB	D4840A
	Model 1 Array <sup>1</sup>	Pentium Pro 200MHz	256KB	32MB	D4841A
HP NetServer LH Pro 6/200 SMP	Model 1	Dual Pentium Pro 200MHz	256KB each	64MB	D4842A
	Model 1 Array <sup>1</sup>	Dual Pentium Pro 200MHz	256KB each	64MB	D4843A
HP NetServer LH Plus 5/133 CPU Chip	—	Pentium 133MHz	—	—	D4869A
HP NetServer LH Plus 5/166 CPU Chip	—	Pentium 166MHz	—	—	D4299A
HP NetServer LH Pro 6/200 CPU Chip	—	Pentium Pro 200MHz	256KB	—	D4858A
HP NetServer LH Pro 6/200 Dual-Ready Board Upgrade Kit	—	Pentium Pro 200MHz	256KB	—	D4857A
Redundant Power Supply Module	—	—	—	—	D4921A

<sup>1</sup>All Model 1 Array models include a PCI dual-channel Fast and Wide SCSI Disk Array Controller.

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## For Additional Information

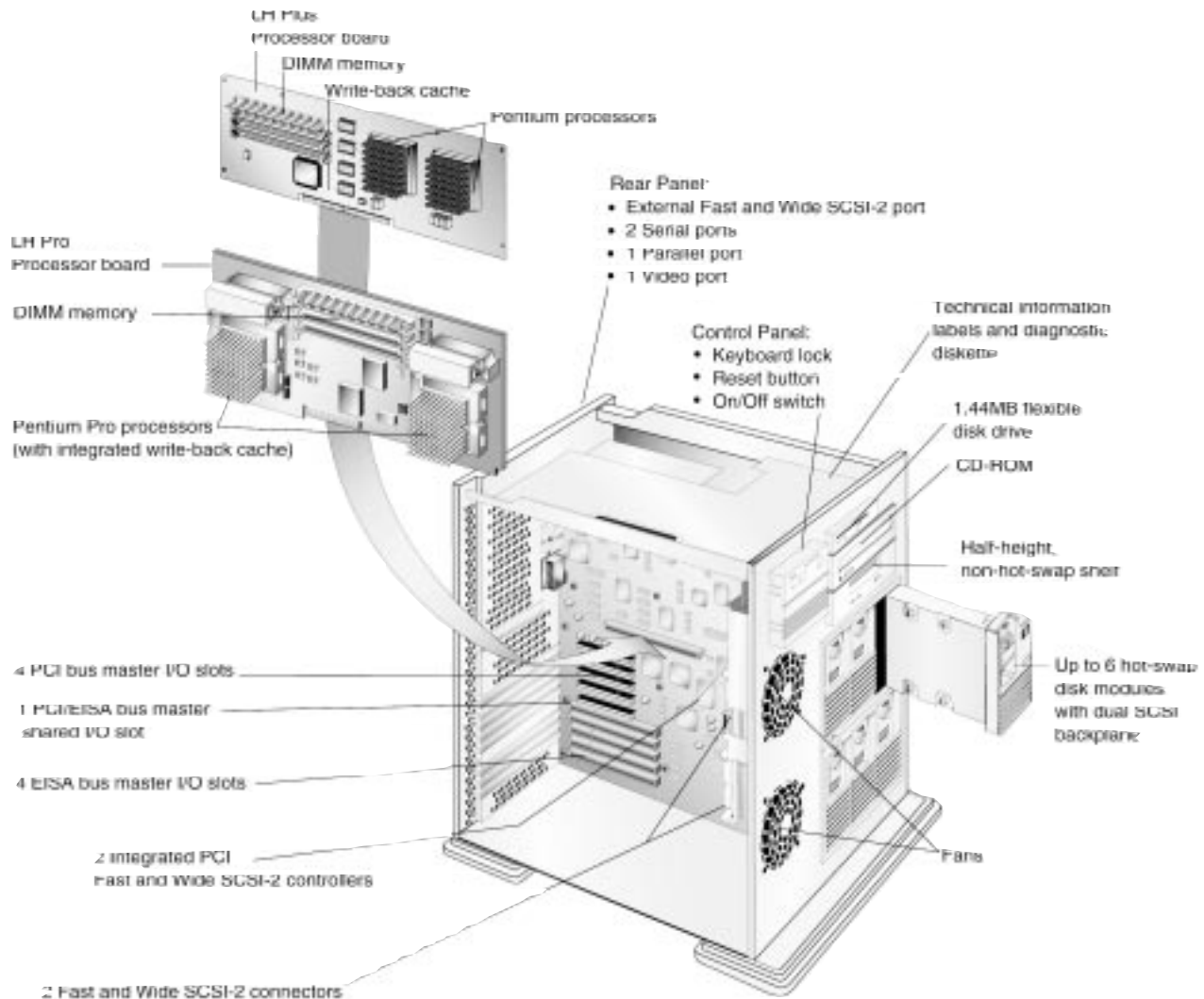
HP WWWeb server	<a href="http://www.hp.com/go/netserver">http://www.hp.com/go/netserver</a>
HP NetServer FTP server	<a href="ftp://ftp.netserver.hp.com">ftp://ftp.netserver.hp.com</a>
HP NetServer BBS	1-408-553-3500
HP FAX Response system	1-800-333-1917 (U.S.) 1-208-344-4809 (worldwide from fax only)
HP NetServer Literature	1-800-322-4772

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HP's **MAP** strategy ensures that your networking solution delivers the highest levels of **Manageability**, **Availability**, and **Performance**. So you can count on optimum, easy-to-achieve results over the life of your server. **Maximum** system uptime and data protection in your business-critical environment. And the most advanced technology available today—with plenty of headroom for future growth.