unprecedented value in a high-performance enterprise server

performance, built-in expandability, and value are what the hp netserver lh 6000 is all about. it's a six-way-capable server based on standard chipset technology—and hp offers it for a price comparable to four-way-capable systems.

The HP Netserver LH 6000/6000r provides superior performance and scalability to meet your enterprise needs. The next generation of the award-winning HP Netserver LH 4, the HP Netserver LH 6000 builds on the industry-leading features of its predecessor. The HP Netserver LH 6000 offers blazing I/O system performance, a full suite of high availability features, and the expandability to handle the needs of even the fastest-growing departments and corporate data centers—all for an unprecedented value.

- **Unprecedented expandability to protect your investment**—true scalability with up to six Intel® Pentium® III Xeon processors, up to 8GB PC-133 ECC SDRAM memory, and up to 12 Ultra3 SCSI hot-swap drives-for 440.4GB of internal hot-swap disk storage
- **Blazing I/O system performance**—eight 64-bit PCI slots (two run at 66MHz) and three-peer PCI buses deliver the performance you need for your most I/O-intensive applications
- **Full suite of high availability features**—including an integrated, hardware-based HP NetRAID Controller with up to 128MB of cache, 100MHz clock speed, and up to 72 hours of optional battery backup; four hot-plug PCI slots; and hot-swappable disk drives, power supplies, and fans
- **Intelligent manageability**—including HP Toptools for Servers, HP OpenView Managex Event Manager, integrated HP Remote Assistant, Automatic Server Restart (ASR), Optional HP Toptools Remote Control card, front panel "traffic light" system status control panel, and smart interrupt request (Smart IRQ) hardware routing
- **Simple installation and servicing**—with an 8U form factor (available in pedestal or rackable configurations), easy-to-remove system board, and a suite of hot-swappable components

features

performance	
processor	Up to six Intel Pentium III Xeon 700MHz or 900MHz processors with 100MHz system bus
cache	1MB or 2MB L2 cache per processor
ECC memory	• 256MB PC-133 ECC SDRAM standard • 8GB maximum capacity
I/O expansion slots	Eight free full-length, 64-bit PCI slots (six 33MHz and two 66MHz, four hot-plug)
controllers	• Integrated, dual-channel Ultra3 SCSI HP Net-RAID Controller with 32MB cache (expandable to 128MB) and optional battery backup • Additional single-channel Ultra Wide SCSI controller

mass storage system	• Four front-accessible (half-height) shelves:
	  – One for 3.5-inch floppy disk drive (preinstalled)
	  – One for CD-ROM drive (preinstalled)
	  – Two open common tray (non-hot-swap) shelves, suitable for drives or tape backup (DLT, DDS, autoloader)
	• 12 front-accessible hot-swap shelves:
	  – Six low-profile standard (also supports three half-height or mixed low-profile and half-height)
	  – Six additional low-profile (or three half-height) with optional cage for full duplex capability
	• Hot-swap drive backplane supports Ultra3 SCSI

maximum internal storage	• 440.4GB maximum hot-swap (6×73.4GB half-height drives), plus two 36.4GB common tray drives for maximum internal storage of 513.2GB • Optional duplexing backplane
video	• Integrated 1024×768, 256-color resolution at 60-75Hz • 2MB standard video memory • Super VGA drivers available with operating system
CD-ROM drive	32X max-speed EIDE CD-ROM drive
flexible disk drive	3.5-inch 1.44MB flexible disk drive
built-in I/O ports	• One 25-pin parallel port • One 9-pin serial/RS-232 port • One NIC port • Mini-DIN keyboard and mouse ports • One 9-pin server management port or second serial/RS-232 port
keyboard and mouse	Localized keyboard and two-button mouse on pedestal models

features *(continued)*

availability

hot-swap power supplies	• Three hot-swap power supplies standard • Optional N + 1 redundancy
high availability/ clustering support	Offered as basic platform for HP Netserver high availability solutions (for further information on cluster support, go to: **www.netserver.hp.com/netserver/products/highlights_ha.asp**)
self-restart capability	Automatic Server Restart (ASR) reboots the server in the event of a NOS hang
self-correcting memory	Manageable error-checking and -correcting (ECC) system and cache memory with memory-scrubbing feature
hot-swap disk drives	• Supports 9.1GB and 18GB, 7,200rpm Ultra3 SCSI disk drives • Supports 9.1GB, 18GB, and 36GB, 10,000rpm Ultra3 SCSI disk drives • Supports 18.2GB, 15,000rpm Ultra3 SCSI disk drives • Supports 73.4GB, 10,000rpm Ultra3 SCSI disk drives • Hot-swap and hot-spare support • Ultra3 ready
integrated hp netRAID controller	• Integrated, dual-channel, Ultra3 SCSI HP NetRAID Controller • 32MB SDRAM write-back cache, expandable to 128MB • Optional battery backup • Supports RAID 0, 1, 5, 10, 50
advanced cooling system	• Eight hot-swap fans standard for true, redundant system cooling • Two additional hot-swap fans with optional secondary fan tray • Active fan-speed control and failure sensing • Superior air-flow design for low internal temperature rise
intelligent platform management interface (IPMI)	• Open specification for system component monitoring • Foundation for self healing
network interface	Integrated 10/100TX network interface card with support for optional network interface card to support redundancy

features *(continued)*

intelligent management

installation and configuration
- HP Netserver Navigator with automated, menu-driven system setup and configuration
- Guided network operating system installation
- Automatic installation of monitoring tools

management software
- HP Toptools for Servers—a comprehensive server management solution with an intuitive, browser-based user interface—facilitates troubleshooting, administration, and detailed inventory information
- Industry-leading HP OpenView Managex Event Manager for NOS management
- Easy integration with other leading network and system management products

remote administration
- Integrated HP Remote Assistant provides emergency remote access over a modem with a single unified event log for faster troubleshooting
- Optional HP Toptools Remote Control card for even more powerful remote management, including remote LAN access, advanced security, online diagnostics, and group actions
- File transfer capabilities for secure and easy remote updates

expandability

design features
- 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

supported operating systems

Microsoft® Windows NT® 4.0, Windows® 2000; Novell NetWare 4.2, 5, 5.1; Red Hat Linux 6.1; SCO OpenServer 5.05 or UnixWare 7.1

security and safety

system security
- Startup password
- Network server mode
- Power reset switch cover and keyboard lock button
- Enable or disable serial port, floppy disk drives, and write operations to floppy disk drives
- Chassis intrusion detection
- System lock and hot-swap hard disk drive lock

service and support

warranty
- 3-year, next-business-day, onsite limited warranty from HP or authorized resellers (standard business hours) worldwide
- Pre-failure warranty/notification
- Free telephone support for basic setup, installation, and troubleshooting for the life of the product

hp instant support

Fast, Web-based support that automates and speeds resolution of most computing problems. Available at no charge, HP Instant Support includes:

- Automated—Web-based problem identification, diagnosis, and resolution
- Personalized—Ability to select your preferred support experience
- Relevant—Seamless transmission of hardware information and case history to HP support specialists at any time
- Reliable—it's there when you need it, 24 hours a day

For more information, visit the HP Instant Support Web site at: **www.hp.com/go/instantsupport**

features *(continued)*

service and support *(continued)*

hardware maintenance
- Optional HP Supportpack for 3- or 5-year, 4-hour response during standard business hours
- Optional HP Supportpack for 3- or 5-year, 4-hour response, 24 hours a day, 7 days a week
- Optional HP Supportpack for 3- or 5-year Call-to-Repair Commitment Service within 6 hours, 24 hours a day, 7 days a week
- Optional HP Supportpacks for installation and configuration of servers and clusters
- Optional HP Supportpacks for racking the HP Netserver solutions and clusters
- HP Netserver Documentation CD-ROM—a comprehensive reference source that includes information on installing, configuring, and supporting your HP Netserver and accessories

software maintenance
- HP Personalized Systems Support for PC Servers for proactive software support in mission-sensitive environments
- HP Critical Systems Support for Microsoft Windows Servers for high availability support in mission-critical environments

reseller support services

Comprehensive reseller support framework to ensure successful support of HP Netservers, including:
- Proactive Notification e-mail service
- Service and support Web site
- HP STAR Certification classes for IT professionals
- Troubleshooting Toolkit

regulatory compliance

electromagnetic emissions
- USA: FCC Class A (Self Declaration)
- EU Countries: EN 55022 Class A
- International: CISPR22 3rd Ed. Class A
- Korea: M of C Class A
- Japan: VCCI Class A
- Australia/New Zealand: CISPR 22 Class A
- Taiwan: BCQ1 Class A
- IEC 1000-3-2: Harmonic Current
- IEC 1000-3-3: Voltage Fluctuation and Flicker

electromagnetic immunity
- EU Countries: EN 55024/CISPR 24 including:
  – EN 61000-4-2/IEC 61000-4-2: Electrostatic Discharge (ESD)
  – EN 61000-4-3/IEC 61000-4-3: Radiated Immunity
  – EN 61000-4-4/IEC 61000-4-4: Electrical Fast Transient (EFT)/Burst
  – EN 61000-4-5/IEC 61000-4-5: Surge
  – EN 61000-4-6/IEC 61000-4-6: Conducted Immunity
- EN 61000-4-11/IEC 61000-4-11: Voltage Dips and Interruptions

safety
- EN 60950/IEC 950 Compliance (International)
- UL Listed (USA, File E139742)
- cUL Listed (Canada, File E139742)
- Highly Specialized Equipment (Mexico)
- TÜV Certified (Germany)
- CE Marking (Europe)

Japan energy saving law
- Category: J
- Energy Efficiency Ratio: 0.22
- Energy Efficiency Ratio is the quotient of consumed power that is measured according to the Energy Saving Law measurement method divided by the capacity specified in the Energy Saving Law

accessories

	product accessory	product no.
memory	• 128MB 133MHz ECC SDRAM DIMM	D8265A
	• 256MB 133MHz ECC SDRAM DIMM	D8266A
	• 512MB 133MHz ECC SDRAM DIMM	D8267A
	• 1GB 133MHz ECC SDRAM DIMM	D8268A
processor upgrades	• Intel Pentium III Xeon 700MHz, 1MB cache	D9199A
	• Intel Pentium III Xeon 700MHz, 2MB cache	D9200A
	• Intel Pentium III Xeon 900MHz, 2MB cache	P3455A
internal storage devices	• 9.1GB Ultra3 SCSI disk drive (10,000rpm)	P1214A
	• 18.2GB Ultra3 SCSI disk drive (10,000rpm)	P1167A
	• 36.4GB Ultra3 SCSI disk drive (10,000rpm)	P1169A
	• 73.4GB Ultra3 SCSI disk drive (10,000rpm)	P3578A
	• 9.1GB low-profile, hot-swap Ultra3 SCSI disk drive (10,000rpm)	P1168A
	• 18.2GB low-profile, hot-swap Ultra3 SCSI disk drive (10,000rpm)	P1166A
	• 36.4GB low-profile, hot-swap Ultra3 SCSI disk drive (10,000rpm)	D9419A
	• 73.4GB low-profile, hot-swap Ultra3 SCSI disk drive (10,000rpm)	P3577A
	• 73.4GB half-height, hot-swap Ultra3 SCSI disk drive (10,000rpm)	D9420A
	• 18.2GB low-profile, hot-swap Ultra3 SCSI disk drive (15,000rpm)	D9421A
	• Second disk drive cage for up to 6 additional hot-swap drives	D9158A
	• Optional Duplexing Kit	D8280A
disk trays	• 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
hp netRAID controllers and SCSI cables	• Integrated dual-channel Ultra3 SCSI HP NetRAID Controller with 32MB expandable cache	Included
	• Upgrade integrated HP NetRAID cache memory size to 64MB	D7155A
	• Upgrade integrated HP NetRAID cache memory size to 128MB	D7156A
	• Optional battery backup for integrated HP NetRAID cache	D8550A
	• HP NetRAID-1M Controller with 32MB cache (Ultra3 SCSI, 1-channel PCI Card)	P3410A
	• HP NetRAID-2M Controller with 64MB cache (Ultra3 SCSI, 2-channel PCI Card)	P3411A
	• HP NetRAID-2M Controller with 128MB cache (Ultra3 SCSI, 2-channel PCI Card)	P3475A
	• HP NetRAID-4M Controller with 64MB cache (Ultra3 SCSI, 4-channel PCI card)	D9161A
	• HP NetRAID-4M Controller with 128MB cache (Ultra3 SCSI, 4-channel PCI card)	D9351A
	• Ultra3 SCSI cable kit for use with various Netservers	P3469A

accessories *(continued)*

product accessory	product no.
external storage solutions	
• HP Netserver Rack Storage/12 (Ultra3)	D5989C
• HP Netserver Rack Storage/12 SCSI card (Ultra3)	D6025C
• HP Netserver Rack Storage/12FC	D5991A
• HP Netserver Rack Storage/12FC HBA card (for clustering or standalone)	D8602B
• HP 8-port Fibre Channel Loop Switch	P4459A
internal backup drives[1]	
• HP Surestore DAT 24i tape drive	C1555D/V
• HP Surestore DAT 40x6i Autoloader	C5686A/V
• HP Surestore DLT 40i drive	C5647A/V
• HP Surestore DLT 80i drive	C5725A/V
• HP Surestore Ultrium 230	C7400A/V
• HP Surestore DLT1	C7484A/V
external backup drives[1]	
• HP Surestore DAT 8e tape drive	C1529K
• HP Surestore DAT 24e tape drive	C1556D
• HP Surestore DAT 40e tape drive	C5687A
• HP Surestore DLT 40e tape drive	C1579A
• HP Surestore DLT 80e tape drive	C5726A
• HP Surestore Ultrium 230	C7401A
• HP Surestore DLT1	C7483A
rack-optimized backup devices	
• HP Surestore 2Uk rack kit	C6542A
• HP Surestore 3Uk rack kit	C6543A
• HP Surestore DAT 24k DDS-3 tape drive[2]	C6525A
• HP Surestore DAT 40k DDS-4 tape drive[2]	C6541A
• HP Surestore DLT 40k DLT drive[2]	C6515A
• HP Surestore DLT 80k DLT drive[2]	C6529A
• HP Surestore Ultrium 230	C7470A
• HP Surestore Tape Array 5500	C1534AE

[1] Please see the *HP Netserver Configuration Guide* for important technical information when choosing your accessories, or go to **http://netserver.hp.com/netserver/products/racks_accs/racks_accs.asp**. For HP Surestore backup, see **www.hp.com/storage**.

[2] 2Uk rack kit (C6542A) or 3Uk rack kit (C6543A) required.

accessories *(continued)*

	product accessory	product no.
automated tape backup	• HP Surestore Tape Library (2/20) LVDS[1]	C7202/03NB
	• HP Surestore Tape Library (4/40) LVDS[1]	C7214/15NB
	• HP Surestore Tape Library (6/60) LVDS[1]	C7230NB
	• HP Surestore DAT 24x6i Autoloader	C5677B/BV
	• HP Surestore DAT 24x6e Autoloader	C1559C
	• HP Surestore DAT 40x6e Autoloader	C5717A
	• HP Surestore DAT 40x6i Autoloader	C5716A/AV
	• HP Surestore DLT Autoloader 418[1]	C6280F
	• HP Surestore DLT Autoloader 818[1]	C6282RA/NB
	• HP Surestore Autoloader 1/9 standalone, Remote Management Card	C7146RA/NB
	• HP Surestore Autoloader 1/9 rackmount, Remote Management Card[1]	C7746RA/NB
redundant power and cooling kit	Redundant hot-swap power supply and redundant hot-swap fan tray kit	D8551A
network interface card	• HP Netserver 10/100TX PCI LAN adapter	D5013B
	• HP 10/100 IPSec 3DES Security LAN adapter	P3492A
	• HP gigabit ethernet LAN adapter	P3482A
remote management	• Integrated HP Remote Assistant	Included
	• HP Toptools Remote Control card including battery	D6028A
	• Optional AC adapter for HP Toptools Remote Control card	D6138A
APC uninterruptible power supply (UPS)	(APC) American Power Conversion UPS devices used to protect servers and storage against downtime and data loss due to power anomalies and are fully compatible with the HP environment. Available through Hewlett-Packard. Refer to **http://www.hp.com/racksolutions/p_ups.html**	
conversion kit	Pedestal-to-rack conversion kit	D9142A
upgrade kits	LH 3000 to LH 6000 upgrade kit includes two Intel Pentium III Xeon processors, system board, 256MB PC-133 SDRAM, one additional power supply module, plus HP Netserver Navigator CD-ROM and documentation	
	• Intel Pentium III Xeon 700MHz processor with 1MB cache	D9314A
	• Intel Pentium III Xeon 700MHz processor with 2MB cache	D9315A
monitors	HP offers a wide variety of monitors (15", 17", and 21") (please refer to HP Order Assistant at **www.netserver.hp.com/netserver/tools/** for complete configuration and ordering information)	
hp racks	Available in three sizes—25U, 33U, and 41U—with a full line of rack accessories. For a complete product list, download the HP Netserver Rack Assistant tool from **http://netserver.hp.com/netserver/tools/rack_asst.asp**, or go directly to the enclosures Web site at **www.hp.com/enclosures**.	
keyboard and mouse	• HP Netserver keyboard	D8597A/D4950B[2]
	• Mouse	C3751B

[1] Autoloaders—**http://www.products.storage.hp.com/eprise/main/storage/DisplayPages/automatedbackup.htm**
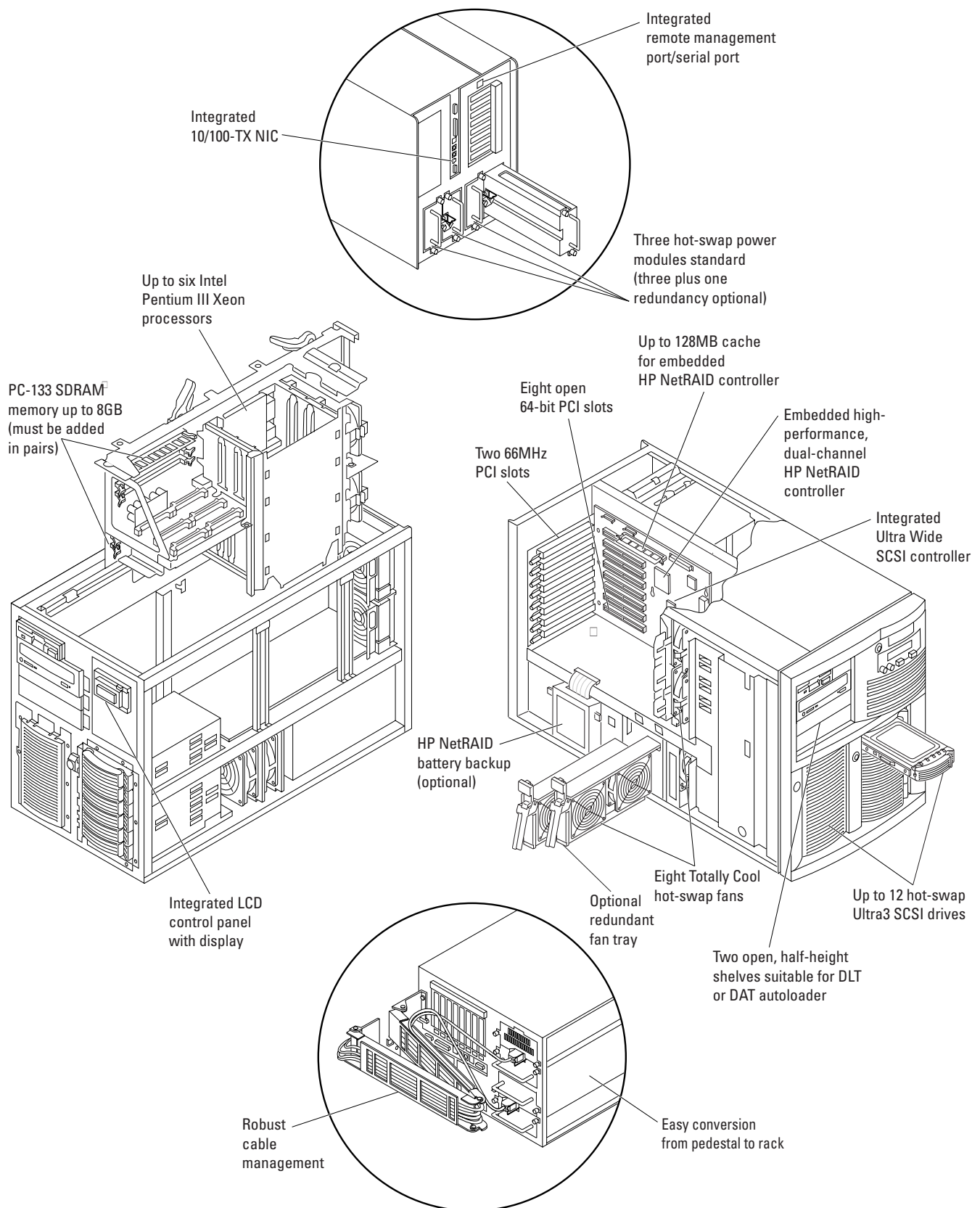
[2] Japanese only keyboard

accessories *(continued)*

hp supportpacks	product no.

Support can be delivered either by your local reseller or by Hewlett-Packard's Customer Support organization. For more information, visit our Web site at **www.hp.com/go/netserver**.

5-Year, 24x7 6-Hour Onsite Hardware Call-to-Repair	H3161E/VV
5-Year, 24x7 4-Hour Onsite Response	H3160E/VV
5-Year, 4-Hour Onsite Response (regular business hours)[1]	H3159E/VV
5-Year, Next Business Day Onsite Response	H3158E/VV
3-Year, 24x7 6-Hour Onsite Hardware Call-to-Repair	H3128A/E/VV
3-Year, 24x7 4-Hour Onsite Response	H3127A/E/VV
3-Year, 4-Hour Onsite Response (regular business hours)[1]	H3126A/E/VV
HP Netserver Solution Installation and Configuration (L Series)	H5751A
Racking of HP Netserver Solution	H5756A
HP Netserver Cluster Solution Installation/Network Configuration	H5757A
Racking of HP Netserver Cluster Solution	H3368A
HP Personalized System Support for PC Servers:	
• Proactive Management, 1 year	H2219AA/E
• Standard Recovery, 1 year	H2217AA/E
• Standard Recovery Applications Add-on, 1 year	H2216AA/E
• Proactive Support, 1 year	H2218AA/E
HP Critical Systems Support for Windows Servers:	
• NT Solution, 1 year	H1931E
• Reactive Bundle, 1 year (second server)	H1932E
• Priority Recovery NT, 1 year (cluster server)	H1933E
• Priority Recovery NT, 1 year	H1934E
• Priority Management NT, 1 year	H1941E
• Operations Checkup NT, 1 engagement	H1950E
• Critical Systems Support NT and SAP R/3	H3035E
• Critical Systems Support NT and Microsoft Exchange	H1931E & H1947E
Microsoft Cluster Server Migration, 1 cluster	H1945E
Change Management Planning for NT, 1 year	H1943E
Additional Patch Management Reviews	H1944E
Performance Optimization for NT, 1 year	H1946E
Expert Technical Advice for NT, 1 topic	H1947E
Account Support Engineer Services for NT, 1 day	H1948E

[1] Provides HP's best response time service during regular business hours, Monday through Friday, except HP holidays

Integrated
remote management
port/serial port

Integrated
10/100-TX NIC

Up to six Intel
Pentium III Xeon
processors

Three hot-swap power
modules standard
(three plus one
redundancy optional)

Up to 128MB cache
for embedded
HP NetRAID controller

Eight open
64-bit PCI slots

PC-133 SDRAM
memory up to 8GB
(must be added
in pairs)

Embedded high-
performance,
dual-channel
HP NetRAID
controller

Two 66MHz
PCI slots

Integrated
Ultra Wide
SCSI controller

HP NetRAID
battery backup
(optional)

Integrated LCD
control panel
with display

Eight Totally Cool
hot-swap fans

Optional
redundant
fan tray

Up to 12 hot-swap
Ultra3 SCSI drives

Two open, half-height
shelves suitable for DLT
or DAT autoloader

Robust
cable
management

Easy conversion
from pedestal to rack

specifications

operating temperature	41° to 95°F (5° to 35°C)
operating humidity	20% to 80% non-condensing
acoustic emissions	Sound level (LpA): <58dBA, bystander position
power supply	Auto-ranging 90 to 132 V ac, or 180 to 264 V ac at 47–63Hz
power availability	810W continuous
power consumption	1166W maximum; 11.7A with 100–120V supply, 5.5A with 200–240V supply
system dimensions	• Pedestal: 13.8in W x 19.5in H x 28.5in D (35.1cm W x 49.5cm H x 72.5cm D) • Rack: 19in W x 14in H x 29.5in D (48.3cm W x 35.5cm H x 75cm D)
system weight	115–175lb (53–80kg), depending on configuration

choose your hp netserver lh 6000 or lh 6000r

product no.	processor	configuration
D9190B or D9191BV	LH 6000 with one Pentium III Xeon 700MHz/1MB	Pedestal
D9192B or D9193BV	LH 6000r with one Pentium III Xeon 700MHz/1MB	Rack
D9194B or D9195BV	LH 6000 with one Pentium III Xeon 700MHz/2MB	Pedestal
D9196B or D9197BV	LH 6000r with one Pentium III Xeon 700MHz/2MB	Rack
P1816B or p1818BV[1]	LH 6000 with one Pentium III Xeon 900MHz/2MB	Pedestal
P1817B or P1819BV[1]	LH 6000r with one Pentium III Xeon 900MHz/2MB	Rack

"B" models include everything in the following list while "BV" models include everything except for
the memory: 256MB PC-133 SDRAM, integrated dual-channel HP NetRAID controller with 32MB cache,
integrated 10/100TX NIC, hot-swap power supplies and fans, integrated HP Remote Assistant,
HP Toptools for Servers, HP OpenView Managex Event Manager, CD-ROM drive and flexible disk drive.

[1] Limited availabilty. Please check with your HP sales representative or reseller.

Support can be delivered by your local reseller or by the Hewlett-Packard Customer Support Organization. Web-based troubleshooting available through HP Instant Support: **www.hp.com/go/instantsupport**

For additional information on HP products and services, visit us at **www.hp.com**

For the location of the nearest sales office, call:

United States: +1 800 637 7740
Canada: +1 905 206 4725
Japan: +81 3 3331 6111
Latin America: +1 305 267 4220
Australia/New Zealand: +61 3 9272 2895
Asia Pacific: +8522 599 7777
Europe/Africa/Middle East: +41 22 780 81 11

For more information, contact any of our worldwide sales offices or HP Channel Partners
(in the U.S. call 1 800 637 7740).

HP's world-class services and support provide maximum uptime for
HP Netservers. Standard warranty includes:

• Next-day on-site service
• Phone support
• Free exchange parts

For a complete list of enhanced Supportpacks, see:
netserver.hp.com/netserver/products/highlights_lh6000.asp

HP Select Express Program:
HP Netservers are also available through the HP Select Express
program, which provides direct, coordinated delivery. This program
offers custom integration of HP hardware offered at HP's lowest prices.
For more information, visit our Web site at:
netserver.hp.com/netserver/buy/select/select_express.asp