

**HP NetServer LH 3 and LH 3r**

specifications

## Redefining the standard for departmental servers

The dependable HP NetServer LH 3 has the performance, availability, and scalability features your growing business needs, all in one compact package, all at departmental server prices:

- Up to 2 Intel® Pentium® II 450MHz, or Pentium III 500MHz, 550MHz or 600MHz processors with 100 MHz front-side bus. Tool-free upgrade to four-way Intel Pentium II Xeon™ or Pentium III Xeon processing
- Capacity for up to 12 Ultra2 SCSI drives driven by an integrated dual-channel HP NetRAID controller with I<sub>2</sub>O
- Up to 1GB memory capacity with registered ECC SDRAM and memory scrubbing
- Hot-swap power supplies and fans
- 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. For reliable, timesaving, automated network backup choose the HP SureStore DAT24x6i autoloader
- Integrated HP Remote Assistant and optional HP TopTools Remote Control card for easiest remote access, advanced security, and diagnostics
- HP TopTools for Servers with Web interface for device management, HP OpenView ManageX/SE for NOS and application management



Hewlett-Packard redefines the standard for departmental servers with the HP NetServer LH 3. Incorporating the latest performance, industry-leading storage, and high-availability technologies, this workhorse is loaded with features you'd expect only in high-end servers.

## Features

Performance	
Processor	Up to 2 Intel Pentium II 450MHz or Pentium III 500MHz, 550MHz or 600MHz with 100MHz bus
Cache	512KB ECC L2 cache per processor
ECC Memory	<ul style="list-style-type: none"> <li>• 128MB high-performance 100MHz ECC SDRAM standard with memory scrubbing</li> <li>• 1GB maximum capacity</li> </ul>
I/O Expansion Slots	8 total full-length 32-bit PCI (one occupied by preinstalled 10/100TX NIC, 1 shared with 2/3 length ISA)
Controllers	<ul style="list-style-type: none"> <li>• Integrated dual-channel HP NetRAID disk array controller with I<sub>2</sub>O</li> <li>• Integrated dual Ultra2 SCSI controllers</li> <li>• Additional Ultra2 to SE (single-ended) converter</li> </ul>
Mass Storage System	<ul style="list-style-type: none"> <li>• 4 front-accessible (half-height) shelves <ul style="list-style-type: none"> <li>– One 3.5-inch flexible disk drive</li> <li>– One CD-ROM drive</li> <li>– Two open common tray (non-hot-swap) shelves, suitable for drives or tape backup (DLT, DDS, autoloader)</li> </ul> </li> <li>• 12 front-accessible hot-swap shelves <ul style="list-style-type: none"> <li>– 6 low-profile standard (also supports 4 half-height or mixed low-profile and half-height)</li> <li>– 6 additional low-profile (or 4 half-height) with optional cage for full duplex capability</li> </ul> </li> </ul>
Maximum Internal Storage	218.4GB maximum hot-swap (12 x 18.2GB half-height drives), plus two 9.1GB common tray drives for maximum internal storage of 236.6GB
Video	<ul style="list-style-type: none"> <li>• Integrated; supports 1024x768, 256-color resolution at 60–75Hz</li> <li>• 1MB standard video memory, upgradeable to 2MB</li> <li>• Super VGA drivers available with operating system</li> </ul>
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"> <li>• Two SCSI knock-outs</li> <li>• One 25-pin parallel port</li> <li>• Two 9-pin serial/RS-232 ports</li> <li>• Video port</li> <li>• Mini-DIN keyboard and mouse ports</li> <li>• Management port (9-pin)</li> </ul>
Keyboard and Mouse	Localized keyboard and two-button mouse <sup>1</sup>

<sup>1</sup> Not included with HP NetServer LH 3r

## Features

### Availability

High-Availability/Clustering Support	For further information on cluster support go to: <a href="http://www.hp.com/netserver/products/cluster">http://www.hp.com/netserver/products/cluster</a>
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 and cache memory with memory scrubbing feature
Hot-Swap Disk Drives	<ul style="list-style-type: none"> <li>Supports 4.2GB, 9.1GB, and 18.2GB 7,200rpm Ultra2 SCSI disk drives</li> <li>Supports 9.1GB and 18.2GB 10,000rpm Ultra2 SCSI disk drives</li> <li>Hot-swap and hot-spare support</li> </ul>
Disk Array Controller	<ul style="list-style-type: none"> <li>Integrated dual-channel HP NetRAID disk array controller with I<sub>2</sub>O technology</li> <li>16MB write-back cache</li> <li>Supports RAID 0, 1, 3, 5, 10, 30, 50</li> </ul>
Advanced Cooling System	<ul style="list-style-type: none"> <li>6 hot-swap fans standard</li> <li>2 additional hot-swap fans optional (for Totally Cool redundant system cooling)</li> <li>Active fan-speed control and failure sensing</li> <li>Superior air flow design for low internal temperature rise</li> </ul>
IPMI (Intelligent Platform Management Interface)	<ul style="list-style-type: none"> <li>Open specification for system component monitoring</li> <li>Foundation for self-healing</li> </ul>
Network Interface	Preinstalled 10/100TX network interface card with support for optional network interface card to support redundancy, load balancing, and Cisco® Fast EtherChannel®
Automatic Tape Backup	Optional automated DAT backup with up to 24GB to back up daily. With six cartridges there is a cartridge for every day, Monday to Friday; with a slot dedicated to a cleaning cartridge, backup is reduced to a once-weekly task of changing the magazine, so maintenance is easier.

### Manageability<sup>1</sup>

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

<sup>1</sup> See HP NetServer Management Web site at [http://www.hp.com/go/netserver\\_mgmt](http://www.hp.com/go/netserver_mgmt)

## Features

### 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® Server 3.51 and 4.0; Novell® NetWare®, IntranetWare™, and NetWare SFT™ III; Red Hat Linux 6.0; SCO® OpenServer™ and UnixWare®; IBM® OS/2® Warp Server; and Banyan® VINES®

### Security and Safety

#### System Security

- 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

### Service and Support

#### Warranty

3-year, next-business day, onsite limited warranty from HP or authorized resellers (standard business hours) worldwide

#### HP SupportPack Options

- 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

Comprehensive reseller support framework to ensure successful support of HP NetServers, includes:

- Proactive Notification e-mail service<sup>1</sup>
- Service and support Web site<sup>1</sup>
- Server Management and Hardware Troubleshooting courses (STAR)<sup>1</sup>
- Troubleshooting Toolkit<sup>1</sup>
- 24x7 telephone support for authorized resellers
- HP BusinessBuilders - blueprints for new business opportunities

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

## Features

### Regulatory Compliance

Electromagnetic Emissions

- USA: FCC Class B (Self Declaration)<sup>1</sup>
- EU Countries: EN 55022 Class B<sup>1</sup>
- Korea: M of C Class A
- Japan: VCCI Class B<sup>1</sup>
- Australia/New Zealand: CISPR 22 Class B<sup>1</sup>
- Taiwan: BCQI Class A
- IEC 1000-3-2: Harmonic Current
- IEC 1000-3-3: Voltage Fluctuation and Flicker

Electromagnetic Immunity

- Generic Immunity (EN50082-1, 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)

<sup>1</sup> Class A for Pentium III 500MHz, 550 MHz, and 600MHz processors.

## Accessories

	Product Accessory <sup>1</sup>	Product No.	
Memory	• 64MB 100MHz ECC SDRAM DIMM	D6097A	
	• 128MB 100MHz ECC SDRAM DIMM	D6098A	
	• 256MB 100MHz ECC SDRAM DIMM	D6099A	
	• 1MB Video RAM	D4219A	
Processors	• Pentium II 450MHz, 512KB cache	D7032A	
	• Pentium III 500MHz, 512KB cache	D7129A	
	• Pentium III 550MHz, 512KB cache	D8583A	
	• Pentium III 600MHz, 512KB cache	D9342A	
Storage Devices	• 4.2GB, Ultra/Wide SCSI disk drive (7,200rpm—common tray)	D4910A	
	• 4.2GB, low-profile, hot-swap Ultra2 SCSI disk drive (7,200rpm)	D6104A	
	• 9.1GB, Ultra/Wide SCSI disk drive (7,200rpm—common tray)	D4911A	
	• 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	
	• 18.2GB, half-height, hot-swap Ultra2 SCSI disk drive (7,200rpm)	D6108A	
• 18.2GB, half-height, hot-swap Ultra2 SCSI disk drive (10,000rpm)	D7031A		
Internal Storage Expansion	Second drive cage for up to 6 additional hot-swap drives <sup>2</sup>	D6077A	
Disk Controllers & SCSI Cables	• Integrated dual-channel HP NetRAID with I <sub>2</sub> O technology	included	
	• HP NetRAID-1 Disk Array Controller (1 channel)	D4992A	
	• HP NetRAID-1Si Disk Array Controller (1 channel)	D2140A	
	• HP NetRAID-3Si I <sub>2</sub> O Disk Array Controller (3 channels)	D5955A	
	• HP Ultra/Wide SCSI PCI Controller	D5025A	
	• 2.5m SCSI Cable to connect from HP NetRAID Family Controller to External Storage <sup>3</sup>	D6020A	
	• HP NetServer LH 3/LH 4 Internal SCSI Cable Kit <sup>4</sup>	D4282B	
External Storage Solutions	• HP NetServer Storage System/6	D3604B	
	• HP NetServer Rack Storage/12 (Ultra2 SCSI)	D5989B	
	• HP NetServer Rack Storage/12 SCSI Card	D6025B	
Backup Devices <sup>1</sup>	• Internal HP SureStore DAT24i DDS-3 tape drive	C1555C	
	• Internal HP SureStore DAT24x6i DDS-3 Autoloader	C5677A	
	• Internal HP SureStore DLT 40i DLT 4000 tape drive	C5647A	
	• External HP SureStore DAT24e DDS-3 tape drive	C1556C	
	• External HP SureStore DAT24x6e DDS-3 Autoloader	C1559B	
	• External HP SureStore DLT 40e DLT 4000 tape drive	C5679A	
	TapeRack:		
	• HP SureStore TapeRack Enclosure	C5695A	
	• HP SureStore DLT 24r DDS-3 tape drive	C5696A	
	• HP SureStore DLT 40r DLT 4000 tape drive	C5697A	

<sup>1</sup> 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>.

<sup>2</sup> When used in RAID configuration, an additional SCSI HBA (D5025A) is required to support tape devices. This upgrade includes cable to connect to internal SCSI controller.

<sup>3</sup> 2.5m SCSI Cable 68-pin male ultra-high-density offset connector to 68-pin male high-density connector.

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

## Accessories

	Product Accessory <sup>1</sup>	Product No.
Hot-Swap Redundant Fans and Power Supplies	• Secondary fan tray, second power supply cage with one power supply module	D6093A
	• Additional power supply module for total redundancy	D6095A
Network Interface Cards	• HP NetServer 10/100TX PCI LAN adapter	D5013A
	• HP DeskDirect 10/100VG PCI LAN adapter	J2585B
Remote Management	• Integrated HP Remote Assistant	Included
	• HP TopTools Remote Control Card including battery	D6028A
	• Optional AC adapter required for remote power on	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 <a href="http://www.apcc.com">http://www.apcc.com</a>	
Conversion Kit	Pedestal-to-rack conversion kit	D6094B
Upgrade Kits <sup>2</sup>	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 II Xeon 450MHz processors with 1MB L2 cache	D7015A
	• Intel Pentium III Xeon 500MHz processors with 512K L2 cache	D7111A
	• Intel Pentium III Xeon 500MHz processors with 1MB L2 cache	D7112A
	• 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 15" Rackmount Flat Panel Monitor/Keyboard	J1470A
	• 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
HP Racks	For a complete list of racks and rack accessories, download the HP NetServer Rack Assistant tool from <a href="http://www.hp.com/netserver/products/racks">http://www.hp.com/netserver/products/racks</a>	
Keyboard and Mouse	• HP NetServer keyboard	D4950B
	• Mouse	C3751B

### HP SupportPack Offering

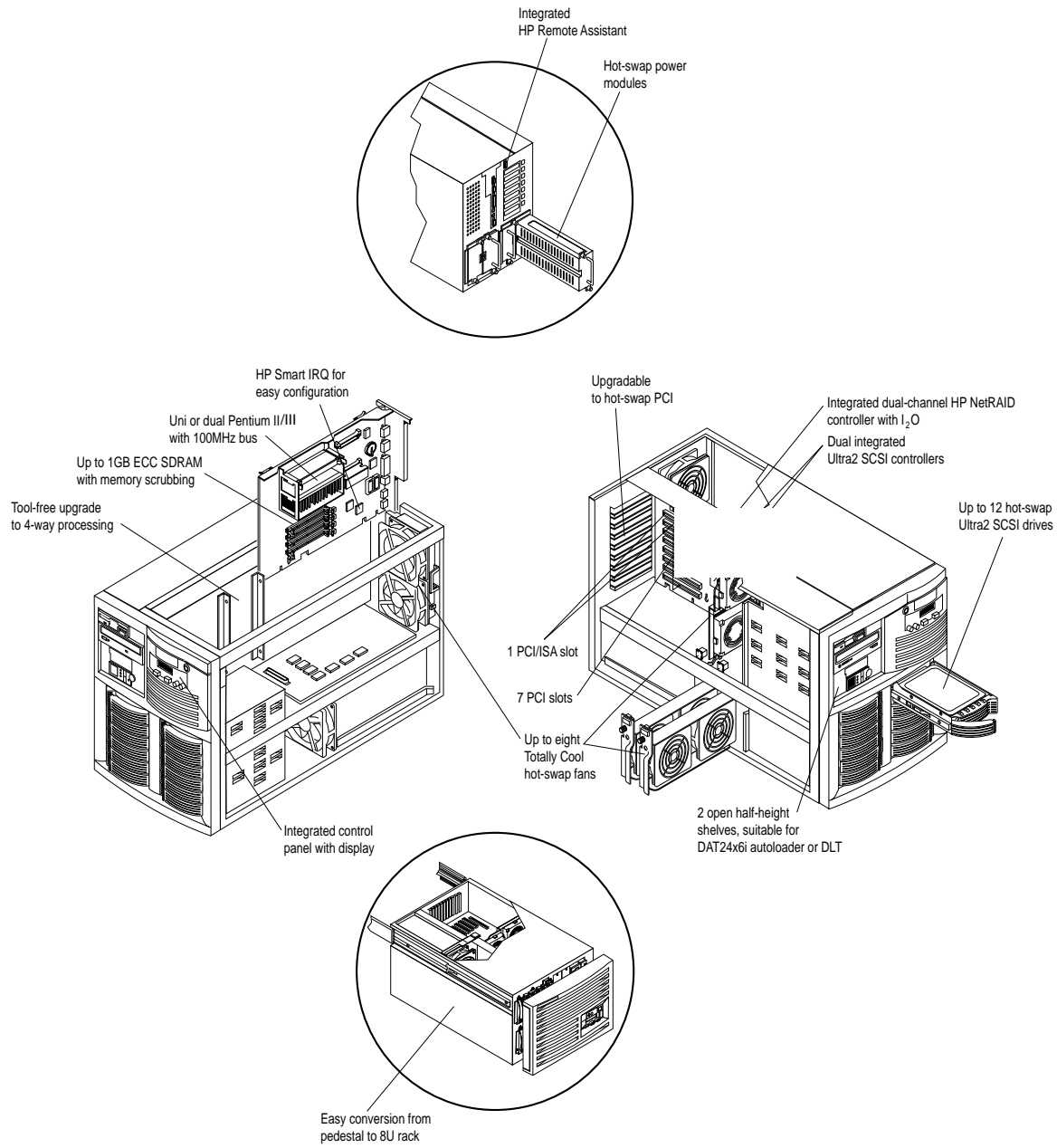
Support can be delivered either by your local reseller or by the Hewlett-Packard Customer Support organization. For more information, visit our Web site at <http://www.hp.com/go/netserver>.

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	H5756A
Remote NOS, Applications, LAN, WAN, and Management Phone Support	H1847AA

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

<sup>2</sup> 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 3 and LH 3r





HP NetServer 3 and LH 3r

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	550W continuous
Power Consumption	809/786W maximum with 110/220V supply
System Dimensions	Rack: 19"W x 14"H x 29.5"D (482.6mm W x 354.7mm H x 749.2cm D) Pedestal: 13.8"W x 19.5"H x 28.5"D (350.5mm W x 494.8mm H x 724.2mm D)
System Weight	79–132lbs (36–60kg), depending on configuration

Choose Your HP NetServer LH 3 or LH 3r

Product Number	Processor	Configuration	All Models Include: 128MB 100MHz ECC SDRAM with memory scrubbing, integrated dual-channel HP NetRAID controller with I <sub>2</sub> O driving dual PCI Ultra2 SCSI controllers, bundled 10/100TX NIC, CD-ROM drives, flexible disk drive, hot-swap power supplies and fans, integrated HP Remote Assistant, HP TopTools for Servers, HP OpenView ManageX/SE
D7033A	Pentium II/450 MHz	Pedestal	
D7034A	Pentium II/450 MHz	Rack <sup>1</sup>	
D8503A	Pentium III/500 MHz	Pedestal	
D8504A	Pentium III/500 MHz	Rack <sup>1</sup>	
D8567A	Pentium III/550 MHz	Pedestal	
D8568A	Pentium III/550 MHz	Rack <sup>1</sup>	
D9343A	Pentium III/600 MHz	Pedestal	
D9344A	Pentium III/600 MHz	Rack	

<sup>1</sup> Keyboard and Mouse not included with Rack Configurations

**HP Select Express Program:**

HP NetServer LH 3 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/products/sep>



[www.hp.com/go/netserver](http://www.hp.com/go/netserver)

IBM and OS/2 are registered trademarks of IBM Corporation. Intel and Pentium are U.S. registered trademarks of, and Xeon is a trademark of, Intel Corporation. Microsoft and Windows NT are registered trademarks of Microsoft Corporation. Novell and NetWare are registered trademarks of, and IntranetWare is a trademark of, Novell, Inc. OpenView is a trademark of Hewlett-Packard Company. SCO and UnixWare are registered trademarks of, and OpenServer is a trademark of, The Santa Cruz Operation. All other brand names are trademarks of their respective owners.

Information in this document is subject to change without notice.

© Copyright Hewlett-Packard Company 1999. All Rights Reserved. Reproduction, adaptation, or translation without prior written permission is prohibited, except as allowed under the copyright laws.