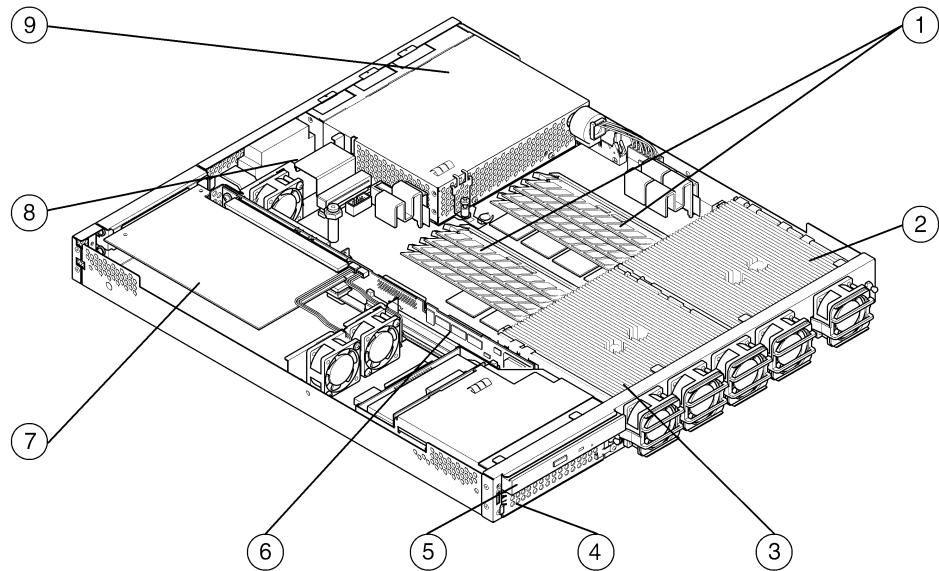


## Overview

### At A Glance

AlphaServer™ DS20L 1U Systems include:

- 1U dual Alpha processor module with 833-MHz CPUs with 4-MB onboard cache per processor
- 512-MB, 1-GB or 2-GB SDRAM memory – 2-GB maximum memory capacity
- Onboard IDE controller for optional internal CD-ROM drive
- Onboard U160 SCSI adapter for optional internal disk drive
- Onboard dual 10/100 BaseT Ethernet ports
- Two 2/3-length 64-bit PCI expansion slots
- One 3.5-inch x 1-inch hard disk drive bay and optional CD-ROM drive
- Internal storage capacity up to 72.8 GB (SCSI)
- Integral remote system management console
- Two serial ports
- Bi-directional enhanced parallel port
- 425W (200-240V) power supply with auto-ranging AC input
- Tru64™ UNIX® Factory Installed Software with 90-day software product warranty; Linux®-Ready systems available
- Protected by HP Services, including one-year, on-site hardware with next business day response.



1. Memory DIMMS
2. CPU0
3. CPU1
4. Hard Drive
5. CD-ROM (optional)

6. PCI Riser Card
7. PCI Options
8. I/O Daughter Card
9. Power Supply

## Standard Features

<b>Processor</b>	Two Alpha 21264A 833-MHz processor; 4-MB onboard cache per processor	
<b>Memory</b> (Two Banks, Four DIMM Slots per Bank)	Standard Maximum	512 MB, 1 GB or 2 GB 2 GB (Two 1-GB memory kits – each kit includes four industry-standard DIMMs with ECC support)
<b>Network Controller</b>	Two onboard 10/100 BaseT Ethernet ports, each port connection is limited to a 25-meter cable length	
<b>Expansion Slots</b>	PCI slots Storage bays	Two 2/3 length 64-bit slots, 33 MHz – accepts PCI cards up to 8.375-inches in length Two storage bays – one 3.5-inch x 1-inch hard disk drive bay and optional CD-ROM drive
<b>Storage Controller</b>	Onboard IDE controller for internal optional CD-ROM drive Onboard Ultra3™ SCSI controller for internal storage, choice of optional storage controller	
<b>Storage</b>	CD-ROM Hard Drives	Optional 18.2-GB, 36.4-GB, and 72.8-GB Ultra160 disk drives
<b>Expansion Ports</b>	Parallel Serial	One bi-directional enhanced port Two serial ports: COM1 port and COM 2 port are both full-duplex asynchronous communications ports
<b>Form Factor</b>	1U Rackmount (H x W x D) 1.75 x 17 x 20 in/4.44 x 43 x 50 cm, 21 lb/9.4 kg	
<b>Power Supply</b>	425W Power Supply	
<b>Supported Options</b>	A detailed summary of options supported on the AlphaServer DS20L is available at: <a href="http://www.Hewlett-Packard.com/alphaserver/options/asDS20L/asDS20L_options.html">http://www.Hewlett-Packard.com/alphaserver/options/asDS20L/asDS20L_options.html</a>	
<b>OS Support</b>	AlphaServer DS20L Tru64 UNIX systems include pre-installed software (V5.1B IPK), 2-user Base license AlphaServer DS20L Linux-Ready systems ship without system software; RedHat® 7.2 may be purchased separately from a Linux distributor. Minimum OS support Tru64 UNIX V5.1A, New Hardware Delivery-5 (NHD-5) for Tru64 UNIX Version 5.1A, and the most recent Tru64 UNIX V5.1A Patch Kit. Refer to the following URL for recent updates: <a href="http://www.tru64unix.Hewlett-Packard.com/products.html">http://www.tru64unix.Hewlett-Packard.com/products.html</a>	
<b>Service and Support</b>	HP Services provides a wide range of service offerings including a one-year limited warranty fully supported by a worldwide network of resellers and service providers; lifetime toll-free 7 x 24 hardware technical phone support.	

## Systems/Options

### Step 1 – Select system

AlphaServer DS20L systems require the **mandatory** selection of the following items:

- To enable initial operating system boot, at least one AlphaServer DS20L per purchase order must include a slim CD-ROM drive (3X-PBXRZ-AA) or a management station. The remainder of the systems in the configuration can be remotely booted via the CD-ROM drive or the management station.
- A minimum of one AlphaServer DS20L Users Guide (EK-DS20L-UG) must be ordered per purchase order.
- AlphaServer DS20L is a rackmount-only system. If a rack is unavailable onsite, one must be selected from Step 6.
- For integration of more than 32 systems in a cabinet, contact *CustomSystems* (1-800-AT-COMPAQ).
- Rackmount systems require PDU, PDU mounting kit, and power cords.

**NOTES:** Rackmount system minimum for factory integration is four.

AlphaServer DS20L minimum OS support – Tru64 UNIX V5.1A, New Hardware Delivery-5 (NHD-5) for Tru64 UNIX Version 5.1A, and the most recent Tru64 UNIX V5.1A Patch Kit.

For system integration of options with 6-3 part numbers, contact *CustomSystems* (1-800-AT-COMPAQ).

### AlphaServer DS20L Systems

OS	CPU	Memory	PCI Slots	Ultra3 SCSI Controller	2 Ethernet Ports	Hard Drive	Order No.
Tru64 UNIX	2 x 833 MHz	512 MB	2	Onboard	Onboard	Optional	DA-81BAA-EA
Tru64 UNIX	2 x 833 MHz	1 GB	2	Onboard	Onboard	Optional	DA-81BAA-FA
Tru64 UNIX	2 x 833 MHz	2 GB	2	Onboard	Onboard	Optional	DA-81BAA-GA
Linux-Ready	2 x 833 MHz	512 MB	2	Onboard	Onboard	Optional	DJ-81BAA-EA
Linux-Ready	2 x 833 MHz	1 GB	2	Onboard	Onboard	Optional	DJ-81BAA-FA
Linux-Ready	2 x 833 MHz	2 GB	2	Onboard	Onboard	Optional	DJ-81BAA-GA

**NOTE:** 512-MB and 1-GB systems include one memory option (memory bank 0 populated) — 2-GB systems have both memory banks 0 and 1 populated, each with a 1-GB option.

### Step 2 – Select Options

#### Step 2a – System Disk Drive

- Maximum one internal disk drive.
- Internal support for 3.5-inch x 1-inch drives only
- For multiple system configurations that share a system disk external to system enclosure, contact *CustomSystems* (1-800-AT-COMPAQ)

**System Disk Cable Configuration Rules** For systems configured with a SCSI hard disk, order the following:

One CK-DS20L-AA (one drop DS20L SCSI cable kit)

Internal SCSI Disk Drives		
	18.2-GB 10,000 rpm Ultra3 SCSI 80-pin SCA2 HDD DS20L drive	3X-RZ3ES-SA
	36.4-GB 10,000 rpm Ultra3 SCSI 80-pin SCA2 HDD DS20L drive	3X-RZ3FS-SA
	72.8-GB 10,000 rpm Ultra3 SCSI 80-pin SCA2 HDD DS20L drive	3X-RZ3GS-SA

## Options

### Step 2 – Select options (continued)

#### Step 2b – Internal SCSI Adapter and Cable Kit – (Internal SCSI disks require a SCSI cable kit)

SCSI Adapters (for Internal Drives)	<ul style="list-style-type: none"> <li>On-board PCI 1-channel Ultra3 SCSI adapter. Supports internal storage devices only.</li> <li>Single-channel SCSI adapters may only be used for internal or external drive connections, not both. Mixed cable types are not supported on the same SCSI bus.</li> </ul>	
	PCI 1-channel Ultra2™ LVD SCSI adapter, HD 68-pin	3X-KZPCA-AA
	PCI 2-channel multimode Ultra3 LVD SCSI adapter, VHDCI (Tru64 UNIX only)	3X-KZPEA-DB
	PCI combo card – PCI 2-channel UltraSCSI single-ended adapter and 10/100 Mbit Ethernet (Tru64 UNIX only)	KZPCM-DA

SCSI Cable Kit (required for SCSI disks)	One drop DS20L SCSI cable kit	CK-DS20L-AA
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### Step 3 – Memory – Optional

<ul style="list-style-type: none"> <li>Maximum 2-GB memory</li> <li>Systems include two memory banks, four DIMM slots per bank, four DIMMs per memory kit</li> </ul>	
512-MB memory kit, four 168-pin, PC100, 100-MHz, 128-MB DIMMs	3X-MS810-DA
1-GB memory kit, four 168-pin, PC100, 100-MHz, 256-MB DIMMs	3X-MS810-EA

### Step 4 – Internal Storage – Optional

600-MB 24X slim CD-ROM drive and installation kit	3X-PBXRZ-AA
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### Step 5 – Documentation – Optional

AlphaServer DS20L Users Guide	EK-DS20L-UG
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### Step 6 – M-series Cabinets – Optional

M-series cabinet enclosures support up to 32 AlphaServer DS20L systems (H9A15) and/or up to three *StorageWorks*™ shelves. For orders where more than 32 systems in a cabinet are required, contact *CustomSystems* (1-800-AT-COMPAQ). M-series enclosures require selection of the following items:

- H9A10 or H9A15 Cabinet, 240V
- Minimum four AlphaServer DS20L systems for rack configuration
- Rack kit for each system (or quad rack for every four systems)
- PDU, PDU mounting bracket, and power cords as needed according to configuration chart
- Cabinet front door based on cabinet height
- Factory integration
- Ballast kit according to the configuration chart

Up to six DS-SL13R shelves are supported; shelves cannot be mounted behind AlphaServer DS20L systems.

## Options

### Step 6 – M-series Cabinets – Optional (*continued*)

#### Cabinet Configuration Chart for AlphaServer DS20L Rackmount Systems with BA356 (4U) or DS-SL13R (3U)

- Disk shelves cannot be mixed in same cabinet
- Minimum number of systems orderable in a rack is four
- For every 12 systems, one PDU is required (H7602-DB/EB); H9A1x-ME/MF cabinets include one H7602-EB/D PDU – order additional PDUs if required
- For each system, one power cord is required (BN35S-4E)

**NOTE:** For additional configurations beyond those listed in the following charts, contact *CustomSystems*.

Cabinet	Rack Kits 3X-PBX01-BD quad	Rack kit 3X-PBX01-BE single	Systems 1U	DS-SL13R Shelves @ 3U
<b>H9A10, H9A15</b>	1 for each set of 4 systems	1 for each additional system	Per rack	Per rack
<b>H9A10-ME/MF</b>	1 or 2	0 to 3	4-8	6
	2 or 3	0 to 3	9-12	5
	3 or 4	0 to 3	13-16	4
	4 or 5	0 to 3	17-20	3
	5 or 6	0 to 3	21-24	2
	6 or 7	0 to 3	24-28	1
	7 or 8	0 to 3	29-32	0
<b>H9A15-ME/MF</b>	1 to 2	0 to 3	5-8	6
	2 or 3	0 to 3	9-12	5
	3 or 4	0 to 3	13-16	4
	4 or 5	0 to 3	17-20	3
	5 or 6	0 to 3	21-24	3
	6 or 7	0 to 3	25-28	3
	7 or 8	0 to 3	29-32	2

**NOTE:** For **H9A10** cabinets: When four systems are ordered (minimum number of systems orderable), two ballast kits are required. When five or six systems are ordered, one ballast kit is required. When seven systems or above are ordered, no ballast kits are required.

For **H9A15** cabinets: When four systems are ordered (minimum number of systems orderable), two ballast kits are required. When five, six, or seven systems are ordered, one ballast kit is required. When eight systems or above are ordered, no ballast kits are required.

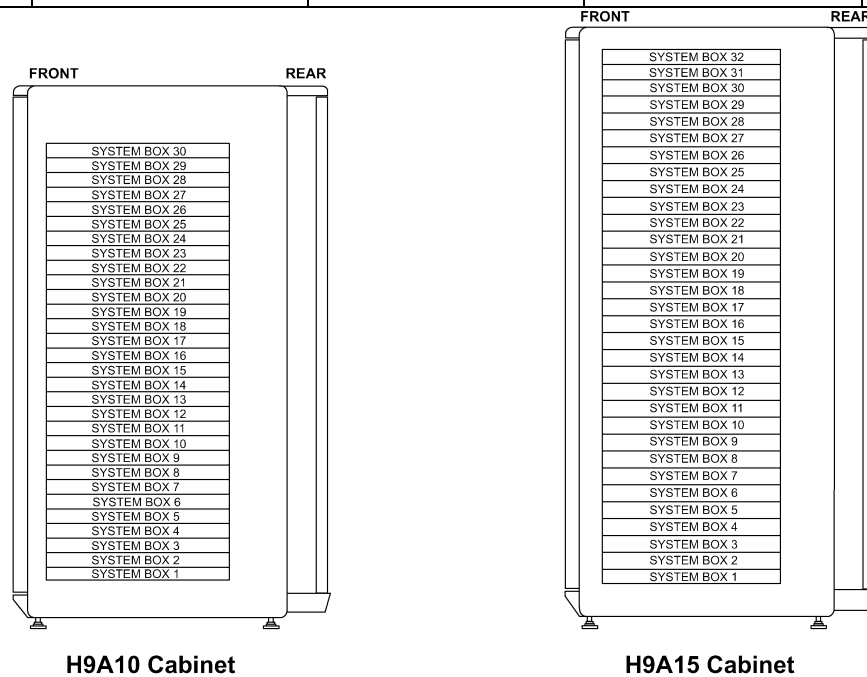
## Options

### Step 6 – M-series Cabinets – Optional (continued)

#### Cabinet Configuration Chart for AlphaServer DS20L Rackmount Systems with StorageWorks RA3000 and Disk Shelves

- 12U of vertical cabinet space is reserved for one RA3000 controller shelf and up to four disk shelves mounted in top of cabinet, front to back; an additional 2U of vertical space is required for RA3000 controller shelf UPS.
- RAID Array 3000 and UPS each require a separate PDU
- Disk shelves can be a combination of RA3000 DS-SWXRA-GN disk shelves and StorageWorks BA36R-RC/RD disk shelves
- RA3000 controller shelf supports a maximum of four DS-SWXRA-GN disk shelves; third and fourth DS-SWXRA-GN disk shelf ordered will be installed in rear of M-series cabinet; rear mounted shelves require that a 2-meter SCSI cable (BN37A-02) be ordered separately.
- Systems are supported in remaining vertical space. The table below considers space requirements for the RA3000, systems, PDU kits, and UPS.
- 1.75-inch or 1U space required for each system unit.

Cabinet	Mounting Kit	Cabinet Useable Height/Space	Systems	RA3000 + Shelves
H9A10-ME/MF	3X-PBX01-BE	56-inch/33U	4-8	1 + 4 (maximum)
			9-14	1 + 2
			15-23	1 + 1 (basic)
H9A15-ME/MF	3X-PBX01-BE	68.25-inch/40U	5-16	1 + 4 (maximum)
			17-22	1 + 3
			23-24	1 + 2
			25-30	1 + 1 (basic)



H9A10 Cabinet

H9A15 Cabinet

M-series Cabinet Descriptions		
67-inch carbon black cabinet with 56-inch or 33U of usable vertical space, 200 to 240 dual-16A controller, 16 IEC C13 outlets, two input power plug NEMA L620P, Americas, Asia Pacific; includes rear door		H9A10-ME
67-inch carbon black cabinet with 56-inch or 33U of usable vertical space, 200 to 240 dual-16A controller, 16 IEC C13 outlets, two input power plug IEC 309, 20A, Europe; includes rear door		H9A10-MF
79-inch carbon black cabinet with 68.25-inch or 40U of usable vertical space, 200 to 240V dual-16A controller, 16 IEC C13 outlets, two input power plug NEMA L620P, Americas, Asia Pacific; includes rear door		H9A15-ME
79-inch carbon black cabinet with 68.25-inch or 40U of usable vertical space, 200 to 240V dual-16A controller, 16 IEC C13 outlets, two input power plug IEC 309, 20A, Europe; includes rear door		H9A15-MF
<b>M-series Cabinet Rackmount Kits for AlphaServer DS20L</b>	(Refer to the Cabinet Configuration Charts above for configuration rules)	
Single rack kit for AlphaServer DS20L		3X-PBX01-BE
Quad rack kit for AlphaServer DS20L		3X-PBX01-BD

## Options

### Step 6 – M-series Cabinets – Optional (continued)

<b>M-series Cabinet PDU, PDU mounting bracket and power cord</b>	Power Distribution Unit, 200 to 240V dual-16A controller, 16 IEC C13 outlets, two input power plug NEMA L620P	H7602-EB
	Power Distribution Unit (International), 200 to 240V dual-16A controller, 16 IEC C13 outlets, two input power plug IEC 309, 20A	H7602-DB
<b>StorageWorks Shelves Supported in M-series Cabinets – Optional</b>	StorageWorks Model 4314R, 4314T and 4354R Ultra3 SCSI (LVD) single-bus and split-bus Universal drive shelves; refer to StorageWorks Enclosure 4300 Family QuickSpecs when configuring shelves. When selecting a DS-SL13R-xx split-bus shelf, two SCSI channels are required from selected storage adapters. BN38C-05 cable is required per channel.	
	StorageWorks Model 4314R Ultra3 SCSI (LVD) single-bus Universal drive rackmount shelf, U.S. – no support for Model 4314R single-bus shelves with 3X-KZPEA-DB adapter (190209-001)	DS-SL13R-AA
	StorageWorks Model 4314R Ultra3 SCSI (LVD) single-bus Universal drive rackmount shelf, includes one power supply, Japan – no support for Model 4314R single-bus shelves with 3X-KZPEA-DB adapter (190209-291)	DS-SL13R-AJ
	StorageWorks Model 4354R Ultra3 SCSI (LVD) split-bus Universal drive rackmount shelf, includes two redundant power supplies, U.S. (190211-001)	DS-SL13R-BA
	StorageWorks Model 4354R Ultra3 SCSI (LVD) split-bus Universal drive rackmount shelf, includes two redundant power supplies, Japan (190211-291)	DS-SL13R-BJ
<b>M-series Cabinet Rear Cabinet Extender</b>	<ul style="list-style-type: none"> <li>Requires selection of one cabinet extender for each H9A10 or H9A15 cabinet</li> </ul>	
	Rear cabinet extender, carbon black, for H9A10-ME/MF cabinets	H9C10-ZE
	Rear cabinet extender, carbon black, for H9A15-ME/MF cabinets	H9C15-ZE
<b>M-series Cabinet Front Doors</b>	<ul style="list-style-type: none"> <li>Requires selection of door based on cabinet height</li> </ul>	
	Front door, carbon black, for H9A10-ME/MF cabinet enclosure	H9C10-ZF
	Front door, carbon black, for H9A15-ME/MF cabinet enclosure	H9C15-ZF
<b>M-series Cabinet Joiner Kit</b>	Joiner kit, H9A10 cabinet	H9C10-JD
	Joiner kit, H9A15 cabinet	H9C15-JD
<b>M-series Cabinet Factory Integration</b>	<ul style="list-style-type: none"> <li>Factory integration required</li> </ul> Factory integration of systems and storage devices assembled and configured in cabinet enclosure in H9A10 or H9A15 cabinet enclosures	YS-ASCAA-AA
<b>M-series Cabinet Ballast Kits</b>	<ul style="list-style-type: none"> <li>Ballast is added to a cabinet at particular locations for specific configurations to meet safety regulations for installation, operation, and service; see the Notes below the Cabinet Configuration Charts in Step 5.</li> </ul> Two 35 to 40 lb/15.8 to 18 kg steel plates	H9C10-MC
<b>M-series Cabinet Rackmount Power Cord</b>	<ul style="list-style-type: none"> <li>Used for both PDUs</li> </ul> U.S./Canada, Non-U.S. and Japan	BN35S-4E

## Options

### Step 6 – M-series Cabinets – Optional (continued)

#### CustomSystems Support

- Cabinets containing systems and storage must be assembled by qualified assemblers: Hewlett-Packard Manufacturing, CustomSystems, or an authorized Hewlett-Packard Certified Integration Partner.
- For custom integration of systems, options, cabinet expansion offerings, and additional and third party devices, or for other cabinets, doors, and trim kits of a different color, contact CustomSystems at 1-800-AT COMPAQ, or your local authorized Hewlett-Packard Certified Integration Partner.

### Step 7 – External Storage – Optional

#### UltraSCSI Configuration Rules

- UltraSCSI configurations require UltraSCSI components (controllers, adapters, shelves, disks, and cables)
- UltraSCSI adapters and RAID controllers support UltraSCSI disks at UltraSCSI speeds in UltraSCSI top gun blue shelves (DS-BA356-xx)

#### UltraSCSI StorageWorks Pedestals

- UltraSCSI top gun blue pedestals provide support for UltraSCSI disk drives; pedestal is available in single-bus or split-bus configurations and includes a personality module and 180W power supply
- UltraSCSI shelf supports: seven 3.5-inch hard disk drives, or one 5.25-inch device and four 3.5-inch hard disk drives, or two 5.25-inch devices and one 3.5-inch hard disk drive
- Installation of redundant power supply reduces number of 3.5-inch drive slots by one

UltraSCSI single-ended pedestal, single-bus personality module, 180W power supply	DS-BA356-KF
UltraSCSI single-ended pedestal, split-bus personality module, 180W power supply	DS-BA356-KG
UltraSCSI pedestal, single-channel differential personality module, 180W power supply	DS-BA356-KH
180W power supply, or redundant power, includes 120V North American and 240V IEC power cord	CK-BA35X-HH

#### Tabletop Tape Drives

• Tape drives require LVD or single-ended UltraSCSI adapter and country-specific power cord	
12/24-GB 4-mm DAT narrow single-ended tabletop SCSI tape, includes 120V North American power cord, requires BN31W-xx SCSI cable	DS-TLZ10-DB
20/40-GB 4-mm DAT LVD tabletop SCSI tape – North America (Tru64 UNIX only)	157770-001
20/40-GB 4-mm DAT LVD tabletop SCSI tape – International (Tru64 UNIX only)	157770-B31
20/40-GB 4-mm DAT LVD tabletop SCSI tape – Japan (Tru64 UNIX only)	157770-291
35/70-GB AIT LVD tabletop drive unit, U.S.	216885-001
35/70-GB AIT LVD tabletop drive unit, International	216885-B31
35/70-GB AIT LVD tabletop drive unit, Japan	216885-291
50/100-GB 8-mm AIT LVD tabletop SCSI tape drive – North America (Tru64 UNIX only)	157767-001
50/100-GB 8-mm AIT LVD tabletop SCSI tape drive – International (Tru64 UNIX only)	157767-B31
50/100-GB 8-mm AIT LVD tabletop SCSI tape drive – Japan (Tru64 UNIX only)	157767-291
35/70-GB SCSI (DLT 7000) tabletop tape drive (Tru64 UNIX only)	DS-TZ89N-TA
40–80-GB SCSI LVD (DLT 8000) tabletop drive, Worldwide	146197-B21
40–80-GB SCSI LVD (DLT 8000) tabletop drive, Japan	146197-291
110/220-GB SDLT Ultra2 LVD tabletop tape drive, U.S.	192103-001
110/220-GB SDLT Ultra2 LVD tabletop tape drive, International	192103-B31
110/220-GB SDLT Ultra2 LVD tabletop tape drive, Japan	192103-291
20/40-GB 4-mm DAT LVD hot plug tape	3R-A2780-AA
35/70-GB AIT LVD hot plug tape	3R-A2396-AA
50/100-GB AIT LVD hot plug tape	3R-A2779-AA

## Options

### Step 7 – External Storage – Optional (continued)

#### Storage Controllers/Adapters for External StorageWorks Shelves

- PCI controllers/adapters use one PCI slot

	Maximum # Supported		
	Tru64 UNIX	Linux	
PCI-to-Fibre Channel host bus adapter	1	-	DS-KGPSA-CA
Fibre Channel cable xx=02, 05, 15, 30, 50 meter			BNGBX-xx
PCI 2-port UltraSCSI single-ended adapter and 10/100 Mb Ethernet combo adapter; includes internal 68-pin and 50-pin HD connectors and two external 68-pin VHDCI SCSI connectors, requires BN37A-xx cable to connect to single-ended UltraSCSI shelf	2	-	KZPCM-DA
VHDCI male-to-VHDCI male UltraSCSI cable, xx = 02, 2E [2.5], 03, 05, 10, 20 meter			BN37A-xx
PCI 1-port Ultra2 SCSI (LVD) single-ended adapter, 68-pin HD connector, requires BN38C cable (2 to 20 meter) to connect to single-ended UltraSCSI shelf	2	2	3X-KZPCA-AA
68-pin HD male-to-VHDCI male UltraSCSI cable; xx = 02, 03, 05, 10, 20 meter			BN38C-xx
PCI 2-channel LVD multimode Ultra3 SCSI adapter, VHDCI	2	-	3X-KZPEA-DB
PCI 1-port UltraSCSI differential adapter; includes external 68-pin HD connector, requires BN38C-xx cable (2 to 25 meter) to connect adapter to differential UltraSCSI shelf or RAID controller	2	2	3X-KZPBA-CC
68-pin HD male-to-VHDCI male UltraSCSI cable; xx = 02, 03, 05, 10, 20, 25 meter			BN38C-xx

#### StorageWorks Fibre Channel Switches

Fibre Channel SAN Switch, 8 ports with Fabric Operating Software (DS-DSGGB-AA)	158222-B21
Fibre Channel SAN Switch, 16 ports with Fabric Operating Software (DS-DSGGB-AB)	158223-B21
Fibre Channel SAN Switch 8-EL (DS-DSGGC-AA)	176219-B21
Fibre Channel SAN Switch 16-EL (DS-DSGGC-AB)	212776-B21

**NOTE:** For above switches, refer to [http://www.Hewlett-Packard.com/products/quickspecs/10457\\_na/10457\\_na.HTML](http://www.Hewlett-Packard.com/products/quickspecs/10457_na/10457_na.HTML) for more information.

**NOTE:** This website is available in English only.

#### Removable Media Devices for External StorageWorks Shelves

12/24-GB 4-mm DAT narrow SCSI tape drive in StorageWorks carrier	DS-TLZ10-VA
40/80-GB DLT tape drive in StorageWorks carrier	DS-TZ90N-VW

#### StorageWorks UltraSCSI Shelves

- Requires selection of UltraSCSI adapter and SCSI cable
- StorageWorks Shelf supports seven 3.5-inch x 1.6-inch hard disk drives; with the addition of redundant power supply, six drives are supported.
- StorageWorks shelf kits are mounted back-to-back cabinets

StorageWorks UltraSCSI single-bus shelf kit	BA36R-RC
StorageWorks UltraSCSI split-bus shelf kit	BA36R-RD
3-meter SCSI cable	BN37A-03

#### Disk Drives supported in StorageWorks UltraSCSI Shelves

- Maximum six (10,000 rpm) or seven (7,200 rpm) drives supported in StorageWorks shelf
- One power supply supports a maximum of six 10,000 rpm disks

9.1-GB 10,000 rpm UltraSCSI drive	DS-RZ1DD-VW
18.2-GB 10,000 rpm UltraSCSI drive	DS-RZ1ED-VW
36.4-GB 10,000 rpm UltraSCSI drive	DS-RZ1FC-VW

## Options

### Step 7 – External Storage – Optional (continued)

StorageWorks Universal Drive Shelves – Model 4314R (Ultra3)	StorageWorks Model 4314R Ultra3 rackmount single bus, U.S. and International	DS-SL13R-AA
	Same as above, Japan	DS-SL13R-AJ
StorageWorks Universal Drive Shelves – Model 4354R (Ultra3)	StorageWorks Model 4354R Ultra3 rackmount dual bus, U.S. and International	DS-SL13R-BA
	Same as above, Japan	DS-SL13R-BJ
StorageWorks Universal Drive Shelves Single Bus – Model 4314T Tower (Ultra3)	StorageWorks Model 4314T, Ultra3, Universal Drive Shelves Single Bus, Tower, U.S.	DS-SL13T-AA
	Same as above, Tower, International	DS-SL13T-AB
	Same as above, Japan	DS-SL13T-AJ
StorageWorks Universal Drive Shelves Single Bus – Model 4300 Upgrade I/O Modules	StorageWorks Model 4300 Ultra 160 single-port LVD I/O module	DS-SE3ZJ-DA
	StorageWorks Model 4300 Ultra 160 dual-port LVD I/O module	DS-SE3ZJ-SA
Universal Disk Drives Supported in Model 42xx/43xx Universal Drive Shelves	18.2-GB Ultra3 (LVD) 15,000 rpm 1-inch Universal drive	3R-A1543-AA
	18.2-GB Ultra 3 (LVD) 10,000 rpm 1-inch Universal drive	3R-A0585-AA
	36.4-GB Ultra3 (LVD) 10,000 rpm 1-inch Universal drive	3R-A0919-AA
	36.4-GB Ultra3 (LVD) 15,000 rpm 1-inch Universal drive	3R-A3079-AA
	72.8-GB Ultra3 (LVD) 10,000 rpm 1-inch Universal drive	3R-A3050-AA

### Step 8 – UltraSCSI RAID Array Controllers and UltraSCSI RAID Packaged Solutions – Optional

RAID Array 3000 Rackmount Controller Shelf	<ul style="list-style-type: none"> <li>Selection of RA3000 Solutions Software Kit is required</li> <li>Supported SCSI adapter: 3X-KZPBA-CC PCI 1-port UltraSCSI differential adapter</li> </ul>	
	<p>RA3000 rackmount controller shelf, blue, with one controller, 110V</p> <p><b>Includes:</b> UltraSCSI BA356 controller shelf, one HSZ22 2-channel controller with 16-MB cache, integrated Environmental Monitoring Unit (EMU), two 180W power supplies, two dual-port host differential UltraSCSI I/O SBBs, dual-channel UltraSCSI single-ended personality modules, one 120V 1000VA rackmount UPS, 5-meter host SCSI cable (BN37A-05), BN38E-0B adapter, UPS serial cable, PC connection serial cable (DB-9), two 68-pin HD tri-link adapters (H8861-AA), two North American power cords, and RETMA mounting bracket (disk shelves and disks not included)</p> <p><b>Requires:</b> Solutions Software Kit for platform, host adapter, RA3000 disk shelf, and disks</p> <p><b>Options:</b> Second HSZ22 controller, up to four additional RA3000 disk shelves, cache memory upgrade</p>	DS-SWXRA-GH
	<p>RA3000 rackmount controller shelf, blue, with one controller, 230V</p> <p><b>Includes:</b> UltraSCSI BA356 controller shelf, one HSZ22 2-channel controller with 16-MB cache, integrated Environmental Monitoring Unit (EMU), two 180W power supplies, two dual-port host differential UltraSCSI I/O SBBs, dual-channel UltraSCSI single-ended personality modules, one 230V 1000VA rackmount UPS, 5-meter host SCSI cable (BN37A-05), BN38E-0B adapter, UPS serial cable, PC connection serial cable (DB-9), two 68-pin HD tri-link adapters (H8861-AA), RETMA mounting bracket (disk shelves and disks not included)</p> <p><b>Requires:</b> Solutions Software Kit for platform, two country-specific power cords, host adapter, RA3000 disk shelf, and disks</p> <p><b>Options:</b> Second HSZ22 controller, up to four additional RA3000 disk shelves, cache memory upgrade</p>	DS-SWXRA-GK

## Options

### Step 8 – UltraSCSI RAID Array Controllers and UltraSCSI RAID Packaged Solutions – Optional *(continued)*

<b>RAID Array 3000 Rackmount Disk Shelf</b>	<ul style="list-style-type: none"> <li>Select one to four disk shelves</li> <li>Third and fourth DS-SWXRA-GN disk shelf ordered will be installed in rear of M-series cabinet; rear mounted shelves require that a 2-meter BN37A-02 SCSI cable be ordered</li> </ul>	DS-SWXRA-GN	
<p>RA3000 rackmount disk shelf, blue, includes UltraSCSI BA356 disk shelf, two 180 W power supplies, single-ended UltraSCSI personality card, one half meter SCSI cable (BN37A-0E), two North American power cords, and RETMA mounting bracket (disks not included); order two country-specific power cords for non-North American use</p>			
<b>HSZ22 Controller</b>	<ul style="list-style-type: none"> <li>Note that second HSZ22 controller ordered is field installed only, not factory installed; requires BN37A-0E SCSI jumper cable be ordered separately</li> </ul>		
<p>Second HSZ22 controller with 16-MB cache and two 16-MB SIMMs for mirror cache, one BN37A-05 5-meter UltraSCSI cable, one BN38E-0B cable adapter – field installable only; note that second HSZ22 controller does not require additional Solution Software Kit</p>			DS-HSZ22-AA
<p>Second HSZ22 controller with 32-MB cache and two 32-MB SIMMs for mirror cache, one BN37A-05 5-meter UltraSCSI cable, one BN38E-0B cable adapter – field installed only; note that second HSZ22 controller does not require additional Solution Software Kit</p>			DS-HSZ22-AB
<b>RA3000 Solutions Software Kit</b>	<ul style="list-style-type: none"> <li>StorageWorks Command Console (SWCC) software</li> <li>Platform specific software</li> <li>Installation scripts and installation documentation</li> </ul>		
<p>RA3000 Solutions Software Kit for Tru64 UNIX</p>			QB-5TWAB-SA
<b>HSG80 External Controllers</b>	<p>Fibre Channel controller (DS-HSG80-BJ), includes 2-MB cache expandable to 128 MB; requires 128697-B21 HSG80 ACS V8.4F software kit or 128698-B21 V8.4P software kit for each HSG80 ordered</p>	380672-B21	
<p>Fibre Channel controller (DS-HSG80-BH), includes 64-MB cache expandable to 128 MB; requires 128697-B21 HSG80 ACS V8.4F software kit or 128698-B21 V8.4P software kit for each HSG80 ordered</p>			380671-B21
<b>ESA 12000, RAID Array 8000</b>	<ul style="list-style-type: none"> <li>Enterprise Storage Array 12000 and RAID Array 8000 (HSZ80) product set are supported on AlphaServer DS20L systems</li> <li>Supported SCSI adapter for HSZ80 – 3X-KZPBA-CC PCI 1-port UltraSCSI differential adapter</li> <li>Supported Fibre Channel adapter for HSG80 – DS-KGPSA-CA/DA PCI 1-port Fiber-Channel adapter</li> </ul>		

## Options

### Step 9 – Networks and Communications – Optional

- Systems include dual embedded 10/100 BaseT Ethernet ports, each port connection is limited to a 25-meter cable length
- Additional Ethernet ports can be added using available PCI slots

	Maximum # Supported		
	Tru64 UNIX	Linux	
PCI 1-port 10/100-Mb Ethernet adapter (Twisted Pair)	2	2	3X-DE600-AA
PCI 2-port 10/100-Mb Ethernet adapter (Twisted Pair)	2	2	3X-DE602-AA
PCI 2-port 10/100-Mb Ethernet adapter, UTP	1	1	3X-DE602-FA
Cable for 10BaseT twisted pair connection			BN25G-xx
PCI Gigabit Ethernet adapter, SC connectors, MMF, no boot support	2	2	DEGPA-SA
PCI Gigabit Ethernet adapter, UTP, no boot support	2	2	DEGPA-TA
SC-to-SC dual fiber optic cable			BN34B-xx
PCI FDDI adapter, single attachment station (SAS), multi-mode fiber (MMF), SC connector	2	-	3X-DEFPA-AC
PCI FDDI adapter, DAS, MMF, SC connector	2	-	3X-DEFPA-DC
MIC-SC dual fiber optic cable mm, pp xx = length in meters			BN34D-xx
SC-to-SC dual fiber optic cable mm, pp xx = length in meters			BN34B-xx
PCI FDDI adapter, SAS, TP-PMD, requires BN25H-03 cable	2	-	3X-DEFPA-UC
PCI FDDI dual adapter, DAS, TP-PMD, requires BN25H-03 cable	2	-	3X-DEFPA-MC
3 meter (9.8 ft) FDDI cross-over cable mm, pp xx = length in meters			BN25H-03
PCI 4-port asynchronous controller; maximum two PBXDA-xx controllers per system	2	-	PBXDA-BA
PCI 8-port asynchronous controller, cable included; maximum two PBXDA-xx controllers per system	2	-	PBXDA-BB
PCI 16-port asynchronous controller, cable included; maximum two PBXDA-xx controllers per system	2	-	PBXDA-AC

### Step 10 – Console Terminal – Optional

- Any terminal can be used as a console device
- Third-party console devices require an EIA-232 25-pin DSUB connector

VT510 video terminal; requires H8575-x cable, either male or female	VT510-xx
Console cable, female connector	H8575-A
Console cable, male connector	H8575-D
Console cable, male connector (IBM compatible)	H8975-E

## Options

### Step 11 – Software – Required selection of media and online documentation kit for first system on site

	<ul style="list-style-type: none"> <li>Software Processor Code = E</li> </ul>	
<b>Tru64 UNIX</b>	<ul style="list-style-type: none"> <li>Tru64 UNIX systems include Tru64 UNIX V5.1B IPK, 2-user Base license</li> </ul>	
<b>When using Tru64 UNIX V5.0 or later</b>	Tru64 UNIX media and online documentation kit on CD-ROM	QA-6ADAA-H8
	Tru64 UNIX V5.1B IPK media and online documentation kit on CD-ROM	QA-MT4AX-H8
	Tru64 UNIX V5.1A Patch Kit media and online documentation kit on CD-ROM	QA-MT4AW-H8
	Tru64 UNIX full hard copy documentation	QA-6ADAA-GZ
	<i>TruCluster</i> ™ Plus Software package with licenses for TruCluster Server, StorageWorks Logical Storage Manager and AdvFS Utilities	QP-6R9AC-AA
	TruCluster Server license	QL-6BRAC-AA
	AdvFS Utilities License	QL-0EGAE-AA
	Logical Storage Manager License	QL-2GVAE-AA
	Advanced Server for Tru64 UNIX, 25 client concurrent use license	QL-5U29M-3D
	Advanced Server for Tru64 UNIX, 50 client concurrent use license	QL-5U29M-3E
	Advanced Server for Tru64 UNIX, 100 client concurrent use license	QL-5U29M-3F
	Advanced Server for Tru64 UNIX, 250 client concurrent use license	QL-5U29M-3G
	Advanced Server for Tru64 UNIX, 500 client concurrent use license	QL-5U29M-3H
	Layered products media and documentation for Tru64 UNIX on CD-ROM	QA-054AA-H8
DECnet/OSI end-system license for Tru64 UNIX	QL-MTJAE-AA	
DECnet/OSI extended function license for Tru64 UNIX	QL-MTKAE-AA	
<b>Linux CD-ROM Kit</b>	RedHat Linux CD-ROM kit	QA-6M1AA-H8

### Step 12 – Hardware and Software Supplemental Support Services

- Systems include one-year hardware warranty, on-site, with 5 x 9, 24-hour response time
- Select one of the optional *CarePaq*™ Priority Service Packages described below which best supports the customer's operational requirements for system availability.
- Options ordered as part of "Initial System Sale" take on warranty of the enclosure; options added after "Initial System Sale" take on warranty of enclosure until enclosure warranty ends
- All unique AlphaServer DS20L options have a minimum of one-year Return-to-Hewlett-Packard warranty

<b>CarePaq Priority Services</b>	CarePaq Priority Services are available for AlphaServer systems running Tru64 UNIX or <i>OpenVMS</i> ™ operating system. Priority Services are designed for the growing number of customers who need support beyond the basic warranty. It offers five services packages - Priority, Priority 24, Priority Silver, Priority Gold, and Priority Executive with coverage for both Principal servers systems and SSPs (Subsequent System Packages) - that meet a full range of customer support requirements.
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### Program Features – Principal Server

<b>Priority</b>	<ul style="list-style-type: none"> <li>9 x 5 HW/SW support</li> <li>4-hour response on-site hardware support</li> <li>2-hour response for Bronze software support</li> <li>License Subscription for Hewlett-Packard O/S software and embedded L/P (i.e., EIS for OpenVMS, unlimited users, and server extensions for Tru64 UNIX)</li> <li>Condist update distribution for OpenVMS or Tru64 UNIX and their layered products. (Layered products not on Condist can be ordered separately.)</li> </ul>
<b>Priority 24</b>	<ul style="list-style-type: none"> <li>24 x 7 HW/SW support</li> <li>Named HW engineer</li> <li>4-hour response on-site hardware support</li> <li>2-hour response for Bronze software support</li> <li>License Subscription for Hewlett-Packard O/S software and embedded L/P (i.e., EIS for OpenVMS, unlimited users, and server extensions for Tru64 UNIX)</li> <li>Condist update distribution for OpenVMS or Tru64 UNIX and their layered products. (Layered products not on Condist can be ordered separately.)</li> </ul>

## Options

### Step 12 – Hardware and Software Supplemental Support Services *(continued)*

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#### CarePaq Priority Services *(continued)*

#### Program Features – Principal Server *(continued)*

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##### Priority Silver

- 24 x 7 HW Support with Named Engineer, 4-hour response
  - 24 x 7 Silver SW Support - Named Account Rep, 1-hour response Monday – Friday, 8AM-5PM local time; 2-hour response remaining hours
  - License Subscription for Hewlett-Packard O/S software and embedded L/P (i.e., EIS for OpenVMS, unlimited users, and server extensions for Tru64 UNIX)
  - Condist update distribution for OpenVMS or Tru64 UNIX and their layered products. (Layered products not on Condist can be ordered separately.)
  - Technical newsletter and SW activity review
  - Proactive Patch Notification
  - One (1) System Healthcheck per year
- 

##### Priority Gold

- 24 x 7 HW support with Named Engineer, 4-hour response for on-site support
  - 24 x 7 Gold SW support - Named Account Rep
  - 30-minute callback (critical); 1-hour callback (non-critical)
  - License Subscription for Hewlett-Packard O/S software and embedded L/P (i.e., EIS for OpenVMS, unlimited users, and server extensions for Tru64 UNIX)
  - Condist update distribution for OpenVMS or Tru64 UNIX and their layered products. (Layered products not on Condist can be ordered separately.)
  - Technical newsletter, SW activity review and 10 hours Upgrade impact planning
  - Proactive Revision Management
  - Two (2) System Healthchecks per year
  - Mandatory pre-qualification required
- 

##### Priority Gold Executive

- 24 x 7 HW support with Named Engineer, 2-hour response for on-site support
- 24 x 7 Gold SW support - Named Account Rep
- 30-minute callback (critical); 1-hour callback (non-critical)
- License Subscription for Hewlett-Packard O/S software and embedded L/P (i.e., EIS for OpenVMS, unlimited users, and server extensions for Tru64 UNIX)
- Software update distribution on CD-ROM: OpenVMS or Tru64 UNIX and their layered products (L/P not on CDDS are ordered separately)
- Technical newsletter, SW activity review and 10 hours Upgrade impact planning
- Proactive Revision Management
- Two (2) System Healthchecks per year
- Customer site must be within 25 miles of a Hewlett-Packard service location
- Mandatory pre-qualification required

## Options

### Step 12 – Hardware and Software Supplemental Support Services *(continued)*

#### CarePaq Priority Services *(continued)*

#### Program Features – Principal Server *(continued)*

#### Program Features – Additional Services

#### SSPs (Subsequent System Packages)

- For Priority, Priority 24, Priority Silver, Priority Gold and Priority Gold Executive
- Hardware Support at same level as corresponding package for Principal server
- License Subscription: Hewlett-Packard O/S (where applicable)
- Telephone support through Principal server covered by full support package

#### Installation

- Preinstallation review
- Unpacking of equipment
- Assemble and test
- Basic product usage info
- No software installation added

#### Installation & Startup Hewlett-Packard O/S

- Preinstallation review
- Unpacking of equipment
- Assemble and test
- Basic product usage info
- Install operating systems
- Product Configuration
- Print & Network access
- Orientation

Model/CarePaq Priority Service	Principal Server 1 Year	Principal Server 3 Years	Subsequent Systems 1 Year	Subsequent Systems 3 Years
Priority	FP-A01LA-12	FP-A01LA-36	FP-A21LA-12	FP-A21LA-36
Priority 24	FP-A02LA-12	FP-A02LA-36	FP-A22LA-12	FP-A22LA-36
Priority Silver	FP-A04LA-12	FP-A04LA-36	FP-A24LA-12	FP-A24LA-36
Priority Gold	FP-A08LA-12	FP-A08LA-36	FP-A28LA-12	FP-A28LA-36
Priority Gold Exec.	FP-A09LA-12	FP-A09LA-36	FP-A29LA-12	FP-A29LA-36
Installation	FP-AINST-LA	FP-AINST-LA	FP-AINST-LA	FP-AINST-LA
Installation & Startup	FP-ASTAR-LA	FP-ASTAR-LA	FP-ASTAR-LA	FP-ASTAR-LA

#### NOTES:

- AlphaServer DS20L systems include one-year hardware warranty with 5x9, on-site Next Business Day response.
- New Hewlett-Packard hardware options internal to the AlphaServer enclosure receive the same warranty or service level as purchased with the server.
- External storage devices/cabinets carry their own level of warranty and should be quoted separately for uplifted warranty services.
- In addition to the CarePaq Priority Services, uplifted warranty Supplemental Services are available for separate hardware and software support. For more information on Hardware and Software Supplemental Services and other Hewlett-Packard service options available for AlphaServers, please consult your Sales Account Manager or visit <http://www.Hewlett-Packard.com/services/>

**NOTE:** This website is available in English only.

## Options

### Step 12 – Hardware and Software Supplemental Support Services *(continued)*

#### CarePaq Priority Services *(continued)*

#### Program Features – Principal Server *(continued)*

- Software Supplemental Support**
- Systems include 90-day Conformance to SPD and Telephone Advisory Support; select optional Software Supplemental Support Services if required
  - Software service upgrades for Tru64 UNIX include advisory and remedial software support with new version license rights for operating system for time period indicated

<b>Software Supplemental Services</b>	
1-year, 5 x 9 Bronze Software Supplemental Support	FM-D10U9-12
3-year, 5 x 9 Bronze Software Supplemental Support	FM-D10U9-36
5-year, 5 x 9 Bronze Software Supplemental Support	FM-D10U9-60
1-year, 7 x 24 Bronze Software Supplemental Support	FM-D10US-12
3-year, 7 x 24 Bronze Software Supplemental Support	FM-D10US-36
5-year, 7 x 24 Bronze Software Supplemental Support	FM-D10US-60
1-year, Bronze Node Software Supplemental Support	FM-D10UN-12
3-year, Bronze Node Software Supplemental Support	FM-D10UN-36
5-year, Bronze Node Software Supplemental Support	FM-D10UN-60

## Technical Specifications

Physical Characteristics	Dimensions (W x D x H)	17.5 x 20.5 x 1.75 in (44.5 x 52 x 4.5 cm)		
	Shipping Dimensions	23.6 x 21.7 x 10.1 in (60 x 55 x 26 cm)		
	Weight	21 lb (9.4 kg)		
Cabinets		<b>H9A10 M-series</b>	<b>H9A15 M-series</b>	
	Dimensions (H x W x D)	67 x 23.6 x 41.5 in (170 x 60 x 105.4 cm)	79 x 23.6 x 41.5 in (200 x 60 x 105.4 cm)	
	Shipping Dimensions	73 x 36 x 48 in (185.5 x 91.5 x 122 cm)	85 x 36 x 48 in (216 x 91.5 x 122 cm)	
	Weight	Configuration dependent	1,000 lb (450 kg)	
	Shipping Weight	Configuration dependent, maximum payload 1,000 lb	1,056 lb (550 kg) (normal) 1,408 lb (640 kg) (maximum)	
System Unit	<b>ENVIRONMENTAL</b>			
	Temperature	Operating (Tower, Rackmount)	50° to 95°F (10° to 35°C)	
		<b>NOTE:</b> Maximum operating temperature at sea level; reduce by 1.8°C per 1,000m (1.0°F per 1,000 ft) above sea level.		
		Non-operating	41° to 122°F (5° to 50°C)	
		Storage (60 days)	-40° to -151°F (-40 to -66°C)	
		Rate of change (operating)	20°F/hr (11°C/hr)	
	Relative Humidity	Operating	10% to 90% RH	
		Non-operating	10% to 95%	
		Storage (60 days)	10% to 95%	
	Maximum Wet Bulb Temperature	Operating	82°F (28°C)	
		Non-operating	90°F (32°C)	
		Storage (60 days)	115°F (46°C)	
	Heat Dissipation	<b>Typical configuration:</b> AlphaServer DS20L, 833 MHz 425W Power Supply Main logic board with 2 EV6 CPUs 2-GB main memory 1 SCSI hard drive, 1 CD-ROM 2 PCI option cards Input power = 275 Watts	Single Unit = 275W = 939 BTU/hr Rack of 32 systems with 3 H7602 PDUs = ~11,560W = 30,048 BTU/hr	
	Air Flow and Quality	Intake location	Front	
		Exhaust location	Rear	
		Particle size	N/A	
		Concentration	N/A	
	Altitude	Operating	10,000 ft (3,048m)	
		Non-operating	40,000 ft (12,192m)	
	<b>NOTE:</b> Higher altitudes are possible if maximum operating temperature is reduced (see Temperature); other restrictions may apply such as maximum permissible altitude for hard drives.			

## Technical Specifications

System Unit <i>(continued)</i>		ACOUSTICS (Declared values per ISO 9296 and ISO 7779)	
Acoustics	<b>NOTE:</b> Current values for specific configurations are available from Hewlett-Packard, note that 1 B = 10 dBA.		
		<b>L<sub>WAd</sub>, B</b>	<b>L<sub>pAm</sub>, dBA (bystander position)</b>
	Idle	6.7	51
	Operating	6.7	51
	<b>Vibration</b>	<b>Operating</b>	5-500 Hz at .1 G peak (limited by 0.02-in/0.5mm double amplitude)
	<b>Non-operating</b>	1.03 Grms 5-300 Hz	
<b>Shock</b>	<b>Operating</b>	10 G 10ms half-sine	
<b>ELECTRICAL</b>			
Electrical	<b>Nominal Voltage (VAC)</b>	200 to 240	
	<b>Voltage Range (VAC)</b> (temporary condition)	180 to 250	
	<b>Power Source Phase</b>	Single	
	<b>Nominal Frequency (Hz)</b>	50/60	
	<b>Frequency Range (Hz)</b>	49 to 51/59 to 61	
	RMS Current (maximum steady state)	<b>Single power cord</b>	2.3A
<b>Apparent power VA</b>		545	
<b>M-series Cabinet (configuration dependent)</b>			
<b>Nominal PDU voltage (VAC)</b>		220-240	
<b>Each PDU power cord</b>		24A	
<b>Load per PDU power cord</b>		16A	
Power Cords		<b>Rackmount</b>	1 (14 ft 10 in (452 cm))
	<b>Cabinet</b>	2 (10 ft 10 in (330 cm))	200V non-removable NEMA L6-30P or 200-240V non-removable IEC 309 @ 32A

## Technical Specifications

System Unit <i>(continued)</i>	ELECTRICAL <i>(continued)</i>		
	<b>Regulatory</b>	<b>Agency Approvals</b>	Series EA2014
			UL: Listed to UL1950 (3rd edition)
			CUL Listed: CAN/CSA-C22.2 No. 950-M95
			FCC: Part 15.B Class A
			IC ICES-003 Class A
			CE: EN55022 :1998, EN55024 :1998, EN61000-3-3 :1995
			VCCI V-3/97.04 Class A
			BSMI: CNS13438 Class A
			C-Tick: AS/NZS 3548:1995 Class A
		<b>Reviewed to</b>	AS/NZ 3260:1993 Australian/New Zealand Standard
			EN 60950/A11: 1997 European Norm
			IEC950 (2nd edition, 4th amend)

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