AlphaServer ES40 “Linux-Ready”
V1.0—30 June 1999
Systems and Options Catalog

Product Description

The Compaq AlphaServer ES40 is a 500 MHz EV6 based Alpha microprocessor server with 4 MB secondary cache with a choice of enclosures without an operating system to allow the installation of Linux.. A choice of enclosures is available: Tower enclosure, Pedestal enclosure, and a Rack kit that supports installing the system in an M-series cabinet.

Compaq AlphaServer ES40 “Linux-Ready” systems are available in 1 Model

- **AlphaServer ES40 Model 1** supports six 64-bit PCI I/O expansion slots and four memory options.

The Model 1 Linux-Ready system supports four CPUs and up to 2GB of main memory, and come standard with a 1.44 MB diskette drive, a CD-ROM drive, two EIA-232 full duplex asynchronous modem control serial ports, one bi-directional enhanced parallel port, one RMC dedicated serial port, and keyboard and mouse ports. AlphaServer ES40 systems support a maximum of two internal Disk Drive Cages. Each disk drive cage includes a one-port Ultra2 SCSI adapter and supports up to four 3.5-inch x 1.6-inch hard disk drives.

System Ordering Rules

- AlphaServer ES40 systems require the mandatory selection of: One Disk Drive Cage or one StorageWorks Shelf, a system disk, a network adapter and enclosure kit.

M-series Cabinet Enclosures

- Cabinet enclosures are available in two sizes: 67-inch and 79-inch.
- See Cabinet Configuration Chart for maximum combinations of systems and StorageWorks shelves supported in M-series Cabinet Enclosures.

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Step 1—Compaq AlphaServer ES40 Systems

Configuration menus require the **mandatory** selection of:

- Linux-Ready system from Step 1a, **or**
- Tower enclosure, Pedestal enclosure, or Rack kit from Step 1c, and
- Selection of one Disk Drive Cage with included UltraSCSI adapter, or one StorageWorks Shelf is **mandatory**. If a StorageWorks shelf is selected an UltraSCSI adapter and SCSI cable are **mandatory**.
- One system disk drive
- One Ethernet adapter

Compaq AlphaServer ES40 systems include

- **Compaq AlphaServer ES40 Model 1**
  - 1 Alpha microprocessor 21264 6/500 MHz CPU with 4 MB cache.
  - 6 I/O expansion slots—64-bit PCI
  - Support for 4 memory options (Up to 2GB Max.)
  - 1.44 MB diskette drive in dedicated slot
  - 600 MB 32X CD-ROM drive in removable media slot
  - Two EIA-232 full duplex asynchronous modem control serial ports, 9-pin D-subminiature connectors
  - One bi-directional enhanced parallel port, 25-pin D-subminiature connector
  - One RMC dedicated serial port; 6-pin MMJ connector
  - Dual USB ports
  - Keyboard and mouse port
  - Knockouts for two 68-pin SCSI connections
  - One auto sensing power supply
- One 512 MB, 1 GB, or 2 GB memory option—uses one memory option slot (4 DIMMs per memory option).
- U.S. English keyboard with North America orders.
- Selection of a country-specific keyboard is mandatory for all non-North American orders.
- 3-button mouse.
- Integral remote system management console.
- Operating system license
- Customer documentation
- Hardware Warranty[1]

1. Service upgrades are available; see Hardware and Software Supplemental Services.

Step 1a—AlphaServer ES40 Linux-Ready Systems

Linux-Ready AlphaServer ES40 Model 1

Linux-Ready AlphaServer ES40 Model 1 systems have six total PCI slots. Installation of mandatory options reduces available slots.

Order Number	CPU and Cache	Memory	I/O Slots	Supported Memory Options	Enclosure	Drive Cage or Shelf	System Disk Drive	Network Adapter
DJ-62AAA-CA	One 6/500 4 MB	512 MB	6	4	Mandatory	Mandatory	Mandatory	Mandatory

Step 1b—Mandatory Options

- Tower enclosure, Pedestal enclosure, or Rack kit.
- One Disk Drive Cage with included UltraSCSI adapter, **or**
  One StorageWorks Shelf
  Note: If StorageWorks shelf is selected an UltraSCSI adapter and SCSI cable are **mandatory**)
- One system disk drive.
- One Ethernet adapter.

Enclosures and Rack Kit

Selection of a Tower enclosure, Pedestal enclosure, or Rack Kit is **mandatory**.

Tower Enclosure

- Tower enclosure supports one system.
- Tower enclosure ordered in North America includes a 120 V power cord. Selection of a country-specific power cord is mandatory for all non-North American orders.
- Ordering an additional power cord is **mandatory** for each power supply ordered with a system installed in a Tower enclosure.

BA61M-MT	Tower enclosure for AlphaServer ES40

Pedestal Enclosure

- Pedestal enclosure supports one system and up to three UltraSCSI StorageWorks shelves.
- Pedestal systems ordered in North America include two 120 V power cords. Selection of two country-specific power cords is mandatory for all non-North American orders.
- Pedestal (BA61P-Px) enclosure comes standard with two power strips that are factory configured to allow five free outlets. Should the number of BA356-RC/RD power supplies require a sixth outlet, this can be accommodated, but only if the system chassis is limited to two H7906-A9 power supplies.

BA61P-PA	Pedestal enclosure for AlphaServer ES40 120 V
BA61P-PB	Pedestal enclosure for AlphaServer ES40 240 V

Rack Kit

Selection of a Rack Kit is **mandatory** for each system installed in a cabinet.

BA61R-RM	Rack kit for AlphaServer ES40

Disk Drive Cage or StorageWorks Shelf—Mandatory

- Selection of one Disk Drive Cage with included UltraSCSI adapter, or one StorageWorks Shelf is **mandatory**.
  If a StorageWorks shelf is selected an UltraSCSI adapter and SCSI cable are **mandatory**.
- Tower enclosure supports up to two Disk Drive Cages only.
- Pedestal enclosure supports up to two Disk Drive Cages and up to three StorageWorks Shelves.
- M-series cabinet enclosure supports up to two Disk Drive Cages per system and up to six StorageWorks Shelves.

Step 1b—Mandatory Options *(continued)*

Disk Drive Cage

- System supports up to two Disk Drive Cages.
- Each Disk Drive Cage supports four 3.5-inch x 1.6-inch hard disk drives and includes a one-port Ultra2 SCSI single-ended adapter—Ultra2 SCSI adapter uses one system PCI slot. Included Ultra2 SCSI adapter is the **only** adapter supported on the BA610-4D Disk Drive Cage.

BA610-4D Four bay Disk Drive Cage with Ultra2 SCSI adapter and cable

System Disk Drive—Supported in Disk Drive Cage

Selection of one disk drive is mandatory.

DS-RZ2DD-16 9.1 GB 10000 RPM Ultra2 SCSI drive
DS-RZ2ED-16 18.2 GB 10000 RPM Ultra2 SCSI drive

StorageWorks Shelf

Selection of a StorageWorks shelf requires the mandatory selection of an UltraSCSI adapter and SCSI cable, see Step 5a.

BA36R-RC StorageWorks UltraSCSI single-bus shelf kit
BA36R-RD StorageWorks UltraSCSI split-bus shelf kit

System Disk Drive—Supported in StorageWorks Shelf

Selection of one disk drive is mandatory.

DS-RZ1DA-VW 9.1 GB 7200 RPM UltraSCSI disk drive
DS-RZ1EA-VW 18.2 GB 7200 RPM UltraSCSI disk drive
DS-RZ1FB-VW 36.4 GB 7200 RPM UltraSCSI disk drive
DS-RZ1DD-VW 9.1 GB 10,000 RPM UltraSCSI disk drive
DS-RZ1ED-VW 18.2 GB 10,000 RPM UltraSCSI disk drive

Ethernet Adapter—Mandatory

- Selection of one Ethernet adapter is mandatory.
- Ethernet adapter is not required if KZPCM is selected as a SCSI adapter for StorageWorks shelf.

Order Number	Network Adapter
DE500-BA	PCI-based 10/100 Mbit Fast Ethernet adapter UTP
DE504-BA	PCI-based 10/100 Mbit Quad Channel Fast Ethernet adapter
BN25G-xx	Cable for 10BaseT Twisted Pair connection

Step 1c—M-series Cabinet Enclosure

For additional information on M-series Cabinet Enclosures see www.digital.com/alphaserver/products/m-series.html

M-series Top Gun Blue Cabinet Enclosures are available in two sizes:

- 67” high Cabinet Enclosure (H9A10-xx) 32U or 55.9” of usable vertical space.
- 79” high Cabinet Enclosure (H9A15-xx) 38U or 66.5” of usable vertical space.

Note: Selection of a Rear Cabinet Extender is **mandatory** for each H9A10 or H9A15 Cabinet, and Selection of a Rack Kit is **mandatory** for each system installed in a cabinet.

Cabinet Configuration Chart for AlphaServer ES40 (8U) with StorageWorks Shelves (4U)

Cabinet Enclosure	Rack Kit	Cabinet Extender	Cabinet Height and Space		Systems	Shelves	Ballast Kit
H9A10-MC/MD	**BA61R-RM**	**H9C10-TE**	56 inches	32U	1 2 3 4[1]	6 6 2 0	
H9A15-MC/MD	**BA61R-RM**	**H9C15-TE**	66.5 inches	38U	1 2 3 4	6 6 6[3] 2[4]	1[2]

1. Contact Compaq CustomSystems for cabinet configurations with four ES40 systems installed in an H9C10-MC/MD cabinet.
2. Installing one ES40 system in an H9A15 cabinet requires the mandatory selection of a ballast kit.
3. At 100V a maximum of two shelves are supported.
4. At 100V no shelves are supported.

M-series Cabinet Enclosures

M-series Cabinet Enclosure for AlphaServer ES40 requires the **mandatory** selection of:

- H9A10 or H9A15 Cabinet, 120V or 240V variant.
- Rack kit for each system ordered.
- H9A10 or H9A15 Rear Cabinet Extender.
- Cabinet front door based on cabinet height.
- Factory Integration.
- Ballast kit if only one system is ordered for H9A15 cabinet.

H9A10-MC	120 V dual 24 A controller, each with 10 NEMA 5-15R outlets, input power plug NEMA L5-30P, Americas, Asia Pacific. Includes rear door and top fan tray.
H9A10-MD	240 V dual 16 A controller, each with 12 IEC C13 outlets, input power plug IEC 309, 16A, Europe. Includes rear door and top fan tray.
H9A15-MC	120 V dual 24 A controller, each with 10 NEMA 5-15R outlets, input power plug NEMA L5-30P, Americas, Asia Pacific. Includes rear door and top fan tray.
H9A15-MD	240 V dual 16 A controller, each with 12 IEC C13 outlets, input power plug IEC 309, 16A, Europe. Includes rear door and top fan tray.

Rear Cabinet Extender

Selection of a Rear Cabinet Extender is **mandatory** for each H9A10 or H9A15 Cabinet.

H9C10-TE	Rear Cabinet Extender, Top Gun Blue, for H9A10-MC/MD cabinets
H9C15-TE	Rear Cabinet Extender, Top Gun Blue, for H9A15-MC/MD cabinets

Cabinet Front Door

H9C10-TF	Front door, Top Gun Blue, for H9A10-MC/MD Cabinet Enclosure
H9C15-TF	Front door, Top Gun Blue, for H9A15-MC/MD Cabinet Enclosure

Factory Integration

YS-ASCAA-AA	Factory Integration of systems and storage devices assembled and configured in cabinet enclosure in predefined locations

Step 1c—M-series Cabinet Enclosure *(continued)*

Ballast Kit

Ballast is added to a cabinet at specific locations for specific configurations to meet safety regulations for installation, operation, and service. See Cabinet Configuration Chart.

H9C10-MC	Two 35-40 lbs. steel plates

Shelves supported in M-series Cabinets

BA36R-RC	UltraSCSI single-ended RETMA rack, single-bus personality module, 180 W power supply
BA36R-RD	UltraSCSI single-ended RETMA rack, split-bus personality module, 180 W power supply
BA35R-MR	Rackmount StorageWorks controller shelf with RETMA mounting kit, and NEMA power for H9A10-MC/H9A15-MC cabinet, North America, Asia Pacific. Order BN30B-02 for mounting in H9A10-MD/H9A15-MD cabinet (Europe).
CK-BA35X-HH	180 W power supply, includes 120 V North American and 240V IEC power cord

Compaq CustomSystems Support

Cabinets containing systems and storage must be assembled by qualified assemblers: Compaq Manufacturing, Compaq CustomSystems Group, or an authorized Compaq Certified Integration Partner.

For custom integration of systems, options, cabinet expansion offerings, and additional Compaq and third party devices, or for other cabinets, doors, and trim kits of a different color, contact Compaq CustomSystems at 1-800-AT COMPAQ, or your local authorized Compaq Certified Integration Partner.

Step 2—Additional CPU Modules

- AlphaServer ES40 systems include one 6/500 MHz CPU, three additional CPUs are supported.

Note: Power supply included with system supports two CPUs. See Step 2a for Additional Power Supply information.

KN610-AA SMP upgrade includes one 6/500 CPU with 4 MB cache

Step 2a—Additional Power Supply

- Power supply included with System provides support for two CPUs and one Disk Drive Cage.
- Third and fourth CPUs, and/or second Disk Drive Cage require an additional power supply.
- Each additional power supply ordered with a Tower system requires an additional power cord, see Step 9.

H7906-A9 AlphaServer ES40 power supply

AlphaServer ES40	
1st power supply (included)	Supports up to 2 CPUs and one Disk Drive Cage
2nd power supply	Supports 3rd and 4th CPU, and second Disk Drive Cage, **or** Provides N+1 for up to 2 CPUs and one Disk Drive Cage
3rd power supply	Provides full N+1 redundancy

For Cabinet system configurations that require a third power distribution unit (H7600-xx), contact Compaq CustomSystems at 1-800-AT-COMPAQ (1-800-282-6672).

Step 3—Memory

- System includes one memory option. Maximum of 2GB supported.
- AlphaServer ES40 Model 1 systems support up to three additional memory options (total of 16 DIMMs)
- AlphaServer ES40 Model 2 systems support up to seven additional memory options (total of 32 DIMMs)
- Memory performance considerations: Interleaved operations reduce the average latency and increase the memory throughput over non-interleaved operations. With 1 memory option (4 DIMMs) installed, memory interleaving will not occur. With 2 memory options (8DIMMs) installed, memory read-write operations are two-way interleaved. With 4 memory options (16 DIMMs) installed, memory read-write operations are four-way interleaved, maximizing memory throughput.

MS610-BA 256 MB memory option (4 x 64 MB DIMMs)

MS610-CA 512 MB memory option (4 x 128 MB DIMMs)

MS610-DA 1 GB memory option (4 x 256 MB DIMMs)

Step 4—Internal Storage

System supports a total of four internal removable media devices.

- One dedicated diskette drive slot (1.44 MB diskette drive included).
- One 5.25” removable media slot (600 MB 32X CD-ROM included).

Disk Drive Cage

- System supports up to two Disk Drive Cages.
- Each Disk Drive Cage supports four 3.5-inch x 1.6-inch hard disk drives and includes a one-port Ultra2 SCSI single-ended adapter—Ultra2 SCSI adapter uses one system PCI slot. Included Ultra2 SCSI adapter is the **only** adapter supported on the BA610-4D Disk Drive Cage.

BA610-4D Four bay Disk Drive Cage with Ultra2 SCSI adapter and cable

Disk Drives—Supported in Disk Drive Cage

DS-RZ2DD-16 9.1 GB 10000 RPM Ultra2 SCSI drive

DS-RZ2ED-16 18.2 GB 10000 RPM Ultra2 SCSI drive

Step 5—External Storage

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 and Fast10 drives can be mixed in DS-BA356 Top Gun Blue UltraSCSI shelf. UltraSCSI adapter negotiates maximum transfer speed of drives.

UltraSCSI Connectors and Cables

- KZPBA-CA PCI one port UltraSCSI Single-ended adapter, 68HD connector, requires BN38C cable (2 to 20 m) to connect to Single-ended UltraSCSI shelf.
- KZPBA-CB PCI one port UltraSCSI Differential adapter, 68HD connector, requires BN38C cable (2 to 25 m) to connect to Differential UltraSCSI shelf

BN38C VHDCI to 68HD Cables—KZPBA UltraSCSI adapter to UltraSCSI shelf

BN38C-xx VHDCI male to 68HD male. xx=2, 3, 5, 10, and 20 meter lengths

Step 5a—Storage Controllers—For External StorageWorks Shelves

Note: These controllers are not supported on the BA610-4D Disk Drive Cage.

KZPBA-CA	PCI-based one port UltraSCSI Single-ended adapter, uses 1 PCI slot. Internal 68-pin and 50-pin HD connectors and external 68-pin HD connector.		
KZPBA-CB	PCI-based one port UltraSCSI Differential adapter, uses 1 PCI slot, external 68-pin HD connector.		
BN38C-xx	68-pin HD male to VHDCI male UltraSCSI cable; required for each external UltraSCSI shelf attached to KZPBA-CA/CB adapter.		

Step 6—Monitors

Graphics monitors other than those listed below can be used if compatible with SVGA graphics ordered with a system.

Note: Selection of a video extension cable and a country specific power cord is mandatory for all monitor variants.
See Step 6a for video extension cable
See Step 6b for country specific power cords

3R-VRQV5-24/11 15" (13.8" viewable image size) Corporate Series auto-scan color monitor, flat square Invar CRT, 0.28 mm dot pitch, VGA to 1024 x 768 @ 85 Hz, TCO 95, MPRII, Energy Star, attached 1.8 meter video cable. Requires mandatory selection of video extension cable and country specific power cord for all variants.
–24 = Northern Hemisphere without power cord
–11 = Southern Hemisphere without power cord

SN-VRQP7-24/23 17” (16.0” viewable image size) professional series auto-scanning color monitor, Trinitron CRT, 0.25 mm aperture grill pitch, VGA to 1280 x 1024 at 75 Hz, TCO 95, MPR-II, Energy Star, attached 1.8 meter video cable. Requires mandatory selection of video extension cable and country specific power cord for all variants.
–24 = Northern Hemisphere without power cord
–23 = Southern Hemisphere without power cord

SN-VRQP1-24/23 21" (19.6" viewable image size) auto-scanning color monitor, Trinitron CRT, 0.25 mm aperture grill pitch, VGA to 1600 x 1200 at 75 Hz NI, TCO 95, Energy Star, includes a 1.8 meter video cable. Requires mandatory selection of video extension cable and country specific power cord for all variants.
–24 = Northern Hemisphere without power cord
–23 = Southern Hemisphere without power cord

Step 6a—Video Extension Cable

BN39C-02	1.8 meter video extension cable—mandatory for each monitor ordered

Step 6b—Monitor Power Cords

BN26J-1K	North American, 120 V, 75 inches long
3X-BN46F-02	Japan, 2.5 m long
BN19H-2E	Australia, New Zealand, 2.5m long
BN19C-2E	Central Europe, 2.5 m long
BN19A-2E	UK, Ireland, 2.5 m long
BN19E-2E	Switzerland, 2.5 m long
BN19K-2E	Denmark, 2.5 m long
BN19M-2E	Italy, 2.5 m long
BN19S-2E	Egypt, India, South Africa, 2.5 m long
BN18L-2E	Israel, 2.5 m long

Step 7—Graphics Adapters

- RAID Configuration Utility is accessible via the console port for Tru64 UNIX and OpenVMS systems. Optional graphics capability is available.
- Select graphics adapter, monitor, and country specific keyboard for Tru64 UNIX and OpenVMS systems if required.
- System supports maximum of one graphics adapter.

SN-PBXGB-AB ELSA Gloria Synergy 8MB 2D/3D graphics adapter

Step 8—Networks and Communications

Order Number	Description
DE500-BA	PCI-based 10/100-Mbit 1 port Fast Ethernet controller (Twisted Pair)
DE504-BA	PCI-based 10/100-Mbit 1 port Quad Channel Fast Ethernet controller
BN25G-xx	Cable for 10BaseT Twisted Pair connection

Step 9—Keyboards, Power Cords, and Documentation

Systems ordered in North America include U.S. English keyboard. Selection of a country-specific keyboard is mandatory for all non-North American orders.

Tru64 UNIX Keyboard	Country
SN-LKQ47-AA	US/English
SN-LKQ47-AB	Belgian
SN-LKQ47-AC	Canadian/French
SN-LKQ47-AD	Danish
SN-LKQ47-AE	UK
SN-LKQ47-AF	Finnish
SN-LKQ47-AG	German
SN-LKQ47-AH	Dutch
SN-LKQ47-AI	Italian
SN-LKQ47-AK	Swiss/French
SN-LKQ47-AM	Swedish
SN-LKQ47-AN	Norwegian
SN-LKQ47-AP	French
SN-LKQ47-AR	Latin-American
SN-LKQ47-AS	Spanish
SN-LKQ47-AT	Hebrew
SN-LKQ47-AV	Portuguese
SN-LKQ47-AX	BHCSY
SN-LKQ47-BA	International
SN-LKQ47-BH	Greek
SN-LKQ47-BI	Taiwanese
SN-LKQ47-BK	Korean
SN-LKQ47-BP	Polish
SN-LKQ47-BQ	Hungarian
SN-LKQ47-BR	Arabic
SN-LKQ47-BT	Cyrillic
SN-LKQ47-BU	Turkish

SN-LKQ47-BV	Czech
SN-LKQ47-CB	Thai
SN-LKQ47-CV	S. Chinese
SN-LKQ47-CZ	Slovak

Tower Power Cords

- Tower enclosure ordered in North America includes a 120 V power cord. Selection of a country-specific power cord is mandatory for all non-North American orders.
- Each additional power supply ordered with a system installed in a Tower enclosure requires an additional power cord.

Pedestal Power Cords

- Pedestal systems ordered in North America include two 120 V power cords. Selection of two country-specific power cords is mandatory for all non-North American orders.

BN26J-1K	North American 120 V, 75 inches long
3X-BN46F-02	Japan, 2.5 m long
BN19H-2E	Australia, New Zealand, 2.5 m long
BN19C-2E	Central Europe, 2.5 m long
BN19A-2E	UK, Ireland, 2.5 m long
BN19E-2E	Switzerland, 2.5 m long
BN19K-2E	Denmark, 2.5 m long
BN19M-2E	Italy, 2.5 m long
BN19S-2E	Egypt, India, South Africa, 2.5 m long
BN18L-2E	Israel, 2.5 m long

Documentation

QZ-01BAA-GZ	Additional AlphaServer ES40 System Information Kit (print and CD), Owners Guide, User Interface Guide, and Release Notes

Step 10—Printers and Remote Console

Systems include two full duplex asynchronous serial ports and one bi-directional enhanced parallel port.

Asynchronous serial ports have 9-pin D-subminiature connectors. A 9-pin to MMJ adapter (H8571-J) is required for each connection. See printer section of *Systems and Options Catalog* for serial and parallel printer information.

Step 10a—Console Terminal

- Console terminal with EIA-232 25-pin DSUB connector required unless otherwise available.
- Shielded console cable is required for console terminal unless available onsite.

VT510-xx	VT510 terminal

Step 11—Software

- Operating system software is not supplied with this system

System Diagram

1. Control panel
2. CD-ROM drive
3. Removable media bays
4. Floppy diskette drive
5. Storage drive bays
6. Fans
7. CPUs
8. Memory
9. PCI cards

1. Power supplies
2. PCI bulkhead
3. I/O ports

System Diagram

Tower Specifications

Dimensions—Tower		
Height	50.8 cm (20.0 in.)	
Width	38.7 cm (15.25 in.)	
Depth	78.7 cm (31.0 in.)	
Weight	65.6 kg (144.3 lb) Typical	
	96.7 kg (212.8 lb) Maximum	
Shipping Dimension—Tower		
Height	82.48 cm (32.2 in.)	
Width	60.2 cm (24.0 in.)	
Depth	101.6 cm (40.0 in.)	
Weight	78 kg (1720 lb) Typical	
	110 kg (242 lb) Maximum	
Clearances	**Operating**	**Service**
Front	75 cm (29.5 in.)	75 cm (29.5 in.)
Rear	15 cm (6 in.)	75 cm (29.5 in.)
Left side	None	75 cm (29.5 in.)
Right side	None	None

Pedestal Specifications

Dimensions—Pedestal		
Height	78.2 cm (30.8 in.)	
Width	50.8 cm (20.0 in.)	
Depth	80.6 cm (31.75 in.)	
Weight	127 kg (280 lb) Typical 159 kg (350 lb) Maximum	
Shipping Dimension—Pedestal		
Height	107.7 cm (42.4 in.)	
Width	100.3 cm (39.5 in.)	
Depth	60.7 cm (23.9 in.)	
Weight	Nominal: 149 kg (328 lb.), Maximum: 185 kg (407 lb.)	
Clearances	**Operating**	**Service**
Front	75 cm (29.5 in.)	75 cm (29.5 in.)
Rear	15 cm (6 in.)	75 cm (29.5 in.)
Left side	None	None
Right side	None	75 cm (29.5 in.)

Rackmount Specifications

Dimensions—Rackmount		
Height	35.2 cm (13.87 in.) Fits 14 in. [8U] standard RETMA cabinet	
Width	44.7 cm (17.6 in.)	
Depth	76.5 cm (30.1 in.)	
Weight		
When lifting	Nominal: 50 kg (110 lb.), Maximum 76 kg (167.2 lb.)	
Total added to cabinet (brackets, slides, & cables)	Nominal: 59 kg (130 lb.), Maximum 92 kg (202.4 lb.)	
Shipping Dimension—Rackmount		
Height	73.2 cm (28.8 in.)	
Width	60.7 cm (24.0 in.)	
Depth	101.6 cm (40.0 in.)	
Weight	Nominal: 72 kg (158 lb.), Maximum: 106 kg (233 lb.)	
Clearances	**Operating**	**Service**
	See requirements of specific cabinet	Minimum 121.9 cm (4 ft.) 76.3 cm (30 in.) withdrawal on rails

Cabinet Specifications

Cabinet Dimensions	H9A10 M-Series	H9A15 M-Series
Height	170 cm (67.0 in)	200 cm (79.0 in)
Width	60 cm (23.6 in) Rack	60 cm (23.6 in) Rack
Depth	110 cm (43.27 in)	90 cm (35.4 in)
Weight	Configuration dependent	450 kg (1000 lb)
Shipping Dimensions	**H9A10 M-Series**	**H9A15 M-Series**
Height	185.5 cm (73 in.)	216 cm (85 in.)
Width	91.5 cm (36 in.)	91.5 cm (36 in.)
Depth	122 cm (48 in.)	122 cm (48 in.)
Weight	Configuration dependent Maximum payload 1000 lb.	Normal: 550 kg (1056 lb) Maximum: 640 kg (1408 lb.)

ES40 System Specifications

Environmental		
Temperature	Operating*	
	Tower, Pedestal, Rackmount	10-35° C (50-95° F)
	Nonoperating	Not tested)
	Storage (60 days)	–40 to –66° C (-40 to –151° F)
	Rate of change	11° C/hr (20° F/hr)
Relative humidity	Operating	20–80%
	Nonoperating	20–80%
	Storage (60 days)	10–95%
	Rate of change	20% hr.
Maximum wet bulb temperature	Operating	28° C (82° F)
	Storage (60 days)	46° C (115°F)
Minimum dew point temperature	Operating	2° C (36° F)
	Storage (60 days)	Not tested
Heat dissipation	Nominal	Maximum
Tower and Rack	900 W, 3074 BTU/hr	1300 W, 4440 BTU/hr
Pedestal	1480 W, 5054 BTU/hr	2400 W, 8196 BTU/hr
H9A10/H9A15	Configuration dependent	4800 W, 16392 BTU/hr
Air flow and quality	Intake location	Front
	Exhaust location	Rear-Tower, Pedestal, Rack Rear/Top-H9A10/H9A15
	Particle size	N/A
	Concentration	N/A
Altitude	Operating†	3037 m (10,000 ft)
	Nonoperating	12192 m (40,000 ft)

Acoustics—Declared values per ISO 9296 and ISO 7779
Current values for specific configurations are available from Compaq. 1 B = 10 dBA

Acoustics	L_{WAd3} B	L_{pAm5} dBA (bystander position)
Idle	6.6	48
Operating	6.6	48
Vibration	Operating	10-500 Hz .1 G peak
	Nonoperating	1.03 Grms 5-300 Hz

Electrical—Power Supplies are universal, PFC, auto Ranging, 100/240 Vac			
Nominal voltage (Vac)	100	120	200-240
Voltage range (Vac) (temporary condition)	90-100	110-128	180-250
Power source phase	Single	Single	Single
Nominal frequency (Hz)	50/60	50/60	50/60
Frequency range (Hz)	49-51 / 59-61	49-51 / 59-61	49-51 / 59-61
RMS current (maximum steady state)			
Tower and Rackmount			
Single power cord	11.0 A	8.5 A	5.0 A
Multiple power cords	6.5 A	5.3 A	3.0 A
Maximum VA	1300	1270	1250
Pedestal			
Each power cord	12.0 A	10.5 A	6.0 A
Maximum VA	1960	1900	1880
M-Series Cabinet (config-dependent)			
Nominal voltage (VAC)	100	120	220-240
Each power cord	24 A	24 A	16 A

ES40 System Specifications

Power Cords			
System	Quantity	Power Cord Length	Type
Tower	Up to 3	190 cm (75 in.)	IEC 320 C13 to NEMA 5-15 (N. America) or IEC 320 C13 to country-specific
Pedestal	2	190 cm (75 in.)	120 V nonremovable NEMA 5-15 (N. America) or 200-240 V IEC 320 C13 to country-specific
Rackmount	3	452 cm 14 ft. 10 in.)	IEC 320 C13 to NEMA 5-15 (N. America) or IEC 320 C13 to IEC 320 C14 (other countries)
Cabinet	2	330 cm 10ft. 10 in.)	120 V nonremovable NEMA L5-30P or 200-240 V nonremovable IEC 309

Regulatory	
Agency approvals	UL: Listed to UL1950 (3rd edition) CSA: Certified to CAN/CSA-C22.2 No. 950-M95 TUV: EN 60950/A4: 1997 VDE 0805 GS marked FCC: Part 15.B Class A CE: EN55022, EN50082 VCCI Class II ITE BCIQ: CISPR22, CNS13438 C-Tick: CISPR22, AS/NZS 3548
Reviewed to	AS/NZ 3260:1993 Australian/New Zealand Standard EN 60950/A4: 1997 European Norm IEC 950 (2nd edition, 3rd amend)

* Maximum operating temperature at Sea Level. Reduce by 1 C (1.8 F) for each 600 m (2000 ft) above Sea Level.

† Higher altitudes are possible if maximum operating temperature is reduced (see Temperature, above); other restrictions may apply, such as maximum permissible altitude for hard drives.