Overview

AT A GLANCE

The *Compaq™ AlphaServer*™ SC40 system is a distributed memory, parallel supercomputer that scales up to 512 Alpha™ 21264A (EV67) processors to deliver incredible sustained performance for large-scale applications. It is based on 4-processor AlphaServer ES40 nodes and an ultra-low-latency, high-bandwidth interconnect with an integrated software package for management and application development.

Compaq AlphaServer SC40 systems consist of:

- One or more AlphaServer SC40 Compute Building Blocks (CBBs)
- AlphaServer SC Interconnect Building Block (IBB)
- One or more AlphaServer SC Storage Building Blocks (SBBs)

Compute Building Blocks

The CBB consists of four customized *AlphaServer* ES40 nodes**.** Each node includes:

- One Alpha 21264A (EV67) 667-MHz CPU with 8-MB cache
- One *AlphaServer* SC Elan Adapter Card

Interconnect Building Blocks

- 16-port or 128-port switch from Quadrics Supercomputers World
- SC Management Network
- SC Console Management Network

Storage Building Blocks

- Dual HSG80 RAID Controllers
- Seven 18.2-GB disk drives
- Required Storage Software

Management Building Block

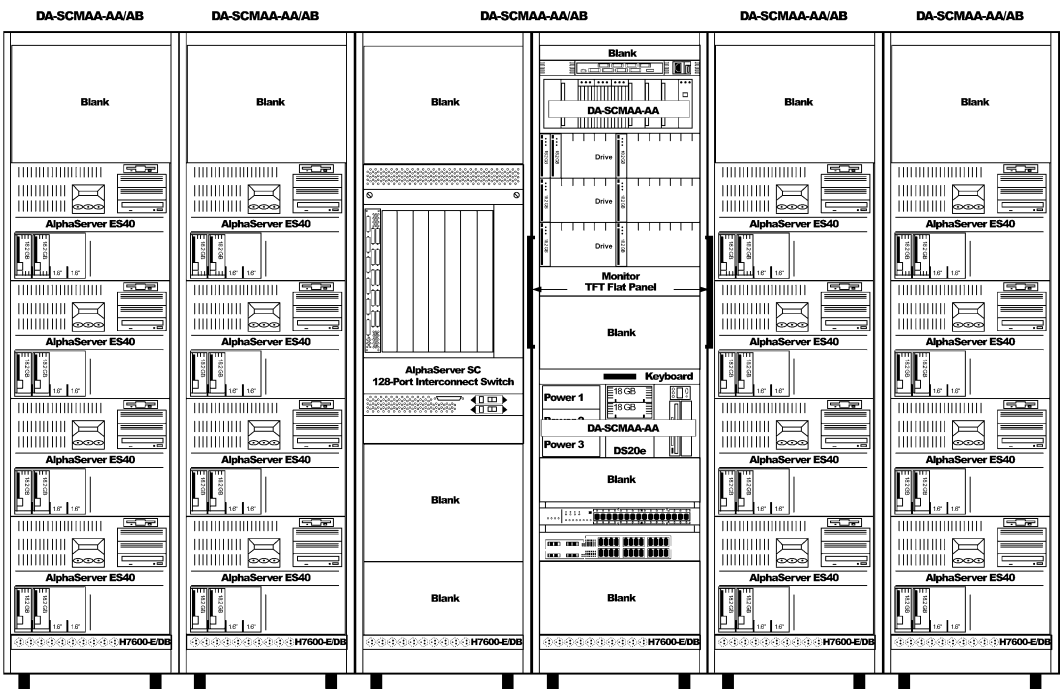
The optional Management Building Block consists of an AlphaServer DS20E and required connections to the AlphaServer SC40 system.

Compaq AlphaServer SC System Software V1.0 provides the utilities and libraries required to operate and manage the AlphaServer SC40.

Optional Compaq AlphaServer SC Development Software V1.0 provides a full suite of tools for technical software development, including *Compaq Fortran*, *Compaq C++* and Developer's Toolkit for *Tru64™ UNIX*.

Warranty is 3-year onsite, 5 day x 9-hour warranty with next business day response.

The AlphaServer SC40 includes integration and installation.



Step 1 – Select AlphaServer SC40 Compute Building Blocks (CBBs), Memory, and Additional CPUs

Step 1a – Mandatory – Select the number of AlphaServer SC40 CBBs

An AlphaServer SC40 CBB is a hardware rack with four specially configured ES40 nodes. Select between one and 32 CBBs as follows:

AlphaServer SC40 67/667 CBB, North America	DA-SCAAB-AA
AlphaServer SC40 67/667 CBB, International	DA-SCAAB-AB
AlphaServer SC40 68/833 CBB, North America	DA-SCAAC-AA
AlphaServer SC40 68/833 CBB, International	DA-SCAAC-AB

Each AlphaServer SC40 67/667 or AlphaServer SC40 68/833 CBB includes the following:

- One H9A15-SN/SP 2-m tall rack assembly with AlphaServer SC door
- One AlphaServer ES40 System Information Kit (print and CD-ROM), Owner's Guide, User Interface Guide, and Release Notes

Each node in the CBB includes the following items:

- One Alpha 21264 67/667-MHz CPU module with 8-MB cache or one Alpha 21264 68/833-MHz CPU module with 8-MB cache
- No system memory (see Step 1c)
- Disk drive cage and 1-port UltraSCSI storage adapter
- Ten PCI I/O slots, six to eight are used for required SC40 options
- One 1.44-MB diskette drive in a dedicated slot
- One 600-MB 40X IDE CD-ROM drive
- One AlphaServer SC Elan Adapter Card
- One bi-directional parallel port, 24-pin D-subminiature connector
- Two EIA-232 full duplex asynchronous modem control serial ports, 9-pin D-subminiature connectors
- Dual USB ports
- One dedicated remote systems management port, which includes cables for connection to the DECserver900TM
- Two 68-pin SCSI connections knockouts
- Two 18.2-GB system disk drives mounted in the disk drive cage
- One 2-port PCI 32/64-bit 10/100-Mb UTP Ethernet adapter (3X-DE602-AA) – one port reserved for connection to the Management Network, includes cabling
- Three auto-sensing, hot-swappable power supplies providing all configurations with N+1 power redundancy
- Compaq Insight Manager
- Tru64 UNIX Operating System V5.0 including base license, unlimited user license, server extension license, and Open Source Internet Solutions

Step 1b – Optional – Select the Number of Additional CPU Modules by CPU type

Note the following:

- Each node includes one CPU module.
- Each node supports up to three additional CPU modules.
- All nodes must have the same number of CPU modules.

Alpha 21264 (EV67) 667-MHz CPU module with 8-MB cache and a Tru64 UNIX SMP license	KN610-BB
Alpha 21264 (EV68) 833-MHz CPU module with 8-MB cache and a Tru64 UNIX SMP license	KN610-CB

Step 1 – Select AlphaServer SC40 Compute Building Blocks (CBBs), Memory, and Additional CPUs *(continued)*

Step 1c – Mandatory – Select Memory

When selecting memory, note the following:

- Each node includes no memory options.
- Each node supports up to eight memory options (total of 32 DIMMs).
- All nodes must have the same memory options.
- All nodes must have the same number of memory options.
- Interleaved operations reduce the average latency and increase the memory throughput compared to non-interleaved operations.
- Up to 16 GB of memory per node is supported

To achieve 4-way memory interleaving, with room for memory expansion in each node, select a memory option from the following list and order four memory options for each node in the system.

256-MB memory option (4x64 MB DIMMs) – provides 1 GB per node	MS610-BA
512-MB memory option (4x128 MB DIMMs) – provides 2 GB per node	MS610-CA
1-GB memory option (4x256 MB DIMMs) – provides 4 GB per node	MS610-DA
2-GB memory option (4x512 MB DIMMs) – provides 8 GB per node	MS610-EA
4-GB memory option (4x1024 MB DIMMs) – provides 16 GB per node	MS610-FA

To achieve 8-way memory interleaving, filling all available slots in each node, select a memory option from the following list and order eight memory options for each node in the system.

256-MB memory option (4x64 MB DIMMs) – provides 2 GB per node	MS610-BA
512-MB memory option (4x128 MB DIMMs) – provides 4 GB per node	MS610-CA
1-GB memory option (4x256 MB DIMMs) – provides 8 GB per node	MS610-DA
2-GB memory option (4x512 MB DIMMs) – provides 16 GB per node	MS610-EA

Options

Step 2 – Mandatory – Select Interconnect Building Blocks (IBBs)

An AlphaServer SC IBB consists of an AlphaServer SC Interconnect 16-port or 128-port switch and other hardware and software at the core of AlphaServer SC systems. If the AlphaServer SC40 system is expected to grow to no more than 16 nodes, choose one of the following parts:

AlphaServer SC 16-way IBB, North America	DA-SCBAA-AA
AlphaServer SC 16-way IBB, International	DA-SCBAA-AB

If the AlphaServer SC40 system is larger than 16 nodes, or is expected to become larger than 16 nodes, choose one of the following parts:

AlphaServer SC 128-way IBB, North America (expandable to 128 nodes)	DA-SCCAA-AA
AlphaServer SC 128-way IBB, International (expandable to 128 nodes)	DA-SCCAA-AB

The AlphaServer SC 16-way IBB includes the following hardware and services:

- Compaq AlphaServer SC Interconnect 16-port Switch
- Four 5-m and twelve 10-m AlphaServer SC Interconnect Cables
- DECserver 900TM and DEChub ONE for console consolidation of up to 16 nodes across the Management Ethernet
- One 24-port 10/100 Ethernet Switch
- Rack-mounted 4-way graphics console switch for selecting keyboard, mouse, and video signals from Nodes 0 and 1
- Two Elsa graphics cards for installation in Nodes 0 and 1 for graphics console switch connection
- One H9A15-SN/SP 2-m tall rack assembly with AlphaServer SC door
- One 18.2 GB disk drive, to provide extra storage for the first node
- Tru64 UNIX Operating System V5.0 media and documentation
- AlphaServer SC System Software V1.0 media and documentation
- Documentation for Advanced File System Utilities, a component used by the AlphaServer SC System Software
- Network and system cabling, custom cables, and custom labeling of key components
- Staging, integration, and full test of the IBB, the CBBs, the SBB(s), and the MBB
- Installation and basic configuration of system software and storage
- Installation at the customer site

The AlphaServer SC 128-way IBB includes the following hardware and services:

- Compaq AlphaServer SC Interconnect 128-Port Switch with one 16-port Switch Card
- Four 5-m and twelve 10-m AlphaServer SC Interconnect Cables
- DECserver 900TM and DEChub ONE for console consolidation of up to 32 nodes across the Management Ethernet
- One 48-port 10/100 Ethernet Switch
- Rack mounted 8-way console graphics switch for selecting keyboard, mouse, and video signals from Nodes 0 and 1
- Two Elsa graphics cards for installation in Nodes 0 and 1 for graphics console switch connection
- Two H9A15-SN/SP 2-m tall rack assemblies with AlphaServer SC doors
- One 18.2-GB disk drive, to provide extra storage for the first node in the first set of eight CBBs
- Tru64 UNIX Operating System V5.0 media and documentation
- AlphaServer SC System Software V1.0 media and documentation
- Documentation for Advanced File System Utilities, a component used by the AlphaServer SC System Software
- Network and system cabling, custom cables, and custom labeling of key components
- Staging, integration, and full test of the IBB, the CBBs, the SBB(s), and the MBB
- Installation and basic configuration of system software and storage
- Installation at the customer site

Options

Step 3 – Mandatory for Systems with more than Four CBBs – Interconnect, Console, and Management Network Expansion

The AlphaServer SC 128-way IBB has one switch card to support the first four of the CBBs configured as described in Step 1a. For each additional full or partial set of four CBBs, order one of the following:	
AlphaServer SC 16-port switch card	3X-CCNXF-AA
The AlphaServer SC 128-way IBB has console management support for the first eight of the CBBs configured as described in Step 1a. For each additional full or partial set of eight CBBs, order one of each of the following:	
DEChub ONE - 90 Watt	DEHUA-CA
2-MB FLASH card (firmware)	H0345-AA
AUI x 10baseT MAU for DEChub to connect to management network	DETPM-AA
Ethernet Cable, 1-m, 8MP X 8MP	BN25G-01
DECserver 900TM	DSRVZ-MC
Power cord for rack mounting of DEChub ONE	BN35S-02
The AlphaServer SC 128-way IBB has Management Ethernet support for the first ten of the CBBs configured as described in Step 1a. For one additional full or partial set of 12 CBBs, order the following:	
One AlphaServer SC 48-Port Management Network Upgrade	3X-SCNBA-AA
1-m Ethernet Cable, 8MP X 8MP	BN25G-01
One power cord for rack mounting of the Extreme network switch	BN35S-02
Four AlphaServer SC Network Fibre Port Upgrades for Ethernet Switch to enable Gigabit ports to connect to Ethernet Switch in AlphaServer SC 128-way IBB	3X-SCNXA-AA
Two SC-SC dual Fibre Optic cables, mm, pp	BN34B-01
The AlphaServer SC 128-way IBB has Management Ethernet support for the first 10 of the CBBs configured as described in Step 1a. For two additional full or partial set of 12 CBBs, order the following:	
Two AlphaServer SC 48 Port Management Network Upgrades	3X-SCNBA-AA
Two 1-m Ethernet Cables, 8MP X 8M	BN25G-01
Two power cords for rack mounting the Extreme network switches	BN35S-02
Eight AlphaServer SC Network Fibre Port Upgrades for Ethernet Switch to enable Gigabit ports to connect to Ethernet Switch in AlphaServer SC 128-way IBB	3X-SCNXA-AA
Four SC-SC dual Fibre Optic cables, mm, pp	BN34B-01
The AlphaServer SC 128-way IBB has sufficient system disks for the first eight of the CBBs configured as described in Step 1a. For each full or partial set of eight CBBs, order one additional 18.2-GB disk:	
18.2-GB 10K rpm UltraSCSI drive	3R-A0585-AA
The AlphaServer SC 128-way IBB has sufficient cables to connect the IBB to the first four of the CBBs configured as described in Step 1a. For more than four CBBs, order extra cables as follows:	
For each of the first 12 additional CBBs, order four cables (one for each node), 10-m long:	
AlphaServer SC 10-m Interface Cable	3X-BN62A-10
For each additional CBB after the first 12, order four cables (one for each node), 15 m long:	
AlphaServer SC 15-m Interface Cable	3X-BN62A-15

Options

Step 4 – Mandatory – Select Storage Building Blocks (SBBs)

AlphaServer SC40 systems require the mandatory selection of one or more SBBs, together with other equipment as described below, for each full or partial set of eight CBBs.

An AlphaServer SC SBB includes a RAID disk subsystem and software and hardware required for providing system storage for the AlphaServer SC40. It also includes cables and GBICS that connect the Fibre Channel Switch (DS-DSGGB-AA/B) to the host adapters and to the dual hierarchical storage controller shelf (shelves) (DA-SCDAA-AA). Each Fibre Channel Switch is mounted with a rack mount kit (DS-H9305-AA).

An additional cabinet enclosure (H9A15-SN/SP) and door (H9C15-SC) are required to house the Fibre Channel 16-Port Switch, rackmount kit and additional SBBs. The additional cabinet is not required if an 8-Port Switch is employed.

Up to 35 additional disk drives (3R-A0585-AA or 3R-A0919-AA) can be added to each SBB.

Use the following table to determine the parts and quantities required to build the minimum required system storage for the AlphaServer SC40. Locate the column corresponding to the number of CBBs selected in Step 1a. Select the parts required for system storage as specified in that column. Note the following:

- Optionally, the RAID subsystems can be configured to include redundant access paths from each of the two nodes serving system files within each full or partial set of eight CBBs (a CFS cluster domain). Please contact your Compaq Account Manager to verify the configuration.
- Optionally, the RAID subsystems can be configured to include redundant power for the Fibre Channel switches. To configure Fibre Channel switches with redundant power, select one 3X-H7603-AA for each Fibre Channel switch. The split-bus disk shelves and HSG80 controller shelf include dual power. Contact your Compaq Account Manager to verify the configuration.

	Number of CBBs	**4-8**	**9-16**	**17-24**	**25-32**
Description	**Part**	**Qty.**	**Qty.**	**Qty.**	**Qty.**

Storage Building Block (SBB) includes:
• Dual HSG80 controller shelf
• Three split bus shelves, six cables
• Six cables and Short Wave optical GBICs
• Two Fibre Channel host adapters (DS-KGPSA-CA), one for each boot node in a domain
• Seven 18.2-GB disk drives
• Two licenses each for:
  • HSG80 Array Controller Software
  • HSG80 Solution Software for Tru64 UNIX
  • StorageWorks command console UNIX agents
  • Advanced File System Utilities
	DA-SCDAA-AA	1	2	3	4

AlphaServer SC RAID FC 8 Switch, includes rack kit, no GBICs	3X-SCFAA-AA	1	0	0	0
AlphaServer SC RAID FC 16 Switch, includes rack kit, no GBICs	3X-SCFBA-AA	0	1	2	2
AlphaServer SC RAID FC Rack Kit	3X-SCFRA-AA	1	1	2	2
AlphaServer SC RAID FC Port Upgrade	3X-SCFGA-AA				
Ethernet Cable - connects Fibre Channel Switch(es) to management network	BN25G-03	1	1	2	2

Options

Step 4 – Mandatory – Select Storage Building Blocks (SBBs) *(continued)*

	Number of CBBs	4-8	9-16	17-24	25-32
Description	**Part**	**Qty.**	**Qty.**	**Qty.**	**Qty.**
Fibre Optic Cable 50/125, xx = (2,5,15,30.50)	BNGBX-xx				
Cabinet enclosure - AlphaServer SC 2.0-m, 19-inch cabinet enclosure, North America (H9A15-SN); AlphaServer SC 2-m, 19-inch cabinet enclosure, International (H9A15-SP)	H9A15-SN/SP	0	1	1	1
Power Distribution Unit - Power Controller, 200-240 V Input	H7600-EB/DB	0	1	2	3
AlphaServer SC Custom Door Kit	H9C15-SC	0	1	1	1
Joiner kit for AlphaServer SC cabinet enclosure	H9C15-JD	0	1	1	1
Optional additional disk drives for the selected SBBs Select 18.2-GB or 36.4-GB drives in sets of six		**Max of 35**	**Max of 70**	**Max of 105**	**Max of 140**
18.2-GB 10K rpm Ultra3 SCSI Universal Hot Plug HDD 1" height	3R-A0585-AA				
18.2-GB 15K rpm Ultra3 SCSI Universal Hot Plug HDD 1" height	3R-A1543-AA				
36.4-GB 10K rpm Ultra3 SCSI Universal Hot Plug HDD 1" height	3R-A0919-AA				

Step 5 – Highly Recommended – Select Management Server Building Block (MBB)

An AlphaServer SC MBB includes a DS20E that is specially configured for the management of an AlphaServer SC system. It is highly recommended that an MBB be configured with every AlphaServer SC40 system. The MBB is configured for installation in the IBB chosen in Step 2. The MBB includes:

- DS20E system drawer
- Two 67/667 CPUs
- 1-GB memory
- Three 18.2-GB disks
- One 32/64-bit 10/100-Mb UTP FE Ethernet adapter (Twisted Pair); one port reserved for connection to the Management Network
- Dual-port Ethernet adapter (3X-DE602-AA)
- Rack mount kit for fitting in standard S-Series cabinet (select cabinet as described in Step 8)
- Tru64 UNIX Operating System including base license, unlimited user license, server extension license, and Open Source Internet Solutions
- 12-foot video and keyboard-mouse cable to connect to the system console switch
- Elsa graphics card
- N + 1 (3) power supplies

AlphaServer SC DS20E Management Server DA-SCMAA-AA

Options

Step 6 – Optional – Communications

For Ethernet, note the following:

- Each adapter uses one PCI slot
- Each node includes one 3X-DE602-AA 2-port Ethernet Adapter
- One port is reserved for Management Network
- One port is available for other use.

	Maximum # supported per node	
PCI 2-port 32/64-bit 10/100-Mb UTP FE Ethernet adapter (Twisted Pair)	2	3X-DE602-AA
Cable for 10BaseT Twisted Pair connection, xx=length in meters		BN25G-xx
PCI Gigabit Ethernet adapter, SC connectors, MMF – no boot support	2	DEGPA-SA
SC-SC dual Fibre Optic cable, mm, pp xx = length in meters		BN34B-xx

ATM

- Each adapter/controller uses one PCI slot.
- Contact your Compaq Account Manager if you require ATM.

PCI-to-ATM 155Mb adapter – Fibre	*	3X-DAPBA-FA
PCI-to-ATM 155Mb adapter – UTP	*	3X-DAPBA-UA
PCI-to-ATM 622Mb adapter – Fibre	*	3X-DAPCA-FA

HIPPI

- Each adapter/controller uses one PCI slot.
- Contact your Compaq Account Manager if you require HIPPI.

PCI to HIPPI host bus adapter (integrated) 40 MB/sec, LOADA	*	KZPHA-AX

Step 7 – Optional – S-Series Cabinets – Specially Configured for AlphaServer SC Configurations

Cabinets are available for housing additional storage and other peripherals.

- Cabinet enclosures (H9A15-SN/P) are preconfigured with trim, rear extender, one 16A Power Distribution Unit (H7600-EB/DB), and joiner kit.
- Top gun blue Cabinet enclosures
- 40U is the maximum space available for the enclosures listed below.
- Select a door kit (H9C15-SC) and Joiner Kit (H9C15-JC) for each cabinet enclosure.

AlphaServer SC 2.0-m, 19" cabinet enclosure, North America	H9A15-SN
AlphaServer SC 2.0 m, 19" cabinet enclosure, International	H9A15-SP
AlphaServer SC custom door kit	H9C15-SC
Joiner Kit for H9A15 cabinets	H9C15-JD
VIS for AlphaServer SC System Building Block	YT-SCVIS-AB

Either Compaq Manufacturing or Compaq CustomSystems must assemble cabinets containing systems and storage. Your Compaq Account Manager will quote for any additional integration services required for the assembly of additional equipment (included desired third party options) or racks.

Compaq staff may consult documents EK-MARQE-CN, B-IB-H9A15-3-DBM, and B-IC-H9A15-3-DBM for cabinet enclosure rules for M-Series enclosures.

Options

Step 8 – Mandatory – Monitors and Keyboards

Choose either a rackmount console or tabletop console(s) for the AlphaServer SC40.

One Rackmount Console

Select the following items to install a monitor in the 16-way SBB rack or the 128-way SBB rack:

One TFT 5000 15" (15" viewable image size) flat panel monitor, TFT active matrix, in-plane switching technology 160 degrees viewing angles, 1280 x 1024 resolution, brightness 165 nits, detachable base, NA	3R-A0709-AA
One TFT 5000 15" (15" viewable image size) flat panel monitor, TFT active matrix, in-plane switching technology 160 degrees viewing angles, 1280 x 1024 resolution, brightness 165 nits, detachable base, In	2T-QVTAA-EG
One 3U 30" deep extension rail for the monitor	2T-QH915-03
One 1U locking rack mount keyboard tray, blue, including mouse	2T-IODEV-LB
Three virtual keyboard cables for UNIX	2T-H7085-GU

One Tabletop Console

- Each IBB supports one monitor and one keyboard switched between nodes 0 and 1.
- This monitor requires a video cable for connection to the console switch.

Select one monitor, one monitor power cord, one video cable, one extension cable if desired and one keyboard from the following lists.

Two Tabletop Consoles

- Two consoles are supported by direct connection to node 0 and to node 1.
- One monitor and one keyboard will be connected to node 0.
- The other monitor and keyboard will be connected to node 1.

Select two monitors, two monitor power cords, two 20' video cables, two extension cables if desired and two keyboards from the following lists.

Monitors

15" (13.8" viewable image size) S510 multiple-scan color monitor with Invar Shadow Mask, VGA to 1024 x 768 @ 75 Hz, 0.28mm AG, MPR II; Northern Hemisphere with NA power cord	3R-A1741-AA
As above, with Eurocord	3R-A2832-AA
As above, APD, no power cord	3R-VRQS5-24
15" (13.8" viewable image size) V500 auto scanning color monitor, VGA to 1024 x 768 @ 85 Hz, 0.28 mm FST, MPR II, Southern Hemisphere, with Australia/New Zealand power cord	3R-VRQV5-11
17"(16" viewable image size) P710 auto-scanning color monitor, Diamondtron NF, 0.25mm aperture grille pitch, VGA to 1280 x 1024 @75 Hz, TCO 99; Northern Hemisphere with NA power cord	3R-A2936-AA
As above, APD, no power cord	3R-A2260-AA
As above, Northern Hemisphere, with Power Factor Correction and Eurocord, 220V only	3R-A2261-AA
As above, Southern Hemisphere, with Australia/New Zealand power cord	3R-A2263-AA
19" (18" viewable image size) P910 auto-scanning color monitor, Diamondtron NF, 0.25mm aperture grille pitch, VGA to 1280 x 1024 @85 Hz, TCO 99; Northern Hemisphere with NA power cord	3R-A2935-AA
As above, Northern Hemisphere, with Power Factor Correction and Eurocord, 220V only	3R-A2265-AA
As above, Southern Hemisphere, with Australia/New Zealand power cord	3R-A2267-AA
22" (20" viewable image size) P1210 auto-scanning color monitor, Diamondtron NF, 0.24mm aperture grille pitch, VGA to 1600 x 1200 @85 Hz, TCO 99; Northern Hemisphere with NA power cord, with Power Factor Correction	3R-A2934-AA
As above with Eurocord	3R-VRQP2-24
As above, APD, no power cord	3R-A2268-AA
As above, Southern Hemisphere, with Australia/New Zealand power cord	3R-VRQP1-23
18" (18.1" viewable image size) TFT 8020 Flat Panel Monitor; 0.28mm DP 1280 x 1024 @75Hz, Elsa graphics cards compatible, wide-angle viewing - 160 degrees H and V. 230 nits,TC099	3R-A0852-AA

Options

Step 8 – Mandatory – Monitors and Keyboards *(continued)*

Monitor Power Cords

North American, 120V, 75”	BN26J-1K
Japan, 2.5m, Dentori approved	3X-BN46F-02
Australia, New Zealand, 2.5m	BN19H-2E
Central Europe, 2.5m	BN19C-2E
UK, Ireland, 2.5m	BN19A-2E
Switzerland, 2. 5m	BN19E-2E
Denmark, 2.5m	BN19K-2E
Italy, 2.5m	BN19M-2E
Egypt, India, South Africa, 2.5m	BN19S-2E
Israel, 2.5m	BN18L-2E

Video Cables

110936-B21 12 Plenum Cable for connection to Console Switch in AlphaServer SC 16 or 128 way SBB	3R-A0719-AA
149363-B21 20 Plenum cable for connection to Console Switch in AlphaServer SC 16 or 128 way SBB	2T-QCSPL-20
Keyboard/Mouse/Monitor 20’ extension cable	2T-KBMON-20

Keyboards

- Keyboard options are provided for the convenience of customers in various countries.
- AlphaServer SC Software is qualified for the English language.
- A selection of a country-specific keyboard is required for keyboard support.

U.S./English keyboard	SN-LKQ47-AA
Belgian keyboard	SN-LKQ47-AB
Canadian/French keyboard	SN-LKQ47-AC
Danish keyboard	SN-LKQ47-AD
UK keyboard	SN-LKQ47-AE
Finnish keyboard	SN-LKQ47-AF
German keyboard	SN-LKQ47-AG
Dutch keyboard	SN-LKQ47-AH
Italian keyboard	SN-LKQ47-AI
Swiss/French keyboard	SN-LKQ47-AK
Swedish keyboard	SN-LKQ47-AM
Norwegian keyboard	SN-LKQ47-AN
French keyboard	SN-LKQ47-AP
Latin-American keyboard	SN-LKQ47-AR
Spanish keyboard	SN-LKQ47-AS
Hebrew keyboard	SN-LKQ47-AT
Portuguese keyboard	SN-LKQ47-AV
BHCSY keyboard	SN-LKQ47-AX
International keyboard	SN-LKQ47-BA
Greek keyboard	SN-LKQ47-BH
Taiwanese keyboard	SN-LKQ47-BI
Korean keyboard	SN-LKQ47-BK
Polish keyboard	SN-LKQ47-BP
Hungarian keyboard	SN-LKQ47-BQ

Options

Step 8 – Mandatory – Monitors and Keyboards *(continued)*

Keyboards *(continued)*

Arabic keyboard	SN-LKQ47-BR
Cyrillic keyboard	SN-LKQ47-BT
Turkish keyboard	SN-LKQ47-BU
Czech keyboard	SN-LKQ47-BV
Thai keyboard	SN-LKQ47-CB
S. Chinese keyboard	SN-LKQ47-CV
Slovak keyboard	SN-LKQ47-CZ

Step 8a – Optional – Graphics cards

Additional consoles are available by custom configuration. Each additional console requires additional Elsa graphics cards and other equipment. Contact your Compaq Account Manager for configuration assistance.

Elsa Gloria Synergy graphics adapter	SN-PBXGK-BB
3DLab Oxygen VX1 16-MB PCI graphics adapter	SN-PBXGF-AA

Step 9 – Mandatory – System Software and Documentation

The following software and documentation is provided as part of the AlphaServer SC System and does not need to be ordered separately:

- Each of the ES40 systems included in the CBBs includes the Tru64 UNIX Operating System V5.0, including base license, unlimited user license, server extension license, and Open Source Internet Solutions. Note that this version of the operating system is not the most recent revision.
- Each IBB includes one set of Tru64 UNIX Operating System V5.0 media and documentation and one set of AlphaServer SC System Software V1.0 media and documentation, and each CBB includes an AlphaServer ES40 System Information Kit (print and CD-ROM), Owner's Guide, User Interface Guide, and Release Notes.
- Each Storage Building Block (SBB) includes two licenses each for the following:
  - HSG80 Array Controller Software
  - HSG80 Solution Software for Tru64 UNIX
  - StorageWorks command console UNIX agents
  - Advanced File System Utilities

Additional media and documentation can be ordered using the part numbers provided below.

All symmetric multiprocessors (nodes) in the AlphaServer SC System must be licensed for AlphaServer SC System Software, as described below. In addition, it is recommended that all nodes be licensed for AlphaServer SC Development Software, as described below. **Note:** The nodes should not be licensed for UNIX TruCluster Software**.**

Step 9a – Mandatory – Select AlphaServer SC System Software

Choose a combination of licenses that adds up to as many, or more, nodes as there are symmetric multiprocessors configured in Step 2 above. Do not order any additional licenses for the Management Server, since the AlphaServer SC System Software licenses allow the software to be used for management, on a Management Server. As an example, a system with one Management Server and twelve CBBs (48 symmetric multiprocessors) can be licensed by combining one 16-node license (QM-6EQAA-AB) with one 32-node license (QM-6EQAA-AC).

AlphaServer SC System Software License, 1 node	QM-6EQAA-AA
AlphaServer SC System Software License, 16 nodes	QM-6EQAA-AB
AlphaServer SC System Software License, 32 nodes	QM-6EQAA-AC
AlphaServer SC System Software License, 64 nodes	QM-6EQAA-AD
AlphaServer SC System Software License, 128 nodes	QM-6EQAA-AE

Options

Step 9 – Mandatory – System Software and Documentation *(continued)*

Step 9b – Optional – Select AlphaServer SC Development Software, Media and Documentation

Choose a combination of licenses that matches, or exceeds, the number of nodes in the AlphaServer SC40. As an example, a system with 12 CBBs (48 nodes) can be licensed for AlphaServer SC System Software by combining one 16-node license (QM-6ERAA-AB) with one 32-node license (QM-6ERAA-AC).

AlphaServer SC Development Software License, 1 node	QM-6ERAA-AA
AlphaServer SC Development Software License, 16 nodes	QM-6ERAA-AB
AlphaServer SC Development Software License, 32 nodes	QM-6ERAA-AC
AlphaServer SC Development Software License, 64 nodes	QM-6ERAA-AD
AlphaServer SC Development Software License, 128 nodes	QM-6ERAA-AE
AlphaServer SC System Documentation Kit	QA-6EQAA-GZ
AlphaServer SC User Documentation Kit	QA-6EQAB-GZ
AlphaServer SC System Software CD-ROM Kit	QA-6EQAA-H8

Step 9c – Optional – Additional Media and Documentation

Media and documentation are included with the system. Additional copies can be ordered as needed.

One set of the following is included with each IBB:

Tru64 UNIX V5.0 media and online documentation on CD-ROM (note that V5.0 is not the current standard shipping version of Tru64 UNIX)	QA-6ADAA-H8
Tru64 UNIX V5.0 full hard copy documentation (note that V5.0 is not the current standard shipping version of Tru64 UNIX)	QA-6ADAA-GZ
Layered products media and documentation for Tru64 UNIX on CD-ROM	QA-054AA-H8

One set of the following is included with each CBB:

AlphaServer ES40 System Information Kit (print and CD-ROM), Owner's Guide, User Interface Guide, and Release Notes	QA-6E88A-G8

Step 10 – Hardware and Software Supplemental Support Services

Hardware—Americas and Asia Pacific Only

- AlphaServer SC40 systems include three-year onsite hardware warranty.
- Requires mandatory uplift to at least 5 x 9, 4-hour response time (Bronze service).
- Options ordered as part of initial system sale take on the warranty of the enclosure.
- Options added after initial system sale take on warranty of the enclosure until enclosure warranty ends.

Select support services for the AlphaServer SC40 at the building block level. The building blocks include:

- AlphaServer SC40 Compute Building Block (CBB)
- AlphaServer SC40 Interconnect Building Block (IBB)
- AlphaServer SC40 Storage Building Block (SBB)
- AlphaServer SC40 Management Building Block (MBB)

Supplemental Services and Priority Plus Service Plan Packages follow.

Additional installation service part numbers and other service levels are available. Consult a Compaq Customer Service Account Representative for assistance in selecting the most appropriate support plan. For more information on Compaq Services, see: http://www.compaq.com/services.

Options

Step 10 – Hardware and Software Supplemental Support Services *(continued)*

AlphaServer SC40 CBB Services

To support an AlphaServer SC40 system with Priority Services, select one Priority Services CBB anchor part number, and select the additional CBB non-anchor part number with quantity equal to the total number of CBBs minus one. This service will provide hardware support for options internal to CBB(s), remedial software support and advisory and rights to new versions on the CBB(s) including Tru64 UNIX Base, unlimited users, and Server Extensions and Open Source Internet Software.

3-year Anchor Priority Package	FP-SC01A-36
3-year Anchor Priority 24 Service	FP-SC02A-36
3-year Anchor Priority Silver Service	FP-SC04A-36
3-year non-anchor CBB Priority SSP Package	FP-SC21A-36
3-year non-anchor CBB Priority 24 SSP	FP-SC22A-36
3-year non-anchor CBB Priority Silver SSP	FP-SC24A-36

For example:

Number of nodes	4	16	32	64	128
Number of CBBs	1	4	8	16	32
FP-SC01A-36	1	1	1	1	1
FP-SC21A-36	0	3	7	15	31

AlphaServer SC IBB Services

Select one consolidated distribution update subscription service for the IBB in order to receive software updates on CD-ROM.

AlphaServer SC ConDist	FM-CDDSU-36

To support an AlphaServer SC40 system with a 16-way IBB, select an IBB service part based on the hours of service coverage desired.

3-year IBB-16 5X9/4 HR	FM-SCQ64-36
3-year IBB-16 7X24 HR	FM-SCQ67-36

To support an AlphaServer SC40 system with a 128-way IBB, select an IBB service part based on the hours of service coverage desired.

3-year IBB-128 5X9/4 HR	FM-SCQ84-36
3-year IBB-128 7X24 HR	FM-SCQ87-36

To support an AlphaServer SC40 system with a 128-way IBB, select one 16-port Switch Card service part number for each additional front switch card ordered in Step 3 with the SC40 128-way IBB based on the number of hours of service coverage desired.

3-year Switch Card 5X9/4 HR	FM-SCQC4-36
3-year Switch Card 7X24 HR	FM-SCQC7-36

For one additional full or partial set of 12 CBBs selected in Step 1, select an AlphaServer SC 48-port Management Network Upgrade service part number based on the hours of service coverage desired.

3-year 48-Port Network Switch 5x9/4 HR	FM-SCE84-36
3-year 48-Port Network Switch 7X24 HR	FM-SCE87-36

AlphaServer SC SBB Services

For each AlphaServer SBB selected in Step 4, select an AlphaServer SC SBB service part number based on the hours of service coverage desired.

3-year SBB 5X9/4 HR	FP-CS115-36
3-year SBB 7X24 HR	FP-CS215-36

Step 10 – Hardware and Software Supplemental Support Services *(continued)*

AlphaServer SC MBB Services

For each AlphaServer MBB selected in Step 5, select appropriate DS20E hardware and software supplemental service part numbers. An MBB Priority Service Package part number will be available at a later date.

3-year HW 5X9/4 HR	FM-TGHR-36
3-year HW 7X24 HR	FM-TG724-36
3-year SW 5X9/4 HR	FM-D20U9-36
3-year SW 7X24 HR	FM-D20US-36
3-year SMP 5X9/4 Upgrade	FM-TS4HR-36
3-year SMP 7x24 Upgrade	FM-TS724-36

AlphaServer SC Software Services

AlphaServer SC System Software License Subscription	
AlphaServer SC System 1-Node License Subscription Service	QT-6EQAA-TA
AlphaServer SC System 16-Node License Subscription Service	QT-6EQAA-TB
AlphaServer SC System 32-Node License Subscription Service	QT-6EQAA-TC
AlphaServer SC System 64-Node License Subscription Service	QT-6EQAA-TD
AlphaServer SC System 128-Node License Subscription Service	QT-6EQAA-TE
AlphaServer SC Software Update Media & Doc Distribution	QT-6EQAA-E8
AlphaServer SC Software Update Documentation Distribution	QT-6EQAA-KZ

Priority Service Plan for Layered Products*	
AlphaServer SC Layered Product Support for up to 1Node	FP-S1207-36
AlphaServer SC Layered Product Support for up to 4 Nodes	FP-S1215-36
AlphaServer SC Layered Product Support for up to 16 Nodes	FP-21221-36
AlphaServer SC Layered Product Support for up to 32 Nodes	FP-21228-36
AlphaServer SC Layered Product Support for up to 64 Nodes	FP-21233-36
AlphaServer SC Layered Product Support for up to 128 Nodes	FP-21233-36

* These part numbers reflect the most commonly purchased AlphaServer SC configurations, and are not inclusive of any other software layered products. Please refer to the Priority Service Plan for Layered Products, One-Step Quoting Table, for additional ordering information.

Software Support Menu 5/List 3	QR-SMSW3-A*

Hardware and Software Supplemental Support Services — Europe Only

In EMEA the corporate Service Menu (release 3b) is used and any service from Installation, Hardware Maintenance Service, Software Support, 9x5 up to 24x7 can be offered to the Customer.

To Administrate and Quote the Customer service offer the Building Block part numbers and any optional products as mentioned in the above steps needs to be entered. The NCAS system will automatically recognize the Building Block containing the 4 systems and reflects the bundled price.

When the Customer requires both hardware maintenance and software support a DSS service level should be selected, which still leaves the flexibility to have a hardware coverage level of C or D and a higher software level of A or B as example.

Options

Step 11 – Optional – Supplemental Professional Services

Compaq Global Services offers the following options in the United States and in other geographies:

- Systems Installation and Administration Support
- Applications Development, Migration, and Optimization Services
- Customer Education

All Services are offered under the same part number. Contact the Compaq Global Services representatives in your country for more details.

Standard Systems Installation and Administrative Support, 500 consecutive hours on site	QS-FPBA9-FZ
Basic Systems Installation and Administrative Support, 250 consecutive hours on site	QS-FPBA9-FZ
Initial Systems Installation and Administrative Support, 80 consecutive hours on site	QS-FPBA9-FZ
Applications Development, Migration, and Optimization Services, 500 consecutive hours on site	QS-FPBA9-FZ
AlphaServer SC Systems Administration Course, 32 consecutive hours	QS-FPBA9-FZ
Introduction to HPTC Applications Programming Course, 32 consecutive hours	QS-FPBA9-FZ
Applications Programming with the AlphaServer SC Course, 16 consecutive hours	QS-FPBA9-FZ
Optimizing Applications for the AlphaServer SC Course, 16 consecutive hours	QS-FPBA9-FZ

Technical Specifications

M4040 67/667 Rackmount Node System Drawer

Dimensions (HxWxD)	13.87 x 17.6 x 30.1 in/35.2 x 44.7 x 76.5 cm (fits 14 in [8U] standard RETMA cabinet)	
Shipping Dimensions	28.8 x 24 x 40 in/73.2 x 60.7 x 101.6 cm	
Weight		
When lifting:		
Nominal	110 lb/50 kg	
Maximum	167.2 lb/76 kg	
Total added to cabinet (brackets, slides, cables):		
Nominal	130 lb/59 kg	
Maximum	202.4 lb/92 kg	
Shipping Weight		
Nominal	158 lb/72 kg	
Maximum	233 lb/106 kg	
Clearances	**Operating**	**Service**
	See specific cabinet requirements	Minimum 4 ft/121.9 cm, 30 in/76.3 cm withdrawal on rails

Management Server Rackmount DS20E

Dimensions (HxWxD)	8.75 x 17.5 x 26.0 in/22.2 x 44.5 x 66.0 cm (fits 8.75 in [5U] in standard H9A15-S cabinet)	
Shipping Dimensions	28.8 x 24 x 40 in/73.2 x 60.7 x 101.6 cm	
Weight		
When lifting:		
Nominal	80 lb/36 kg	
Maximum	86 lb/39 kg	
Total added to cabinet (brackets, slides, cables):		
Nominal	84 lb/38 kg	
Maximum	88 lb/40 kg	
Shipping Weight		
Nominal	100 lb/45 kg	
Maximum	110 lb/50 kg	
Clearances	**Operating**	**Service**
	See specific cabinet requirements	Minimum 4 ft/121.9 cm, 30 in/76.3 cm withdrawal on rails

RAID Base Building Block Rackmount

Dimensions (HxWxD)	22.75 x 18.0 x 26 in/57.75 x 46.0 x 66.0 cm (fits 22.75 in [13U] standard RETMA cabinet)	
Shipping Dimensions	28.8 x 24 x 40 in/73.2 x 60.7 x 101.6 cm	
Weight		
When lifting (heaviest individual component):		
Nominal	73 lb/33 kg	
Maximum	73 lb/33 kg	
Total added to cabinet (brackets, slides, cables):		
Nominal	288 lb/131 kg	
Maximum	288 lb/131 kg	
Shipping Weight		
Nominal	310 lb/141 kg	
Maximum	310 lb/141 kg	

Technical Specifications

	DA-SCAAB-AA/AB	DA-SCBAA-AA/AB	DA-SCCAA-AA/AB
Dimensions (HxWxD)	79 x 23.6 x 35.4 in/200 x 60 x 90 cm		2 x joined cabinets
Shipping Dimensions	85 x 36 x 48 in/216 x 91.5 x 122 cm		2 x 85 x 36 x 48 in/ 216 x 91.5 x 122 cm
Weight			
When lifting:			
Nominal	986 lb/448 kg	621 lb/280 kg	992 lb/450 kg
Maximum	986 lb/448 kg	751 lb/340 kg	1348 lb/611 kg
Total added to cabinet (brackets, slides, cables):			
Nominal	686 lb/313 kg	321 lb/145 kg	690 lb/315 kg
Maximum	686 lb/313 kg	451 lb/205 kg	1048 lb/476 kg
Shipping Weight			
Nominal	1016 lb/463 kg	651 lb/295 kg	1022 lb/465 kg
Maximum	1016 lb/463 kg	781 lb/355 kg	1378 lb/626 kg
Clearances			
Operating	See specific cabinet requirements		
Service	36F/36B/0Side	36/36/0	36/36/0

Environmental

Temperature	
Operating (Rackmount)[1]	50°F to 95°F/10°C to 35°C
Non-operating	-40°F to 151°F/-40°C to 66°C
Storage (60 days)	-40°F to 151°F/-40°C to 66°C
Rate of change	20°F/hr/11°C/hr
Relative Humidity	
Operating	20% to 80%
Non-operating	20% to 80%
Storage (60 days)	10% to 95%
Rate of change	20%/hr
Maximum Wet Bulb Temperature	
Operating	82°F/28°C
Storage (60 days)	115°F/46°C
Maximum Dew Point Temperature	
Operating	36°F/2°C

Heat Dissipation – BTU/Hr			
Nominal	19,628	5,061	2825
Maximum	19,628	7,092	9416

Air Flow and Quality	
Intake location	Front
Exhaust location	Rear
Particle size	N/A
Concentration	N/A
Altitude	
Operating[2]	10,000 ft/3,048 m
Non-operating	40,000 ft/12,192 m
Vibration	
Operating	10 to 500 Hz 0.1 G peak
Non-operating	1.03 Grms 5-300 Hz

Technical Specifications

System Building Blocks *(continued)*

Electrical

(Power supplies are universal, PFC, auto ranging, 100/240 VAC)

Nominal Voltage (VAC)	200 to 240	
Voltage Range (VAC) temporary condition	180 to 250	
Power Source Phase	Single	
Nominal Frequency (Hz)	50/60	
Frequency Range (Hz)	49 to 51/59 to 61	
RMS Current (maximum steady state):		
Each power cord	16 A	
Power Cords		
Rack AC Inlet	3M (10 ft) 10 per Power Distribution Unit, 2 per U possible.	NEMA L6-20 (N. America) or IEC 320 C14 (other countries)
DA-SCAAB-Ax	2	
DA-SCBAA-Ax	2	
DA-SCCAA-Ax	3	
H9A15-SN/P with 3 DA-SCDAA-AA	4	

Regulatory

Agency Approvals	UL: Listed to UL1950 (third edition) UL/CNL: Certified to CAN/CSA-C22.2 No. 950-M93 CSA: Certified to CAN/CSA-C22.2 No. 950-M95 TUV: EN 60950/A2: 1993 GS marked FCC: Part 15.B Class A CE: EN55022, EN50024, EN61000-3-2, EN61000-3-3 VCCI V-3/97.04 Class A BSMI: CNS13438 C-Tick: AS/NZS 3548: 1995 Class A
Reviewed to	AS/NZ 3260:1993 Australian/New Zealand Standard EN 60950/A2: 1993 European Norm IEC 950 (second edition, second amend)

Rack Expansion Cabinet

	H9A15 S-Series with AlphaServer SC components as above
Dimensions (HxWxD)	79 x 23.6 x 35.4 in/200 x 60 x 90 cm
Shipping Dimensions	85 x 36 x 48 in/216 x 91.5 x 122 cm
Weight	Configuration dependent
Shipping Weight	Nominal: 300 lb/136 kg Maximum: 1,408 lb/640 kg)

[1] Maximum operating temperature at sea level; reduce by 1.8°F (1°C) for each 2,000 ft (600 m) above sea level.

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