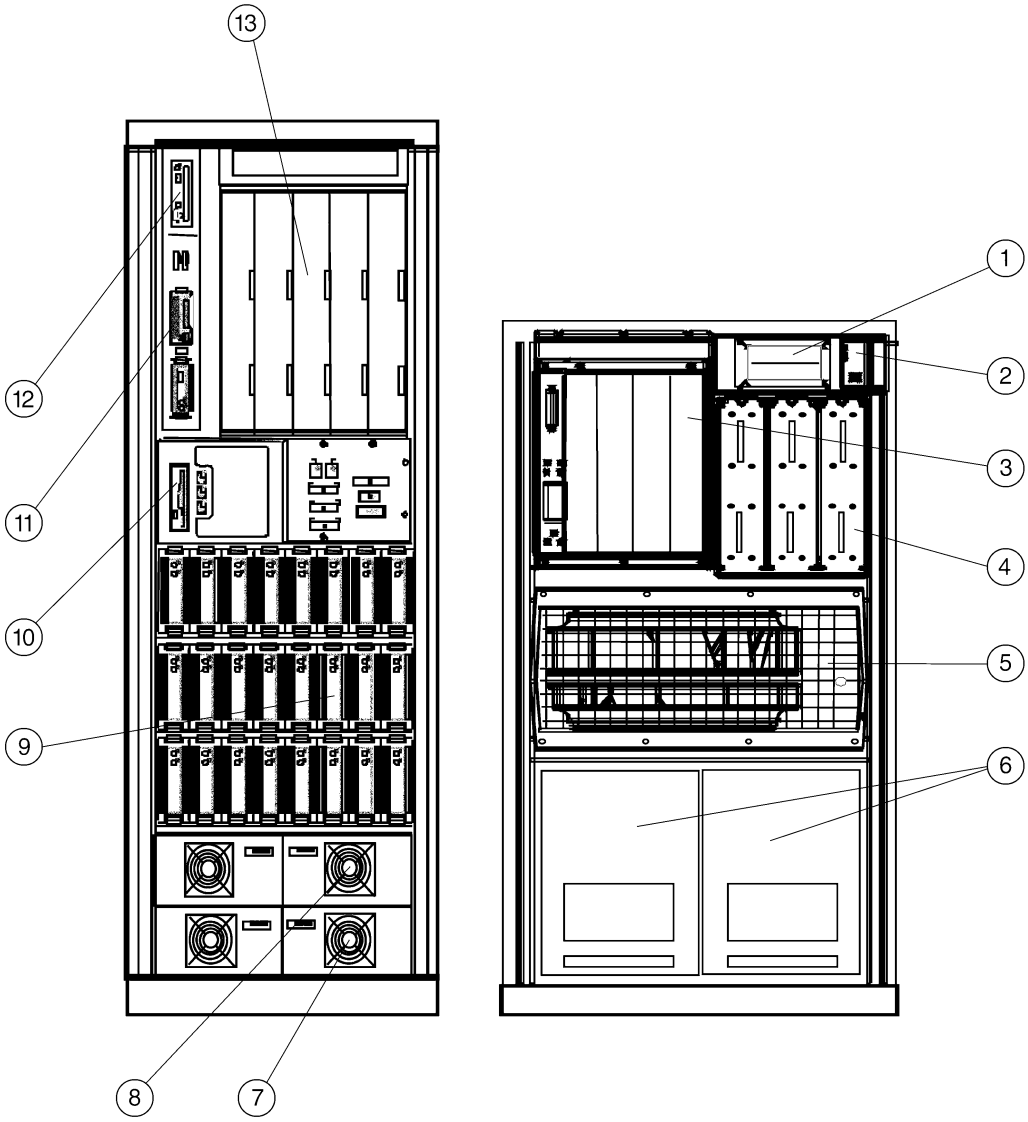
Overview

BENEFITS AT A GLANCE

- Next-generation Alpha 21264® chip delivers twice as much power and application performance to set new benchmarks that surpass a mainframe–at a fraction of the cost.
- Alpha 21264 processors provide supercomputer performance for your global computing environment
- Advanced switchback capabilities for optimum data flow
- Maximum of 12 or 28 GB memory, with memory modules providing built-in interleaving for maximum performance
- Up to 85 TB of high-performance disk storage
- 4 MB ECC onboard cache plus 64 KB on-chip D-cache and 64 KB on-chip I-cache
- 64 bit architecture
- Maximum of 132 PCI slots (GS60) or 144 PCI slots (GS140)
- Up to 48 internal storage slots
- Customizable cabinet or Rackmount for flexible rack-and-stack configurations
- Superior OS flexibility: Digital UNIX, OpenVMS, or Windows NT operating systems
- Advanced clustering technology
- Simple Network Management Protocol
- Compaq ServerWORKS Manager for exceptional server and network management capabilities
- Protected by Compaq Services, including a one-year, on-site, 4-hour response warranty[1]



1. CD-ROM
2. Cabinet Control System
3. 9 Slot System Bus
4. Power System
5. Cooling
6. Plug-In Units/ I/O or Disks or Battery (2 front, 2 rear)
7. Power Regulator/Optional BBU
8. Second Optional Power Regulator/Optional BBU
9. 3 PCI Shelves (front to back) or 6 StorageWorks Shelves
10. BA35X-HB
11. BA656-AA
12. CD-ROM
13. Slot System Bus

Standard Features

MODELS

Compaq AlphaServer GS60 and GS140

Configurations

All system configurations include: dual Alpha 21264 CPU module, 4 GB memory module, CD-ROM drive and controller, PCI UltraSCSI adapter, 4.3 GB UltraSCSI disk drive, 12-slot PCI I/O shelf, PCI Fast Ethernet adapter, KFTHA I/0 module, UltraSCSI StorageWorks shelf and power supply.

GS60	GS140
UNIX	
DA-383GG-A9	DA-393GG-AA/AB/AC
OpenVMS	
DY-383GG-A9	DY-393GG- AA/AB/AC
WNT	
DN-383GG-A9	DN-393GG- AA/AB/AC

Processor

Alpha microprocessor 21264

Cache Memory

4-MB ECC onboard cache per CPU (two processors) per module

Upgradeability

Supports additional processors

Standard	1
Maximum	14
GS140	
Standard	1
Maximum	6
GS60	

Memory

Standard	4 GB
Maximum	28 GB
GS140	
Standard	4 GB
Maximum	12 GB
GS60	

Network Controller

PCI-based 10/100 Mbit Fast Ethernet adapter UTP

Expansion Slots

Internal Drive Bays	9 (7 available) to 50 (48 available)
I/O (Total)	48 available
PCI	144
PCI/EISA	
XMI	
GS140	
Internal Drive Bays	9 (7 available) to 42 (40 available)
I/O (Total)	36 available
PCI	132
PCI/EISA	
GS60	

Standard Features

Storage Controller

Fast Wide single-ended &-Differential host adapter UltraSCSI

Storage

Diskette Drives	7 3.5" hot-swap disk drives per SCSI shelf
CD-ROM	5.25" half-height CD-ROM drive
Hard Drives	18.2-GB Ultra SCSI disk drive 9.1-GB Ultra SCSI disk drive 4.3-GB Ultra SCSI disk drive
Maximum Internal Storage	864 GB (GS140) 720 GB (GS 60)

Interfaces

Integrated PCI UltraSCSI controller	1
Fast Ethernet adapter (10/100 Mb)	1

Graphics

PowerStorm™ 3D30 2D/3D; supports 640 x 480 x 256 colors; 1280 x 1024 x 256 colors standard with Windows NT; optional with UNIX systems

Compaq Software

Compaq Insight Manager	The comprehensive system management tool that monitors the operation of Compaq servers, workstations and clients.

Intelligent Manageability

DIGITAL ServerWORKS™ Manager
ServerWORKS workgroup administrator
ServerWORKS Manager application
SNMP agents to manage Microsoft® Windows NT, SCO® UNIX®, Novell® NetWare®, and IBM OS/2®
Intelligent Server Management

Security

Chassis lock
Power-on password
Diskette drive boot control
Multi-boot for choice of boot device
Set-up password
Supervisor password
Diskette drive write control
Flash ROM protection
Hard and floppy disk read lock

OS Support

Digital UNIX
OpenVMS
Windows NT

Service and Support

Protected by Compaq Services including a one-year on-site same-business-day response limited warranty[1] with three year parts coverage; one-year on-site service; one-year labor; 7 x 24 hardware technical phone support; on-line support through Prodigy, CompuServe, America Online and the Internet; Pre-Failure Warranty[1] coverage of hard drives, memory and processors.

Options

Processor (Dual CPU modules)	
OpenVMS	762P1-AX
UNIX	762P2-AX
Windows NT	762P5-AX

Memory Modules	
4 GB	MS7CC-GA
2 GB	MS7CC-FA
1 GB	MS7CC-EA

Monitors	
Terminal	VT510-XX
Printer	LA30N-XX

Hard Drives[2]	
18-GB Ultra SCSI	DS-RZ1EF-VW
9-GB UltraSCSI	DS-RZ1DF-VW
4.3-GB UltraSCSI	DS-RZ1CF-VW

Storage Controller	
PCI UltraSCSI adapters	KZPBA-CA/CB

Raid Controller	
PCI RAID, 1-channel	KZPAC-AA
PCI RAID, 3-channel	KZPAC-CA
Battery backup for RAID cache	KZPSC-UB

7 slot UltraSCSI Storage expansion slots	
GS60	BA356-JG/JH
GS140	BA670-AA/AB

Tape Drives	
2 GB/5 GB QIC SCSI, 5.25”	TZK11-VA
8 GB DAT SCSI, 5.25”	TLZ09-VA
32/64 GB 4mm DAT, 5.25”	TLZ9L-VA
20/40 GB DLT, 5.25”	TZ88N-VA

Communications	
PCI Ethernet, 1-channel	
PCI Fast Ethernet, (10/100)	DE500-AA
PCI FDDI adapter, SAS, MMF	DEFPA-AB
PCI FDDI adapter, DAS, MMF	DEFPA-DB
PCI FDDI adapter, SAS, TP-PMD	DEFPA-UB
PCI FDDI adapter, SAS, TP-PMD	DEFPA-MB

Keyboards	
U.S./English for Digital UNIX	LK47W-AZ
U.S./English for Windows 95	LK97W-AZ
U.S./English for OpenVMS	LK46W-AZ

Power Options	
Single-phase power cord (required with each GS60 system)	
GS140	
N/A	
GS60	
60 Hz, 4.5m AC line cord for AS 8200, one per cabinet	BN23H-4E
50 Hz, 4.5m AC line cord for AS 8200, one per cabinet	BN20P-4E

Redundant Power Supplies	
GS140	
60 Hz AS 8200 48V DC	H7263-AC/AD
GS60	
60 Hz AS 8200 48V DC	H7266-AD
50 Hz AS 8200 48V DC	H7266-AE

Other

Compaq AlphaServer GS60 and GS140 systems supportall monitors listed in the Systems and Options Catalog, available at www.digital.com/info/SOC

Memory

Compaq AlphaServer GS60

STANDARD MEMORY **4-GB DSIM**

OPTIONAL MEMORY **12-GB DSIM**

Notes:

- The Compaq AlphaServer GS60 supports up to 12 GB of memory.
- Maximum of three memory modules is reduced by one for each additional CPU module and each system I/O module added to configuration.
- Subsystem is tightly integrated with system architecture with 2 banks per module (1GB and 2GB); 4 banks per module on 4GB; and up to 16 banks per system
- Uses Digital Single In-Line Memory (DSIM) technology

Memory Modules:

- 1 GB and 2 GB memory modules have built-in two-way interleaving; additional interleaving is accomplished by adding more memory modules
- 4 GB memory modules have built-in four-way interleaving. Best performance is achieved by pairing two 2-GB modules with one 4-GB module , or by pairing one 4-GB module with another 4-GB module

Following are the memory options available for the AlphaServer GS60:

- 4-GB memory module MS7CC-EA
- 2-GB memory module MS7CC-FA
- 1-GB memory module MS7CC-GA

Memory

Compaq AlphaServer GS140

STANDARD MEMORY **4-GB DSIM**

OPTIONAL MEMORY **28-GB DSIM**

Notes:

- The Compaq AlphaServer GS140 supports up to 28 GB of memory.
- For Expanded Base Servers, order up to six additional memory modules.
- Maximum of seven memory modules is reduced by one for each additional CPU module and each system I/O module added to configuration.
- Subsystem is tightly integrated with system architecture including:2 banks per module (1 GB and 2 GB); 4 banks per module on 4 GB; and up to 16 banks per system.
- Uses Digital Single In-Line Memory (DSIM) technology.

Memory Modules:

- 1 GB and 2 GB memory modules have built-in two-way interleaving; additional interleaving is accomplished by adding more memory modules
- 4 GB memory modules have built-in four-way interleaving. Best performance is achieved by pairing two 2-GB modules with one 4-GB module , or by pairing one 4-GB module with another 4-GB module. These sets (2x2 GB and 1x4 GB) or (2x4 GB)can be paired with another 8 GB set for a maximum of 16-way interleaving.

Following are the memory options available for the AlphaServer GS140:

- 4-GB memory module MS7CC-EA
- 2-GB memory module MS7CC-FA
- 1-GB memory module MS7CC-GA

Storage

DRIVE SUPPORT

	Quantity Supported	Position Supported	
Removeable Media			
Diskette Drive	Up to 1	A	
CD-ROM Drive	Up to 2	B,C,D	
Hard Drives[2]			
Ultra SCSI			
1-inch	Up to 8	0-7	
18-GB	(duplex option)	0-6	
9-GB	Up to 7		
4.3-GB	(simplex)		
Maximum Storage Capacity – (GS140)			
Internal:	864 GB		
External:	85 TB		
Total:	85.864 TB		
Maximum Storage Capacity – (GS60)			
Internal:	720 GB		
External:	85 TB		
Total:	85.72 TB		
Tape Drives			
8-GB DAT	Up to 2	B,C	Wide-Ultra SCSI-3
Internal 20/40-GB DLT	1	B + C (two bays)	Integrated Dual Channel Wide-Ultra SCSI-3 Wide-Ultra SCSI-3
20/40-GB DLT	Up to 3	External	Integrated Dual Channel Wide-Ultra SCSI-3 Wide-Ultra SCSI-3
DLT 15 Cartridge Library Model 20/40-1 DLT 15 Cartridge Library Model 20/40-2	1 Library per SCSI channel		Integrated Dual Channel Wide-Ultra SCSI-3 Wide-Ultra SCSI-3

Storage

SUPPORTED TAPE DRIVE OPTIONS

Tape Drive	Operating System	Key
8-GB DAT Drive	Novell NetWare 3.20 and NetWare	AS, JS, LG, SE
	SCO UNIX	AO, UX
	Banyan VINES	VN
	OS/2 Warp and LAN Server	ST
	Microsoft Windows NT	AS, NT, SE, LG
32/64-GB DAT Drive	Novell NetWare 3.20 and NetWare	AS, JS, LG, SE
	SCO UNIX	AO, UX
	OS/2 Warp and LAN Server	ST
	Microsoft Windows NT	AS, NT, SE, LG
20/40-GB DLT Drive GS140	Novell NetWare 3.20 and NetWare	AS, JS, LG, SE
	SCO UNIX	AO, UX
	OS/2 Warp and LAN Server	NV
	Microsoft Windows NT	AS, NT, SE

Keys to Chart

AS Computer Associates ARCserve
JS Computer Associates JETserve
AO Computer Associates ARCserve Open
LG Legato Networker Software from Legato
ST Sytos Plus software
SE Seagate Software Backup Exec
VN Banyan VINES support for Compaq tape drives included in operating system
UX Device drivers for Compaq tape drives available from SCO in the SCO Compaq Supplement
NT Microsoft Windows NT support for Compaq tape drives included in operating system
NV Novastor Novaback for OS/2

Technical Specifications

System Unit

Dimensions (H x W x D)	
Cabinet, Rackmount	GS60 67 x 23.6 x 36.4 in/170 x 60 x 92.5 cm GS140: 67 x 31.5 x 34.4 in/170 x 80 x 87.5 cm
Weight (lb/kg)	
Minimum Configuration	GS60: 700 lbs/318 kg GS140: 900 lbs/408 kg (w/o batteries)
Maximum Configuration	GS60: 1300 lbs/591 kg GS140: 1200 lbs/545 kg (w/ batteries)
Shipping	GS60: 800 lbs/363 kg minimum 1400 lbs/636 kg maximum GS140: 1000 lbs/448 kg w/o batteries 1300 lbs/585 kg w/ batteries
Power Supply	
Nominal Voltage Range	GS60: 202-240 GS140: 120-208
Power source phase	GS60: Single GS140: 3-phase star, 4-wire N-GND
Frequency range	50-60 Hz
Maximum input current	GS60: 16 A rms GS140: 24 A rms
Surge current	GS60: 80 A peak GS140: 50 A peak
Rating	GS60: 16 A GS140: 30 A
Temperature	
GS60 Operating	50° to 95°F/10° to 35°C
Non-operating	-40° to 151°F/-40° to 66°C
GS140 Operating	50° to 104°F/10° to 40°C
Non-operating	-40° to 151°F/-40° to 66°C
Humidity (non-condensing)	
GS 60 Operating	10% to 90%
Non-operating	10% to 95%
GS140 Operating	20% to 80%
Non-operating	10% to 95%
Maximum Altitude (unpressurized)	
GS60 Operating	0 to 8200 ft/0 to 2.4 km
Non-operating	30,000 ft/9100 m
GS140 Operating	0 to 8000 ft/0 to 2.4 km
Non-operating	30,000 ft/9100 m
Heat Dissipation	
GS60 Minimally configured system	3200 Btu/hr, 930W
Fully configured system	9100 Btu/hr, 2647W
Fully configured system w/ two I/O expansion cabinets	21,300 Btu/hr, 6234W
GS140 Minimally configured system	3400 Btu/hr, 1000W
Fully configured system	15,700 Btu/hr, 4600W
Fully configured system w/ two I/O expansion cabinets	30,600 Btu/hr, 9000W

Technical Specifications

Hard Drives[2]

18-GB Ultra SCSI	**Capacity**	18 GB	**Seek Time** (typical reads, including settling)	
	Height	1.6 in	Single Track	0.9 ms
	Size	3.5 in	Average	8 ms
	Interface	Ultra SCSI	Full-Stroke	12.2 ms
	Transfer Rate	40 MB/s	Rotational Speed	7,200 rpm
	Sector Interleave	1:1	**Physical Configuration**	
			Bytes/Sector	512
			Logical Blocks	35,565,080
			Operating Temperature	50° to 104°F/10° to 40°C
9-GB Ultra SCSI	**Capacity**	9 GB	**Seek Time** (typical reads, including settling)	
	Height	1 in	Single Track	0.9 ms
	Size	3.5 in	Average	8 ms
	Interface	Ultra SCSI	Full-Stroke	12.2 ms
	Transfer Rate	40 MB/s	Rotational Speed	7200 rpm
	Sector Interleave	1:1	**Physical Configuration**	
			Bytes/Sector	512
			Logical Blocks	17,773,524
			Operating Temperature	50° to 95°F/10° to 35°C
4.3 GB Ultra SCSI	**Capacity**	4.3 GB	**Seek Time** (typical reads, including settling)	
	Height	1 in	Single Track	0.9 ms
	Size	3.5 in	Average	8 ms
	Interface	Wide Ultra2 SCSI	Full-Stroke	12.2 ms
	Transfer Rate	40 MB/s	Rotational Speed	7,200 rpm
	Sector Interleave	1:1	**Physical Configuration**	
			Bytes/Sector	512
			Logical Blocks	8,386,000
			Operating Temperature	50° to 95°F/10° to 35°C

Memory Modules

Size	1 GB, 2 GB, or 4 GB memory modules
Type	Built-in interleaving
Notes	Maximum of 12 GB supported on GS60 Maximum of 28 GB supported on GS140

[1] Certain restrictions and exclusions apply. Consult the Compaq Customer Support Center for details.

[2] For complete compatibility information, refer to the Digital Systems and Options Catalog located at: www.digital.com/info/SOC. Using hard drives in unsupported configurations will result in voiding the warranty and could result in damage to the drive and/or lossof data.