

# NetApp FAS900 Series Enterprise Fabric-Attached Storage Specifications

## Product Highlights

Operating System	Network Appliance™ Data ONTAP™ 6.5.1 software
Standard Software Features	Integrated automatic RAID manager, Snapshot™, Fast Boot, telnet, e-mail alerts, NIS, DNS, SNMP, FilerView®, NDMP
Network Protocol Support	NFS V2/V3/V4 over UDP or TCP, PCNFSD V1/V2 for (PC) NFS client authentication, Microsoft® CIFS, DAFS, HTTP 1.0, HTTP 1.1 virtual hosts
SAN Protocol Support	Fibre Channel Protocol (FCP) for SCSI; fabric-attached and direct-attached; iSCSI
Licensed Software Products	SnapManager® for Microsoft Exchange 5.5, SnapManager for Microsoft Exchange 2000, SnapManager for Lotus Domino, SnapManager for Microsoft SQL Server, SnapMirror®, SyncMirror™, SnapVault™, SnapRestore®, SnapDrive™, SnapLock™, Clustered Failover, MetroCluster, MultiStore™, DAFS Database Accelerator, DataFabric® Manager, SecureAdmin™, ApplianceWatch™ for HP Openview and Tivoli
Hardware Features	Full-duplex 10/100Base-T Ethernet onboard, diagnostic LED/LCD, Remote Management Card standard, redundant hot-plug cooling fans, redundant hot-plug power supplies, Compact Flash, 19" rack-mount enclosure, optional 220V 42U 19" system cabinet
Default/Min./Max. RAID Group Sizes	Default: 7 data + 1 parity/Min.: 1 data + 1 parity/Max.: 27 data + 1 parity
Disk Shelves Supported (Fibre Channel)	FC7¹, FC8¹, FC9, DS14, DS14mk2 FC
Disk Drive Capacities Supported	9²/18²/36/72/144GB

## Clustered System Specifications

	NetApp FAS980c	NetApp FAS960c	NetApp FAS940c	NetApp FAS920c
Max. Raw Capacity	64TB	48TB	24TB	12TB
Max. Number of Disk Drives	672	672	672	336
Max. Number of FC Loops	8	8	8	4
Max. Drives per FC Loop	56 or 84³	56 or 84³	56 or 84³	56 or 84³
Volumes and RAID Groups (min./max.)				
Min. of 1 RAID Group per Volume	2/224	2/224	2/224	2/224
Max. Volume Size	16TB	16TB	8TB	6TB
ECC Memory	16GB	12GB	6GB	4GB
Nonvolatile Memory	1GB	512MB	512MB	512MB
PCI-X Expansion Slots	18	16	12	10
Optional Network Connectivity (total):	14 max.	12 max.	10 max.	10 max.
Quad Gigabit Ethernet (Cu)	3 max.	3 max.	3 max.	3 max.
Dual Gigabit Ethernet (Cu or optical)	10 max.	8 max.	8 max.	8 max.
Gigabit Ethernet (Cu or optical)	14 max.	12 max.	10 max.	10 max.
DAFS—(GbE VI/IP)	12 max.	12 max.	8 max.	8 max.
Dual Fibre Channel for Host Attach - SAN	8 max.	8 max.	8 max.	8 max.
Dual FC Disk Adapters	8 max.	8 max.	8 max.	8 max.
Single FC Disk Adapters (Cu for legacy shelves)	8 max.	8 max.	8 max.	4 max.
Clustered Failover—Capable	Standard	Standard	Standard	Standard
Dual FC, Single FC, or LVD SCSI Adapters for Tape	8 max.	6 max.	4 max.	4 max.

## System Specifications

	NetApp FAS980	NetApp FAS960	NetApp FAS940	NetApp FAS920
Max. Raw Capacity	32TB	24TB	12TB	6TB
Max. Number of Disk Drives	336	336	336	168
Max. Number of FC Loops	4	4	4	4
Max. Drives per FC Loop	56 or 84³	56 or 84³	56 or 84³	56 or 84³

## HARDWARE

Network Appliance hardware gives you the industry's most flexible, reliable, and scalable storage solutions, with easy administration and built-in redundancy for maximum data availability and protection.

System Specifications (Continued)	NetApp FAS980	NetApp FAS960	NetApp FAS940	NetApp FAS920
Volumes and RAID Groups (min./max.)				
Min. of 1 RAID Group per Volume	1/112	1/112	1/112	1/112
Max. Volume Size	16TB	16TB	8TB	6TB
ECC Memory	8GB	6GB	3GB	2GB
Nonvolatile Memory	512MB	256MB	256MB	256MB
PCI-X Expansion Slots	9	9	7	6
Optional Network Connectivity (total):	6 max.	6 max.	6 max.	5 max.
Quad Gigabit Ethernet (Cu)	3 max.	3 max.	3 max.	3 max.
Dual Gigabit Ethernet (Cu or optical)	4 max.	4 max.	4 max.	4 max.
Gigabit Ethernet (Cu or optical)	6 max.	6 max.	6 max.	5 max.
DAFS—(GbE VI/IP)	6 max.	6 max.	4 max.	4 max.
Dual Fibre Channel for Host Attach - SAN	2 max.	2 max.	2 max.	2 max.
Dual FC Disk Adapters	4 max.	4 max.	4 max.	4 max.
Single FC Disk Adapters (Cu for legacy shelves)	4 max.	4 max.	4 max.	4 max.
Clustered Failover—Capable	Optional	Optional	Optional	Optional
Dual FC, Single FC, or LVD SCSI Adapters for Tape	3 max.	3 max.	2 max.	2 max.

System Environmental Specifications	FAS980c, FAS960c, FAS940c, FAS920c	FAS980, FAS960, FAS940, FAS920
AC Power/Current	100 to 240VAC, 6.6A (typical)/24A (max.) @ 100VAC	100 to 240VAC, 3.3A (typical)/12A (max.) @ 100VAC
Thermal Rating	2,250 Btu/hr	1,125 Btu/hr
Weight	214 lb (97 kg)	106 lb (48 kg)
Height	52.8 cm (20.8")	26.2 cm (10.3")
Width	19" IEC rack-compliant (17", 43.2 cm)	
Depth	22" (56 cm), 25" (63.5 cm) with cable management bracket	
Operating Temperature & Relative Humidity	10° C to 40° C (50° F to 104° F); <2,100 m (<7,000') elevation; 10° C to 35° C (50° F to 95° F) <3,000 m (<10,000') elevation; 20% to 80% relative humidity, noncondensing	
Nonoperating Temperature & Relative Humidity	-20° C to 65° C (-4° F to 149° F); 8% to 95% relative humidity, noncondensing, in original container	
Operating Acoustic Noise	<52 dBA @ 1 m, <66 dBA @ 1 m high temp/degraded mode	
Min. Cabinet Clearances	1.5" (3.8 cm) for bezel, 3" (7.6 cm) for cable radius	
Min. Service Clearances	9" (23 cm) front; 30" (76 cm) rear	

#### FAS900 Series FC Switch Support—Tape/SAN

Vendor	Model	Support	Firmware Level SAN	Min. Firmware Level Tape
Brocade	Silkworm 2400/2800	TapeSAN	N/A	2.2.2a
Brocade	Silkworm 3200/3800	Host connection for SAN/TapeSAN	3.1.1b	3.0.2c
McData	Silkworm 3900/12000	Host connection for SAN/TapeSAN	4.1.1	4.0.0c
McData	ES-3016/ES-3032	Host connection for SAN/TapeSAN	2.0	2.00.00.33
McData	Intrepid 6064/Intrepid 6140/ED-5000	Host connection for SAN	4.01.01	4.01.01
McData	Sphereon 3216/Sphereon 3232	Host connection for SAN	4.01.01	2.00
McData	Sphereon 4500	Host connection for SAN	4.01.01	4.01.01
Cisco	MDS-9120, -9140	Host connection for SAN	1.2	N/A
Cisco	MDS-9216, -9506, -9509	Host connection for SAN	1.2	N/A

#### Storage Subsystem Specifications

Disk Drive Storage Shelf	DiskShelf14 family— DS14 and DS14mk2 FV; each w/14 low-profile slots for FC disk drives
Disk Drive Storage Shelf Interface	PCI-based Fibre Channel-Arbitrated Loop (FC-AL)
DiskShelf14 Interface	Dual, redundant loop resiliency circuit (LRC) modules or dual, redundant electronically switched hub (ESH) modules
Power Supply/Cooling Fans	Dual, redundant, hot-pluggable, integrated power supply/fan assemblies (220V/110V)
AC Power/Max. Current	100 to 120VAC/4A; 200 to 240VAC/2A
Operating Temperature & Relative Humidity	10° C to 40° C (50° F to 104° F); 5% to 95% relative humidity, noncondensing
Nonoperating Temperature & Relative Humidity	-40° C to 65° C (-40° F to 149° F); 5% to 95% relative humidity, noncondensing
Thermal Rating	1,195 Btu/hr (fully loaded shelf)
Operating Acoustic Noise	<60 dBA @ 1 m at 20° C
Dimensions (height/width/depth)	3 EIA U (5.25", 13.3 cm)/19" IEC rack-compliant (17.6", 44.7 cm)/20" (50.85 cm)
Weight	77 lb (35 kg) fully loaded

## NetApp Systems Cabinet

Includes 2 Sets of Dual 16A, Zero U Power Distribution Units (PDU)	Accommodates 1 filer head and 12 disk shelves, or 2 filer heads and 10 disk shelves, or 14 disk shelves
AC Power	200 to 240VAC
Current	32A total—2 redundant sets of dual 16A cables with NEMA L6-20 or IEC 309 connectors
Dimensions (Height/Width/Depth)	200 cm (78.75")/60 cm (23.6")/90 cm (35.4")
Min. Clearances	48" (122 cm) front and rear
Shipping Height	230 cm (90.6")
Weight (empty)	125 kg (275 lb)

## Regulations

### NetApp FAS900 Series Storage System, DiskShelf14

Filer Safety	EN 60950:1992, CE, UL1950, CSA 950, TUV 950, CB (all national deviations), EN60825-1
Disk Shelf Safety	UL/C-UL; CE
Emissions	FCC Class A, EN 55022:1998, EN 61000-3-2, EN 61000-3-3, CE, BSMI, AS/NZ 3548, VCCI
Immunity	EN 55024:1998

## FAS900 Series Tape Drive Support

Qualified Tape Devices	Interface	Qualified Tape Devices	Interface
Exabyte 8900 (Mammoth-1)	LVD SCSI	Quantum DLT-1	LVD SCSI
Exabyte Mammoth-2	LVD SCSI or FC	Quantum SDLT 220, SDLT 320	LVD SCSI
HP Ultrium (LTO)	LVD SCSI	Seagate Ultrium (LTO)	LVD SCSI
IBM 3590B & 3590E	FC	Sony AIT-1	LVD SCSI
IBM ULT3580-TDI (LTO)	LVD or FC	Sony AIT-2	LVD SCSI
IBM Ultrium-TDI (LTO)	LVD or FC	Sony AIT-3	LVD SCSI
Quantum DLT 7000	SE SCSI	Sony GY 8240 (DTF2)	FC
Quantum DLT 8000	LVD SCSI	STK 9840, 9840B, & 9940	FC

FC = Fibre Channel; LVD = Low Voltage Differential; SE = Single-Ended; SE and LVD cannot be mixed on an adapter.

<sup>1</sup> No support on FAS980 or FAS980c.

<sup>2</sup> 9/18GB drives are legacy support and not currently shipping.

<sup>3</sup> Configurations with 84 drives per loop are limited. Contact a Network Appliance representative for more information.



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Specifications are subject to change without notice. Contact Network Appliance for current PCI adapter and disk drive support maximums.

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