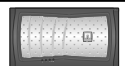
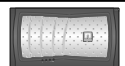
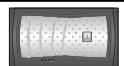
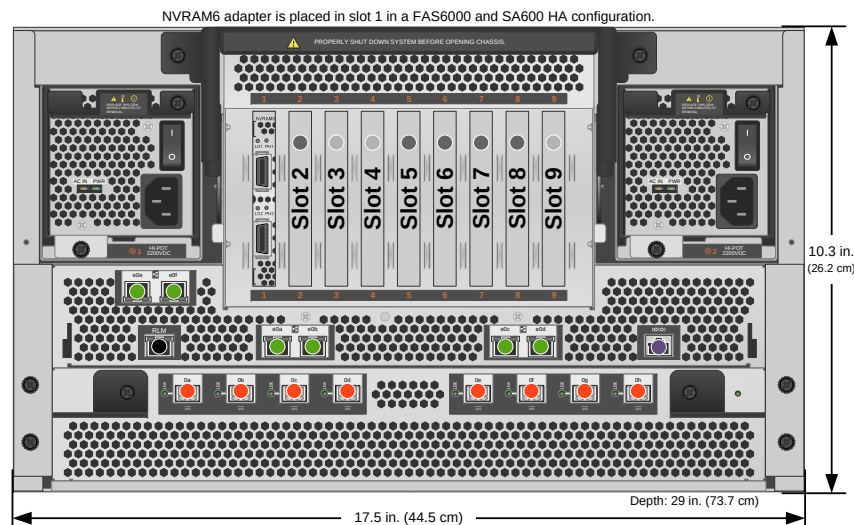




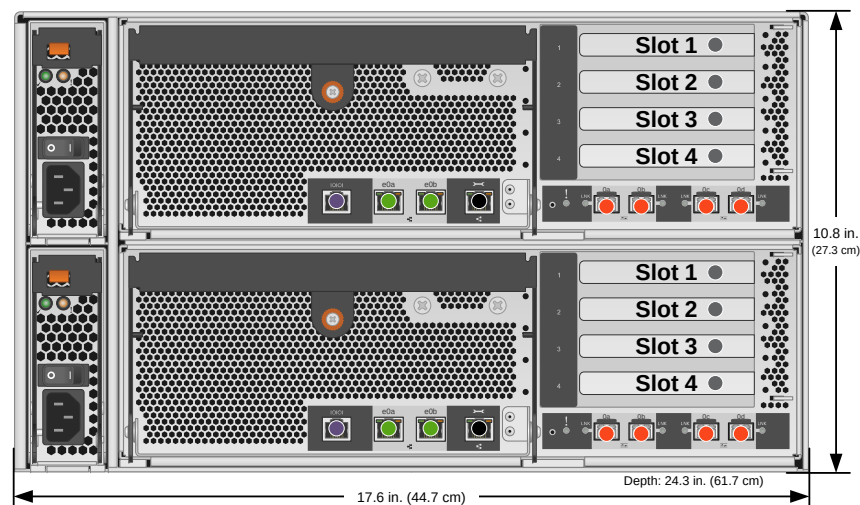
NetApp		Fabric-Attached Storage (FAS)							NetApp SA Systems			
Model	FAS6080	FAS6040	FAS3170	FAS3160	FAS3140	FAS2050	FAS2040	FAS2020	SA600	SA300	SA200	
Front View												
System Capacity Raw Maximum ¹	1,176TB	840TB	840TB	672TB	420TB	104TB	136TB	68TB	1,176TB	504TB	104TB	
Max Aggregate ² (32-bit / 64-bit)	16TB / 100TB	16TB / 70TB	16TB / 70TB	16TB / 50TB	16TB / 40TB	16TB / -	16TB / 30TB	16TB ⁵ / -	16TB / 100TB	16TB / 50TB	16TB / -	
Max DS4243 Shelves	49	35	35	28	17.5	4	4	-	49	21	4	
Max DS14-Class Shelves	84	60	60	48	30	6	8	4	84	36	6	
Max Drive Quantity	1176	840	840	672	420	104 (20 Int + 84 Ext)	136 (12 Int + 124 Ext)	68 (12 Int + 56 Ext)	1176	504	104 (20 Int + 84 Ext)	
Environmental HA Pair/Single Controller	Height (HA/Single)	12U / 6U	12U / 6U	6U / 6U	6U / 6U	6U / 6U	4U / 4U	2U / 2U	2U / 2U	12U / 6U	6U / 3U	4U / 4U
	Weight (HA/Single)	242 lb. (109.6 kg) 121 lb. (54.8 kg)	242 lb. (109.6 kg) 121 lb. (54.8 kg)	122 lb. (55.3 kg) 95 lb. (43.1 kg)	122 lb. (55.3 kg) 95 lb. (43.1 kg)	122 lb. (55.3 kg) 95 lb. (43.1 kg)	110 lb. (50 kg) with drives	66 lb. (29.9 kg) with drives	66 lb. (29.9 kg) with drives	242 lb. (109.6 kg) 121 lb. (54.8 kg)	150 lb. (68 kg) 75 lb. (34 kg)	110 lb. (50 kg) with drives
	AC Power (HA only)	100-120V 11.2A 200-240V 5.8A	100-120V 10.8A 200-240V 5.6A	100-120V 8.1A 200-240V 4A	100-120V 7.7A 200-240V 4.3A	100-120V 5.9A 200-240V 2.9A	100-120V 5.7A 200-240V 2.9A	100-120V 4.6A 200-240V 2.3A	100-120V 4.1A 200-240V 2.2A	100-120V 11.2A 200-240V 5.8A	100-120V 7.4A 200-240V 4.2A	100-120V 5.7A 200-240V 2.9A
	Thermal ³ (HA/Single)	3,740 BTU/hr 1,870 BTU/hr	3,624 BTU/hr 1,812 BTU/hr	2,761 BTU/hr 1,602 BTU/hr	2,594 BTU/hr 1,502 BTU/hr	2,026 BTU/hr 1,272 BTU/hr	2,247 BTU/hr 1,988 BTU/hr	1,518 BTU/hr 1,279 BTU/hr	1,587 BTU/hr 1,298 BTU/hr	3,740 BTU/hr 1,870 BTU/hr	2,466 BTU/hr 1,233 BTU/hr	2,247 BTU/hr 1,988 BTU/hr
Platform Specifications HA Pair/Single Controller	Processor (HA/Single)	8 / 4 64-bit dual-core	4 / 2 64-bit	4 / 2 64-bit dual-core	4 / 2 64-bit dual-core	2 / 1 64-bit dual-core	2 / 1 32-bit	2 / 1 32-bit dual-core	2 / 1 32-bit	8 / 4 64-bit dual-core	4 / 2 64-bit dual-core	2 / 1 32-bit
	Memory (HA/Single)	64GB / 32GB	32GB / 16GB	32GB / 16GB	16GB / 8GB	8GB / 4GB	4GB / 2GB	8GB / 4GB	2GB / 1GB	64GB / 32GB	16GB / 8GB	4GB / 2GB
	NVRAM (HA/Single)	4GB / 2GB	1GB / 512MB	4GB / 2GB onboard	4GB / 2GB onboard	1GB / 512MB onboard	512MB / 256MB NVMEM	1GB / 512MB NVMEM	256MB / 128MB NVMEM	4GB / 2GB	1GB / 512MB	512MB / 256MB NVMEM
	PCI Slots (HA/Single)	10 / 5 (PCIe) 6 / 3 (PCI-X)	10 / 5 (PCIe) 6 / 3 (PCI-X)	8 / 4 (PCIe)	8 / 4 (PCIe)	8 / 4 (PCIe)	2 / 1 (PCIe)	-	-	10 / 5 (PCIe) 6 / 3 (PCI-X)	6 / 3 (PCIe)	2 / 1 (PCIe)
	Ethernet (HA/Single)	12 / 6 GbE RJ45	12 / 6 GbE RJ45	4 / 2 GbE RJ45	4 / 2 GbE RJ45	4 / 2 GbE RJ45	4 / 2 GbE RJ45	8 / 4 GbE RJ45	4 / 2 GbE RJ45	12 / 6 GbE RJ45	8 / 4 GbE RJ45	4 / 2 GbE RJ45
	FC Ports (HA/Single)	16 / 8 4Gb SFP ⁴	16 / 8 4Gb SFP ⁴	8 / 4 4Gb SFP ⁴	8 / 4 4Gb SFP ⁴	8 / 4 4Gb SFP ⁴	4 / 2 4Gb SFP ⁴	4 / 2 4Gb SFP ⁴	4 / 2 4Gb SFP ⁴	16 / 8 4Gb SFP ⁴	8 / 4 4Gb SFP ⁴	4 / 2 4Gb SFP ⁴
	SAS Ports (HA/Single)	- / -	- / -	- / -	- / -	- / -	- / -	2 / 1 12Gb QSFP	- / -	- / -	- / -	- / -
	Data ONTAP® (Min Release)	7.2.4 / 8.0 / 10.0.3	7.2.4 / 8.0	7.2.5 / 8.0	7.2.6 / 7.3.1 / 8.0	7.2.5 / 8.0	7.2.2L1	7.3.2 / 8.0	7.2.2L1	7.2.5 / 8.0	7.2.5 / 8.0	7.2.5

FAS60x0 & SA600 (single controller shown)



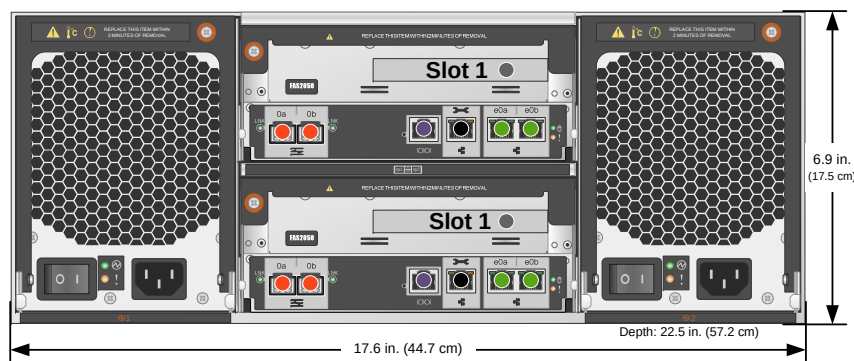
- Fibre Channel SFP (8)
- Gigabit Ethernet RJ45 (6)
- Remote LAN Management RJ45 (1)
- Serial Console RJ45 (1)
- PCIe Expansion (5)
- PCI-X Expansion (3)

FAS31x0 (HA configuration shown)



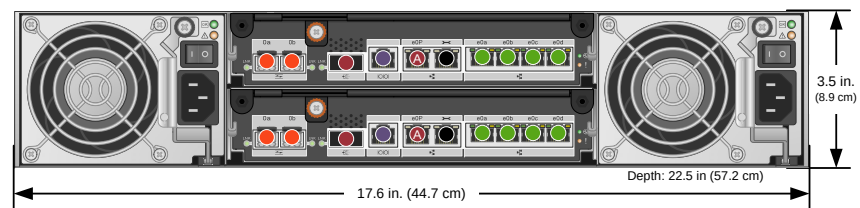
- Fibre Channel SFP (8)
- Gigabit Ethernet RJ45 (4)
- Remote LAN Management RJ45 (2)
- Serial Console RJ45 (2)
- PCIe Expansion (8)

FAS2050 & SA200 (HA configuration shown)



- Fibre Channel SFP (4)
- Gigabit Ethernet RJ45 (4)
- Remote LAN Management RJ45 (2)
- Serial Console RJ45 (2)
- PCIe Expansion (2)

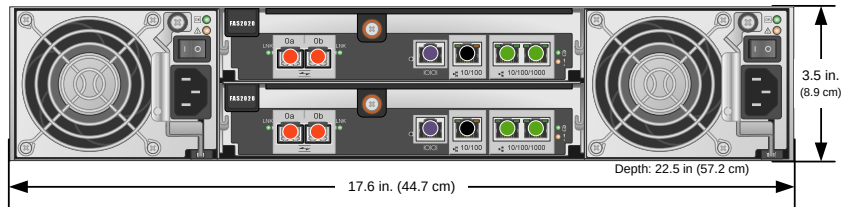
FAS2040 (HA configuration shown)



- Serial-Attached SCSI QSF (2)
- Alternate Control Path RJ45 (2)
- Fibre Channel SFP (4)
- Gigabit Ethernet RJ45 (8)
- Remote LAN Management RJ45 (2)
- Serial Console RJ45 (2)

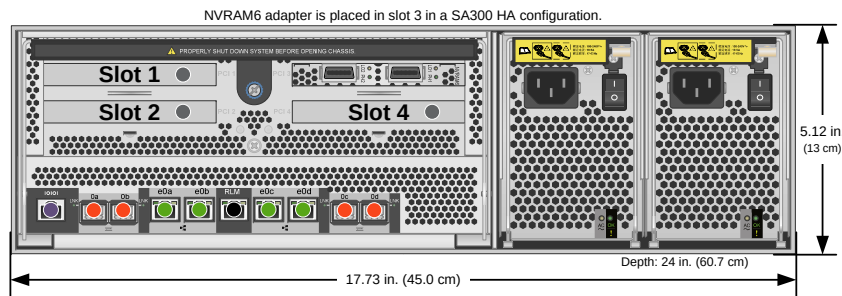


FAS2020 (HA configuration shown)



- Fibre Channel SFP (4)
- Gigabit Ethernet RJ45 (4)
- Remote LAN Management RJ45 (2)
- Serial Console RJ45 (2)

SA300 (single controller shown)



- Fibre Channel SFP (4)
- Gigabit Ethernet RJ45 (4)
- Remote LAN Management RJ45 (1)
- Serial Console RJ45 (1)
- PCIe Expansion (3)

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This document is chartered under the NetApp Technology Enablement and Solutions Organization (TESO).

Terms and Abbreviations

BTU – British Thermal Unit
Cu – Copper Connector
FAS – Fabric-Attached Storage
FC – Fibre Channel
GbE – Gigabit Ethernet
HA – High Availability
NVRAM – Non-Volatile RAM

Op – Optical Connector
PSU – Power Supply Unit
SAS – Serial-attached SCSI
SATA – Serial ATA
SFE – S Family Edition
SFP – Small Form-Factor Pluggable
VAC – Volts Alternating Current

Notes

- ¹ System capacity is calculated using base 10 arithmetic (i.e. 1TB=1,000,000,000,000 bytes) and is derived based on the type, size, and number of drives.
- ² Maximum volume/aggregate size is calculated using base 2 arithmetic (1TB = 2⁴⁰ bytes).
- ³ The thermal dissipation values shown are based on typical system values at 100-120V input voltage. Please refer to the Site Requirements Guide on the NOW site for worst-case thermal dissipation values.
- ⁴ Autosensing ports: 1, 2, 4Gb.
- ⁵ Beginning with Data ONTAP 7.3.1, FAS2020 systems support aggregates up to 16TB raw capacity, provided that the root volume is hosted in a dedicated aggregate (no user data) or by maintaining two spare disks per controller.

HA Pair Notes

HA pair configuration means two controllers - both actively serving data - are connected for automatic failover protection. The following interconnect options are applicable to HA pair configurations using NVRAM5 and NVRAM6 adapters:

- .5m to 10m** – Copper InfiniBand interconnect cables (standard)
NetApp part: X1943A-R6 (.5m), X1940A-R6 (2m), X1941A-R6 (5m), or X1942A-R6 (10m)
- 5m to 30m** – Optical interconnect using MTP ribbon cables (supplier NetApp)
NetApp part: X1949A-R6 (Cu-to-Op converter)
NetApp part: X1945A-R6 (5m) or X1946-R6 (30m)
- 30m to 300m** – Optical interconnect using MTP ribbon cables (suppliers NetApp and Fujikura)
NetApp part: X1949A-R6 (Cu-to-Op converter)
Fujikura part: CBPE4-497-XXX, where XXX designates length in meters
Example: 300 meter MTP 50/125 Plenum Cable 500Mhz/KM is CBPE4-497-300
- 300m to 500m** – Optical interconnect using MTP ribbon cables (suppliers NetApp and Fujikura)
NetApp part: X1949A-R6 (Cu-to-Op converter)
Fujikura part: CBPE4-507-XXX, where XXX designates length in meters
Example: 500 meter MTP 50/125 Plenum Cable 2000Mhz/KM is CBPE4-507-500

NOTE: In order to achieve the maximum 500 meter distance between controllers in a HA pair, the interconnect cable must be a direct point-to-point connection with no intermediate device between them (such as patch panel).

The 30-300m & 300-500m cables from Fujikura are custom and have a 8 to 10 week lead-time.

HA configurations that must go through a patch panel can use the following part numbers in conjunction with the X1949A-R6 Cu-to-Op converters:

- | | |
|----------------------------|---------------------------------|
| X1951A-R6 - SC termination | X1954A-R6 - FC (Op) termination |
| X1952A-R6 - ST termination | X1955A-R6 - MT-RJ termination |
| X1953A-R6 - LC termination | |

See the System Cabinet and Common Cables Sectional (RC-0036-0409) for more information about these interconnect cables.