NetApp

2013

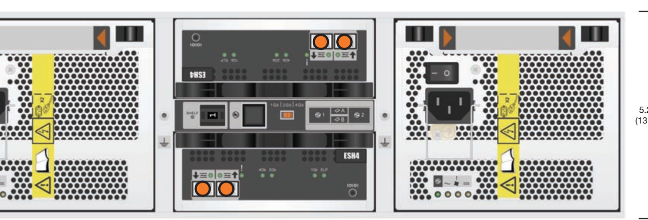
NETAPP HARDWARE UNIVERSE

SHELF ENCLOSURES

NetApp Disk Shelves

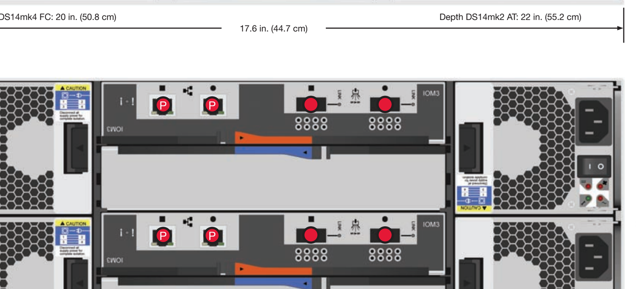
	Model	DS14mk4 FC	DS14mk2 AT	DS4243	DS4246	DS2246	DS4486	FibreBridge 6500N
	Front View							
	Maximum Drive Quantity	14	14	24	24	24	48	-
Environmental Specifications	Rack Height	3U	3U	4U	4U	2U	4U	1U
Environmental Specifications	Weight (Empty / Loaded)	77 lb. (35 kg) 50.06 lb. (23 kg)	77 lb. (35 kg) 50.06 lb. (23 kg)	110 lb. (49.9 kg) 53.7 lb. (24.4 kg)	110 lb. (49.9 kg) 53.7 lb. (24.4 kg)	56 lb. (25.4 kg) 34.6 lb. (15.7 kg)	150 lb. (68 kg) 82 lb. (33 kg)	8.75 lb. (3.97 kg)
Environmental Specifications	AC Power[5]	300GB 15K FC 4.43A 450GB 15K FC 4.43A 600GB 15K FC 3.44A	750GB SATA 2.72A 1.0TB SATA 2.51A 2.0TB SATA 2.50A	100GB SSD 1.96A 450GB SAS 6.00A 600GB SAS 5.98A 1.0TB SATA 4.41A 2.0TB SATA 4.72A 3.0TB SATA 4.95A	900GB SAS 3.30A 1.0TB SATA 4.41A 2.0TB SATA 4.72A 3.0TB SATA 4.95A (mixed SSD + SATA support)	450GB SAS 4.41A 600GB SAS 4.22A 900GB SAS 4.22A	3.0TB SATA 8.71A	1.0A @100V 0.5A @200V
Environmental Specifications	BTU/hr[6]	300GB 15K FC 1,512 450GB 15K FC 1,512 600GB 15K FC 1,166	750GB SATA 924 1.0TB SATA 853 2.0TB SATA 849	100GB SSD 699 450GB SAS 2,047 600GB SAS 2,028 1.0TB SATA 1,499 2.0TB SATA 1,599 3.0TB SATA 1,690	900GB SAS 1,127 1.0TB SATA 1,499 2.0TB SATA 1,599 3.0TB SATA 1,690 (mixed SSD + SATA support)	450GB SAS 1,461 600GB SAS 1,441 900GB SAS 1,441	3.0TB SATA 2,970	342 @100V 342 @200V
Disk Shelf Part Numbers	Empty Shelf (with AC PSU)	X553A-R5	X561-R5	X556A-R6 (2x PSU) X557A-R6 (4x PSU)	X556A-R6 (2x PSU) X557A-R6 (4x PSU)	X559A-R6	-	The FibreBridge 6500N provides bridging between FC and SAS protocols for Stretch and Fabric MetroCluster configurations enabling backend connectivity to DS2246 and DS424x disk shelves. 2 FibreBridges are required to support a single shelf stack (4 FibreBridges minimum per MetroCluster). Each FibreBridge provides 2x 8Gb FC ports and 1x 6Gb SAS port (second SAS ports unused).
Disk Shelf Part Numbers	Empty Shelf (without PSU)	X554A-R5	X562-R5	X558A-R6	X558A-R5	X567A-R6	X568A-R6	
Disk Shelf Part Numbers	AC Power Supply	X511A-R5	X511A-R5	X518A-R6	X518A-R6	X519A-R6	X521A-R6	
Disk Shelf Part Numbers	Quickship Half Populated			DS4243-1504-12S-QS-R5 (300GB) DS4243-1505-12S-QS-R5 (450GB) DS4243-1507-12S-QS-R5 (600GB) DS4243-0712-12A-QS-R5 (1.0TB) DS4243-0724-12A-QS-R5 (2.0TB) DS4243-0736-12A-QS-R5 (3.0TB)	DS4246-0712-12A-QS-R6 (1.0TB) DS4246-0724-12A-QS-R6 (2.0TB) DS4246-0736-12A-QS-R6 (3.0TB)	DS2246-1005-12S-QS-R5 (450GB) DS2246-1007-12S-QS-R5 (600GB) DS2246-1014-12S-QS-R5 (600GB) DS2246-10.8TB-QS-R5 (900GB)		
Disk Shelf Part Numbers	Quickship Fully Populated	X54015A-ESH4-QS-R5 (450GB) X64015A-ESH4-QS-R5 (600GB)	DSX-14.0TB-QS-R5 (1.0TB) DSX-28.0TB-QS-R5 (2.0TB)	DS4243-SL02-24A-QS-R5 (100GB) DS4243-1507-24S-QS-R5 (300GB) DS4243-1511-24S-QS-R5 (450GB) DS4243-1514-24S-QS-R5 (600GB) DS4243-0724-24A-QS-R5 (1.0TB) DS4243-0748-24A-QS-R5 (2.0TB) DS4243-0772-24A-QS-R5 (3.0TB)	DS4246-0724-24A-QS-R6 (1.0TB) DS4246-0748-24A-QS-R6 (2.0TB) DS4246-0772-24A-QS-R6 (3.0TB) DS4246-0772-24N-QS-R6 (3.0TB)	DS2246-1011-24S-QS-R5 (450GB) DS2246-1014-24S-QS-R5 (600GB) DS2246-1014-24N-QS-R5 (600GB NSE) DS2246-21.6TB-QS-R5 (900GB)	DS4486-144TB-QS-R5	
Disk Shelf Modules	ESH2 X5511A-R5	Supported	-	-	-	-	-	-
Disk Shelf Modules	ESH4 X5512A-R5	Supported	-	-	-	-	-	-
Disk Shelf Modules	AT-FCX X5612A-R6	-	Supported	-	-	-	-	-
Disk Shelf Modules	IOM3 X5712A-R6	-	-	Supported	-	-	-	-
Disk Shelf Modules	IOM6 X5713A-R6	-	-	-	Supported	Supported	Supported	-
	Minimum Data ONTAP® Release	7.2.1, 7.3, 8.0, 8.1	7.0, 7.1, 7.2, 7.3, 8.0, 8.1	7.3.2, 8.0, 8.1	8.1.1	7.3.4, 8.0.1, 8.1.1	8.1.1	8.1

DS14mk4 FC



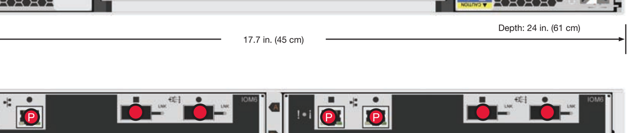
Depth DS14mk4 FC: 20 in. (50.8 cm) — 17.6 in. (44.7 cm) — Depth DS14mk2 AT: 22 in. (55.2 cm) — 5.25 in. (13.3 cm)

DS4243/DS4246



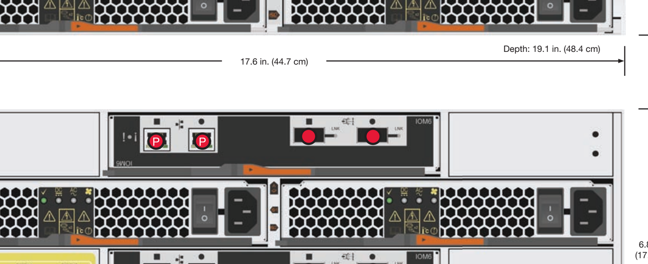
17.7 in. (45 cm) — Depth: 24 in. (61 cm) — 7 in. (17.8 cm)

DS2246



17.6 in. (44.7 cm) — Depth: 19.1 in. (48.4 cm) — 3.4 in. (8.5 cm)

DS4486



17.6 in. (44.7 cm) — Depth: 27 in. (68.6 cm) — 6.87 in. (17.4 cm)

FibreBridge 6500N

17.31 in. (43.97 cm) — Depth: 9.9 in. (25.1 cm) — 1.69 in. (4.3 cm)

TERMS AND ABBREVIATIONS

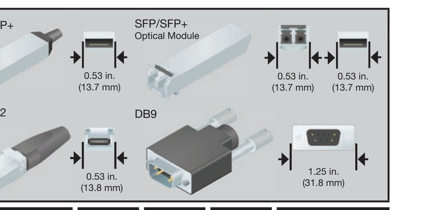
- **ACP** – Alternate Control Path
- **BTU** – British Thermal Unit
- **Cu** – Copper Connector
- **EOA** – End of Availability
- **EOS** – End of Support
- **ESH** – Electronically Switched Hub
- **FAS** – Fabric-Attached Storage
- **FCP** – Fibre Channel Protocol
- **FC** – Ferrule Connector
- **FC** – Fibre Channel
- **FRU** – Field Replacement Unit
- **GbE** – Gibabit Ethernet
- **HA** – High Availability
- **HSSDC** – High-Speed Serial Data Connector
- **HT** – Hyper-Threading
- **IB4X** – InfiniBand 4X
- **IEC** – International Electrotechnical Commission
- **IOM3** – I/O Module 3Gbit per second
- **IOM6** – I/O Module 6Gbit per second
- **LC** – Lucent Connector
- **LRC** – Loop Resiliency Circuit
- **LUN** – Logical Unit Number
- **MTP** – Mechanical Transfer Pull-Off
- **NEMA** – National Electrical Mfg. Association
- **NIC** – Network Interface Card
- **NVRAM** – Nonvolatile RAM
- **Op** – Optical Connector
- **PAM** – Performance Acceleration Module
- **PSU** – Power Supply Unit
- **QSFP** – Quad Small Form-Factor Pluggable
- **RLM** – Remote LAN Module
- **RPM** – Revolutions Per Minute
- **SAS** – Serial-Attached SCSI
- **SATA** – Serial ATA
- **SC** – Subscriber Connector
- **SFP** – Small Form-Factor Pluggable
- **SSD** – Solid State Drives
- **ST** – Straight Tip Connector
- **TOE** –TCP/IP Offload Engine

ADAPTER CARDS

Category	Card Type	Part Number / Description	Media	Optical Module FRU (Mfr Part Number)	Min Data ONTAP®	6280	6240	6210	3270	3240	3210	2240
						Fabric-Attached Storage & V-Series						
FIBRE CHANNEL	PCIe	X1128A-R6 FCP TARGET 2-Port 4Gb	Op - LC	Fixed Optics Non-removable	7.3, 8.0, 8.1				6	6	2	
FIBRE CHANNEL	PCIe	X1130A-R6 FCP TARGET 4-Port 4Gb	Op - LC	Fixed Optics Non-removable	7.3, 8.0, 8.1	6	6	4	6	6	2	
FIBRE CHANNEL	PCIe	X1131A-R6 FCP TARGET 2-Port 8Gb	Op - LC	SFP module pre-installed (FTLF8528P2BCV-QL) No optical FRU available	7.3, 8.0, 8.1	12	12	4	6	6	2	
FIBRE CHANNEL	PCIe	X1132A-R6 TARGET/DISK/TAPE 4-Port 8Gb	Op - LC	SFP module pre-installed (FTLF8528P3BCV-QL) No optical FRU available	8.1.1	12[1]	12[1]	4	6	6	2	
FIBRE CHANNEL	PCIe	X2053A-R6 TAPE 2-Port 4Gb	Op - LC	Fixed Optics Non-removable	7.3, 8.0, 8.1	8	8	4	6	6	2	
FIBRE CHANNEL	PCIe	X2054A-R6 DISK/TAPE 4-Port 4Gb	Op - LC	Fixed Optics Non-removable	7.3, 8.0	12	12	4	6	6	2	
FIBRE CHANNEL	PCIe	X2055A-R6 DISK 2-Port 4Gb	Op - LC	Fixed Optics Non-removable	7.3, 8.0, 8.1	12	12	4	6	6	2	
FIBRE CHANNEL	PCIe	X2056-R6 TARGET/DISK/TAPE 4-Port 8Gb	Op - LC	X6588-R6 (AFBR-57D7APZ or FTLF8528P2BNV)	8.0.1, 8.1	3	3	1				
FIBRE CHANNEL	Mezzanine	X1150A-R6 TARGET/DISK/TAPE 2-Port 8Gb	Op - LC	X6588-R6 (AFBR-57D7APZ or FTLF8528P2BNV)	8.1							1
ETHERNET	PCIe	X1038A-R6 NIC 2-Port GbE	Op - LC	Fixed Optics Non-removable	7.3, 8.0, 8.1	12[13]	12[13]	4	6	6	2	
ETHERNET	PCIe	X1048A-R6 NIC 4-Port GbE	Op - LC	Fixed Optics Non-removable	8.1.1	8[13]	8[13]	4	6	6	2	
ETHERNET	PCIe	X1049B-R6 NIC 4-Port GbE	Cu - RJ45	-	7.3.5, 8.0.2, 8.1	8[13]	8[13]	4	6	6	2	
ETHERNET	PCIe	X1107A-R6 NIC 2-Port 10GbE	Op - LC	X6563-R6 (PLRXPL-SC-S43-42B or FTLX8571D3BCL)	7.3.2, 8.0, 8.1				6	6	2	
ETHERNET	PCIe	X1117A-R6 NIC 2-Port 10GbE	Op - LC	X6569-R6 (FTLX8571D3BCV-IT)	8.0.1, 8.1	8[13]	8[13]	4	6[14]	6[14]	2[14]	
ETHERNET	PCIe	X1139A-R6 Unified Target 2-Port 10Gb	Op - LC	SFP module pre-installed (PLRXPL-VC-S43-21-N) No optical FRU available	7.3.2, 8.0.1, 8.1	10[13]	10[13]	4	6	6	2	
ETHERNET	PCIe	X1140A-R6 Unified Target 2-Port 10Gb	Cu - SFP+	Approved Twinax Cables	7.3.2, 8.0.1, 8.1	10[13]	10[13]	4	6	6	2	
ETHERNET	Mezzanine	X1160A-R6 NIC 2-Port 10GbE	Cu - SFP+	X6589-R6 (AFBR-703SDZ-NA2 or FTLX8571D3BCL-(NQ)	8.1							1
SCSI / SAS	PCIe	X2028A-R6 TAPE 2-Port SCSI-LVD/SE	Cu - 68p VHDCI	-	7.3, 8.0, 8.1	8	8	4	6	6	2	
SCSI / SAS	PCIe	X2065A-R6 SAS, 4-Port, 6Gb	Cu - QSFP	-	7.3.2, 8.0, 8.1	6	6	4	6	6	2	
SCSI / SAS	PCIe	X2067-R6 SAS, 4-Port, 6Gb	Cu - QSFP	-	8.0.1, 8.1	3	3	1				
HA	PCIe	X1927A-R6 MetroCluster™ FC-VI 2-Port 8Gb	Op - LC	SFP module pre-installed (FTLF8528P2BCV-QL) No optical FRU available	8.0.1, 8.1	1	1	1	1	1	1	
HA	PCIe	X3149-R6 NVRAM8 4GB	Cu-QSFP	X1956-R6 (optional)	8.0.1, 8.1	1	1	1				
OTHER	PCIe	X1142A-R6 SnapMirror® over FC 2-Port 8Gb	Op - LC	SFP module pre-installed (FTLF8528P2BCV-QL) No optical FRU available	8.0.1, 8.1	4	4	3	1	1	1	
OTHER	PCIe	X1970A-R5 Flash Cache - 256GB	-	-	7.3.5, 8.0.2, 8.1					2	1[15]	
OTHER	PCIe	X1971A-R5 Flash Cache - 512GB	-	-	7.3.5, 8.0.2, 8.1	8	6	3	2	1		
OTHER	PCIe	X1972A-R5 Flash Cache - 1TB	-	-	7.3.5, 8.0.2, 8.1	8	3	1	1			

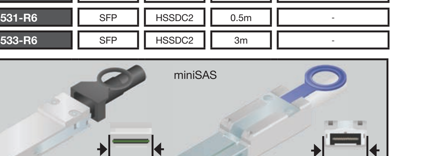
COMMON CABLES

Fibre Channel Cable and Connectors



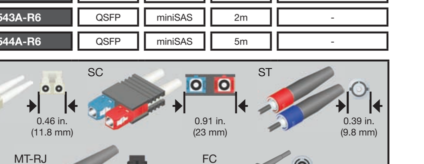
Part Number	Begin	End	Length	Notes
X6529-R6	SFP	LC	-	Op Module (2Gb)
X6539-R6	SFP	LC	-	Op Module (4Gb) FAS/V6080, 6040, 3200, 3100, and 2050
X6588-R6	SFP+	LC	-	FAS/V6200 and FAS2240 Op Module (8Gb)
X6530-R6	SFP	SFP	0.5m	4Gb Shelf/Tape only
X6532-R6	SFP	SFP	3m	2Gb Shelf/Tape only
X6556-R6	SFP	SFP	5m	4Gb support
X6538-R6	SFP	DB9	3m	-
X6531-R6	SFP	HSSDC2	0.5m	-
X6533-R6	SFP	HSSDC2	3m	-

SCSI \ SAS Cables and Connectors



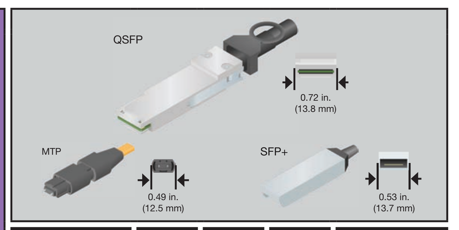
Part Number	Begin	End	Length	Notes
X6513-R6	HD-68	VHDCI	2m	-
X6557-R6	QSFP	QSFP	0.5m	-
X6558-R6	QSFP	QSFP	2m	-
X6559-R6	QSFP	QSFP	5m	-
X6590-R6	QSFP	QSFP	10m	SAS16
X6591-R6	QSFP	QSFP	20m	SAS16
X6594-R6	QSFP	QSFP	1m	SAS
X6595-R6	QSFP	QSFP	3m	SAS
X6543A-R6	QSFP	miniSAS	2m	-
X6544A-R6	QSFP	miniSAS	5m	-

Optical Cables and Connectors



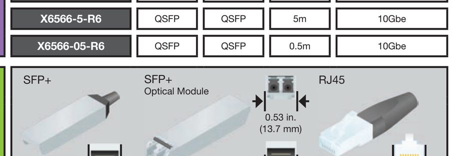
Part Number	Begin	End	Length	Notes
X6510A-R6	SC	SC	5m	OM2, 50u, 500MHz
X6511A-R6	SC	SC	30m	OM2, 50u, 500MHz
X6524-R6	2 x LC	2 x LC	2m	OM2, 50u, 500MHz
X6553-R6	LC	LC	2m	OM3, 50u, 2000MHz
X6536-R6	LC	LC	5m	OM3, 50u, 2000MHz
X6554-R6	LC	LC	15m	OM3, 50u, 2000MHz
X6537-R6	LC	LC	30m	OM3, 50u, 2000MHz
X6523-R6	2 x LC	2 x SC	2m	OM2, 50u, 500MHz
X6547-R6	LC	SC	5m	OM3, 50u, 2000MHz
X6546-R6	LC	SC	30m	OM3, 50u, 2000MHz

HA Pair, Cluster Interconnect Cables and Connectors



Part Number	Begin	End	Length	Notes
X6558-R6	QSFP	QSFP	2m	FAS/V6200 NVRAM8 HA
X6559-R6	QSFP	QSFP	5m	FAS/V6200 NVRAM8 HA
X1956-R6	QSFP	MTP	-	Op Mod FAS/V6200 NVRAM8
X1945A-R6	MTP	MTP	5m	-
X1946A-R6	MTP	MTP	30m	-
X1951A-R6	MTP	SC	30m	4X to 1X path
X1952A-R6	MTP	ST	30m	4X to 1X path
X1953A-R6	MTP	LC	30m	4X to 1X path
X1954A-R6	MTP	FC	30m	4X to 1X path
X1955A-R6	MTP	MT-RJ	30m	4X to 1X path
X-SFP-H10GB-CU1M-R6	SFP+	SFP+	1m	FAS/V3200 HA
X-SFP-H10GB-CU3M-R6	SFP+	SFP+	3m	FAS/V3200 HA
X-SFP-H10GB-CU5M-R6	SFP+	SFP+	5m	FAS/V3200 HA
X6589-R6	SFP+	LC	-	Op Module FAS/V3200 HA
X6566-3-R6	QSFP	QSFP	3m	10Gbe
X6566-2-R6	QSFP	QSFP	2m	10Gbe
X6566-5-R6	QSFP	QSFP	5m	10Gbe
X6566-05-R6	QSFP	QSFP	0.5m	10Gbe

Ethernet Cables and Connectors



Part Number	Begin	End	Length	Notes
X6560-R6	RJ45	RJ45	0.5m	CAT6
X6561-R6	RJ45	RJ45	2m	CAT6
X6562-R6	RJ45	RJ45	5m	CAT6
X6577-R6	RJ45	RJ45	30m	CAT6
X6563-R6	SFP+	LC	-	X1107A Op Module
X6569-R6	SFP+	LC	-	X1117A Op Module
X6589-R6	SFP+	LC	-	FAS/V6200 10GbE Op Mod
X6592-R6[16]	RJ45	RJ45	10m	CAT6 - ACP
X6593-R6[16]	RJ45	RJ45	20m	CAT6 - ACP
X-SFP-H10GB-CU1M-R6	SFP+	SFP+	1m	Cisco Twinax
X-SFP-H10GB-CU3M-R6	SFP+	SFP+	3m	Cisco Twinax
X-SFP-H10GB-CU5M-R6			5m	Cisco Twinax
X-TWX-0101-R6	SFP+	SFP+	1m	Brocade Twinax
X-TWX-0301-R6	SFP+	SFP+	3m	Brocade Twinax
X-TWX-0501-R6	SFP+	SFP+	5m	Brocade Twinax

STORAGE CONTROLLERS

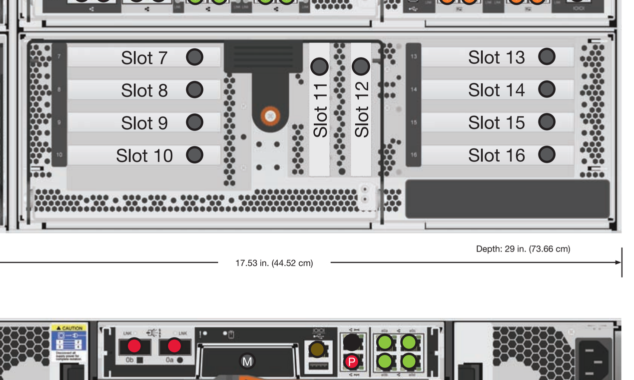
Fabric-Attached Storage (FAS) and V-Series Controllers

	Model	FAS/V6280	FAS/V6240	FAS/V6210	FAS/V3270	FAS/V3250	FAS/V3240[1]	FAS/V3220[1]	FAS/V3210	FAS2240-4	FAS2240-2	FAS2220
	Front View											
	Max Capacity[2] (7.3.x / 8.0.x / 8.1.x)	- / 4320TB[3] / 4320TB[3]	- / 4320TB[3] / 4320TB[3]	- / 3600TB[3] / 3600TB[3]	960TB / 2880TB[3] / 2880TB[3]	- / - / 2160TB[3]	600TB / 1800TB[3] / 1800TB[3]	- / - / 1440TB[3]	240TB / 720TB[3] / 720TB[3]	- / - / 432TB	- / - / 374TB	- / - / 180TB
	Max Aggregate[4] (7.3.x / 8.0.x / 8.1.x)	- / 100TB / 162TB	- / 100TB / 162TB	- / 70TB / 162TB	16TB / 70TB / 105TB	- / - / 105TB	16TB / 50TB / 90TB	- / - / 90TB	16TB / 50TB / 75TB	- / - / 60TB	- / - / 60TB	- / - / 60TB
	Max FlexVol Size (7.3.x / 8.0.x / 8.1.x)	- / 100TB / 100TB	- / 100TB / 100TB	- / 70TB / 70TB	16TB / 70TB / 70TB	- / - / 70TB	16TB / 50TB / 50TB	- / - / 60TB	16TB / 50TB / 50TB	- / - / 60TB	- / - / 60TB	- / - / 60TB
	Max Shelves (DS4486 / DS2246 / DS4243 / DS14)	30 / 60 / 60 / 84	30 / 60 / 60 / 84	25 / 50 / 50 / 72	20 / 40 / 40 / 68	15 / 30 / 30 / 51	12.5 / 25 / 25 / 42	10 / 20 / 20 / 34	- / 10 / 10 / 17	- / 5 / 5 / 6	- / 5 / 5 / 6	- / 2 / 2 / -
	Max Drive Quantity	1440	1440	1200	960	720	600	480	240	144 (24 Int + 120 Ext)	144 (24 Int + 120 Ext)	60 (12 Int + 48 Ext)
V-Series Specifications	Max Backend LUNs	1440	1440	1200	960	720	600	480	100[9]	No V-Series Models		
V-Series Specifications	V-Series Supported Arrays	EMC · VNX · CX3,CX4 · VMAX · DMX4	HP · EVA x400, x100 · P6x00, P6x50 · XP24K, XP20K	3PAR · P10000 · T400, T800 · F200, F400	HDS · VSP · AMS · USP-V · HUS	IBM · DS8700, DS8800 · DS5xx0 · DS4700, DS4800 · XIV Gen2 & Gen3	Fujitsu · DX8000 · DX4x0 · DX8700 S2 · DX4x0 S2	Refer to the NetApp Interoperability Matrix at **http://support.netapp.com/matrix** for the latest back-end storage array support information.		No V-Series Models		
Environmental HA Pair / Single Controller	Height (HA / Single)	12U / 6U	12U / 6U	6U / 6U	6U / 3U	6U / 3U	6U / 3U	6U / 3U	3U / 3U	4U / 4U	2U / 2U	2U / 2U
Environmental HA Pair / Single Controller	Weight (HA / Single)	251.4 (114 kg) 125.7 lbs (57 kg)	251.4 (114 kg) 125.7 lbs (57 kg)	130.1 lb. (59 kg) 99.2 lb. (45 kg)	149 lb. (67.6 kg) 74.5 lb. (33.8 kg)	149 lb. (67.6 kg) 74.5 lb. (33.8 kg)	149 lb. (67.6 kg) 74.5 lb. (33.8 kg)	149 lb. (67.6 kg) 74.5 lb. (33.8 kg)	79.5 lb. (36.1 kg) 67.3 lb. (30.5 kg)	107.1 lbs (48.7 kg) 102 lbs (46.4 kg)	55.4 lbs (25.2 kg) 50.4 lbs (22.9 kg)	62.4 lbs (28.3 kg) 57.8 lbs (26.2 kg)
Environmental HA Pair / Single Controller	AC Power[5] (HA / Single)	19.2A / 9.6A @100V 9.4A / 4.7A @200V	18.6A / 9.3A @100V 9A / 4.5A @200V	- / 5A @100V 4.8A / 2.5A @200V	7.28A / 5.47A @100V 3.58A / 2.73A @200V	10.94A / 5.47A @100V 5.46A / 2.73A @200V	6.37A / 5.01A @100V 3.15A / 2.5A @200V	6.37A / 3.71A @100V 3.15A / 1.96A @200V	6.27A / 4.22A @100V 3.11A / 2.11A @200V	5.97A / 5.36A @100V 3.01A / 2.70A @200V	4.45A / 3.92A @100V 2.23A / 1.92A @200V	4.32A / 5.31A @100V 2.59A / 2.14A @200V
Environmental HA Pair / Single Controller	BTU/hr[6] (HA / Single)	6486 / 3243 @100V 6212 / 3106 @200V	6280 / 3140 @100V 5974 / 2987 @200V	- / 1673 @100V 3174 / 1639 @200V	2485 / 1867 @100V 2413 / 1820 @200V	3734 / 1867 @100V 3640 / 1820 @200V	2168 / 1707 @100V 2116 / 1632 @200V	2168 / 1256 @100V 2116 / 1229 @200V	2137 / 1437 @100V 2089 / 1403 @200V	2031 / 1820 @100V 1775 / 1983 @200V	1536 / 1332 @100V 1434 / 1294 @200V	1806 / 1471 @100V 1751 / 1444 @200V
Platform Specifications HA Pair / Single Controller	Processor (HA / Single)	4 / 2 64-bit six-core	4 / 2 64-bit quad-core	4 / 2 64-bit quad-core	4 / 2 64-bit dual-core	4 / 2 64-bit quad-core	2 / 1 64-bit quad-core	2 / 1 64-bit quad-core	2 / 1 64-bit dual-core	2 / 1 64-bit dual-core HT	2 / 1 64-bit dual-core HT	2 / 1 64-bit dual-core HT
Platform Specifications HA Pair / Single Controller	Memory (HA / Single)	192GB / 96GB	96GB / 48GB	48GB / 24GB	40GB / 20GB[10]	40GB / 20GB[10]	16GB / 8GB[10]	24GB / 12GB[10]	10GB / 4GB[10]	12GB / 6GB[10]	12GB / 6GB[10]	12GB / 6GB[10]
Platform Specifications HA Pair / Single Controller	NVRAM (HA / Single)	8GB / 4GB	8GB / 4GB	8GB / 4GB	4GB / 2GB NVMEM	4GB / 2GB NVMEM	2GB / 1GB NVMEM	3.2GB / 1.6GB NVMEM	1GB / 512MB NVMEM	1.5GB / 768MB NVMEM	1.5GB / 768MB NVMEM	1.5GB / 768MB NVMEM
Platform Specifications HA Pair / Single Controller	Exp Slots (HA / Single)	24 / 12 PCIe	24 / 12 PCIe	8 / 4 PCIe	12 / 6 PCIe	12 / 6 PCIe	12 / 6 PCIe	12 / 6 PCIe	4 / 2 PCIe	2 / 1 mezzanine	2 / 1 mezzanine	-
Platform Specifications HA Pair / Single Controller	Ethernet (HA / Single)	4 / 2 GbE RJ45 8 / 4 10GbE SFP+	4 / 2 GbE RJ45 8 / 4 10GbE SFP+	4 / 2 GbE RJ45 8 / 4 10GbE SFP+	4 / 2 GbE RJ45	4 / 2 GbE RJ45	4 / 2 GbE RJ45	4 / 2 GbE RJ45	4 / 2 GbE RJ45	8 / 4 GbE RJ45 0-4 / 0-2 10GbE	8 / 4 GbE RJ45 0-4 / 0-2 10GbE	8 / 4 GbE RJ45
Platform Specifications HA Pair / Single Controller	FC Ports (HA / Single)	8-32 / 4-16 8Gb SFP+[7]	8-32 / 4-16 8Gb SFP+[7]	8-16 / 4-8 8Gb SFP+[7]	4 / 2 4Gb SFP	4 / 2 4Gb SFP	4 / 2 4Gb SFP	4 / 2 4Gb SFP	4 / 2 4Gb SFP	0-4 / 0-2 8Gb SFP+	0-4 / 0-2 8Gb SFP+	-
Platform Specifications HA Pair / Single Controller	SAS Ports (HA / Single)	0-24 / 0-12 6Gb QSFP[8]	0-24 / 0-12 6Gb QSFP[8]	0-8 / 0-4 6Gb QSFP[8]	4 / 2 6Gb QSFP	4 / 2 6Gb QSFP	4 / 2 6Gb QSFP	4 / 2 6Gb QSFP	4 / 2 6Gb QSFP	4 / 2 6Gb QSFP	4 / 2 6Gb QSFP	4 / 2 6Gb QSFP
Platform Specifications HA Pair / Single Controller	Data ONTAP® (Min Release)	8.0.1, 8.1	8.0.1, 8.1	8.0.1, 8.1	7.3.5, 8.0.1, 8.1	8.1.2	7.3.5, 8.0.1, 8.1	8.1.2	7.3.5, 8.0.1, 8.1	8.1	8.1	8.1.1

Expansion Slot PCIe — Expansion Slot PCI-X — Expansion Slot Mezzanine — Gigabit Ethernet RJ45 — 10 Gigabit Ethernet SFP+ — 4Gb Fibre Channel SFP — 8Gb Fibre Channel SFP+ — Serial-Attached SCSI QSFP — Alternate Control Path RJ45 — Serial Console RJ45 — Remote Management RJ45 — HA Interconnect IB4X — HA Interconnect QSFP — HA Interconnect SFP+

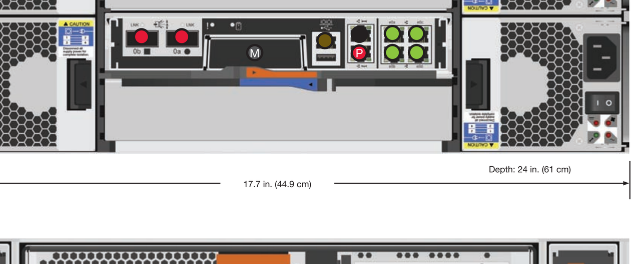
NVRAM8 adapter is placed in slot 2 in a FAS6200 series controller (as shown). FAS6210 model does not support IOXM.

FAS/V6200 (Single controller show)



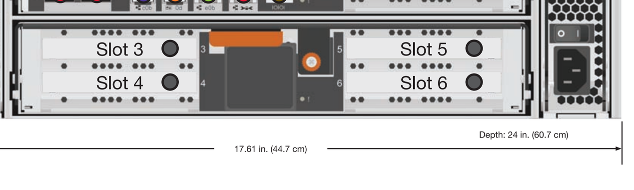
17.53 in. (44.52 cm) — Depth: 29 in. (73.66 cm) — 10.2 in. (25.86 cm)

FAS2240-4 (HA configuration show)



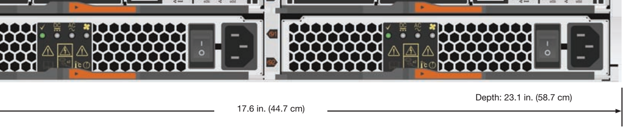
17.7 in. (44.9 cm) — Depth: 24 in. (61 cm) — 7 in. (17.8 cm)

FAS/V3200 (Single controller shown)



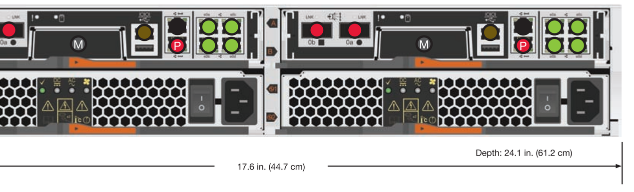
17.61 in. (44.7 cm) — Depth: 24 in. (60.7 cm) — 5.12 in. (13 cm)

FAS2240-2 (HA configuration shown)



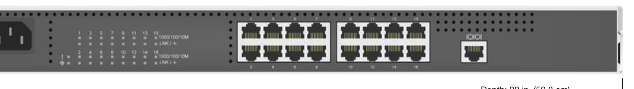
17.6 in. (44.7 cm) — Depth: 23.1 in. (58.7 cm) — 3.4 in. (8.6 cm)

FAS2220 (HA configuration shown)



17.6 in. (44.7 cm) — Depth: 24.1 in. (61.2 cm) — 3.4 in. (8.6 cm)

CN1601



17.5 in. (44.5 cm) — Depth: 20 in. (50.8 cm) — 1.69 in. (4.3 cm)

CN1610

17.5 in. (44.5 cm) — Depth: 20 in. (50.8 cm) — 1.69 in. (4.3 cm)

Cluster-Mode Switches

	Model	CN1610	CN1601
	Supported Modes	Cluster	Cluster Management
Environmental HA Pair / Single Controller	Rack Units	1U	1U
Environmental HA Pair / Single Controller	Dimensions	H: 1.69 in (4.3 cm) W: 17.5 in (44.5 cm) D: 20 in. (50.8 cm)	H: 1.69 in (4.3 cm) W: 17.5 in (44.5 cm) D: 20 in. (50.8 cm)
Environmental HA Pair / Single Controller	Weight	22.5 lbs (10.2 kg)	12 lbs (5.45 kg)
Environmental HA Pair / Single Controller	Amps (Worst-case)	1.28A @100-120V .82A @200-240V	0.58A @100-120V 0.37A @200-240V
Environmental HA Pair / Single Controller	Watts (Worst-case)	128W @100-120V 118W @200-240V	33W @100-120V 33W @200-240V
Environmental HA Pair / Single Controller	BTU/hr (Worst-case)	403 @100-120V 403 @200-240V	113 @100-120V 113 @100-120V
Platform Specifications	Ethernet	16 10GbE SFP+	16 GbE RJ45
Platform Specifications	Data ONTAP® (Min Release)	8.1.1	8.1.1

Optical Module Support for Onboard Ports

	Model	FAS/V6280	FAS/V6240	FAS/V6210	FAS/V3270	FAS/V3250	FAS/V3240	FAS/V3220	FAS/V3210	FAS2240-4	FAS2240-2	CN1610
Ethernet	X6589-R6 10Gb SFP+	■	■	■						■	■	■
Fibre Channel	X6588-R6 8Gb SFP+	■	■	■						■	■	
Fibre Channel	X6539-R6 4Gb SFP				■	■	■	■	■			
HA	X1956-R6 QSFP	■	■	■								
HA	X6589-R6 10Gb SFP+				■	■	■	■	■			

Data ONTAP Edge

Operating System	CIFS	De-Dupe	FAS	FlexClone	FlexCache	FlexVol	iSCSI	NFS	ONTAP-V	SnapShot	SnapMirror	Snap Restore	SnapVault Primary	SnapVault Secondary	V-Series	5TB Capacity
Data ONTAP Edge	■	■	■	■	■	■	■	■	■	■		■	■		■	■
Data ONTAP Edge-T	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

NetApp

© 2012 NetApp, Inc. All rights reserved. Specifications are subject to change without notice. NetApp, the NetApp logo, Go further, faster, Data ONTAP, SnapMirror and MetroCluster are trademarks or registered trademarks of NetApp, Inc. in the United States and/or other countries. All other brands or products are trademarks or registered trademarks of their respective holders and should be treated as such.

NA-035-1112

This document is subject to change without notice. Be sure to cross-reference the online Hardware Universe web application at **http://hwu.netapp.com** for the most current information. Hardware Universe is chartered under the NetApp Field Tech Team and Pathway Enablement (FTTPE) organization.

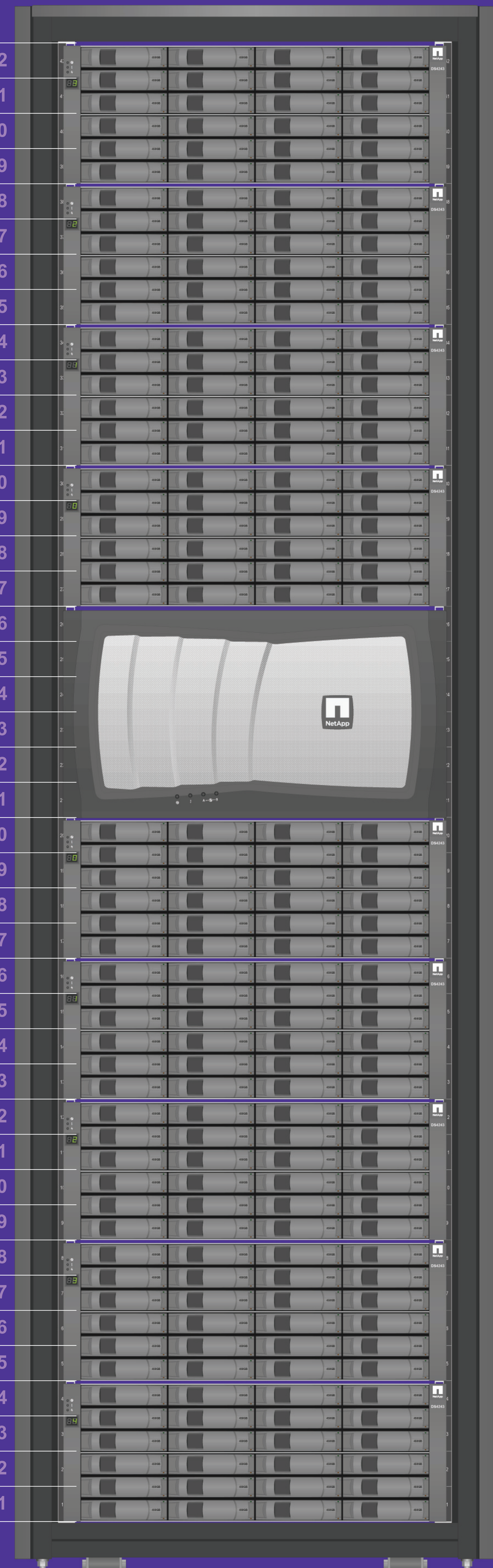
The Hardware Universe Poster is printed on recycled paper. Please recycle after use. Questions and feedback can be sent to **xdl-hardwareuniverse@netapp.com**.

Get Involved With NetApp… Join Tech OnTap

NetApp's Tech OnTap program provides monthly IT insights plus technical case studies, real-world best practices, behind the scenes engineering interviews, exclusive invites to local user groups and much, much more.

For more information, visit:
netapp.com/techontap/community

Feedback and questions can be sent to:
xdl-hardwareuniverse@netapp.com



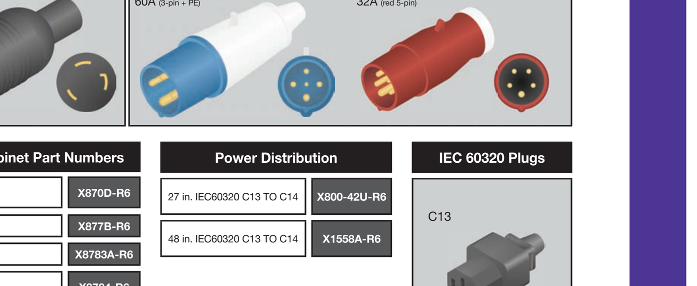
SYSTEM CABINET AND POWER

Dimensions		Weight		Clearance	
Height	78.7 in. (200 cm)	Empty Weight	307 lb. (138 kg)	Front	30 in. (76.3 cm)
Depth	44.3 in. (112.5 cm)	Loaded Weight	1807 lb. (820 kg)	Rear	30 in. (76.3 cm)
Width	23.6 in. (60 cm)			Top	12 in. (30 cm)

System Cabinet Configurations

Configuration	PDUs Per Cabinet	PDU Part #	Plug Type	Service Outlet	Cords Per Side	Amps Per Side	Outlets Per Side	Approx Power	Thermal
NEMA 30A Single-Phase	4	X8712C-R6	NEMA L6-30P (input cord tethered to PDU)	30A	2	48	24 IEC 60320-C13	10 kW @ 208V	34075
NEMA 30A 3-Phase Delta	2	X8719A-R6	NEMA L15-30P (input cord tethered to PDU)	30A	1	41.5	24 IEC 60320-C13	8.6 kW @ 208V	29461
NEMA 30A 3-Phase Delta	2	X8720A-R6	NEMA L21-30P (input cord tethered to PDU)	30A	1	41.5	24 IEC 60320-C13	8.6 kW @ 208V	29461
IEC 32A Single-Phase	4	X8713C-R6	IEC 60309-32A P+N+E (input cord tethered to PDU)	32A	2	64	24 IEC 60320-C13	14.7 kW @ 230V	50239
IEC 32A 3-Phase Wye	2	X8718A-R6	IEC 60309-32A 3P+N+E (input cord tethered to PDU)	32A	1	96	24 IEC 60320-C13	22.1 kW @ 230V	75359
IEC 60A 3-Phase Delta	2	X8721A-R6	IEC 60309-60A 3P+PE (input cord tethered to PDU)	60A	1	83.1	24 IEC 60320-C13	17.2 kW@ 208V	58991

NEMA Plugs — **IEC 60309 Plugs**



System Cabinet Part Numbers

Empty Cabinet (No PDUs/Rails)	X870D-R6
Rail Kit	X877B-R6
Rail Kit	X8783A-R6
Blank Panel (3rd party pass through)	X8784-R6
Bolt-Down Kit	X878-R6
Interconnect Kit	X879B-R6
Mounting Bracket Tie-Down (6U Controllers only)	X8773-R6
Mounting Bracket Tie Down (2020 Controllers only)	X8775-R6
Mounting Bracket Tie Down (3200 Controllers only)	X8778-R6
Mounting Bracket Tie Down (DS4486 only)	X8779-R6
Cable Mgmt. / Velcro Ring	X893A-R6
1U Blank Panel	X8776B-R6
2U Blank Panel	X8778B-R6
Mounting kit for use with Cisco Management switches (pn/ X1965-R5)	X5528A-R6

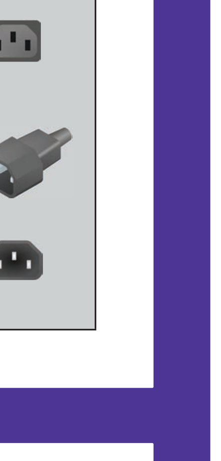
Power Distribution

27 in. IEC60320 C13 TO C14	X800-42U-R6
48 in. IEC60320 C13 TO C14	X1558A-R6

3rd Party Cabinet Rail Kits

2 or 4-Post Rackmount Kit	X5515A-R6
2 or 4-Post Rackmount Kit (FAS2020 & FAS2040)	X5518A-R6
4-Post Rackmount Kit (Round Hole 4 Post Cabinet)	X5525A-R6
4-Post Rackmount Kit	X5526A-R6
2-Post Rackmount Kit (DS2246)	X5527A-R6
4-Post Rackmount Kit (Square Hole 4 Post Cabinet)	X5529A-R6

IEC 60320 Plugs



Scan the QR Code to learn more about the NetApp Hardware Universe site.

First, you need to have a smartphone or tablet equipped with a camera. It also has to have a code-reading (QR) application.

To scan, simply open the app and hold your device's camera up to the QR code. Keep your hand steady and try to center the image of the QR code on your phone or tablet screen. Once the camera locks onto the QR, the Web page, video or other data linked to the QR should automatically open up.

NOTES

1. HA values shown reflect a Controller+IOXM (CI) configuration.
2. System capacity is calculated using base 10 arithmetic (1TB=1,000,000,000,000 bytes) and is derived based on the type, size, and number of drives.
3. Max capacity shown can only be achieved using 3TB drives under Data ONTAP 8.0.2 or greater.
4. Maximum aggregate size is calculated using base 2 arithmetic ($1TB = 2^{40}$ bytes).
5. AC Power values shown are worst-case and reflect system running on one PSU, high fan speed, and power distributed over one power cord. Please refer to the Site Requirements Guide on the NetApp Support site: **support.netapp.com** for typical case values.
6. Thermal dissipation values shown are based on worst-case system values. Please refer to the Site Requirements Guide on the NOW site for more information.
7. FAS6200 embedded Fibre Channel ports and Fibre Channel ports on the vertical FC boards, all are considered as on-board ports, can be set as target or initiators and support operation at 2, 4, or 8Gb speeds. Operation at 1Gb speeds is not supported.
8. The number of onboard SAS ports differs based on the configuration.
9. 100 LUNs from one array using one array LUN group. Combined LUN and NetApp disk can total 240 devices.
10. NVMEM on select FAS / V Series storage controllers leverage a portion of the storage controller available RAM memory. This will result in less memory for available to Data ONTAP.
11. Encrypted drive.
12. Double stack disk tray, 2 drives per tray.
13. Maximum number of Ethernet ports on all network adapter cards is 18 in 8.0.1, 20 in 8.0.2 and 8.1, and 32 in 8.1.x. The maximum number shown for each adapter is for the latest ONTAP release.
14. Requires Data ONTAP 8.1 release or higher.
15. Flash Cache is not supported on the FAS3210 storage systems in the Data ONTAP 8.1 release.
16. Minimum Data ONTAP Support - 7.3.5.1, 8.0.1P5, and 8.0.2 and later; 8.1 Hardware Support - X2065, X2067 (FAS6200), and FAS3200 series on-board SAS ports Storage Support - DS224x & DS424x.
    ** Cables are not supported on the FAS2040 on-board SAS port nor the X2062 miniSAS dual-port SAS HBA for the FAS2050.*
17. The DS14mk2 AT disk shelf and disks will not be shipping in Production starting 01/02/2013. The AT dongle that is not RoHS 2012 compliant (RoHS currently for Europe). Only spares of shelves and spare hard drives FRUs can be shipped out in 2013.

DISK DRIVES

	Part No.	Capacity	RPM	EOA/EOS	Minimum Data ONTAP®	Interface (Gb/Sec) 1	2	4	DS14 Model mk2	mk4
FIBRE CHANNEL	X274B-R5	144GB	10K	05.2008 06.2013	6.4.5, 7.X, 8.0	■	■		■	■
FIBRE CHANNEL	X278A-R5	144GB	15K	11.2009 12.2014	6.4.5, 7.X, 8.0	■	■	■	■	■
FIBRE CHANNEL	X276A-R5	300GB	10K	03.2009 04.2014	7.2.1, 7.3, 8.0	■	■		■	■
FIBRE CHANNEL	X279A-R5	300GB	15K	01.2013	7.2.1, 7.3, 8.0, 8.1	■	■	■	■	■
FIBRE CHANNEL	X291A-R5	450GB	15K	-	7.2.5, 7.3, 8.0, 8.1	■	■	■	■	■
FIBRE CHANNEL	X292A-R5	600GB	15K	-	7.3.2, 8.0, 8.1	■	■	■	■	■

	Part No.	Capacity	RPM	EOA/EOS	Minimum Data ONTAP®	Storage Chassis 2220	2240 2U	2240 4U	4243	4246	2246
SAS	X309A-R6	3TB encrypted	7K	-	8.1.1	■[11]		■[11]		■[11]	
SAS	X410A-R5	300GB	15K	-	7.3.2, 8.0, 8.1				■		
SAS	X421A-R5	450GB	10K	-	7.3.4, 8.0.1, 8.1		■				■
SAS	X411A-R5	450GB	15K	-	7.3.2, 8.0, 8.1				■		
SAS	X486A-R5	450GB	10K	-	8.1.1	■					
SAS	X414A-R5	600GB encrypted	15K	-	8.1				■[11]		
SAS	X416A-R5	600GB encrypted	10K		8.1.1		■[11]				■[11]
SAS	X422A-R5	600GB	10K	-	7.3.4, 8.0.1, 8.1		■				■
SAS	X412A-R5	600GB	15K	-	7.3.2, 8.0, 8.1				■		
SAS	X487A-R5	600GB	10K	-	8.1.1	■					
SAS	X494A-R5	600GB encrypted	10K	-	8.1.1	■[11]					
SAS	X423A-R5	900GB	10K	-	7.3.5, 8.0.2, 8.1		■				■
SAS	X488A-R5	900GB	10K	-	7.3.5, 8.0.2, 8.1	■					

	Part No.	Capacity	RPM	EOA/EOS	Minimum Data ONTAP®	Storage Chassis 2220	2240 2U	2240 4U	4243	4246	2246
SSD	X441A-R5	100GB	N/A	-	8.1.1	■	■	■	■	■	
SSD	X442A-R5	100GB	N/A	08.2011	8.0.1	■			■	■	
SSD	X446A-R6	200GB	N/A	-	8.1.1	■	■	■		■	

	Part No.	Capacity	RPM	EOA/EOS	Minimum Data ONTAP®	Storage Chassis 2220	2240 2U	2240 4U	4243	4246	4486	mk2AT
SATA	X262B-R5	250GB	7.2K	05.2008 06.2013	7.1.1, 7.2, 7.3, 8.0							■[17]
SATA	X267A-R5	500GB	7.2K	08.2010 09.2015	7.1, 7.2, 7.3, 8.0, 8.1							■[17]
SATA	X310A-R5	500GB	7.2K	08.2010 09.2015	7.3.2, 8.0, 8.1				■			
SATA	X268A-R5	750GB	7.2K	11.2009 12.2014	7.2.1, 7.3, 8.0, 8.1							■[17]
SATA	X269A-R5	1TB	7.2K	05.2012 06.2017	7.2.3, 7.3, 8.0, 8.1							■[17]
SATA	X302A-R5	1TB	7.2K	-	7.3.2, 8.0, 8.1	■		■	■	■		
SATA	X294A-R5	2TB	7.2K	05.2012 06.2017	7.3.2, 8.0, 8.1							■[17]
SATA	X306A-R5	2TB	7.2K	-	7.3.2, 8.0, 8.1	■		■	■	■		
SATA	X308A-R5	3TB	7.2K	-	8.0.2, 8.1	■		■	■	■		
SATA	X478A-R5	3TB	7.2K	-	8.1.1						■	
SATA	X480A-R6	8TB (2x4TB)	7.2K	-	8.1.2						■[12]	