

ARRAYS NOT ORIGINALLY DESIGNED AS FLASH-ONLY							ALL-FLASH ARRAY GUIDE	ARRAYS ORIGINALLY BUILT EXCLUSIVELY FOR FLASH							
DELL	DELL	EMC	HEWLETT PACKARD	HITACHI DATA SYSTEMS	NETAPP	TEGILE	NOTE: Flash array vendors supplied product information and confirmed its accuracy through June 3, 2014.	EMC	IBM	KAMINARIO	NIMBUS	PURE STORAGE	SKYERA	SOLIDFIRE	VIOLIN MEMORY
Compellent SC8000	EqualLogic PS6210S	VNX-F	3PAR StoreServ 7450	Hitachi Unified Storage VM	EF-Series	HA2800, T3800	PRODUCT	XtremIO	FlashSystem 840 FlashSystem V840	K2 v5	Gemini F400 Gemini F600	FlashArray 405, 420, 450	skyHawk	SF3010, SF6010, SF9010	6232, 6264, 6264-WFA
Oct-09	Mar-09	Nov-13	Jun-13	Sep-12	EF540: Feb-13 EF550: Jan-14	HA2800: Aug-12 T3800: Jun-14	Original all-flash product release date (general availability)	Nov-13	V840: Mar-14	Sep-11	Aug-12	FA-420: May-13 405/450: May-14	Ltd.: Q3-13 GA: Apr-14	3010/6010: Nov-12 9010: Jul-13	6000 Series: Sep-11
SC8000: Block FS6000: File	Block FS-Series: File	Block	Block, File	Block, File, Object	Block	Block, File	Storage type	Block	Block	Block	Block, File, Object	Block	Block, File	Block	6232, 6264: Block 6264-WFA: File
Scale-up, scale-out	Scale-out	Scale-up	Scale-up, scale-out	Block: scale-up; File: scale-out	Scale-up	Scale-up (scale-out: planned)	Architecture type	Scale-out	840: Appliance; V840: Scale-up, scale-out	Scale-up, scale-out	Scale-up, scale-out	Scale-up	Scale-up (scale-out: planned)	Scale-out	6232, 6264: Scale-up 6264-WFA: Scale-out
Compellent	EqualLogic	EMC VNX-F	HP 3PAR	HDS	NetApp	Tegile	FLASH MEDIA	EMC XtremIO	IBM	Kaminario	Nimbus	Pure	Skyera	SolidFire	Violin
MLC, SLC	SLC	eMLC	MLC, eMLC, SLC	MLC	540: SLC; 550: eMLC	eMLC	Flash type	eMLC	eMLC	MLC	MLC	MLC	MLC	MLC	MLC
6 Gbps SAS SSD (HGST, SanDisk; suppliers may change)	6 Gbps SAS SSD (SanDisk)	6 Gbps SAS SSD (HGST, Micron, Samsung)	6 Gbps SAS SSD (HGST, SanDisk; suppliers may change)	6 Gbps SAS SSD (HGST, Flash Module Drive (HDS))	6 Gbps SAS SSD (SLC-SanDisk; eMLC-Toshiba)	6 Gbps SAS SSD (HGST, SanDisk)	Flash drive type (Manufacturer)	6 Gbps SAS SSD (HGST)	Flash module (IBM)	6 Gbps SATA SSD (Samsung)	12 Gbps SAS SSD (Nimbus)	SATA SSD (HGST, Samsung, Toshiba)	Storage blade-PCIe based (Skyera)	6 Gbps SATA SSD (Intel, Samsung)	Violin Intelligent Memory Module (VIMM)-PCIe based (Violin)
1.6 TB (MLC)	800 GB	400 GB	920 GB (MLC)	3.2 TB (FMD)	SLC-800GB; eMLC-1.6TB	T3800: 2TB	Maximum capacity per drive/module	800 GB	4 TB/module	800 GB	2 TB	512 GB	N/A	960 GB	1 TB VIMM
Compellent	EqualLogic	EMC VNX-F	HP 3PAR	HDS	NetApp	Tegile	STORAGE ARRAY	EMC XtremIO	IBM	Kaminario	Nimbus	Pure	Skyera	SolidFire	Violin
RAID 0,5,6,10, 10DM	RAID 5,6,10,50	Pre-configured with RAID 5	RAID 10,50,60	RAID 5,6,10	RAID 0,1,3,5,6,10, NetApp Dynamic Disk Pools	RAID 10,50,60	RAID/data protection options	Proprietary XtremIO Data Protection (XDP)	840: RAID 0, 5; V840: RAID 5	RAID 6 (dual parity, Kaminario flavor)	RAID 0,1,5,6,10	Proprietary RAID-3D	Proprietary RAID-SE	Proprietary Helix data protection algorithm	Proprietary vRAID
4U (1 controller) 6U (2 controllers)	2U	5U	2U	7U	2U	2U	Rack units: Minimum	6U per node	840: 2U V840: 6U	4U	2U	FA-405: 4U 420: 6U; 450: 10U	1U	SU (5-node min. configuration)	3U
48 TB (w/2U-SC200 enclosure)	1U: 8.1 TB 2U: 19.2 TB	2.21 TB (minimum config.)	11 TB	19.2 TB	EF540: 9.6 TB EF550: 19.2 TB	HA2800: 2 TB T3800: 22 TB	Capacity per rack unit (maximum)	3.5 TB	840: 33 TB V840: 11 TB	6.4 TB	24 TB	5.7 TB	57.2 TB (1 node)	3010: 3TB; 6010: 6 TB; 9010: 9.6 TB	6232: 11.7 TB; 6264, 6264-WFA: 23.3 TB
							MAXIMUM CONFIGURATION								
1,600 TB (dual controller)	307.2 TB (cluster)	46.2 TB (13U-max. config.)	220 TB (4-node config.)	308 TB	EF540: 96 TB EF550: 192 TB	HA2800: 4.4 TB T3800: 332 TB	Raw capacity	80 TB (4 X-Brick cluster)	840: 66 TB V840 cluster: 264 TB	307.2 TB (32-node cluster)	48 TB	405: 11 TB; 420: 35 TB; 450: 70 TB	57.2 TB	SF9010: 960 TB (100 nodes)	6232: 35 TB; 6264: 70 TB; 6264-WFA: 280 TB
1,000 TB (dual controller)	241.6 TB (RAID 6; cluster)	41.1 TB (13U-max. config.)	175 TB (4-node config.)	243 TB	EF540: 84 TB EF550: 168 TB	HA2800: 3.5 TB T3800: 265 TB	Usable capacity (no deduplication)	65.6 TB (4 X-Brick cluster)	840: 48 TB V840 cluster: 192 TB	236.8 TB (32-node cluster)	38.5 TB	405: 6 TB; 420: 20 TB; 450: 41 TB	44 TB	SF9010: 480 TB (100 nodes)	6232: 22 TB; 6264: 44 TB; 6264-WFA: 176 TB
N/A	N/A	91.3 TB (std. VDI workload)	350 TB (4-node config.)	972 TB-typical 2.43 PB-possible	N/A	HA2800: 17.5 TB T3800: 1325 TB	Usable capacity, estimated (post-deduplication/data reduction)	280 TB (4 X-Brick cluster)	840: N/A V840 cluster: 960 TB	2 PB	385 TB	405: 40+TB; 420: 125+TB; 450: 250+TB	88 TB	SF9010: 3.4 PB (100 nodes)	6232, 6264: N/A; 6264-WFA: 352 TB (typical)
960 SSDs	24 SSDs/array; 192 SSDs/pool of 8 arrays	135 SSDs	240 (small form factor); 192 (large form factor)	96 FMDs + 128 SSDs	120 SSDs	HA2800: 22 SSDs; T3800: 166 SSDs	Maximum number of drives/modules	100 SSDs (4 X-Brick cluster)	12 modules	384 SSDs (Note: Can scale higher.)	24 SSDs	405: 24 SSDs; 420: 88 SSDs; 450: 144 SSDs	N/A	1,000 drives (100 nodes)	6232: 30 VIMMs; 6264, 6264-WFA: 60 VIMMs
Compellent	EqualLogic	EMC VNX-F	HP 3PAR	HDS	NetApp	Tegile	NETWORKING (Max. speed in Gbps)	EMC XtremIO	IBM	Kaminario	Nimbus	Pure	Skyera	SolidFire	Violin
16 Gb	N/A	8 Gb	8 Gb	8 Gb	EF540: 8 Gb EF550: 16 Gb	8 Gb	Fibre Channel	8 Gb	840: 16 Gb V840: 8 Gb	16 Gb	F400: 16 Gb F600: N/A	FA-405/420: 8 Gb FA-450: 16 Gb	N/A	16 Gb-Planned 2014	6232, 6264: 8 Gb 6264-WFA: N/A
10 Gb	10 Gb	10 Gb	10 Gb	10 Gb	10 Gb	10 Gb	Ethernet/iSCSI	10 Gb	840: 10 Gb V840: N/A	10 Gb	F400: 10 Gb F600: 40 Gb	N/A	10 Gb	10 Gb	10 Gb
N/A	N/A	N/A	N/A	N/A	N/A	N/A	InfiniBand	N/A	40 Gb; 840 only	N/A	F600: 56 Gb	N/A	N/A	N/A	40 Gb
10 Gb	N/A	10 Gb	10 Gb	N/A	N/A	N/A	Fibre Channel over Ethernet (FCoE)	N/A	10 Gb; 840 only	N/A	N/A	Planned	N/A	N/A	N/A
Compellent	EqualLogic	EMC VNX-F	HP 3PAR	HDS	NetApp	Tegile	AVAILABILITY	EMC XtremIO	IBM	Kaminario	Nimbus	Pure	Skyera	SolidFire	Violin
No (typical); Yes (if controllers at peak perf.-0-50%)	No	Yes	Yes (2-node: 0-25%; 4-node: 0-15% typical)	Yes (20-50%)	Yes (10%-50%)	Yes (up to 50%)	Performance degradation during controller or node failure	Yes (20%-avg. deployment)	Yes (50%)	Yes (up to 25%)	No	No	Minimum 2-node config.; Yes (<50%)	No	Yes (20-25%; <10% on single controller failure)
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Non-disruptive software upgrades	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Non-disruptive hardware upgrades	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Non-disruptive hardware expansion	Planned 2014	840: No; V840: via Ext. Virtualization (fee)	Yes	Yes	Yes	Yes	Yes	Yes
Compellent	EqualLogic	EMC VNX-F	HP 3PAR	HDS	NetApp	Tegile	STORAGE- SAVING FEATURES	EMC XtremIO	IBM	Kaminario	Nimbus	Pure	Skyera	SolidFire	Violin
Yes (fee, Dyn. Capacity)	Yes	Yes	Yes	Yes	Yes	Yes	Thin provisioning	Yes	No-840, Yes-V840	Yes	Yes	Yes	Yes	Yes	Yes (6232, 6264: fee; 6264-WFA: no fee)
Planned	No	No	Yes	Yes	No	Yes	Inline deduplication	Yes	No	No	Yes	Yes	No	Yes	6232, 6264: Plan 2014
Planned	No	No	No	No	No	Yes	Inline compression	Planned	No-840, Yes-V840 (fee)	Yes	Yes	Yes	Yes (fee)	Yes	6232, 6264: Plan 2014
Compellent	EqualLogic	EMC VNX-F	HP 3PAR	HDS	NetApp	Tegile	DATA MANAGEMENT	EMC XtremIO	IBM	Kaminario	Nimbus	Pure	Skyera	SolidFire	Violin
Yes (fee, Data Instant Replay)	Yes	Yes (fee, Local Protection Suite)	Yes (fee)	Yes (fee)	Yes	Yes	Snapshots	Yes	No-840, Yes-V840	Yes	Yes	Yes	Yes	Yes	Yes (6232, 6264: fee; 6264-WFA: no fee)
Yes (fee, Data Instant Replay)	Yes	Yes	Yes	Yes (fee)	Yes	Yes	Clones	Yes	No-840, Yes-V840	Yes	Yes	Yes	Yes	Yes	Yes (6232, 6264: fee; 6264-WFA: no fee)
Yes (fee, Remote Instant Replay)	Yes	Yes (fee, Local or Remote Prot. Suite)	Yes (fee)	Yes (fee)	Yes	Yes	Replication	Yes (fee, w/VPLEX; future-RecoverPt.)	No-840, Yes-V840 (fee)	Planned 2014	Yes	Yes	Yes (fee)	Planned 2014	6232, 6264: Planned 2014; 6264-WFA: Yes
Yes (fee, Remote Instant Replay)	Yes	Yes (fee, Remote Protection Suite)	Yes (fee)	Yes (fee)	No	No	Three data center replication	Yes (fee, w/VPLEX; future-RecoverPt.)	No-840, Yes-V840 (fee)	No	Yes	No	Yes (fee)	Planned 2014	6232, 6264: Planned 2014; 6264-WFA: Yes
Planned-June (fee)	Yes	No	Yes (fee)	Yes (fee)	EF540: No; EF550: Yes	No	Data encryption	Planned	Yes (fee)	Planned 2014	Yes	Yes	Yes (fee)	Yes	Yes (fee)
Planned	No	Yes	Yes (fee)	Yes	Yes	No	Quality of service	Planned	Yes	No	Yes	No	No	Yes	No
Planned	Yes	Yes	Yes	Yes	No	Yes	VMware vMCS certification	No	No	No	No	No	No	No	Planned 2014
Compellent	EqualLogic	EMC VNX-F	HP 3PAR	HDS	NetApp	Tegile	OPERATIONAL MANAGEMENT	EMC XtremIO	IBM	Kaminario	Nimbus	Pure	Skyera	SolidFire	Violin
Planned	No	No	Yes	No	Yes	Yes	RESTful APIs	Yes	No-840, Yes-V840	Yes	Yes	Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes	Yes	Yes	Yes	VAAI	Yes	No-840, Yes-V840	Yes	Yes	Yes	Yes	Yes	Yes
Planned	Yes	Yes	Yes	No	Yes	No	OpenStack driver	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Compellent	EqualLogic	EMC VNX-F	HP 3PAR	HDS	NetApp	Tegile	WARRANTY/SUPPORT	EMC XtremIO	IBM	Kaminario	Nimbus	Pure	Skyera	SolidFire	Violin
3 years (Ext. options: With support contract)	3 years (Ext. options: Up to 7 years)	Hardware-1td: 1 yr.; Software: 90 days; Ext. option: 3 yrs.	3 years	3 yrs. (Ext. option: Up to 5 yrs. at time of purchase)	3 years (Ext. option: Up to 5 years)	90 days (Ext. options: 1, 3, 5 years)	Base warranty: array	Hardware-1td 3 yrs.; Software-90 days, Ext. option: 3 yrs.	Base: 1 or 3 yrs. (Ext. options: Up to 5 yrs.)	3 yrs.-requires active support contract	1-10 yrs.: Requires active support contract	3 years	3 years (Ext. option: Up to 5 years)	1 year-req. support contract; Ext. options: 2-5 years	Hardware: 3 yrs. (Ext. option: 5 yrs.); Software: 90 days
Same as array unless SSD is beyond "rated life"	Same as array warranty	Same as array warranty	5 years: MLC SSDs; 3 years: eMLC, SLC SSDs	3 years (5 yrs. with system maint. contract)	Same as array warranty	Same as array warranty	Base warranty: flash	Same as array warranty	Same as array (for mechanical issues, malfunction)	Same as array plus guarantee: 7 yrs. endurance	Same as array warranty	Same as array warranty	Same as array warranty	Same as array warranty	Same as array warranty
Only if SSD is within "rated life" period	Yes	Yes	Yes	Yes	Yes	Yes	Flash replacement if drive/module wears out before warranty expires?	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
3-5+ years with perpetual licensing	7 years from invoice	3 years	5 yrs. upfront; renewable to product's end of support life	3 yrs. may be added to base warranty after sale	5 yrs. at pt. of sale; more years possible but not standard	5 years	Support: Maximum number of years available for purchase	5 years	Maintenance: Up to 5 yrs.; includes hardware	3 years: typical; Option for 5 years	10 years	10+ years	5 years	5 years	5 years