

Overview

HP StoreAll 8000 Storage is the latest generation of hyperscale, harnessed, instant, economic storage to tame and mine your expanding archives. HP StoreAll increases your return on information, infrastructure, and individuals by enabling you to effectively store, retain, protect, manage, access, AND extract value from continuously growing unstructured data.

StoreAll scales massively without complexity to 16 petabytes of billions of files and objects with data access via a broad range of file protocols and native OpenStack Object Storage API. It brings structure to unstructured data with data retention policies, WORM, data integrity validation, and auditing to enable adherence to governance policies. Embedded support for custom metadata tagging is also provided so that meaning can be added to data. File system analytics and search can be performed up to 100,000X faster with StoreAll Express Query for metadata-driven storage administration and to enhance applications integrated with it via a REST API. Costs of storing data can be scaled down over time with policy-based tiering and a modular architecture.

StoreAll has been specifically certified with key ISV applications for enterprise sync/share repositories, content depots, general archives, governance archives, and backup repositories. Please refer to the Single Point of Connectivity Knowledge (SPOCK) website at: <http://www.hp.com/storage/spock> for details.

What's New

- HP StoreAll 8800 Storage - a converged hyperscale, economic, ultra-dense appliance that can be flexibly configured for a broad range of archive workloads, and that can be seamlessly clustered with other StoreAll models.
- HP StoreAll 8200 Gateway Storage - providing file archive and object storage services in combination with 3PAR StoreServ 7000 and 10000 Storage, and that can be seamlessly clustered with other StoreAll models.
- HP StoreAll OS v6.5 that improves storage administration and data governance, and is optimized for today's and tomorrow's demands with expanded standards-based file protocol and object storage support.

Features and Benefits

Hyperscale: Massive scalability without complexity

Seamlessly scale out with HP StoreAll Storage to 16 petabytes of billions of files and objects.

Deploy traditional and new generation cloud archive applications with data access via a broad range of included file protocols and native OpenStack Object Storage API.

Manage HP StoreAll Storage and your data from a single, central, web-based Management Console.

Harnessed: Structure for unstructured data

Enable data governance policy adherence with retention services and WORM file immutability.

Conduct forensics for timely administrator action with pervasive auditing of file system events.

Add meaning to your data with embedded custom metadata tagging using StoreAll Express Query.

Proactively manage long term data durability with integrated data integrity validation.

Instant: Up to 100,000X faster analytics and search

Make metadata informed storage administration decisions orders of magnitude more quickly using StoreAll Express Query-powered reporting.

Enhance applications by integrating with the StoreAll Express Query REST API, and avoid the cost and complexity of an external metadata database.

Overview

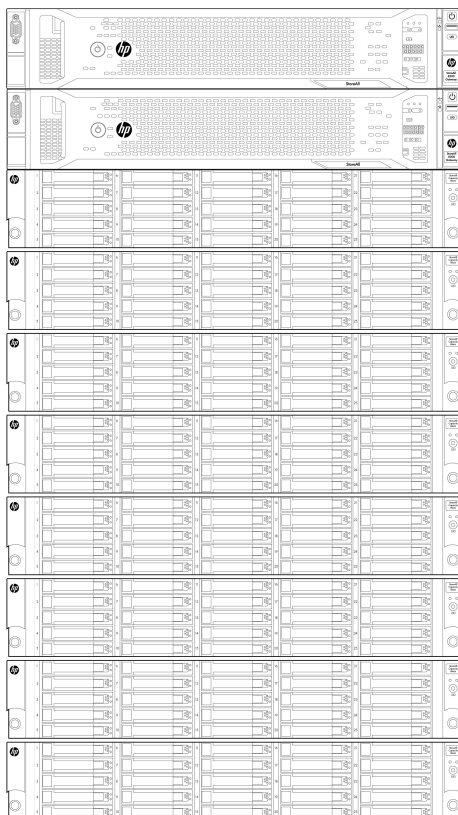
Economic: Scale down costs of storing data over time HP StoreAll Storage optimizes your costs throughout the data lifecycle with policy-based tiering. Modularly add capacity and performance as your archive expands with the pay-as-you-grow architecture. Leverage the rich set of all inclusive software features for data retention, protection, optimization, and management.

Common Specifications

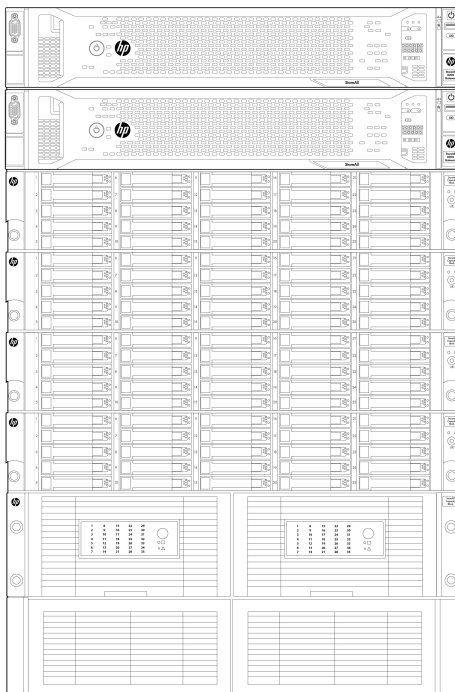
Protocols	SMB/CIFS, NFS, FTP and FTPS, HTTP and HTTPS, WebDAV, StoreAll REST API File Compatibility Mode, OpenStack Object Storage API, ICAP, NDMP
Storage Capacity	16 petabytes maximum across multiple pairs of Nodes
Data Services Features	Data Retention Policies, WORM, Constant Validation, Snapshots, Continuous Remote Replication, Tiering, Rebalancing, Express Query, Quotas, Reporting, and Auditing included

Standard Features – HP StoreAll 8800 Storage

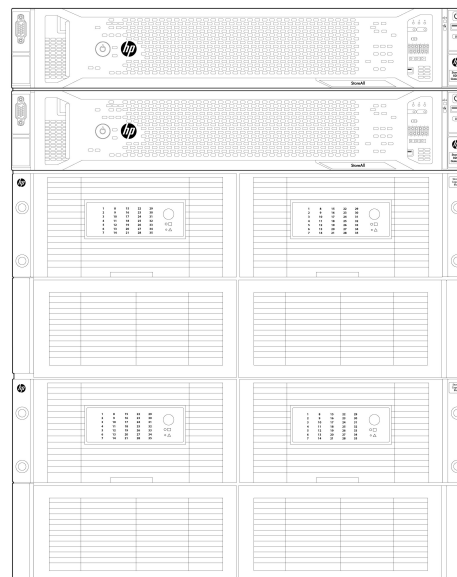
HP StoreAll 8800 Couplet configured with ENT SAS Capacity Blocks



HP StoreAll 8800 Couplet configured with ENT SAS and MDL SAS Capacity Blocks



HP StoreAll 8800 Couplet configured with MDL SAS Capacity Blocks



StoreAll 8800 Storage Node

Operating System:	HP StoreAll OS v6.5 preinstalled
Form Factor:	2U rack mount
Processor:	Two Intel® Xeon® Processor E5-2620
Memory:	48GB PCL3-10600 (DDR3-1333)
Network Controller:	One 4-port 1GbE included; reserved for a discrete management network if a discrete management network is desired
Storage Controller:	One Smart Array P420i for mirrored internal OS disk drives; two StoreAll P1228 RAID Controllers for user data in Capacity Blocks
Disk Drives:	Two mirrored 300 GB 10K SFF ENT SAS HDDs for StoreAll OS only
Cooling Fans:	Six hot plug and redundant
Power Supplies:	Two 1200W Common Slot Platinum Plus hot plug and redundant
Power Cords:	Two C13-C14 PDU
Management Features:	Integrated Lights-Out 4 with Advanced License included

Standard Features – HP StoreAll 8800 Storage

MDL SAS Capacity Block	Form Factor:	5U rack mount
	Interconnect:	SAS
	Disk Drives:	36 or 70 2 TB, 3 TB, or 4TB 7.2K LFF MDL SAS HDDs depending on model
	Storage Layout:	Two pools of eight HDDs, two pools of nine HDDs, and two spare HDDs for Partial Capacity Block models; four pools of eight HDDs, four pools of nine HDDs, and two spare HDDs for Full Capacity Block models
	RAID Level:	RAID 6 (6+2 and 7+2)

ENT SAS Capacity Block	Form Factor:	2U rack mount
	Interconnect:	SAS
	Disk Drives:	25 450GB or 900GB 10K SFF ENT SAS HDDs depending on model
	Storage Layout:	Four pools of six HDDs plus one spare HDD
	RAID Level:	RAID 5 (5+1)

Configuration Instructions - HP StoreAll 8800 Storage

It is recommended that the HP StoreAll Storage Best Practices technical white paper (4AA4-4790ENW) be reviewed and the anticipated workload be understood prior to configuring HP StoreAll 8800 Storage.

HP StoreAll 8800 Storage is based on two primary components: Nodes and Capacity Blocks. A pair of Nodes is connected with one or more Capacity Blocks to form a Couplet.

Multiple Couplets, including of different StoreAll models (e.g. StoreAll 8200 Gateway Storage, StoreAll 9300 Gateway Storage, StoreAll 9320 Storage, StoreAll 9730 Storage), can be connected in a seamless 16 petabyte scale out cluster when running the same version of the StoreAll OS (v6.5 or later which is the minimum for StoreAll 8800 Storage).

Up to four Couplets can be factory integrated as standard. More than four Couplets will require a supplementary Factory Express Service if factory integration is desired.

NOTE: HP configuration tools should be used to ensure valid configurations.

NOTE: For detailed information on compatibility with various hardware and software, including ISV applications, please review the Single Point of Connectivity Knowledge (SPOCK) website at: <http://www.hp.com/storage/spock>.

Step 1: Choose number of Nodes (minimum 2)

NOTE: Nodes must be ordered in pairs.

HP StoreAll 8800 Storage Node

H6Z60A

Step 2: Select Network Controllers (2 required)

Two add-in 4-port 1GbE or two 2-port 10GbE Network Controllers are required per Node for cluster and client networks - both must be identical. 10GbE is recommended unless the facility at which the platform is to be installed or other StoreAll models with which the StoreAll 8800 Storage is to be clustered do not support it.

For these two add-in Network Controllers, Mode 6 is the default bonding for 1GbE and Mode 1 is the default bonding for 10GbE. Mode 4 is the recommended bonding for both 1GbE and 10GbE if the facility network accommodates it.

NOTE: Each Node includes one 4-port 1GbE Network Controller that is not used by default. It is reserved for a discrete management network if a discrete management network is desired.

HP NC552SFP 10Gb 2-port Ethernet Server Adapter

614203-B21

HP NC365T 4-port Ethernet Server Adapter

593722-B21

HP NC552SFP 10Gb 2-port Ethernet Server Adapters (614203-B21) require Direct Attach Cables (DACs) for copper environments or fiber transceivers and cables for fiber optic environments. There are multiple options that must match the facility network. The correct option must be selected if the facility does not already have the needed DACs or fiber transceivers. At least one DAC or fiber transceiver is required per Node to connect to the facility network.

HP BladeSystem c-Class 10Gb Short Range Small Form-Factor Pluggable Option

455883-B21

HP BladeSystem c-Class 10Gb Long Range Small Form-Factor Pluggable Option

455886-B21

HP BladeSystem c-Class 10Gb Long Range Mode Small Form-Factor Pluggable Option

455889-B21

HP BladeSystem c-Class Small Form-Factor Pluggable .5m 10GbE Copper Cable

487649-B21

HP BladeSystem c-Class Small Form-Factor Pluggable 1m 10GbE Copper Cable

487652-B21

HP BladeSystem c-Class Small Form-Factor Pluggable 3m 10GbE Copper Cable

487655-B21

Configuration Instructions - HP StoreAll 8800 Storage

HP BladeSystem c-Class Small Form-Factor Pluggable 7m 10GbE Copper Cable

487658-B21

Step 3: Select Capacity Block (minimum 1, maximum 2)

Capacity Blocks provide the storage for user data. HP StoreAll 8800 Storage can be configured with Enterprise SAS Capacity Blocks and Midline SAS Capacity Blocks. Enterprise SAS provides higher performance and duty cycles than Midline SAS.

Each pair of Nodes can be configured with one or two Capacity Blocks. The Capacity Blocks can be the same or different.

HP StoreAll 8800 11TB 25 450GB SFF 10K ENT SAS HDD 6Gb Capacity Block H6Z70A

Includes 25 450GB 10K SFF ENT SAS HDDs in a 2U rack mount enclosure; usable capacity at the file system level is approximately 7.8 TiB; can be expanded with up to three HP StoreAll 8800 11TB 25 450GB SFF 10K ENT SAS HDD 6Gb Expansion Capacity Blocks (E7W08A)

HP StoreAll 8800 22TB 25 900GB SFF 10K ENT SAS HDD 6Gb Capacity Block H6Z71A

Includes 25 900GB 10K SFF ENT SAS HDDs in a 2U rack mount enclosure; usable capacity at the file system level is approximately 15.6 TiB; can be expanded with up to three HP StoreAll 8800 22TB 25 900GB SFF 10K ENT SAS HDD 6Gb Expansion Capacity Blocks (E7W09A)

HP StoreAll 8800 2TB LFF 7.2K MDL SAS HDD 6Gb Partial Capacity Block H6Z61A

Includes 36 2TB 7.2K LFF MDL SAS HDDs in a 5U rack mount enclosure; usable capacity at the file system level is approximately 46 TiB; can be expanded with one HP StoreAll 8800 2TB LFF 7.2K MDL SAS HDD Bundle (H6Z67A)

HP StoreAll 8800 3TB LFF 7.2K MDL SAS HDD 6Gb Partial Capacity Block H6Z62A

Includes 36 3TB 7.2K LFF MDL SAS HDDs in a 5U rack mount enclosure; usable capacity at the file system level is approximately 69 TiB; can be expanded with one HP StoreAll 8800 3TB LFF 7.2K MDL SAS HDD Bundle (H6Z68A)

HP StoreAll 8800 4TB LFF 7.2K MDL SAS HDD 6Gb Partial Capacity Block H6Z63A

Includes 36 4TB 7.2K LFF MDL SAS HDDs in a 5U rack mount enclosure; usable capacity at the file system level is approximately 92 TiB; can be expanded with one HP StoreAll 8800 4TB LFF 7.2K MDL SAS HDD Bundle (H6Z69A)

HP StoreAll 8800 140TB 70 2TB LFF 7.2K MDL SAS HDD 6Gb Full Capacity Block H6Z64A

Includes 70 2TB 7.2K LFF MDL SAS HDDs in a 5U rack mount enclosure; usable capacity at the file system level is approximately 92 TiB

HP StoreAll 8800 210TB 70 3TB LFF 7.2K MDL SAS HDD 6Gb Full Capacity Block H6Z65A

Includes 70 3TB 7.2K LFF MDL SAS HDDs in a 5U rack mount enclosure; usable capacity at the file system level is approximately 138 TiB

HP StoreAll 8800 280TB 70 4TB LFF 7.2K MDL SAS HDD 6Gb Full Capacity Block H6Z66A

Includes 70 4TB 7.2K LFF MDL SAS HDDs in a 5U rack mount enclosure; usable capacity at the file system level is approximately 184 TiB

Configuration Instructions - HP StoreAll 8800 Storage

Step 4: Select ENT SAS Expansion Capacity Block (minimum 0, maximum 6)

ENT SAS Expansion Capacity Blocks are optional and provide additional SFF 10K ENT SAS HDD capacity. A maximum of three can be added to each ENT SAS Capacity Block (H6Z70A or H6Z71A).

NOTE: ENT SAS Expansion Capacity Blocks must use the same HDD as the ENT SAS Capacity Block to which they are attached.

HP StoreAll 8800 11TB w/25 450GB SFF 10K ENT SAS HDD 6G Expansion Capacity Block E7W08A

Includes 25 450GB 10K SFF ENT SAS HDDs in a 2U rack mount enclosure; usable capacity at the file system level is approximately 7.8 TiB

HP StoreAll 8800 22TB w/25 900GB SFF 10K ENT SAS HDD 6G Expansion Capacity Block E7W09A

Includes 25 900GB 10K SFF ENT SAS HDDs in a 2U rack mount enclosure; usable capacity at the file system level is approximately 15.6 TiB

Step 5: Choose system options

The following options are available:

Drive Bundles for MDL SAS Partial Capacity Blocks

MDL SAS HDD Bundles are optional and provide additional LFF 7.2K MDL SAS HDD capacity for MDL SAS Partial Capacity Blocks. A maximum of one can be added to each MDL SAS Partial Capacity Block (H6Z61A, H6Z62A, and H6Z63A).

NOTE: MDL SAS HDD Bundles must use the same HDD as the MDL SAS Partial Capacity Block in which they are to be installed.

HP StoreAll 8800 2TB LFF 7.2K MDL SAS HDD Bundle H6Z67A

Includes 34 2TB 7.2K LFF MDL SAS HDDs for installation in HP StoreAll 8800 2TB LFF 7.2K MDL SAS HDD 6Gb Partial Capacity Block (H6Z61A)

HP StoreAll 8800 3TB LFF 7.2K MDL SAS HDD Bundle H6Z68A

Includes 34 3TB 7.2K LFF MDL SAS HDDs for installation in HP StoreAll 8800 3TB LFF 7.2K MDL SAS HDD 6Gb Partial Capacity Block (H6Z62A)

HP StoreAll 8800 4TB LFF 7.2K MDL SAS HDD Bundle H6Z69A

Includes 34 4TB 7.2K LFF MDL SAS HDDs for installation in HP StoreAll 8800 4TB LFF 7.2K MDL SAS HDD 6Gb Partial Capacity Block (H6Z63A)

Fibre Channel HBA for backup offload

Backup traffic can be offloaded from the cluster and client network to a Fibre Channel SAN using an HBA. A maximum of one add-in Fibre Channel HBA is supported per Node for this purpose only.

HP 82Q 8Gb 2-port PCIe Fibre Channel Host Bus Adapter AJ764A

Rack

The default rack for HP StoreAll 8800 Storage in HP configuration tools is an HP 642 Intelligent Series Rack. A KVM Console and KVM Switch will be automatically added when factory rack integration is selected.

HP StoreAll 8800 Storage is also supported in existing racks containing HP StoreAll 9320 Storage and in the HP StoreAll 9730 Storage Base Rack (QZ728A). When installed alongside HP StoreAll 9730 Storage in an HP StoreAll 9730 Storage Base Rack, the HP StoreAll

Configuration Instructions - HP StoreAll 8800 Storage

8800 Storage Couplet(s) must be installed above the HP StoreAll 9730 Storage components and each Couplet must be contiguous within the rack - not traversing HP StoreAll 9730 Storage components or multiple racks.

NOTE: Up to four Couplets can be factory integrated as standard. More than four Couplets will require a supplementary Factory Express Service if factory integration is desired.

NOTE: Factory rack integration should be selected unless a plan has been established to integrate HP StoreAll 8800 Storage into an existing facility rack.

Network Switch for Rack

The cluster and client network required for the HP StoreAll 8800 Storage Nodes can either use available facility switches, HP StoreAll Storage dedicated switches installed within the Rack, or a combination of the two. The components below are recommended for an HP StoreAll Storage dedicated cluster and client 10GbE network installed within the Rack.

Network Switch

Select one or two HP 5920-24XG Switches per Rack. Two Switches are recommended to avoid a single point of failure. Select two fans per Switch. Select one or two power supplies per Switch. Two power supplies per Switch are recommended for redundancy.

HP 5920AF-24XG Switch	JG296A
HP 5920AF-24XG Front (port-side) to Back (power-side) Airflow Fan Tray	JG298A
HP A58x0AF 650W AC Power Supply	JC680A

Connection of 10GbE Network Controller ports to the Network Switch

Optical fiber cables are recommended for the best airflow and are easier to route than copper cables. Select four HP BladeSystem c-Class 10Gb Short Range Small Form-Factor Pluggable Options for each Node to connect the Node to the Switch(es), eight total per pair of Nodes. Select the same number of HP X130 10G SFP+ LC SR Transceivers for the corresponding ports in the HP 5920AF-24XG Switch and the same number of HP 2m Premier Flex LC/LC Optical Cables.

HP BladeSystem c-Class 10Gb Short Range Small Form-Factor Pluggable Option	455883-B21
HP X130 10G SFP+ LC SR Transceiver	JD092B
HP 2m Premier Flex LC/LC 1 Pack Optical Cable	BK839A

Connection of the Integrated Lights-Out port to the Network Switch

Select one HP X120 1G SFP RJ45 Transceiver per Node for the corresponding Switch ports, two total per pair of Nodes. Select the same number of Ethernet Cable 7 ft CAT5 RJ45 M/M.

HP X120 1G SFP RJ45 T Transceiver	JD089B
HP RJ45 to RJ45 Cat5e Black M/M 7.6m 1-pack Data Cable	C7535A

Options - HP StoreAll 8800 Storage

Connection of 10GbE Network Controller ports to the Network Switch

Optical fiber cables are recommended for the best airflow and are easier to route than copper cables. Select four HP BladeSystem c-Class 10Gb Short Range Small Form-Factor Pluggable Options for each Node to connect the Node to the Switch(es), eight total per pair of Nodes. Select the same number of HP X130 10G SFP+ LC SR Transceivers for the corresponding ports in the HP 5920AF-24XG Switch and the same number of HP Premier Flex LC/LC Multi-mode OM4 2 fiber 2m Cables.

HP BladeSystem c-Class 10Gb Short Range Small Form-Factor Pluggable Option	455883-B21
HP X130 10G SFP+ LC SR Transceiver	JD092B
HP Premier Flex LC/LC Multi-mode OM4 2 fiber 2m Cable	QK733A

Connection of the Integrated Lights-Out port to the Network Switch

Select one HP X120 1G SFP RJ45 Transceiver per Node for the corresponding Switch ports, two total per pair of Nodes. Select the same number of HP RJ45 to RJ45 Cat5e Black M/M 7.6m 1-pack Data Cables.

HP X120 1G SFP RJ45 T Transceiver	JD089B
HP RJ45 to RJ45 Cat5e Black M/M 7.6m 1-pack Data Cable	C7535A

Trunk between Switches within the Rack (required when two Switches are selected to avoid a single point of failure)

Select two HP X130 10G SFP+ LC SR Transceivers and one HP Premier Flex LC/LC Multi-mode OM4 2 fiber 1m Cable per Node to use for the trunk to ensure it is not a bottleneck.

HP X130 10G SFP+ LC SR Transceiver	JD092B
HP Premier Flex LC/LC Multi-mode OM4 2 fiber 1m Cable	QK732A

Connection of dedicated network to facility network

Determine the number of Switch ports to be connected to the facility network. If two Switches per Rack are configured to avoid a single point of failure within the Rack, connect both to the facility network. Select the appropriate number and type of DACs or transceivers that match the facility network. Refer to the QuickSpecs at:

http://h18004.www1.hp.com/products/quickspecs/14260_div/14260_div.pdf for the full list of supported DACs and transceivers.

NOTE: A private network may be preferred for the HP StoreAll Storage cluster using HP 5920-24XG Switches installed within the Rack(s) that is separate from a client access network using facility switches. This private network for the cluster will provide isolated and reliable internal communication between the Nodes. It will also provide a separate access path to the Nodes for management and maintenance. If a private network is configured, the aforementioned dedicated network switch rules should be used for a pair of Switches in each Rack with four exceptions:

- Only two of the four available 10GbE Network Controller ports are connected to the HP 5920-24XG Switches within the Rack. Select two HP BladeSystem c-Class 10Gb Short Range Small Form-Factor Pluggable Options (455883-B21) per Node to connect the Node to the Switch, four total per pair of Nodes. Select the same number of HP X130 10G SFP+ LC SR Transceivers (JD092B) for the corresponding ports in the HP 5920AF-24XG Switch and the same number of HP Premier Flex LC/LC Multi-mode OM4 2 fiber 2m Cables (QK733A).
- The size of the trunk between the Switches in the Rack can be reduced by half. Select two HP X130 10G SFP+ LC SR Transceivers (JD092B) and one HP Premier Flex LC/LC Multi-mode OM4 2 fiber 1m Cable (QK732A) per pair of Nodes to use for the trunk to ensure it is not a bottleneck.
- If multiple Racks have been ordered and the Nodes are to be part of the same cluster, the Switches in the Racks must be connected (spanned). For each pair of Racks that need to be connected, select eight HP X130 10G SFP+ LC SR Transceivers (JD092B) and four HP Premier Flex LC/LC Multi-mode OM4 Cables per Node of suitable length.

HP Premier Flex LC/LC Multi-mode OM4 2 fiber 5m Cable	QK734A
HP Premier Flex LC/LC Multi-mode OM4 2 fiber 15m Cable	QK735A
HP Premier Flex LC/LC Multi-mode OM4 2 fiber 30m Cable	QK736A

Options - HP StoreAll 8800 Storage

- Select two of the appropriate type of DACs or transceivers to connect the Rack (or spanned Racks) to the facility network to allow access for management and maintenance. Refer to the QuickSpecs at: http://h18004.www1.hp.com/products/quickspecs/14260_div/14260_div.pdf for the full list of supported DACs and transceivers.

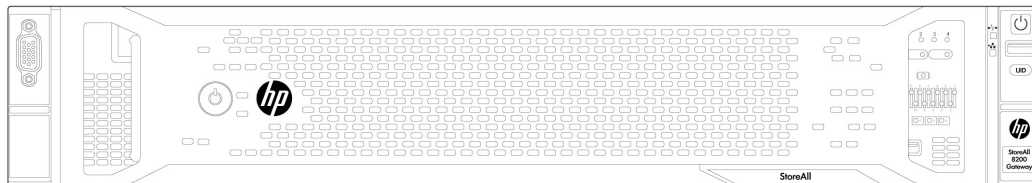
Specifications - HP StoreAll 8800 Storage

Specifications for HP StoreAll 8800 Storage Couplet with MDL SAS Capacity Block(s)	Minimum Couplet	Maximum Couplet	Each Node	Each Partial Capacity Block	Each Full Capacity Block
Current (Amps @ 100 VAC)	47.0	61.8	20.0	7.0	10.9
Current (Amps @ 200 VAC)	26.2	40.3	9.8	6.6	10.4
Max Power (Watts @ 100 VAC)	4420	5898	1860	700	1089
Max Power (Watts @ 200 VAC)	6085	7546	2696	693	1077
Max Thermal (BTU/hr @ 100 VAC)	9446	14276	3530	2386	3608
Max Thermal (BTU/hr @ 200 VAC)	11562	16546	4600	2362	3673
Weight (lbs)	362	760	60.0	242.3	320
Weight (kgs)	165	345	27.3	110	145
Form Factor (rack units)	9U	14U	2U	5U	5U

Specifications for HP StoreAll 8800 Storage Couplet with ENT SAS Capacity Block(s)	Minimum Couplet	Maximum Couplet	Each Node	Each Capacity Block and Expansion
Current (Amps @ 100 VAC)	42.2	57.6	20.0	2.2
Current (Amps @ 200 VAC)	21.8	37.2	9.8	2.2
Max Power (Watts @ 100 VAC)	3950	5560	1860	230
Max Power (Watts @ 200 VAC)	5619	7208	2696	227
Max Thermal (BTU/hr @ 100 VAC)	7845	13340	3530	785
Max Thermal (BTU/hr @ 200 VAC)	9975	15400	4600	775
Weight (lbs)	175	559.2	60.0	54.9
Weight (kgs)	79.5	253.8	27.3	24.9
Form Factor (rack units)	6U	20U	2U	2U

Specifications for HP StoreAll 8800 Storage Couplet with ENT SAS Capacity Blocks and a MDL SAS Capacity Block	Minimum Couplet	Maximum Couplet
Current (Amps @ 100 VAC)	49.2	59.8
Current (Amps @ 200 VAC)	28.4	38.8
Max Power (Watts @ 100 VAC)	4650	5729
Max Power (Watts @ 200 VAC)	6312	7377
Max Thermal (BTU/hr @ 100 VAC)	10231	13808
Max Thermal (BTU/hr @ 200 VAC)	12337	15973
Weight (lbs)	417	660
Weight (kgs)	190	299
Form Factor (rack units)	11U	17U

Standard Features – HP StoreAll 8200 Gateway Storage



StoreAll 8200 Gateway Node

Operating System:	HP StoreAll OS v6.5 preinstalled
Form Factor:	2U rack mount
Processor:	Two Intel® Xeon® Processor E5-2620
Memory:	48GB PCL3-10600 (DDR3-1333)
Network Controller:	One 4-port 1GbE included; reserved for a discrete management network if a discrete management network is desired
Storage Controller:	One Smart Array P420i for mirrored internal OS disk drives; one 2-port HP 82Q 8Gb 2-port PCIe Fibre Channel Host Bus Adapter for array attach
Disk Drives:	Two mirrored 300 GB 10K SFF ENT SAS HDDs for StoreAll OS only
Supported Disk Arrays:	HP 3PAR StoreServ 7000 and 10000 Storage via Fibre Channel
Cooling Fans:	Six hot plug and redundant
Power Supplies:	Two 1200W Common Slot Platinum Plus hot plug and redundant
Power Cords:	Two C13-C14 PDU
Management Features:	Integrated Lights-Out 4 with Advanced License included

Configuration Instructions - HP StoreAll 8200 Gateway Storage

It is recommended that the HP StoreAll Storage Best Practices technical white paper (4AA4-4790ENW) be reviewed and the anticipated workload be understood prior to configuring HP StoreAll 8200 Gateway Storage.

HP StoreAll 8200 Gateway Storage is only supported in pairs of Nodes attached to HP 3PAR StoreServ 7000 and 10000 Storage via Fibre Channel. Each pair of HP StoreAll 8200 Gateway Storage Nodes and storage capacity from the 3PAR StoreServ to which it is attached forms a Couplet.

Multiple Couplets, including of different StoreAll models (e.g. StoreAll 8800 Storage, StoreAll 9300 Gateway Storage, StoreAll 9320 Storage, StoreAll 9730 Storage), can be connected in a seamless 16 petabyte scale out cluster when running the same version of StoreAll OS (v6.5 or later which is the minimum for StoreAll 8200 Gateway Storage).

NOTE: A maximum of 15 file system segments is supported per Node for a total of 30 per pair of Nodes. Since the maximum segment size is 8TB, a maximum of 240TB raw capacity is supported per pair of Nodes.

NOTE: HP configuration tools should be used to ensure valid configurations.

NOTE: For detailed information on compatibility with various hardware and software, including ISV applications, please review the Single Point of Connectivity Knowledge (SPOCK) website at: <http://www.hp.com/storage/spock>.

Step 1: Choose number of Nodes (minimum 2)

NOTE: Nodes must be ordered in pairs.

HP StoreAll 8200 Gateway Storage Node

H6Z59A

Includes one 2-port HP 82Q 8Gb 2-port PCIe Fibre Channel Host Bus Adapter for attach to supported HP 3PAR StoreServ 7000 and 10000 Storage only

Step 2: Select Network Controllers (2 required)

Two add-in 4-port 1GbE or two 2-port 10GbE Network Controllers are required per Node for cluster and client networks - both must be identical. 10GbE is recommended unless the facility at which the platform is to be installed or other StoreAll models with which the StoreAll 8200 Gateway Storage is to be clustered do not support it.

For these two add-in Network Controllers, Mode 6 is the default bonding for 1GbE and Mode 1 is the default bonding for 10GbE. Mode 4 is the recommended bonding for both 1GbE and 10GbE if the facility network can accommodate it.

NOTE: Each Node includes one 4-port 1GbE Network Controller that is not used by default. It is reserved for a discrete management network if a discrete management network is desired.

HP NC552SFP 10Gb 2-port Ethernet Server Adapter

614203-B21

HP NC365T 4-port Ethernet Server Adapter

593722-B21

HP NC552SFP 10Gb 2-port Ethernet Server Adapters (614203-B21) require Direct Attach Cables (DACs) for copper environments or fiber transceivers and cables for fiber optic environments. There are multiple options that must match the facility network. The correct option must be selected if the facility does not already have the needed DACs or fiber transceivers. At least one DAC or fiber transceiver is required per Node to connect to the facility network.

HP BladeSystem c-Class 10Gb Short Range Small Form-Factor Pluggable Option

455883-B21

HP BladeSystem c-Class 10Gb Long Range Small Form-Factor Pluggable Option

455886-B21

HP BladeSystem c-Class 10Gb Long Range Mode Small Form-Factor Pluggable Option

455889-B21

HP BladeSystem c-Class Small Form-Factor Pluggable .5m 10GbE Copper Cable

487649-B21

HP BladeSystem c-Class Small Form-Factor Pluggable 1m 10GbE Copper Cable

487652-B21



Configuration Instructions - HP StoreAll 8200 Gateway Storage

HP BladeSystem c-Class Small Form-Factor Pluggable 3m 10GbE Copper Cable	487655-B21
HP BladeSystem c-Class Small Form-Factor Pluggable 7m 10GbE Copper Cable	487658-B21

Step 3: Choose system options

The following options are available:

Fibre Channel HBA for backup offload

Backup traffic can be offloaded from the cluster and client network to a Fibre Channel SAN using an HBA. A maximum of one add-in Fibre Channel HBA is supported per Node for this purpose only.

HP 82Q 8Gb 2-port PCIe Fibre Channel Host Bus Adapter	AJ764A
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Rack

The default rack for HP StoreAll 8200 Gateway Storage in HP configuration tools is an HP 642 Intelligent Series Rack. A KVM Console and KVM Switch will be automatically added when factory rack integration is selected. HP StoreAll 8200 Gateway Storage is also support in 42U standard and extended racks, 36U racks, and 22U racks.

NOTE: Factory rack integration should be selected unless a plan has been established to integrate HP StoreAll 8200 Gateway Storage into an existing facility rack.

Network Switch for Rack

The cluster and client network required for the HP StoreAll 8200 Gateway Storage Nodes can either use available facility switches, HP StoreAll Storage dedicated switches installed within the Rack, or a combination of the two. The components below are recommended for an HP StoreAll Storage dedicated cluster and client 10GbE network installed within the Rack.

Network Switch

Select one or two HP 5920-24XG Switches per Rack. Two Switches are recommended to avoid a single point of failure. Select two fans per Switch. Select one or two power supplies per Switch. Two power supplies per Switch are recommended for redundancy.

HP 5920AF-24XG Switch	JG296A
HP 5920AF-24XG Front (port-side) to Back (power-side) Airflow Fan Tray	JG298A
HP A58x0AF 650W AC Power Supply	JC680A

Connection of 10GbE Network Controller ports to the Network Switch

Optical fiber cables are recommended for the best airflow and are easier to route than copper cables. Select four HP BladeSystem c-Class 10Gb Short Range Small Form-Factor Pluggable Options for each Node to connect the Node to the Switch(es), eight total per pair of Nodes. Select the same number of HP X130 10G SFP+ LC SR Transceivers for the corresponding ports in the HP 5920AF-24XG Switch and the same number of HP Premier Flex LC/LC Multi-mode OM4 2 fiber 2m Cables.

HP BladeSystem c-Class 10Gb Short Range Small Form-Factor Pluggable Option	455883-B21
HP X130 10G SFP+ LC SR Transceiver	JD092B
HP Premier Flex LC/LC Multi-mode OM4 2 fiber 2m Cable	QK733A

Connection of the Integrated Lights-Out port to the Network Switch

Select one HP X120 1G SFP RJ45 Transceiver per Node for the corresponding Switch ports, two total per pair of Nodes. Select the same number of HP RJ45 to RJ45 Cat5e Black M/M 7.6m 1-pack Data Cables.

HP X120 1G SFP RJ45 T Transceiver	JD089B
HP RJ45 to RJ45 Cat5e Black M/M 7.6m 1-pack Data Cable	C7535A

Configuration Instructions - HP StoreAll 8200 Gateway Storage

Trunk between Switches within the Rack (required when two Switches are selected to avoid a single point of failure)

Select two HP X130 10G SFP+ LC SR Transceivers and one HP Premier Flex LC/LC Multi-mode OM4 2 fiber 1m Cable per Node to use for the trunk to ensure it is not a bottleneck.

HP X130 10G SFP+ LC SR Transceiver

JD092B

HP Premier Flex LC/LC Multi-mode OM4 2 fiber 1m Cable

QK732A

Connection of dedicated network to facility network

Determine the number of Switch ports to be connected to the facility network. If two Switches per Rack are configured to avoid a single point of failure within the Rack, connect both to the facility network. Select the appropriate number and type of DACs or transceivers that match the facility network. Refer to the QuickSpecs at:

http://h18004.www1.hp.com/products/quickspecs/14260_div/14260_div.pdf for the full list of supported DACs and transceivers.

NOTE: A private network may be preferred for the HP StoreAll Storage cluster using HP 5920-24XG Switches installed within the Rack(s) that is separate from a client access network using facility switches. This private network for the cluster will provide isolated and reliable internal communication between the Nodes. It will also provide a separate access path to the Nodes for management and maintenance. If a private network is configured, the aforementioned dedicated network switch rules should be used for a pair of Switches in each Rack with four exceptions:

- Only two of the four available 10GbE Network Controller ports are connected to the HP 5920-24XG Switches within the Rack. Select two HP BladeSystem c-Class 10Gb Short Range Small Form-Factor Pluggable Options (455883-B21) per Node to connect the Node to the Switch, four total per pair of Nodes. Select the same number of HP X130 10G SFP+ LC SR Transceivers (JD092B) for the corresponding ports in the HP 5920AF-24XG Switch and the same number of HP Premier Flex LC/LC Multi-mode OM4 2 fiber 2m Cables (QK733A).
- The size of the trunk between the Switches in the Rack can be reduced by half. Select two HP X130 10G SFP+ LC SR Transceivers (JD092B) and one HP Premier Flex LC/LC Multi-mode OM4 2 fiber 1m Cable (QK732A) per pair of Nodes to use for the trunk to ensure it is not a bottleneck.
- If multiple Racks have been ordered and the Nodes are to be part of the same cluster, the Switches in the Racks must be connected (spanned). For each pair of Racks that need to be connected, select eight HP X130 10G SFP+ LC SR Transceivers (JD092B) and four HP Premier Flex LC/LC Multi-mode OM4 Cables per Node of suitable length.

HP Premier Flex LC/LC Multi-mode OM4 2 fiber 5m Cable

QK734A

HP Premier Flex LC/LC Multi-mode OM4 2 fiber 15m Cable

QK735A

HP Premier Flex LC/LC Multi-mode OM4 2 fiber 30m Cable

QK736A

- Select two of the appropriate type of DACs or transceivers to connect the Rack (or spanned Racks) to the facility network to allow access for management and maintenance. Refer to the QuickSpecs at:
http://h18004.www1.hp.com/products/quickspecs/14260_div/14260_div.pdf for the full list of supported DACs and transceivers.

Options - HP StoreAll 8200 Gateway Storage

Specifications for pair of HP StoreAll 8200 Gateway Storage Nodes

Current (Amps @ 100 VAC)	40.0
Current (Amps @ 200 VAC)	19.6
Max Power (Watts @ 100 VAC)	3720
Max Power (Watts @ 200 VAC)	5392
Max Thermal (BTU/hr @ 100 VAC)	7060
Max Thermal (BTU/hr @ 200 VAC)	9200
Weight (lbs)	120
Weight (kgs)	54.6
Form Factor (rack units)	4U

Service and Support, HP Care Pack, and Warranty Information

Warranty

HP StoreAll 8000 Storage comes with a standard 3/3/3 warranty (3 years parts exchange, 3 years labor, 3 years onsite, and next business day response). Software media is warranted to be free of physical defects for a period of 90 days from delivery.

Services included with the product

One year Software Support, standard 9x5 business hours (software advisory and remedial software telephone support, new version license rights, and media and documentation distribution service)

Service and support

Technology Services for increased uptime, productivity and ROI

Trust HP storage technology experts for every level of service and support. Our integrated portfolio of services for storage help customers reduce costs, optimize data, streamline storage management, and improve backup and recovery. Capitalizing on HP Storage capabilities requires a service partner who understands your increasingly complex environment. Team with the people who know HP infrastructure hardware and software best - the experienced professionals at HP Services.

Protect your business beyond warranty

Warranty protects against manufacturer defects, however warranty uplifts, such as HP Care Pack Services protect the business by reducing downtime risks and providing operational consistency for mission-critical and standard business computing.

What HP Storage Technology Services can do for you

HP Storage Technology Services can help you design, deploy, test, integrate, support, and manage IT and infrastructure solutions. HP storage lifecycle support services offer a full spectrum of customer care - from technology support to complex migrations to complete managed services.

Choose the right level of support, deployment and integration services

HP support recommendations are designed to help you enhance technology operations, lower risk, and make it easier for you to seek the right balance between affordability and service-level commitments. Depending on your individual support needs, choose from two levels of care that cover the entire lifecycle to better address your needs - Optimized Care and Standard Care. If none of our support recommendations meet your needs, we can tailor a service solution for your unique support requirements. Only HP brings together deep expertise, proactive and business critical support and a strong partner network-plus, a full set of data center services designed to power a Converged Infrastructure.

Optimized Care

Delivers best performance and stability through deployment and proactive management practices

Proactive Care 24x7 **plus 30 credits per year** (choose from an extensive menu of consulting and technical services such as onsite firmware upgrades, health checks, assessments, and education); HP Proactive Care Personalized Support that provides you with an assigned Account Support Manager (ASM) to help you meet your IT objectives and increase confidence in your technology investments.
Optional Add-On Service: HP Proactive Select Service Credits

Service and Support, HP Care Pack, and Warranty Information

Standard Care (minimum recommended support) Maintains high level of uptime, along with expert help to cut the cost and complexity of implementation and support	Proactive Care 24x7 plus 20 credits per year (choose from an extensive menu of consulting and technical services such as onsite firmware upgrades, health checks, assessments, and education) Optional Add-On Services: HP Proactive Care Personalized Support (once per each new Proactive Care support environment) or HP Proactive Select Service Credits
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Implementation	HP StoreAll Implementation Service provides customized product deployment consistent with HP product specifications for HP StoreAll 8000 Storage.
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Remote support tools	HP Insight Remote Support is available at no additional cost to all warranty, HP Care Pack Service, and service agreement customers. It uses proven technology to deliver secure, reliable 24x7 remote monitoring, diagnoses, and problem resolution. http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA2-4676ENW.pdf
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For more information	To learn more about HP Storage Services visit http://www.hp.com/services/storage or contact your HP representative. HP Care Pack Services are sold by HP and HP Authorized Services Partners: • Services for customers purchasing from HP or an enterprise reseller are quoted using HP configuration tools. • Customers purchasing from a commercial reseller can find HP Care Pack Services at: http://www.hp.com/go/lookuptool.
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For hard drives, 1 GB = 1 billion bytes. Actual formatted capacity is less.