ServeRAID M5210 and M5210e SAS/SATA Controllers
Product Guide

The ServeRAID M5210 and M5210e SAS/SATA Controllers are high performance 12 Gb SAS controllers for internal disk storage. They are part of the ServeRAID M Series family that offers a complete server storage solution consisting of RAID controllers, cache/flash modules, energy packs, and software feature upgrades in an ultra-flexible offerings structure. These products are optimized to deliver the performance that is demanded by the ever-growing I/O requirements of today's enterprises. The M5210 is a low profile PCIe adapter, and the M5210e is integrated in servers such as the x3750 M4 and x3650 M4 HD. The two controllers share a common set of upgrades, simplifying inventory management.

The following figure shows the ServeRAID M5210 Controller with an optional cache installed.

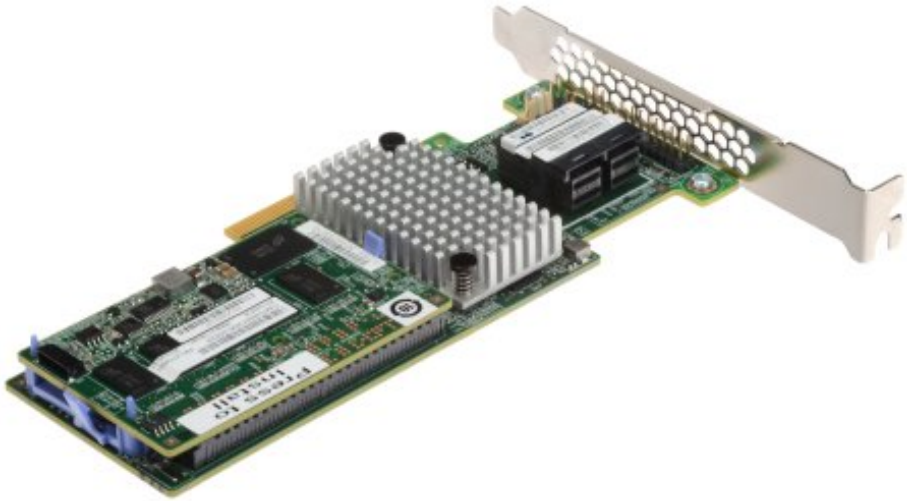


Figure 1. ServeRAID M5210 SAS/SATA Controller (with an optional cache installed)

Did you know?

The ServeRAID M5210 and M5210e SAS/SATA Controllers are optimized for high-performance, internal data storage, with a 12 Gbps SAS controller featuring a DDR3 1866 MHz cache memory interface and PCIe 3.0 host interface.

The ServeRAID M5200 portfolio is designed around several base solutions with upgrades that are rich with features to satisfy a wide range of storage needs while minimizing parts-on-the-floor upgrades.

Upgrade features, such as support for RAID 6 and 60, performance optimization, and caching with solid-state drives (SSDs) no longer require a hardware key. They are implemented through Features-on-Demand (FoD) software licenses.

Part number information

The following table provides the ordering part numbers and feature codes.

Withdrawn: The ServeRAID M5210 SAS/SATA Controller, 46C9110 is withdrawn from marketing

Table 1. Ordering part numbers and feature codes

Description	Part number	Feature code
Base controller		
ServeRAID M5210e SAS/SATA Controller	Onboard	Onboard
Cache upgrades		
ServeRAID M5200 Series 1GB Flash/RAID 5 Upgrade	47C8660	A3Z1
ServeRAID M5200 Series 2GB Flash/RAID 5 Upgrade	47C8664	A3Z2
Features on Demand (FoD) upgrades*		
ServeRAID M5200 Series Zero Cache/RAID 5 Upgrade FoD	47C8708	A3Z6
ServeRAID M5200 Series RAID 6 Upgrade FoD	47C8706	A3Z5
ServeRAID M5200 Series Performance Accelerator FoD	47C8710	A3Z7
ServeRAID M5200 Series SSD Caching Enabler FoD	47C8712	A3Z8

* One M5200 Series FoD upgrade activates the feature on all M5200 Series and M5100 Series controllers that are installed in the server. The M5200 Series Zero Cache/RAID 5 Upgrade also activates the equivalent upgrades for M1100 and M1200 Series controllers.

The ServeRAID M5210 option part number includes the following items:

- One ServeRAID M5210 adapter with a full-height (3U) bracket
- One low-profile (2U) bracket
- Documentation package

The ServeRAID M5200 Series 1GB Cache/RAID 5 Upgrade option part number includes the following items:

- Cache module
- Documentation package

The ServeRAID M5200 Series 1GB, 2GB, and 4GB Flash/RAID 5 Upgrade option part numbers include the following items:

- One Flash/Cache module
- One Offload power module
- Two power module cables (425 mm and 925 mm)
- Documentation package

The ServeRAID M5200 Series Zero Cache/RAID 5 Upgrade, RAID 6 Upgrade, SSD Performance Accelerator, and SSD Caching Enabler option part numbers include the following items:

- One M5200 Series upgrade authorization letter
- Feature Activation Instructions

Features

The ServeRAID M5210 and M5210e SAS/SATA controllers have the following standard features:

- Auto-resume on array rebuild or array reconstruction after the loss of system power
  Auto-resume uses non-volatile RAM (NVRAM) to save the rebuild progress during a host reboot or power failure to automatically resume from the last checkpoint. Auto-resume ensures that data integrity is maintained throughout the process. The card supports a number of features that can be implemented without rebooting the server. Applications, such as email and web server, benefit from avoiding downtime during the transition.
- Online Capacity Expansion
  Online Capacity Expansion (OCE) allows the capacity of a virtual disk to be expanded by adding new physical disks or making use of unused space on existing disks, without requiring a reboot.
- Online RAID Level Migration
  Online RAID Level Migration, which is also known as logical drive migration, can migrate a virtual disk from any RAID level to any other RAID level without requiring a reboot. System availability and application functionality remain unaffected.
- Fast initialization for quick array setup
  Fast initialization quickly writes zeros to the first and last sectors of the virtual drive. This feature allows you to immediately start writing data to the virtual drive while the initialization is running in the background.
- Consistency check for background data integrity
  Consistency check verifies that all stripes in a virtual disk with a redundant RAID level are consistent. The consistency check mirrors data when an inconsistent stripe is detected for RAID 1 and re-creates the parity from the peer disks for RAID 5 or RAID 6. Consistency checks can be scheduled to take place periodically.
- Extensive online configuration options and advanced monitoring and event notification
  Management tools provide convenience for the configuration of logical volumes and alerting when errors have occurred or are about to occur.
- Patrol read for media scanning and repairing
  Patrol read is a background sentry service that pro-actively discovers and corrects media defects (bad sectors) that arise normally as a disk drive ages. The service issues a series of verify commands, and if a bad block is discovered, the card's firmware uses RAID algorithms to re-create the missing data and remap the sector to a good sector. The task is interruptible based on controller activity and host operations. The firmware also provides an interface where the patrol read task can be initiated, set up for continuous operation, and terminated from a management application. Patrol read can be activated by a manual command or automatically.
- Global and dedicated hot spare with revertible hot spare support
  A hot spare rebuilds data from all virtual disks within the disk group in which it is configured. ServeRAID can define a physical disk as a hot spare to replace a failed drive. Hot spares can be configured as either global or dedicated. A global hot spare allows any physical drive to be designated as a hot spare. A dedicated hot spare allows the user to assign a hot spare drive to a particular array of the same drive type.
- Drive roaming
  Drive roaming occurs when the physical disks are changed to different ports on the same controller. When the drives are placed on different channels, the controller detects the RAID configuration from the configuration data on the drives.
- Human Interface Infrastructure (HII) configuration utility for pre-boot array configuration and management
  HII is a utility that is built into the ServeRAID controller that allows you to configure drive groups and logical drives before installing or booting the operating system.

- MegaRAID Storage Manager management software
  MegaRAID Storage Manager is an easy-to-use advanced RAID management application that is used across the entire family of ServeRAID M controllers. It allows you to configure, monitor, and maintain drive groups, virtual drives, and advanced features with an intuitive GUI, reducing administrative efforts and simplifying troubleshooting.

Note: RAID 10, 50 and 60 drive groups do not support Online Capacity Expansion and Online RAID Level Migration. RAID 0, 1, 5, and 6 drive groups do not support Online Capacity Expansion and Online RAID Level Migration if two or more virtual drives are defined on a single drive group.

The following features are optional and require the respective upgrade to be purchased:

- Support for RAID 6 and 60 with M5200 Series RAID 6 Upgrade (47C8706)
  This is a Features on Demand upgrade and one upgrade is needed per server; all M5200 and M5100 series adapters installed in the server will have this upgrade enabled automatically.

- MegaRAID SafeStore support for self-encrypting drive (SED) services
  MegaRAID SafeStore encryption services offer instant secure erase and local key management for self-encrypting drives. This technology represents a step forward in securing data on a disk drive from any unauthorized access or modification resulting from theft, loss, or repurposing of drives. Instant secure erase permanently removes data when repurposing or decommissioning SEDs. SafeStore local key management provides the necessary management and protection of SEDs by using a simple pass phrase, security key identifier, and security key file that can be set and applied to all SEDs that are assigned to a ServeRAID adapter. This feature removes the complexity of managing each SED's unique encryption key, and it essentially relieves the administrator of most of the daily tasks of securing data. The SafeStore is a part of any M5200 Series RAID 5 upgrade that is available: 47C8708, 47C8656, 47C8660, 47C8664, or 47C8668.

- MegaRAID flash cache protection
  MegaRAID flash cache protection uses NAND flash memory, which is powered by a supercapacitor, to protect data that is stored in the controller cache. This module eliminates the need for a lithium-ion battery, which is commonly used to protect DRAM cache memory on PCI RAID controllers. To avoid the possibility of data loss or corruption during a power or server failure, flash cache protection technology transfers the contents of the DRAM cache to NAND flash using power from the offload power module. After the power is restored to the RAID controller, the content of the NAND flash is transferred back to the DRAM, which is flushed to disk.

- MegaRAID FastPath SSD performance acceleration
  MegaRAID FastPath software provides high-performance I/O acceleration for SSD-based virtual drives by using a low latency I/O path to increase the maximum I/O per second (IOPS) capability of the controller. This feature boosts the performance of applications with a highly random data storage access pattern, such as transactional databases. The feature is activated by enabling M5200 Series Performance Accelerator (47C8710).

  This is a Features on Demand upgrade and only one upgrade is needed per server; all M5200 and M5100 series adapters installed in the server will have this upgrade enabled automatically.

- MegaRAID CacheCade SSD caching for traditional hard disk drives
  MegaRAID CacheCade read/write software accelerates the performance of hard disk drive (HDD) arrays with only an incremental investment in solid-state drive (SSD) technology. The software enables SSDs to be configured as a dedicated pool of controller cache to help maximize the I/O performance for transaction-intensive applications, such as databases and web serving. CacheCade software tracks data storage access patterns and identifies the most frequently accessed data. The hot data is then automatically stored on the solid-state storage devices that are assigned as a dedicated cache pool on a ServeRAID controller with the M5200 Series SSD Caching feature (47C8712) enabled.

  This is a Features on Demand upgrade and only one upgrade is needed per server; all M5200 and M5100 series adapters installed in the server will have this upgrade enabled automatically.

Note: Not all SSDs support CacheCade feature. For details, refer to the following web page: https://support.lenovo.com/us/en/documents/MIGR-5094754

Technical specifications

The ServeRAID M5210 and M5210e SAS/SATA controllers have the following specifications:

- LSI SAS3108 12 Gbps RAID on Chip (ROC) controller.
- PCI low profile, half-length - MD2 form factor (M5210) or onboard chip (M5210e).
- Eight internal 12 Gbps SAS/SATA ports (support for 12, 6, or 3 Gbps SAS speeds and 6 or 3 Gbps SATA speeds). Up to 12 Gbps throughput per port.
- Two internal x4 HD Mini-SAS connectors (SFF-8643).
- PCI Express 3.0 x8 host interface.
- Support for RAID 0, 1, and 10 standard; support for RAID 5, 50, 6, and 60 with optional upgrades.
- Optional onboard data cache (DDR3 running at 1866 MHz) with the choice of the following backup:
  - 1 GB (no battery backup)
  - 1 GB, 2 GB, or 4 GB with flash backup
- Support for SAS and SATA HDDs and SSDs.
- Support for intermixing SAS and SATA HDDs and SSDs. Mixing different types of drives in the same array is not supported.
- Support for intermixing of 12 Gbps and 6 Gbps drives
- Connections to up to 32 internal drives, depending on the server model.
- Optional support for self-encrypting drives (SEDs) with MegaRAID SafeStore.
- Optional support for SSD performance acceleration with MegaRAID FastPath and SSD caching with MegaRAID CacheCade.
- Support for up to 64 virtual disks, up to 128 arrays, up to 16 virtual disks per array, and up to 32 physical drives per array.
- Support for logical drive sizes greater than 2 TB.
- Support for Integrated MegaRAID (iMR) mode (no cache memory upgrades installed) or MegaRAID (MR) mode (requires 1 GB, 2 GB, or 4 GB cache memory upgrade).
  - iMR mode supports (no cache memory upgrades installed) the following features:
    - RAID 0, 1, and 10, and, optionally, 5 and 50
    - Fixed stripe unit size of 64 KB
    - Self-encrypting drives with optional Zero Cache/RAID 5 upgrade
    - Both RAID and JBOD (pass-thru mode with system drives) configurations
      - Up to 16 drives are supported in a RAID configuration.
      - Up to 63 drives are supported in a JBOD configuration. (JBOD drives can be used as bootable drives.)
  - MR mode supports (1 GB, 2 GB, or 4 GB cache memory upgrade required):
    - RAID 0, 1, 10, 5, and 50 and, optionally, 6 and 60 (Non-RAID is not supported.)
    - Configurable stripe unit size from 64 KB up to 1 MB
    - Self-encrypting drives
    - Optional SSD performance features (FastPath and CacheCade)
- Compliant with Disk Data Format (DDF) configuration on disk (CoD).
- S.M.A.R.T. support.
- MegaRAID Storage Manager management software.

Feature upgrade matrix

The ServeRAID M5210 and M5210e provide support for RAID 0, 1, and 10 as standard capabilities. Additional optional functional upgrades are available to expand the standard capabilities. Some upgrades do not depend on other upgrades and can be applied to standard controllers (we call them primary upgrades). Certain upgrades cannot be applied to standard controllers and require that other upgrades are enabled before applying these upgrades (we call them secondary upgrades). There are two types of available upgrades: hardware (HW) and Feature on Demand (FoD). Hardware upgrades contain physical parts (for example, cache module or supercapacitor). FoD upgrades are software licenses. The following table lists the available primary upgrades, their capabilities, and types.

Table 2. ServeRAID M5210 and M5210e primary upgrades and their features

		Feature	RAID 5 & 50	SED	1 GB cache	2 GB cache	4 GB cache	Flash-backed cache
Option description	**Part number**	**Type**						
Zero Cache/RAID 5 Upgrade	47C8708	FoD	Yes	Yes	No	No	No	No
1GB Cache/RAID 5 Upgrade	47C8656	HW	Yes	Yes	Yes	No	No	No
1GB Flash/RAID 5 Upgrade	47C8660	HW	Yes	Yes	Yes	No	No	Yes
2GB Flash/RAID 5 Upgrade	47C8664	HW	Yes	Yes	No	Yes	No	Yes
4GB Flash/RAID 5 Upgrade	47C8668	HW	Yes	Yes	No	No	Yes	Yes

The following table shows the secondary upgrades, their capabilities, types, and dependencies. The primary feature upgrades, on which the secondary upgrades depend, are listed in their respective columns. "Required" means that the primary upgrade that is listed in the column must be enabled before enabling the secondary feature that is listed in that particular row.

Table 3. ServeRAID M5210 and M5210e secondary upgrades, their features, and dependencies

Primary feature upgrades		**Option description**		Zero Cache/ RAID 5	1GB Cache/ RAID 5	1GB Flash/ RAID 5	2GB Flash/ RAID 5	4GB Flash/ RAID 5
Secondary feature upgrades		**Part number**		47C8708	47C8656	47C8660	47C8664	47C8668
		Upgrade type		FoD	HW	HW	HW	HW
Feature	**Option description**	**Part number**	**Type**					
RAID 6 and 60	RAID 6 Upgrade	47C8706	FoD	No support	Required	Required	Required	Required
FastPath	SSD Performance Accelerator	47C8710	FoD	No support	Required	Required	Required	Required
CacheCade	SSD Caching Enabler	47C8712	FoD	No support	Required	Required	Required	Required

Note: All ServeRAID Feature on Demand upgrades are system-wide. One FoD upgrade part number will enable the feature on all ServeRAID M5200-series adapters (M5210, M5210e, M5215, M5225) installed in the server. In the case of the x3950 X6, if you have partitioning enabled, then the FoD upgrade will enabled the feature on all M5200-series adapters installed in that partition; the other partition will require a separate FoD upgrade.

Server support

The following tables list the servers that support the ServeRAID M5210 and M5210e controllers.

Support for System x and dense servers with Xeon E5/E7 v4 and E3 v5 processors

Table 4. Support for System x and dense servers with Xeon E5/E7 v4 and E3 v5 processors

Part number	Description	x3250 M6 (3943)	x3250 M6 (3633)	x3550 M5 (8869)	x3650 M5 (8871)	x3850 X6/x3950 X6 (6241, E7 v4)	nx360 M5 (5465, E5-2600 v4)	sd350 (5493)
46C9110	ServeRAID M5210 SAS/SATA Controller	Y	Y	Y	Y	Y	Y	N
Onboard	ServeRAID M5210e SAS/SATA Controller	N	N	N	N	N	N	N
47C8708	ServeRAID M5200 Series Zero Cache/RAID 5 Upgrade-FoD	Y	Y	Y	Y	Y	Y	N
47C8656	ServeRAID M5200 Series 1GB Cache/RAID 5 Upgrade	Y	Y	Y	Y	Y	Y	N
47C8660	ServeRAID M5200 Series 1GB Flash/RAID 5 Upgrade	Y	Y	Y	Y	Y	Y	N
47C8664	ServeRAID M5200 Series 2GB Flash/RAID 5 Upgrade	Y	Y	Y	Y	Y	Y	N
47C8668	ServeRAID M5200 Series 4GB Flash/RAID 5 Upgrade	Y	Y	Y	Y	Y	Y	N
47C8706	ServeRAID M5200 Series RAID 6 Upgrade-FoD	Y	Y	Y	Y	Y	Y	N
47C8710	ServeRAID M5200 Series Performance Accelerator-FoD	Y	Y	Y	Y	Y	Y	N
47C8712	ServeRAID M5200 Series SSD Caching Enabler-FoD	Y	Y	Y	Y	Y	Y	N

Support for servers with Intel Xeon v3 processors

Table 5. Support for servers with Intel Xeon v3 processors

Part number	Description	x3100 M5 (5457)	x3250 M5 (5458)	x3500 M5 (5464)	x3550 M5 (5463)	x3650 M5 (5462)	x3850 X6/x3950 X6 (6241, E7 v3)	nx360 M5 (5465)
46C9110	ServeRAID M5210 SAS/SATA Controller	N	N	Y	Y	Y	Y	Y
Onboard	ServeRAID M5210e SAS/SATA Controller	N	N	N	N	N	N	N
47C8708	ServeRAID M5200 Series Zero Cache/RAID 5 Upgrade-FoD	N	N	Y	Y	Y	Y	Y
47C8656	ServeRAID M5200 Series 1GB Cache/RAID 5 Upgrade	N	N	Y	Y	Y	Y	Y
47C8660	ServeRAID M5200 Series 1GB Flash/RAID 5 Upgrade	N	N	Y	Y	Y	Y	Y
47C8664	ServeRAID M5200 Series 2GB Flash/RAID 5 Upgrade	N	N	Y	Y	Y	Y	Y
47C8668	ServeRAID M5200 Series 4GB Flash/RAID 5 Upgrade	N	N	Y	Y	Y	Y	Y
47C8706	ServeRAID M5200 Series RAID 6 Upgrade-FoD	N	N	Y	Y	Y	Y	Y
47C8710	ServeRAID M5200 Series Performance Accelerator-FoD	N	N	Y	Y	Y	Y	Y
47C8712	ServeRAID M5200 Series SSD Caching Enabler-FoD	N	N	Y	Y	Y	Y	Y

Support for servers with Intel Xeon v2 processors

Table 6. Support for servers with Intel Xeon v2 processors

Part number	Description	x3500 M4 (7383, E5-2600 v2)	x3530 M4 (7160, E5-2400 v2)	x3550 M4 (7914, E5-2600 v2)	x3630 M4 (7158, E5-2400 v2)	x3650 M4 (7915, E5-2600 v2)	x3650 M4 BD (5466)	x3650 M4 HD (5460)	x3750 M4 (8752)	x3750 M4 (8753)	x3850 X6/x3950 X6 (3837)	x3850 X6/x3950 X6 (6241, E7 v2)	dx360 M4 (E5-2600 v2)	nx360 M4 (5455)
46C9110	ServeRAID M5210 SAS/SATA Controller	Y	N	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	N
Onboard	ServeRAID M5210e SAS/SATA Controller	N	N	N	N	N	N	Y	Y	Y	N	N	N	N
47C8708	ServeRAID M5200 Series Zero Cache/RAID 5 Upgrade-FoD	Y	N	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	N
47C8656	ServeRAID M5200 Series 1GB Cache/RAID 5 Upgrade	Y	N	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	N
47C8660	ServeRAID M5200 Series 1GB Flash/RAID 5 Upgrade	Y	N	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	N
47C8664	ServeRAID M5200 Series 2GB Flash/RAID 5 Upgrade	Y	N	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	N
47C8668	ServeRAID M5200 Series 4GB Flash/RAID 5 Upgrade	Y	N	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	N
47C8706	ServeRAID M5200 Series RAID 6 Upgrade-FoD	Y	N	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	N
47C8710	ServeRAID M5200 Series Performance Accelerator-FoD	Y	N	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	N
47C8712	ServeRAID M5200 Series SSD Caching Enabler-FoD	Y	N	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	N

For more information about the System x servers that support each adapter, see the ServerProven website: http://www.lenovo.com/us/en/serverproven/xseries/controllers/matrix.shtml

Drive support

The following tables list the drives supported by the servers that support the ServeRAID M5210 and M5210e controllers.

- Table 7: 1.8-inch SSDs
- Table 8: 2.5-inch hot-swap 12 Gb SAS/SATA HDDs
- Table 9: 2.5-inch hot-swap 6 Gb SAS/SATA HDDs
- Table 10: 2.5-inch hot-swap 12 Gb SAS/SATA SSDs
- Table 11: 2.5-inch hot-swap 6 Gb SAS/SATA SSDs
- Table 12: 3.5-inch hot-swap 12 Gb SAS/SATA HDDs
- Table 13: 3.5-inch hot-swap 6 Gb SAS/SATA HDDs
- Table 14: 3.5-inch hot-swap 12 Gb SAS/SATA SSDs
- Table 15: 3.5-inch hot-swap 6 Gb SAS/SATA SSDs
- Table 16: 2.5-inch simple-swap 6 Gb SAS/SATA HDDs
- Table 17: 3.5-inch simple-swap 6 Gb SAS/SATA HDDs
- Table 18: 2.5-inch internal 12 Gb HDDs for NeXtScale
- Table 19: 2.5-inch internal 6 Gb HDDs for NeXtScale
- Table 20: 3.5-inch internal 12 Gb HDDs for NeXtScale
- Table 21: 3.5-inch internal 6 Gb HDDs for NeXtScale
- Table 22: 2.5-inch internal 6 Gb SSDs for NeXtScale

Table 7. 1.8-inch SSDs

		Xeon v2						Xeon v3					Xeon v4			
Part number	**Description**	**x3500 M4 (7383, E5-2600 v2)**	**x3550 M4 (7914, E5-2600 v2)**	**x3650 M4 (7915, E5-2600 v2)**	**x3650 M4 BD (5466)**	**x3750 M4 (8753)**	**x3850 X6/x3950 X6 (6241, E7 v2)**	**x3500 M5 (5464)**	**x3550 M5 (5463)**	**x3650 M5 (5462)**	**x3850 X6/x3950 X6 (6241, E7 v3)**	**nx360 M5 (5465, E5-2600 v3)**	**x3550 M5 (8869)**	**x3650 M5 (8871)**	**x3850 X6/x3950 X6 (6241, E7 v4)**	**nx360 M5 (5465, E5-2600 v4)**
1.8-inch hot-swap SSDs - 6 Gb SATA - Enterprise Mainstream (3-5 DWPD)																
00AJ335	120GB SATA 1.8" MLC Enterprise Value SSD	N	N	Y	N	N	Y	N	N	N	Y	N	N	N	Y	N
00AJ340	240GB SATA 1.8" MLC Enterprise Value SSD	N	N	Y	N	N	Y	N	N	N	Y	N	N	N	Y	N
00AJ345	480GB SATA 1.8" MLC Enterprise Value SSD	N	N	Y	N	N	Y	N	N	N	Y	N	N	N	Y	N
00AJ350	800GB SATA 1.8" MLC Enterprise Value SSD	N	N	Y	N	N	Y	N	N	N	Y	N	N	N	Y	N
1.8-inch hot-swap SSDs - 6 Gb SATA - Enterprise Entry (<3 DWPD)																
00AJ050	S3500 400GB SATA 1.8" MLC Enterprise Value SSD	N	N	Y	N	Y	N	N	N	N	N	Y	N	N	N	Y

Table 8. 2.5-inch hot-swap 12 Gb SAS/SATA HDDs

		Xeon v2						Xeon v3					Xeon v4			
Part number	**Description**	**x3500 M4 (7383, E5-2600 v2)**	**x3550 M4 (7914, E5-2600 v2)**	**x3650 M4 (7915, E5-2600 v2)**	**x3650 M4 BD (5466)**	**x3750 M4 (8753)**	**x3850 X6/x3950 X6 (6241, E7 v2)**	**x3500 M5 (5464)**	**x3550 M5 (5463)**	**x3650 M5 (5462)**	**x3850 X6/x3950 X6 (6241, E7 v3)**	**nx360 M5 (5465, E5-2600 v3)**	**x3550 M5 (8869)**	**x3650 M5 (8871)**	**x3850 X6/x3950 X6 (6241, E7 v4)**	**nx360 M5 (5465, E5-2600 v4)**
2.5-inch hot-swap HDDs - 12 Gb SAS 10K																
00WG685	300GB 10K 12Gbps SAS 2.5" G3HS HDD	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
00WG690	600GB 10K 12Gbps SAS 2.5" G3HS HDD	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
00WG695	900GB 10K 12Gbps SAS 2.5" G3HS HDD	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
00WG700	1.2TB 10K 12Gbps SAS 2.5" G3HS HDD	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
00NA241	600GB 10K 12Gbps SAS 2.5" G3HS 512e HDD	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
00NA271	1.8TB 10K 12Gbps SAS 2.5" G3HS 512e HDD	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
2.5-inch hot-swap HDDs - 12 Gb SAS 15K																
00WG660	300GB 15K 12Gbps SAS 2.5" G3HS HDD	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
00WG665	600GB 15K 12Gbps SAS 2.5" G3HS HDD	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
2.5-inch hot-swap HDDs - 12 Gb NL SAS																
00NA491	1TB 7.2K 12Gbps NL SAS 2.5" G3HS HDD	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
00NA496	2TB 7.2K 12Gbps NL SAS 2.5" G3HS 512e HDD	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
2.5-inch hot-swap SED HDDs - 12 Gb SAS 10K																
00WG705	300GB 10K 12Gbps SAS 2.5" G3HS SED	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
00WG710	600GB 10K 12Gbps SAS 2.5" G3HS SED	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
00WG715	900GB 10K 12Gbps SAS 2.5" G3HS SED	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
00WG720	1.2TB 10K 12Gbps SAS 2.5" G3HS SED	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
00NA301	1.2TB 10K 12Gbps SAS 2.5" G3HS 512e SED	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Table 9. 2.5-inch hot-swap 6 Gb SAS/SATA HDDs

		Xeon v2						Xeon v3					Xeon v4			
Part number	**Description**	**x3500 M4 (7383, E5-2600 v2)**	**x3550 M4 (7914, E5-2600 v2)**	**x3650 M4 (7915, E5-2600 v2)**	**x3650 M4 BD (5466)**	**x3750 M4 (8753)**	**x3850 X6/x3950 X6 (6241, E7 v2)**	**x3500 M5 (5464)**	**x3550 M5 (5463)**	**x3650 M5 (5462)**	**x3850 X6/x3950 X6 (6241, E7 v3)**	**nx360 M5 (5465, E5-2600 v3)**	**x3550 M5 (8869)**	**x3650 M5 (8871)**	**x3850 X6/x3950 X6 (6241, E7 v4)**	**nx360 M5 (5465, E5-2600 v4)**
2.5-inch hot-swap HDDs - 6 Gb SAS 10K																
90Y8877	300GB 10K 6Gbps SAS 2.5" SFF G2HS HDD	Y	Y	Y	N	Y	N	N	N	N	N	N	N	N	N	N
90Y8872	600GB 10K 6Gbps SAS 2.5" SFF G2HS HDD	Y	Y	Y	N	Y	N	N	N	N	N	N	N	N	N	N
81Y9650	900GB 10K 6Gbps SAS 2.5" SFF HS HDD	Y	Y	Y	N	Y	N	N	N	N	N	N	N	N	N	N
00AD075	1.2TB 10K 6Gbps SAS 2.5" G2HS HDD	Y	Y	Y	N	Y	N	N	N	N	N	N	N	N	N	N
00NA441	1.8TB 10K 6Gbps SAS 2.5" G2HS 512e HDD	N	Y	Y	N	Y	N	N	N	N	N	N	N	N	N	N
2.5-inch hot-swap HDDs - 6 Gb SAS 15K																
00AJ111	146GB 15K 6Gbps SAS 2.5" G3HS HDD	N	N	N	N	N	Y	N	N	N	Y	N	N	N	Y	N
81Y9670	300GB 15K 6Gbps SAS 2.5" G2HS HDD	Y	Y	Y	N	Y	N	N	N	N	N	N	N	N	N	N
00AJ300	600GB 15K 6Gbps SAS 2.5" G2HS HDD	Y	Y	Y	N	Y	N	N	N	N	N	N	N	N	N	N
2.5-inch hot-swap HDDs - 6 Gb NL SAS																
00AJ121	500GB 7.2K 6Gbps NL SAS 2.5" G3HS HDD	N	N	N	N	N	Y	Y	Y	Y	Y	N	Y	Y	Y	N
90Y8953	500GB 7.2K 6Gbps NL SAS 2.5" SFF G2HS HDD	Y	Y	Y	N	Y	N	N	N	N	N	N	N	N	N	N
81Y9690	1TB 7.2K 6Gbps NL SAS 2.5" SFF HS HDD	Y	Y	Y	N	Y	N	N	N	N	N	N	N	N	N	N
2.5-inch hot-swap HDDs - 6 Gb NL SATA																
00AJ141	1TB 7.2K 6Gbps NL SATA 2.5" G3HS HDD	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
00NA526	2TB 7.2K 6Gbps NL SATA 2.5" G3HS 512e HDD	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
81Y9726	500GB 7.2K 6Gbps NL SATA 2.5" SFF HS HDD	Y	Y	Y	N	Y	N	N	N	N	N	N	N	N	N	N
81Y9730	1TB 7.2K 6Gbps NL SATA 2.5" SFF HS HDD	Y	Y	Y	N	Y	N	N	N	N	N	N	N	N	N	N
2.5-inch hot-swap SED HDDs - 6 Gb SAS 10K																
90Y8913	300GB 10K 6Gbps SAS 2.5" SFF G2HS SED	Y	Y	Y	N	Y	N	N	N	N	N	N	N	N	N	N
90Y8908	600GB 10K 6Gbps SAS 2.5" SFF G2HS SED	N	Y	Y	N	Y	N	N	N	N	N	N	N	N	N	N
81Y9662	900GB 10K 6Gbps SAS 2.5" SFF G2HS SED	Y	Y	Y	N	Y	N	N	N	N	N	N	N	N	N	N

Table 10. 2.5-inch hot-swap 12 Gb SAS/SATA SSDs

		Xeon v2						Xeon v3					Xeon v4			
Part number	**Description**	**x3500 M4 (7383, E5-2600 v2)**	**x3550 M4 (7914, E5-2600 v2)**	**x3650 M4 (7915, E5-2600 v2)**	**x3650 M4 BD (5466)**	**x3750 M4 (8753)**	**x3850 X6/x3950 X6 (6241, E7 v2)**	**x3500 M5 (5464)**	**x3550 M5 (5463)**	**x3650 M5 (5462)**	**x3850 X6/x3950 X6 (6241, E7 v3)**	**nx360 M5 (5465, E5-2600 v3)**	**x3550 M5 (8869)**	**x3650 M5 (8871)**	**x3850 X6/x3950 X6 (6241, E7 v4)**	**nx360 M5 (5465, E5-2600 v4)**
2.5-inch hot-swap SSDs - 12 Gb SAS - Enterprise Performance (10+ DWPD)																
00FN379	200GB 12G SAS 2.5" MLC G3HS Enterprise SSD	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
00FN389	400GB 12G SAS 2.5" MLC G3HS Enterprise SSD	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
00FN399	800GB 12G SAS 2.5" MLC G3HS Enterprise SSD	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
00FN409	1.6TB 12G SAS 2.5" MLC G3HS Enterprise SSD	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
2.5-inch hot-swap SSDs - 12 Gb SAS - Enterprise Mainstream (3-5 DWPD)																
00YC460	400GB Enterprise Mainstream 12Gb SAS G3HS 2.5" SSD	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
00YC465	800GB Enterprise Mainstream 12Gb SAS G3HS 2.5" SSD	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
00YC470	1.6TB Enterprise Mainstream 12Gb SAS G3HS 2.5" SSD	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Table 11. 2.5-inch hot-swap 6 Gb SAS/SATA SSDs

		Xeon v2						Xeon v3					Xeon v4			
Part number	**Description**	**x3500 M4 (7383, E5-2600 v2)**	**x3550 M4 (7914, E5-2600 v2)**	**x3650 M4 (7915, E5-2600 v2)**	**x3650 M4 BD (5466)**	**x3750 M4 (8753)**	**x3850 X6/x3950 X6 (6241, E7 v2)**	**x3500 M5 (5464)**	**x3550 M5 (5463)**	**x3650 M5 (5462)**	**x3850 X6/x3950 X6 (6241, E7 v3)**	**nx360 M5 (5465, E5-2600 v3)**	**x3550 M5 (8869)**	**x3650 M5 (8871)**	**x3850 X6/x3950 X6 (6241, E7 v4)**	**nx360 M5 (5465, E5-2600 v4)**
2.5-inch hot-swap SSDs - 6 Gb SAS - Enterprise Capacity																
00NA671	3.84TB 6Gb SAS Enterprise Capacity G3HS MLC SSD	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
2.5-inch hot-swap SSDs - 6 Gb SAS - Enterprise Performance (10+ DWPD)																
00AJ207	200GB SAS 2.5" MLC G3HS Enterprise SSD	N	N	N	N	N	Y	Y	Y	Y	Y	N	Y	Y	Y	N
00AJ212	400GB SAS 2.5" MLC G3HS Enterprise SSD	N	N	N	N	N	Y	Y	Y	Y	Y	N	Y	Y	Y	N
00AJ217	800GB SAS 2.5" MLC G3HS Enterprise SSD	N	N	N	N	N	Y	Y	Y	Y	Y	N	Y	Y	Y	N
49Y6129	200GB SAS 2.5" MLC HS Enterprise SSD	Y	Y	Y	N	Y	N	N	N	N	N	N	N	N	N	N
49Y6134	400GB SAS 2.5" MLC HS Enterprise SSD	Y	Y	Y	N	Y	N	N	N	N	N	N	N	N	N	N
49Y6139	800GB SAS 2.5" MLC HS Enterprise SSD	Y	Y	Y	N	Y	N	N	N	N	N	N	N	N	N	N
49Y6195	1.6TB SAS 2.5" MLC HS Enterprise SSD	N	Y	N	N	Y	N	N	N	N	N	N	N	N	N	N
00AJ222	1.6TB SAS 2.5" MLC G3HS Enterprise SSD	N	N	N	N	N	Y	Y	Y	Y	Y	N	Y	Y	N	N
2.5-inch hot-swap SSDs - 6 Gb SATA - Enterprise Performance (10+ DWPD)																

		Xeon v2						Xeon v3					Xeon v4			
Part number	**Description**	**x3500 M4 (7383, E5-2600 v2)**	**x3550 M4 (7914, E5-2600 v2)**	**x3650 M4 (7915, E5-2600 v2)**	**x3650 M4 BD (5466)**	**x3750 M4 (8753)**	**x3850 X6/x3950 X6 (6241, E7 v2)**	**x3500 M5 (5464)**	**x3550 M5 (5463)**	**x3650 M5 (5462)**	**x3850 X6/x3950 X6 (6241, E7 v3)**	**nx360 M5 (5465, E5-2600 v3)**	**x3550 M5 (8869)**	**x3650 M5 (8871)**	**x3850 X6/x3950 X6 (6241, E7 v4)**	**nx360 M5 (5465, E5-2600 v4)**
00YC320	Intel S3710 200GB Enterprise Performance SATA G3HS 2.5" SSD	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
00YC325	Intel S3710 400GB Enterprise Performance SATA G3HS 2.5" SSD	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
00YC330	Intel S3710 800GB Enterprise Performance SATA G3HS 2.5" SSD	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
2.5-inch hot-swap SSDs - 6 Gb SATA - Enterprise Mainstream (3-5 DWPD)																
00YC529	M500DC 480GB Enterprise Mainstream Plus SATA G3HS 2.5" SSD	N	N	N	N	N	N	N	N	Y	N	N	N	Y	N	N
00AJ395	120GB SATA 2.5" MLC G3HS Enterprise Value SSD	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
00AJ400	240GB SATA 2.5" MLC G3HS Enterprise Value SSD	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
00AJ405	480GB SATA 2.5" MLC G3HS Enterprise Value SSD	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
00AJ410	800GB SATA 2.5" MLC G3HS Enterprise Value SSD	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
00AJ355	120GB SATA 2.5" MLC HS Enterprise Value SSD	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N
00AJ360	240GB SATA 2.5" MLC HS Enterprise Value SSD	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N
00AJ365	480GB SATA 2.5" MLC HS Enterprise Value SSD	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N
00AJ370	800GB SATA 2.5" MLC HS Enterprise Value SSD	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N
2.5-inch hot-swap SSDs - 6 Gb SATA - Enterprise Entry (<3 DWPD)																
00WG620	Intel S3510 120GB Enterprise Entry SATA G3HS 2.5" SSD	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
00WG625	Intel S3510 240GB Enterprise Entry SATA G3HS 2.5" SSD	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
00WG630	Intel S3510 480GB Enterprise Entry SATA G3HS 2.5" SSD	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
00WG635	Intel S3510 800GB Enterprise Entry SATA G3HS 2.5" SSD	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
00AJ000	S3500 120GB SATA 2.5" MLC HS Enterprise Value SSD	Y	Y	Y	N	Y	N	N	N	N	N	N	N	N	N	N
00AJ005	S3500 240GB SATA 2.5" MLC HS Enterprise Value SSD	Y	Y	Y	N	Y	N	N	N	N	N	N	N	N	N	N
00AJ010	S3500 480GB SATA 2.5" MLC HS Enterprise Value SSD	Y	Y	Y	N	Y	N	N	N	N	N	N	N	N	N	N
00AJ015	S3500 800GB SATA 2.5" MLC HS Enterprise Value SSD	Y	Y	Y	N	Y	N	N	N	N	N	N	N	N	N	N
00YC385	120GB Enterprise Entry SATA G3HS 2.5" SSD	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
00YC390	240GB Enterprise Entry SATA G3HS 2.5" SSD	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
00YC395	480GB Enterprise Entry SATA G3HS 2.5" SSD	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
00YC400	960GB Enterprise Entry SATA G3HS 2.5" SSD	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
00YC365	120GB Enterprise Entry SATA HS 2.5" SSD	N	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N
00YC370	240GB Enterprise Entry SATA HS 2.5" SSD	N	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N
00YC375	480GB Enterprise Entry SATA HS 2.5" SSD	N	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N
00YC380	960GB Enterprise Entry SATA HS 2.5" SSD	N	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N

Table 12. 3.5-inch hot-swap 12 Gb SAS/SATA HDDs

		Xeon v2						Xeon v3					Xeon v4			
Part number	Description	x3500 M4 (7383, E5-2600 v2)	x3550 M4 (7914, E5-2600 v2)	x3650 M4 (7915, E5-2600 v2)	x3650 M4 BD (5466)	x3750 M4 (8753)	x3850 X6/x3950 X6 (6241, E7 v2)	x3500 M5 (5464)	x3550 M5 (5463)	x3650 M5 (5462)	x3850 X6/x3950 X6 (6241, E7 v3)	nx360 M5 (5465, E5-2600 v3)	x3550 M5 (8869)	x3650 M5 (8871)	x3850 X6/x3950 X6 (6241, E7 v4)	nx360 M5 (5465, E5-2600 v4)
3.5-inch hot-swap HDDs - 12 Gb NL SAS																
00FN188	2TB 7.2K 12Gbps NL SAS 3.5" G2HS 512e HDD	N	N	N	N	N	N	Y	Y	Y	N	N	Y	Y	N	N
00FN208	4TB 7.2K 12Gbps NL SAS 3.5" G2HS 512e HDD	N	N	N	N	N	N	Y	Y	Y	N	N	Y	Y	N	N
00FN228	6TB 7.2K 12Gbps NL SAS 3.5" G2HS 512e HDD	N	N	N	N	N	N	Y	Y	Y	N	N	Y	Y	N	N
00WH121	8TB 7.2K 12Gbps NL SAS 3.5" G2HS 512e HDD	N	N	N	N	N	N	Y	Y	Y	N	N	Y	Y	N	N

Table 13. 3.5-inch hot-swap 6 Gb SAS/SATA HDDs

		Xeon v2						Xeon v3					Xeon v4			
Part number	Description	x3500 M4 (7383, E5-2600 v2)	x3550 M4 (7914, E5-2600 v2)	x3650 M4 (7915, E5-2600 v2)	x3650 M4 BD (5466)	x3750 M4 (8753)	x3850 X6/x3950 X6 (6241, E7 v2)	x3500 M5 (5464)	x3550 M5 (5463)	x3650 M5 (5462)	x3850 X6/x3950 X6 (6241, E7 v3)	nx360 M5 (5465, E5-2600 v3)	x3550 M5 (8869)	x3650 M5 (8871)	x3850 X6/x3950 X6 (6241, E7 v4)	nx360 M5 (5465, E5-2600 v4)
3.5-inch hot-swap HDDs - 6 Gb SAS 15K																
49Y6092	300GB 15K 6Gbps SAS 3.5" G2HS HDD	Y	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	N
49Y6102	600GB 15K 6Gbps SAS 3.5" G2HS HDD	Y	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	N
3.5-inch hot-swap HDDs - 6 Gb NL SAS																
90Y8572	2TB 7.2K 6Gbps NL SAS 3.5" G2HS HDD	Y	Y	Y	Y	N	N	N	Y	Y	N	N	Y	Y	N	N
49Y6210	4TB 7.2K 6Gbps NL SAS 3.5" G2HS HDD	N	Y	N	Y	N	N	N	N	N	N	N	N	Y	N	N
00ML213	6TB 7.2K 6Gbps NL SAS 3.5" G2HS 512e HDD	Y	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	N
3.5-inch hot-swap HDDs - 6 Gb NL SATA																
81Y9786	500GB 7.2K 6Gbps NL SATA 3.5" G2HS HDD	Y	Y	Y	Y	N	N	Y	Y	Y	N	N	Y	Y	N	N
81Y9790	1TB 7.2K 6Gbps NL SATA 3.5" G2HS HDD	Y	Y	Y	Y	N	N	Y	Y	Y	N	N	Y	Y	N	N
81Y9794	2TB 7.2K 6Gbps NL SATA 3.5" G2HS HDD	Y	Y	Y	Y	N	N	Y	Y	Y	N	N	Y	Y	N	N
49Y6002	4TB 7.2K 6Gbps NL SATA 3.5" G2HS HDD	Y	Y	Y	Y	N	N	Y	Y	Y	N	N	Y	Y	N	N
00FN113	2TB 7.2K 6Gbps NL SATA 3.5" G2HS 512e HDD	Y	Y	Y	Y	N	N	Y	Y	Y	N	N	Y	Y	N	N
00FN173	6TB 7.2K 6Gbps NL SATA 3.5" G2HS 512e HDD	Y	Y	Y	Y	N	N	Y	Y	Y	N	N	Y	Y	N	N
00WH126	8TB 7.2K 6Gbps NL SATA 3.5" G2HS 512e HDD	N	N	N	N	N	N	Y	Y	Y	N	N	Y	Y	N	N

Table 14. 3.5-inch hot-swap 12 Gb SAS/SATA SSDs

		Xeon v2						Xeon v3					Xeon v4			
Part number	**Description**	**x3500 M4 (7383, E5-2600 v2)**	**x3550 M4 (7914, E5-2600 v2)**	**x3650 M4 (7915, E5-2600 v2)**	**x3650 M4 BD (5466)**	**x3750 M4 (8753)**	**x3850 X6/x3950 X6 (6241, E7 v2)**	**x3500 M5 (5464)**	**x3550 M5 (5463)**	**x3650 M5 (5462)**	**x3850 X6/x3950 X6 (6241, E7 v3)**	**nx360 M5 (5465, E5-2600 v3)**	**x3550 M5 (8869)**	**x3650 M5 (8871)**	**x3850 X6/x3950 X6 (6241, E7 v4)**	**nx360 M5 (5465, E5-2600 v4)**
3.5-inch hot-swap SSDs - 12 Gb SAS - Enterprise (10+ DWPD)																
00WG675	300GB 15K 12Gbps SAS 3.5" G2HS HDD	N	N	N	N	N	N	Y	Y	Y	N	N	Y	Y	N	N
00WG680	600GB 15K 12Gbps SAS 3.5" G2HS HDD	N	N	N	N	N	N	Y	Y	Y	N	N	Y	Y	N	N

Table 15. 3.5-inch hot-swap 6 Gb SAS/SATA SSDs

		Xeon v2						Xeon v3					Xeon v4			
Part number	**Description**	**x3500 M4 (7383, E5-2600 v2)**	**x3550 M4 (7914, E5-2600 v2)**	**x3650 M4 (7915, E5-2600 v2)**	**x3650 M4 BD (5466)**	**x3750 M4 (8753)**	**x3850 X6/x3950 X6 (6241, E7 v2)**	**x3500 M5 (5464)**	**x3550 M5 (5463)**	**x3650 M5 (5462)**	**x3850 X6/x3950 X6 (6241, E7 v3)**	**nx360 M5 (5465, E5-2600 v3)**	**x3550 M5 (8869)**	**x3650 M5 (8871)**	**x3850 X6/x3950 X6 (6241, E7 v4)**	**nx360 M5 (5465, E5-2600 v4)**
3.5-inch hot-swap SSDs - 6 Gb SATA - Enterprise Performance (10+ DWPD)																
00YC340	Intel S3710 400GB Enterprise Performance SATA HS 3.5" SSD	N	N	N	N	N	N	Y	Y	Y	N	N	Y	Y	N	N
00YC345	Intel S3710 800GB Enterprise Performance SATA HS 3.5" SSD	N	N	N	N	N	N	Y	Y	Y	N	N	Y	Y	N	N
3.5-inch hot-swap SSDs - 6 Gb SATA - Enterprise Mainstream (3-5 DWPD)																
00AJ435	120GB SATA 3.5" MLC HS Enterprise Value SSD	N	N	N	Y	N	N	Y	Y	Y	N	N	Y	Y	N	N
00AJ445	480GB SATA 3.5" MLC HS Enterprise Value SSD	N	N	N	Y	N	N	Y	Y	Y	N	N	Y	Y	N	N
3.5-inch hot-swap SSDs - 6 Gb SATA - Enterprise Entry (<3 DWPD)																
00WG770	Intel S3510 120GB Enterprise Entry SATA HS 3.5" SSD	N	N	N	N	N	N	Y	Y	Y	N	N	N	N	N	N
00WG775	Intel S3510 240GB Enterprise Entry SATA HS 3.5" SSD	N	N	N	N	N	N	Y	Y	Y	N	N	N	N	N	N
00WG780	Intel S3510 480GB Enterprise Entry SATA HS 3.5" SSD	N	N	N	N	N	N	Y	Y	Y	N	N	N	N	N	N
00YC420	960GB Enterprise Entry SATA HS 3.5" SSD	N	N	N	Y	N	N	Y	Y	Y	N	N	Y	Y	N	N

Table 16. 2.5-inch simple-swap 6 Gb SAS/SATA HDDs

		Xeon v2						Xeon v3					Xeon v4			
Part number	**Description**	**x3500 M4 (7383, E5-2600 v2)**	**x3550 M4 (7914, E5-2600 v2)**	**x3650 M4 (7915, E5-2600 v2)**	**x3650 M4 BD (5466)**	**x3750 M4 (8753)**	**x3850 X6/x3950 X6 (6241, E7 v2)**	**x3500 M5 (5464)**	**x3550 M5 (5463)**	**x3650 M5 (5462)**	**x3850 X6/x3950 X6 (6241, E7 v3)**	**nx360 M5 (5465, E5-2600 v3)**	**x3550 M5 (8869)**	**x3650 M5 (8871)**	**x3850 X6/x3950 X6 (6241, E7 v4)**	**nx360 M5 (5465, E5-2600 v4)**
2.5-inch simple-swap HDDs - 6 Gb NL SATA																
00NA622	1TB 7.2K 6Gbps NL SATA 2.5" G3SS HDD	N	N	N	N	N	N	N	Y	Y	N	N	Y	Y	N	N
00NA536	2TB 7.2K 6Gbps NL SATA 2.5" G3SS 512e HDD	N	N	N	N	N	N	N	Y	Y	N	N	Y	Y	N	N

Table 17. 3.5-inch simple-swap 6 Gb SAS/SATA HDDs

		Xeon v2						Xeon v3					Xeon v4			
Part number	**Description**	**x3500 M4 (7383, E5-2600 v2)**	**x3550 M4 (7914, E5-2600 v2)**	**x3650 M4 (7915, E5-2600 v2)**	**x3650 M4 BD (5466)**	**x3750 M4 (8753)**	**x3850 X6/x3950 X6 (6241, E7 v2)**	**x3500 M5 (5464)**	**x3550 M5 (5463)**	**x3650 M5 (5462)**	**x3850 X6/x3950 X6 (6241, E7 v3)**	**nx360 M5 (5465, E5-2600 v3)**	**x3550 M5 (8869)**	**x3650 M5 (8871)**	**x3850 X6/x3950 X6 (6241, E7 v4)**	**nx360 M5 (5465, E5-2600 v4)**
3.5-inch simple-swap HDDs - 6 Gb NL SATA																
81Y9802	500GB 7.2K 6Gbps NL SATA 3.5" G2SS HDD	Y	Y	Y	N	N	N	Y	Y	Y	N	N	Y	Y	N	N
81Y9806	1TB 7.2K 6Gbps NL SATA 3.5" G2SS HDD	Y	Y	Y	N	N	N	Y	Y	Y	N	N	Y	Y	N	N
81Y9810	2TB 7.2K 6Gbps NL SATA 3.5" G2SS HDD	Y	Y	Y	N	N	N	Y	Y	Y	N	N	Y	Y	N	N
00FN118	2TB 7.2K 6Gbps NL SATA 3.5" G2SS 512e HDD	Y	Y	Y	N	N	N	Y	Y	Y	N	N	Y	Y	N	N
00FN148	4TB 7.2K 6Gbps NL SATA 3.5" G2SS 512e HDD	Y	Y	Y	N	N	N	Y	Y	Y	N	N	Y	Y	N	N

Table 18. 2.5-inch internal 12 Gb HDDs for NeXtScale

		Xeon v2						Xeon v3					Xeon v4			
Part number	**Description**	**x3500 M4 (7383, E5-2600 v2)**	**x3550 M4 (7914, E5-2600 v2)**	**x3650 M4 (7915, E5-2600 v2)**	**x3650 M4 BD (5466)**	**x3750 M4 (8753)**	**x3850 X6/x3950 X6 (6241, E7 v2)**	**x3500 M5 (5464)**	**x3550 M5 (5463)**	**x3650 M5 (5462)**	**x3850 X6/x3950 X6 (6241, E7 v3)**	**nx360 M5 (5465, E5-2600 v3)**	**x3550 M5 (8869)**	**x3650 M5 (8871)**	**x3850 X6/x3950 X6 (6241, E7 v4)**	**nx360 M5 (5465, E5-2600 v4)**
2.5-inch NeXtScale HDDs - 12 Gb SAS 10K HDDs																
00WG725	300GB 10K 12Gbps SAS 2.5" HDD for NeXtScale System	N	N	N	N	N	N	N	N	N	N	Y	N	N	N	Y
00WG730	600GB 10K 12Gbps SAS 2.5" HDD for NeXtScale System	N	N	N	N	N	N	N	N	N	N	Y	N	N	N	Y
00WG735	900GB 10K 12Gbps SAS 2.5" HDD for NeXtScale System	N	N	N	N	N	N	N	N	N	N	Y	N	N	N	Y
00WG740	1.2TB 10K 12Gbps SAS 2.5" HDD for NeXtScale System	N	N	N	N	N	N	N	N	N	N	Y	N	N	N	Y

Table 19. 2.5-inch internal 6 Gb HDDs for NeXtScale

		Xeon v2						Xeon v3					Xeon v4			
Part number	**Description**	**x3500 M4 (7383, E5-2600 v2)**	**x3550 M4 (7914, E5-2600 v2)**	**x3650 M4 (7915, E5-2600 v2)**	**x3650 M4 BD (5466)**	**x3750 M4 (8753)**	**x3850 X6/x3950 X6 (6241, E7 v2)**	**x3500 M5 (5464)**	**x3550 M5 (5463)**	**x3650 M5 (5462)**	**x3850 X6/x3950 X6 (6241, E7 v3)**	**nx360 M5 (5465, E5-2600 v3)**	**x3550 M5 (8869)**	**x3650 M5 (8871)**	**x3850 X6/x3950 X6 (6241, E7 v4)**	**nx360 M5 (5465, E5-2600 v4)**
2.5-inch NeXtScale HDDs - 6 Gb SAS 15K HDDs																
00WG670	300GB 15K 12Gbps SAS 2.5" HDD for NeXtScale System	N	N	N	N	N	N	N	N	N	N	Y	N	N	N	Y
2.5-inch NeXtScale HDDs - 6 Gb NL SATA HDDs																
00NA566	2TB 7.2K 6Gbps NL SATA 2.5" 512e HDD for NeXtScale System	N	N	N	N	N	N	N	N	N	N	Y	N	N	N	Y
2.5-inch NeXtScale HDDs - 6 Gb SATA HDDs																
00AD040	1TB 7.2K 6Gbps SATA 2.5" HDD for NeXtScale System	N	N	N	N	N	N	N	N	N	N	Y	N	N	N	Y

Table 20. 3.5-inch internal 12 Gb HDDs for NeXtScale

		Xeon v2						Xeon v3					Xeon v4			
Part number	**Description**	**x3500 M4 (7383, E5-2600 v2)**	**x3550 M4 (7914, E5-2600 v2)**	**x3650 M4 (7915, E5-2600 v2)**	**x3650 M4 BD (5466)**	**x3750 M4 (8753)**	**x3850 X6/x3950 X6 (6241, E7 v2)**	**x3500 M5 (5464)**	**x3550 M5 (5463)**	**x3650 M5 (5462)**	**x3850 X6/x3950 X6 (6241, E7 v3)**	**nx360 M5 (5465, E5-2600 v3)**	**x3550 M5 (8869)**	**x3650 M5 (8871)**	**x3850 X6/x3950 X6 (6241, E7 v4)**	**nx360 M5 (5465, E5-2600 v4)**
2.5-inch NeXtScale HDDs - 12 Gb SAS 10K HDDs																
00NA356	1.8TB 10K 12Gbps SAS 2.5" 512e HDD for NeXtScale System	N	N	N	N	N	N	N	N	N	N	Y	N	N	N	Y

Table 21. 3.5-inch internal 6 Gb HDDs for NeXtScale

		Xeon v2						Xeon v3					Xeon v4			
Part number	**Description**	**x3500 M4 (7383, E5-2600 v2)**	**x3550 M4 (7914, E5-2600 v2)**	**x3650 M4 (7915, E5-2600 v2)**	**x3650 M4 BD (5466)**	**x3750 M4 (8753)**	**x3850 X6/x3950 X6 (6241, E7 v2)**	**x3500 M5 (5464)**	**x3550 M5 (5463)**	**x3650 M5 (5462)**	**x3850 X6/x3950 X6 (6241, E7 v3)**	**nx360 M5 (5465, E5-2600 v3)**	**x3550 M5 (8869)**	**x3650 M5 (8871)**	**x3850 X6/x3950 X6 (6241, E7 v4)**	**nx360 M5 (5465, E5-2600 v4)**
3.5-inch NeXtScale HDDs - 6 Gb NL SATA and SATA																
00FN123	2TB 7.2K 6Gbps NL SATA 3.5" 512e HDD for NextScale System	N	N	N	N	N	N	N	N	N	N	Y	N	N	N	Y
00FN183	6TB 7.2K 6Gbps NL SATA 3.5" 512e HDD for NextScale System	N	N	N	N	N	N	N	N	N	N	Y	N	N	N	Y
00WH131	8TB 7.2K 6Gbps NL SATA 3.5" 512e HDD for NeXtScale System	N	N	N	N	N	N	N	N	N	N	Y	N	N	N	Y
00AD010	1TB 7.2K 6Gbps SATA 3.5" HDD for NeXtScale System	N	N	N	N	N	N	N	N	N	N	Y	N	N	N	Y
00AD025	4TB 7.2K 6Gbps SATA 3.5" HDD for NeXtScale System	N	N	N	N	N	N	N	N	N	N	Y	N	N	N	Y

Table 22. 2.5-inch internal 6 Gb SSDs for NeXtScale

		Xeon v2						Xeon v3					Xeon v4			
Part number	**Description**	**x3500 M4 (7383, E5-2600 v2)**	**x3550 M4 (7914, E5-2600 v2)**	**x3650 M4 (7915, E5-2600 v2)**	**x3650 M4 BD (5466)**	**x3750 M4 (8753)**	**x3850 X6/x3950 X6 (6241, E7 v2)**	**x3500 M5 (5464)**	**x3550 M5 (5463)**	**x3650 M5 (5462)**	**x3850 X6/x3950 X6 (6241, E7 v3)**	**nx360 M5 (5465, E5-2600 v3)**	**x3550 M5 (8869)**	**x3650 M5 (8871)**	**x3850 X6/x3950 X6 (6241, E7 v4)**	**nx360 M5 (5465, E5-2600 v4)**
2.5-inch NeXtScale SSDs - 6 Gb SATA - Enterprise Performance (10+ DWPD)																
00YC350	Intel S3710 200GB Enterprise Performance SATA 2.5" SSD for NeXtScale	N	N	N	N	N	N	N	N	N	N	Y	N	N	N	Y
00YC355	Intel S3710 400GB Enterprise Performance SATA 2.5" SSD for NeXtScale	N	N	N	N	N	N	N	N	N	N	Y	N	N	N	Y
2.5-inch NeXtScale SSDs - 6 Gb SATA - Enterprise Entry (<3 DWPD)																
00FN020	120GB SATA 2.5" MLC Enterprise Value SSD for NeXtScale System	N	N	N	N	N	N	N	N	N	N	Y	N	N	N	Y
00YC430	240GB Enterprise Entry SATA 2.5" SSD for NeXtScale	N	N	N	N	N	N	N	N	N	N	Y	N	N	N	Y
00YC440	960GB Enterprise Entry SATA 2.5" SSD for NeXtScale	N	N	N	N	N	N	N	N	N	N	Y	N	N	N	Y

See ServerProven for the latest information about the System x servers and drives support:
http://www.lenovo.com/us/en/serverproven/xseries/controllers/matrix.shtml

Operating system support

The adapter supports the following operating systems:

Tip: This table is automatically generated based on data from Lenovo ServerProven.

Table 23. Operating system support for ServeRAID M5210 SAS/SATA Controller, 46C9110

Operating systems	x3850/3950 X6 (3837)	x3850/3950 X6 (6241, E7 v2)	x3850/3950 X6 (6241, E7 v3)	x3850/3950 X6 (6241, E7 v4)	x3250 M6 (3633)	nx360 M5 (5465)	x3500 M5 (5464)	x3550 M5 (5463)	x3550 M5 (8869)	x3650 M5 (5462)	x3650 M5 (8871)
Microsoft Windows Server 2008 R2	Y	Y	Y	N	N	N	Y	Y	Y	Y	N
Microsoft Windows Server 2012	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Microsoft Windows Server 2012 R2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Microsoft Windows Server 2016	N	Y [1]	Y [1]	Y [1]	Y	Y	Y	Y	Y	Y	Y
Microsoft Windows Server 2019	N	N	N	Y	Y	N	N	N	Y	N	Y
Microsoft Windows Server version 1709	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
Microsoft Windows Server version 1803	N	N	N	N	N	N	N	N	Y	N	Y
Red Hat Enterprise Linux 6 Server x64 Edition	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 7	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.0	N	N	N	Y	N	N	N	N	N	N	N
SUSE Linux Enterprise Server 11 for AMD64/EM64T	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 12	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 12 with Xen	N	N	N	N	N	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15	N	N	Y	Y	Y	Y	N	N	Y	N	Y
SUSE Linux Enterprise Server 15 with Xen	N	N	Y	Y	Y	Y	N	N	Y	N	Y
VMware vSphere 5.1 (ESXi)	Y	Y	N	N	N	Y	Y	Y	N	Y	N
VMware vSphere Hypervisor (ESXi) 5.5	Y	Y	Y	N	Y	N	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 6.0	N	Y	Y	Y	Y	Y [2]	Y [2]	Y [2]	Y	Y [2]	Y
VMware vSphere Hypervisor (ESXi) 6.5	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 6.7	N	N	N	Y	Y	Y	Y	N	Y	N	Y

[1] [in box driver support only]

[2] [This is a limitation with Lenovo Customized VMWare image having a downlevel LSI/Avago Provider that doesn't work properly with LSI/Avago native driver This issue should be routed to the Lenovo VMware team that owns the Customized image Target Fixed Date: 2016/2/1]

Warranty

The ServeRAID M5210 SAS/SATA Controller carries a 1-year limited warranty. When installed in a supported System x server, the adapter assumes the system's base warranty and any warranty upgrades.

Physical specifications

The ServeRAID M5210 SAS/SATA Controller has the following physical specifications:

Dimensions (approximate):

- Height: 15 mm (0.6 in.)
- Width: 69 mm (2.7 in.)
- Depth: 168 mm (6.6 in.)
- Weight: 99 g (0.2 lb)

Shipping dimensions (approximate):

- Height: 51 mm (2.0 in.)
- Width: 143 mm (5.6 in.)
- Depth: 238 mm (9.4 in.)
- Weight: 320 g (0.7 lb)

Operating environment

The ServeRAID M5210 SAS/SATA Controller is supported in the following environment:

- Temperature: 5 - 40 °C (41 - 104 °F) at 0 - 5,000 m (0 - 16,404 ft)
- Relative humidity: 8% - 93% (non-condensing)
- Maximum altitude: 5,000 m (16,404 ft)

Agency approvals

The ServeRAID M5210 SAS/SATA Controller conforms to the following regulations:

- UL
- cUL
- IEC60950
- EMC
- FCC
- TUV
- CE
- VCCI
- BSMI
- C-tick
- KC

Related publications and links

For more information, see the following documents:

- ServeRAID M5210 SAS/SATA Controller User's Guide
  https://support.lenovo.com/docs/UM104160
- ServeRAID M5210 SAS/SATA Controller Quick Installation Guide
  https://support.lenovo.com/docs/UM104159
- ServeRAID M5200 Series Flash/RAID 5 Upgrade User's Guide
  https://support.lenovo.com/docs/UM103502
- Lenovo RAID Introduction
  https://lenovopress.com/lp0578-lenovo-raid-introduction
- Lenovo RAID Management Tools and Resources (includes links to drivers and management tools)
  https://lenovopress.com/lp0579-lenovo-raid-management-tools-and-resources
- System x Configuration and Options Guide
  https://support.lenovo.com/us/en/documents/SCOD-3ZVQ5W

Related product families

Product families related to this document are the following:

- RAID Adapters

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