Lenovo PM863 Enterprise Entry SATA SSDs
Product Guide (withdrawn product)

The Lenovo PM863 Enterprise Entry SATA solid-state drives (SSDs) in capacities of 120 GB, 240 GB, 480 GB, and 960 GB are next-generation general-purpose SSDs for System x and ThinkServer based on the Samsung PM863 platform. They are engineered for greater performance and endurance in a cost-effective design, and to support a broader set of workloads. These SSDs are available both as 2.5-inch and 3.5-inch form factor drives.

Figure 1. Lenovo Enterprise Entry SATA SSD

Did you know?

Lenovo Enterprise Entry SSDs are suitable for read-intensive and general-purpose data center workloads. Overall, these SSDs provide outstanding IOPS/watt and cost/IOPS for enterprise solutions and are an excellent choice for applications such as web serving, hyperscale cloud, content delivery, caching, databases, and analytics.

Unlike client drives, these SSDs are equipped with a robust suite of enterprise features, including Self-monitoring, analysis, and reporting technology (SMART) attributes and hot-plug support. They also use enterprise data path protection to verify data to and from NAND at every possible location and protect the integrity of the data. The NAND flash in these SSDs is screened and then tested specifically for enterprise customer use.

Part number information

The following tables list the ordering information for the drives.

Withdrawn: All PM863 drive options are withdrawn from marketing.

Table 1. Ordering part numbers and feature codes - System x

Part number	Feature code	Description
2.5-inch hot-swap drives with G2HS tray		
00YC365	AT8M	120GB Enterprise Entry SATA HS 2.5" SSD
00YC370	AT8N	240GB Enterprise Entry SATA HS 2.5" SSD
00YC375	AT8P	480GB Enterprise Entry SATA HS 2.5" SSD
00YC380	AT8Q	960GB Enterprise Entry SATA HS 2.5" SSD
2.5-inch hot-swap drives with G3HS tray		
00YC385	AT8R	120GB Enterprise Entry SATA G3HS 2.5" SSD
00YC390	AT8S	240GB Enterprise Entry SATA G3HS 2.5" SSD
00YC395	AT8T	480GB Enterprise Entry SATA G3HS 2.5" SSD
00YC400	AT8U	960GB Enterprise Entry SATA G3HS 2.5" SSD
2.5-inch internal (non-hot-swap) drives for NeXtScale System		
00YC430	AT90	240GB Enterprise Entry SATA 2.5" SSD for NeXtScale
00YC440	AT92	960GB Enterprise Entry SATA 2.5" SSD for NeXtScale
3.5-inch hot-swap drives		
00YC420	AT8Y	960GB Enterprise Entry SATA HS 3.5" SSD

Table 2. Ordering part numbers - ThinkServer

Part number	Description
2.5-inch hot-swap drives	
4XB0K12264	Lenovo ThinkServer 2.5" 120GB PM863 Enterprise Entry SATA 6Gbps HS SSD
4XB0K12265	Lenovo ThinkServer 2.5" 240GB PM863 Enterprise Entry SATA 6Gbps HS SSD
4XB0K12269	Lenovo ThinkServer 2.5" 480GB PM863 Enterprise Entry SATA 6Gbps HS SSD
4XB0K12257	Lenovo ThinkServer 2.5" 960GB PM863 Enterprise Entry SATA 6Gbps HS SSD
3.5-inch hot-swap drives	
4XB0K12267	Lenovo ThinkServer 3.5" 120GB PM863 Enterprise Entry SATA 6Gbps HS SSD
4XB0K12268	Lenovo ThinkServer 3.5" 240GB PM863 Enterprise Entry SATA 6Gbps HS SSD
4XB0K12266	Lenovo ThinkServer 3.5" 480GB PM863 Enterprise Entry SATA 6Gbps HS SSD
4XB0K12256	Lenovo ThinkServer 3.5" 960GB PM863 Enterprise Entry SATA 6Gbps HS SSD
3.5-inch internal (non-hot-swap) drives	
4XB0K12271	Lenovo ThinkServer TS150 2.5" 120GB PM863 Enterprise Entry SATA 6Gbps SSD with 3.5" Tray
4XB0K12272	Lenovo ThinkServer TS150 2.5" 240GB PM863 Enterprise Entry SATA 6Gbps SSD with 3.5" Tray
4XB0K12273	Lenovo ThinkServer TS150 2.5" 480GB PM863 Enterprise Entry SATA 6Gbps SSD with 3.5" Tray

The part numbers include the following items:

- One solid-state drive (HS parts include a hot-swap tray)
- Support Flyer for SSDs
- Warranty Flyer
- Important Notices Flyer

Features

The Enterprise Entry SATA SSDs have the following features:

- Low cost, read-intensive SSD from Samsung

- 2.5-inch or 3.5-inch industry standard form factor with hot-swap tray

- 6 Gbps SATA interface

- Advanced ECC Engine and End-to-End Data Protection

- Samsung 32 layer V-NAND stacks the vertical NAND layers in three dimensions, solving the cell-to-cell interference that causes data corruption in planar NAND.

- Protect data integrity from unexpected power loss with Samsung's advanced power-loss protection architecture

- Supports Self-Monitoring, Analysis and Reporting Technology (S.M.A.R.T).

- Dynamic Thermal Guard Protection protects the SSD from overheating by automatically controlling the speed of the CPU relative to its core temperature

Enterprise Entry SSDs and Enterprise SSDs have similar read and write IOPS performance, but the key difference between them is their endurance (or lifetime) (that is, how long they can perform write operations because SSDs have a finite number of program/erase (P/E) cycles). Enterprise Entry SSDs have a better cost/IOPS ratio but lower endurance compared to Enterprise SSDs. SSD write endurance is typically measured by the number of program/erase (P/E) cycles that the drive incurs over its lifetime, listed as the total bytes of written data (TBW) in the device specification.

The TBW value assigned to a solid-state device is the total bytes of written data (based on the number of P/E cycles) that a drive can be guaranteed to complete (% of remaining P/E cycles = % of remaining TBW). Reaching this limit does not cause the drive to immediately fail. It simply denotes the maximum number of writes that can be guaranteed. A solid-state device will not fail upon reaching the specified TBW. At some point based on manufacturing variance margin, after surpassing the TBW value, the drive will reach the end-of-life point, at which the drive will go into a read-only mode.

Because of such behavior by Enterprise Entry solid-state drives, careful planning must be done to use them only in read-intensive or mixed up to 70% read/30% write environments to ensure that the TBW of the drive will not be exceeded before the required life expectancy.

For example, the 480 GB drive has an endurance of 700 TB of total bytes written (TBW). This means that for full operation over five years, write workload must be limited to no more than 384 GB of writes per day, which is equivalent to 0.8 full drive writes per day (DWPD). For the device to last three years, the drive write workload must be limited to no more than 639 GB of writes per day, which is equivalent to 1.3 full drive writes per day.

Technical specifications

The following tables present technical specifications for the Enterprise Entry SATA SSDs.

Table 3. Technical specifications

Feature	120 GB drive	240 GB drive	480 GB drive	960 GB drive
System x part numbers	00YC365 00YC385	00YC370 00YC390 00YC430	00YC375 00YC395	00YC380 00YC400 00YC440 00YC420
ThinkServer part numbers	4XB0K12264 4XB0K12267 4XB0K12271	4XB0K12265 4XB0K12268 4XB0K12272	4XB0K12266 4XB0K12269 4XB0K12273	4XB0K12257 4XB0K12256
Interface	6 Gbps SATA	6 Gbps SATA	6 Gbps SATA	6 Gbps SATA
Capacity	120 GB	240 GB	480 GB	960 GB
Endurance (total bytes written)	170 TB	350 TB	700 TB	1400 TB
Endurance (drive writes per day for 5 years)	0.8 DWPD	0.8 DWPD	0.8 DWPD	0.8 DWPD
Data reliability (UBER)	< 1 in 10^{17} bits read	< 1 in 10^{17} bits read	< 1 in 10^{17} bits read	< 1 in 10^{17} bits read
MTBF	2,000,000 hours	2,000,000 hours	2,000,000 hours	2,000,000 hours
IOPS reads (4 KB blocks)	86,000	99,000	99,000	99,000
IOPS writes (4 KB blocks)	5,000	10,000	17,000	18,000
Sequential read rate (128 KB blocks)	380 MBps	520 MBps	525 MBps	520 MBps
Sequential write rate (128 KB blocks)	125 MBps	245 MBps	460 MBps	475 MBps
Read latency (ran)	106 µs	106 µs	106 µs	106 µs
Write latency (ran)	52 µs	52 µs	52 µs	52 µs
Shock, operating	1,500 G (Max) at 0.5 ms	1,500 G (Max) at 0.5 ms	1,500 G (Max) at 0.5 ms	1,500 G (Max) at 0.5 ms
Vibration	3.08 G_{RMS} (7-800 Hz)	3.08 G_{RMS} (7-800 Hz)	3.08 G_{RMS} (7-800 Hz)	3.08 G_{RMS} (7-800 Hz)
Typical power (R/W)	2.4 W / 2.1 W	2.7 W / 2.7 W	2.9 W / 3.8 W	2.9 W / 3.8 W

Supported servers - System x

The following tables list the System x servers that are compatible.

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)
00YC365	120GB Enterprise Entry SATA HS 2.5" SSD	N	N	N	N	N	N	N
00YC370	240GB Enterprise Entry SATA HS 2.5" SSD	N	N	N	N	N	N	N
00YC375	480GB Enterprise Entry SATA HS 2.5" SSD	N	N	N	N	N	N	N
00YC380	960GB Enterprise Entry SATA HS 2.5" SSD	N	N	N	N	N	N	N
00YC385	120GB Enterprise Entry SATA G3HS 2.5" SSD	N	N	Y	Y	Y	Y	N
00YC390	240GB Enterprise Entry SATA G3HS 2.5" SSD	N	N	Y	Y	Y	Y	N
00YC395	480GB Enterprise Entry SATA G3HS 2.5" SSD	N	N	Y	Y	Y	Y	N
00YC400	960GB Enterprise Entry SATA G3HS 2.5" SSD	N	N	Y	Y	Y	Y	N
00YC430	240GB Enterprise Entry SATA 2.5" SSD for NeXtScale	N	N	N	N	N	Y	N
00YC440	960GB Enterprise Entry SATA 2.5" SSD for NeXtScale	N	N	N	N	N	Y	N
00YC420	960GB Enterprise Entry SATA HS 3.5" SSD	N	N	Y	Y	N	N	N

Support for System x and dense 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)
00YC365	120GB Enterprise Entry SATA HS 2.5" SSD	N	Y	N	N	N	N	N
00YC370	240GB Enterprise Entry SATA HS 2.5" SSD	N	Y	N	N	N	N	N
00YC375	480GB Enterprise Entry SATA HS 2.5" SSD	N	Y	N	N	N	N	N
00YC380	960GB Enterprise Entry SATA HS 2.5" SSD	N	Y	N	N	N	N	N
00YC385	120GB Enterprise Entry SATA G3HS 2.5" SSD	N	N	Y	Y	Y	Y	Y
00YC390	240GB Enterprise Entry SATA G3HS 2.5" SSD	N	N	Y	Y	Y	Y	Y
00YC395	480GB Enterprise Entry SATA G3HS 2.5" SSD	N	N	Y	Y	Y	Y	Y
00YC400	960GB Enterprise Entry SATA G3HS 2.5" SSD	N	N	Y	Y	Y	Y	Y
00YC430	240GB Enterprise Entry SATA 2.5" SSD for NeXtScale	N	N	N	N	N	N	Y
00YC440	960GB Enterprise Entry SATA 2.5" SSD for NeXtScale	N	N	N	N	N	N	Y
00YC420	960GB Enterprise Entry SATA HS 3.5" SSD	Y	Y	Y	Y	Y	N	N

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)
00YC365	120GB Enterprise Entry SATA HS 2.5" SSD	N	N	Y	N	Y	N	N	N	N	N	N	N	N
00YC370	240GB Enterprise Entry SATA HS 2.5" SSD	N	N	Y	N	Y	N	N	N	N	N	N	N	N
00YC375	480GB Enterprise Entry SATA HS 2.5" SSD	N	N	Y	N	Y	N	N	N	N	N	N	N	N
00YC380	960GB Enterprise Entry SATA HS 2.5" SSD	N	N	Y	N	Y	N	N	N	N	N	N	N	N
00YC385	120GB Enterprise Entry SATA G3HS 2.5" SSD	N	N	N	N	N	N	N	N	N	N	Y	N	N
00YC390	240GB Enterprise Entry SATA G3HS 2.5" SSD	N	N	N	N	N	N	N	N	N	N	Y	N	N
00YC395	480GB Enterprise Entry SATA G3HS 2.5" SSD	N	N	N	N	N	N	N	N	N	N	Y	N	N
00YC400	960GB Enterprise Entry SATA G3HS 2.5" SSD	N	N	N	N	N	N	N	N	N	N	Y	N	N
00YC430	240GB Enterprise Entry SATA 2.5" SSD for NeXtScale	N	N	N	N	N	N	N	N	N	N	N	N	N
00YC440	960GB Enterprise Entry SATA 2.5" SSD for NeXtScale	N	N	N	N	N	N	N	N	N	N	N	N	N
00YC420	960GB Enterprise Entry SATA HS 3.5" SSD	N	N	N	N	Y	Y	N	N	N	N	N	N	N

Supported servers - ThinkServer

The following tables list the ThinkServer systems that are compatible with the Enterprise Entry SATA SSDs.

Support for ThinkServer Generation 5 servers with E5 v4 and E3 v5 processors

Table 7. Support for ThinkServer Generation 5 servers (E5 v4 and E3 v5 processors)

Part number	Description	TS150	TS450	TS460	RS160	TD350	RD350 (70Qx)	RD450 (70Qx)	RD550 (70Rx/70Sx)	RD650 (70Rx)
2.5-inch drives										
4XB0K12264	LTS 2.5" 120GB PM863 Enterprise Entry SATA 6Gbps HS SSD	N	N	N	N	Y	Y	Y	Y	Y
4XB0K12265	LTS 2.5" 240GB PM863 Enterprise Entry SATA 6Gbps HS SSD	N	N	N	N	Y	Y	Y	Y	Y
4XB0K12269	LTS 2.5" 480GB PM863 Enterprise Entry SATA 6Gbps HS SSD	N	N	N	N	Y	Y	Y	Y	Y
4XB0K12257	LTS 2.5" 960GB PM863 Enterprise Entry SATA 6Gbps HS SSD	N	N	N	N	Y	Y	Y	Y	Y
3.5-inch drives										
4XB0K12267	LTS 3.5" 120GB PM863 Enterprise Entry SATA 6Gbps HS SSD	N	N	N	N	Y	Y	Y	Y	Y
4XB0K12268	LTS 3.5" 240GB PM863 Enterprise Entry SATA 6Gbps HS SSD	N	N	N	N	Y	Y	Y	Y	Y
4XB0K12266	LTS 3.5" 480GB PM863 Enterprise Entry SATA 6Gbps HS SSD	N	N	N	N	Y	Y	Y	Y	Y
4XB0K12256	LTS 3.5" 960GB PM863 Enterprise Entry SATA 6Gbps HS SSD	N	N	N	N	Y	Y	Y	Y	Y
4XB0K12271	LTS TS150 2.5" 120GB PM863 Enterprise Entry SATA 6Gbps SSD with 3.5" Tray	Y	N	N	N	N	N	N	N	N
4XB0K12272	LTS TS150 2.5" 240GB PM863 Enterprise Entry SATA 6Gbps SSD with 3.5" Tray	Y	N	N	N	N	N	N	N	N
4XB0K12273	LTS TS150 2.5" 480GB PM863 Enterprise Entry SATA 6Gbps SSD with 3.5" Tray	Y	N	N	N	N	N	N	N	N

Support for ThinkServer Generation 5 servers with E5-2600 v3 processors

Table 8. Support for ThinkServer Generation 5 servers (E5-2600 v3 processors)

Part number	Description	TD350	RD350 (70Dx)	RD450 (70Dx)	RD550 (70Cx)	RD650 (70Dx)
2.5-inch drives						
4XB0K12264	LTS 2.5" 120GB PM863 Enterprise Entry SATA 6Gbps HS SSD	Y	Y	Y	Y	Y
4XB0K12265	LTS 2.5" 240GB PM863 Enterprise Entry SATA 6Gbps HS SSD	Y	Y	Y	Y	Y
4XB0K12269	LTS 2.5" 480GB PM863 Enterprise Entry SATA 6Gbps HS SSD	Y	Y	Y	Y	Y
4XB0K12257	LTS 2.5" 960GB PM863 Enterprise Entry SATA 6Gbps HS SSD	Y	Y	Y	Y	Y
3.5-inch drives						
4XB0K12267	LTS 3.5" 120GB PM863 Enterprise Entry SATA 6Gbps HS SSD	Y	Y	Y	Y	Y
4XB0K12268	LTS 3.5" 240GB PM863 Enterprise Entry SATA 6Gbps HS SSD	Y	Y	Y	Y	Y
4XB0K12266	LTS 3.5" 480GB PM863 Enterprise Entry SATA 6Gbps HS SSD	Y	Y	Y	Y	Y
4XB0K12256	LTS 3.5" 960GB PM863 Enterprise Entry SATA 6Gbps HS SSD	Y	Y	Y	Y	Y
4XB0K12271	LTS TS150 2.5" 120GB PM863 Enterprise Entry SATA 6Gbps SSD with 3.5" Tray	N	N	N	N	N
4XB0K12272	LTS TS150 2.5" 240GB PM863 Enterprise Entry SATA 6Gbps SSD with 3.5" Tray	N	N	N	N	N
4XB0K12273	LTS TS150 2.5" 480GB PM863 Enterprise Entry SATA 6Gbps SSD with 3.5" Tray	N	N	N	N	N

Support for ThinkServer Generation 4 servers

Table 9. Support for ThinkServer Generation 4 servers

Part number	Description	TS140	TS440	RS140	TD340	RS140	RD340	RD440	RD540	RD640
2.5-inch drives										
4XB0K12264	LTS 2.5" 120GB PM863 Enterprise Entry SATA 6Gbps HS SSD	N	N	N	N	N	N	N	N	N
4XB0K12265	LTS 2.5" 240GB PM863 Enterprise Entry SATA 6Gbps HS SSD	N	N	N	N	N	N	N	N	N
4XB0K12269	LTS 2.5" 480GB PM863 Enterprise Entry SATA 6Gbps HS SSD	N	N	N	N	N	N	N	N	N
4XB0K12257	LTS 2.5" 960GB PM863 Enterprise Entry SATA 6Gbps HS SSD	N	N	N	N	N	N	N	N	N
3.5-inch drives										
4XB0K12267	LTS 3.5" 120GB PM863 Enterprise Entry SATA 6Gbps HS SSD	N	N	N	N	N	N	N	N	N
4XB0K12268	LTS 3.5" 240GB PM863 Enterprise Entry SATA 6Gbps HS SSD	N	N	N	N	N	N	N	N	N
4XB0K12266	LTS 3.5" 480GB PM863 Enterprise Entry SATA 6Gbps HS SSD	N	N	N	N	N	N	N	N	N
4XB0K12256	LTS 3.5" 960GB PM863 Enterprise Entry SATA 6Gbps HS SSD	N	N	N	N	N	N	N	N	N
4XB0K12271	LTS TS150 2.5" 120GB PM863 Enterprise Entry SATA 6Gbps SSD with 3.5" Tray	N	N	N	N	N	N	N	N	N
4XB0K12272	LTS TS150 2.5" 240GB PM863 Enterprise Entry SATA 6Gbps SSD with 3.5" Tray	N	N	N	N	N	N	N	N	N
4XB0K12273	LTS TS150 2.5" 480GB PM863 Enterprise Entry SATA 6Gbps SSD with 3.5" Tray	N	N	N	N	N	N	N	N	N

Supported servers - Flex System

The following table lists the compatibility information for Flex System servers.

Support for Flex System compute nodes

Table 10. Support for Flex System servers

Part number	Description	x220 (7906)	x222 (7916)	x240 (8737, E5-2600)	x240 (8737, E5-2600 v2)	x240 (7162)	x240 M5 (9532)	x440 (7917)	x440 (7167)	x880/x480/x280 X6 (7903)	x280/x480/x880 X6 (7196)
00YC365	120GB Enterprise Entry SATA HS 2.5" SSD	N	N	N	N	N	N	N	N	N	N
00YC370	240GB Enterprise Entry SATA HS 2.5" SSD	N	N	N	N	N	N	N	N	N	N
00YC375	480GB Enterprise Entry SATA HS 2.5" SSD	N	N	N	N	N	N	N	N	N	N
00YC380	960GB Enterprise Entry SATA HS 2.5" SSD	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	N	N	N	Y
00YC390	240GB Enterprise Entry SATA G3HS 2.5" SSD	N	N	N	N	N	Y	N	N	N	Y
00YC395	480GB Enterprise Entry SATA G3HS 2.5" SSD	N	N	N	N	N	Y	N	N	N	Y
00YC400	960GB Enterprise Entry SATA G3HS 2.5" SSD	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
00YC440	960GB Enterprise Entry SATA 2.5" SSD for NeXtScale	N	N	N	N	N	N	N	N	N	N
00YC420	960GB Enterprise Entry SATA HS 3.5" SSD	N	N	N	N	N	N	N	N	N	N

Supported storage controllers

The Enterprise Entry SATA SSDs require a supported disk controller.

The following table list the System x controllers that support these solid-state drives installed in a supported server.

Table 11. Supported controllers - System x and Flex System

Part number	Description	x3550 M4 (7914, E5-2600 v2)	x3650 M4 (7915, E5-2600 v2)	x3650 M4 BD (5466)	x3850 X6/x3950 X6 (6241, E7 v2)	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, E5-2600 v3)	x3550 M5 (8869)	x3650 M5 (8871)	x3850 X6/x3950 X6 (6241, E7 v4)	nx360 M5 (5465, E5-2600 v4)	x240 M5 (9532)	x280/x480/x880 X6 (7196)
		Xeon v2				Xeon v3							Xeon v4				Flex	
46M0907	6Gb SAS HBA	Y	Y	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N
46C8988	N2115 HBA	Y	Y	Y	N	Y	Y	N	N	N	N	N	N	N	N	N	N	N
47C8675	N2215 HBA	Y	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N
81Y4492	ServeRAID H1110	Y	N	Y	N	Y	Y	N	N	N	N	N	N	N	N	N	N	N
81Y4448	ServeRAID M1115	Y	N	Y	N	Y	Y	N	N	N	N	N	N	N	N	N	N	N
46C9114	ServeRAID M1215	Y	N	Y	N	N	N	Y	Y	Y	N	Y	Y	Y	N	Y	N	N
81Y4481	ServeRAID M5110	Y	Y	Y	N	Y	Y	N	N	N	N	N	N	N	N	N	N	N
00JX142	ServeRAID M5215	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	N
46C9110	ServeRAID M5210	Y	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N
Onboard	ServeRAID C100	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Onboard	ServeRAID C105	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Onboard	ServeRAID M1200e	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y
Onboard	ServeRAID M5110e	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

The following table list the ThinkServer controllers that support these solid-state drives installed in a supported server.

Table 12. Supported controllers - ThinkServer

		TS150	TD350	RD350	RD450	RD550	RD650
None	AnyRAID 110i	N	Y	N	Y	Y	Y
4XB0F28691	AnyRAID 510i	N	Y	N	Y	Y	Y
4XB0F28693	AnyRAID 720i	N	Y	N	Y	Y	Y
4XB0F28694	AnyRAID 720ix	N	Y	N	Y	Y	Y
None	RAID 110i	N	N	Y	Y	N	N
None	RAID 121i	Y	N	N	N	N	N
4XC0G88834	RAID 500	N	N	Y	Y	N	N
4XC0G88840	RAID 520i	Y	Y	Y	Y	Y	Y
4XC0G88836	RAID 710	N	N	Y	Y	N	N
4XC0G88849	RAID 720i	N	Y	Y	Y	Y	Y

Operating system support

SSDs operate transparently to users, storage systems, applications, databases, and operating systems. The controllers that support SSDs are supported by the following operating systems:

- Microsoft Windows Server 2008 R2
- Microsoft Windows Server 2008, Datacenter x64 Edition
- Microsoft Windows Server 2008, Datacenter x86 Edition
- Microsoft Windows Server 2008, Enterprise x64 Edition
- Microsoft Windows Server 2008, Enterprise x86 Edition
- Microsoft Windows Server 2008, Standard x64 Edition
- Microsoft Windows Server 2008, Standard x86 Edition
- Microsoft Windows Server 2008, Web x64 Edition
- Microsoft Windows Server 2008, Web x86 Edition
- Microsoft Windows Server 2012
- Microsoft Windows Server 2012 R2
- Microsoft Windows Server 2016
- Red Hat Enterprise Linux 5 Server Edition
- Red Hat Enterprise Linux 5 Server with Xen x64 Edition
- Red Hat Enterprise Linux 5 Server x64 Edition
- Red Hat Enterprise Linux 6 Server Edition
- Red Hat Enterprise Linux 6 Server x64 Edition
- Red Hat Enterprise Linux 7
- SUSE LINUX Enterprise Server 10 for AMD64/EM64T
- SUSE LINUX Enterprise Server 10 for x86
- SUSE LINUX Enterprise Server 11 for AMD64/EM64T
- SUSE LINUX Enterprise Server 11 for x86
- SUSE LINUX Enterprise Server 11 with Xen for AMD64/EM64T
- VMware ESX 4.1
- VMware ESXi 4.1
- VMware vSphere 5.0 (ESXi)
- VMware vSphere 5.1 (ESXi)
- VMware vSphere 5.5 (ESXi)

For the latest information about the specific supported operating system versions and service packs, see ServerProven:
http://www.lenovo.com/us/en/serverproven/xseries/controllers/matrix.shtml

Select the check mark box that is associated with the controller and server combination in question to see the details about operating system support.

Warranty

The Enterprise Entry SATA SSDs carry a one-year, customer-replaceable unit (CRU) limited warranty. When the SSDs are installed in a supported server, these drives assume the system's base warranty and any warranty upgrades.

Solid State Memory cells have an intrinsic, finite number of program/erase cycles that each cell can incur. As a result, each solid state device has a maximum amount of program/erase cycles to which it can be subjected. The warranty for Lenovo solid state drives (SSDs) is limited to drives that have not reached the maximum guaranteed number of program/erase cycles, as documented in the Official Published Specifications for the SSD product. A drive that reaches this limit may fail to operate according to its Specifications.

Physical specifications

The Enterprise Entry SATA SSDs have the following physical specifications:

Dimensions and weight (approximate, without the hot-swap tray, if applicable):

- Height: 7 mm (0.3 in.)
- Width: 70 mm (2.8 in.)
- Depth: 100 mm (4.0 in.)
- Weight: 60 g (2.1 oz)

Shipping dimensions and weight for the 2.5-inch drives (approximate):

- Height: 63 mm (2.5 in.)
- Width: 133 mm (5.2 in.)
- Depth: 174 mm (6.9 in.)
- Weight (hot-swap): 433 g (1.0 lb)
- Weight (NeXtScale drive): 314 g (0.7 lb)

Shipping dimensions and weight for the 3.5-inch drives (approximate):

- Height: 95 mm (3.7 in.)
- Width: 194 mm (7.6 in.)
- Depth: 257 mm (10.0 in.)
- Weight: 469 g (1.1 lb)

Operating environment

The Enterprise Entry SATA SSDs are supported in the following environment:

- Temperature: 0 - 70 °C (32 - 158 °F)
- Relative humidity: 8 - 85% (noncondensing)
- Maximum altitude: 3,050 m (10,000 ft)

Agency approvals

The Enterprise Entry SATA SSDs conform to the following regulations:

- UL
- TUV
- FCC
- CE Mark
- C-Tick Mark
- BSMI (Taiwan)
- KCC (Korea EMI)

Related publications and links

For more information, see the following documents:

- US Announcement Letter for the SATA MLC Enterprise Value SSDs
  http://ibm.com/common/ssi/cgi-bin/ssialias?infotype=dd&subtype=ca&&htmlfid=897/ENUS115-118
- Lenovo Press ServeRAID Adapter Quick Reference
  http://lenovopress.com/tips0054
- *System x Configuration and Options Guide*
  http://www.ibm.com/systems/xbc/cog/
- ThinkServer Option Compatibility Matrix (OCM)
  http://www.lenovo.com/accessoriesguide

Related product families

Product families related to this document are the following:

- Drives

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comments@lenovopress.com

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