

Lenovo PM863a Enterprise Entry SATA SSDs Product Guide (withdrawn product)

The Lenovo PM863a Enterprise Entry SATA solid-state drives (SSDs) are general-purpose SSDs based on the Samsung PM863a 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.

Part number information

Withdrawn: All PM863a drives are now withdrawn from marketing.

The following table lists the part numbers and feature codes for ThinkSystem servers.

Table 1. Ordering part numbers and feature codes - ThinkSystem

Part number	Feature code	Description
2.5-inch hot-swap drives for ThinkSystem		
7N47A00111	AUUQ	ThinkSystem 2.5" PM863a 240GB Entry SATA 6Gb Hot Swap SSD
7N47A00112	AUM9	ThinkSystem 2.5" PM863a 480GB Entry SATA 6Gb Hot Swap SSD
7N47A00113	AVCZ	ThinkSystem 2.5" PM863a 960GB Entry SATA 6Gb Hot Swap SSD
7N47A00114	AVRC	ThinkSystem 2.5" PM863a 1.92TB Entry SATA 6Gb Hot Swap SSD
3.5-inch hot-swap drives for ThinkSystem		
7N47A00115	AUUS	ThinkSystem 3.5" PM863a 240GB Entry SATA 6Gb Hot Swap SSD
7N47A00116	AUUN	ThinkSystem 3.5" PM863a 480GB Entry SATA 6Gb Hot Swap SSD

The following table lists the part numbers and feature codes for System x, NeXtScale and Flex System servers.

Table 2. Ordering part numbers and feature codes - System x

Part number	Feature code	Description
2.5-inch hot-swap drives with G3HS tray		
01GR836	AVHP	PM863a 240GB Enterprise Entry SATA G3HS 2.5" SSD
01GR841	AVHQ	PM863a 480GB Enterprise Entry SATA G3HS 2.5" SSD
01GR846	AVHR	PM863a 960GB Enterprise Entry SATA G3HS 2.5" SSD
01GR711	AUE7	1.92TB Enterprise Entry SATA G3HS 2.5" SSD
3.5-inch hot-swap drives		
01GR899	AVHS	PM863a 240GB Enterprise Entry SATA HS 3.5" SSD
01GR851	AVHT	PM863a 480GB Enterprise Entry SATA HS 3.5" SSD
01GR856	AVHU	PM863a 960GB Enterprise Entry SATA HS 3.5" SSD
01GR721	AUE9	1.92TB Enterprise Entry SATA HS 3.5" SSD
2.5-inch non-hot-swap drives for NeXtScale and ThinkSystem SD650		
01GR861	AVHV	PM863a 240GB Enterprise Entry SATA 2.5" SSD for NeXtScale
01GR866	AVHW	PM863a 480GB Enterprise Entry SATA 2.5" SSD for NeXtScale
01GR886	AVHX	PM863a 960GB Enterprise Entry SATA 2.5" SSD for NeXtScale
01GR716	AUE8	1.92TB Enterprise Entry SATA 2.5" SSD for NeXtScale

The following table lists the part numbers and feature codes for ThinkServer systems.

Table 3. Ordering part numbers - ThinkServer

Part number	Description
2.5-inch hot-swap drives	
4XB0K12357	Lenovo ThinkServer 2.5" 240GB PM863a Enterprise Entry SATA 6Gbps HS SSD
4XB0K12359	Lenovo ThinkServer 2.5" 480GB PM863a Enterprise Entry SATA 6Gbps HS SSD
4XB0K12361	Lenovo ThinkServer 2.5" 960GB PM863a Enterprise Entry SATA 6Gbps HS SSD
4XB0K12324	Lenovo ThinkServer 2.5" 1.92TB PM863a Enterprise Entry SATA 6Gbps HS SSD
3.5-inch hot-swap drives	
4XB0K12358	Lenovo ThinkServer 3.5" 240GB PM863a Enterprise Entry SATA 6Gbps HS SSD
4XB0K12360	Lenovo ThinkServer 3.5" 480GB PM863a Enterprise Entry SATA 6Gbps HS SSD
4XB0K12362	Lenovo ThinkServer 3.5" 960GB PM863a Enterprise Entry SATA 6Gbps HS SSD
4XB0K12325	Lenovo ThinkServer 3.5" 1.92TB PM863a Enterprise Entry SATA 6Gbps HS SSD
3.5-inch non-hot-swap drives for TS150	
4XB0K12354	TS150 2.5" 240GB PM863a Enterprise Entry SATA 6Gbps Non Hot-Swap SSD with 3.5" Tray
4XB0K12355	TS150 2.5" 480GB PM863a Enterprise Entry SATA 6Gbps Non Hot-Swap SSD with 3.5" Tray
4XB0K12356	TS150 2.5" 960GB PM863a Enterprise Entry SATA 6Gbps Non Hot-Swap SSD with 3.5" Tray

The part numbers include the following items:

- One 2.5-inch solid-state drive
- 3.5-inch drive options include a 2.5-inch-to-3.5-inch conversion 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 PM863a drive has an endurance of 683 TB of total bytes written (TBW). This means that for full operation over five years, write workload must be limited to no more than 374 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 624 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 PM863a Enterprise Entry SATA SSDs.

Table 4. Technical specifications

Feature	240 GB drive	480 GB drive	960 GB drive	1.92 TB drive
Interface	6 Gbps SATA	6 Gbps SATA	6 Gbps SATA	6 Gbps SATA
Capacity	240 GB	480 GB	960 GB	1.92 TB
Endurance (total bytes written)	341 TB	683 TB	1366 TB	2733 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			
MTBF	2,000,000 hours	2,000,000 hours	2,000,000 hours	2,000,000 hours
IOPS reads (4 KB blocks)	86,000	97,000	97,000	97,000
IOPS writes (4 KB blocks)	9,000	16,000	24,000	24,000
Sequential read rate (128 KB blocks)	330 MBps	520 MBps	520 MBps	520 MBps
Sequential write rate (128 KB blocks)	300 MBps	480 MBps	480 MBps	480 MBps
Read latency (ran)	130 μ s	130 μ s	130 μ s	130 μ s
Write latency (ran)	30 μ s	30 μ s	30 μ s	30 μ s
Shock, operating	1,500 G (Max) at 0.5 ms			
Vibration	2.17 G _{RMS} (7? 800 Hz)			
Typical power (R/W)	3 W / 3 W	3 W / 3 W	3 W / 3 W	4 W / 3 W

Server support - ThinkSystem

The following table lists the ThinkSystem servers that are compatible.

Table 5. ThinkSystem server support

Part number	Description	1S Rack & Tower				2S Rack & Tower								4S Rack			Dense/ Blade			
		ST50 (7Y48/7Y50)	ST250 (7Y45/7Y46)	SR150 (7Y54)	SR250 (7Y51/7Y52)	ST550 (7X09/7X10)	SR530 (7X07/7X08)	SR550 (7X03/7X04)	SR570 (7Y02/7Y03)	SR590 (7X98/7X99)	SR630 (7X01/7X02)	SR650 (7X05/7X06)	SR670 (7Y36/7Y37/7Y38)	SR850 (7X18/7X19)	SR860 (7X69/7X70)	SR950 (7X11/12/13)	SD530 (7X21)	SD650 (7X58)	SN550 (7X16)	SN850 (7X15)
7N47A00111	ThinkSystem 2.5" PM863a 240GB Entry SATA 6Gb Hot Swap SSD	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	N	Y	Y
7N47A00112	ThinkSystem 2.5" PM863a 480GB Entry SATA 6Gb Hot Swap SSD	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	N	Y	Y
7N47A00113	ThinkSystem 2.5" PM863a 960GB Entry SATA 6Gb Hot Swap SSD	N	N	N	N	Y	Y	Y	N	N	Y	Y	N	Y	N	N	Y	N	Y	Y
7N47A00114	ThinkSystem 2.5" PM863a 1.92TB Entry SATA 6Gb Hot Swap SSD	N	N	N	N	Y	Y	Y	N	N	Y	Y	N	Y	N	N	Y	N	Y	Y
7N47A00115	ThinkSystem 3.5" PM863a 240GB Entry SATA 6Gb Hot Swap SSD	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N	N	N
7N47A00116	ThinkSystem 3.5" PM863a 480GB Entry SATA 6Gb Hot Swap SSD	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N	N	N
01GR861	PM863a 240GB Enterprise Entry SATA 2.5" SSD for NeXtScale	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	N	N	N
01GR866	PM863a 480GB Enterprise Entry SATA 2.5" SSD for NeXtScale	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	N	N	N

Server support - 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 6. 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)
01GR836	PM863a 240GB Enterprise Entry SATA G3HS 2.5" SSD	Y	Y	Y	Y	Y	Y	N
01GR841	PM863a 480GB Enterprise Entry SATA G3HS 2.5" SSD	Y	Y	Y	Y	Y	Y	N
01GR846	PM863a 960GB Enterprise Entry SATA G3HS 2.5" SSD	Y	Y	Y	Y	Y	Y	N
01GR711	1.92TB Enterprise Entry SATA G3HS 2.5" SSD	N	N	Y	Y	Y	N	N
01GR899	PM863a 240GB Enterprise Entry SATA HS 3.5" SSD	Y	Y	Y	Y	N	N	N
01GR851	PM863a 480GB Enterprise Entry SATA HS 3.5" SSD	Y	Y	Y	Y	N	N	N
01GR856	PM863a 960GB Enterprise Entry SATA HS 3.5" SSD	Y	Y	Y	Y	N	N	N
01GR721	1.92TB Enterprise Entry SATA HS 3.5" SSD	N	N	Y	Y	N	N	N
01GR861	PM863a 240GB Enterprise Entry SATA 2.5" SSD for NeXtScale	N	N	N	N	N	Y	N
01GR866	PM863a 480GB Enterprise Entry SATA 2.5" SSD for NeXtScale	N	N	N	N	N	Y	N
01GR886	PM863a 960GB Enterprise Entry SATA 2.5" SSD for NeXtScale	N	N	N	N	N	Y	N
01GR716	1.92TB Enterprise Entry SATA 2.5" SSD for NeXtScale	N	N	N	N	N	Y	N

Support for System x and dense servers with Intel Xeon v3 processors

Table 7. 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)
01GR836	PM863a 240GB Enterprise Entry SATA G3HS 2.5" SSD	N	N	N	N	N	Y	Y
01GR841	PM863a 480GB Enterprise Entry SATA G3HS 2.5" SSD	N	N	N	N	N	Y	Y
01GR846	PM863a 960GB Enterprise Entry SATA G3HS 2.5" SSD	N	N	N	N	N	Y	Y
01GR711	1.92TB Enterprise Entry SATA G3HS 2.5" SSD	N	N	N	N	N	Y	N
01GR899	PM863a 240GB Enterprise Entry SATA HS 3.5" SSD	N	N	N	N	N	N	N
01GR851	PM863a 480GB Enterprise Entry SATA HS 3.5" SSD	N	N	N	N	N	N	N
01GR856	PM863a 960GB Enterprise Entry SATA HS 3.5" SSD	N	N	N	N	N	N	N
01GR721	1.92TB Enterprise Entry SATA HS 3.5" SSD	N	N	N	N	N	N	N
01GR861	PM863a 240GB Enterprise Entry SATA 2.5" SSD for NeXtScale	N	N	N	N	N	N	Y
01GR866	PM863a 480GB Enterprise Entry SATA 2.5" SSD for NeXtScale	N	N	N	N	N	N	Y
01GR886	PM863a 960GB Enterprise Entry SATA 2.5" SSD for NeXtScale	N	N	N	N	N	N	Y
01GR716	1.92TB Enterprise Entry SATA 2.5" SSD for NeXtScale	N	N	N	N	N	N	Y

Support for servers with Intel Xeon v2 processors

Table 8. Support for servers with Intel Xeon v2 processors

Part number	Description	x3300 M4 (7382)	x3500 M4 (7383, E5-2600 v2)	x3550 M4 (7914, E5-2600 v2)	x3630 M4 (7158, E5-2400 v2)	x3650 M4 (7915, E5-2600 v2)	x3650 M4 BD (5466)	x3750 M4 (8753)	x3850 X6/x3950 X6 (6241, E7 v2)
01GR836	PM863a 240GB Enterprise Entry SATA G3HS 2.5" SSD	N	N	N	N	N	N	N	Y
01GR841	PM863a 480GB Enterprise Entry SATA G3HS 2.5" SSD	N	N	N	N	N	N	N	Y
01GR846	PM863a 960GB Enterprise Entry SATA G3HS 2.5" SSD	N	N	N	N	N	N	N	Y
01GR711	1.92TB Enterprise Entry SATA G3HS 2.5" SSD	N	N	N	N	N	N	N	Y
01GR899	PM863a 240GB Enterprise Entry SATA HS 3.5" SSD	N	N	N	N	N	N	N	N
01GR851	PM863a 480GB Enterprise Entry SATA HS 3.5" SSD	N	N	N	N	N	N	N	N
01GR856	PM863a 960GB Enterprise Entry SATA HS 3.5" SSD	N	N	N	N	N	N	N	N
01GR721	1.92TB Enterprise Entry SATA HS 3.5" SSD	N	N	N	N	N	N	N	N
01GR861	PM863a 240GB Enterprise Entry SATA 2.5" SSD for NeXtScale	N	N	N	N	N	N	N	N
01GR866	PM863a 480GB Enterprise Entry SATA 2.5" SSD for NeXtScale	N	N	N	N	N	N	N	N
01GR886	PM863a 960GB Enterprise Entry SATA 2.5" SSD for NeXtScale	N	N	N	N	N	N	N	N
01GR716	1.92TB Enterprise Entry SATA 2.5" SSD for NeXtScale	N	N	N	N	N	N	N	N

Server support - ThinkServer

The following tables list the ThinkServer systems that are compatible.

Support for sd350: The drives supported with the sd350 are listed in [Table 4](#).

The following tables list the ThinkServer systems that are compatible.

Support for ThinkServer Gen 5 servers with E5 v4 or E3 v5 processors

Table 9. Support for ThinkServer Generation 5 servers with E5 v4 or E3 v5 processors

Part number	Description	TS150 (E3 v5)	TS450 (E3 v5)	TS460 (E3 v5)	RS160 (E3 v5)	TD350 (E5 v4)	RD350 (E5 v4)	RD450 (E5 v4)	RD550 (E5 v4)	RD650 (E5 v4)
4XB0K12357	LTS 2.5" 240GB PM863a Enterprise Entry SATA 6Gbps HS SSD	N	Y	N	N	Y	Y	Y	Y	Y
4XB0K12359	LTS 2.5" 480GB PM863a Enterprise Entry SATA 6Gbps HS SSD	N	Y	N	N	Y	Y	Y	Y	Y
4XB0K12361	LTS 2.5" 960GB PM863a Enterprise Entry SATA 6Gbps HS SSD	N	Y	N	N	Y	Y	Y	Y	Y
4XB0K12324	LTS 2.5" 1.92TB PM863a Enterprise Entry SATA 6Gbps HS SSD	N	Y	N	N	Y	Y	Y	Y	Y
4XB0K12358	LTS 3.5" 240GB PM863a Enterprise Entry SATA 6Gbps HS SSD	N	Y	N	N	Y	Y	Y	Y	Y
4XB0K12360	LTS 3.5" 480GB PM863a Enterprise Entry SATA 6Gbps HS SSD	N	Y	N	N	Y	Y	Y	Y	Y
4XB0K12362	LTS 3.5" 960GB PM863a Enterprise Entry SATA 6Gbps HS SSD	N	Y	N	N	Y	Y	Y	Y	Y
4XB0K12325	LTS 3.5" 1.92TB PM863a Enterprise Entry SATA 6Gbps HS SSD	N	Y	N	N	Y	Y	Y	Y	Y
4XB0K12354	LTS TS150 2.5" 240GB PM863a Enterprise Entry SATA 6Gbps Non Hot-Swap SSD with 3.5" Tray	Y	N	N	N	N	N	N	N	N
4XB0K12355	LTS TS150 2.5" 480GB PM863a Enterprise Entry SATA 6Gbps Non Hot-Swap SSD with 3.5" Tray	Y	N	N	N	N	N	N	N	N
4XB0K12356	LTS TS150 2.5" 960GB PM863a Enterprise Entry SATA 6Gbps Non Hot-Swap SSD with 3.5" Tray	Y	N	N	N	N	N	N	N	N

Support for ThinkServer Gen 5 servers with E5 v3 processors

Table 10. Support for ThinkServer Generation 5 servers with E5 v3 processors

Part number	Description	TD350 (E5 v3)	RD350 (E5 v3)	RD450 (E5 v3)	RD550 (E5 v3)	RD650 (E5 v3)	RQ750 (E5 v3)
4XB0K12357	LTS 2.5" 240GB PM863a Enterprise Entry SATA 6Gbps HS SSD	Y	N	N	N	N	N
4XB0K12359	LTS 2.5" 480GB PM863a Enterprise Entry SATA 6Gbps HS SSD	Y	N	N	N	N	N
4XB0K12361	LTS 2.5" 960GB PM863a Enterprise Entry SATA 6Gbps HS SSD	Y	N	N	N	N	N
4XB0K12324	LTS 2.5" 1.92TB PM863a Enterprise Entry SATA 6Gbps HS SSD	Y	N	N	N	N	N
4XB0K12358	LTS 3.5" 240GB PM863a Enterprise Entry SATA 6Gbps HS SSD	Y	N	N	N	N	N
4XB0K12360	LTS 3.5" 480GB PM863a Enterprise Entry SATA 6Gbps HS SSD	Y	N	N	N	N	N
4XB0K12362	LTS 3.5" 960GB PM863a Enterprise Entry SATA 6Gbps HS SSD	Y	N	N	N	N	N
4XB0K12325	LTS 3.5" 1.92TB PM863a Enterprise Entry SATA 6Gbps HS SSD	Y	N	N	N	N	N
4XB0K12354	LTS TS150 2.5" 240GB PM863a Enterprise Entry SATA 6Gbps Non Hot-Swap SSD with 3.5" Tray	N	N	N	N	N	N
4XB0K12355	LTS TS150 2.5" 480GB PM863a Enterprise Entry SATA 6Gbps Non Hot-Swap SSD with 3.5" Tray	N	N	N	N	N	N
4XB0K12356	LTS TS150 2.5" 960GB PM863a Enterprise Entry SATA 6Gbps Non Hot-Swap SSD with 3.5" Tray	N	N	N	N	N	N

Support for ThinkServer Gen 4 servers

Table 11. Support for ThinkServer Generation 4 servers

Part number	Description	TS140	TS440	RS140	TD340	RS140	RD340	RD440	RD540	RD640
4XB0K12357	LTS 2.5" 240GB PM863a Enterprise Entry SATA 6Gbps HS SSD	N	N	N	N	N	N	N	N	N
4XB0K12359	LTS 2.5" 480GB PM863a Enterprise Entry SATA 6Gbps HS SSD	N	N	N	N	N	N	N	N	N
4XB0K12361	LTS 2.5" 960GB PM863a Enterprise Entry SATA 6Gbps HS SSD	N	N	N	N	N	N	N	N	N
4XB0K12324	LTS 2.5" 1.92TB PM863a Enterprise Entry SATA 6Gbps HS SSD	N	N	N	N	N	N	N	N	N
4XB0K12358	LTS 3.5" 240GB PM863a Enterprise Entry SATA 6Gbps HS SSD	N	N	N	N	N	N	N	N	N
4XB0K12360	LTS 3.5" 480GB PM863a Enterprise Entry SATA 6Gbps HS SSD	N	N	N	N	N	N	N	N	N
4XB0K12362	LTS 3.5" 960GB PM863a Enterprise Entry SATA 6Gbps HS SSD	N	N	N	N	N	N	N	N	N
4XB0K12325	LTS 3.5" 1.92TB PM863a Enterprise Entry SATA 6Gbps HS SSD	N	N	N	N	N	N	N	N	N
4XB0K12354	LTS TS150 2.5" 240GB PM863a Enterprise Entry SATA 6Gbps Non Hot-Swap SSD with 3.5" Tray	N	N	N	N	N	N	N	N	N
4XB0K12355	LTS TS150 2.5" 480GB PM863a Enterprise Entry SATA 6Gbps Non Hot-Swap SSD with 3.5" Tray	N	N	N	N	N	N	N	N	N
4XB0K12356	LTS TS150 2.5" 960GB PM863a Enterprise Entry SATA 6Gbps Non Hot-Swap SSD with 3.5" Tray	N	N	N	N	N	N	N	N	N

Server support - Flex System

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

Table 12. Support for Flex System servers

Part number	Description	x240 (8737, E5-2600 v2)	x240 (7162)	x240 M5 (9532)	x440 (7167)	x880/x480/x280 X6 (7903)	x280/x480/x880 X6 (7196)	Storage Expansion Node
01GR836	PM863a 240GB Enterprise Entry SATA G3HS 2.5" SSD	N	N	Y	N	N	N	N
01GR841	PM863a 480GB Enterprise Entry SATA G3HS 2.5" SSD	N	N	Y	N	N	N	N
01GR846	PM863a 960GB Enterprise Entry SATA G3HS 2.5" SSD	N	N	Y	N	N	N	N
01GR711	1.92TB Enterprise Entry SATA G3HS 2.5" SSD	N	N	Y	N	N	Y	N
01GR899	PM863a 240GB Enterprise Entry SATA HS 3.5" SSD	N	N	N	N	N	N	N
01GR851	PM863a 480GB Enterprise Entry SATA HS 3.5" SSD	N	N	N	N	N	N	N
01GR856	PM863a 960GB Enterprise Entry SATA HS 3.5" SSD	N	N	N	N	N	N	N
01GR721	1.92TB Enterprise Entry SATA HS 3.5" SSD	N	N	N	N	N	N	N
01GR861	PM863a 240GB Enterprise Entry SATA 2.5" SSD for NeXtScale	N	N	N	N	N	N	N
01GR866	PM863a 480GB Enterprise Entry SATA 2.5" SSD for NeXtScale	N	N	N	N	N	N	N
01GR886	PM863a 960GB Enterprise Entry SATA 2.5" SSD for NeXtScale	N	N	N	N	N	N	N
01GR716	1.92TB Enterprise Entry SATA 2.5" SSD for NeXtScale	N	N	N	N	N	N	N

Storage controller support

The PM863a Enterprise Entry SATA SSDs require a supported disk controller. The following tables list the controllers and the servers that support those controllers.

ThinkSystem controllers and servers are listed in the following table.

Table 13. ThinkSystem server support

Part number	Description														
		ST550 (7X09/7X10)	SR530 (7X07/7X08)	SR550 (7X03/7X04)	SR570 (7Y02/7Y03)	SR590 (7X98/7X99)	SR630 (7X01/7X02)	SR650 (7X05/7X06)	SR850 (7X18/7X19)	SR860 (7X69/7X70)	SR950 (7X11/12/13)	SD530 (7X21)	SN550 (7X16)	SN850 (7X15)	
None	Onboard RSTe SATA controller	Y	Y	Y	Y	Y	N	N	N	N	N	Y	Y	Y	
7Y37A01088	430-8i SAS/SATA 12Gb HBA	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N		
7Y37A01089	430-16i SAS/SATA 12Gb HBA	Y	N	Y	Y	Y	Y	Y	Y	Y	N	N	N		
7Y37A01082	RAID 530-8i PCIe 12Gb Adapter	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N		
7Y37A01083	RAID 730-8i 1GB Cache PCIe 12Gb Adapter	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N		
7Y37A01084	RAID 930-8i 2GB Flash PCIe 12Gb Adapter	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N		
7Y37A01085	RAID 930-16i 4GB Flash PCIe 12Gb Adapter	Y	N	Y	Y	Y	Y	Y	Y	Y	N	N	N		
Feature AUJK	SD530 HW RAID Kit	N	N	N	N	N	N	N	N	N	Y	N	N		
7M27A03918	RAID 530-4i 2 Drive Adapter Kit for SN550	N	N	N	N	N	N	N	N	N	N	Y	N		
7M17A03932	RAID 530-4i 4 Drive Adapter Kit for SN850	N	N	N	N	N	N	N	N	N	N	N	Y		

System x, NeXtScale and Flex System controllers and servers are listed in the following table.

Table 14. Controllers for supported servers

Part number	Description	v3			Xeon v4				FS
		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)	sd350 (5493)	x240 M5 (9532)
Onboard	ServeRAID M1200e Controller	N	N	N	N	N	N	N	Y
46C9114	ServeRAID M1215 Controller	N	Y	Y	Y	N	Y	N	N
46C9110	ServeRAID M5210 Controller	Y	Y	Y	Y	Y	Y	N	N
00JX142	ServeRAID M5215 Controller	N	N	N	N	N	N	N	Y
00YD430	H701-L 6Gb HBA Mezz Card	N	N	N	N	N	N	Y	N
47C8675	N2215 SAS/SATA HBA	Y	Y	Y	Y	Y	Y	N	N

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

Table 15. Supported controllers - ThinkServer

		TS450	TD350	RD350	RD450	RD550	RD650
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
4XC0G88834	RAID 500	N	N	Y	Y	N	N
4XC0G88850	RAID 520i	Y	Y	Y	Y	Y	Y
4XC0G88836	RAID 710	N	N	Y	Y	N	N
4XC0G88849	RAID 720i	Y	Y	Y	Y	Y	Y

Operating system support

SSDs operate transparently to users, storage systems, applications, databases, and operating systems.

Operating system support is based on the controller used to connect to the drives. Consult the controller product guide for more information:

- RAID controllers: <https://lenovopress.com/servers/options/raid>
- SAS HBAs: <https://lenovopress.com/servers/options/hba>

Warranty

The PM863a 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 PM863a 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 PM863a 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 PM863a 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:

- Lenovo ThinkSystem storage options product web page
<https://lenovopress.com/lp0761-storage-options-for-thinksystem-servers>
- Lenovo System x storage options product web page
<https://www.lenovo.com/us/en/data-center/servers/server-options/system-x-options/server-storage/c/system-x-storage>
- Samsung PM863a product page
<http://www.samsung.com/semiconductor/minisite/ssd/product/enterprise/pm863a.html>
- Lenovo RAID Introduction
<https://lenovopress.com/lp0578-lenovo-raid-introduction>
- Lenovo RAID Management Tools and Resources
<https://lenovopress.com/lp0579-lenovo-raid-management-tools-and-resources>
- Lenovo Press ServeRAID Adapter Quick Reference
<http://lenovopress.com/tips0054>
- 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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