

ThinkSystem Vendor Agnostic Mixed Use SATA SSDs Product Guide

The ThinkSystem Vendor Agnostic Mixed Use SATA SSDs are general-purpose SSDs with an endurance of 3 drive writes per day. Vendor Agnostic SSDs are non-vendor-specific drives which can streamline and simplify the ordering and delivery of SATA SSDs. The drives offered in the Vendor Agnostic SSD program consists of SSDs that are readily available, ensuring the shortest supply lead time.



Figure 1. ThinkSystem Vendor Agnostic Mixed Use SATA SSDs

Did you know?

Lenovo Mixed Used SSDs are suitable for mixed read-write 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

The following table lists the part numbers and feature codes.

Table 1. Ordering part numbers and feature codes

Part number	Feature	Description
2.5-inch hot-swap drives		
4XB7A90884	BYM2	ThinkSystem 2.5" VA 480GB Mixed Use SATA 6Gb HS SSD v2
4XB7A90885	BYM4	ThinkSystem 2.5" VA 960GB Mixed Use SATA 6Gb HS SSD v2
4XB7A90886	BYM5	ThinkSystem 2.5" VA 1.92TB Mixed Use SATA 6Gb HS SSD v2
4XB7A90887	BYM6	ThinkSystem 2.5" VA 3.84TB Mixed Use SATA 6Gb HS SSD v2
3.5-inch hot-swap drives		
4XB7A90888	BYM3	ThinkSystem 3.5" VA 480GB Mixed Use SATA 6Gb HS SSD v2
4XB7A90889	BYM7	ThinkSystem 3.5" VA 960GB Mixed Use SATA 6Gb HS SSD v2
4XB7A90890	BYM8	ThinkSystem 3.5" VA 1.92TB Mixed Use SATA 6Gb HS SSD v2
4XB7A90891	BYLX	ThinkSystem 3.5" VA 3.84TB Mixed Use SATA 6Gb HS SSD v2

The part numbers include the following items:

- One 2.5-inch solid-state drive
- Hot-swap drives include either a 2.5-inch or 2.5-inch ThinkSystem hot-swap tray
- Documentation flyer

Features

The Vendor Agnostic SSDs have the following features:

- Mixed-use SSDs from industry leading SSD vendors with endurance of more than 3 drive-writes per day (3 DWPD)
- 6 Gbps SATA interface
- Advanced ECC Engine and End-to-End Data Protection
- TLC V-NAND stacks the vertical NAND layers in three dimensions, solving the cell-to-cell interference that causes data corruption in planar NAND.
- Power-loss protection (PLP) architecture
- Supports Self-Monitoring, Analysis and Reporting Technology (S.M.A.R.T).

SSDs have a huge but finite number of program/erase (P/E) cycles, which affect how long they can perform write operations and thus their life expectancy. Mixed Use SSDs have a higher write endurance compared to Read Intensive SSDs. SSD write endurance is typically measured by the number of program/erase cycles that the drive can incur over its lifetime, which is listed as total bytes written (TBW) in the device specification.

The TBW value that is assigned to a solid-state device is the total bytes of written data that a drive can be guaranteed to complete. Reaching this limit does not cause the drive to immediately fail; the TBW simply denotes the maximum number of writes that can be guaranteed. A solid-state device does not fail upon reaching the specified TBW. However, at some point after surpassing the TBW value (and based on manufacturing variance margins), the drive reaches the end-of-life point, at which time the drive goes into read-only mode. Because of such behavior, careful planning must be done to use SSDs in the application environments to ensure that the TBW of the drive is not exceeded before the required life expectancy.

Technical specifications

The following table lists the technical specifications of the ThinkSystem Vendor Agnostic Mixed Use SATA SSDs.

Performance and endurance values: The numbers listed in the table for performance and endurance are the minimums for Vendor Agnostic SSDs.

Table 2. Technical specifications

Feature	480 GB drive	960 GB drive	1.92 TB drive	3.84 TB drive
Interface	6 Gbps SATA	6 Gbps SATA	6 Gbps SATA	6 Gbps SATA
Capacity	480 GB	960 GB	1.92 TB	3.84 TB
SED encryption	No	No	No	No
Endurance (drive writes per day for 5 years)	4.7 DWPD	4.0 DWPD	4.0 DWPD	3.4 DWPD
Endurance (total bytes written)	4117 TB	7008 TB	14,016 TB	23,827 TB
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)	76,500	81,000	82,000	82,000
IOPS writes (4 KB blocks)	43,000	48,500	47,500	30,500
Sequential read rate (128 KB blocks)	480 MBps	480 MBps	480 MBps	480 MBps
Sequential write rate (128 KB blocks)	450 MBps	460 MBps	460 MBps	460 MBps
Shock, non-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, non-operating	20 G (20-2000 Hz)	20 G (20-2000 Hz)	20 G (20-2000 Hz)	20 G (20-2000 Hz)

Server support

The following tables list the ThinkSystem servers that are compatible.

Table 3. Server support (Part 1 of 4)

Part Number	Description	AMD V3				2S Intel V3/V4				4S 8S Intel V3			Multi Node V3/V4			1S V3				
		SR635 V3 (7D9H / 7D9G)	SR655 V3 (7D9F / 7D9E)	SR645 V3 (7D9D / 7D9C)	SR665 V3 (7D9B / 7D9A)	ST650 V3 (7D7B / 7D7A)	SR630 V3 (7D72 / 7D73)	SR650 V3 (7D75 / 7D76)	SR630 V4 (7DG8 / 7DG9)	SR650 V4 (7DGC / 7DGD)	SR650a V4 (7DGC / 7DGD)	SR850 V3 (7D97 / 7D96)	SR860 V3 (7D94 / 7D93)	SR950 V3 (7DC5 / 7DC4)	SD535 V3 (7DD8 / 7DD1)	SD530 V3 (7DDA / 7DD3)	SD550 V3 (7DD9 / 7DD2)	ST45 V3 (7DH4 / 7DH5)	ST50 V3 (7DF4 / 7DF3)	ST250 V3 (7DCF / 7DCE)
2.5-inch hot-swap drives																				
4XB7A90884	ThinkSystem 2.5" VA 480GB Mixed Use SATA 6Gb HS SSD v2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	N	Y	N	N	Y	Y
4XB7A90885	ThinkSystem 2.5" VA 960GB Mixed Use SATA 6Gb HS SSD v2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	N	Y	N	N	Y	Y
4XB7A90886	ThinkSystem 2.5" VA 1.92TB Mixed Use SATA 6Gb HS SSD v2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	N	Y	N	N	Y	Y
4XB7A90887	ThinkSystem 2.5" VA 3.84TB Mixed Use SATA 6Gb HS SSD v2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	N	Y	N	N	Y	Y
3.5-inch hot-swap drives																				
4XB7A90888	ThinkSystem 3.5" VA 480GB Mixed Use SATA 6Gb HS SSD v2	N	Y	Y	Y	Y	Y	Y	N	Y	N	N	N	N	N	N	N	N	Y	Y
4XB7A90889	ThinkSystem 3.5" VA 960GB Mixed Use SATA 6Gb HS SSD v2	N	Y	Y	Y	Y	Y	Y	N	Y	N	N	N	N	N	N	N	N	Y	Y
4XB7A90890	ThinkSystem 3.5" VA 1.92TB Mixed Use SATA 6Gb HS SSD v2	N	Y	Y	Y	Y	Y	Y	N	Y	N	N	N	N	N	N	N	N	Y	Y
4XB7A90891	ThinkSystem 3.5" VA 3.84TB Mixed Use SATA 6Gb HS SSD v2	N	Y	Y	Y	Y	Y	Y	N	Y	N	N	N	N	N	N	N	N	Y	Y

Table 4. Server support (Part 2 of 4)

Part Number	Description	GPU Rich				Edge				Super Computing				1S Intel V2							
		SR670 V2 (7Z22 / 7Z23)	SR675 V3 (7D9Q / 7D9R)	SR680a V3 (7DHE)	SR685a V3 (7DHC)	SR780a V3 (7DJ5)	SE350 (7Z46 / 7D1X)	SE350 V2 (7DA9)	SE360 V2 (7DAM)	SE450 (7D8T)	SE455 V3 (7DBY)	SC750 V4 (7DDJ)	SC777 V4 (7DKA)	SD665 V3 (7D9P)	SD665-N V3 (7DAZ)	SD650 V3 (7D7M)	SD650-I V3 (7D7L)	SD650-N V3 (7D7N)	ST50 V2 (7D8K / 7D8J)	ST250 V2 (7D8G / 7D8F)	SR250 V2 (7D7R / 7D7Q)
2.5-inch hot-swap drives																					
4XB7A90884	ThinkSystem 2.5" VA 480GB Mixed Use SATA 6Gb HS SSD v2	Y	Y	N	N	N	N	N	N	Y	Y	N	N	N	N	N	N	N	Y	Y	
4XB7A90885	ThinkSystem 2.5" VA 960GB Mixed Use SATA 6Gb HS SSD v2	Y	Y	N	N	N	N	N	N	Y	Y	N	N	N	N	N	N	N	Y	Y	
4XB7A90886	ThinkSystem 2.5" VA 1.92TB Mixed Use SATA 6Gb HS SSD v2	Y	Y	N	N	N	N	N	N	Y	Y	N	N	N	N	N	N	N	Y	Y	
4XB7A90887	ThinkSystem 2.5" VA 3.84TB Mixed Use SATA 6Gb HS SSD v2	Y	Y	N	N	N	N	N	N	Y	Y	N	N	N	N	N	N	N	Y	Y	
3.5-inch hot-swap drives																					
4XB7A90888	ThinkSystem 3.5" VA 480GB Mixed Use SATA 6Gb HS SSD v2	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	
4XB7A90889	ThinkSystem 3.5" VA 960GB Mixed Use SATA 6Gb HS SSD v2	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	
4XB7A90890	ThinkSystem 3.5" VA 1.92TB Mixed Use SATA 6Gb HS SSD v2	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	
4XB7A90891	ThinkSystem 3.5" VA 3.84TB Mixed Use SATA 6Gb HS SSD v2	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	

Table 5. Server support (Part 3 of 4)

Part Number	Description	2S Intel V2		AMD V1				Dense V2				4S V2	8S	4S V1					
		ST650 V2 (7Z75 / 7Z74)	SR630 V2 (7Z70 / 7Z71)	SR650 V2 (7Z72 / 7Z73)	SR635 (7Y98 / 7Y99)	SR655 (7Y00 / 7Z01)	SR655 Client OS	SR645 (7D2Y / 7D2X)	SR665 (7D2W / 7D2V)	SD630 V2 (7D1K)	SD650 V2 (7D1M)	SD650-N V2 (7D1N)	SN550 V2 (7Z69)	SR850 V2 (7D31 / 7D32)	SR860 V2 (7Z59 / 7Z60)	SR950 (7X11 / 7X12)	SR850 (7X18 / 7X19)	SR850P (7D2F / 2D2G)	SR860 (7X69 / 7X70)
2.5-inch hot-swap drives																			
4XB7A90884	ThinkSystem 2.5" VA 480GB Mixed Use SATA 6Gb HS SSD v2	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	Y	Y	N	N	N	N
4XB7A90885	ThinkSystem 2.5" VA 960GB Mixed Use SATA 6Gb HS SSD v2	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	Y	Y	N	N	N	N
4XB7A90886	ThinkSystem 2.5" VA 1.92TB Mixed Use SATA 6Gb HS SSD v2	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	Y	Y	N	N	N	N
4XB7A90887	ThinkSystem 2.5" VA 3.84TB Mixed Use SATA 6Gb HS SSD v2	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	Y	Y	N	N	N	N
3.5-inch hot-swap drives																			
4XB7A90888	ThinkSystem 3.5" VA 480GB Mixed Use SATA 6Gb HS SSD v2	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N	N	N	N	N
4XB7A90889	ThinkSystem 3.5" VA 960GB Mixed Use SATA 6Gb HS SSD v2	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N	N	N	N	N
4XB7A90890	ThinkSystem 3.5" VA 1.92TB Mixed Use SATA 6Gb HS SSD v2	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N	N	N	N	N
4XB7A90891	ThinkSystem 3.5" VA 3.84TB Mixed Use SATA 6Gb HS SSD v2	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N	N	N	N	N

Table 6. Server support (Part 4 of 4)

Part Number	Description	1S Intel V1				2S Intel V1								Dense V1			
		ST50 (7Y48 / 7Y50)	ST250 (7Y45 / 7Y46)	SR150 (7Y54)	SR250 (7Y52 / 7Y51)	ST550 (7X09 / 7X10)	SR530 (7X07 / 7X08)	SR550 (7X03 / 7X04)	SR570 (7Y02 / 7Y03)	SR590 (7X98 / 7X99)	SR630 (7X01 / 7X02)	SR650 (7X05 / 7X06)	SR670 (7Y36 / 7Y37)	SD530 (7X21)	SD650 (7X58)	SN550 (7X16)	SN850 (7X15)
2.5-inch hot-swap drives																	
4XB7A90884	ThinkSystem 2.5" VA 480GB Mixed Use SATA 6Gb HS SSD v2	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
4XB7A90885	ThinkSystem 2.5" VA 960GB Mixed Use SATA 6Gb HS SSD v2	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
4XB7A90886	ThinkSystem 2.5" VA 1.92TB Mixed Use SATA 6Gb HS SSD v2	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
4XB7A90887	ThinkSystem 2.5" VA 3.84TB Mixed Use SATA 6Gb HS SSD v2	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
3.5-inch hot-swap drives																	
4XB7A90888	ThinkSystem 3.5" VA 480GB Mixed Use SATA 6Gb HS SSD v2	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
4XB7A90889	ThinkSystem 3.5" VA 960GB Mixed Use SATA 6Gb HS SSD v2	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
4XB7A90890	ThinkSystem 3.5" VA 1.92TB Mixed Use SATA 6Gb HS SSD v2	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
4XB7A90891	ThinkSystem 3.5" VA 3.84TB Mixed Use SATA 6Gb HS SSD v2	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

Operating system support

SAS and SATA 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 ThinkSystem Vendor Agnostic Mixed Use 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 Vendor Agnostic SSDs have the following dimensions (without the hot-swap tray):

- Height: 7 mm (0.3 in.)
- Width: 70 mm (2.8 in.)
- Depth: 100 mm (4.0 in.)

Operating environment

The Vendor Agnostic SSDs are supported in the following environment:

- Temperature:
 - Operating: 0 to 70 °C (32 to 158 °F)
 - Non-operating: -40 °C to 85 °C (-40 to 185 °F)
- Relative humidity: 5 to 95% (noncondensing)
- Maximum altitude: 3,050 m (10,000 ft)

Agency approvals

The Vendor Agnostic 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 SSD Portfolio comparison:
<https://lenovopress.com/lp1261-lenovo-thinksystem-ssd-portfolio>
- Lenovo RAID Introduction
<https://lenovopress.com/lp0578-lenovo-raid-introduction>

Related product families

Product families related to this document are the following:

- [Drives](#)

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