Intel S3610 Enterprise Mainstream SATA SSDs
Product Guide (withdrawn product)

The Intel S3610 Enterprise Mainstream SATA solid-state drives (SSDs) for System x are advanced data center SSDs optimized for mixed read-write performance, endurance and strong data protection. The drives are available in either 2.5-inch or 3.5-inch drive form factor.

The Intel SSD S3610 drives with 3 full drives writes per day (DWD) are an excellent choice as cache in transactional application and high-speed storage for enterprise databases.

The Intel S3610 Enterprise Mainstream SATA solid-state drive is shown in the following figure.

Figure 1. Intel S3610 Enterprise Mainstream SATA SSD in a 2.5-inch hot-swap form factor

Did you know?

By combining the latest 20 nm MLC NAND flash memory technology with Intel's latest controller technology, the design of Intel S3610 Enterprise Mainstream SATA SSDs delivers consistent performance, reduced power consumption, and end-to-end data protection, as well as being optimized for endurance and IOPS/watt.

Rigorous testing of Intel S3610 Enterprise Mainstream SATA SSDs by Lenovo through the ServerProven® program ensures a high degree of storage subsystem compatibility and reliability. Providing additional peace of mind, these drives are covered under Lenovo warranty.

Part number information

The following tables lists the part number information for the S3610 Enterprise Mainstream SATA SSDs. The first table lists the System x and Flex System part numbers and feature codes.

Withdrawn: All drives listed in this product guide are withdrawn from marketing.

Table 1. Ordering information for System x

Part number	Feature	Description
2.5-inch drives with G3HS hot-swap tray		
00YK212	AU3C	Intel S3610 480GB Enterprise Mainstream SATA G3HS 2.5" SSD
00YK217	AU3D	Intel S3610 800GB Enterprise Mainstream SATA G3HS 2.5" SSD
00YK222	AU3E	Intel S3610 1.2TB Enterprise Mainstream SATA G3HS 2.5" SSD
00YK227	AU3F	Intel S3610 1.6TB Enterprise Mainstream SATA G3HS 2.5" SSD
3.5-inch drives with hot-swap tray		
00YK237	AU3H	Intel S3610 480GB Enterprise Mainstream SATA HS 3.5" SSD
00YK242	AU3J	Intel S3610 800GB Enterprise Mainstream SATA HS 3.5" SSD
00YK247	AU3K	Intel S3610 1.2TB Enterprise Mainstream SATA HS 3.5" SSD
00YK252	AU3L	Intel S3610 1.6TB Enterprise Mainstream SATA HS 3.5" SSD
2.5-inch drives for NeXtScale		
00YK262	AU3N	Intel S3610 480GB Enterprise Mainstream SATA 2.5" SSD for NeXtScale
00YK267	AU3P	Intel S3610 800GB Enterprise Mainstream SATA 2.5" SSD for NeXtScale
00YK272	AU3Q	Intel S3610 1.2TB Enterprise Mainstream SATA 2.5" SSD for NeXtScale
00YK277	AU3R	Intel S3610 1.6TB Enterprise Mainstream SATA 2.5" SSD for NeXtScale

The following table lists the part numbers for ThinkServer.

Note: There are two separate part numbers for the 480GB SSDs. These drives have different server support as described in the Server support - ThinkServer section.

Withdrawn: All S3610 drives for ThinkServer have been withdrawn from marketing.

Table 2. Ordering information for ThinkServer

Part number	Description
2.5-inch drives with hot-swap tray	
4XB0K12345	Lenovo ThinkServer 2.5" 480GB S3610 Enterprise Mainstream SATA 6Gbps SSD
4XB0G88766	Lenovo ThinkServer Gen 5 2.5" 480GB Mainstream SATA 6Gbps Hot Swap SSD
4XB0G88768	Lenovo ThinkServer Gen 5 2.5" 800GB Mainstream SATA 6Gbps Hot Swap SSD
4XB0G88770	Lenovo ThinkServer Gen 5 2.5" 1.2TB Mainstream SATA 6Gbps Hot Swap SSD
4XB0G88772	Lenovo ThinkServer Gen 5 2.5" 1.6TB Mainstream SATA 6Gbps Hot Swap SSD
3.5-inch drives with hot-swap tray	
4XB0K12346	Lenovo ThinkServer 2.5" 480GB S3610 Enterprise Mainstream SATA 6Gbps SSD with 3.5" Tray
4XB0G88767	Lenovo ThinkServer Gen 5 3.5" 480GB Mainstream SATA 6Gbps Hot Swap SSD
4XB0G88769	Lenovo ThinkServer Gen 5 3.5" 800GB Mainstream SATA 6Gbps Hot Swap SSD
4XB0G88771	Lenovo ThinkServer Gen 5 3.5" 1.2TB Mainstream SATA 6Gbps Hot Swap SSD
4XB0G88773	Lenovo ThinkServer Gen 5 3.5" 1.6TB Mainstream SATA 6Gbps Hot Swap SSD

The part numbers include the following items:

- One SSD (HS and G3HS part numbers have a hot-swap tray attached)
- Support Flyer for SSDs
- Warranty flyer and Important Notices document

Features

The Intel S3610 Enterprise Mainstream SATA SSDs have the following features:

- Industry-standard 2.5-inch or 3.5-inch form factors
- Cost-effective Intel 20 nm Multi-Level Cell (MLC) NAND flash memory
- Endurance of 3 drive writes per day (DWPD) for 5 years, using Intel High Endurance Technology (HET). This equates to a total bytes written (TBW) value of:
  - 480 GB drive: 3.7 PB
  - 800 GB drive: 5.3 PB
  - 1.2 TB drive: 8.6 PB
  - 1.6 TB drive: 10.7 PB
- SATA MLC solid-state drive with high read performance and consistently low latencies to fulfill client needs in the enterprise space
- High reliability and enhanced ruggedness
- Energy saving, with 6.8 W typical power consumption per drive
- Absence of moving parts to reduce potential failure points in the server
- S.M.A.R.T. support
- Advanced Encrypting Standard (AES) 256-bit encryption
- Full end-to-end data path protection
- Thermal throttling to extend the life of the drive
- Enhanced power loss data protection

The key difference between Enterprise Performance SSDs such as the S3710 SSDs, Enterprise Mainstream SSDs such as the S3610 SSDs, and Enterprise Entry SSDs, such as the S3510 SSDs, is their endurance (life expectancy). SSDs have a huge, but finite, number of program/erase (P/E) cycles, which determines how long the drives can perform write operations and thus their life expectancy. Enterprise Mainstream SSDs have better endurance than the Enterprise Entry SSDs, but at a higher cost/IOPS ratio.

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 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, but 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.

For example, the Intel S3610 800GB Enterprise Mainstream SATA G3HS 2.5" SSD has an endurance of 5,300 TB (5.3 PB) of total bytes written (TBW) over five years. This means that for full operation over five years, write workload must be limited to no more than 2.4 TB of writes per day (the equivalent of 3 full drive writes per day). For the device to last in three years, the drive write workload must be limited to no more than 4.0 TB of writes per day.

Technical specifications

The following table presents technical specifications for the Intel S3610 Enterprise Mainstream SATA SSDs.

Table 3. Technical specifications

Feature	480 GB drive	800 GB drive	1.2 TB drive	1.6 TB drive
Interface	6 Gbps SATA	6 Gbps SATA	6 Gbps SATA	6 Gbps SATA
Capacity	480 GB	800 GB	1.2 TB	1.6 TB
Endurance (drive writes per day)	3 DWPD	3 DWPD	3 DWPD	3 DWPD
Endurance (total bytes written)	3.7 PB	5.3 PB	8.6 PB	10.7 PB
Data reliability	< 1 in 10^{17} bits read	< 1 in 10^{17} bits read	< 1 in 10^{17} bits read	< 1 in 1017 bits read
MTBF	2,000,000 hours	2,000,000 hours	2,000,000 hours	2,000,000 hours
IOPS reads (4 KB blocks)	84,000	84,000	84,000	84,000
IOPS writes (4 KB blocks)	28,000	28,000	28,000	28,000
Sequential read rate (128 KB blocks)	550 MBps	550 MBps	550 MBps	550 MBps
Sequential write rate (128 KB blocks)	520 MBps	520 MBps	520 MBps	520 MBps
Read latency (seq)	55 µs	55 µs	55 µs	55 µs
Write latency (seq)	66 µs	66 µs	66 µs	66 µs
Shock, operating	1,000 G (Max) at 0.5 ms	1,000 G (Max) at 0.5 ms	1,000 G (Max) at 0.5 ms	1,000 G (Max) at 0.5 ms
Vibration, operating	2.17 G_{RMS} (5-700 Hz)	2.17 G_{RMS} (5-700 Hz)	2.17 G_{RMS} (5-700 Hz)	2.17 G_{RMS} (5-700 Hz)
Vibration, non-operating	3.13 G_{RMS} (5-700 Hz)	3.13 G_{RMS} (5-700 Hz)	3.13 G_{RMS} (5-700 Hz)	3.13 G_{RMS} (5-700 Hz)
Typical power	6.8 W	6.8 W	6.8 W	6.8 W

Server support - System x, NeXtScale and sd350

The following tables list the System x and denser servers that support the S3610 SSDs.

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)
00YK212	Intel S3610 480GB Enterprise Mainstream SATA G3HS 2.5" SSD	Y	Y	Y	Y	Y	N	Y
00YK217	Intel S3610 800GB Enterprise Mainstream SATA G3HS 2.5" SSD	Y	Y	Y	Y	Y	N	Y
00YK222	Intel S3610 1.2TB Enterprise Mainstream SATA G3HS 2.5" SSD	Y	Y	Y	Y	Y	N	Y
00YK227	Intel S3610 1.6TB Enterprise Mainstream SATA G3HS 2.5" SSD	Y	Y	Y	Y	Y	N	Y
00YK237	Intel S3610 480GB Enterprise Mainstream SATA HS 3.5" SSD	Y	Y	Y	Y	N	N	N
00YK242	Intel S3610 800GB Enterprise Mainstream SATA HS 3.5" SSD	Y	Y	Y	Y	N	N	N
00YK247	Intel S3610 1.2TB Enterprise Mainstream SATA HS 3.5" SSD	Y	Y	Y	Y	N	N	N
00YK252	Intel S3610 1.6TB Enterprise Mainstream SATA HS 3.5" SSD	Y	Y	Y	Y	N	N	N
00YK262	Intel S3610 480GB Enterprise Mainstream SATA 2.5" SSD for NeXtScale	N	N	N	N	N	Y	N
00YK267	Intel S3610 800GB Enterprise Mainstream SATA 2.5" SSD for NeXtScale	N	N	N	N	N	Y	N
00YK272	Intel S3610 1.2TB Enterprise Mainstream SATA 2.5" SSD for NeXtScale	N	N	N	N	N	Y	N
00YK277	Intel S3610 1.6TB Enterprise Mainstream 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 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)
00YK212	Intel S3610 480GB Enterprise Mainstream SATA G3HS 2.5" SSD	N	N	Y	N	N	Y	N
00YK217	Intel S3610 800GB Enterprise Mainstream SATA G3HS 2.5" SSD	N	N	Y	N	N	Y	N
00YK222	Intel S3610 1.2TB Enterprise Mainstream SATA G3HS 2.5" SSD	N	N	Y	N	N	Y	N
00YK227	Intel S3610 1.6TB Enterprise Mainstream SATA G3HS 2.5" SSD	N	N	Y	N	N	Y	N
00YK237	Intel S3610 480GB Enterprise Mainstream SATA HS 3.5" SSD	Y	N	Y	N	N	N	N
00YK242	Intel S3610 800GB Enterprise Mainstream SATA HS 3.5" SSD	Y	N	Y	N	N	N	N
00YK247	Intel S3610 1.2TB Enterprise Mainstream SATA HS 3.5" SSD	Y	N	Y	N	N	N	N
00YK252	Intel S3610 1.6TB Enterprise Mainstream SATA HS 3.5" SSD	Y	N	Y	N	N	N	N
00YK262	Intel S3610 480GB Enterprise Mainstream SATA 2.5" SSD for NeXtScale	N	N	N	N	N	N	Y
00YK267	Intel S3610 800GB Enterprise Mainstream SATA 2.5" SSD for NeXtScale	N	N	N	N	N	N	Y
00YK272	Intel S3610 1.2TB Enterprise Mainstream SATA 2.5" SSD for NeXtScale	N	N	N	N	N	N	Y
00YK277	Intel S3610 1.6TB Enterprise Mainstream SATA 2.5" SSD for NeXtScale	N	N	N	N	N	N	Y

Support for servers with Intel Xeon v2 processors

Table 6. 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)
00YK212	Intel S3610 480GB Enterprise Mainstream SATA G3HS 2.5" SSD	N	N	N	N	N	N	N	Y
00YK217	Intel S3610 800GB Enterprise Mainstream SATA G3HS 2.5" SSD	N	N	N	N	N	N	N	Y
00YK222	Intel S3610 1.2TB Enterprise Mainstream SATA G3HS 2.5" SSD	N	N	N	N	N	N	N	Y
00YK227	Intel S3610 1.6TB Enterprise Mainstream SATA G3HS 2.5" SSD	N	N	N	N	N	N	N	Y
00YK237	Intel S3610 480GB Enterprise Mainstream SATA HS 3.5" SSD	N	N	N	N	N	N	N	N
00YK242	Intel S3610 800GB Enterprise Mainstream SATA HS 3.5" SSD	N	N	N	N	N	N	N	N
00YK247	Intel S3610 1.2TB Enterprise Mainstream SATA HS 3.5" SSD	N	N	N	N	N	N	N	N
00YK252	Intel S3610 1.6TB Enterprise Mainstream SATA HS 3.5" SSD	N	N	N	N	N	N	N	N
00YK262	Intel S3610 480GB Enterprise Mainstream SATA 2.5" SSD for NeXtScale	N	N	N	N	N	N	N	N
00YK267	Intel S3610 800GB Enterprise Mainstream SATA 2.5" SSD for NeXtScale	N	N	N	N	N	N	N	N
00YK272	Intel S3610 1.2TB Enterprise Mainstream SATA 2.5" SSD for NeXtScale	N	N	N	N	N	N	N	N
00YK277	Intel S3610 1.6TB Enterprise Mainstream 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 7. Support for ThinkServer 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)
2.5-inch drives with hot-swap tray										
4XB0K12345	LTS 2.5" 480GB S3610 Enterprise Mainstream SATA 6Gbps SSD	N	N	Y	N	N	N	N	N	N
4XB0G88766	LTS Gen 5 2.5" 480GB Mainstream SATA 6Gbps Hot Swap SSD	N	Y	N	N	Y	Y	Y	Y	Y
4XB0G88768	LTS Gen 5 2.5" 800GB Mainstream SATA 6Gbps Hot Swap SSD	N	N	N	N	Y	Y	Y	Y	Y
4XB0G88770	LTS Gen 5 2.5" 1.2TB Mainstream SATA 6Gbps Hot Swap SSD	N	N	N	N	Y	Y	Y	Y	Y
4XB0G88772	LTS Gen 5 2.5" 1.6TB Mainstream SATA 6Gbps Hot Swap SSD	N	N	N	N	Y	Y	Y	Y	Y
3.5-inch drives with hot-swap tray										
4XB0K12346	LTS 2.5" 480GB S3610 Enterprise Mainstream SATA 6Gbps SSD with 3.5" Tray	N	N	Y	N	N	N	N	N	N
4XB0G88767	LTS Gen 5 3.5" 480GB Mainstream SATA 6Gbps Hot Swap SSD	N	Y	N	N	Y	Y	Y	Y	Y
4XB0G88769	LTS Gen 5 3.5" 800GB Mainstream SATA 6Gbps Hot Swap SSD	N	N	N	N	Y	Y	Y	Y	Y
4XB0G88771	LTS Gen 5 3.5" 1.2TB Mainstream SATA 6Gbps Hot Swap SSD	N	N	N	N	Y	Y	Y	Y	Y
4XB0G88773	LTS Gen 5 3.5" 1.6TB Mainstream SATA 6Gbps Hot Swap SSD	N	N	N	N	Y	Y	Y	Y	Y

Support for ThinkServer servers with E3 v3 and E5 v3 processors

Table 8. Support for ThinkServer systems with E3 v3 and E5 v3 processors

Part number	Description	TS140	TS440	RS140	TD350 (E5 v3)	RD350 (E5 v3)	RD450 (E5 v3)	RD550 (E5 v3)	RD650 (E5 v3)	RQ750 (E5 v3)
2.5-inch drives with hot-swap tray										
4XB0K12345	LTS 2.5" 480GB S3610 Enterprise Mainstream SATA 6Gbps SSD	N	N	N	N	N	N	N	N	N
4XB0G88766	LTS Gen 5 2.5" 480GB Mainstream SATA 6Gbps Hot Swap SSD	N	N	N	Y	Y	Y	Y	Y	N
4XB0G88768	LTS Gen 5 2.5" 800GB Mainstream SATA 6Gbps Hot Swap SSD	N	N	N	Y	Y	Y	Y	Y	N
4XB0G88770	LTS Gen 5 2.5" 1.2TB Mainstream SATA 6Gbps Hot Swap SSD	N	N	N	Y	Y	Y	Y	Y	N
4XB0G88772	LTS Gen 5 2.5" 1.6TB Mainstream SATA 6Gbps Hot Swap SSD	N	N	N	Y	Y	Y	Y	Y	N
3.5-inch drives with hot-swap tray										
4XB0K12346	LTS 2.5" 480GB S3610 Enterprise Mainstream SATA 6Gbps SSD with 3.5" Tray	N	N	N	N	N	N	N	N	N
4XB0G88767	LTS Gen 5 3.5" 480GB Mainstream SATA 6Gbps Hot Swap SSD	N	N	N	Y	Y	Y	Y	Y	N
4XB0G88769	LTS Gen 5 3.5" 800GB Mainstream SATA 6Gbps Hot Swap SSD	N	N	N	Y	Y	Y	Y	Y	N
4XB0G88771	LTS Gen 5 3.5" 1.2TB Mainstream SATA 6Gbps Hot Swap SSD	N	N	N	Y	Y	Y	Y	Y	N
4XB0G88773	LTS Gen 5 3.5" 1.6TB Mainstream SATA 6Gbps Hot Swap SSD	N	N	N	Y	Y	Y	Y	Y	N

Server support - Flex System

The following tables list the Flex System compute nodes that support the S3610 SSDs.

Table 9. Support for Flex System compute nodes

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)
00YK212	Intel S3610 480GB Enterprise Mainstream SATA G3HS 2.5" SSD	N	N	Y	N	N	Y
00YK217	Intel S3610 800GB Enterprise Mainstream SATA G3HS 2.5" SSD	N	N	Y	N	N	Y
00YK222	Intel S3610 1.2TB Enterprise Mainstream SATA G3HS 2.5" SSD	N	N	Y	N	N	Y
00YK227	Intel S3610 1.6TB Enterprise Mainstream SATA G3HS 2.5" SSD	N	N	Y	N	N	Y
00YK237	Intel S3610 480GB Enterprise Mainstream SATA HS 3.5" SSD	N	N	N	N	N	N
00YK242	Intel S3610 800GB Enterprise Mainstream SATA HS 3.5" SSD	N	N	N	N	N	N
00YK247	Intel S3610 1.2TB Enterprise Mainstream SATA HS 3.5" SSD	N	N	N	N	N	N
00YK252	Intel S3610 1.6TB Enterprise Mainstream SATA HS 3.5" SSD	N	N	N	N	N	N
00YK262	Intel S3610 480GB Enterprise Mainstream SATA 2.5" SSD for NeXtScale	N	N	N	N	N	N
00YK267	Intel S3610 800GB Enterprise Mainstream SATA 2.5" SSD for NeXtScale	N	N	N	N	N	N
00YK272	Intel S3610 1.2TB Enterprise Mainstream SATA 2.5" SSD for NeXtScale	N	N	N	N	N	N
00YK277	Intel S3610 1.6TB Enterprise Mainstream SATA 2.5" SSD for NeXtScale	N	N	N	N	N	N

Storage controller support

The drives require a supported disk controller. The following table lists the System x controllers and the servers that support those controllers.

Table 10. Controllers for supported System x servers

		Xeon v3				Xeon v4					v5		Flex	
Part number	**Description**	**x3100 M5 (5457)**	**x3500 M5 (5464)**	**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)**	**x3250 M6 (3943)**	**x3250 M6 (3633)**	**x240 M5 (9532)**	**x280/x480/x880 X6 (7196)**
81Y4492	ServeRAID H1110 Controller	Y	N	N	N	N	N	N	N	N	N	N	N	N
81Y4448	ServeRAID M1115 Controller	Y	N	N	N	N	N	N	N	N	N	N	N	N
Onboard	ServeRAID M1200e Controller	N	N	N	N	N	N	N	N	N	N	N	Y	Y
00JY194	ServeRAID M1210 Controller	N	N	N	N	N	N	N	N	N	Y	Y	N	N
46C9114	ServeRAID M1215 Controller	N	Y	N	Y	Y	Y	N	Y	N	Y	Y	N	N
81Y4481	ServeRAID M5110 Controller	Y	N	N	N	N	N	N	N	N	N	N	N	N
46C9110	ServeRAID M5210 Controller	N	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	N	N
00JX142	ServeRAID M5215 Controller	N	N	N	N	N	N	N	N	N	N	N	Y	N
Onboard	ThinkServer sd350 onboard	N	N	N	N	N	N	N	N	Y	N	N	N	N
00YD430	H701-L 6Gb HBA Mezz Card	N	N	N	N	N	N	N	N	Y	N	N	N	N
46C8988	N2115 SAS/SATA HBA	Y	N	N	N	N	N	N	N	N	N	N	N	N
47C8675	N2215 SAS/SATA HBA	N	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	N	N

The following table lists the ThinkServer controllers and the servers that support those controllers.

Table 11. Controllers for ThinkServer systems

		E5 v3 and E3 v3 processors									E5 v4 and E3 v5 processors								
Part number	**Description**	**TS140**	**TS440**	**RS140**	**TD350**	**RD350 (70Dx)**	**RD450 (70Dx)**	**RD550 (70Cx)**	**RD650 (70Dx)**	**RQ750**	**TS150**	**TS450**	**TS460**	**RS160**	**TD350**	**RD350 (70Qx)**	**RD450 (70Qx)**	**RD550 (70Rx/70Sx)**	**RD650 (70Rx)**
Onboard	RAID 100	Y	Y	Y	N	N	N	N	N	Y	N	N	N	N	N	N	N	N	N
Onboard	RAID 110i	N	N	N	N	Y	N	N	N	N	N	N	N	N	Y	Y	N	N	N
Onboard	AnyRAID 110i	N	N	N	Y	N	Y	Y	Y	N	N	N	N	N	Y	N	Y	Y	Y
Onboard	RAID 121i	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	N	N	N	N	N
4XB0G45758	RAID 500	N	N	N	N	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N
4XC0G88834	RAID 500	N	N	N	N	Y	Y	N	N	Y	N	N	N	N	N	N	N	N	N
0A89464	RAID 500	N	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
4XB0F28691	AnyRAID 510i	N	N	N	N	N	N	Y	Y	N	N	N	N	N	N	N	N	Y	Y
4XC0G88837	AnyRAID 510i	N	N	N	Y	N	Y	N	N	N	N	N	N	N	Y	N	Y	N	N
4XC0G88840	RAID 520i	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	N	N	N	N	N
4XC0G88850	RAID 520i	N	N	N	Y	Y	Y	Y	Y	N	N	N	N	N	Y	Y	Y	Y	Y
0A89463	RAID 700	N	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
4XB0G45760	RAID 710	N	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N
4XC0G88836	RAID 710	N	N	N	N	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N
4XC0G88831	RAID 720i	N	N	N	N	N	N	N	N	Y	N	Y	Y	Y	N	N	N	N	N
4XC0G88849	RAID 720i	N	N	N	Y	N	Y	Y	Y	N	N	N	N	N	Y	Y	Y	Y	Y
4XC0G88838	AnyRAID 720i	N	N	N	Y	N	Y	Y	Y	N	N	N	N	N	Y	N	Y	Y	Y
4XC0G88839	AnyRAID 720ix	N	N	N	Y	N	Y	Y	Y	N	N	N	N	N	Y	N	Y	Y	Y
SBB0G52913	RQ750 SAS HBA	N	N	N	N	N	N	N	N	Y	N	N	N	N	N	N	N	N	N

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)
- VMware vSphere 6.0 (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 Intel S3610 Enterprise Mainstream 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 S3610 Enterprise Mainstream SATA SSDs have the following physical specifications.

Dimensions and weight (approximate, without drive tray):

- Height: 7 mm (0.3 in.)
- Width: 70 mm (2.8 in.)
- Depth: 100 mm (4.0 in.)
- Weight: 74 g (2.6 oz lb)

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

- Height: 63 mm (2.5 in.)
- Width: 174 mm (6.9 in.)
- Depth: 133 mm (5.2 in.)
- Weight: 434 g (1.0 lb)

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

- Height: 95 mm (3.7 in.)
- Width: 257 mm (10.1 in.)
- Depth: 193 mm (7.6 in.)
- Weight: 484 g (1.1 lb)

Operating environment

The S3610 Enterprise Mainstream SATA SSDs are supported in the following environment:

- Temperature: 0 to 70 °C (32 to 158 °F)
- Temperature (non-operating): -55 to 95 °C (-67 to 203 °F)
- Relative humidity: 5 - 95% (noncondensing)
- Maximum altitude: 3,050 m (10,000 ft)

Agency approvals

The Intel S3610 Enterprise Mainstream SATA SSDs conform to the following regulations:

- FCC Title 47, Part 15B, Class B
- CA/CSA-CEI/IEC CISPR 22:02
- EN 55024: 1998
- EN 55022: 2006
- EN-60950-1 2nd Edition
- UL/CSA EN-60950-1 2nd Edition
- Low Voltage Directive 2006/95/EC
- C-Tick: AS/NZS3584
- BSMI: CNS 13438
- KCC Article 11.1
- RoHS DIRECTIVE 2011/65/EU
- WEEE Directive 2002/96/EC

Related publications and links

For more information, see the following documents:

- Lenovo System x storage options product web page
  https://www3.lenovo.com/us/en/data-center/servers/server-options/system-x-options/server-storage/c/system-x-storage
- Intel SSD Data Center S3610 Series product page
  http://www.intel.com/content/www/us/en/solid-state-drives/solid-state-drives-dc-s3610-series.html
- ServerProven for SSDs
  http://www.lenovo.com/us/en/serverproven/xseries/storage/hssdmatrix.shtml
- Lenovo Press product guides for RAID controllers
  https://lenovopress.com/servers/options/raid

Related product families

Product families related to this document are the following:

- Drives

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