

Intel S3710 Enterprise Performance SATA SSDs Product Guide (withdrawn product)

The Intel S3710 Enterprise Performance SATA solid-state drives (SSDs) for System x use 20nm Intel NAND flash memory technology with SATA 6Gbps interface to provide a high-performance, high-endurance storage solution in either 2.5-inch or 3.5-inch drive form factor.

The Intel SSD S3710 drives with 10 full drives writes per day (DWD) are an excellent choice for applications demanding high write performance, such as High Performance Computing (HPC), High Definition Imaging and Video (HDIV), high data rate analytics and databases, large-scale virtualization, and video on demand content delivery.

The Intel S3710 Enterprise Performance SATA solid-state drive is shown in the following figure.



Figure 1. Intel S3710 Enterprise Performance 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 S3710 Enterprise Performance 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 S3710 Enterprise Performance 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 table lists the information for ordering part numbers and feature codes.

Withdrawn: All S3710 drive options are now withdrawn from marketing.

Table 1. Ordering information

Part number	Feature	Description
00YC320	AT9C	Intel S3710 200GB Enterprise Performance SATA G3HS 2.5" SSD
00YC325	AT9D	Intel S3710 400GB Enterprise Performance SATA G3HS 2.5" SSD
00YC330	AT9E	Intel S3710 800GB Enterprise Performance SATA G3HS 2.5" SSD
00YC340	AT9G	Intel S3710 400GB Enterprise Performance SATA HS 3.5" SSD
00YC345	AT9H	Intel S3710 800GB Enterprise Performance SATA HS 3.5" SSD
00YC350	AT9J	Intel S3710 200GB Enterprise Performance SATA 2.5" SSD for NeXtScale
00YC355	AT9K	Intel S3710 400GB Enterprise Performance SATA 2.5" SSD for NeXtScale

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 S3710 Enterprise Performance 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 10 drive writes per day (DWPD) for 5 years, using Intel High Endurance Technology (HET). This equates to a total bytes written (TBW) value of:
 - 200 GB drive: 3.6 PB
 - 400 GB drive: 8.3 PB
 - 800 GB drive: 16.9 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 6.9 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 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 Performance SSDs have better endurance than the Enterprise Value 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 S3710 200GB Enterprise Performance SATA G3HS 2.5" SSD has an endurance of 3,600 TB (3.6 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 TB of writes per day. For the device to last in three years, the drive write workload must be limited to no more than 3.3 TB of writes per day.

Technical specifications

The following table presents technical specifications for the Intel S3710 Enterprise Performance SATA SSDs.

Table 2. Technical specifications

Feature	200 GB drive	400 GB drive	800 GB drive
Part number - 2.5" G3HS	00YC320	00YC325	00YC330
Part number - 3.5" HS	None	00YC340	00YC345
Part number - 2.5" NeXtScale	00YC350	00YC355	None
Interface	6 Gbps SATA	6 Gbps SATA	6 Gbps SATA
Capacity	200 GB	400 GB	800 GB
Endurance (drive writes per day)	10 DWPD	10 DWPD	10 DWPD
Endurance (total bytes written)	3.6 PB	8.3 PB	16.9 PB
Data reliability	< 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
IOPS reads (4 KB blocks)	85,000	85,000	85,000
IOPS writes (4 KB blocks)	45,000	45,000	45,000
Sequential read rate (128 KB blocks)	550 MBps	550 MBps	550 MBps
Sequential write rate (128 KB blocks)	520 MBps	520 MBps	520 MBps
Read latency (seq)	55 µs	55 µs	55 µs
Write latency (seq)	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
Vibration, operating	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)
Typical power	6.9 W	6.9 W	6.9 W

Server support

The following tables list the servers that support the Intel S3710 Enterprise Performance SATA SSDs.

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

Table 3. Support for System x and dense servers with Xeon E5/E7 v4 and E5 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)
00YC320	S3710 200GB Enterprise Performance SATA G3HS 2.5" SSD	N	N	Y	Y	Y	Y	N
00YC325	S3710 400GB Enterprise Performance SATA G3HS 2.5" SSD	N	N	Y	Y	Y	Y	Y
00YC330	S3710 800GB Enterprise Performance SATA G3HS 2.5" SSD	N	N	Y	Y	Y	Y	N
00YC340	S3710 400GB Enterprise Performance SATA HS 3.5" SSD	N	N	Y	Y	N	N	N
00YC345	S3710 800GB Enterprise Performance SATA HS 3.5" SSD	N	N	Y	Y	N	N	N
00YC350	S3710 200GB Enterprise Performance SATA 2.5" SSD for NeXtScale	N	N	N	N	N	Y	N
00YC355	S3710 400GB Enterprise Performance 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 4. Support for System x 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)
00YC320	Intel S3710 200GB Enterprise Performance SATA G3HS 2.5" SSD	N	N	Y	Y	Y	Y	Y
00YC325	Intel S3710 400GB Enterprise Performance SATA G3HS 2.5" SSD	N	N	Y	Y	Y	Y	Y
00YC330	Intel S3710 800GB Enterprise Performance SATA G3HS 2.5" SSD	N	N	Y	Y	Y	Y	Y
00YC340	Intel S3710 400GB Enterprise Performance SATA HS 3.5" SSD	Y	Y	Y	Y	Y	N	N
00YC345	Intel S3710 800GB Enterprise Performance SATA HS 3.5" SSD	Y	Y	Y	Y	Y	N	N
00YC350	Intel S3710 200GB Enterprise Performance SATA 2.5" SSD for NeXtScale	N	N	N	N	N	N	Y
00YC355	Intel S3710 400GB Enterprise Performance SATA 2.5" SSD for NeXtScale	N	N	N	N	N	N	Y

Support for System x servers with Intel Xeon v2 processors

Table 5. Support for System x 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)
00YC320	Intel S3710 200GB Enterprise Performance SATA G3HS 2.5" SSD	N	N	N	N	N	N	N	N	N	N	Y	N	N
00YC325	Intel S3710 400GB Enterprise Performance SATA G3HS 2.5" SSD	N	N	N	N	N	N	N	N	N	N	Y	N	N
00YC330	Intel S3710 800GB Enterprise Performance SATA G3HS 2.5" SSD	N	N	N	N	N	N	N	N	N	N	Y	N	N
00YC340	Intel S3710 400GB Enterprise Performance SATA HS 3.5" SSD	N	N	N	N	N	N	N	N	N	N	N	N	N
00YC345	Intel S3710 800GB Enterprise Performance SATA HS 3.5" SSD	N	N	N	N	N	N	N	N	N	N	N	N	N
00YC350	Intel S3710 200GB Enterprise Performance SATA 2.5" SSD for NeXtScale	N	N	N	N	N	N	N	N	N	N	N	N	N
00YC355	Intel S3710 400GB Enterprise Performance SATA 2.5" SSD for NeXtScale	N	N	N	N	N	N	N	N	N	N	N	N	N

Support for Flex System compute nodes

Table 6. 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, v3 & v4)	x440 (7917)	x440 (7167)	x880/x480/x280 X6 (7903)	x280/x480/x880 X6 (7196)	Storage Expansion Node
00YC320	Intel S3710 200GB Enterprise Performance SATA G3HS 2.5" SSD	N	N	N	N	N	Y	N	N	N	Y	N
00YC325	Intel S3710 400GB Enterprise Performance SATA G3HS 2.5" SSD	N	N	N	N	N	Y	N	N	N	Y	N
00YC330	Intel S3710 800GB Enterprise Performance SATA G3HS 2.5" SSD	N	N	N	N	N	Y	N	N	N	Y	N
00YC340	Intel S3710 400GB Enterprise Performance SATA HS 3.5" SSD	N	N	N	N	N	N	N	N	N	N	N
00YC345	Intel S3710 800GB Enterprise Performance SATA HS 3.5" SSD	N	N	N	N	N	N	N	N	N	N	N
00YC350	Intel S3710 200GB Enterprise Performance SATA 2.5" SSD for NeXtScale	N	N	N	N	N	N	N	N	N	N	N
00YC355	Intel S3710 400GB Enterprise Performance SATA 2.5" SSD for NeXtScale	N	N	N	N	N	N	N	N	N	N	N

Storage controller support

The Intel S3710 Enterprise Performance SATA SSDs require a supported disk controller. The following table lists the controllers and the servers that support those controllers.

Table 7. Controllers for supported servers

Part number	Description	Xeon v3						Xeon v4						v5		Flex	
		x3100 M5 (5457)	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)	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	N	N	
81Y4448	ServeRAID M1115 Controller	Y	N	N	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	N	N	Y	Y	
00JY194	ServeRAID M1210 Controller	N	N	N	N	N	N	N	N	N	N	N	Y	Y	N	N	
46C9114	ServeRAID M1215 Controller	N	Y	Y	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	N	N	
46C9110	ServeRAID M5210 Controller	N	Y	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	N	N	Y	N	
Onboard	ThinkServer sd350 onboard	N	N	N	N	N	N	N	N	N	Y	N	N	N	N	N	
00YD430	H701-L 6Gb HBA Mezz Card	N	N	N	N	N	N	N	N	N	Y	N	N	N	N	N	
46C8988	N2115 SAS/SATA HBA	Y	N	N	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	Y	N	Y	Y	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
- 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 Intel S3710 Enterprise Performance 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 S3710 Enterprise Performance 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 S3710 Enterprise Performance SATA SSDs are supported in the following environment:

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

Agency approvals

The Intel S3710 Enterprise Performance 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 page
<https://www3.lenovo.com/us/en/data-center/servers/server-options/system-x-options/server-storage/c/system-x-storage>
- US Announcement letter
<http://ibm.com/common/ssi/cgi-bin/ssialias?infotype=dd&subtype=ca&&htmlfid=897/ENUS115-154>
- Intel SSD Data Center S3710 Series product page
<http://www.intel.com/content/www/us/en/solid-state-drives/solid-state-drives-dc-s3710-series.html>
- ServerProven for SSDs
<http://www.lenovo.com/us/en/serverproven/xseries/storage/hssdmatrix.shtml>
- ServeRAID Adapter Quick Reference
<http://lenovopress.com/tips0054>

Related product families

Product families related to this document are the following:

- [Drives](#)

Notices

Lenovo may not offer the products, services, or features discussed in this document in all countries. Consult your local Lenovo representative for information on the products and services currently available in your area. Any reference to a Lenovo product, program, or service is not intended to state or imply that only that Lenovo product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any Lenovo intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any other product, program, or service. Lenovo may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to:

Lenovo (United States), Inc.
8001 Development Drive
Morrisville, NC 27560
U.S.A.
Attention: Lenovo Director of Licensing

LENOVO PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some jurisdictions do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. Lenovo may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

The products described in this document are not intended for use in implantation or other life support applications where malfunction may result in injury or death to persons. The information contained in this document does not affect or change Lenovo product specifications or warranties. Nothing in this document shall operate as an express or implied license or indemnity under the intellectual property rights of Lenovo or third parties. All information contained in this document was obtained in specific environments and is presented as an illustration. The result obtained in other operating environments may vary. Lenovo may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you.

Any references in this publication to non-Lenovo Web sites are provided for convenience only and do not in any manner serve as an endorsement of those Web sites. The materials at those Web sites are not part of the materials for this Lenovo product, and use of those Web sites is at your own risk. Any performance data contained herein was determined in a controlled environment. Therefore, the result obtained in other operating environments may vary significantly. Some measurements may have been made on development-level systems and there is no guarantee that these measurements will be the same on generally available systems. Furthermore, some measurements may have been estimated through extrapolation. Actual results may vary. Users of this document should verify the applicable data for their specific environment.

© Copyright Lenovo 2025. All rights reserved.

This document, LP0055, was created or updated on October 4, 2019.

Send us your comments in one of the following ways:

- Use the online Contact us review form found at:
<https://lenovopress.lenovo.com/LP0055>
- Send your comments in an e-mail to:
comments@lenovopress.com

This document is available online at <https://lenovopress.lenovo.com/LP0055>.

Trademarks

Lenovo and the Lenovo logo are trademarks or registered trademarks of Lenovo in the United States, other countries, or both. A current list of Lenovo trademarks is available on the Web at <https://www.lenovo.com/us/en/legal/copytrade/>.

The following terms are trademarks of Lenovo in the United States, other countries, or both:

Lenovo®

ServerProven®

System x®

ThinkServer®

The following terms are trademarks of other companies:

Intel® and Xeon® are trademarks of Intel Corporation or its subsidiaries.

Linux® is the trademark of Linus Torvalds in the U.S. and other countries.

Microsoft®, Windows Server®, and Windows® are trademarks of Microsoft Corporation in the United States, other countries, or both.

ibm.com® is a trademark of IBM in the United States, other countries, or both.

Other company, product, or service names may be trademarks or service marks of others.