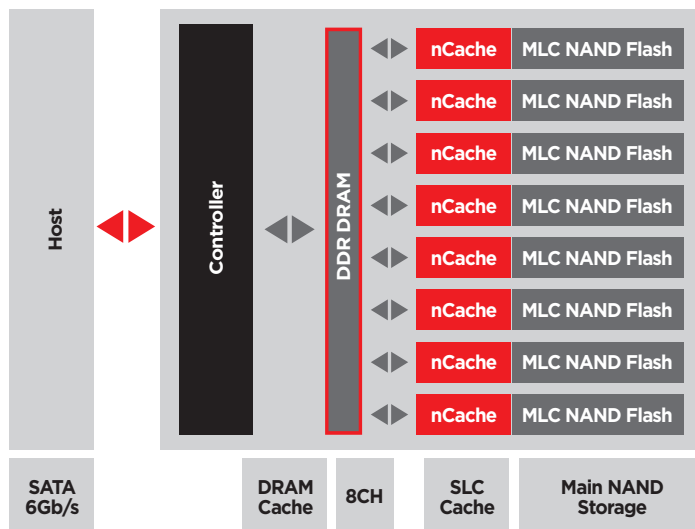


# SanDisk® X300s SE-SSD (Self-Encrypting Solid-State Drive)

## INTRODUCING SECURITY, LOW POWER, HIGH PERFORMANCE, AND

Ideal for corporate PCs and notebooks, the SanDisk X300s SE-SSD<sup>1</sup> (Self-Encrypting Solid-State Drive) is built on industry-leading 1Ynm multi-level cell (MLC) NAND flash technology and incorporates hardware-based full disk encryption and advanced power management.

The X300s features support for the TCG Opal 2.0 and Microsoft® Encrypted Hard Drive security standards and a SATA DEVSLP low-power mode that is compatible with Microsoft® InstantGo. Users will appreciate greater productivity with more useable hours per battery charge<sup>2</sup> while companies can seamlessly secure their data for their on-the-go employees.



SATA	SAS	PCIe
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### X300S KEY FEATURES

AVAILABLE IN TWO FORM FACTORS: 2.5" 7MM AND M.2 2280

CAPACITIES OF UP TO 1TB

SE-SSD (SELF-ENCRYPTING SOLID-STATE DRIVE) - HARDWARE-BASED FULL-DISK ENCRYPTION USING 256-BIT AES ENCRYPTION

TCG OPAL AND MICROSOFT® ENCRYPTED HARD DRIVE - COMPLIANT WITH INDUSTRY-STANDARD SECURITY SPECIFICATIONS (3RD PARTY ISVs-INQUIRE WITHIN)

ADVANCED POWER MANAGEMENT WITH DEVSLP LOW-POWER MODE - COMPATIBLE WITH MICROSOFT® INSTANTGO

TESTED FOR >80 TERABYTES WRITTEN (TBW) - EQUIVALENT TO 43GB/DAY OVER 5 YEARS

NCACHE™ - NON-VOLATILE WRITE CACHE

SATA REVISION 3.2 6GB/S INTERFACE

WINDOWS® WHCK CERTIFIED

DYNAMIC THERMAL THROTTLING

## Performance

The X300s uses a tiered caching structure to improve random write performance. Modern operating systems typically access the storage device using small 4KB access blocks. These small access blocks conflict with the physical block structure (>1MB) of newer flash memory technology. To bridge this difference, the X300s employs three storage layers: Volatile cache - DDR DRAM cache, nCache™ - A non-volatile flash write cache, Mass storage - MLC NAND flash.

The nCache™ write cache is used to accumulate small writes at high speed then flush and consolidate them into the larger MLC section of the NAND flash memory array.

## Security<sup>3</sup>

The X300s SE-SSD seamlessly encrypts the drive data on the fly using hardware-based 256-bit AES encryption. It supports the following industry-standard security specifications: ATA Security Feature Set, TCG Opal 2.0, Microsoft® Encrypted Hard Drive (TCG OPAL 2.0 + IEEE 1667)

## Thermal Throttling

A performance throttling technique is used as a safety measure to protect the integrity of the data and prevent excessive heat dissipation. The X300s employs an on-board thermal sensor to monitor the SSD's critical component temperature. If it exceeds the normal range, drive performance is reduced until the temperature decreases to an acceptable level, at which time full performance is restored.

Specifications subject to change without notice.

<sup>1</sup> Also available in models without security support.

<sup>2</sup> As compared to 7200 RPM SATA 2.5" hard drive.

<sup>3</sup> Based on published specifications and internal benchmarking tests.

<sup>4</sup> The X300s is also available in models without security support.

<sup>5</sup> Up to stated speed. Based on internal testing; performance may vary based on host device. 1 megabyte (MB) = 1 million bytes. IOPS = input/output operations per second. TBW = terabytes written.

<sup>6</sup> Approximations based on SanDisk internal metrics that quantifies how much data can be written to an SSD in its lifespan expressed in TBW.

<sup>7</sup> Power measurements 25°C. Based on FW version with H1PM-enable.

<sup>8</sup> Typical power for 256GB product.

<sup>9</sup> MTTF = Mean time between failures based on parts stress analysis.

<sup>10</sup> 5 year warranty in regions not recognizing "limited". See [www.sandisk.com/wug](http://www.sandisk.com/wug) for more details.

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## Contact information

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## SanDisk® X300s SE-SSD Product Features and Specifications

Specifications are preliminary and subject to change

Device	SanDisk X300s SE-SSD				
<b>Form Factor</b>	7mm 2.5-inch Cased, M.2 2280				
<b>Interface</b>	SATA Revision 3.2 (6 Gb/s) backward compatible to SATA Revision 2.0 (3 Gb/s) and SATA Revision 1.0 (1.5 Gb/s)				
<b>Performance<sup>4</sup></b>	64GB	128GB	256GB	512GB	1TB
<b>Seq. Read up to (MB/s)</b>	510	510	520	520	TBD
<b>Seq. Write up to (MB/s)</b>	140	300	460	460	TBD
<b>Rand Read up to (IOPS)</b>	71k	85k	90k	96k	TBD
<b>Rand Write up to (IOPS)</b>	37k	66k	80k	80k	TBD
<b>Endurance (TBW)<sup>5</sup></b>	>40	>80	>80	>80	TBD
<b>Latency Read</b>	55µs	55µs	55µs	55µs	TBD
<b>Latency Write</b>	65µs	65µs	65µs	65µs	TBD
<b>Power (Average)</b>	64GB	128GB	256GB	512GB	1TB
<b>Active Power (mW)<sup>6</sup></b>	120	120	120	120	TBD
<b>Max Read Operating (mW)</b>	2,900	2,900	3,000	3,100	TBD
<b>Max Write Operating (mW)</b>	2,600	3,600	4,900	5,000	TBD
<b>Slumber (mW)</b>	80	80	80	90	TBD
<b>DEVSLP (mW)<sup>7</sup></b>	5.0	5.0	5.0	6.5	TBD
<b>MTTF<sup>8</sup></b>	Up to 2,000,000 hours				
<b>Weight (g) 2.5"/M.2 2280</b>	51±3/7±0.5		55±3/7±0.5		TBD
<b>Product Dimensions</b>	2.5": 7.0mm x 69.85mm x 100.5mm M.2 2280: 2.23mm x 22.0mm x 80.0mm				
<b>Environmental</b>					
<b>Operating Temperatures</b>	0°C to 70°C				
<b>Non-operating Temperatures</b>	-55°C to 85°C				
<b>Operating Vibration</b>	5.0 gRMS, 10 - 2000 Hz				
<b>Non-operating Vibration</b>	4.9 gRMS, 7 - 800 Hz				
<b>Operating/Non-operating Shock</b>	1,500 G @0.5 msec half sine				
<b>Certifications</b>	FCC, UL, TUV, BSMI, VCCI				
<b>Warranty<sup>9</sup></b>	5 Years				

## Ordering Information

SKU #	Capacity	Form Factor	Security	Pack-Out
SD7SN3Q-064G	64GB	M.2	Not Avail	1022/1122
SD7SB3Q-064G	64GB	2.5"	Not Avail	1022/1122
SD7UN3Q-128G	128GB	M.2	Enabled	1022/1122
SD7UB3Q-128G	128GB	2.5"	Enabled	1022/1122
SD7UN3Q-256G	256GB	M.2	Enabled	1022/1122
SD7UB3Q-256G	256GB	2.5"	Enabled	1022/1122
SD7UN3Q-512G	512GB	M.2	Enabled	1022/1122
SD7UB2Q-512G	512GB	2.5"	Enabled	1022/1122
SD7UB2Q-010T	1TB	2.5"	Enabled	1022/1122

**Pack-Out Option:**  
1022 = Bulk  
1122 = Singulated 10-Pack