



SanDisk® X110 SSD (Solid State Drive)

Introducing SATA 6 Gb/s high performance, reliable, and low power for an enhanced user experience.



SanDisk® X110 SSDs, based on 19nm MLC NAND flash, bring all the benefits and speed of high performance SSDs to ultrabooks, notebooks and desktops at a competitive price.

The storage device can be used as either a standalone or as a caching solution in a dual drive configuration. In both situations, X110 SSDs provide superior performance over the standalone hard disk drive, meeting Intel® Ultrabook® performance requirements. The SanDisk X110 SSD is offered in a 2.5" and customized form factors, taking full advantage of the SATA 6 Gb/s high performance interface.

High Performance. Enhanced User Experience.

SanDisk X110 SSDs have high read/write performance to support daily computing uses that require enhanced multitasking capabilities. Uses like email, Web browsing, music, and virus scans. Without the ability to handle a high mixture of sequential and random read/write patterns, user experience can be significantly impacted.

The X110 SSDs address these issues by implementing a tiered caching technology — a hierarchical three storage layer architecture that directs data pattern streams to one of the three most suitable layers: volatile cache (DDR DRAM), nCache™ (a non-volatile flash write cache), or mass storage (MLC NAND flash). The data pattern streams are then monitored and rearranged by a proprietary innovative multi-streaming feature that reduces fragmentation and improves locality of data. This enables fast user response, no stuttering, better multitasking capabilities, and significantly improves the drive's long-term data endurance², ensuring an enhanced user experience.

Low power consumption. Longer battery life.

SanDisk X110 SSDs employ a low power architecture that significantly reduces the power consumed by devices in low power modes, allowing users to extend the charge cycles of the battery, which is highly desired by mobility applications.

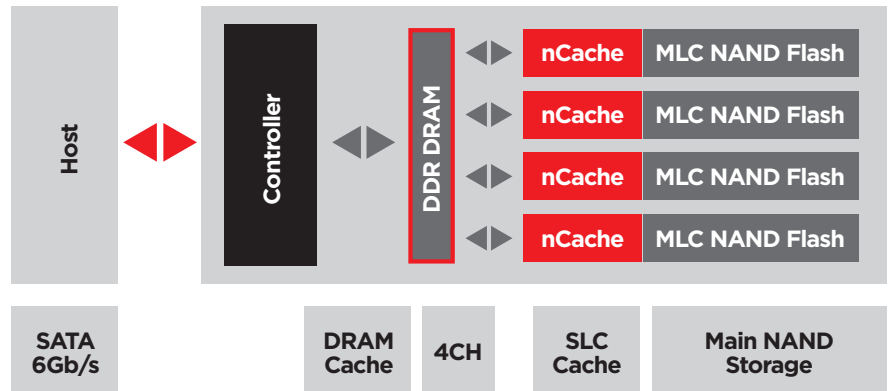
SanDisk X110 SSD Benefits:

- SATA revision 3.1 6 Gb/s compliant; backwards compliant to SATA revision 2.0 3 Gb/s & SATA revision 1.0 1.5 Gb/s
- ATA command set ACS-2
- NCQ support up to queue depth = 32
- Support for TRIM
- S.M.A.R.T. feature supported
- Advanced Flash Management:
 - nCache™ - Non-volatile write cache
 - Dynamic and static wear-leveling
 - Bad block management
 - Background garbage collection
- Tiered caching - volatile and nonvolatile cache
- Supports multi stream
- Minimal write amplification
- Support for thermal throttling
- Windows® 8 WHCK Certified

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www.sandisk.com/ssd



Specifications subject to change without notice.

¹ 1GB = 1,000,000,000 bytes. Actual user capacity less.

² Approximations based on an industry metric, introduced by SanDisk, that quantifies how much data can be written to a SSD in its lifespan expressed in terabytes written (TBW). Data is written using typical PC transfer size, written at a constant rate over the life of the SSD and data is retained for at least 1 year upon TBW exhaustion. Based on SanDisk internal measurements, a typical client PC user writes 4 GB/day.

³ Based on internal testing; performance may vary depending upon drive capacity, host device, OS and application. 1 megabyte (MB) = 1 million bytes.

⁴ Typical power with DIPM enabled.

⁵ Typical power for 256GB product.

⁶ Average (typical) power while running MobileMarkTM 2007 @ 3.3V. X110 is configured with Device Initiated Power Management (DIPM) enabled and Host Initiated Power Management (HIPM) enabled.

⁷ MTBF - mean time Between failures based on part stress analysis.

SanDisk® SSD - A Trusted Partner:

New usage models and innovative mobile computing designs are attracting key players in the ecosystem to SATA and X110 SSD. Ecosystem partners include chipset vendors, OS vendors, and box manufacturers (ODMs). This ecosystem enablement leads to OEM adoption. SanDisk is consistently listening to market needs from OEMs, partners, application developers, and other relevant ecosystem stakeholders. This ensures that our offerings are optimally aligned to market needs and fast-moving requirements.

SanDisk® X110 SSD Product Features and Specifications

Specifications are preliminary and subject to change

Device		SanDisk X110 SSD			
Form Factor		2.5" Cased, mSATA			
Interface		SATA Revision 3.1 (6 Gb/s) backward compatible to SATA Revision 2.0 (3 Gb/s) and SATA Revision 1.0 (1.5 Gb/s)			
Capacity (GB)¹		32, 64, 128, 256			
Performance³	32GB	64GB	128GB	256GB	
Seq. Read (MB/s)	460	495	515	515	
Seq. Write (MB/s)	80	155	310	465	
Ran. Read 4k IOPS	54.5k	77k	81k	81k	
Ran Write 4k IOPS	18.5k	36k	47k	51.5k	
Endurance² TBW	40<	80<	80<	80<	
MTBF⁷		Up to 2,000,000 hours			
Size		29.85mm x 50.80mm x 3.6mm (mSATA)			
Weight		32, 64GB: 6.0±0.5gr 128, 256GB: 7.0±0.5gr			
Power Consumption					
DC Supply		3.3V ± 5%			
Slumber Power Mode (Typical)⁴		80mW			
DevSlp Power Mode (Typical)⁵		4.8mW			
Average Active Power (Typical)⁶		85mw			
Other					
Operating Temperatures		0°C to 70°C			
Storage Temperatures		-55°C to 85°C			
Acoustic Noise		0dB			
Certifications		FCC, CE, UL, ULc, TUV, KC, BSMI, ACA, VCCI			

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