SiliconMotion

SM2259XT2

High Performace SATA 6Gb/s SSD Controller with NANDXtend® Technology

The DRAM-less SM2259XT2 features best-in-class performance and low power consumption for mainstream SATA SSDs. Enabling 2.5", 1.8", slim SATA(MO-297), mSATA(MO-300) and M.2 form factor SSDs.

The DRAM-less SM2259XT2 is the 2-channel high-performance SATA 6Gb/s SSD controller ideally suited for cost-effective, small form factor and low power SSDs for notebooks, desktops, personal computers, and a growing number of client SSD applications. Its ultra-low power consumption effectively extends battery life and optimizes user experience. The SM2259XT2 fully supports high-speed Toggle and ONFi NAND flash up to 800 MT/s per channel, enabling the realization of the fast, reliable, and feature-wise SSDs on the market.

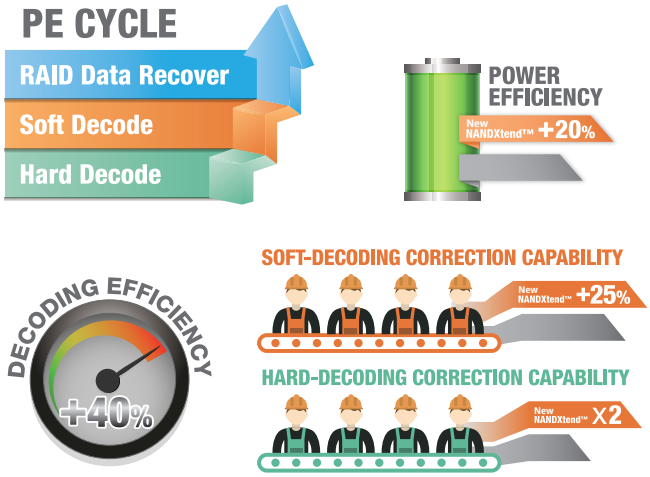
Leveraging Silicon Motion's proprietary NANDXtend® error-correcting code (ECC) technology, the SM2259XT2 provides comprehensive data protection and enhances the endurance and retention of TLC and QLC NAND, achieving longer durability for SSDs.

KEY FEATURES

- **Host Interface**
  - Supports SATA interface rate of 6Gb/s
  - Compliant with Industrial Standard SATA Revision 3.1
  - Compliant with Industrial Standard ATA/ATAPI-8 and ACS-3 command
- **Optimal Sustained Performance**
  - Direct-to-TLC and SLC Caching
- **NANDXtend® ECC Technology**
  - Performance-optimized LDPC engine
  - Embedded programmable RAID
  - Supports all QLC and TLC NAND
- **Datapath Protection**
  - End to end data protection
  - SRAM ECC

NANDXtend® Technology

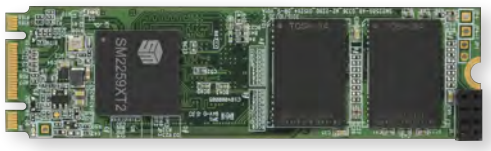
With Silicon Motion's proprietary NANDXtend® ECC technology, SM2259XT2 provides comprehensive data integrity and upgrades correction capability for the latest 3D TLC and QLC NAND. NANDXtend® ECC technology consists of LDPC hard and soft decoding as well as RAID protection that together enhances the P/E cycles of 3D NAND - extending the SSD lifespan and ensuring data integrity. The new generation NANDXtend® includes a 1KB LDPC engine with an advanced firmware algorithm that delivers higher power efficiency, decoding efficiency, and correction capability to maintain consistent data throughout and provide a better user experience, even as error bits increase throughout the product lifecycle of NAND Flash.



SPECIFICATIONS

	SM2259XT2
Host Interface	SATA 6Gb/s
ATA Protocol	ATA-8
NAND Flash Channel	2
CE/Channel	8
Performance	- Sequential Read 560 MB/s - Sequential Write 520 MB/s - Random Read: 75K IOPs - Random Write: 75K IOPs
DRAM Interface	DRAM-less
NAND Flash Support	Supports ONFI 4.0 and Toggle 2.0 interface
Package	144-ball TFBGA (8x8 mm)

2.5” PCB with SM2259XT2



M.2 PCB with SM2259XT2

SiliconMotion

www.siliconmotion.com