



SM2268XT

High Performance with Low Power PCIe Gen4 x4 NVMe 2.0 SSD Controller

The new-generation SM2268XT provides an optimal balance of performance, power efficiency, and reliability making it an ideal solution for meeting the customer need for faster data access and higher throughput.

Ultra-High Performance

By implementing the newer System Architecture and Host Memory Buffer (HMB) function, the SM2268XT controller is optimally designed for DRAM-less SSD applications. The PCIe Gen 4 interface provides 16GT/s x4 lanes bandwidth, coupled with four NAND flash channels of up to 3,200 MT/s data rate per channel. The new SM2268XT delivers sequential read speeds of 7,400 MB/s which is 45% faster than previous one. Random read/write speeds are also improved by 33% to 1,200K IOPs for accelerated operations.

NANDXtend® ECC Technology with Innovative 4K+LDPC Engine

Benefited from the innovative 4K+ LDPC error-correction technologies, the SM2268XT provides stronger error recovery capability, enhances comprehensive data integrity and upgrades correction capability for next-generation 2xx-layer 3D TLC and QLC NAND technology that will enable faster, higher-capacity storage solutions without compromising throughput and latency. The built-in powerful RAID engine offers the flexibility for different RAID scheme based on the NAND Flash requirements. Thanks to the high efficiency, seamless cooperation between LDPC code, RAID engine, and firmware algorithms, the SM2268XT maximizes the NAND life span for SSD applications.

Intelligent Power Management

The proprietary built-in smart clock gating mechanism can safely and automatically power down the area of unused blocks, achieving the most effective power consumption on the fly. Fully compliant with PC, PCIe, and NVMe standards, the SM2268XT can operate in multiple power states based on host command requests and power consumption considerations. The controller's capability of managing power transitions between different power states is widely tested and verified in a variety of PC platforms.

KEY FEATURES

- **High Performance**
 - PCIe Gen4 x4
 - 4 NAND channels up to 3,200 MT/s
- **Best-in-class Low Power**
 - PS3 <5mW
 - PS4 (L1.2) <1.8mW
- **Data Integrity and Reliability**
 - HMB data path protection
 - SRAM ECC & CRC parity
- **NANDXtend® ECC Technology**
 - Innovative 4K+ LDPC engine
 - Embedded programmable RAID

SPECIFICATIONS

SM2268XT

Host Interface	PCIe Gen4 x4
PCIe Protocol	NVMe 2.0
Processor	Dual-core ARM Cortex R8 CPU
NAND Flash Channel	4
Channel/CE	4CH/16CE
Max Performance	Sequential Read: 7,400 MB/s Sequential Write: 6,500 MB/s Random Read: 1,200K IOPS Random Write: 1,200K IOPS
NAND Flash Support	ONFI 5.0 and Toggle 3.0 NV-DDR3/NV-LPDDR4 up to 3,200 MT/s
Security	Real time full drive encryption with AES 128/256 TCG Opal 2.0 compliant Hardware SHA 384 and TRNG Secure Boot for FW authentication
Package	247-balls FCCSP (7.7mm x 11mm)