



# SM2271 Solution

## Enabling the Highest Capacity and Performance Enterprise SATA SSDs

The SM2271 is a high-performance, 8-channel enterprise SATA controller enabling up to 16TB SSDs with the latest 3D TLC and QLC Flash technology. It fully maximizes the SATA interface supporting 540 MB/s Sequential Reads and 520 MB/s Sequential Writes. Accelerating time to market for lower cost SSDs, the solution includes both ASIC and turnkey firmware.

Ideal for replacing lower performance HDDs and proving a more consistent latency than client SSDs, the SM2271 combines enterprise-level endurance, capacity, and performance for read intensive workloads while leveraging existing SATA storage infrastructure for improved TCO.

The SM2271 ensures reliable operation and long lifespan of SSDs with the latest 3D NAND and QLC NAND Flash technology. Data integrity is safeguarded by end-to-end data path protection and advanced data handling firmware/software. Silicon Motion's 6<sup>th</sup> generation proprietary NANDXtend® technology integrating error recovery with a machine learning algorithm prolongs data retention even when SSD operates at high temperature.

In addition, the SM2271 solution delivers the highest level of Data security by providing AES 256-bit encryption, secure boot, and full compliance with the Trusted Computing Group (TCG) Opal specification.

The SM2271 provides an optimum solution, enabling the highest capacity and performance enterprise SATA SSD supporting the latest technology from major NAND Flash manufacturers, and meeting the most demanding enterprise requirements of data center applications.

### KEY FEATURES

- **Highest Capacity and Performance**

- Support latest 3D TLC/QLC up to 16TB
- Consistent IOPs and predictable QOS latency

- **Superior Data Integrity**

- End-to-end data protection SRAM/DRAM ECC
- Data retention extension with NANDXtend

- **Comprehensive Security**

- Self-encrypting drive (SED) with AES-256 and TCG Opal
- Secure Boot Support

- **Turnkey Solution**

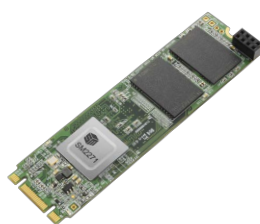
- SSD reference design
- Full Turnkey FW Available



## Controller IC Turnkey Solution



NAND Controller ASIC



Design Reference Kit



SMI Firmware



Time to Market

## SPECIFICATIONS

### SM2271

Host Interface	SATA 6Gb/s (compatible with SATA 3Gb/s)
Processor	ARM® Dual Core Cortex® R5 (550MHz)
Flash Controller	<ul style="list-style-type: none"><li>- 8CH/8CE for total 64CE; 800MT/s</li><li>- 3D TLC/QLC</li><li>- Up to 16TB</li></ul>
DRAM Controller	<ul style="list-style-type: none"><li>- 16-bit data width</li><li>- DDR3/3L/4-2133 and LPDDR3-1600</li><li>- Max addressing to 16GB with Banking</li></ul>
Data Integrity and Reliability	<ul style="list-style-type: none"><li>- 2KB LDPC</li><li>- 256KB Programmable RAID Buffers</li><li>- E2E DPP (512B+2B CRC)</li><li>- DRAM ECC (SECCDED/32B+2B)</li><li>- SRAM ECC (SECCDED/32b+7b)</li></ul>
Security	<ul style="list-style-type: none"><li>- Secure Boot</li><li>- AES-256</li><li>- TCG Opal Support</li></ul>
Performance U.2	<ul style="list-style-type: none"><li>- Sequential Read 540 MB/s</li><li>- Sequential Write 520 MB/s</li><li>- 4KB Random Read: 100K IOPs</li><li>- 4KB Random Write: 30K IOPs</li></ul>
Temperature	<ul style="list-style-type: none"><li>- 0 to 70°C (Commercial)</li><li>- -40 to 85°C (Industrial)</li></ul>
Package	FCBGA-529 (16mm x 16mm, .65mm pitch)

## Memberships



## For More Product Briefs

[8 Channel Inspired by OCP Data Center NVMe Controller\\_SM8208](#)

[2nd Generation 16 Channel High Performance NVMe Controller\\_SM8266](#)

## Application Note

[SM8266\\_NVMe SSD Controller Enables Open Channel SSD Designs For Data Center Applications](#)



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