



SM2321

Best-in-class USB 3.2 Gen2 Portable SSD Controller Solution

The SM2321 is a single-chip solution equipped with USB 3.2 Gen2 x 1 interface with 10Gb/s bandwidth, with the fully integrated hardware and software solution which features two NAND channels with 16 CEs, providing for high-speed data transfers between a pen drive and a host laptop computer or notebook. Because it can interface directly to the host without the need for an external bridge chip, it enables manufacturers of pen drives to reduce system size and lower their Bill-Of-Materials (BOM) cost.

The SM2321 delivers peak sequential read and write transfer speeds of 1,050MB/s and 1,000MB/s, with density up to 2TB, while enabling new SSD designs to take full advantage of high-density NAND Flash, including the latest 3D TLC/QLC NAND.

Leveraging Silicon Motion's proprietary NANDXtend® error-correcting code (ECC) technology, the SM2321 enhances the endurance and data retention of 3D NAND, and provides comprehensive protection of data integrity through SRAM ECC and End-to-End data path protection.

In addition, the SM2321 delivers the highest level of data security by providing AES 256-bit encryption, Fingerprint Secure, and full compliance with the Trusted Computing Group (TCG) Opal specification.

The highly integrated SM2321 solution can significantly accelerate customer's development schedule and reduce overall cost at a system level.

KEY FEATURES

- **Ultra High Performance**
 - Sequential Read: up to 1,050 MB/s
 - Sequential Write: up to 1,000 MB/s
- **Low power consumption**
 - Supports Flash devices operating at 1.8V/1.2V
 - Controller core operates from low-power 0.9V supply
- **Broad host device compatibility**
 - Compliant with USB 3.2/2.0 and Type-C spec Release 1.3
 - Supports Type-C CC Logic
- **Data Integrity and Security**
 - Supports Fingerprint Secure
 - Self-encrypting drive (SED) with AES 128/256 and TCG Opal
 - Data retention extension with NANDXtend®

SPECIFICATIONS

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Host Interface	USB 3.2 Gen 2x1
NAND Flash Channel	2
CE/Channel	8CE/16CE
NAND Flash Support	3D TLC/QLC Toggle/ONFI DDR NAND Flash VCCQ 1.8V/1.2V
Max Capacity	2TB
Max Performance	Sequential Read 1,050 MB/s Sequential Write 1,000 MB/s
Security	Real time full drive encryption with AES 128/256 TCG Opal 2.0 compliant Hardware SHA 256 and TRNG Supports Fingerprint Secure
Operating System Support	Windows 10/Windows 8/Windows 7 Mac OS 10.x Linux kernel 2.4
Package	TFBGA (9mm x 9mm) Lead-free and RoHS compliant