SiliconMotion

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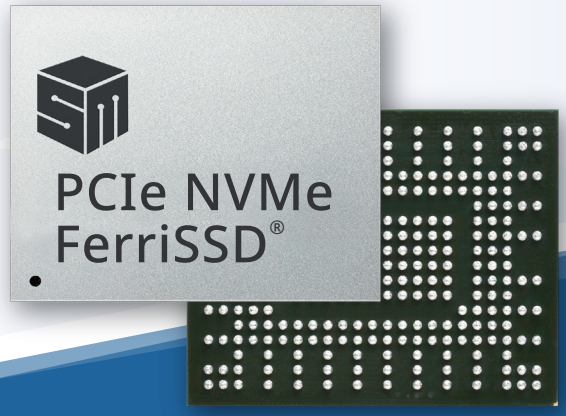
PCIe NVMe FerriSSD®

Single-Chip SSD



PCIe Gen4/NVMe Single-Chip SSD Bx Series

The FerriSSD® is designed optimally for a wide range of embedded applications which requires faster access speed, small flexible form factor, and reliable PCIe/NVMe storage. By combining industry proven controller technology, NAND flash and passive components into a small single BGA package, FerriSSD® simplified design efforts, reduces time-to-market white protecting from NAND technology migration concerns.

The new generation FerriSSD Bx series is armed with the latest PCIe Gen 4 x4 and 3D NAND Flash and leverages Silicon Motion's advanced technologies, including IntelligentScan™, DataRefresh™, NANDXtend® ECC engine, and end-to-end data path protection to provide unsurpassed data integrity in a non-volatile storage device. The FerriSSD stands for the ultimate storage solution for embedded computing devices such as navigation, thin-client, POS, MFP, telecommunications, factory automation, as well as varieties of server applications.

Key Features

Dual ARM Cortex R8 CPU

Data Reliability

- Performance-optimized LDPC engine provides maximum error correction capability
- End-to-end data path protection with CRC parity
- SRAM ECC error handing and prevention
- RAID engine provides multi-page protection for NAND flash data

Robust Data Protection

- Advanced system level protection against unstable power supply
- Enterprise level LDPC with meta data provides high reliability detection and correction
- StaticDataRefresh and EarlyRetirement technologies ensure data integrity and prevent read disturbance
- Early weak block retirement feature
- PowerShield and DataPhoenix technologies support power-down data protection and recovery

Data Integrity and Security

- Built-in AES-128/256 Encryption
- TCG Opal v2.01 compliant
- Built-in hardware SHA384 and True Random Number Generator (TRNG)

SSD Status Monitoring

- Supports SMART/Telemetry of Get Log Page command to monitor SSD Status
- Supports proprietary FerriSSD IntelligentLog for efficient event tracing

Key Features

Advanced Global Wear Leveling

- Fully utilizes each cell to even program/erase count across management units/die(s)
- Maximizes product lifespan with minimal wear leveling and write amplification overhead

Digitally signed firmware with eFuse for enhanced security (option)

Power and Thermal Management

- Supports Host Controlled Thermal Management (HCTM) to configure thermal throttling temperatures
- Supports Device Self-Thermal Management
- Supports different power states (PS0, PS1, PS2, PS3, PS4)

Easy-to-Use

- The Plug & Plug device only requires format/fdisk prior to use

Why PCIe NVMe FerriSSD®

- Firmware and hardware customization available
- Intelligent data protection
- Scalable proven MP setup
- Security: Hardware encryption for user data and digital signature for secured boot
- 100% screened for low DPPM
- Design service to MP support

Specifications

	SM681GX*-Bx
Host Interface	PCIe Gen4 x4 Lane
PCIe Protocal	NVMe 2.0 with NVMe MI Appendix C Specification
Density	120~960GB 3D TLC ; 32~320GB 3D SLCMode
HMB support	DRAM-less with optional HMB
Form Factor	20mm x 16mm BGA
Green Product	Compliant to RoHS (Restriction to Hazardous Substances Directive) 2.0 / Halogen Free
Temperature Support	Commercial (0°C to + 70°C) Industrial (-40°C to + 85°C) Automotive (-40°C to + 105°C)