SiliconMotion

SM8266

High Performance PCIe Gen4 x4 NVMe Enterprise SSD controller for Data Center and Storage

The SM8266 is a high performance PCIe NVMe Gen4 x4 SSD 16 Channel controller enabling customer differentiated Enterprise SSD solutions focused on Performance, Application Acceleration, Reliability and SKU Flexibility. With a complete development platform including a turnkey Firmware stack and a hardware reference design kit, the SM8266 accelerates development time-to-market for Data Center and Enterprise storage SSDs.

High Performance with Consistent and Low Latency

The SM8266 maximizes the bandwidth of the PCIe Gen4 x4 Host interface with > 6.5GB/s sequential read and 900K sustained Random Read IOPs. In addition, the SM8266 provides physical and logical isolation in purpose built hardware and firmware providing consistent, low latency QOS domains.

Enterprise Reliability

Equipped with Silicon Motion's proprietary NANDXtend® ECC technology, End-to-End data path protection, and internal memory error detection/correction capability, the SM8266 ensures data integrity, reliability supporting UBER < sector 10^17 bits read and retention at PCIe Gen4 performance. Providing support for Power Loss Protection (PLP) safeguards against data corruption in the event of power loss or system failure.

High Capacity SSD with SKU Flexibility

Supporting user capacities up to 15.36 TB, the SM8266 turnkey FW stack is performance tuned for a wide range of over provisioning (OP). This allows for SKU flexibility in supporting read intensive or mixed workload applications maximizing Random Writes > 220K IOPs.

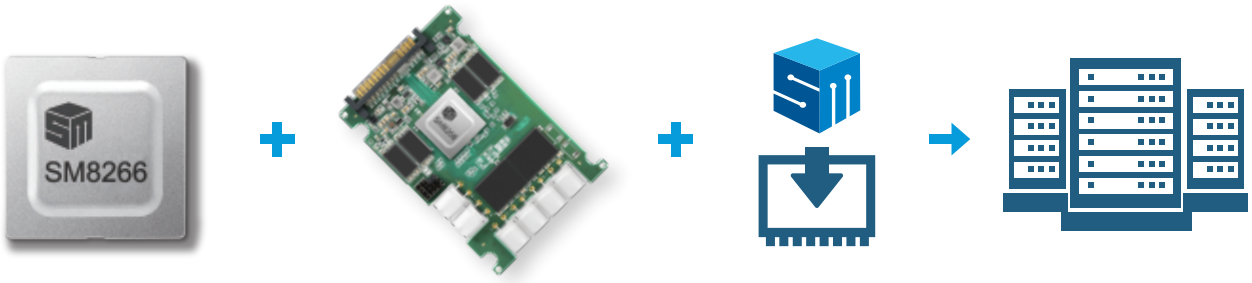
Application Acceleration SSDs

The SM8266 is provided with a robust NVMe Firmware. Alternatively, customer collaboration models are available focused on media interface firmware and user space drivers enabling the abstraction of FTL to the application layer creating application optimizations for removing redundant mapping, improving performance while reducing write amplification.

KEY FEATURES

- High Performance PCIe Gen4 x4 & NVMe 1.4 compliance
- Turnkey Stacks enabling NVMe, Open Channel and ZNS SSDs
- Supporting up to 16TB of physical NAND capacity
- Low and Consistent Latency enabled by physical and logical isolation
- Data security with AES 256bit hardware supporting SED, Secure Boot, TCG Opal 2.0

SM8266 Turnkey Enterprise SSD Solution



NAND Controller ASIC | HW Reference Design Kit | SMI Firmware | Time to Market

SPECIFICATIONS

	SM8266
Host Interface / Protocol	PCIe Gen4 x4, NVMe 1.4
NAND Interface	ONFI 3.0/4.0 or Toggle DDR 2.0/3.0 interface @1.8V/1.2V Flash I/O 16 Channels up to 1200MT/s, 8 CEs per CH
DRAM Interface	Dual 32 bit, DDR3-2133, DDR3L-1866, LPDDR3-2133, and DDR4-2400
Max Performance	Sequential Read: 6,500 MB/s Sequential Write: 3,900 MB/s 4K Random Read: 900K IOPS 4K Random Write: 220K IOPS
Latency QD1	4K Random Read: 73 us 4K Random Write: 15 us
Temperature Support	c-temp: 0°C to 70°C i-temp: -40°C to 85°C
Security	TCG OPAL 2.0, AES 256, Secure boot
NVMe Features	128 NVMe Queues, HMB / CMB, 32 Multi-Namespace, SGL, Device Self Test, Directives, Sanitize (Block Erase, Overwrite, or Crypto Erase), Vector Commands

Memberships

OPEN COMMUNITY

SNIA

For More Product Briefs

- 8 Channel Inspired by OCP Data Center NVMe Controller_SM8208
- Enabling the Highest Capacity SATA Data Center Storage_SM2271

Application Note

- SM8266_NVMe SSD Controller Enables Open Channel SSD Designs For Data Center Applications

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