



SM2264XT-AT

PCIe Gen4 x4 Automotive SSD Controller with Multi-application, High-end Automotive Architecture for Future Automotive Applications

SM2264XT-AT is Silicon Motion's latest automotive-grade PCIe NVMe SSD controller, designed to provide exceptional performance and reliability for automotive applications. With state-of-the-art PCIe Gen4 technology and innovative hardware features, the SM2264XT-AT sets a new standard and delivers a promising and robust solution for future automotive storage needs.

Superior Performance

The SM2264XT-AT is based on 12nm process technology and equipped with quad-core Arm® Cortex®-R8 processor, supporting four lanes of 16Gb/s PCIe data flow. Additionally, it features eight NAND channels with up to 1,600 MT/s per channel. The advanced architecture ensures superior performance, ultra-high QoS, low power consumption, rigorous data protection and reliability, making it an ideal choice for PCIe Gen4 NVMe Automotive SSDs.

Built-in SR-IOV Capability for Automotive Storage

The SM2264XT-AT comes with built-in SR-IOV capability, supporting up to eight virtual machines (VMs). This feature along with multiple namespaces, capacity management, shared namespace and reservation features empowers enhanced software functionality and streamlined remote management. With dedicated virtual functions (VFs) for each VM, multiple VMs can access the SSD with low latency, maximizing the utilization of SSD resources. Moreover, this capability reduces host software complexity and CPU power consumption. The built-in SR-IOV feature makes the SM2264XT-AT an excellent fit for future vehicles that require implementation within a centralized architecture.

Automotive Quality Assurance

To meet the stringent requirements of the automotive industry, the SM2264XT-AT undergoes rigorous testing and adheres to various automotive processes and certifications, including:

- AEC-Q100 compliance
- ISO 26262 functional safety standards (ASIL-B)
- ISO 21434 certification for Cyber Security
- IATF 16949 certification for supplier chain compliance
- ASPICE compliance SW development process
- Automotive Service Packaging (ASP)

Silicon Motion's commitment to Automotive Process/supply longevity ensures product lifetime longevity, reducing additional qualification costs and providing customers with reliable and durable solutions.

KEY FEATURES

- **High Performance**
 - PCIe Gen4 x4 interface
 - Eight NAND channels up to 1,600 MT/s for fast data transfer
 - **Built-in SR-IOV Capability**
 - Supports up to eight virtual functions for enhanced software functionality and resource utilization
 - Multiple namespaces
 - Capacity management
 - Shared namespace
 - Reservation
- **High Data Integrity and Security**
 - Self-encrypting drive (SED) with AES 128/256 and TCG Opal for data security
 - Data retention extension with 7th generation NANDXtend®
 - **Full Automotive Qualification**
 - AEC-Q100 Grades 2/3 compliance
 - Compliance with the ISO26262 ASIL-B functional safety standards
 - ISO21434 Cyber Security compliance

SPECIFICATIONS

SM2264XT-AT	
Host Interface	PCIe Gen4 x4
PCIe Protocol	NVMe 1.4
Processor	Quad-core Arm® Cortex®-R8 processor
NAND Flash Channel	8
Channel/CE	8CH/64CE
Max Performance	Sequential Read: 7,000 MB/s
	Sequential Write: 6,500 MB/s
	Random Read: 1,000K IOPS
	Random Write: 1,000K IOPS
NAND Flash Support	ONFI 4.2/3.0 and Toggle3.0/2.01
	NV-DDR3 up to 1,600 MT/s
Security	Real time full drive encryption with AES 128/256
	TCG Opal 2.01 compliant
	Hardware SHA 256 and TRNG
	Secure boot

In conclusion, the SM2264XT-AT PCIe Gen4 x4 Automotive SSD Controller with its outstanding performance, built-in SR-IOV capability, and full automotive qualification is the ideal choice for high-end automotive applications, providing the reliability and performance required for the vehicles of the future.