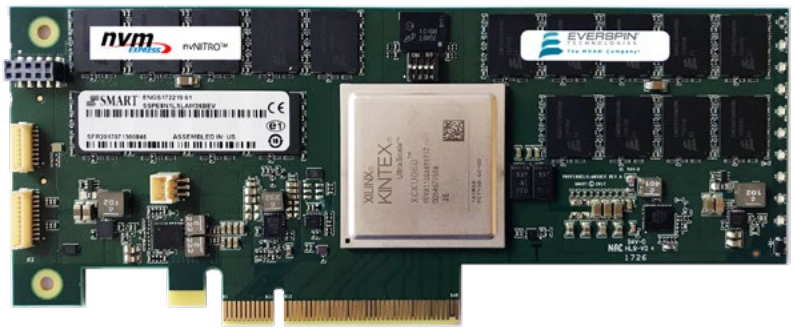
Everspin nvNITRO™ Storage Accelerator

Product Brief

PCIe Card ES1GB-N03

EVERSPIN TECHNOLOGIES
The MRAM Company™



Accelerate your enterprise compute and storage systems with full data integrity on power failure and virtually unlimited endurance using Everspin nvNITRO™ Accelerators

BLAZING FAST PERFORMANCE 1.5 Million+ IOPS and 2 µS Latency
(4K Random Read/Write with End-End latency)

TWO ACCESS MODES NVMe SSD and Direct Access (MMIO)

ST-MRAM Technology

Power Fail Safe
No batteries or SuperCaps needed

Unlimited Endurance
Just keeps going 1,000,000,000 cycles

No Power Cycle Wait
Zero data flush, recovery or charge time

Full Performance
Across entire thermal profile

Highlights

- 1GB storage capacity
- PCIe Gen3 x8, half-height, low profile card
- NVMe 1.2.1 in block mode
- Memory mapped IO (MMIO) in byte mode
- Ultra-low access latency (as low as 2µS)
- Consistent latency (short tail)
- Customer-defined features using own RTL with programmable FPGA
- General purpose accelerator development platform with programmable onboard FPGA, Network SERDES, SATA, SODIMM etc.
- Development license for NVMe core IP

Applications

- Power Fail Safe Data & Metadata Cache/Buffer
- Burst Data Deserializer
- Database and Application Accelerators
- Storage Accelerator For All Flash Storage Array (FSA)
- File System Accelerator (Parallel & Serial)
- Power Fail Safe Software Defined Storage
- Power Fail Safe Software and NVMe RAID
- OLTP Log Cache Acceleration
- Storage Fabric (Network) Accelerators
- Shared Remote Persistent Memory

Key Specifications

Category	Parameter	Specification
	Available Capacity	1GB (ES1GB-N03)
	Component	256Mb Perpendicular ST-MRAM
Performance	Sequential Read / Write	Up to 6,000 MB/sec
	Random 4KB Read	Up to 1,460,000 MB/sec
	Random 4KB Write	Up to 1,500,000 IOPS
	Sustained 4KB Write	Up to 1,500,000 IOPS
	Random 70/30 Read/Write	Up to 1,460,000 IOPS
	Average Latency Read/Write (QD1)	6 µsec (Read), 7 µsec (Write)
	Worst Case Latency Read/Write (QD8)	10 µsec (Read), 11 µsec (Write)
Endurance	Drive Writes per Day	Unlimited Uniform Access
	Data Retention	Power On - Infinite, Power Off - 3 Months at 50°C
	Warranty	5 years
Interface	Host Interface Non-volatile Memory Express (NVMe)	PCIe Gen3 x8 (8GT/s)
	NVMe Support	NVME 1.2.1
	Access Modes	Block Mode (NVMe), Direct Access Mode (MMIO)
	PCIe Card Form Factor	Half Height, Half Length
	Weight	220g
Environment	Power Consumption 70/30 Read/Write	<25W
	Operating Temperature	0 to 55°C ambient with suggested airflow
	Non-operating Temperature	-40°C to +70°C
	Airflow (Min)	300 LFM
OS	Linux, Windows	
Management	Self Monitoring Analysis and Reporting Technology (SMART) Commands	

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