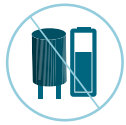




Accelerate your enterprise compute and storage systems with full data integrity on power failure and virtually unlimited endurance using Everspin nvNITRO™ Accelerators

**BLAZING FAST PERFORMANCE** 750K+ IOPS and 7  $\mu$ S Latency  
(4K Random Read/Write with End-End latency)

**TWO ACCESS MODES** NVMe SSD and Direct Access (MMIO)



Power Fail Safe

No Batteries or Super-Caps 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 x4
- U.2 2.5" form factor
- NVMe 1.2.1 in block mode
- Memory mapped IO (MMIO) in byte mode
- Ultra-low access latency ( $\mu$ S)
- Consistent latency (short tail)
- Customer defined features using own RTL with programmable FPGA
- 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 (Preliminary)
	Available Capacity	1GB
	Component	256Mb Perpendicular ST-MRAM
Performance	Sequential Read / Write	Up to 3,000 MB/sec
	Random 4KB Read	Up to 730,000 MB/sec
	Random 4KB Write	Up to 750,000 IOPS
	Sustained 4KB Write	Up to 750,000 IOPS
	Random 70/30 Read/Write	Up to 730,000 IOPS
	Average Latency Read/Write (QD1)	7 $\mu$ sec (Read), 8 $\mu$ sec (Write)
	Worst Case Latency Read/Write (QD8)	11 $\mu$ sec (Read), 12 $\mu$ sec (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 x4 (4GT/s)
	Form Factor	U.2, 2.5 inches
	Access Modes	Block Mode (NVMe), Direct Byte Access (MMIO)
	Weight	125g
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	
Customization	Customers may optionally program onboard FPGA with own RTL to extend features / functions	