OCZ STORAGE SOLUTIONS | A Toshiba Group Company

Z-Drive 6000 PCIe SSD Series

NVMe-based Enterprise SSDs

Overview

OCZ's newest and most advanced addition to its family of enterprise drives is the Z-Drive 6000 SSD series that utilizes PCIe and NVMe interface technologies to dramatically boost the number of random I/O operations per second (IOPS) that a system can process while concurrently improving latency and power efficiency (by eliminating the traditional SATA or SCSI storage stack). The portfolio features 2.5-inch models included within the Z-Drive 6000 SFF Series and the Z-Drive 6300 SFF Series. Each Z-Drive 6000 model utilizes 16-channel NAND flash controller technology and supports the PCIe Gen. 3.0 x4 host interface to deliver high bandwidth, high IOPS, and low latency within user selectable power envelopes. As such, the Z-Drive 6000 delivers a broad range of performance and power requirements supportive of any enterprise ecosystem.

Superior Enterprise-Class Endurance & Reliability

- Power Loss Protection (PLP) completes in-flight write operations to prevent data loss in the event of a sudden power failure
- End-to-end data protection performs data integrity checks at every juncture where data is transmitted, received, processed and stored
- Advanced security with 256-bit AES encryption support
- Hot-swap support enables serviceability without system downtime
- 2 million hours MTBF

Targeted Applications

Z-Drive 6000 SFF Series (read-intensive workloads)

- Online Archiving
- Media Streaming
- Video on Demand (VoD)
- Read Cache and Indexing
- Customer Relationship Management (CRM)
- Decision Support System (DSS)
- Virtual Tape Library (VTL)
- Enterprise Content Management (ECM)

Z-Drive 6300 SFF Series (mixed workloads)

- OnLine Transaction Processing (OLTP)
- Big Data processing and analysis
- Database Mining
- Data Warehousing
- Web 2.0 Servers
- High Performance Computing (HPC)
- Virtual Desktop Infrastructure (VDI) Virtualization
- Microsoft Exchange / Email Servers
- OnLine Analytical Processing (OLAP)
- Professional Media Editing / Post Production
- Cloud Computing

Key Differentiators

- Highest performing MLC-based 2.5" 8639-compliant NVMe SSD with sustained IOPS performance over 700,000 for 4K read blocks, 160,000 for 4K write blocks and consistent, low-latency between 25 and 30 µs
- High density support of up to 3.2TB of usable capacity for Z-Drive 6000 SFF models and up to 6.4TB[1] of usable capacity for both Z-Drive 6300 SFF and AIC models
- Dual-port support[1] allows two data paths to the device to ensure availability of critical data
- Full NVMe 1.1b driver support validated by the University of New Hampshire Interoperability Lab (UNH-IOL) with access to OCZ NVMe drivers for Windows, Linux, and VMWare systems
- Temperature sensing and thermal throttling to maintain consistent operating conditions even under adverse temperature variances
- User selectable power envelopes (15W, 20W, 25W) for temperature efficiency in any ecosystem
- Highly scalable, serviceable and innovative 'flow-through' design for enhanced cooling
- Edge card support[1] in Half-Height/ Half-Length (HHHL) MD2 form factor for blade server platforms and 1U rack-mounted systems

[1] Will be available in a future release

Physical	Z-Drive 6000 SFF Series	Z-Drive 6300 SFF Series
Specific Workload	Read-intensive	Mixed
Form Factor	2.5”, 15mm	2.5”, 15mm
NAND	Toshiba A19nm MLC	Toshiba A19nm eMLC
Interface	NVMe 1.1b Gen 3 X4	NVMe 1.1b Gen 3 X4
Usable Capacities (IDEMA)	800GB / 1600GB / 3200GB	800GB / 1600GB / 3200GB
Physical Capacities	1024GB / 2048GB / 4096GB	1024GB / 2048GB / 4096GB
Serviceabiity	Hot-swappable	Hot-swappable
Endurance	1 DWPD / 5 yrs	3 DWPD / 5 yrs
Warranty	5 years	5 years

Performance - 6000 / 6300	800GB	1600GB	3200GB
Sequential Read 128KB	2200 / 2200 MB/s	2900 / 2900 MB/s	2900 / 2900 MB/s
Sequential Write 128KB	1300 / 1000 MB/s	1900 / 1400 MB/s	1900 / 1400 MB/s
Random Read 4KB	600,000 / 600,000 IOPS	700,000 / 700,00 IOPS	700,000 / 700,000 IOPS
Random Write 4KB	115,000 / 75,000 IOPS	160,000 /120,000 IOPS	160,000 / 120,000 IOPS
Random W:35% / R:65% 4KB	290,000 / 230,000 IOPS	330,000 / 280,000 IOPS	330,000 / 280,000 IOPS
Latency Read (@ QD=1, Aligned, Random 4KB)	80 / 80 µs (typical)	80 / 80 µs (typical)	80 / 80 µs (typical)
Latency Write (@ QD=1, Aligned, Random 4KB)	25 / 30 µs (typical)	25 / 30 µs (typical)	25 / 30 µs (typical)
Endurance (per life, w/4KB aligned random write)	1 / 3 DWPD	1 / 3 DWPD	1 / 3 DWPD

Performance (@ QD=128, aligned, sustained, entropy=100%)
Note: Performance metrics measured with pre-production sample.

Environmental

Power Consumption	Idle: 9.0W (typical) Active: 25W (typical)
Operating Temperature (T_C)	0°C ~ 70°C
Storage Temperature	-45°C ~ 85°C

Supported In-Box NVMe Drivers

Windows, Linux, UNIX, Solaris, VMware, UEFI

QoS Latency

	QD=1	QD=128
Quality of Service (99%)		
Reads[1, 2]	0.10 ms	0.50 ms
Writes[1, 2]	0.05 ms	5.0 ms
Quality of Service (99.99%)		
Reads[1, 2]	0.20 ms	0.65 ms
Writes[1, 2]	0.15 ms	16.0 ms

1. QoS latency measured with pre-production sample.
2. 4KB transfers, 100% random.

Ordering Information	Part Number	IDEMA	Endurance
Z-Drive 6000 Model	ZD6RPL51MT5D0-0800	800GB	1 DWPD min
	ZD6RPL51MT5D0-1600	1600GB	1 DWPD min
	ZD6RPL51MT5E0-3200	3200GB	1 DWPD min
Z-Drive 6300 Model	ZD6RPL51ET5G0-0800	800GB	3 DWPD min
	ZD6RPL51ET5G0-1600	1600GB	3 DWPD min
	ZD6RPL51ET5G0-3200	3200GB	3 DWPD min