DERA
For Data Vitality

DERA NVMe SSD

D7436/ D7456

Highlights

- NVMe 2.0 compliant
- Support U.2 Form Factor
- Data integrity of enterprise class
- 1.6TB - 7.68TB capacity options
- Up to 7100/ 4800 GB/s Seq.R/ W Bandwidth
  Up to 1600K/ 520K Rand.R/ W IOPS
- YMTC 3D TLC NAND
- Native driver support of mainstream operating systems and hypervisors
- Support hot-pluggable
- Power Loss Data Protection
- Support NVMe-MI Management interface
- Telemetry Log Collection
- Firmware Online Update (MCTP)
- UEFI/ Legacy BIOS Bootable
- AES256 and SM2/ 3/ 4 Supported

Applications & Workloads

- Database
- Cloud Computing
- Streaming, CDN
- Big Data Analytics
- AI/ ML/ DL Training
- Software Defined Storage
- Banking & Telecom

Controller and Software-hardware Co-designed

The 3rd Generation ASIC controller of DERA D7436/ 76456 NVMe SSD is developed by DERA with software-hardware co-designed methodology, achieved enterprise-class data integrity, many built-in hardware acceleration units, sophisticated NAND flash management, and performance aggregation in a power-efficient way. Architected with advanced YMTC 3D TLC NAND, D7436/ D7456 deliver reliable and high performance NVMe storage solution.

D7436/ D7456 offer endurance and capacity options of 1.92TB, 3.84TB, 7.68TB at 1 DWPD (5yrs), and 1.6TB, 3.2TB, 6.4TB at 3 DWPD (5yrs).

Enterprise-Class Data Integrity

DERA D7436/ D7456 NVMe SSD realized intense hardware LDPC units, end-to-end protection on the whole data paths against silent errors, adaptive redundancy protection among independent NAND units, and protection against unexpected power-losses, AES256 and SM2/ 3/ 4 Supported, which are forged into an integrated protection for user data. In addition, D7436/ D7456 NVMe SSD constantly sense drive's healthy and react in time accordingly, which is available for host management software to perceive and handle potential drive failure.

High Performance and Low Latency

DERA D7436/ D7456 NVMe SSD achieved high performance with low latency. Sustained random write IOPS up to 520K, random read/ write latency low to 75/ 13us. Optimized FTL algorithm sufficiently anticipate the extreme conditions of highly-intense workloads and workload variations with sophisticated scheduling and controls over front-end I/O demands and FTL backend activities, ensuring a stable performance in all cases. D7436/ D7456 NVMe SSD deliver a performance consistency above 90% in significantly heavy random I/O workloads.

Product Series		D7436			D7456		
Capacity (TB)		1.92	3.84	7.68	1.6	3.2	6.4
Form Factor		U.2					
Host Interface		PCIE 4.0x4					
NVMe Compliance		NVMe 2.0					
NAND		YMTC 3D TLC NAND					
Seq. Read/ Write [1]		Up to 7100/ 4800 MB/s			Up to 7100/ 4800 MB/s		
Ran. Read/ Write [2]		Up to 1600K/ 270K IOPS			Up to 1600K/ 520K IOPS		
Ran. R/ W Latency (μs) [3]		75/ 13					
Power [4]	Max	18.5W					
	Idle	6W					
DWPD (5 years)		1 DWPD			3 DWPD		
Reliability		UBER 10^{-17}					
Temperature		0-75°C					
Feature		On-line Firmware update, Weight Round Robin, NVMe-MI over MCTP, Telemetry Standard Interface, AES256 & SM2/ 3/ 4，E2E Data Protection, TRIM，Variable Sector Size					

[1] 100%LBA, QIO64 (TC=1, QD=64).
[2] 100%LBA, measured with QIO256 (TC=4, QD=64).
[3] 100%LBA, QIO1 (TC=1, QD=1).
[4] 100%LBA, Sequential R/W power consumption is measured with 128KB, QIO64（TC=1，QD=64) which is lower than Random operation. Random R/W measured with 4KB, QIO256 (TC=4, QD=64). Scope trigger over 100ms sample period.
*Performances measured by FIO tool on linux, result may differ according to testing platform.1MB/s = 1,000,000 bytes/ second.

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