eMLC NAND
2.5-Inch PX02SM Series Solid State Drive

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Supports mission critical, enterprise application demand for performance, endurance, and power consumption.

PX02SMF020
PX02SMF040
PX02SMF080
PX02SMB160
PX02SMU020
PX02SMU040
PX02SMU080
PX02SMQ160

At the forefront of leading-edge manufacturing technology, Toshiba offers enterprise-class solid state drives (SSDs) designed to support mission critical, enterprise application demand for performance, endurance, and power consumption.

The PX02SM Series enterprise-class SSD represents tier-0 of the storage architecture enabling organizations to effectively tune the performance, capacity, and reliability of their storage environments. The PX02SM Series is offered in capacities of 200GB, 400GB, 800GB, and 1600GB* and is designed for compatibility and ease of integration into new or existing tier-0 enterprise storage systems, including servers, direct-attached storage, and network-attached storage.

The new 2.5-inch small form factor drives utilize the latest 24 nanometer (nm) enterprise grade multi-level cell (eMLC) NAND flash memory and 12Gb/s Serial Attached SCSI (SAS) interface. The Toshiba PX02SM Series SSD delivers high levels of performance, which outpaces many competing enterprise-class SSDs by achieving random sustained 120K read and 25K write IOPS** and sequential sustained 900MB/s read and 400MB/s*** write throughput. New features found in Toshiba's 2nd generation PX02SM eSSD family are 12G SAS, a thinner 7mm z-height form factor and Toshiba's Quadruple Swing by Code, layered ECC approach for improved error correction capabilities.

- 24nm eMLC NAND process
- 12 Gb/sec SAS Interface & 6 Gb/sec SAS Interface
- Capacities up to 1.6TB*
- Quadruple Swing by Code, Layered ECC Approach for Improved Error Correction
- Power Loss Protection
- Security Models Available

Solid State Drive

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Standard	PX02SMF020	PX02SMF040	PX02SMF080	PX02SMB160
Security	**PX02SMU020**	**PX02SMU040**	**PX02SMU080**	**PX02SMQ160**
SANITIZE Cryptographic Erase				

Series Overview

Drive Capacity	200GB*	400GB*	800GB*	1,600GB*
Physical Capacity	256GB*	512GB*	1,024GB*	2,048GB*
NAND Technology	24nm eMLC			
Drive Interface	SAS 6 Gb/s / 12 GB/s, Dual Port			
Sector Size	512B, 520B, 528B, 4096B, 4104B, 4160B & 4224B			

Performance**

Sequential Read (Sustained)	900 MB/s
Sequential Write (Sustained)	400 MB/s
4KB Random Read (Sustained)	120,000 IOPS
4KB Random Write (Sustained)	30,000 IOPS
Product Life	5 years

Reliability

Endurance – Total Bytes Written	3.7PB****	7.3PB****	14.6PB****	29.2PB****
Mean Time to Failure (MTTF)	2,000,000 hours			
Availability (hrs/day x days/wk)	24 x 7			

Power Requirements

Voltage	5V (+/- 5%), 12V (+/- 5%)
Power Consumption Efficiency	13.4 kIOPS/W
Power Consumption	< 9.0 watts, 12V (+/- 5V)

Physical Size

Dimensions (W) x (D) x (H)	69.85 mm x 100 mm) x 7 mm
Weight	70 g (2.47 oz)

Environmental

Temp - Operating	0° to 55°C
Temp - Non-operating	-40° to 70°C
Vibration - Operating	9.8 m/s² (1G)
Vibration - Non-operating	49 m/s² (5G)
Shock - Operating	9,800 m/s² 1,000G (0.5ms, ½ sine)
Shock - Non-operating	9,800 m/s² 1,000G (0.5ms, ½ sine)
Power Loss Protection	Yes

Limited Warranty

Limited Warranty*****	5 years (from date of purchase)

*One Terabyte (1TB) = 1,000 Gigabytes (GB). One Gigabyte (1GB) means 10^9 = 1,000,000,000 bytes using powers of 10. A computer operating system, however, reports storage capacity using powers of 2 for the definition of 1GB = 2^{30} = 1,073,741,824 bytes, and therefore shows less storage capacity. Available storage capacity will be less if the computer includes one or more pre-installed operating systems, pre-installed software applications, or media content. Actual formatted capacity may vary.

**Testing conditions for these performance numbers stated in the table are as follows: Random Read: Queue depth=32, 4KB-aligned LBA; Random Write: Drive at steady state (preconditioned with 4KB random writes), Queue depth=32, 4KB-aligned LBA.; Please reference product manual for additional for additional information on test setup and configuration.

***64KB, aligned, QD = 32

****4KB random reads and/or writes.

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*****Warranty for the 200GB capacity point is 5 years or 3.7PB total write capacity, whichever occurs first. Warranty for the 400GB capacity point is 5 years or 7.3PB total write capacity, whichever occurs first. Warranty for the 800GB capacity point is 5 years or 14.6PB total write capacity, whichever occurs first. Warranty for the 1600GB capacity point is 5 years or 29.2PB total write capacity, whichever occurs first.

While Toshiba has made every effort at the time of publication to ensure the accuracy of the information provided herein, product specifications, configurations, prices, system/component/options availability are all subject to change without notice. Product image may represent design model.

PX02SM 01/2013

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