

TOSHIBA

Leading Innovation >>>

STORAGE PRODUCTS DIVISION

**INSPIRING
INFORMATION
ABOUT OUR
SSD PRODUCTS**

The Future of Storage

ADVANCED TECHNOLOGY FOR VARIABLE APPLICATIONS: SSD

When we developed flash memory in 1984, our semiconductor data storage device quickly became the international standard. Today, our SSD storage products are designed completely in-house and offer a wide range of benefits for companies and the industry. Since they operate without mechanical motion, they are highly performant, quiet and resistant to shocks and vibrations, all while using significantly less energy in standby mode. By choosing Toshiba SSDs, you're clearly opting for the technology of tomorrow.



Solid State Drive (SSD) is a storage product*¹ that uses semiconductor memory (NAND flash memory)*² as a storage cell.

Since SSDs have no moving parts, they offer the following features:

- Enhanced read/write performance
- Greater resistance to shock and vibration
- Low power consumption
- Lighter weight and greater compactness
- Silent operation

> CONNECTOR (INTERFACE)

SATA and mSATA available.

> DRAM

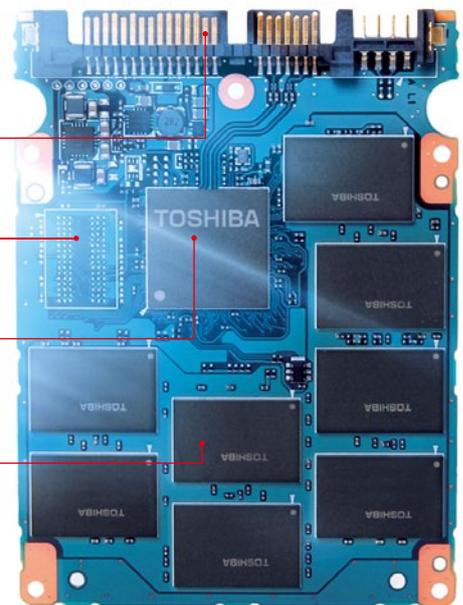
For cache

> CONTROLLER

The controller is the core device of the SSD, enabling fast read/write performance, leveling, and enhanced reliability.

> NAND FLASH MEMORY

Data is stored in a NAND flash memory array, which features Toshiba's MLC and SLC NAND technology to achieve high storage capacities and best performance.



Inside view of a SSD



2.5-inch SATA



mSATA Module



2.5-inch Enterprise

Toshiba SSDs are available in a variety of form factors, interfaces and capacities designed to be embedded in the following applications:

- Biometrics
- Broadcast Recording
- Camcorders
- CNC Devices
- Computer Servers
- CT Scanners
- Desktop PCs
- Electronic Musical Instruments
- HD Studio Camera
- High-Speed Cameras
- Home Theater
- Kiosk Terminals
- Laser Printers
- Medical Measuring Instruments
- Netbook PCs
- Notebook PCs
- Office Equipment
- POS Systems
- Professional Camcorders
- Servers
- Set-Top Boxes
- Studio Recording
- Surveillance Cameras
- Tablets
- Telephone Exchanges
- Televisions
- Video Editing Systems

*¹ Toshiba refers to "storage products" as products that can store data, such as SSD and HDD.

*² NAND flash memory is nonvolatile semiconductor memory.

*³ 2.5-inch case is a compatible size for each type of HDD.

*⁴ One gigabyte (GB) = one billion bytes, accessible capacity may be less and actual capacity depends on the operating environment and formatting.

HIGHEST PERFORMANCE, BEST RELIABILITY: FEATURES OF SSD

➤ CLIENT SSD (cSSD)



➤ 1: CLIENT SSD HG SERIES HIGH PERFORMANCE

- Combines multi-level cell (MLC) NAND flash technology and a high-performance flash controller to achieve improved storage capacity and performance
- Low power consumption of less than 0.1 W at Mobile Mark 2007 workload
- Offers sufficient reliability for general PC use and industrial applications

	No.	Series Model	Capacity **	NAND Type	Interface	Data Transfer Rate (MB/s (MiB/s) Max.)		Shock (Op.)/ 0.5 ms half s/w. (m/s ²)	Case Temp. (Op.) (degree C)	Dimension H/W/D (mm)	Weight (g)	Supply Voltage (V)	Special Features
						Seq. Read	Seq. Write						
2.5-inch Case ³ 9.5 mm H	1	NEW THNSNH060GBST	60GB	19 nm MLC	6 Gb/s SATA	534 {510}	450{430}	14,700	0-70	9.5/69.85/100.0	51	5	
		THNSNH128GBST	128GB				471{450}						
		THNSNH256GBST	256GB				482{460}				55		
		THNSNH512GBST	512GB										
2.5-inch Case ³ 7 mm H	1	NEW THNSNH060GCST	60GB	19 nm MLC	6 Gb/s SATA	534 {510}	450{430}	14,700	0-70	7.0/69.85/100.0	49	5	
		THNSNH128GCST	128GB				471{450}						
		THNSNH256GCST	256GB				482{460}				53		
		THNSNH512GCST	512GB										
mSATA Module	1	NEW THNSNH060GMCT	60GB	19 nm MLC	6 Gb/s mini SATA	534 {510}	450{430}	14,700	0-80	3.95/30.0/50.95	7.5	3.3	
		THNSNH128GMCT	128GB				471{450}						
		THNSNH256GMCT	256GB				7.8						

2.5-inch = 6.4 cm

Tested with ATTO Disk Benchmark 2.47, the series can achieve up to max. 552/501 MB/s read/write speed.

➤ WHAT THE EXPERTS SAY ABOUT TOSHIBA SSDs



"Toshiba once again managed to design and manufacture a great device that can easily go up against similar products in the market regardless of price and in most situations finish first."

"The fastest SSD we have ever seen."



tom's HARDWARE

"8 SSDs tested – Toshiba wins the race."



"Excellent sequential reading and writing performance even at very low queue depths, and outstanding 4K random reading performance at high queue depths."

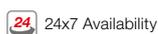


➤ ENTERPRISE SSD (eSSD)

➤ 2: SFF (2.5-INCH) ENTERPRISE SSD SERIES HIGHEST PERFORMANCE AND RELIABILITY

- Highest random access performance and reliable SSD
- Superior power consumption efficiency enables TCO (Total Cost of Ownership) reduction
- Suitable for high-end server and tiered storage systems
- Uses NAND flash memory specifically designed for enterprise applications

	No.	Series Model	Capacity **	NAND Type	Interface	Performance Random Read IOPS	Performance Random Write IOPS	Power Idle (W)	Temp. Op. (degree C)	Sustained Transfer Rate Read/Write (MB/s)	Special Features
2.5-inch (6,4 cm)	2	NEW PX02SMF020	200GB	eMLC	SAS 6/12 Gb/s	120,000	25,000	8.5	0-55	900/400	
		PX02SMF040	400GB								
		PX02SMF080	800GB								
	2	PX02SMB160	1.6TB	eMLC	SAS 6/12 Gb/s	120,000	25,000	8.5	0-55	900/400	
	2	MK1001GRZB	100GB	32 nm SLC	SAS 6G	90,000	17,000	6.5	0-55	510/230	
		MK2001GRZB	200GB								
MK4001GRZB		400GB									



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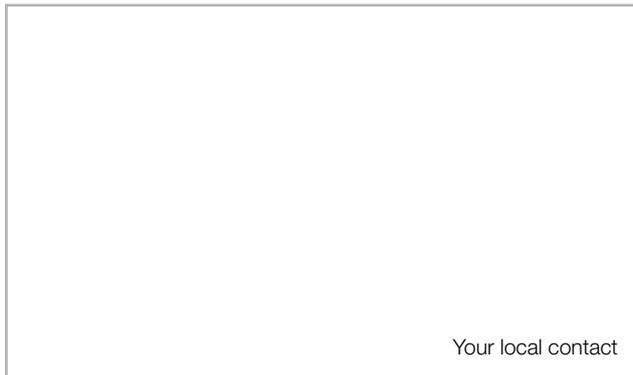
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