TOSHIBA
Leading Innovation

HDD

MG05ACA800x SERIES
ENTERPRISE CAPACITY HDD

Product image may represent a design model.

The MG05ACA Enterprise Capacity HDD provides 8TB[1] of capacity and 7,200 rpm performance, in a robust design engineered for nearline business-critical workloads. The MG05ACA utilizes industry-standard 3.5-inch[2] 26.1 mm height form factor and Advanced Format sector technologies for optimum capacity and data reliability.

This models support Toshiba Persistent Write Cache technology[3] which helps enhance performance with handling data in the event of a sudden loss of power. Equipped with SATA 6.0 Gbit/s[4] interface, the Enterprise Capacity MG05ACA models help save rack space and reduce the footprint and operational burden of business critical servers and storage systems.

The MG05ACA improves sustained transfer rate performance by 12% when compared to the prior MG04ACA series. 512e or 4Kn Advanced Format sector technology models are available. 4Kn sector models (MG05ACAxxxA) offer optimum performance and compatibility with the 4Kn-capable applications and operating environments. 512e sector models (MG05ACAxxxE) provide support for legacy applications and operating environments that require 512 byte sector lengths.

KEY FEATURES

- Industry Standard 3.5-inch 26.1 mm Height Form Factor
- Large 8TB Capacity
- 7,200 rpm Performance
- SATA 6.0 Gbit/s Interface
- MTTF of 2,000,000 hours[5]
- 550 Total TB Transferred per Year Workload Rating[6]
- 4Kn or 512e Advanced Format Sector Technology
- Toshiba Persistent Write Cache Technology for Data-Loss Protection in Sudden Power-Loss Events
- Improved sustained transfer rate (12%) versus MG04ACA Series

APPLICATIONS

- Engineered for Mid-line / Nearline Business Critical Workloads
- Tier 2 Business-Critical Servers and Storage Systems
- Servers Supporting Application Workloads that Benefit from High Capacity per Spindle
- Capacity-Optimized Data Center Storage Systems
- Cloud-scale Storage and Server Infrastructure

MAIN SPECIFICATIONS

Model Number		MG05ACA800A	MG05ACA800E
Interface		SATA (1.5 Gbit/s, 3.0 Gbit/s, 6.0 Gbit/s)	
Formatted Capacity		8 TB	
Performance	Interface Speed	6.0 Gbit/s Max.	
	Rotation Speed	7,200 rpm	
	Average Latency Time	4.17 ms	
	Buffer Size	128 MiB[7]	
	Data Transfer Speed (Sustained)	230 MiB/s	
Logical Data Block Length		4,096 B	Host 512 B
			Disk 4,096B[8]
Supply Voltage	Allowable Voltage	12 V[9] ± 10% / 5 V[10] +6/-5% [10]	
Power Consumption	Random read (4KB 16Q)	11.4 W Max.	
	Active Idle (Idle-A)	6.20 W Typ.	

RELIABILITY

Item	Specification
MTTF	2,000,000 hours
Non-recoverable Error Rate	10 errors per 10^{16} bits read
24 x 7 Operation	Yes
Rated annual Workload (Total TB Transferred per Year, R/W)	550 TB/year

MECHANICAL SPECIFICATIONS

Item	Specification
Height	26.1 mm Max.
Width	101.85 mm Max.
Length	147 mm Max.
Weight	770 g Max.

ENVIRONMENTAL LIMITS

Item		Specification
Ambient temperature	Operating	5 °C to 55 °C
	Non-Operating	- 40 °C to 70 °C
Humidity	Operating	5 % to 90 % R.H.
	Non-Operating	5 % to 95 % R.H.
Shock	Operating	686 m/s^2 { 70 G } (2 ms duration)
	Non-Operating	2,450 m/s^2 { 250 G } (2 ms duration)
Vibration[11]	Operating[12]	7.35 m/s^2 { 0.75 G } (5- 300Hz) 2.45 m/s^2 { 0.25 G } (300- 500Hz) or less
	Non-Operating[13]	49 m/s^2 { 5.0 G } (5- 500 Hz) or less
Altitude	Operating	-305 m to +3,048 m
	Non-Operating	-305 m to +12,192 m

ENVIRONMENTAL FEATURE

Item	Specification
RoHS[14]	Compatible
Halogen free[15]	Yes
Antimony free[15]	Yes

[1] Definition of capacity: Toshiba defines a megabyte (MB) as 1,000,000 bytes, a gigabyte (GB) as 1,000,000,000 bytes and a terabyte (TB) as 1,000,000,000,000 bytes. 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 (including examples of various media files) will vary based on file size, formatting, settings, software and operating system, such as Microsoft Operating System and/or pre-installed software applications, or media content. Actual formatted capacity may vary.
[2] "2.5-inch" and "3.5-inch" mean the form factor of HDDs or SSDs. They do not indicate drive's physical size.
[3] PWC with PLP is a function to handle the write data that the drive reports "Normal completion" to the host but not being stored to hard disk media yet. The write data may be written to the commanded LBA on the hard disk media. The un-written data to hard disk media is stored to Flash memory using back up power by PLP when the power supply to the drive suddenly is shut down. And, after PLP operation, it may be required more time to start up the drive than in case of normal shutdown.
1) PLP does not secure data in the mode of all the power shutdowns. When power supplies other than recommended procedure are intercepted, data might be lost.
2) In the power shutdown before it reports on the Write completion, data not anticipated might be lost.
[4] Read and write speed may vary depending on the host device, read and write conditions, and file size.
[5] MTTF (Mean Time to Failure) is not a guarantee or estimate of product life; it is a statistical value related to mean failure rates for a large number of products which may not accurately reflect actual operation. Actual operating life of the product may be different from the MTTF.
[6] Workload is defined as the amount of data written, read or verified by commands from host system.
[7] A kibibyte (KiB) means 2^{10}, or 1,024 bytes, a mebibyte (MiB) means 2^{20}, or 1,048,576 bytes, and a gibibyte (GiB) means 2^{30}, or 1,073,741,824 bytes.
[8] Read–modify-write is supported.
[9] Input voltages are specified at the HDD connector side, during HDD ready state.
[10] Make sure the value is not less than -0.3V DC (less than -0.6V, 0.1ms) when turning on or off the power.
[11] Vibration applied to the HDD is measured at near the mounting screw hole on the frame as much as possible.
[12] At random seek write/read and default on retry setting with log sweep vibration.
[13] At power-off state after installation
[14] Toshiba Storage & Electronic Devices Solutions Company defines "RoHS-Compatible" products as products that either (i) contain no more than a maximum concentration value of 0.1% by weight in Homogeneous Materials for lead, mercury, hexavalent chromium, polybrominated biphenyls (PBBs) and polybrominated diphenyl ethers (PBDEs) and of 0.01% by weight in Homogeneous Materials for cadmium; or (ii) fall within any of the application exemptions set forth in the Annex to the RoHS Directive (Directive 2011/65/EC of the European Parliament and of the Council of 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment). "Homogeneous Material" means a material of uniform composition that cannot be mechanically disjointed (meaning separated, in principle, by mechanical actions such as unscrewing, cutting, crushing, grinding and/or abrasive processes) into different materials. Examples of "Homogeneous Materials" would be individual types of plastics, ceramics, glass, metals, alloys, paper, board, resins and coatings.
[15] Toshiba Storage & Electronic Devices Solutions Company defines halogen-free and antimony-free SSD and HDD products as those meeting all of the following requirements: (a) containing bromine (Br) and chlorine (Cl) at no more than 900 parts per million (ppm) by weight for each element, and containing bromine and chlorine in an aggregate amount not exceeding 1500 ppm by weight; and (b) containing no more than 1000 ppm antimony (Sb) by weight. For the avoidance of doubt, Halogen-Free/Antimony-Free SSD or HDD products may not be entirely free of bromine, chlorine, or antimony, and may contain other element of the halogen family.

Before creating and producing designs and using, customers must also refer to and comply with the latest versions of all relevant TOSHIBA information and the instructions for the application that Product will be used with or for.