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Leading Innovation

HDD

AL14SXB SERIES

Enterprise Performance HDD

The 12.0 Gbit/s[1] SAS interface AL14SX Series Enterprise Performance HDDs are Toshiba's highest-performing 15,000rpm model line. Engineered for mission critical IT operations, an array of models are available with 512 native (512n), or emulated 512 (512e) or 4K native sector length technologies for optimum application and operating system compatibility. Toshiba's Persistent Write Cache technology protects against data loss in the event of unexpected power loss, and helps maintain optimum data reliability for high-duty cycle Mission Critical environments.

Product image may represent a design model.

KEY FEATURES

- 900, 600 and 300GB[2] Capacity Models
- Space Efficient, Power Saving 2.5-inch[3] Form Factor
- 12.0 Gbit/s SAS Interface for Better Performance
- 15,000 rpm Performance
- Industry Leading Low Latency (2.0ms)
- 24/7 Mission Critical Workload Performance and Data Reliability
- 512n sector length support in all capacities for optimum legacy application compatibility
- Toshiba Persistent Write Cache Technology
- Sanitize Instant Erase (SIE[4]) Option

APPLICATIONS

- Tier 1 Mission-Critical Servers and RAID Storage
- Servers hosting transaction-based applications
- Rack-Optimized Data Centers
- Tiered Mission-Critical storage and Hybrid Arrays
- High-performance computing
- Mission-Critical Server Boot and Logging

SPECIFICATIONS

Model numbers			AL14SXB90EA AL14SXB90EE AL14SXB90EN	AL14SXB60EA AL14SXB60EE AL14SXB60EN	AL14SXB30EA AL14SXB30EE AL14SXB30EN
Interface			SAS-3.0 (12.0 Gbit/s , 6.0 Gbit/s , 3.0 Gbit/s , 1.5 Gbit/s)		
Formatted Capacity			900 GB	600 GB	300 GB
Performance	Interface Speed		12.0 Gbit/s Max		
	Rotation Speed		15,000 rpm		
	Average Latency Time		2.0ms		
	Buffer Size		128 MiB[5]		
	Data Transfer Speed (Sustained, Variable with zone)	4Kn / 512e	290 MiB/s		
		512n	259 MiB/s		
Logical Data Block Length	AL14SXB***A (fixed length)		4,096 B , 4,160 B , 4,224 B		
	AL14SXB***E (emulation)		HOST: 512 B, DISK: 4,096 B HOST: 520 B, DISK: 4,160 B HOST: 528 B, DISK: 4,224 B		
	AL14SXB***N (fixed length)		512 B , 520 B , 524 B , 528 B		
Supply Voltage	Allowable Voltage		12 V[6] ± 5 % / 5 V[6] ± 5%[7]		
Power Consumption[8]	Write / Read		9.0 W Max		
	Active Idle		5.6 W Typ.		
Acoustics (Sound Power)			33 dB Typ.		

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MECHANICAL SPECIFICATIONS

Item	AL14SXB90 A/E/N , AL14SXB60 A/E/N , AL14SXB30 A/E/N
Width	70.10 mm Max
Height	15.00 mm Max
Length	100.45 mm Max
Weight	230 g Max

ENVIRONMENTAL LIMITS

Item		Specification
Temperature	Operating	5 °C to 55 °C
	Non-Operating	- 40 °C to 70 °C
Humidity	Operating	5 % to 95 % R.H. (No condensation)
	Non-Operating	5 % to 95 % R.H. (No condensation)
Shock	Operating	980 m/s^2 { 100 G } / 2 ms duration
	Non-Operating	3,920 m/s^2 { 400 G } / 2 ms duration
Vibration[9]	Operating[10]	9.8 m/s^2 { 1 G } (20 to 300 Hz) or less
	Non-Operating[11]	49 m/s^2 { 5 G } (20 to 300 Hz) or less
Altitude	Operating	- 305 m to 3,048 m
	Non-Operating	- 305 m to 12,192 m

RELIABILITY

Item	Specification
MTTF[12]	2,000,000 hours
Non-recoverable Error Rate	10 error per 10^{17} bits read
Load / Unload	600,000 times
Availability	24 hours/day, 7 days/week

[1] Read and write speed may vary depending on the host device, read and write conditions, and file size.
[2] 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.
[3] "2.5-inch" and "3.5-inch" mean the form factor of HDDs or SSDs. They do not indicate drive's physical size.
[4] Sanitize Instant Erase. SIE is a function to invalidate the data recorded on the magnetic disks at a blink.
[5] 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.
[6] Input voltages are specified at the HDD connector side, during HDD ready state.
[7] Make sure the value is not less than -0.3V DC (less than -0.6V, 0.1ms) when turning on or off the power.
[8] Power supply at nominal voltage ±1%. 25°C ambient. Refer to Subsection 2.5 "Power conditions" of the SAS INTERFACE SPECIFICATION for details of idle and ready states. "Ready state" corresponds to 2.5.2 "Active state" of the SAS INTERFACE SPECIFICATION.
[9] Vibration applied to the HDD is measured at near the mounting screw hole on the frame as much as possible.
[10] At random seek write/read and default on retry setting with log sweep vibration.
[11] At power-off state after installation
[12] 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.

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.