



## Maximum performance and reliability for mission critical servers and storage

With their very low latency and robust reliability, the AL series of Enterprise Performance 2.5-inch HDDs is designed for demanding mission critical / Tier 1 server systems and hybrid systems pairing SSD and HDD for performance-oriented workloads. In addition to capacity and sector length, you can also choose from the variety of products in this lineup based on access latency and performance.

## Enterprise Performance

Hard Disk Drive



### AL Series

#### Mission critical performance

The AL series is a good fit for servers and hybrid storage systems built to deliver high availability and 24/365 continuous operation. The line-up provides a choice of rotational speeds, both 15,000 rpm and 10,500 rpm.

#### A rich lineup

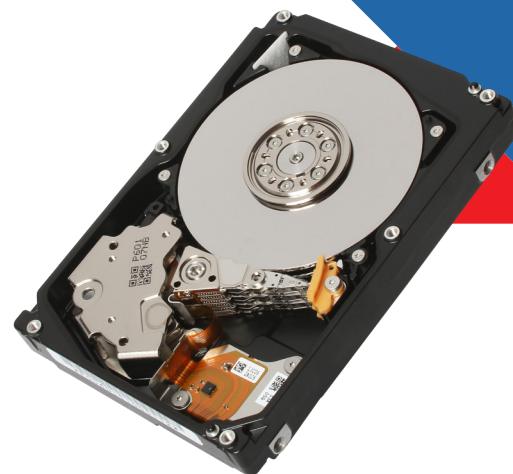
10,500rpm models offer a range of capacities from 600GB to 2400GB, including 512n models up to 1200GB for legacy applications. 15,000rpm models offer a range of capacities up to 900GB, including 512n models.

#### Toshiba's Persistent Write Cache technology

Helps to enhance write performance between the host and the drive, and also helps to prevent data loss in the event of a sudden loss of power (512e models).

## Application

- 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

Formatted Capacity			2.4TB	1.8TB	1.2TB	900GB	600GB	300GB
Model Number	15,000 rpm	4Kn	-	-	-	AL14SXB90EA	AL14SXB60EA	AL14SXB30EA
		512e	-	-	-	AL14SXB90EE	AL14SXB60EE	AL14SXB30EE
		512n	-	-	-	AL14SXB90EN	AL14SXB60EN	AL14SXB30EN
	10,500 rpm	4Kn	AL15SEB24EP	AL15SEB18EP	AL15SEB12EP	AL15SEB09EP	AL15SEB06EP	-
		512e	AL15SEB24EQ	AL15SEB18EQ	AL15SEB12EQ	AL15SEB09EQ	AL15SEB06EQ	-
		512n	-	-	AL15SEB120N	AL15SEB090N	AL15SEB060N	AL15SEB030N
Specification								
Form Factor			2.5-inch ( Height:15.00 mm, Length: 100.45 mm, Wide:70.10 mm )					
Maximum Weight			230 g					
Interface			SAS : 12.0 Gbit/s					
Buffer Size			128 MiB					
MTTF			2,000,000 hours					
Environmental Requirements								
Temperature	Operating		5 °C to 55 °C					
Vibration	Operating		9.8 m/s² { 1 G } ( 20 to 300 Hz ) or less					
	Non-Operating		49 m/s² { 5 G } ( 20 to 300 Hz ) or less					
Shock	Non-Operating		3,920 m/s² { 400 G } ( 2 ms duration )					
Acoustic	Idle		15,000 rpm : 33 dB    10,500 rpm : 31 dB					

• Definition of capacity: A terabyte (TB) is 1,000,000,000,000 bytes. A computer operating system, however, reports storage capacity using powers of 2 for the definition of 1TB = 2<sup>40</sup> = 1,099,511,627,776 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 and/or pre-installed software applications, or media content. Actual formatted capacity may vary. • A mebibyte (MiB) means 2<sup>20</sup>, or 1,048,576 bytes. • 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. • Read and write speed may vary depending on the host device, read and write conditions, and file size. • "2.5-inch" means the form factor of HDDs. They do not indicate drive's physical size. • Workload is a measure of the data throughput of the year, and it is defined as the amount of data written, read or verified by commands from the host system.

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

**Toshiba Electronic Devices & Storage Corporation**

<https://toshiba.semicon-storage.com>