KIOXIA

KIOXIA LC9 Series (2.5-inch)

(RLC9CDB/RLC9CZB/RLC9EDB/RLC9EZB/RLC9GDB/RLC9GZB)

Enterprise NVMe™ High Capacity SSD

KIOXIA LC9 Series is a high-capacity SSD that is well suited to support training, inference and data lake storage repositories in AI systems. The KIOXIA LC9 Series (2.5-inch) features KIOXIA Corporation's BiCS FLASH™ generation 8 QLC flash memory and supports up to 122.88 TB. It enables efficient power usage and infrastructure space management with a reduced physical footprint, as well as lower Total Cost of Ownership (TCO) by increasing storage density.

Built on PCIe® 5.0 and NVMe™ 2.0 technology, the LC9 Series SSDs deliver stable read performance of up to 12,000 MB/s (sequential read) and 1,350 KIOPS (random read).

Product image may represent a design model.

Key Features

- PCIe® 5.0, NVMe™ 2.0 specification compliant
- Open Compute Project Datacenter NVMe™ SSD specification v2.5 support (not all requirements)
- Form factor: 2.5-inch, 15 mm thickness
- BiCS FLASH™ generation 8 QLC flash memory
- Proprietary KIOXIA architecture: controller, firmware and BiCS FLASH™ technology
- SFF-TA-1001 conformant (U.3)
- Dual-port design optimized for high availability applications
- Power Loss Protection (PLP) and End-to-End Data Protection
- Suited for 24x7 enterprise workloads
- Security options: SIE, SED, FIPS SED [1][2][3][4][5]
- TCG Opal 2.02 Optional for SED

Key Applications

- Data Lakes
- AI Systems
- Machine Learning Applications
- Scale-out Storage

Specifications (for U.2 hosts)

SIE Model Number	**RLC9CZB122T**	**RLC9CZB61T4**	**RLC9CDB30T7**	**RLC9CZB30T7**
SED Model Number	**RLC9EZB122T**	**RLC9EZB61T4**	**RLC9EDB30T7**	**RLC9EZB30T7**
FIPS SED Model Number	**RLC9GZB122T**	**RLC9GZB61T4**	**RLC9GDB30T7**	**RLC9GZB30T7**
Capacity	122.88 TB	61.44 TB	30.72 TB	
IU Size	16 KiB		4 KiB	16 KiB
Basic Specifications				
Form Factor	2.5-inch, 15 mm thickness			
Interface	PCIe® 5.0, NVMe™ 2.0			
Maximum Interface Speed	128 GT/s (PCIe® Gen5 single x4, dual x2)			
Flash Memory Type	BiCS FLASH™ QLC			

Specifications (Continued)

Capacity	122.88 TB	61.44 TB	30.72 TB	
IU Size	16 KiB		4 KiB	16 KiB
Performance in single port (1x4) mode (Up to)				
Sustained 128 KiB Sequential Read	12,000 MB/s		11,800 MB/s	12,000 MB/s
Sustained 128 KiB Sequential Write	2,700 MB/s	2,800 MB/s		
Sustained 4 KiB Random Read	1,100 KIOPS	1,200 KIOPS	1,250 KIOPS	1,350 KIOPS
Sustained Random Write	35 KIOPS @ 16 KiB	40 KIOPS @ 16 KiB	150 KIOPS @ 4 KiB	52 KIOPS @ 16 KiB
Power Requirements				
Supply Voltage	12 V ± 10 %, 3.3 V ± 15 %			
Power Consumption (Active)	25 W typ.			
Power Consumption (Ready)	5 W typ.			
Reliability				
MTTF	2,500,000 hours @ 0 °C to 50 °C 2,000,000 hours @ 0 °C to 55 °C			
Warranty	5 years			
DWPD	0.075 @ 4 KiB 0.3 @ 16 KiB		0.25 @ 4KiB	0.075 @ 4 KiB 0.3 @ 16 KiB
Dimensions				
Thickness	15.0 mm +0 / -0.5 mm			
Width	69.85 mm ± 0.25 mm			
Length	100.45 mm Max			
Weight	150 g Max			
Environmental				
Temperature (Operating)	0 °C to 75 °C			
Temperature (Non-operating)	-40 °C to 85 °C			
Humidity (Operating)	5 % to 95 % R.H.			
Vibration (Operating)	21.27 m/s^2 { 2.17 Grms } (5 to 800 Hz)			
Shock (Operating)	9.8 km/s^2 { 1,000 G } (0.5 ms)			

Definition of capacity: Kioxia Corporation 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 1TB = 2^40 bytes = 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.

IU Size : Indirection Unit Size. It is the minimum unit size of the FTL mapping table to manage user data on NAND flash memory.

GT/s: Giga Transfers per second.

A kibibyte (KiB) means 2^10, or 1,024 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.

DWPD: Drive Writes Per Day. One full drive write per day means the drive can be written and re-written to full capacity once a day every day under the specified workload for the specified lifetime. Actual results may vary due to system configuration, usage and other factors.

Read and write speed may vary depending on various factors such as host devices, software (drivers, OS etc.), and read/write conditions.

Random write performance is based on the workload of random writes with the defined IU size for each model.

IOPS: Input Output Per Second (or the number of I/O operations per second).

Temperature (operating): Specified by the composite temperature reported by SMART.

[1] Sanitize Instant Erase (SIE), Self-Encrypting Drive (SED) and FIPS (Federal Information Processing Standards) SED security optional models are available.

[2] SIE optional model supports Cryptographic Erase, which is a standardized feature defined by the technical committees (SCSI) of INCITS (the InterNational Committee for Information Technology Standards).

[3] SED optional model supports TCG Opal and Ruby SSCs. It has a few unsupported features of TCG Opal SSC. For more details, please make inquiries through “Contact us” in each region’s website, https://www.kioxia.com/.

[4] FIPS SED optional model utilizes a security module designed to comply with FIPS 140-3, which defines security requirements for cryptographic module by NIST (National Institute of Standards and Technology). For the latest validation status, please make inquiries through “Contact us” in each region’s website, https://www.kioxia.com/.

[5] Security optional models are not available in all countries due to export and local regulations.

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