KIOXIA

Press Release

KIOXIA Announces Industry's First 245.76 TB NVMe SSD Built for the Demands of Generative AI Environments

KIOXIA LC9 Series Becomes the Highest Capacity PCIe 5.0 Enterprise SSD;
Features 32-die stack BiCS FLASH™ QLC 3D Flash Memory

2.5-inch   E3.S   E3.L

Germany, Düsseldorf, 22 July 2025 – KIOXIA Europe, a world leader in memory solutions, announced today that it has expanded its high-capacity KIOXIA LC9 Series enterprise SSD line-up by introducing the industry's first[1] 245.76 terabyte (TB) [2] NVMe SSD in 2.5-inch and Enterprise and Datacenter Standard Form Factor (EDSFF) E3.L form factor. This new capacity and form factor option complements the previously announced 122.88 TB (2.5-inch) model and is purpose-built for the performance and efficiency demands of generative AI environments.

Generative AI places unique demands on storage, including the need to store vast datasets for training large language models (LLMs), and to create embeddings and vector databases that support inference through retrieval augmented generation (RAG).

These workloads require storage solutions with large capacity, high speed, and exceptional power efficiency.

Featuring a 32-die stack of 2 terabit (Tb)[3] BiCS FLASH™ QLC 3D flash memory with innovative CBA (CMOS directly Bonded to Array) technology, KIOXIA LC9 Series SSDs deliver the speed, scale, and density required to support the next wave of AI-centric workloads. This combination of advanced memory architecture and CBA technology enables 8TB in a small 154 BGA package – also an industry first[1]. This milestone was made possible with advancements in KIOXIA's high-precision wafer processing, material design, and wire bonding technologies.

KIOXIA LC9 Series SSDs are well-suited for data lakes, where massive data ingestion and rapid processing are essential. Unlike HDDs, which often bottleneck performance and leave costly GPUs underutilised, KIOXIA LC9 Series SSDs enable dense storage in a compact footprint. By delivering up to 245.76 TB, each drive can replace multiple power-hungry HDDs, offering superior performance, lower overall power consumption, fewer drive slots used, and more efficient cooling, which would significantly lower total cost of ownership (TCO).

KIOXIA LC9 Series SSDs Features Include:

- Up to 245.76 TB in 2.5-inch and E3.L form factors
- Up to 122.88 TB available in 2.5-inch and E3.S form factor
- Designed to PCIe 5.0 (max. 128 GT/s Gen5 single x4, dual x2), NVMe 2.0, and NVMe-MI 1.2c specifications
- Open Compute Project (OCP) Datacenter NVMe SSD specification v2.5 support (not all requirements)
- Flexible Data Placement (FDP) support to minimise write amplification and extend SSD lifespan[4]
- Security options: SIE, SED, FIPS SED
- CNSA 2.0 signing algorithm[5], designed with future quantum security standards in mind

"We continue to drive innovation with the new KIOXIA LC9 Series, providing cutting-edge technology that enables our data center and hyperscaler customers to stay ahead," said Paul Rowan, VP & CMO at KIOXIA Europe GmbH. "The 32-die stack of 2 terabit (Tb) BiCS FLASH™ QLC 3D flash memory coupled with our innovative CBA technology and the E3.L form factor within the LC9 Series SSDs address their unique requirements of Generative AI applications for speed, scale and efficiency."

KIOXIA LC9 Series SSDs are now sampling to select customers and will be featured at the [Future of Memory and Storage 2025](#) conference, taking place August 5–7 in Santa Clara.

Notes

1: As of 22 July 2025, based on KIOXIA survey.
2: Definition of SSD capacity: KIOXIA defines a kilobyte (KB) as 1,000 bytes, a megabyte (MB) as 1,000,000 bytes, a gigabyte (GB) as 1,000,000,000 bytes, a terabyte (TB) as 1,000,000,000,000 bytes, and a kibibyte (KiB) is 1,024 bytes. A computer operating system, however, reports storage capacity using powers of 2 for the definition of 1GB = 2^30 bytes = 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.
3: The flash memory capacity is calculated as 1 terabit (1 Tbit) = 1,099,511,627,776 (2^40) bits, and 1 terabyte (1 TB) = 1,099,511,627,776 (2^40) bytes.
4: For RocksDB purposes, KIOXIA confirmed the Write Amplification Factor (WAF) is approximately 1.1 when using the FDP function with the plug-in (a function extension program released on the KIOXIA GitHub account - https://github.com/kioxia-jp/ufrop).
5: The KIOXIA LC9 Series SSD supports Leighton-Micali Signature (LMS) algorithm acknowledged by CNSA 2.0 (Commercial National Security Algorithm Suite 2.0) as a digital signature algorithm to prevent firmware tampering in preparation for threats to conventional cryptographic algorithms posed by quantum computers. Advanced Encryption Standard (AES-256) with a key length of 256 bits, which is the data encryption algorithm used in KIOXIA LC9 Series SSD, is also acknowledged by CNSA 2.0.

*2.5-inch indicates the form factor of the SSD and not its physical size.

*DWPD: Drive Write 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 for five years, the stated product warranty period. Actual results may vary due to system configuration, usage and other factors.

*The following trademarks, service and/or company names – PCIe, PCI-SIG, NVMe, NVMe-MI, NVM Express, NVM Express, Inc. – are not applied, registered, created and/or owned by KIOXIA Europe GmbH or by affiliated KIOXIA group companies. However, they may be applied, registered, created and/or owned by third parties in various jurisdictions and therefore protected against unauthorised use.

About KIOXIA

KIOXIA is a world leader in memory solutions, dedicated to the development, production and sale of flash memory and solid-state drives (SSDs). In April 2017, its predecessor Toshiba Memory was spun off from Toshiba Corporation, the company that invented NAND flash memory in 1987.

KIOXIA is committed to uplifting the world with "memory" by offering products, services and systems that create choice for customers and memory-based value for society. KIOXIA's innovative 3D flash memory technology, BiCS FLASH™, is shaping the future of storage in high-density applications, including advanced smartphones, PCs, automotive systems, data centers and generative AI systems.

Visit our KIOXIA website

Contact details for publication:
KIOXIA Europe GmbH, Hansaallee 181, 40549 Düsseldorf, Germany
Tel: +49 (0)211 368 77-0
E-mail: KIE-support@kioxia.com

Contact details for editorial enquiries:
Lena Hoffmann, KIOXIA Europe GmbH
Tel: +49 (0) 211 36877 382
E-mail: lena1.hoffmann@kioxia.com

Issued by:
Birgit Schöniger, Publitek
Tel: +49 (0)172 617 8431
E-mail: birgit.schoeniger@publitek.com
Web: www.publitek.com