KIOXIA

Press Release

KIOXIA Introduces QLC UFS 4.1 Embedded Flash Memory Devices for High-Capacity Mobile Storage

8th-Generation BiCS FLASH™ Technology Delivers Performance, Efficiency Gains

Germany, Düsseldorf, 28 January 2026 – KIOXIA Europe **–** a world leader in memory solutions today announced that KIOXIA has begun sampling new Universal Flash Storage[1] (UFS) Ver. 4.1 embedded memory devices with 4-bit-per-cell, quadruple-level cell (QLC) technology. Designed for read-intensive applications and high-capacity storage needs, the new devices are powered by KIOXIA's 8th generation BiCS FLASH™ 3D flash memory technology.

QLC UFS offers a higher bit density than traditional TLC UFS, making it suitable for mobile applications that require higher storage capacities. Advancements in controller technology and error correction have enabled QLC technology to achieve this while maintaining competitive performance.

Building on these advancements, the new KIOXIA devices achieve substantial performance increases[2]. KIOXIA's QLC UFS boosts sequential write speeds by 25%, random read speeds by 90%, and random write speeds by 95% compared to the previous generation (UFS 4.0 / BiCS6 QLC UFS)[3]. Write Amplification Factor (WAF) is also improved by max. 3.5× (with WriteBooster disabled).

Well-suited for smartphones and tablets, KIOXIA QLC UFS also supports emerging product categories that demand higher capacity and performance, including PCs, networking, AR/VR, IoT, and AI-enabled devices.

Available in 512-gigabyte (GB) and 1-terabyte (TB) capacities, the new UFS 4.1 devices combine KIOXIA's advanced BiCS FLASH™ 3D flash memory and an integrated controller in a JEDEC - standard package. KIOXIA's 8th generation BiCS FLASH™ 3D flash memory introduces CMOS directly Bonded to Array (CBA) technology - an architectural innovation that marks a step-change in flash memory design.

Key features include:

- Compliant with the UFS 4.1 specification. UFS 4.1 is backward-compatible with UFS 4.0 and UFS 3.1.
- 8th generation KIOXIA BiCS FLASH™ 3D flash memory
- WriteBooster support for significantly faster write speeds
- Reduced package size compared to the previous QLC UFS: 11×13 mm → 9×13 mm

"At KIOXIA, innovation in flash memory is central to how we respond to increasing requirements for capacity and performance," said Axel Störmann, Chief Technology Officer & Vice President, KIOXIA Europe. "With QLC UFS 4.1, the latest advances in architecture and design are translated into practical capabilities that help our customers address increasingly complex and diverse mobile and connected use cases."

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Notes:

1: Universal Flash Storage (UFS) is a product category for a class of embedded memory products built to the JEDEC UFS standard specification. Due to its serial interface, UFS supports full duplexing, which enables both concurrent reading and writing between the host processor and UFS device

2: Based on KIOXIA internal testing

3: 512GB product, when WriteBooster is enabled

In every mention of a KIOXIA product: Product density is identified based on the density of memory chip(s) within the Product, not the amount of memory capacity available for data storage by the end user. Consumer-usable capacity will be less due to overhead data areas, formatting, bad blocks, and other constraints, and may also vary based on the host device and application. For details, please refer to applicable product specifications. The definition of 1KB = 2^10 bytes = 1,024 bytes. The definition of 1Gb = 2^30 bits = 1,073,741,824 bits. The definition of 1GB = 2^30 bytes = 1,073,741,824 bytes. 1Tb = 2^40 bits = 1,099,511,627,776 bits.

1 Gbps is calculated as 1,000,000,000 bits/s. Read and write speeds are the best values obtained in a specific test environment at KIOXIA and KIOXIA warrants neither read nor write speeds in individual devices. Read and write speed may vary depending on device used and file size read or written.

About KIOXIA Europe GmbH

KIOXIA Europe GmbH is the European-based subsidiary of KIOXIA Corporation, a leading worldwide supplier of flash memory and solid-state drives (SSDs). From the invention of NAND flash memory to today's renowned BiCS FLASH™ 3D flash memory KIOXIA continues to pioneer innovative memory solutions and services that enrich people's lives and expand society's horizons. The company's innovative BiCS FLASH™ 3D flash memory technology is shaping the future of storage in high-density applications, including advanced smartphones, PCs, automotive systems, data centers and generative AI systems.

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