Press Release

KIOXIA Sampling UFS Ver. 4.1 Embedded Flash Memory Devices for Automotive Applications

Driving Next-Generation Automotive Innovation with Higher Performance, More Efficient Data Handling, and Automotive-Grade Reliability

Germany, Düsseldorf, 31 July 2025 – KIOXIA Europe, a world leader in memory solutions, today announced that it has begun sampling[1] new Universal Flash Storage[2] (UFS) Ver. 4.1 embedded memory devices designed for automotive applications. Engineered to meet the rigorous demands of next-generation in-vehicle systems, these new devices deliver significant performance, flexibility, and diagnostic enhancements - powered by KIOXIA's generation 8 BiCS FLASH™ 3D flash memory and in-house designed controller technology.

Available in capacities of 128 gigabytes (GB), 256GB, 512GB and 1 terabyte (TB), the new UFS 4.1 devices are designed to fit the needs of infotainment, ADAS (Advanced Driving Assistant System), telematics, domain controllers, and vehicle computers. They meet AEC-Q100/104[3] Grade 2 standards, supporting case temperature up to 115°C.

Elevating the performance from KIOXIA's UFS 3.1 generation[4], the new UFS 4.1 (512 GB) devices deliver:

- Approximately 2.1 times sequential read performance
- Approximately 2.5 times sequential write performance
- Approximately 2.1 times random read performance
- Approximately 3.7 times random write performance

These improvements provide a more responsive user experience in data-intensive automotive environments.

Key features include:

- **Compliant with the UFS 4.1 Specification**, which includes WriteBooster related extensions such as WriteBooster Buffer Resizing and Pinned Partial Flush Mode which provides better flexibility for optimal performance. UFS4.1 is backward compatible with UFS4.0 and UFS3.1.
- **Enhanced Diagnostic Capabilities**, including a newly added vendor-specific device health descriptor, simplifying device status monitoring and predictive maintenance
- **Uses** generation 8 BiCS FLASH™ 3D flash memory

 UFS Ver. 4.1 devices from KIOXIA integrate the company's innovative BiCS FLASH™ 3D flash memory and a controller in a JEDEC-standard package. These new UFS devices are built with KIOXIA's generation 8 BiCS FLASH™ 3D flash memory. This generation introduces CBA (CMOS directly Bonded to Array) technology—an architectural innovation that marks a step-change in flash memory design. By directly bonding the CMOS circuitry to the memory array, CBA technology enables major gains in power efficiency, performance, and density,"

"Specifically designed for automotive environments, the Automotive UFS Ver. 4.1 devices from KIOXIA offer the automotive-grade, higher performance and efficiency required for the implementation of advanced capabilities in infotainment, ADAS, domain controllers, and other vehicle computing applications," said Axel Störmann, Vice President and Chief Technology Officer for Memory and SSD products, KIOXIA Europe GmbH.

###

Notes

(1) Sample shipments of the 1TB device began in June, 128GB and 256GB device began in July. Specification of the samples may differ from commercial products.

(2) 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.

(3) Electrical component qualification requirements defined by the AEC (Automotive Electronics Council).

(4) UFS3.1 512GB device "THGJFGT2T85BAB5".

*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 1 KB = 2^10 bytes = 1,024 bytes. The definition of 1 Gb = 2^30 bits = 1,073,741,824 bits. The definition of 1 GB = 2^30 bytes = 1,073,741,824 bytes. 1 Tb = 2^40 bits = 1,099,511,627,776 bits. 1 TB = 2^40 bytes = 1,099,511,627,776 bytes.

MB/s is calculated as 1,000,000 bytes/s. *Read and write speeds are the best values obtained in a specific test environment at KIOXIA Corporation and KIOXIA Corporation 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.

*Company names, product names and service names may be trademarks of third-party companies.

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](#)