



## Press Release

### KIOXIA Introduces Next-Generation UFS Ver. 4.0 Devices

New 256GB, 512GB and 1TB Devices Allow Smartphones and Mobile Applications to  
Take Full Advantage of 5G Networks



**Düsseldorf, Germany, 31 May 2023** – [KIOXIA Europe GmbH](#) – a world leader in memory solutions, today announced sampling<sup>[1]</sup> of new, higher performing UFS (Universal Flash Storage)<sup>[2]</sup> Ver. 4.0 embedded flash memory devices. These devices deliver fast embedded storage transfer speeds in a small package size and are targeted to a variety of next-generation mobile applications, including leading-edge smartphones. The improved performance enabled by KIOXIA's UFS products allows these applications to take advantage of 5G's connectivity benefits, leading to faster downloads, reduced lag time and an improved user experience.

UFS Ver. 4.0 devices from KIOXIA integrate the company's innovative BiCS FLASH™ 3D flash memory and a controller in a JEDEC-standard package. UFS 4.0 incorporates MIPI M-PHY 5.0 and UniPro 2.0 and supports theoretical interface speeds of up to 23.2Gbps per lane or 46.4Gbps per device. UFS 4.0 is backward compatible with UFS 3.1.

Key Features include:

- Performance improvement over previous generation<sup>[3]</sup>: +18% sequential write, +30% random write and +13% random read
- Supports High Speed Link Startup Sequence (HS-LSS) features: With conventional UFS, Link Startup (M-PHY and UniPro initialization sequence) between device and host is performed at low-speed PWM-G1 (3~9Mbps<sup>[4]</sup>), but with HS-LSS, it can be performed at a faster HS-G1 Rate A (1248Mbps). This is expected to reduce the time for Link Startup by approximately 70% compared to the conventional method.
- Enhances security: By utilizing Advanced RPMB for faster read and write access to security data, like user credentials on RPMB area, and RPMB Purge to ensure discarded data is sanitized securely and rapidly
- Supports Extended Initiator ID (Ext-IID): Intended to be used with Multi Circular Queue (MCQ) at the UFS 4.0 host controller for improved random performance

“With the introduction of our new UFS 4.0 line-up KIOXIA again strengthens its position as a leading supplier of innovative UFS technology,” states Axel Stoermann, Vice President Memory Marketing & Engineering, KIOXIA Europe GmbH.”

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**Notes:**

[1] The company's newest devices are supported in three capacities: 256 gigabytes (GB), 512GB and 1 terabyte (TB). Sample shipments of the 256GB and 512GB device began this month, with the 1TB device scheduled to follow after October. 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] KIOXIA Corporation's previous generation 512GB device No. "THGJFJT2T85BAT0"

[4] PWM-G1 communication speed depends on the product.

\*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<sup>10</sup> bytes = 1,024 bytes. The definition of 1Gb = 2<sup>30</sup> bits = 1,073,741,824 bits. The definition of 1GB = 2<sup>30</sup> bytes = 1,073,741,824 bytes. 1Tb = 2<sup>40</sup> bits = 1,099,511,627,776 bits.

\*Read and write speeds are the best values obtained in a specific test environment at KIOXIA Corporation and KIOXIA Corporation warrant neither read nor write speeds in individual devices. Read and write speed may vary depending on a device used and file size read or written.

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

\*Information in this document, including product prices and specifications, content of services and contact information, is correct on the date of the announcement but is subject to change without prior notice.

## **About KIOXIA Europe GmbH**

KIOXIA Europe GmbH (formerly Toshiba Memory 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 breakthrough BiCS FLASH™, 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, SSDs, automotive and data centers.

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