KIOXIA

Press Release

KIOXIA Introduces Industry's First UFS Ver. 4.0 Embedded Flash Memory Devices for Automotive Applications

Performance Improvements Fuel Evolution of Automotive Applications; Elevate Driver Experience

Düsseldorf, Germany, 30 January 2024 – KIOXIA Europe GmbH, a world leader in memory solutions, today announced sampling[1] of the industry's first[2] Universal Flash Storage[3] (UFS) Ver. 4.0 embedded flash memory devices designed for automotive applications. These new, higher performing devices deliver fast embedded storage transfer speeds in a small package size and are targeted to a variety of next-generation automotive applications, including telematics, infotainment systems and ADAS[4]. The improved performance[5] of UFS products from KIOXIA – including approximately +100% for sequential read speed and approximately +40% for sequential write speed – enables these applications to take advantage of 5G's connectivity benefits, leading to faster system startup times and a better user experience.

The first to introduce UFS technology[6], KIOXIA continues to move the technology forward. Its new UFS Ver. 4.0 devices 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 23.2 gigabits per second (Gbp/s) per lane or 46.4 Gbp/s per device. UFS 4.0 is backward compatible with UFS 3.1.

The new KIOXIA devices support High Speed Link Startup Sequence (HS-LSS) features, enabling Link Startup (M-PHY and UniPro initialization sequence) between device and host to be performed at a faster HS-G1 Rate A (1248 megabits per second) than that of conventional UFS. This is expected to reduce the time for Link Startup by approximately 70% compared to the conventional method.

Advanced features and functionalities have been supported in new UFS Ver. 4.0 devices to address demanding automotive application requirements, including:

- Refresh Feature: Improves data reliability by refreshing degraded data to prevent data corruption even in the harsh, demanding in-vehicle environment.
- Extended Diagnosis Feature: Enables users to view important information from the UFS device, allowing preventative action to be taken.

Available in capacities of 128, 256 and 512 gigabytes (GB), the new KIOXIA devices support a wide temperature range, meet AEC[7]-Q100 Grade2 requirements and offer enhanced reliability capabilities that increasingly complex automotive applications require.

“The automotive industry possesses unique technical demands that must be addressed by reliable, and application tailored solutions. KIOXIA have recognized this requirement with the world’s first automotive specific UFS Ver 4.0 embedded memory,” stated Axel Störmann, Chief Technology Officer of Memory and SSD products.

Notes:

[1] Specification of the samples may differ from commercial products.

[2] As of January 30, 2024. KIOXIA survey.

[3] 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.

[4] Advanced Driving Assistant System

[5] KIOXIA Corporation’s previous generation 512GB device No. “THGJFGT2T85BAB5”

[6] KIOXIA Corporation first sample shipment, as of February 8, 2013.
https://www.kioxia.com/en-jp/business/news/2013/20130208-1.html

[7] Electrical component qualification requirements defined by the AEC (Automotive Electronics Council).

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 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.

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.

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

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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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