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Press Release

Toshiba Memory Europe Unveils Industry's First UFS Ver. 3.0 Embedded Flash Memory Devices

Enables the Faster Performance Necessary for the Continued Evolution of Smart Phones, Tablets, Augmented/Virtual Reality and more

Düsseldorf, Germany, 23rd January 2019 – Toshiba Memory Europe GmbH (TME) has started sampling the 128GB version of the industry's first Universal Flash Storage (UFS) Ver. 3.0 embedded flash memory devices. The new line-up utilizes the company's cutting-edge 96-layer BiCS FLASH™ 3D flash memory and is available in three capacities: 128GB, 256GB and 512GB[2]. With high-speed read/write performance and low power consumption, the new devices are ideal for applications such as mobile devices, smartphones, tablets, and augmented/virtual reality systems.

Consumers continue to demand increasingly higher performance and an improved user experience from their devices, and the UFS standard is constantly being refined in order to support this evolution. Due to its serial interface, UFS supports full duplexing, which enables both concurrent reading and

writing between the host processor and UFS device. With the introduction of UFS 3.0, JEDEC, the global leader in the development of standards for the microelectronics industry, has enhanced previous versions of the UFS standard to help product designers enable significant improvements in mobile devices and related applications.

The new devices integrate 96-layer BiCS FLASH™ 3D flash memory and a controller in a JEDEC-standard 11.5 x 13mm package. The controller performs error correction, wear leveling, logical-to-physical address translation, and bad-block management for simplified system development.

All three devices are compliant with JEDEC UFS Ver. 3.0, including HS-GEAR4, which has a theoretical interface speed of up to 11.6 Gigabits per second per lane (x2 lanes = 23.2Gbps) while also supporting features that suppress increases in power consumption. Sequential read and write performance of the 512GB device are improved by approximately 70 percent and 80 percent, respectively, over previous generation 256GB Toshiba devices.

Toshiba was the first company to introduce UFS devices and has been shipping since 2013. The introduction of these UFS Ver. 3.0 devices maintains Toshiba's leadership position in storage for next generation mobile devices which they will continue through driving further advances.

Samples of the new devices will be on show at Toshiba's booth (Hall 3A – 424) at the Embedded World 2019 Exhibition and Conference (26-28 February – Nuremberg, Germany).

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Notes:

[1] Sample shipments of the 128GB device will start today with the rest of the line-up to gradually follow after March. Specification of the samples may differ from that of commercial products.

[2] 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 1GB = 2^{30} bytes = 1,073,741,824 bytes.

About Toshiba Memory Europe GmbH

We, Toshiba Memory Europe GmbH, are European business of Toshiba Memory Corporation. Our company offers a broad product line of flash memory products, including SD Cards, USB flash drives, and embedded memory components, in addition to solid state drives (SSD). Our company maintains offices in Germany, France, Spain, Sweden and the United Kingdom. President is Masaru Takeuchi.

For more information on the full range of our memory and SSD products please visit:
https://business.toshiba-memory.com/; www.toshiba-memory.com

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Ref. TME017A_EN