



KIOXIA: Memory Increases in Importance within the Automotive Sector

The automotive industry is facing its greatest challenges, driving a period of accelerated development as vehicle manufacturers move away from fossil fuels as a primary energy source. Coupled with this is the constant demand for enhanced safety and more features that are driving a rapid increase in the use of technology.

The data produced by these sophisticated, sensor-laden vehicles has increased dramatically, both in speed and amount. Drive-by-wire operation, V2x communications, OTA updates and sophisticated ADAS add to the data needs, but it is the addition of multiple high-resolution cameras that is really driving this trend. As vehicles become more autonomous, incorporating other vision systems such as LiDAR, the data produced (that needs to be stored) will only increase. In fact, some estimates suggest that a fully autonomous vehicle will generate a staggering 4TB of data every hour it is in operation – and this data will have to be stored and accessed securely, and quickly.

To deliver these vehicles, automakers must have access to high-performance memory solutions with rapid interfaces and high storage

densities. Additionally, they must be capable of operating with longevity in the tough automotive environment.

UFS - Essential technology for connected vehicles

KIOXIA Universal Flash Storage (UFS) memories are a technology designed for automotive use. These devices incorporate large-capacity NAND Flash reserve and an accompanying controller IC in a combined package, making them suitable for automotive infotainment, wireless communication and ADAS use. UFS technology is easily integrated due to the standardised interfaces, and it achieves more rapid read/write speeds than alternative technologies.



The recently announced UFS Ver. 3.1 devices utilize KIOXIA's BiCS FLASH 3D flash memory to deliver capacities up to 512GB. These devices support an extended temperature range (-40°C to +105°C), comply with AEC-Q100 Grade 2 requirements and offer the enhanced reliability that sophisticated automotive applications require.

The sequential read and sequential write performance is significantly improved by approximately 2.2x and 6x, respectively, over previous generation devices allowing faster system start-up and OTA updates.

KIOXIA's Automotive UFS offers:

- AEC-Q100 compliance
- Rapid serial interface
- BiCS FLASH 3D flash memory technology reliability
- Integrated memory management (ECC, bad block management, wear levelling, garbage collection)
- Dedicated Automotive functions (including built-in diagnostics, refresh, thermal throttling, pre-programming, etc.)
- Power management functions for efficient operation
- IATF16949 compliance
- Wide operating temperature range: -40°C to +105°C

Find out more >

[View the UFS video](#)

Find out about Automotive UFS solutions at the Embedded World, visit KIOXIA at booth 3A-117 (hall 3A).

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