



KIOXIA UFS 4.0

The ideal replacement for e-MMC

Universal Flash Storage (UFS) is a JEDEC-standard, non-volatile managed flash device, developed to replace e-MMC in high-performance embedded applications - including smartphones, automotive, tablets, smart speakers and AR/VR.

UFS offers a faster interface than e-MMC. In fact, the performance is an order of magnitude higher with UFS 4.0 offering 4.64GB/s, compared to just 400MB/s for e-MMC version 5.1. This advanced interface allows for faster reads and writes and additionally supports full duplexing. Higher densities are available, allowing greater capacity to be deployed in small spaces and mobile devices.

KIOXIA has been involved in flash memory since the start in 1987. The company was the first to sample UFS solutions almost a decade ago. Continuing to lead the way, the latest version of UFS incorporates MIPI M-PHY v5.0. Based upon this performance and capacity, UFS is expected to account for 80% of managed flash deployed in the future.*

When to use UFS 4.0

In many challenging modern applications, UFS is the optimal choice. This is especially true when the system design contains systems-on-chip (SoCs) that offer an in-built UFS interface. Additionally, designers will want to move to UFS for applications that require higher densities (in the range 32 GB to 1 TB). One of the primary considerations is required performance as UFS provides high-speed read/write performance with good power efficiency.



[Learn more about UFS 4.0](#)

UFS in vehicles

As infotainment and advanced driver assistance systems (ADAS) within vehicles become more sophisticated, the storage requirements continue to increase. This is especially true in vehicles with multiple cameras.

Therefore, the new technology will also be ideally suited to automotive applications when offering an extended temperature range and enhanced reliability as well as AEC-Q100 qualification.

KIOXIA introduced UFS 4.0 to mobile applications, and will soon announce a new extended line-up of automotive UFS based on 4.0 specification.

[Learn more about UFS for automotive](#)

Discover UFS 4.0 at a glance

[Watch the video](#)



*: According to figures from Forward Insights.

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