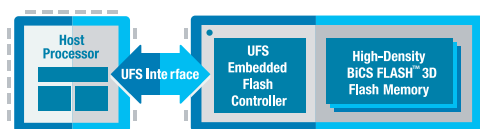


UFS 4.1: Storage of Choice for the Future of Mobile and Computing Platforms

KIOXIA delivers flash-based products for next-generation storage applications. Having invented NAND flash over 30 years ago, KIOXIA is now one of the world's largest flash memory suppliers – and continues to innovate its UFS product offerings.

WHAT IS UFS?

UFS¹ (Universal Flash Storage) is a JEDEC²-standard, non-volatile managed flash device. It was developed to be the high-performance and power-efficient choice for embedded memory solutions.



FEATURES

UFS delivers:

Fast interface



High performance for reads and writes



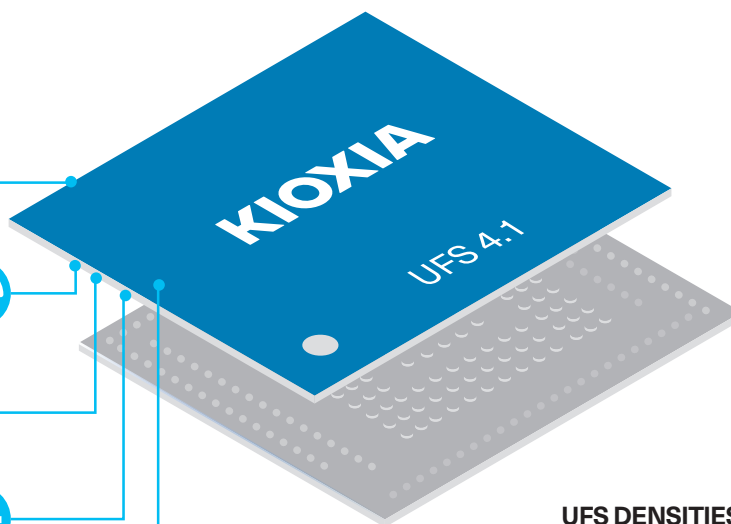
High density offerings



Power efficiency



Support for full duplexing



UFS DENSITIES SUPPORTED²

256GB

512GB

1TB

Interface Speed⁴

UFS version 4.1



supports

4.64GB/s

KEY DIFFERENTIATORS of UFS v4.1

- Random Read/Write performance improvement⁵
- Power efficiency improvement⁵
- Defragmentation feature for uninterrupted performance
- Write Booster buffer resizing for performance flexibility
- Reduced package height for 1TB
- Features KIOXIA's 8th generation BiCS FLASH 3D flash memory⁶

⁵ 512GB/1TB models only

APPLICATIONS



Smartphones



AR/VR



Tablets/2-in-1



Video Conferencing



Streaming Media

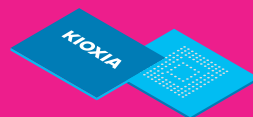


Smart Speakers

LEADING THE WAY FOR UFS

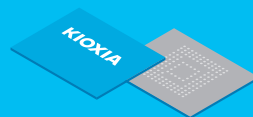
Jul.
2025

Introduced UFS v4.1 with CBA (CMOS directly bonded to array) technology



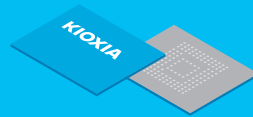
Feb.
2022

Introduced next-gen UFS with MIPI M-PHY³ v5.0 used in UFS Ver. 4.0³



Feb.
2020

UFS Ver. 3.1 introduced



Jan.
2019

First to sample UFS Ver. 3.0⁵



Feb.
2013

First to introduce UFS samples⁶



Jun.
2007

First to announce 3D flash memory technology⁷



1987

NAND flash memory invented



[1] Universal Flash Storage (UFS) is a product category for a class of embedded memory products built to the JEDEC UFS standard specification. JEDEC is a registered trademark of JEDEC Solid State Technology Association.

[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 = 2³⁰ bits = 1,073,741,824 bits. The definition of 1GB = 2³⁰ bytes = 1,073,741,824 bytes.

[3] MIPI Alliance Specification for M-PHY. MIPI³ and M-PHY³ are registered trademarks owned by MIPI Alliance.

[4] 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.

[5] <https://americas.kioxia.com/en-us/business/news/2019/memory-20190122-1.html>

[6] <https://www.primewire.com/news-releases/toshiba-ships-samples-of-industry-first-universal-flash-storage-devices-190309341.html>

[7] KIOXIA first presented the concept for 3D NAND at the VLSI Symposium in 2007.

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