KIOXIA

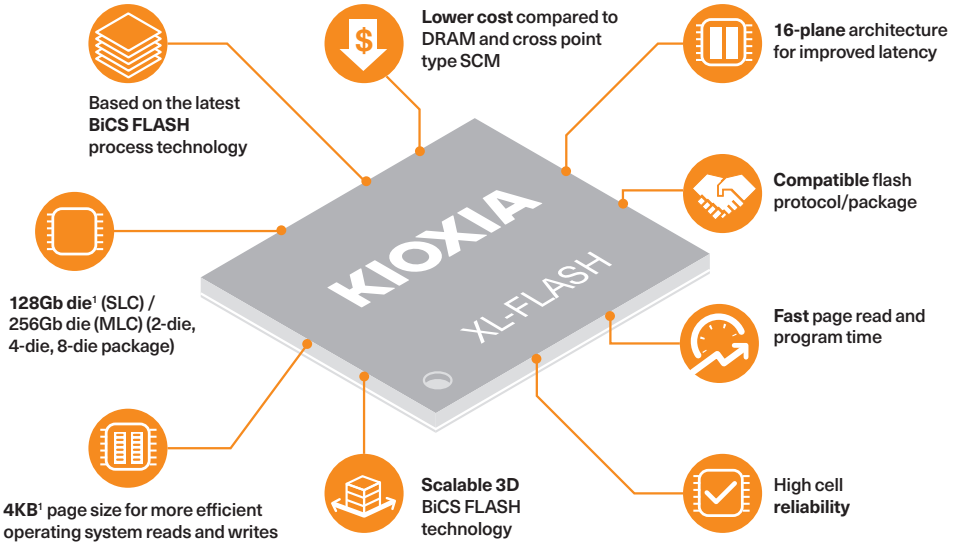
XL-FLASH: Designed for Speed

KIOXIA delivers flash-based products for next-generation storage applications. Having invented NAND flash memory over 35 years ago, KIOXIA is now one of the world's largest flash memory suppliers – and continues to move the technology forward.

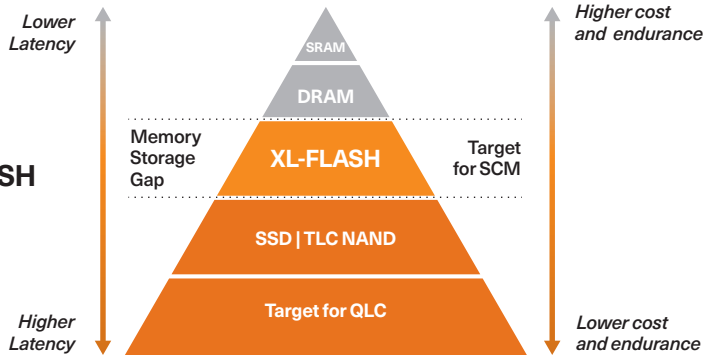
What is XL-FLASH?

XL-FLASH is extremely low-latency, high-performance flash memory that is based on KIOXIA's BiCS FLASH™ 3D flash memory technology. It was designed to address the performance gap between existing volatile memories and flash memory. XL-FLASH is classified as Storage Class Memory (or persistent memory), meaning RAM with the ability to retain its contents like flash memory – bridging the performance gap of DRAM and flash memory. Easy to manage and scale, XL-FLASH features a 128 gigabit (Gb) die for SLC / 256 gigabit (Gb) die for MLC (in a 2-die, 4-die, 8-die package), a 4kB page size for more efficient operating system reads and writes, fast page read and program times, and a low read latency.

KEY FEATURES

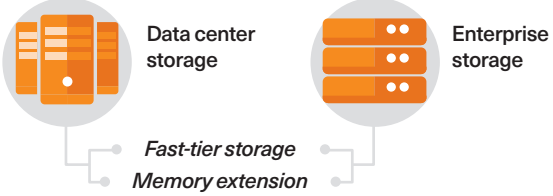


Where does XL-FLASH fit in the Memory Hierarchy?



APPLICATIONS

Targeting the Storage Class Memory (SCM) layer between DRAM and NAND



$2 Billion *2024*

The Storage Class Memory market is expected to reach in excess of $2 billion in 2024[6].

Source: IDC, 2021

"With XL-FLASH, we are giving hyperscalers and enterprise server/storage providers a more cost-effective, lower latency storage solution that bridges the gap between DRAM and flash memory performance."

*– **Scott Nelson**, Senior Vice President and General Manager, Memory Business Unit, KIOXIA*

BiCS FLASH: Accelerating Beyond 2D

Aug. 2022 – 256Gb die MLC XL-FLASH introduced

Aug. 2019 – XL-FLASH 128Gb[1] die introduced

Aug. 2018 – XL-FLASH concept introduced at Flash Memory Summit

Jul. 2018 – Achieved industry's highest single-chip capacity of 1.33Tb[1,2] (QLC BiCS FLASH)

Jun. 2017 – First to introduce 4-bit-per-cell technology[3] (QLC BiCS FLASH)

Aug. 2015 – First to introduce 256Gb[1] 48-layer memory chip[4] (TLC BiCS FLASH)

BiCS FLASH™

Jun. 2007 – First to announce 3D flash memory technology[5]

[1] 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. Density definitions: 1Gb = 2^30 bits = 1,073,741,824 bits, 1KB = 2^10 bytes = 1,024 bytes, 1Tb = 2^40 bits = 1,099,511,627,776 bits.
[2] KIOXIA Survey: July 2018
[3] KIOXIA Survey: June 2017
[4] KIOXIA Survey: August 2015,
[5] KIOXIA VLSI Presentation: June 2007
[6] IDC May 2021 - Worldwide Solid State Storage Forecast, 2021-2025, Doc # US46412021