XL-FLASH: Designed for Speed

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 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 NAND flash. XL-FLASH is classified as Storage Class Memory (or persistent memory), meaning RAM with the ability to retain its contents like NAND flash memory – bridging the performance gap of DRAM and NAND.

KEY FEATURES

- Based on the latest BiCS FLASH process technology
- 128Gb1 die (2-die, 4-die, 8-die package - available now; further scaling & density options possible with MLC)
- 4KB page size for more efficient operating system reads and writes
- Scalable 3D BiCS FLASH technology
- 16-plane architecture for improved latency
- Compatible flash protocol/package
- Fast page read and program time
- High cell reliability
- Lower cost compared to DRAM and cross point type SCM

Where does XL-FLASH fit in the Memory Hierarchy?

APPLICATIONS

- Targeting the Storage Class Memory (SCM) layer between DRAM and NAND
- Data center storage
- Enterprise storage
- Fast-tier storage
- Memory extension

“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 NAND performance.”

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

Awards:

- First to announce 3D flash memory technology
- First to introduce 256Gb1 48-layer memory chip (TLC BiCS FLASH)
- First to introduce 4-bit-per-cell technology (QLC BiCS FLASH)
- Achieved industry’s highest single-chip capacity of 1.33Tb1,2 (QLC BiCS FLASH)
- First to introduce 256Gb1 die introduced in 2-, 4-, 8-die packages (SLC BiCS FLASH)
- XL-FLASH concept introduced at Flash Memory Summit
- XL-FLASH 128Gb1 die introduced in 2-, 4-, 8-die packages (SLC BiCS FLASH)

Source: IDC, 2021

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

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[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, including entrainment, content addressable memories, non-volatile memory, erase block, and bad block data. 1GB = 1,073,741,824 bits.

[2] KIOXIA Survey: August 2018

[3] KIOXIA Survey: August 2018
