

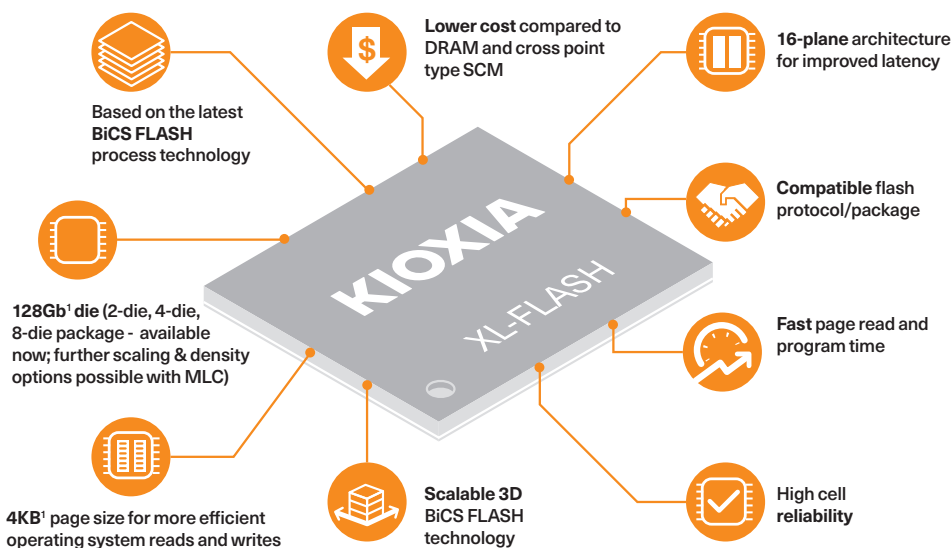
## XL-FLASH: Designed for Speed

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.

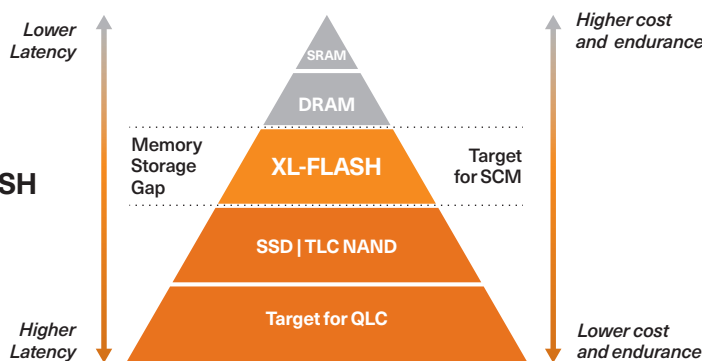
### What is XL-FLASH™?

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

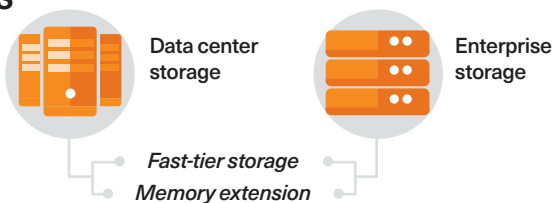


### Where does XL-FLASH fit in the Memory Hierarchy?



### APPLICATIONS

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



**\$3 Billion**  
2022

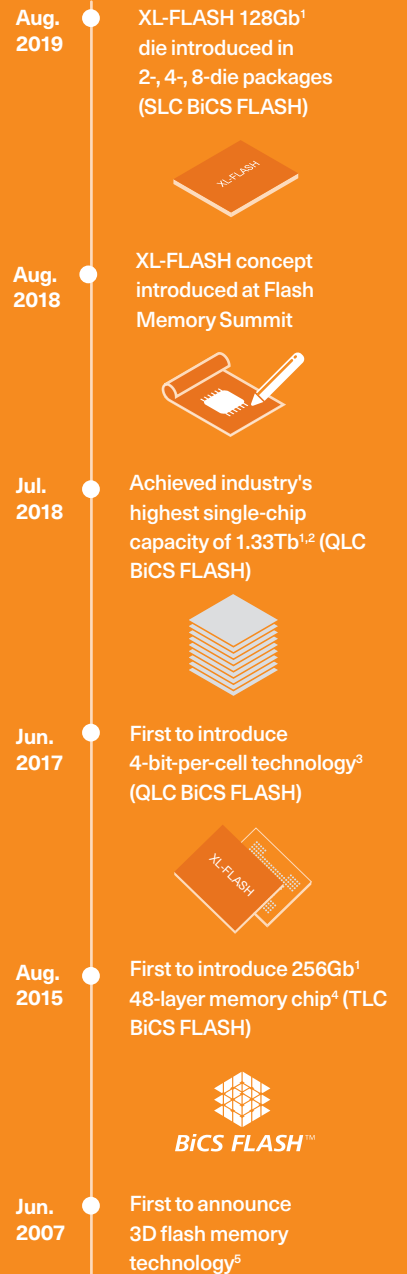
The Storage Class Memory market is expected to reach in excess of \$3 billion in 2022<sup>6</sup>.

Source: IDC, May 2019

"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

### BiCS FLASH: Accelerating Beyond 2D



[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<sup>30</sup> bits = 1,073,741,824 bits, 1KB = 2<sup>10</sup> bytes = 1,024 bytes, 1Tb = 2<sup>40</sup> 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 2019 - Worldwide Solid State Drive Forecast, 2019-2023, Doc # US43828819  
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