

KIOXIA BiCS FLASH™ 3D Flash Memory

The Next Generation is Here

The next generation of KIOXIA BiCS FLASH™ 3D flash memory features architectural innovation that meets the needs of data-centric applications like advanced smartphones, PCs, SSDs and data centers. When performance, high density and cost-effectiveness matter, KIOXIA BiCS FLASH™ 3D flash memory delivers.



Leading the Way

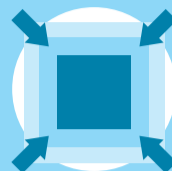
Groundbreaking Architectural Innovation



218 Layers with CBA
(CMOS directly Bonded to Array) Architecture



4 Plane
Device



Lateral Shrink
Technology

Key Features¹



60%

Interface Speed Increase (3.2Gbps)



>30%

Power Efficiency Improvement



20%

Write Performance Improvement



>10%

Read Latency Improvement



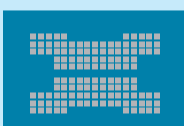
50%

Higher Bit Density

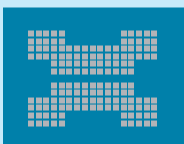
Densities and Packaging

TLC
(Triple-Level Cell)

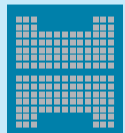
1Tb



◀ **132BGA** ▶
12mm x 18mm



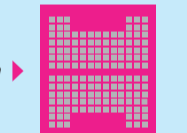
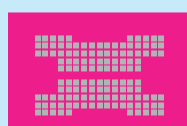
◀ **152BGA** ▶
14mm x 18mm



◀ **154BGA** ▶
11.5mm x 13.5mm
(28% smaller) –
Now Available

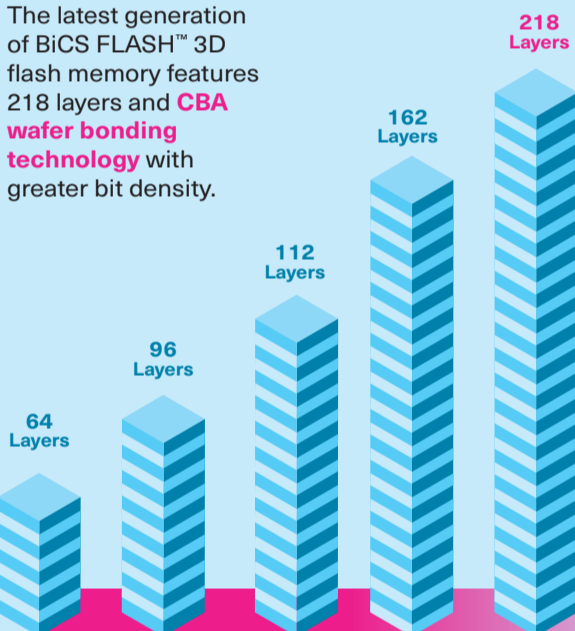
QLC
(Quad-Level Cell)

1Tb



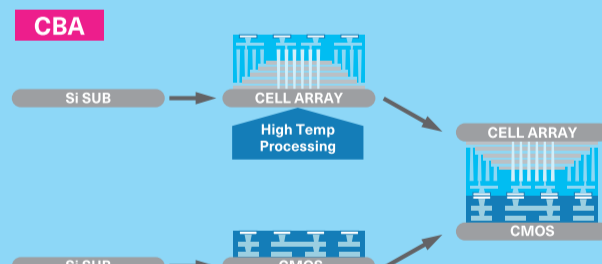
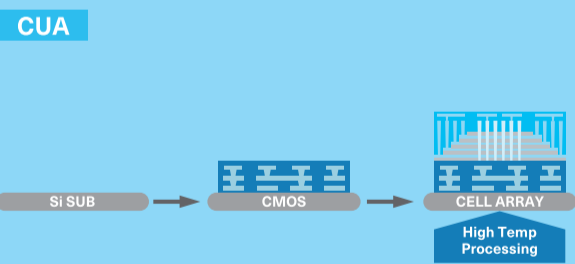
A Look at Layers

The latest generation of BiCS FLASH™ 3D flash memory features 218 layers and **CBA wafer bonding technology** with greater bit density.



Why CBA Technology?

KIOXIA has implemented **CBA (CMOS directly Bonded to Array)** technology wherein each CMOS wafer and cell array wafer are manufactured separately in its optimized condition and then bonded together to deliver enhanced bit density and fast NAND I/O speed. Fabrication of the cell and peripheral separately enables optimization of each, eliminating the trade-off between cell reliability and I/O speed.



Target Applications



Data Center Efficiency

KIOXIA BiCS FLASH™ 3D flash memory was designed to address the most challenging data center issues:



The combination of vertical and lateral scaling produces greater capacity with fewer layers – resulting in higher density, smaller die size and optimized cost. Our groundbreaking architectural innovations in lateral scaling and wafer bonding deliver a major leap in performance, density and cost-effectiveness.

Scott Nelson, Executive Vice President & Chief Marketing Officer, KIOXIA America, Inc.

¹ Features and typical use performance improvements as compared to the previous generation of BiCS FLASH™ 3D flash memory.

In every mention of a KIOXIA product: 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 1KB = 2¹⁰ bytes = 1,024 bytes. The definition of 1Gb = 2³⁰ bits = 1,073,741,824 bits. The definition of 1GB = 2³⁰ bytes = 1,073,741,824 bytes. 1Tb = 2⁴⁰ bits = 1,099,511,627,776 bits.