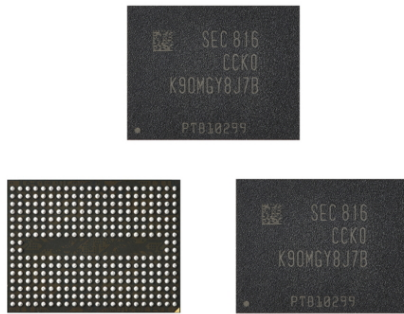


Samsung Mass Produces 5th Gen V-NAND

Written by Alice Marshall
12 July 2018

Samsung starts mass production of 5th generation V-NAND memory chips claiming the first use of the "Toggle DDR 4.0" interface, allowing data transmission speeds between storage and memory of 1.4Gbps, a 40% increase over previous versions.



The 256GGb V-NAND offers energy efficiency comparable to the 64-layer predecessor, since operating voltage is down from 1.8V to 1.2V. Meanwhile data write speed reaches 500 microseconds, a 30% improvement over the previous generation, and response time to read-signals is reduced to 50 microseconds. Inside the chip are 90 layers of "3D charge trap flash" (CTF) cells, stacked in a pyramid structure with microscopic channel holes vertically drilled throughout.

The channel holes are a few hundred nanometers wide, but contain over 85 billion CTF cells able to store 3 bits of data each. Production involves an atomic layer deposition process promising an productivity increase of over 30% and a 20% reduction of the height of each cell layer, preventing crosstalk between cells and an increase in processing efficiency.

"Samsung's 5th generation V-NAND products and solutions will deliver the most advanced NAND in the rapidly growing premium memory market," the company says. "In addition to the leading-edge advances we are announcing today, we are preparing to introduce 1Tb and quad-level cell (QLC) offerings to our V-NAND lineup that will continue to drive momentum for next-generation NAND memory solutions throughout the global market."

5th generation V-NAND will find use in market segments ranging from supercomputing and enterprise servers to consumer applications such as premium smartphones.

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