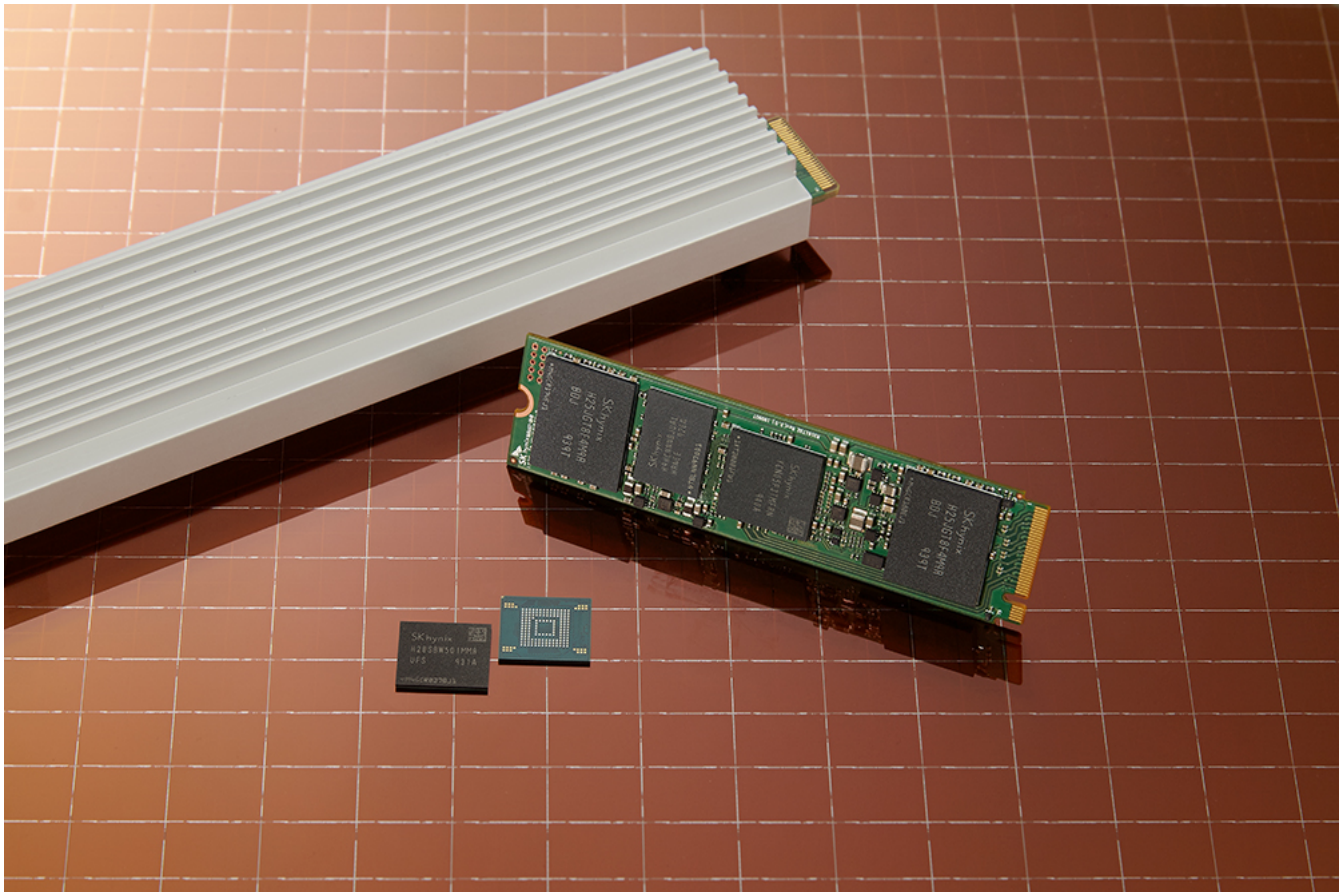


## SK Hynix Samples Terabyte-Level 128-Layer 4D NAND Storage

Written by Alice Marshall  
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SK Hynix starts sampling storage solutions based on 128-layer 4D NAND, with "terabyte-level" high-density solutions aimed at all segments of the market, from high-end smartphones to the datacentre.



First revealed back in June 2019, the 128-layer 1Tb TLC NAND promises both ultra-low power and ultra-thin solutions with greater capacities compared to the previous generation. Speed also gets a boost, from the 1.2GT/s of the previous generation 96-layer 3D NAND to 1.4GT/s. To stack 128 layers, SK Hynix uses a multi-stacked design and technologies such as ultra-homogeneous vertical etching and multi-layer thin-film cell formation, all with a low-power circuit design to ensure no increases to power consumption.

Moving on to the applications of the storage technology, the first product in sampling is an ultra-thin (1mm) 1TB UFS 3.1 aimed for use in 5G smartphones. The storage chip has a Write Booster feature and SK Hynix in-house controller and firmware, something the company claims

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doubles sequential write performance and allows the download of a 15GB 4K UHD film in just 20 seconds.

Moving to client PCs is a next-generation M.2 NVMe client SSD featuring 2TB capacity and power draw of 3W, half of the 6W used by previous generation SSDs. Interestingly the SSD features a PCIe 3.0 controller, as opposed to PCIe 4.0, making it more appealing to the mainstream market. However it means the drive runs at 1.2GT/s, rather than the 1.4GT/s the technology promises. The first SSD products based on the sample should start shipping on H1 2020.

The final 128-layer 4D NAND-based offering goes to enterprise-- a 16TB SSD in the EDSFF E1.L form factor. It supports the NVMe 1.4 protocol even as it uses PCI 3.0, and promises sequential read speeds of 3400MB/s and sequential write reaching 3000MB/s. It is slated to ship from H2 2020, and SK Hynix hopes it will follow on the popularity of the previous generation 72-layer enterprise SSDs.

“128-layer 1Tb 4D NAND boasts the industry’s highest density, best performance, and even cost competitiveness,” the company concludes. “By accelerating the business of 128 layer NAND solutions, which provides high productivity and investment efficiency, SK Hynix is reinforcing its competitiveness of the NAND business.”

Go [SK Hynix Delivers Engineering Samples of Terabyte-Level Solutions Based on a 128-Layer 4D NAND](#)