



Samsung Electronics Begins Mass Production of Industry's Largest Capacity SSD – 30.72TB – for Next-Generation Enterprise Systems

New 'PM1643' is built on latest 512Gb V-NAND to offer the most advanced storage, featuring industry-first 1TB NAND flash package, 40GB of DRAM, new controller and custom software

SEOUL, Korea – Feb. 20, 2018 – Samsung Electronics Co., Ltd., the world leader in advanced memory technology, today announced that it has begun mass producing the industry's largest capacity Serial Attached SCSI (SAS) solid state drive (SSD) – the PM1643 – for use in next-generation enterprise storage systems. Leveraging Samsung's latest V-NAND technology with 64-layer, 3-bit 512-gigabit (Gb) chips, the 30.72 terabyte (TB) drive delivers twice the capacity and performance of the previous 15.36TB high-capacity lineup introduced in March 2016.

This breakthrough was made possible by combining 32 of the new 1TB NAND flash packages, each comprised of 16 stacked layers of 512Gb V-NAND chips. These super-dense 1TB packages allow for approximately 5,700 5-gigabyte (GB), full HD movie files to be stored within a mere 2.5-inch storage device.

In addition to the doubled capacity, performance levels have risen significantly and are nearly twice that of Samsung's previous generation high-capacity SAS SSD. Based on a 12Gb/s SAS interface, the new PM1643 drive features random read and write speeds of up to 400,000 IOPS and 50,000 IOPS, and sequential read and write speeds of up to 2,100MB/s and 1,700 MB/s, respectively. These represent approximately four times the random read performance and three times the sequential read performance of a typical 2.5-inch SATA SSD*.

"With our launch of the 30.72TB SSD, we are once again shattering the enterprise storage capacity barrier, and in the process, opening up new horizons for ultra-high capacity storage systems worldwide," said Jaesoo Han, executive vice president, Memory Sales & Marketing Team at Samsung Electronics. "Samsung will continue to move aggressively in meeting the shifting demand toward SSDs over 10TB and at the same time, accelerating adoption of our trail-blazing storage solutions in a new age of enterprise systems."

Samsung reached the new capacity and performance enhancements through several technology progressions in the design of its controller, DRAM packaging and associated software. Included in these advancements is a highly efficient controller architecture that integrates nine controllers from the previous high-capacity SSD lineup into a single package, enabling a greater amount of space within the SSD to be used for storage. The PM1643 drive also applies Through Silicon Via (TSV) technology to interconnect 8Gb DDR4 chips, creating 10 4GB TSV DRAM packages, totaling 40GB of DRAM. This marks the first time that TSV-applied DRAM has been used in an SSD.

Complementing the SSD's hardware ingenuity is enhanced software that supports metadata protection as well as data retention and recovery from sudden power failures, and an error correction code (ECC) algorithm to ensure high reliability and minimal storage maintenance. Furthermore, the SSD provides a robust endurance level of one full drive write per day (DWPD), which translates into writing 30.72TB of data every day over the five-year warranty period without failure. The PM1643 also offers a mean time between failures (MTBF) of two million hours.

Samsung started manufacturing initial quantities of the 30.72TB SSDs in January and plans to expand the lineup later this year – with 15.36TB, 7.68TB, 3.84TB, 1.92TB, 960GB and 800GB versions – to further drive

the growth of all-flash-arrays and accelerate the transition from hard disk drives (HDDs) to SSDs in the enterprise market. The wide range of models and much improved performance will be pivotal in meeting the growing storage needs in a host of market segments, including the government, financial services, healthcare, education, oil & gas, pharmaceutical, social media, business services, retail and communications sectors.

** Compared to 2.5-inch Samsung SSD 850 EVO*

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