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The World's First 3D V-NAND SSD One giant leap ahead



What is V-NAND and how does it differ from existing technology?

Samsung's 3D V-NAND flash memory is fabricated using an innovative vertical design. Its vertical architecture stacks 32 cell layers on top of one another rather than trying to decrease the cells' length and width to fit today's ever-shrinking form factors. This architecture results in higher density and higher performance using a smaller footprint. Samsung's 3D V-NAND technology is a breakthrough in overcoming the density limits currently faced with conventional planar NAND architecture.

Boost performance with an industry-leading 3D V-NAND SSD

Powered by Samsung's own cutting-edge 3D V-NAND technology, the 850 PRO delivers up to two times the density and write speed when compared with traditional 20 nm planar NAND flash for the ultimate in read and write performance. By changing to a 32-layer cylindrical cell structure, more cells can be stacked vertically, resulting in a smaller footprint and higher density. As a result, you gain superior maximum read and write performance in both sequential and random aspects, especially the 128GB model that outperforms other similar models in the market by more than 100Mb/s in write speed.



Shift into high gear with the RAPID mode

Plus, you can kick up the read/write performance on every capacity when you need it with the RAPID mode. Just like shifting gears in a car, Magician software gives you the option to enhance performance by processing data on a system level using free PC memory (DRAM) as a cache. The 128 GB model, for example, is able to double its performance by using the V-NAND technology.





Work longer with high-efficiency innovation

The efficient, power management components in the 850 PRO enable you work longer and more productively. The 850 PRO boasts the lowest power consumption of any SSD when in full use so that power consumption is minimized while market-leading performance is maintained. And, in the device sleep mode, it consumes only 2 m watts of power, as determined in test results on an Ultrabook™ device. Plus, its LPDDR2 cache memory provides higher performance while consuming 30 percent less power when active and 93 percent less power when idle than typical DDR2 or DDR3 memory.



Safeguard precious data without sacrificing performance

When you take your laptop on the road, you not only need to protect your PC's hardware, but your personal data, too. But don't worry. The 850 PRO's Self-Encrypting Drive (SED) technology will help keep it safe, even if you lose your laptop. The drive includes an AES-256-bit hardware-based, full disk encryption engine that secures your data without performance degradation, which is often experienced with software-based encryption.

The 850 PRO's advanced security complies with the Trusted Computing Group™ (TCG) Opal v2.0 standards, protecting Postscript Image Data (PSID), and is compatible with the Microsoft® eDrive Institute of Electrical and Electronics Engineers (IEEE) 1667 protocol. Plus, you can erase or initialize data with the crypto erase service.



Protect your PC from overheating with Dynamic Thermal Guard protection

To ensure it won't let you down, the 850 PRO includes Dynamic Thermal Guard protection, which keeps your PC performance safe from heat. After all, when you're totally immersed in your work or in a competitive video game, the last thing you want to have happen is for your computer to overheat. Dynamic Thermal Guard protection monitors and maintains the drive's optimal operating temperature with a throttle feature that automatically drops the SSD's temperature when necessary to protect your data and ensure the responsiveness you expect. So, your PC will stay cool, even if you overwork it - and you'll keep your cool, too.



Level up to the 850 PRO simply without any hassle

Samsung has made upgrading to the 850 PRO simple using its One-stop Install Navigator software. You can migrate all the data from your SSD or HDD to the 850 PRO quickly and easily. The Auto Install guide, included in the toolkit, guides you through the simple three-step installation process.

What's more, you can conveniently monitor, manage and maintain your new 850 PRO with the Samsung Magician software that's also available through the One-stop Install Navigator toolkit. The Magician features tools to help you maximize performance, including benchmarking, advanced OS optimization, disk health status tracking and over-provisioning (OP) settings.



