What is Solid State Hybrid Drive (SSHD)?

In 2011, a new category of storage device that combines solid state storage technology with traditional hard drive technology was brought to the market. The device became known as the solid state hybrid drive (SSHD). It combines the old and the new to deliver high performance, lots of capacity and a price that works.

Boosting system performance

Modern computers utilize advanced microprocessors capable of many millions of complex computations every second. But they can only go as fast as your storage allows. All of the digital information stored on your computer hard drive—images, videos, documents and more—are fuel for your microprocessor. The faster you can deliver this digital fuel to your computer’s microprocessor, the faster your computer will perform and the richer the applications it can support.

Solid State Drive (SSD) technology has some very attractive benefits, the most important of which is performance. An SSD will deliver significantly more overall computer system performance compared to a traditional hard drive. Unlike a hard drive which has spinning disks and moving parts as key elements of locating, reading and retrieving digital data, SDDs use no moving parts and deliver data to your computer microprocessor effectively and quickly.

But SSDs are expensive. That’s why they’ve only been utilized in the highest performance laptops. Their higher technology costs have prohibited them being realistic for most systems. Most people installing an SSD in their computer have to compromise with a very small amount of capacity, perhaps 64GB – 128GB, just to make it affordable.

The “no-compromise” solution

In reality, what the computer industry needs is a storage technology that provides the capacity and price profile of a hard drive with the performance of an SSD. Solid state hybrid drives (SSHD) deliver it. SSHD technology integrates a small and affordable amount of solid state memory into the core architecture of an HDD to produce an incredible combined benefit: the capacity of a hard drive, speed similar to an SSD and a price that is slightly more than a traditional hard drive.

It sounds so simple and straightforward when you describe it, but the secret sauce at the core of the SSHD platform is sophisticated software that keeps track of frequently used data and stores it in the fast, solid state portion of the system. The results are impressive, delivering boot times and overall system responsiveness far in excess of systems utilizing traditional hard drives and very near the results of the much more expensive SSD-based systems.

High performance and capacity at a price that works

This win-win combination of performance, capacity and affordability has huge possibilities for computing. In fact, even mainstream technology analysts agree. IDC, a leader in tracking and forecasting the computer storage market, recently recognized and began forecasting SSHD technology as a unique category. They estimate that penetration in the notebook computer market will reach 33% by 2016 and deliver a combined annual growth rate of 162.4% between 2011 and 2016.

Once in a while, a new technology comes along that just seems to make sense. The speed I want, the capacity I need, at a price I can afford. Solid state hybrid drives provide all three.

1 Based on Dell™ Latitude™ E6430 tested with Core i5, 8GB Memory, Discrete graphics, Windows 7 with 500GB or 512GB storage options.

Workforce productivity
In order to fully exploit the rapid advances in processor technology, the hard disk drive (HDD) needs to evolve as well.

Solid state drives (SSDs) have generated so much interest as a solution for more efficient storage and higher productivity. But while SSD technology has proven to deliver significantly improved performance and higher processor utilization, it comes with a higher price tag. SSD may be a viable solution for systems limited to 64GB – 128GB of storage, but many commercial notebook, laptop and desktop PCs may require higher capacity.

Solid state hybrid drives (SSHD) can cost-effectively fill these performance and capacity gaps. They integrate the speed of SSD for frequently used data and the capacity of HDD at a price-performance point far below SSDs and just slightly above HDDs.

Solid State Hybrid Drive availability
Dell offers SSHD on select business-class client systems, including many Latitude laptops and OptiPlex desktops.

Dell Latitude™ laptops
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Dell Latitude E6330 - full professional performance in a compact and lightweight laptop. The Latitude E6330 offers a 13.3-inch display and is designed for professionals on the move.

Dell Latitude E6430 - durable for the professional who works from home as much as the office, the Latitude E6430 offers a 14” screen and a docking ecosystem.

Dell Latitude E6430s - featuring a beautiful 14” display in a 13” chassis, the Latitude E6430s offers a spacious screen in a compact body for great mobility

Dell Latitude E6530 - work comfortably with the expansive display, high-performance graphics, dedicated numeric keypad and easy docking capability of the Latitude E6530.

Dell Latitude E6430 ATG - work in tough, outdoor environments with the semirugged Latitude E6430 ATG. It offers efficient management, data security and a docking option.

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Deploying SSHD
Because the SSHD installs and communicates just like a traditional hard drive, it’s 100% compatible with existing operating systems and delivers productivity benefits rapidly.

Hybrid drives close the gap
The emergence of solid state hybrid drive (SSHD) technology provides a way for users to get more performance from their machines, run richer applications, and make stronger contributions to the organization. SSHDs combine a small, fast and affordable amount of NAND flash memory with a traditional hard drive. A SSHD drive costs more than a traditional hard drive but the higher productivity it delivers provides a quick return on the investment.

1 Based on testing performance in Dell labs on Dell™ Latitude™ E6430 with Intel® Core™ i5 processor, 8GB memory, discrete graphics, and Windows 7 with 500GB or 512GB storage options. July, 2012. Actual performance will vary based on configuration, usage and manufacturing variability.

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