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Windows
Microsoft

[The Windows 7 Evolution to NAND-Flash Solid-State Disks \(SSDs\)](#)

Microsoft working with Intel, Samsung, Sandisk and Seagate for the Windows and SSD marriage

By tailoring Windows 7 to the evolution of hardware, Microsoft is not only preparing stronger support for parallel computing with the next generation of its Windows client, but it is also embracing the NAND-flash based solid-state storage devices (SSDs). At this year's Windows Hardware Engineering Conference in Los Angeles, the Redmond company indicated a consistent focus on riding the wave designed to take the architecture of computer storage subsystems to the next level. Windows 7 will be optimized to take advantage of the higher bandwidth and the increased random I/O performance, which leaves rotating disks in the dust.

At WinHEC 2008 Microsoft offered proof of its collaboration with Intel, Samsung, Sandisk and Seagate for the Windows and SSD marriage. [In an exclusive interview with Softpedia, Siobhan M. Lyons, Seagate Corporate Communications, Consumer Solutions Division](#), confirmed the efforts the Redmond giant was pouring into collaborating with industry partners, in order to support solid-state drive technologies. "Microsoft introduced several new technology advancements intended to enhance the use of SSD in conjunction with Windows 7," Lyons revealed.

Microsoft's commitment to deliver an enhanced user experience with the next version of the Windows platform, compared to Windows Vista, means that Windows 7 will be better equipped to deal with innovative technology, including solid-state drives, hybrid hard-disk drives, and even self-encrypting storage products. According to Lyons, Microsoft is readying Windows 7 for scenarios in which HDDs and SSDs will coexist on the market, in the natural transition period to NAND-flash solid-state disks.

"HDDs and SSDs currently plug into the same storage eco system socket and look the same to the OS - although they should be treated differently with regards to some aspects. Windows 7 will set Defrag off as a default, when detecting non-rotating media, improving device endurance by reducing writes. Windows 7 supports the Microsoft implementation of the 'Trim' feature, which enables three optimization opportunities for the drive that are: enhancing device wear leveling by eliminating merge operation for all deleted data blocks, making early garbage collection possible for fast write, keeping device's unused storage area as much as possible; there is more room for device wear leveling," Lyons explained.

In order to achieve maximum I/O performance, not only on paper, but, certainly, also at levels by far superior to traditional hard disk designs, hardware optimizations are only part of the equation. Microsoft revealed that the software needed specific tweaks in order to accommodate SSDs and to ensure performance. According to [Microsoft Research](#), the cocktail between workload characteristics and the properties of the allocation pool, load balancing, data placement, and block management (wear-leveling and cleaning) is a critical factor determining SSD performance.

"Seagate is working with Microsoft in standards bodies such as JEDEC JC64.8 to build the foundation to a successful growth of the SSD market. Widely adopted industry standards will allow the operating system to best embrace the SSD technology in the future. While standards build the foundation, there is intentionally clearly enough head room for each

vendor to differentiate and innovate which Seagate plans to do as well."

Our very own Ionut Arghire had a chat with Siobhan M. Lyons, from Seagate, on more things than just Windows 7 and SSDs. [You can access the full interview via this link](#). Extremely interesting details.