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Flash platform to vie with hybrid drives

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[Flash memory](#) vendor Silicon Storage Technology Inc. and [BIOS](#) developer Insyde Software Corp. are collaborating on a platform for flash-based storage in the PC. The duo hopes the approach, called FlashMate, spawns a fresh class of PC applications and utilities to drive use of the partners' [flash](#) chips and software.

FlashMate is essentially an [extension](#) of the existing NANDrive from Silicon Storage Technology (SST; Sunnyvale, Calif.) combined with new systems software from Insyde (Taipei, Taiwan). The resulting chips and code will support the existing hybrid hard drive features defined by Microsoft Corp.

In addition, FlashMate will let users access data on a system's hard drive via a USB device, even if the computer's [CPU](#) is essentially shut down in an S3-S5 low-power state.

FlashMate could let users sync peripherals, play media on a hard drive or make voice-over-IP calls without going through a CPU, thus saving power and time. The approach also lets users access Side Show, a Microsoft Vista feature for peripherals that, among other things, lets notebooks [display](#) data on a small external LCD on the their lid even when the system is closed and in low-power mode.

"We want to give OEMs a whole new way to look at what they can do with hybrid drives," said Yuping Chung, a business director at SST.

"We will provide a software developers' kit and some sample apps so that OEMs can create applications for their users with this platform," said Stephen Gentile, a senior vice president and co-founder of Insyde. "We are looking for applications partners, too."

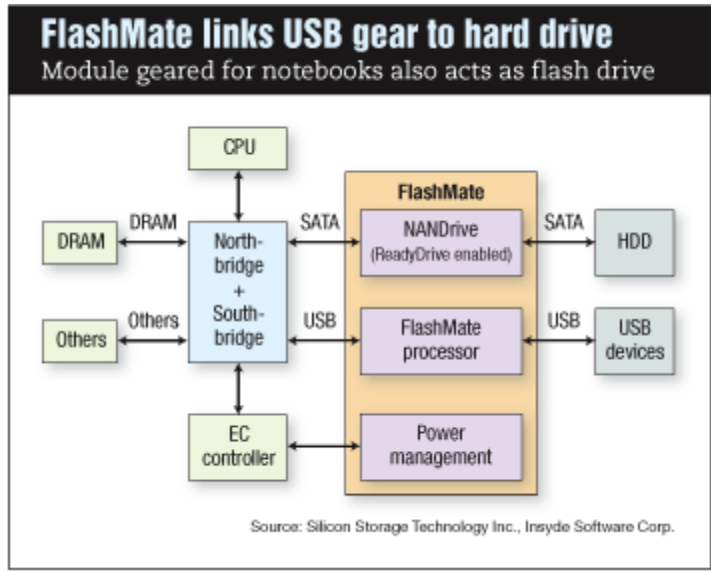
Nascent effort

It is still early days for the concept, and therefore difficult to predict whether it will catch on. SST does not yet have its FlashMate silicon ready, and Insyde has yet to finish its software or land any partners or design wins.

Clearly, however, [computer](#) makers are putting increasing amounts of flash memory in their systems, driving hopes for many new approaches. Intel has defined a Turbo Boost internal flash card, previously known as Robeson, that has appeared in several notebooks. The Microsoft-defined hybrid hard drive, meanwhile, uses some internal flash. Both technologies aim to speed such processes as booting a system and loading applications.

Separately, a growing number of companies are building solid-state drives (SSDs) for notebooks and servers. Those drives are gaining traction in models that want the lowest power or highest reliability.

"The bulk of the new NAND flash going into computers will be in the form of these solid-state drives, rather than the Intel or Microsoft approaches," predicted Adrienne Downey, an analyst at Semico Research (Phoenix).



Joseph Unsworth, principal analyst for NAND flash at Gartner Group, agreed. "SSDs have a vibrant opportunity because they are already getting support from top OEMs such as Dell and HP," he said.

As many as 43 million SSDs will ship by 2011, mainly in notebook and server systems, Gartner predicts. Hybrid hard drives may reach 30 million units and Intel Turbo Boost cards 25 million units by 2010, Unsworth said. The three approaches are likely to ship less than a million units in 2007, he added.

"This year and next year, we are still in education mode for any kind of NAND flash in computing," said Unsworth. "It will remain niche for the next couple of years, until flash prices come down more."

Downey said FlashMate holds promise because the features it could enable would likely hold more appeal for end users than the performance increases touted for the Intel and Microsoft approaches.

"Users don't see that much benefit from hybrid hard drive approaches, so they may prefer to spend their money on additional DRAM," she said.

Still, FlashMate is "the first product of this type I have heard of," Downey said. "It seems like they have not got all their ducks in a row yet."

Inside FlashMate

The approach will initially require two BGA chips from SST. One package will include an ARM controller and NAND flash. The other is a version of SST's NANDrive that will include a flash [controller](#) and NOR memory.

Eventually, SST expects to put all of the dice in one BGA package.

The chips will ride Serial [ATA](#) 2.0 and USB 2.0 to link to the internal hard drive, [chip](#) set and external devices on a notebook. The companies have not yet determined the exact density of NAND in their initial products but have a road map that extends into multiple gigabytes.

Software for FlashMate, which will link to both the PC BIOS and external devices, is also a work in progress.

"There will be mechanisms and utilities to predefine locations on the drive for devices to access for synchronization or other features," said Insyde's Gentile.

The duo plans to ship its first products before June, but currently the partners have no working devices or performance metrics for FlashMate. It's therefore not surprising that the partners have yet to garner design wins or third-party software partners.

"The approach is interesting, but I'd like to see some OEM support behind it," said Unsworth of Gartner. "Ultimately, their success will come down to how well they market their unique features to end users."

