

Western Digital To Acquire SanDisk



OBJECTIVE ANALYSIS SEMICONDUCTOR MARKET RESEARCH



Vertical Integration Motivates Purchase

On 21 October, 2015, Western Digital (WDC) and SanDisk announced an agreement under which Western Digital will acquire all outstanding shares of SanDisk for a combination of cash and stock amounting to \$86.50 per share or a total of about \$19 billion, subject to approval by SanDisk shareholders. The balance of stock and shares depends upon the status of Tsinghua Unisplendour's investment in Western Digital. If the Unisplendour deal closes prior to the acquisition, Western Digital will give \$85.10 in cash and 0.0176 shares of Western Digital common stock for every share of SanDisk common stock. If the Unisplendour transaction has not closed or has been terminated, Western Digital will pay \$67.50 in cash and 0.2387 shares of Western Digital common stock per share of SanDisk common stock.

What this Means for Western Digital

Hard disk drive (HDD) vendors and others in the related fields continually assert that the only way to compete in this business is to be vertically integrated. About 80% of an SSD's manufacturing cost is NAND flash chips, and HDD makers feel very strongly that they need to produce NAND flash chips in order to remain competitive. To that end, they have been facing a tough choice: Do they build new NAND flash fabs to fulfill this need, or do they acquire a flash chip maker? Western Digital has taken advantage of SanDisk's low stock price to acquire the firm, using its recently-awarded Tsinghua Unisplendour investment to facilitate the deal.

Objective Analysis believes that captive supply is not a necessary component of success in SSDs, and points to the DRAM module market, which is structurally similar, and whose most successful vendors have no captive source of supply. These companies can take advantage of the commodity status of their chips to negotiate prices which are often lower than they could attain using a captive source of supply.

How Does SanDisk Benefit?

SanDisk has been undergoing some difficult times lately. Of all the company's product segments, client SSD revenues have tumbled the most over the past year, from a high of \$343 million in 2Q14 to a low of \$124 million in 2Q15. At the same time SanDisk's enterprise SSD revenues have fallen off, as well as revenues from the company's embedded and removable segments. Although there was some recovery last quarter in certain of these segments, the company has lost a good bit of its shareholders' respect, and would need several quarters of improvement before its stock price would be likely to recover.

Management is charged with acting in the best interest of its shareholders, and appears to believe that an offer that is 15% over Tuesday's close, and 88% above the past year's lowest closing should provide a better return than anticipated share price improvements over the longer term.

Will This Change The Business?

There is little reason to anticipate any near-term market impact from this move. SanDisk should continue as it has in the past, and WDC will get its longed-for captive source of flash, and will now have a broader product offering. Don't expect price changes for NAND flash, SSDs, or related products because of the sale, and today's mild oversupply should continue as it has before.

Western Digital explains that it expects to achieve annual synergies of \$500 million within 18 months of closing. This implies that several duplicate product lines will be terminated, and customers will be encouraged to convert from certain WDC products to others.

Looking for Synergies

The two companies' product lines overlap a good bit, but other synergies are not as obvious. The list below shows overlaps that will need to be sorted out:

- **SAS SSDs**: SanDisk has Pliant products while WDC has its market-leading HGST line plus products from sTec
- **PCIe SSDs**: SanDisk sells Fusion-io's pioneering product line while WDC has a competing offering from Virident
- **SSD Caching Software**: SanDisk has two products: Flashsoft and IO Turbine (from Fusion-io) while WDC sells Velobit
- **SATA SSDs**: SanDisk first entered this market in the 1980s, and has been a serious contender for the past ten years, while WDC provides SATA products through its sTec and SiliconSystems acquisitions.
- **Flash Arrays**: SanDisk recently introduced its InfiniFlash arrays, while WDC owns Skyera

There may be operational synergies that are not immediately visible from outside the firms. Interestingly enough, WDC and SanDisk first developed a relationship back in the late 1980s, when Western Digital invested in SanDisk and co-authored very early SSD patents with them. The two companies jointly developed a 1MB 2.5" IDE SSD as early as 1989. This may result in a better fit since the two companies already have some understanding of one another.

China's Involvement

China seems to be part of this arrangement. Tsinghua's Unisplendour invested in WDC September 30, taking a 15% stake in the company in return for a position on WDC's board. Shortly after on October 19, China's Ministry of Commerce "MOFCOM" lifted a 3-year-old ban that barred WDC from integrating its HGST acquisition. This occurred after a rumor circulated that Tsinghua Unigroup had bid to acquire Micron Technology, and other rumors surfaced that China's XMC foundry was to be converted to NAND flash manufacturing.

The Chinese government is interested in developing a domestic source for most of the chips used in its contract manufacturing, and Tsinghua's WDC investment may be part of a strategy to reach that end. SK hynix produces NAND flash in its Wuxi fab complex, and all of Samsung's 3D V-NAND flash is produced in its

Xi'an plant, but neither of these is a Chinese company, and the government's goal is to develop domestic sources of supply.

From an external viewpoint WDC's SanDisk acquisition appears to have only an oblique relationship to China's goals, since SanDisk doesn't fully own its wafer fabrication plants, and has no chipmaking facilities in China, but the company does have considerable IP and know-how that could be used to eventually install a factory in China.

Expectations for the Long Term

Often an acquiring company puts its stamp all over a target to the detriment of that target, or uses the target in ways that can undermine the reason for the acquisition. We look back at WDC's acquisition of SiliconSystems, an SSD supplier, in 2009 to see that SiliconSystems never really progressed after that point, remaining a small supplier of SSDs. Although HGST has fared very well under WDC, dominating the SAS SSD market and growing even more through the acquisitions of Velobit, Virident, sTec, and Skyera, this may have been facilitated by China's refusal until this week to allow the two companies to fully integrate.

SanDisk has a retail presence that WDC does not enjoy: SanDisk memory cards sell in drugstores and other consumer outlets where no WDC product can be found. SanDisk also sells much lower ASP items than WDC does, and manufactures its flash chips through a very strong joint venture with one of WDC's only two competitors: Toshiba. WDC may or may not desire the stronger retail presence, and may not want to keep the low-ASP business. The relationship with Toshiba may eventually change.

There is always the possibility that WDC will split up SanDisk and sell off certain portions, as Avago recently did with its LSI acquisition. It is always difficult to anticipate how such a move might unfold.

HGST has a close partnership with Intel who announced on Oct. 20 a plan to convert its Dailan, China, plant to NAND flash. If China pushes hard enough, we may even see SanDisk shifting away from its Toshiba joint venture towards a relationship with Intel's flash business, but this is simply conjecture at this point.

Objective Analysis provides information to our clients on the status and company actions in the DRAM, NAND flash, SSDs, flash arrays, microcontroller, and other semiconductor markets. Find out more by visiting our [website](#).

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