

Intel Sells IMFT Assets to Micron



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Reduces Investment in JV Production Capacity

Intel and Micron announced on February 28, 2012, an update to the structure of the two companies' IMFT Joint Venture. Intel will sell its entire interest in the smaller two of the joint venture's three production facilities, Manassas (pictured) and Singapore, to Micron for roughly \$600 million, half of which will be paid in cash to Intel, and the other half to be deposited with Micron where it may be used to pay for future Intel NAND flash purchases from Micron.

The companies have further agreed to extend their relationship to include emerging memory technologies.

The transaction is expected to close during the first half of the year.

Why Would Intel Do This?

With few exceptions Intel is not a NAND flash chip supplier. Although Intel does ship NAND flash chips to its partners, this largely boils down to one company, its partner Hitachi GST. Hitachi ships SSDs based on Intel NAND and a Hitachi rendition of Intel's SSD controller chip. Intel does not compete in the NAND chip business against the four other NAND chip suppliers: Samsung, Toshiba, Hynix, and Micron.

Since it doesn't compete in NAND chips, Intel doesn't want to get into the same difficult situation that SanDisk faced in October 2008. At that time SanDisk had too much capacity for its needs, and had no existing means of selling excess raw NAND flash chips (chips sold without controllers) on the open market, that is, it had no raw NAND chip sales channels, no existing customers for raw NAND flash chips, and no internal support system for raw NAND chip sales. All of these would have been very costly to develop in order to solve a short-term problem and would establish the company in a business in which it had no interest.

SanDisk solved this problem by selling a significant share of its interest in joint venture fabs to partner Toshiba, with an agreement to purchase chips from the JV in the future. Intel is taking the same steps.

This is not a big change for Intel. The company has not made follow-up investments in its Singapore joint venture fab, IMFS, since IMFT's existing capacity has been sufficient for Intel's SSD needs, and process migrations have partly offset the need to add capacity. Both Intel and SanDisk built NAND manufacturing capacity to satisfy overblown growth expectations for the SSD market. The SSD market has grown more slowly than these companies

expected, and they subsequently require less NAND than they planned, so they are taking steps to match their capacity to their needs.

Why Would Micron Be Interested?

Micron has shown interest in increasing its presence in the growing NAND market as an offset to its ailing DRAM business. Last quarter Micron's profits came largely from its NAND flash business. For a quite reasonable sum Micron is increasing its capacity. But that's not the only reason that Micron is pursuing this deal.

The limit to NAND scaling is approaching. Even though it is still unclear when NAND flash will reach its inevitable scaling limit, NAND manufacturers have started to communicate their plans for a successor to this technology. SanDisk and Toshiba seem to be going in different directions, with SanDisk promising ReRAM and Toshiba MRAM. Although Hynix and Samsung have been less vocal, Samsung's acquisition of Grandis in August 2011 indicates that this is the company's intended direction.

Intel is an R&D powerhouse and performed significant research on alternative memory technologies before Numonyx was spun off in 2008. Objective Analysis believes that this research continued at Intel after the spin-off. By teaming up with Intel for R&D Micron will be able to tap into this expertise to its benefit after NAND reaches its scaling limit.

Will Anything Change?

Overall we do not anticipate for this restructuring to impact either company's customers or competitors. Although the JV is being restructured, manufacturing capacity will proceed along its current course, and there will be no availability upsets. The two companies are simply grooming this agreement to fit their businesses as it has matured over the past six years.

Jim Handy & Lane Mason

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Semiconductor Market Research

www.Objective-Analysis.com

blogs.Forbes.com/jimhandy

www.TheMemoryGuy.com

www.TheSSDguy.com

PO Box 440

Los Gatos, CA 95031-0440

USA

+1 (408) 356-2549