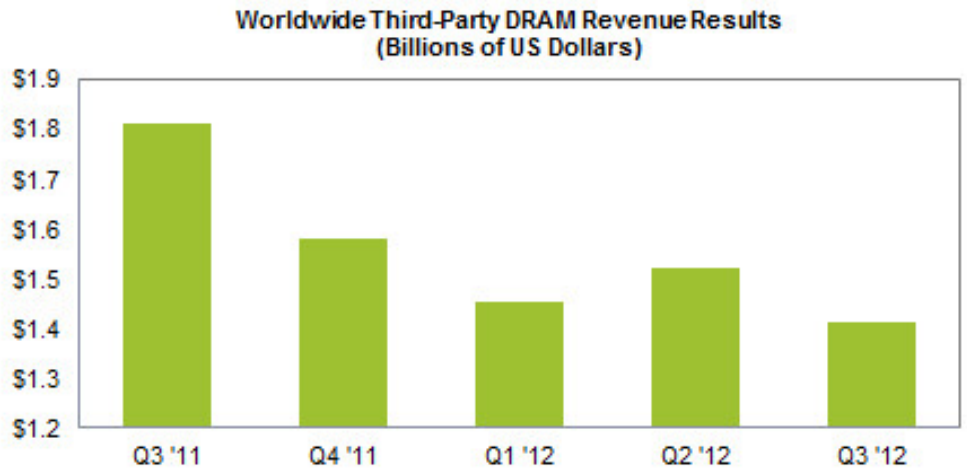
EL SEGUNDO, CA -- In spite of some recent, slightly positive, global economic news, **IHS iSuppli** is forecasting that any recovery in semiconductor device revenues will not start until mid-2013.

The research firm is also forecasting that factory loading and inventory levels will continue to decrease in the fourth quarter of 2012 (since there was no decline in the third quarter) and possibly into the first quarter of 2013 to adjust to the reduced bookings.

Meanwhile, after two straight years of contraction, the global DRAM market has the opportunity to rebound to double-digit growth in 2013, but major risks—including potential continuing weakness in the PC market—easily could undermine hopes for a sales increase this year.

DRAM revenue in 2013 is forecast to reach $30 billion, up 14% from $26.4 billion last year, according to a preliminary IHS forecast. This year is set to mark the first time since 2010 that global DRAM market revenue will rise.



Source: IHS iSuppli Research, January 2013

"The DRAM industry has been clobbered over the past two years by a combination of weak PC sales and an inflated manufacturing base," said Mike Howard, senior principal analyst for DRAM & compute platforms at IHS. "The industry this year is expected to benefit from a return to growth in the PC market, combined with consolidation in suppliers. However, if PC growth falls below expectations and supply remains somewhat inflated, the DRAM market could be

headed for a third straight year of decline in 2013."

PC shipments determine DRAM fate
After declining in 2012 for the first time in 11 years, PC shipments in 2013 are forecast to expand by 8%. A major factor driving the expected rebound in 2013 will be the new generation of touch-enabled ultrabooks running the new Windows 8 operating system.

Nonetheless, there is significant risk to this assumption. The high price of ultrabooks, in particular, has thwarted adoption of the superthin computers, and the public at large has been more enamored of flashier gadgets like tablets and smartphones.

If ultrabooks and Windows 8 do not prove to be the vaunted growth drivers that everyone hopes them to be, the demand profile for DRAM in 2013 will be markedly different, IHS predicts.

A decline this year of 2% in PC shipments, for instance, would mean that the DRAM industry remains oversupplied for the entire year, with prices falling a much larger 29% than the expected 16%. The net result would be a DRAM revenue decline of 7% to $24.6 billion—or a third consecutive year of contraction for the industry since 2010.

A number of supply-side factors also are expected to contribute to the rebound of the DRAM market this year.

Among these factors are the final integration of **Elpida Memory** with its buyer, **Micron Technology;** the continued transition to 2x-nanometer technology of leading players

Samsung
and
SK Hynix
; and the disposition of distressed Taiwanese producers
ProMOS Technologies
and
Powerchip Technology.

For Micron, the 2012 deal in which it purchased bankrupt Elpida of Japan will finally close sometime during the second quarter this year. This means that starting in the middle of 2013, Elpida and its associated fab **Rexchip** will move to Micron's DRAM technology. The transition will pave the way toward reduced output during the second half of the year, which would serve to favorably curb persistent oversupply within the industry and strengthen pricing, stabilizing the market overall.

In the case of Samsung and SK Hynix, the space's most powerful DRAM producers, both suppliers will finish 2013 with approximately 60% of their wafers at a 2x-nanometer manufacturing process. The move to a more efficient lithography will result in bit growth of 30 to 35%—a boon for the players and to the industry at large.

ProMOS and Powerchip, currently reeling from low revenue and high debt, would likely have a positive impact on the industry if they found a buyer. The net drop in DRAM production if their fabs were sold would be minimal, but the cut in production would still help to mitigate oversupply in the first half of the year.

However, another risk that could derail DRAM prospects this year relates to what Micron does after it absorbs Elpida and Rexchip. An optimistic assumption calls for Micron to shift existing DRAM capacity from the acquired companies to the more lucrative NAND flash memory. If this happens, DRAM production would be reduced to the benefit of the industry, resulting in greater undersupply and causing correspondingly stronger prices. However, the opposite would be true—with oversupply continuing and weak prices enduring—if Micron elects to not allocate DRAM capacity from Elpida and Rexchip, for whatever reasons it chooses.

Given the notoriously volatile nature of the industry, DRAM revenue prospects remain highly susceptible to both internal and external forces in 2013, IHS believes. A great deal rests on the verdict on Ultrabooks, Windows 8 and PCs—and on Micron's capacity allocation decisions for

the rest of the industry.