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NAND Continues to Set Records, Semico Says

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Digital consumer applications are driving the NAND market to grow faster than any market in the history of the semiconductor market, according to Phoenix, Ariz.-based Semico Research Corp. with NAND megabytes expected to grow by about 230 percent this year, with revenues jumping 42 percent despite a price collapse that started in Q2.

Semico also said it has modified its near-term growth projections, increasing its 2006 forecast from \$11 billion to \$13 billion, or a 25% jump over 2005's revenues of \$10.2 billion.

Driving NAND growth are a number of unexpected new applications. Digital cameras, camera phones, and USB flash drives – key market drivers to date – are being joined by new demand starting from the MP3 player market, largely through Apple's introduction of two flash-based members of their iPod family this year: the iPod shuffle and the iPod nano.

The resulting growth has taxed manufacturers' ability to match supply with demand, causing sudden unexpected shortages, Semico said.

"One thing is clear about the NAND market, it is hard to over-forecast! Suppliers who ramped their capacity aggressively early in the year are finding that they need to add still more to even start to satisfy demand," said Jim Handy, director of nonvolatile memory services at Semico, in a statement.

NAND makers have been forced to devise some clever tricks to stay ahead of demand, or even to match its growth. For example, Samsung is not only migrating the technology across process nodes faster than any of their other technologies, but they are also converting numerous DRAM fabs to NAND and running the technology on two of their new 300mm lines.

Toshiba and SanDisk, through their Flash Vision joint venture are investing heavily to open a new mega-fab in Japan ahead of an already-aggressive schedule on top of rapid process shrinks and a prior conversion to MLC which practically doubled their effective capacity, Semico continued.

Hynix is ramping faster than any others from zero NAND shipments early last year to becoming the third largest supplier in Q3, with even smaller suppliers like Renesas, M-Systems, STMicroelectronics, Micron Technology and Infineon looking for ways to ramp quickly.

"Major NAND users, OEMs like Lexar Media, Kingston, Viking Technologies; camera companies, like Nikon, Olympus, Kodak, Canon, & Fuji Film; MP3 Player companies like Apple, Creative, and Sony, and some of their suppliers like SigmaTel and Silicon Motion, are faced with supply constraints that are forcing prices up and causing demand to be tight," Handy concluded.

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