

MARKET FOCUS

AMD seen with new MirrorBit memory

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SAN FRANCISCO (CBS.MW) -- Advanced Micro Devices could debut a MirrorBit-based chip next month capable of competing on price and performance with NAND flash, opening up part of a multi-billion dollar market for the chipmaker.

Although exact details remain unknown, Jim Handy, a flash memory analyst with Semico Research, said he expects AMD to demonstrate that its MirrorBit technology can be applied to the NAND market at its analyst meeting on November 12.

The significance of such an introduction would start to open up a \$6 billion marketplace for AMD (AMD: news, chart, profile).

Flash memory chips, which retain data when power is turned off, are used in handheld electronic devices like cell phones, digital cameras and digital music players.

The two types of flash -- named "NAND" and "NOR" after the mathematical actions they perform -- do the same thing in different ways. AMD makes only NOR chips, as does its main rival Intel (INTC: news, chart, profile).

NAND is less expensive and writes data more quickly, so it's popular in devices like digital cameras and music players. The NOR variety is more expensive, but can read data more quickly, so it's often used in cell phones and to boot up personal computers.

Chip research firm iSuppli estimates 2004 sales for NOR flash at around \$9 billion and NAND revenue at \$6 billion.

A major hurdle to the use of NOR vs. NAND has been NOR's higher cost base and NAND's better write ability, such as its ability to more quickly snap and store a photo in a digital camera.

As cell phones take on the capabilities of digital cameras, to cite only one example, the opportunity exists for NAND and NOR to expand into the other's product niches. NAND manufacturers, led by Samsung, and NOR players have increasing designs on doing exactly this.

Flash analyst Richard Gordon with Gartner said he sees this convergence happening and that he would not be surprised to see both AMD and Intel try to develop low cost, NAND-like products based on their respective technologies.

He said, specifically, that NOR vendors might find an underserved NAND opportunity with low-capacity, bundled flash at densities like 256 megabits or 512 megabits. Major NAND vendors are pushing the densities of their products beyond 2 gigabits on up to 8 gigabits.

He said the part of the NAND market that AMD could serve would be relatively small, but that it is a growing part of the market. "It would demonstrate an ability to adapt or evolve a technology to suit a different application," Gordon said. "It's more a market extension strategy, really."

'It can be done'

AMD has stated getting into the NAND market is a goal. During last year's analyst meeting in November, AMD made a reference to "NAND-on-MirrorBit" and showed an expectation for MirrorBit to take share from NAND through 2006.

The company also showed a chart displaying a 512-megabit MirrorBit NOR reaching price parity with NAND in mid-fourth quarter of this year, with a cross-over benefit after that.

"There's no reason why [AMD] can't make NAND using MirrorBit technology, but there's also the possibility that they might choose to make something that competes with NAND, but is not technically a NAND part," said Handy.

He added that Infineon (IFX: news, chart, profile) is currently trying to get into the NAND business with technology similar to MirrorBit, but the company's inexperience with flash memory seems to be holding it back.

"That proves it can be done," Handy said. "AMD is a flash powerhouse, so they can probably do what Infineon is doing and reach production volumes a lot faster."

'Humongous opportunity'

The company has been characteristically secretive about its MirrorBit technology, but Chief Executive Hector Ruiz said during a conference call Thursday that MirrorBit is not limited to the NOR market. He said details would be discussed at the analyst meeting.

AMD debuted MirrorBit in 2002 as a new flash architecture, doubling the density of traditional NOR devices by storing two pieces of information in a single memory cell. Its costs 30 percent less than other NOR technologies, AMD has stated.

"The technology we've created, though its been perceived to be only a NOR technology, MirrorBit is actually going to be providing NAND-like features with improved performance and cost, and, therefore, we believe we'll be able to be a player in all of those areas where NAND today is beginning to play a big roll," said Ruiz.

"I think what the customer is going to look for is what product solves their needs, what provides the features, the cost, and the things they're looking for," said Ruiz.

Analyst Kevin Rottinghaus with FTN Midwest Research said the ability for AMD to follow through on moving MirrorBit into NAND territory is not a foregone conclusion. "It remains to be seen. They haven't shown they can break that out into any other markets," he said.

Still, the chance to do so might be too irresistible to AMD. "If they can do that, it's a humongous opportunity for the company," said Rottinghaus.

Chris Kraeuter is a reporter for CBS.MarketWatch.com in San Francisco.

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