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Will CE Boom Change the Foundry Biz?

By Jessica Davis -- 5/5/2005

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While moving to 65 nanometer may be at the top of mind for executives at some chip companies, according to Kenneth Kin at TSMC, the biggest change going on in the industry today is the move to digital consumer electronics.

That's not to say he doesn't believe that the move to 65nm will be a challenge. Indeed, the company has acknowledged the move will be more difficult than the one to 90nm

Rather, Kin, senior VP of worldwide sales and service, believes that a bigger overall change is happening in the marketplace itself, far removed from the research and development labs of the Taiwan-based foundry.

"If you look at the industry as a whole, there has been a move from IT to communications," he said. While the industry started out with IT as its biggest growth engine – a market controlled by businesses -- over time that shifted to communications – a market where customers were both businesses and consumers.

According to TSMC's Chuck Byers, director of worldwide brand management, computing reigned as the company's number one market until about the year 2000 when communications over took it. In the most recent quarter, Q1 of 2005, communications had grown to 41 percent of total revenues compared to computing, which made up 34 percent. In the same quarter, consumer electronics made up 17 percent, an identical percentage to the year prior.

But every analysts' market growth chart predicts that consumer electronics is growing faster than any other market for semiconductors. And the buyers for CE products are different from those for IT and to a lesser extent from those for communications. In this market, the fickle, cost-conscious consumer controls the purse strings.

"When you talk about a computer or servers and workstations, those are purchases that are made by businesses that have to budget and plan ahead," said Joanne Itow, managing director of the manufacturing practice at the analyst firm Semico. "The design of desktop hasn't changed much over the last 10 or 15 years. But when you look at trends with teenagers and cell phones, and other consumer electronics products, it will all be changing. The whole attraction of the CE market is to create things that will attract a new buyer."

Itow believes that the Korean companies have a particularly good understanding of how the market works – that it can sell the initial product to a first wave of buyers, but to attract the new wave it must add more features without adding to the overall cost of the end device.

And while all semi markets are cost conscious, the consumer end market is much more so than either the computing or communications markets where corporate buyers spend thousands of dollars on high-end equipment.

"In that respect it's a huge industry change, and there are a lot of ramifications of that change," said Kin. "That puts pressure on the industry as a whole." The industry will need to look for ways to cut the costs of producing their products.

Itow believes that while NREs won't necessarily be reduced that fabs will look for ways to run more efficiently, such as moving to new technologies like 300mm wafers.

Beyond cost and becoming more efficient, other challenges loom as well as the industry shifts to serve more consumer markets.

For example, power consumption may become more important than performance as more consumer electronics products go mobile, according to Kin. This trend was first evident in sub notebook computers that sacrificed processor speed in order to gain more battery life. But the trend didn't stop there. Mobile phones became another prime example as consumers wanted all the new features such as color screens and cameras but didn't want to give up any battery life.

And with shorter product cycles, and uncertainty about what trends are on the way, the consumer market will be much tougher for foundries to serve in terms of planning.

For example, the Tamagotchi, a small toy that functioned as an electronic pet that the user would feed and care for, rose as a huge fad in the late 1990s.

"The foundries filled up making these electronic pets," Itow said. "They made millions of them. UMC and a couple of the other foundries filled up one season because of that little toy, and that kind of trendy consumer application is going to become a part of the foundry. But it's harder to plan for and it has a short life cycle. These things have a huge upswing in demand, and then who knows how long it's going to last. Planning for that is very difficult."

Itow also noted that a few years back foundries were looking to attract more of the industrial and automotive markets because they were so stable. But in terms of volume those markets haven't delivered anywhere near what the companies need. For TSMC these have only contributed 1 or 2 percent to total revenues. Consumer electronics, for all the headaches it will create, looks to be a much higher volume market going forward, and one that foundries need.

The effects of these kinds of changes to the semiconductor market overall are at top of mind at TSMC, said Kin. And questions about other changes still loom. For example, how will the short product cycles of consumer electronics affect the foundry business?

And will the seasonality of consumer electronics make a difference at foundries? Most consumer spending happens at the end of the calendar year and beginning of the new calendar year as consumers celebrate Christmas and the Chinese New Year. The Consumer Electronics Show in January previews technologies that will be on sale in that end of year shopping season, and then chipmakers pair up with OEMs in the spring. The business follows a strong annual cyclical pattern.

"We are still sorting out what that means to the industry and to foundries," said Kin.

"There is a lot of pressure on all sides in consumer market, in technology, in cost and in time to market," Itow said.

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