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Samsung: Why we will succeed in foundry biz

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(03/02/2010 4:28 PM EST)

URL: <http://www.eetimes.com/showArticle.jhtml?articleID=223101238>

SAN JOSE, Calif. -- The leading-edge foundry market is up for grabs, as several vendors have stumbled or been victims of the shakeout.

Not long ago, the "Big Four" foundry players dominated the high-end: Chartered, IBM, TSMC and UMC. Then, at one time, SMIC joined the fray.

Now, it's a different landscape. Taiwan's TSMC remains on top, but the foundry giant stumbled and had yield issues at the 40-nm node. TSMC claims it has fixed the problem.

IBM continues to play at the high-end, but it remains a small and niche player. Taiwan's UMC appears to be falling behind the leading-edge pack. In fact, one of its big customers, Xilinx Inc., dropped UMC at the 28-nm node, choosing instead TSMC and Samsung.

China's SMIC has also dropped out of the Moore's Law foundry race. And Singapore's Chartered was recently acquired by GlobalFoundries, the spin-off from AMD's manufacturing unit.

So, who are the leading players at the high end? TSMC remains the leader, with GlobalFoundries attempting to grab the headlines. Perhaps the real darkhorse is Samsung.

Samsung has been in the foundry business for years. But lately, the Korean semiconductor giant is making a huge push in the arena. Still, many are skeptical about Samsung's push in the foundry business; the company has not made a major dent thus far.

Nonetheless, Samsung is the player to watch. At the Semico Outlook Conference here, *EE Times* caught up with Ana Hunter, vice president of foundry services for Samsung Semiconductor Inc.

Hunter said Samsung's share of the foundry business "is not as big as we want," but noted that "it takes time" to put the pieces in place and ramp designs.

During and after a presentation, Hunter provided six basic reasons why Samsung believes it will succeed in the foundry business:

1. Samsung plans to double its production of chips for outside customers every year until it rivals market leader TSMC, according to reports. Sources believe it is expanding its foundry fab in Korea. In other words, Samsung is committed to the business. "The foundry business is part of our core strategy," Hunter said.
2. Samsung sees room at the high-end of the foundry business. It is also one of the few companies that has the resources to compete at the high-end and keep up with Moore's Law. "There are not many competitors at the high end," Hunter said.
3. Samsung is ramping 45-nm technology at a time when TSMC and others are struggling in the arena.

4. Samsung will likely become one of the first foundries to roll out a high-k/metal-gate solution. The technology will be offered at the 32- and 28-nm nodes, which will be rolled out this year.
5. Unlike rival TSMC, Samsung is using a gate-first, high-k technology. TSMC is going with gate-last. "We think that gate-first is best suited" for today's needs," Hunter said.
6. Samsung has put the EDA pieces in place for the design-for-manufacturing (DFM) puzzle. "As we go into 32- and 28-nm, DFM is a must," Hunter said.

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