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Leading-Edge Technology to be Responsible for Entire 2013 Increase in Pure-Play Foundry Sales

TSMC forecast to sell \$6.33 billion worth of $\leq 28\text{nm}$ devices this year, a 3x increase over 2012.

Before GlobalFoundries entered the foundry market, TSMC was by far the technology leader among the major pure-play foundries. For 2013, 51% of TSMC's revenue is expected to be from $\leq 45\text{nm}$ processing. As expected, with GlobalFoundries' fabs having a large portion of their capacity dedicated to producing AMD's MPUs over the past few years, its processing technology is skewed toward leading-edge feature sizes. In 2013, 50% of GlobalFoundries' sales are forecast to be from $\leq 45\text{nm}$ production.

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In 2012, only TSMC, GlobalFoundries, and UMC had significant sales of $\leq 45\text{nm}$ technology. In 2013, TSMC is expected to have about 4x the dollar volume sales at $\leq 45\text{nm}$ as compared to GlobalFoundries and about 12x the $\leq 45\text{nm}$ sales of UMC (\$10.33 billion for TSMC, \$2.53 billion for GlobalFoundries, and \$0.89 billion for UMC). In contrast, SMIC only entered initial production of its 45nm technology in early 2012, more than three years after TSMC first put its 45nm process into production and is forecast to sell only \$0.22 billion of $\leq 45\text{nm}$ technology this year. In fact, only 22% of UMC's 2013 revenue and 11% of SMIC's 2013 sales are forecast to come from devices having $\leq 45\text{nm}$ feature sizes, which is why their revenue per wafer is so low as compared to TSMC and GlobalFoundries.

It is interesting to note that all of the increase in pure-play foundry sales in 2013 is expected to be due to $\leq 28\text{nm}$ feature size device sales (Figure 1). Although forecast to represent 78% of total pure-play foundry sales this year, the $> 28\text{nm}$ pure-play foundry market is expected to decline 3% in 2013. In contrast, the 2013 leading-edge $\leq 28\text{nm}$ pure-play foundry market is forecast to triple this year. Not only is essentially all the of pure-play foundry market growth forecast to come from leading-edge production, most of the profits that will be realized are also expected to come from the finer feature size sales.

TSMC had almost \$1.5 billion in 28nm sales in 2Q13 and is forecast to have about \$6.33 billion in sales of 28nm devices for all of 2013, over 3x the \$2.10 billion worth of 28nm product the company sold in 2012. As a result, TSMC is expected to hold a 78% share of the pure-play foundry industry's \$8.10 billion of $\leq 28\text{nm}$ sales this year.

Leading-Edge Leads the Way in Pure-Play Foundry Growth

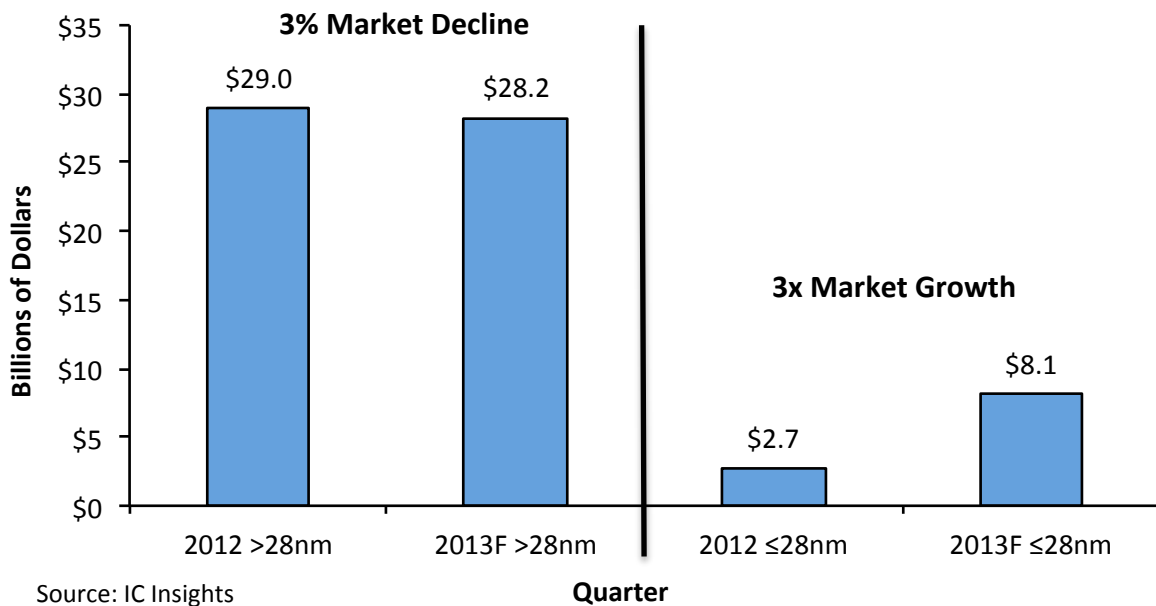


Figure 1

Figure 2 illustrates how important it is for the major IC foundries to be able to offer leading-edge IC process technology. As shown, there has been a strong correlation between the percentage of sales a major foundry has for leading-edge IC devices and its net income percentage.

Major Pure-Play Foundry Comparisons

Characteristic	TSMC		UMC		SMIC	
	1H13	2012	1H13	2012	1H13	2012
% of Sales from ≤45nm Devices	49%	39%	19%	11%	8%	1%
Revenue per Wafer (200mm Eq.)	\$1,264	\$1,207	\$787	\$832	\$812	\$759
Net Income (\$,M)	\$3,082	\$5,626	\$283	\$265	\$116	\$16
Net Income % of Sales	32%	33%	14%	7%	11%	1%

Source: Company reports, IC Insights

Figure 2

IC Insights continues to believe that the more profitable (i.e., successful) major pure-play foundries, which include TSMC, GlobalFoundries, UMC, and SMIC, will be those that keep at the leading edge of the

process technology roadmap. This can be accomplished through joint ventures and licensing agreements, (e.g., the partnership between IBM and GlobalFoundries) and/or through significantly increasing R&D spending to develop advanced technology, as TSMC has done.

Report Details: *The 2013 McClean Report*

Data in this Research Bulletin is a brief excerpt from the 32-page *September Update* to IC Insights' flagship report, *The McClean Report—A Complete Analysis and Forecast of the Integrated Circuit Industry*. A subscription to *The McClean Report* includes **free** monthly updates from March through November (including the 250+ page *Mid-Year Update*), and **free** access to subscriber-only webinars throughout the year. An individual-user subscription to the 2013 edition of *The McClean Report* is priced at \$3,390 and includes an Internet access password. A multi-user worldwide corporate license is available for \$6,390.

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