RESEARCH BULLETIN

IC Insights

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

Sales of ICs built using <40nm process technology forecast to rise 23% at pure-play foundries.

IC Insights recently released its September *Update* to the 2016 *McClean Report*. This *Update* included Part 2 of an extensive analysis of the IC foundry business. An excerpt from the September *Update,* describing foundry sales by feature size, is shown below.

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TSMC has long been the technology leader among the major pure-play foundries. As shown in Figure 1, 54% of TSMC's 2016 revenue is expected to come from <40nm processing. GlobalFoundries, which has dedicated a large portion of its capacity to making advanced processors over the past few years, also generates a large portion of its sales based on leading-edge process technology and feature sizes. In 2016, 52% of GlobalFoundries' sales are forecast to come from <40nm production.

Pure-Play Foundry Sales by Feature Size ($M)

	2015														
Company	<40nm	% of Total Sales	40/45nm	% of Total Sales	65nm	% of Total Sales	90nm	% of Total Sales	0.13µ	% of Total Sales	>0.13-≤0.18µ	% of Total Sales	>0.18µ	% of Total Sales	Total Sales
TSMC	$12,547	47%	$3,771	14%	$2,978	11%	$1,917	7%	$657	2%	$3,247	12%	$1,322	5%	**$26,439**
GlobalFoundries	$2,576	51%	$673	13%	$333	7%	$365	7%	$330	7%	$476	9%	$266	5%	**$5,019**
UMC	$458	10%	$1,058	24%	$981	22%	$214	5%	$593	13%	$514	12%	$646	14%	**$4,464**
SMIC	$2	0%	$355	16%	$544	24%	$92	4%	$235	11%	$932	42%	$76	3%	**$2,236**
Others	$275	4%	$556	8%	$415	6%	$625	9%	$1,250	18%	$1,808	26%	$2,015	29%	**$6,944**
Total	**$15,858**	**35%**	**$6,413**	**14%**	**$5,251**	**12%**	**$3,213**	**7%**	**$3,065**	**7%**	**$6,977**	**15%**	**$4,325**	**10%**	**$45,102**

	2016F														
Company	<40nm	% of Total Sales	40/45nm	% of Total Sales	65nm	% of Total Sales	90nm	% of Total Sales	0.13µ	% of Total Sales	>0.13-≤0.18µ	% of Total Sales	>0.18µ	% of Total Sales	Total Sales
TSMC	$15,639	54%	$4,031	14%	$3,104	11%	$1,426	5%	$577	2%	$2,938	10%	$1,155	4%	**$28,870**
GlobalFoundries	$2,620	52%	$737	14%	$305	6%	$380	7%	$330	6%	$509	10%	$204	4%	**$5,085**
UMC	$797	18%	$1,141	25%	$784	17%	$156	3%	$493	11%	$526	12%	$593	13%	**$4,490**
SMIC	$46	2%	$642	22%	$581	20%	$83	3%	$279	10%	$1,159	40%	$90	3%	**$2,880**
Others	$385	5%	$744	10%	$454	6%	$625	8%	$1,275	17%	$1,840	25%	$2,122	29%	**$7,445**
Total	**$19,487**	**40%**	**$7,295**	**15%**	**$5,228**	**11%**	**$2,670**	**5%**	**$2,954**	**6%**	**$6,972**	**14%**	**$4,164**	**9%**	**$48,770**

Source: Company reports, IC Insights

Figure 1

Although GlobalFoundries and TSMC are forecast to have a similar share of their sales dedicated to <40nm technology this year, TSMC is expected to have almost 6x the sales volume at <40nm as compared to GlobalFoundries in 2016 ($15.6 billion for TSMC and $2.6 billion for GlobalFoundries). In contrast, SMIC only entered initial production of its 28nm technology in 4Q15, more than three years after TSMC first put its 28nm process into production.

Because TSMC has a very large percentage of its sales targeting <40nm production, its revenue per wafer is forecast to increase at a CAGR of 3% from 2011 through 2016 as compared to a -1% CAGR expected for the total revenue per wafer average of GlobalFoundries, UMC, and SMIC over this same timeperiod. Only 2% of SMIC's 2016 sales are expected to come from devices having 28nm feature sizes (the company does not offer a finer feature size at this time), which is the primary reason its revenue per wafer is so low as compared to TSMC and GlobalFoundries.

It is interesting to note that the increase in pure-play foundry sales this year is forecast to be almost entirely due to <40nm feature size device sales (Figure 2). Although it is expected to represent 60% of total pure-play foundry sales in 2016, the ≥40nm pure-play IC foundry market is forecast to be ***flat*** this year. In contrast, the leading-edge <40nm pure-play foundry market in 2016 is expected to surge by 23%, increasing by a hefty $3.6 billion.

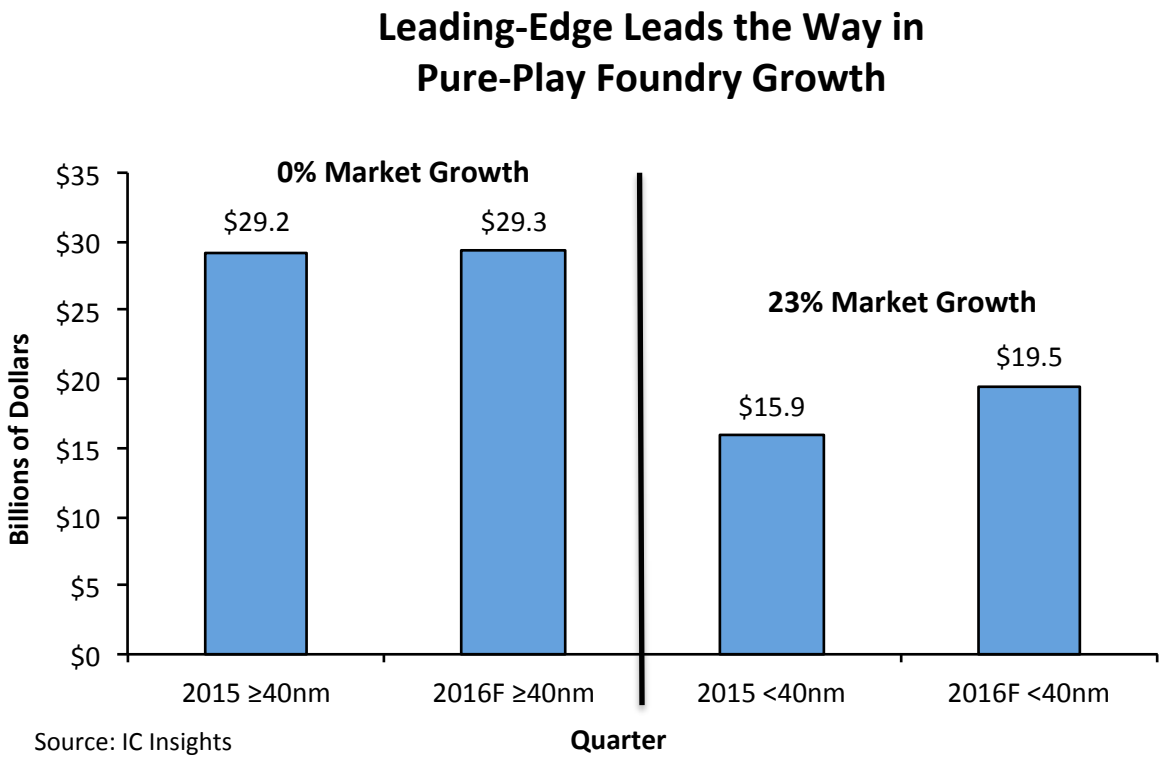

Figure 2

Report Details: *The 2016 McClean Report*

Additional details on the pure play foundry market (by region, by wafer size, and by end-use application) is included in the September *Update* to the 2016 edition of 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 a 250+ page *Mid-Year Report*), and **free** access to subscriber-only webinars throughout the year. An individual-user license to the 2016 edition of *The McClean Report* is priced at $3,890 and includes an Internet access password. A multi-user worldwide corporate license is available for $6,890.

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