

# RESEARCH BULLETIN

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## Advanced Technology Key to Strong Foundry Revenue per Wafer

Analysis shows more than a 16x difference between the average revenue generated by 0.5 $\mu$  200mm wafers (\$370) and  $\leq$ 20nm 300mm wafers (\$6,050).

The average revenue generated from processed wafers among the four biggest pure-play foundries (TSMC, GlobalFoundries, UMC, and SMIC) is expected to be \$1,138 in 2018, when expressed in 200mm-equivalent wafers, which is essentially flat from \$1,136 in 2017, according to a new analysis by IC Insights (Figure 1). The average revenue per wafer among the Big 4 foundries peaked in 2014 at \$1,149 and then slowly declined through last year, based on IC Insights' extensive part-two analysis of the integrated circuit foundry business in the *September Update to The 2018 McClean Report*.

### MORE INFORMATION CONTACT

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## Major Pure-Play Foundry Revenue per Wafer\* (\$M)

Company	2017			2018F		
	Sales (\$M)	Wafer Starts (K)	Revenue per Wafer	Sales (\$M)	Wafer Starts (K)	Revenue per Wafer
TSMC	\$32,163	23,510	<b>\$1,368</b>	\$34,765	25,150	<b>\$1,382</b>
GlobalFoundries	\$6,176	6,125	<b>\$1,008</b>	\$6,640	6,550	<b>\$1,014</b>
UMC	\$4,898	6,837	<b>\$716</b>	\$5,165	7,225	<b>\$715</b>
SMIC	\$3,101	4,310	<b>\$719</b>	\$3,275	4,880	<b>\$671</b>
<b>Total/Avg.</b>	<b>\$46,338</b>	<b>40,782</b>	<b>\$1,136</b>	<b>\$49,845</b>	<b>43,805</b>	<b>\$1,138</b>

\*200mm equivalents

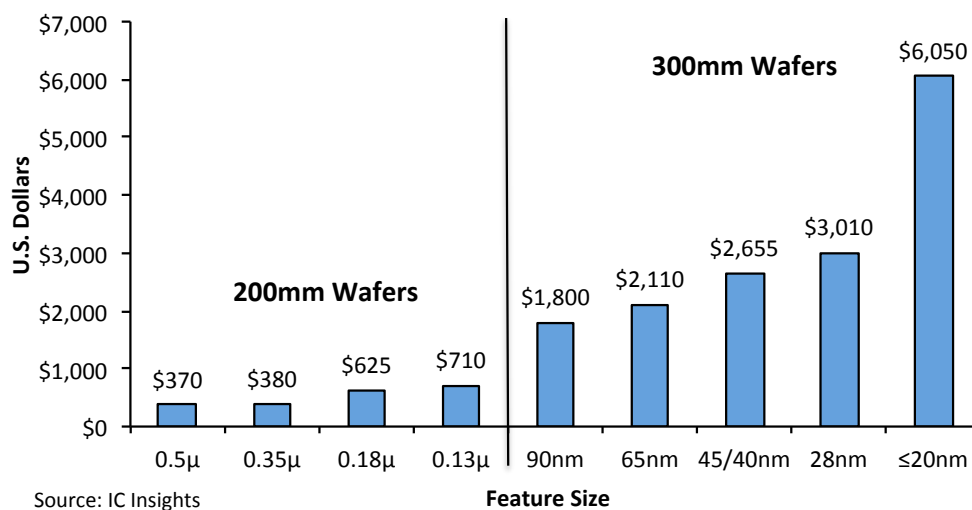
Source: Company reports, IC Insights

**Figure 1**

TSMC's average revenue per wafer in 2018 is forecast to be \$1,382, which is 36% higher than GlobalFoundries' \$1,014. UMC's average revenue per wafer in 2018 is expected to be only \$715, about half of the projected amount at TSMC this year. Furthermore, TSMC is the only foundry among the Big 4 that is expected to generate higher revenue per wafer (9% more) in 2018 than in 2013. In contrast, GlobalFoundries, UMC, and SMIC's 2018 revenue per wafer averages are forecast to decline by 1%, 10%, and 16%, respectively, compared to 2013.

Although the average revenue per wafer of the Big 4 foundries is forecast to be \$1,138 this year, the amount generated is highly dependent upon the minimum feature size of the IC processing technology. Figure 2 shows the typical 2Q18 revenue per wafer for some of the major technology nodes and wafer sizes produced by pure-play foundries. In 2Q18, there was more than a 16x difference between the 0.5 $\mu$  200mm revenue per wafer (\$370) and the  $\leq$ 20nm 300mm revenue per wafer (\$6,050). Even when using revenue per square inch, the difference is dramatic (\$7.41 for the 0.5 $\mu$  technology versus \$53.86 for the  $\leq$ 20nm technology). Since TSMC gets such a large percentage of its sales from  $\leq$ 45nm production, its revenue per wafer is expected to increase by a compound annual growth rate (CAGR) of 2% from 2013 through 2018 as compared to a -2% CAGR for the total revenue per wafer average of GlobalFoundries, UMC, and SMIC during this same timeperiod.

**Pure-Play Foundry Revenue per Logic Wafer in 2Q18**



**Figure 2**

There will probably be only three foundries able to offer high-volume leading-edge production over the next five years (i.e., TSMC, Samsung, and Intel). IC Insights believes these companies are likely to be fierce competitors among themselves—especially TSMC and Samsung—and as a result, pricing will likely be under pressure through 2022.

**Report Details: *The 2018 McClean Report***

Additional details and trends within the IC industry are provided in *The McClean Report—A Complete Analysis and Forecast of the Integrated Circuit Industry* (released in January 2018). A subscription to *The McClean Report* includes **free** monthly updates from March through November (including a 200+ page *Mid-Year Update*), and **free** access to subscriber-only webinars throughout the year. An individual-user license to the 2018 edition of *The McClean Report* is priced at \$4,290 and includes an Internet access password. A multi-user worldwide corporate license is available for \$7,290.

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### **About IC Insights**

IC Insights, Inc., based in Scottsdale, Arizona USA, is dedicated to providing high-quality, cost-effective market research for the semiconductor industry. Founded in 1997, IC Insights offers coverage of global economic trends, the semiconductor market forecast, capital spending and fab capacity trends, product market details, and technology trends, as well as complete IC company profiles and evaluations of end-use applications driving demand for ICs.

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