

# RESEARCH BULLETIN

**FEBRUARY 24, 2021**

## TSMC Ranks in Top-10 For Capacity in Three Wafer Size Categories

*New Global Wafer Capacity report shows top-10 installed capacity leaders in three different wafer size categories.*

IC Insights recently released its new *Global Wafer Capacity 2021-2025* report that provides details, analyses, and forecasts for IC industry capacity by wafer size, process geometry, region, and product type through 2025.

Rankings of IC manufacturers by installed capacity for each of the wafer sizes are shown in Figure 1. The chart also compares the relative amounts of capacity held by the top 10 leaders.

### MORE INFORMATION CONTACT

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## Installed Capacity Leaders at Dec-2020 – by Wafer Size

(Ranked by Share of Total WW Monthly Installed Capacity)

300mm Wafers			200mm Wafers			≤150mm Wafers		
WW Share	Top 10 Relative	Top 10 in Capacity	WW Share	Top 10 Relative	Top 10 in Capacity	WW Share	Top 10 Relative	Top 10 in Capacity
21%		Samsung	10%		TSMC	9%		CR Micro
15%		TSMC	6%		STMicro	8%		Silan
14%		Micron	6%		UMC	8%		Nuvoton
13%		SK Hynix	6%		Infineon	7%		ON Semi
11%		Kioxia/WD	6%		TI	5%		STMicro
6%		Intel	5%		SMIC	4%		TI
4%		GlobalFoundries	4%		Vanguard	3%		Rohm + Lapis
3%		UMC	4%		NXP	3%		Toshiba
2%		Powerchip	4%		ON Semi	3%		Diodes
2%		TI	3%		Toshiba	3%		TSMC

WW Share is each company's share of total industry capacity for that wafer size.

Blue bars indicate the relative amount of capacity held by each company among the top 10 leaders.

Note: Includes shares of capacity from joint ventures.

Source: IC Insights

**Figure 1**

As of December 2020, only TSMC—the world’s largest foundry—was listed among the wafer capacity leaders in each of the three wafer size categories. It had the most 200mm wafer capacity last year and ranked second, trailing only Samsung, in 300mm wafer capacity.

It is not surprising that the 300mm ranking includes only DRAM and NAND flash memory suppliers like Samsung, Micron, SK Hynix, and Kioxia/WD; four of the world’s largest pure-play foundries TSMC, GlobalFoundries, UMC, and Powerchip (including Nexchip); and Intel, the industry’s biggest manufacturer of microprocessors. These companies offer the types of ICs that benefit most from using the largest wafer size available to best amortize the manufacturing cost per die. Moreover, they have the means to continue investing large sums of money in new and improved 300mm fab capacity.

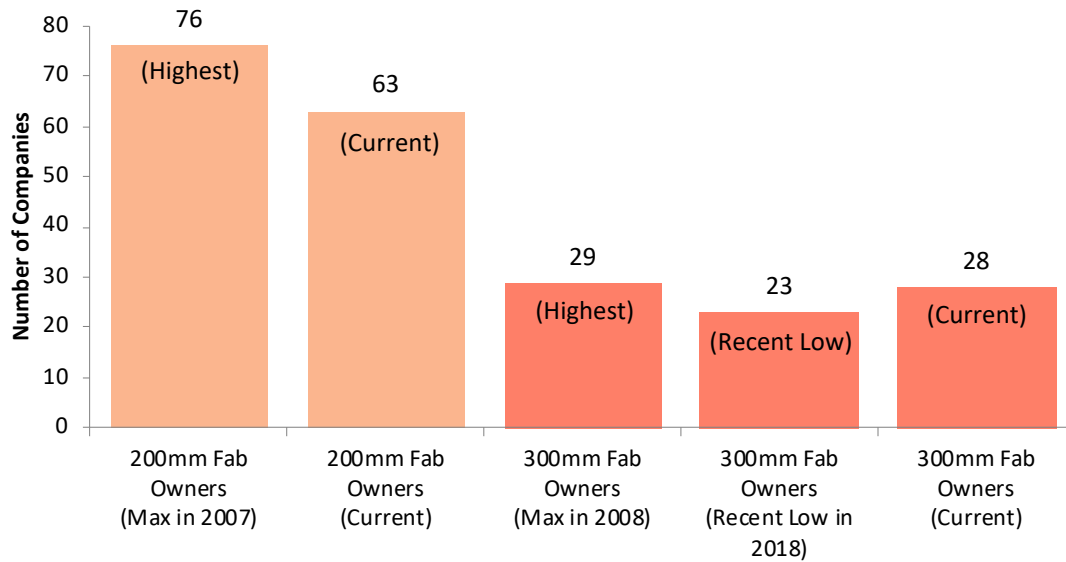
Wafer capacity leaders in the 200mm size category consist of pure-play foundries and manufacturers that emphasize analog/mixed-signal ICs and microcontrollers.

The ranking for the smaller wafer sizes (i.e.,  $\leq 150\text{mm}$ ) includes a more diversified group of companies, with two Chinese companies at the top. China Resources Microelectronics (CR Micro) and Silan Microelectronics both have very large 150mm fabs used mainly for the production of analog/mixed-signal ICs, power devices, and discrete semiconductors.

STMicroelectronics used to have a huge amount of 150mm wafer capacity for production of ICs at its fab site in Singapore but the company restructured its fab operations there in recent years. One fab was largely converted to manufacture MEMS-based microfluidic products (e.g., inkjet heads, lab-on-chip devices, etc.) and other fabs were upgraded to process 200mm wafers.

As the industry has moved IC fabrication onto larger wafers in bigger fabs, the number of IC manufacturers has continued to shrink. The *Global Wafer Capacity* study shows that as of December 2020, there were 63 companies that owned and operated a 200mm wafer fab (Figure 2). There were 28 companies that owned and operated a 300mm wafer fab. Furthermore, the distribution of 300mm wafer capacity among those manufacturers is top-heavy with the five biggest manufacturers controlling about three-quarters (74%) of the global 300mm IC capacity.

## Number of IC Companies with 200mm vs. 300mm Fabs (as of December 2020)



Includes pilot- and volume-production-class, but not R&D, fab facilities (IC fabs only).  
Each member of joint-venture companies counted separately

Source: IC Insights' *Strategic Reviews* database

**Figure 2**

### Report Details: ***Global Wafer Capacity 2021-2025***

IC Insights' *Global Wafer Capacity 2021-2025—Detailed Analysis and Forecast of the IC Industry's Wafer Fab Capacity* report assesses the IC industry's capacity by wafer size, minimum process geometry, technology type, geographic region, and device type through 2025. The report includes detailed profiles of the companies with the greatest fab capacity and gives comprehensive specifications on existing wafer fab facilities. *Global Wafer Capacity 2021-2025* is priced at \$4,890 for an individual user license. A multi-user worldwide corporate license is available for \$7,590. The Internet access password and the information accessible to download will be available through November 2021.

<https://www.icinsights.com/services/global-wafer-capacity/pricing-order-forms/>

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