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IC Industry at Heart of Possible China Takeover of Taiwan

Combined, China and Taiwan would hold about 37% of global IC capacity, almost 3x that of North America.

IC Insights' *October Update to The McClean Report*, to be released later this month, draws upon information contained in its *Global Wafer Capacity 2021-2025* report to discuss the current high tension environment between China and Taiwan and what it could mean for the IC industry.

In IC Insights' opinion, healthy future global economic growth is increasingly dependent upon the continued introduction of advanced electronic systems. The critical components within these systems are integrated circuits (ICs), without which, advanced electronic systems cannot be produced.

The ongoing trade conflict between the U.S. and China has intensified over the past couple of years. Crippling trade sanctions, especially with regard to IC technology, that the U.S. has imposed on Huawei, China's largest electronics company, and to a lesser extent on SMIC, China's largest indigenous IC foundry, has, in IC Insights' opinion, caused China to question how it will be able to compete in the future IC and electronics industries. It is increasingly apparent that China's answer to that question centers on its reunification with Taiwan.

Just how important is the small island nation of 24 million people to the IC industry? Consider the following excerpts from IC Insights' *Global Wafer Capacity 2021-2025 Report* and the *2021 McClean Report*:

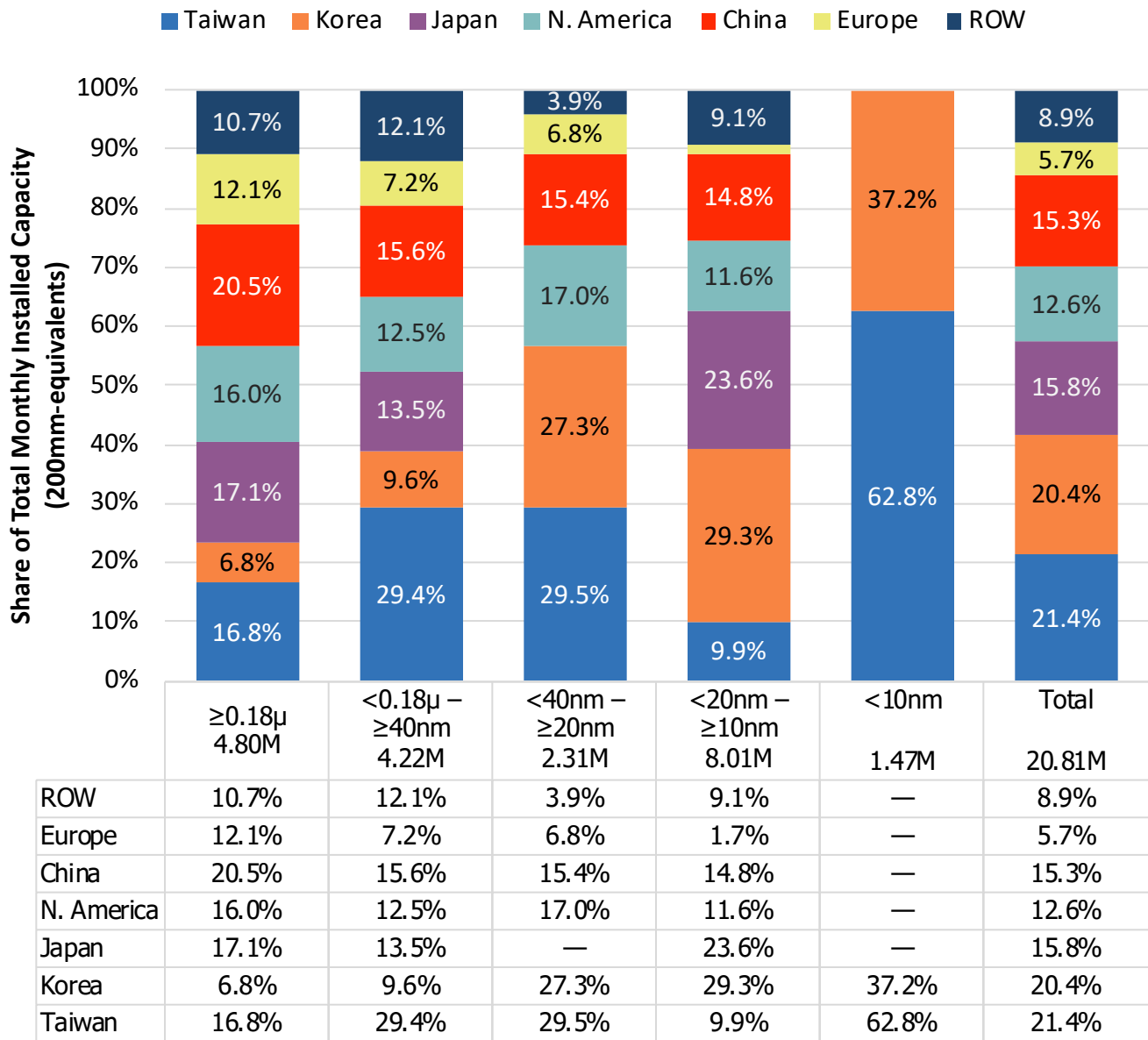
- As of December 2020, Taiwan held the largest share of IC industry capacity of any country or region in the world. Moreover, if combined, the share of IC capacity within the borders of China and Taiwan would represent about 37% of global IC capacity, about 3x the amount of IC capacity located in North America.

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- Led by TSMC, Taiwan by far holds the largest share of leading-edge (i.e., <10nm) IC capacity (63%) of any country in the world (Figure 1). South Korea, represented by Samsung, holds the remaining 37%.

Monthly Installed Capacity for Each Min. Geometry Group at Dec-2020 – by Geographic Region



Source: IC Insights

Figure 1

- Taiwanese companies hold almost 90% of Taiwan's total IC capacity. The only non-Taiwanese IC fabs located in Taiwan are a small 150mm fab owned by U.S.-based Diodes and two advanced 300mm DRAM fabs owned by Micron (Fab 11 in Taoyuan with a capacity of 108K wafers per month and Fab 16 in Taichung with a capacity of 100K wafers per month).
- Taiwan holds 22% of the world's 300mm IC capacity, second only to South Korea, which holds a 25% share. In contrast, North America possesses only an 11% share of global 300mm IC capacity.
- About 80% of Taiwan's total IC capacity is dedicated to foundry production. Moreover, Taiwan's pure-play foundries (i.e., TSMC, UMC, Powerchip, Vanguard, etc.) are forecast to represent almost 80% of the total worldwide pure-play foundry market in 2021.

The bottom line is that, currently, there is no more important base of IC capacity and production than Taiwan. Moreover, China has a huge problem with its inability to produce leading-edge IC devices for its future electronic system needs—a problem that it believes can be solved through reunification with Taiwan by whatever means necessary.

While the Taiwanese economy would crater if China attempted a military takeover of the island nation, China's economy would also suffer greatly. The question is whether China is willing to accept relatively short-term economic pain for the long term benefit of having the largest amount of the world's leading-edge IC production capacity under its control for many years to come.

Report Details: The 2021 McClean Report

The 2021 edition of *The McClean Report—A Complete Analysis and Forecast of the Integrated Circuit Industry* was released in January 2021. A subscription to *The McClean Report* includes **free** monthly updates from March through November (including a 180+ page *Mid-Year Update*), and **free** access to subscriber-only pre-recorded webcasts through November. An individual user license to the 2021 edition of *The McClean Report* is available for \$5,390 and a multi-user worldwide corporate license is available for \$8,590. The Internet access password and the information accessible to download will be available through November 2021.

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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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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