
Subject: The Fight for Global Dominance in the Semiconductor Industry

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The Fight for Global Dominance: Witness the Start of the Technological Superpowers' Battle

In the race for technological supremacy, the battle among key players has intensified, with the semiconductor industry serving as a battleground for innovation, economic dominance, and potential geopolitical conflict.

Electronic integrated circuit export by country or region as of 2016, by HS4 trade classification
https://upload.wikimedia.org/wikipedia/commons/8/84/Who_exported_Electronic_integrated_circuits_in_2016.svg

The introduction of Moore's Law paved the way for continuous advancements in semiconductor technology, enabling the miniaturization of transistors and speeding up computing power development. Silicon Valley became a hotbed for semiconductor innovation, with companies like Intel, AMD, and NVIDIA playing central roles in driving technological breakthroughs. Intel, a prominent American semiconductor company, was crucial in driving innovation. Nevertheless, Intel has faced challenges, including manufacturing setbacks and increased competition from rivals.

Taiwan Semiconductor Manufacturing Company (TSMC) has emerged as a global leader in semiconductor manufacturing as a white foundry, renowned for its advanced process technology and production capacity. Founded in 1987 and headquartered in Hsinchu, Taiwan, TSMC began as a modest endeavor with a vision to establish Taiwan as a significant player in the semiconductor industry.

TSMC's success can be attributed, in part, to its close collaboration with global technology giants. By partnering with leading companies in the semiconductor ecosystem, TSMC has not only established itself as a trusted manufacturer but has also become a critical enabler of their innovations. Collaborations with companies like Apple, AMD, and NVIDIA have fueled the development of cutting-edge products, reinforcing TSMC's position as a critical partner in the Semiconductor supply chain.

TSMC's advanced process nodes, such as 7nm, 5nm, and beyond, have become industry benchmarks, facilitating breakthroughs in various fields, including mobile devices, artificial intelligence, and autonomous vehicles.

Inside the Taiwan Firm That Makes the World's Tech Run

"Taiwan Semiconductor Manufacturing Co., or TSMC, controls more than half the global market for made-to-order chips and has an even tighter stranglehold on the most advanced processors, with more than 90% of market share by some estimates" - Twitter @TIME

While the United States strives to revitalize its domestic semiconductor manufacturing capabilities, China has invested heavily in developing its domestic semiconductor industry, aiming to reduce reliance on imports and enhance its technological capabilities. China's ambitious pursuit of technological leadership has significant implications for the global landscape.

A new world under construction: China and semiconductors

“Semiconductor consumption in China continues to outpace the overall market, rising by 9 percent in 2014 to reach about \$160 billion, or 50 percent of the global total ... For instance, leading Chinese smartphone brands (such as Huawei, Lenovo, Meizu, and Xiaomi) increased their global market share from 15 percent in the fourth quarter of 2013 to 27 percent in the second quarter of 2015.” - McKinsey Featured Insight

Semiconductor Manufacturing International Corporation (SMIC) founded in 2000 and headquartered in Shanghai, is China's largest semiconductor foundry. It was established with the goal of reducing China's dependence on foreign chip manufacturing and fostering self-sufficiency in the semiconductor industry.

Initially, SMIC faced numerous hurdles, including technological limitations, lack of experience, and intense competition from established players. SMIC's focused on developing expertise in advanced process technologies, such as 28nm, 14nm, and beyond, aiming to compete with the leading global foundries. In recent years, SMIC has intensified its research and development efforts, collaborating with industry giants and investing in cutting-edge equipment.

Despite its achievements, SMIC faces several challenges, particularly on the global stage. The company has drawn scrutiny from international entities due to concerns related to intellectual property rights, trade secrets, and national security implications. The United States, in particular, has imposed restrictions on SMIC's access to American technology and equipment, citing potential risks.

These challenges highlight the complex geopolitical landscape surrounding the semiconductor industry and the intensifying competition between China and other technological superpowers.

Some think China already lost the new technology colf war, take a look to why China is losing the microchip war?
