

MAINTAINING U.S. LEADERSHIP IN SEMICONDUCTORS AND COUNTERING CHINA'S THREATS

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The U.S. market share in global semiconductor manufacturing is in decline, creating significant risks to U.S. economic and national security. Maintaining U.S. leadership in the semiconductor industry is critical for the U.S., especially as China continues its efforts to become the global leader in the semiconductor industry. Lawmakers must take action to rebuild the U.S. semiconductor industry and restore the U.S. to its position as the world's leading designer and manufacturer of semiconductors.

Key Findings:

- The U.S. global share in microchip manufacturing is down to 12% and continuing to fall as other nations, including China, target expanding their role in chip manufacturing.
- As U.S. chip designers including Apple, Nvidia, and Microsoft, increasingly use Asian foundries for chip manufacturing in place of longstanding U.S. manufacturers, the U.S. is becoming more dependent on Asian chip manufacturing.
- Research & development and product design follows manufacturing, and over time, the U.S. is at risk of losing its world leadership in chip design.
- The Chinese government is targeting global leadership in the semiconductor industry and is investing at least \$120 billion of government money behind this effort.
- Chinese domination of the semiconductor industry would undermine other suppliers and make the U.S. dependent on China for these vital components in thousands of products, endangering Americans' national security and economic security.
- Dependence on Taiwan has left the United States particularly exposed. One company, TSMC, accounts for over half of global chip foundry revenue, including chips used in almost every 4G and 5G smartphone.
- China's long-term policy options include undermining or gaining control over TSMC's business through a variety of means, ranging from competition to outright military conquest of the island of Taiwan.
- The U.S. is accelerating its decline by allowing firms like Applied Materials, KLA, and Lam Research to sell advanced semiconductor manufacturing equipment to known Chinese military linked fabs CXMT and YMTC.



Key Policy Recommendations:

- ✓ The U.S. should aim for 50% market share of chip manufacturing in every major semiconductor sector, including logic, memory, and analog chips.
- ✓ Enforce the 2018 Export Control and Reform Act so that U.S. semiconductor equipment makers and electronic design automation tool companies cannot sell advanced technology to entities with Chinese military ties.
- ✓ Policymakers should fund broad-based tax credits to incentivize manufacturers to build more fabs in the U.S. and U.S. chip design companies to select U.S. fabs to make their chips.
- ✓ Policymakers should study policies to incentivize U.S. chipmakers to build long-term growth businesses including research, design, and manufacturing. Capital investment is a vital ingredient in corporate growth and national economic growth.