

# ADVANCING U.S. LEADERSHIP IN SEMICONDUCTOR INNOVATION

Chip design is key to driving innovation, but global competitors are challenging U.S. leadership. To ensure the U.S. is a competitive destination for companies to invest in semiconductor R&D, **Congress should enact a 25% investment tax credit for chip design.**

## IMPORTANCE OF SEMICONDUCTOR DESIGN

Chip design is a critical R&D activity driving the function and value of a semiconductor device, enabling chips to receive, transmit, process, and store ever-increasing amounts of data for today's digital world. Design is a highly complex, interdisciplinary process involving years of R&D, hundreds of millions of dollars of investment, and thousands of engineers.

The semiconductor industry is R&D intensive, with U.S. chip companies investing on average 20% of revenue back into R&D, the second highest investment by any sector. As technology advances and design costs rise, a 25% investment tax credit for semiconductor design would ensure a holistic, integrated strategy to attract investment and provide predictable incentives to uphold U.S. leadership in chip design.

## DESIGN LEADERSHIP IS TECHNOLOGY LEADERSHIP

- **Technology Breakthroughs.** Advances in chip design lead to innovation in semiconductor-enabled technologies that are the driving force behind 21st century U.S. economic and technology leadership.
- **First Mover Advantage.** Design leadership gives the U.S. a technological edge to be the "first mover," resulting in economic and national security benefits and greater influence in shaping international standards.
- **Security and IP Control.** U.S. design leadership ensures software, services, and products are based on U.S.-originated semiconductor IP, which lowers the risk of malicious tampering and enhances cybersecurity.



AI



Defense



Healthcare



5G/6G



Transportation



Energy



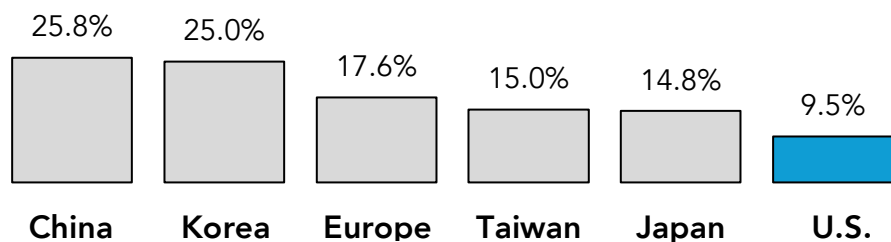
Agriculture

## CHALLENGES TO U.S. DESIGN LEADERSHIP

U.S. companies are currently the global leaders in design, but challenges are on the horizon – foreign governments are incentivizing chip design and R&D and seeking to supplant U.S. leadership.

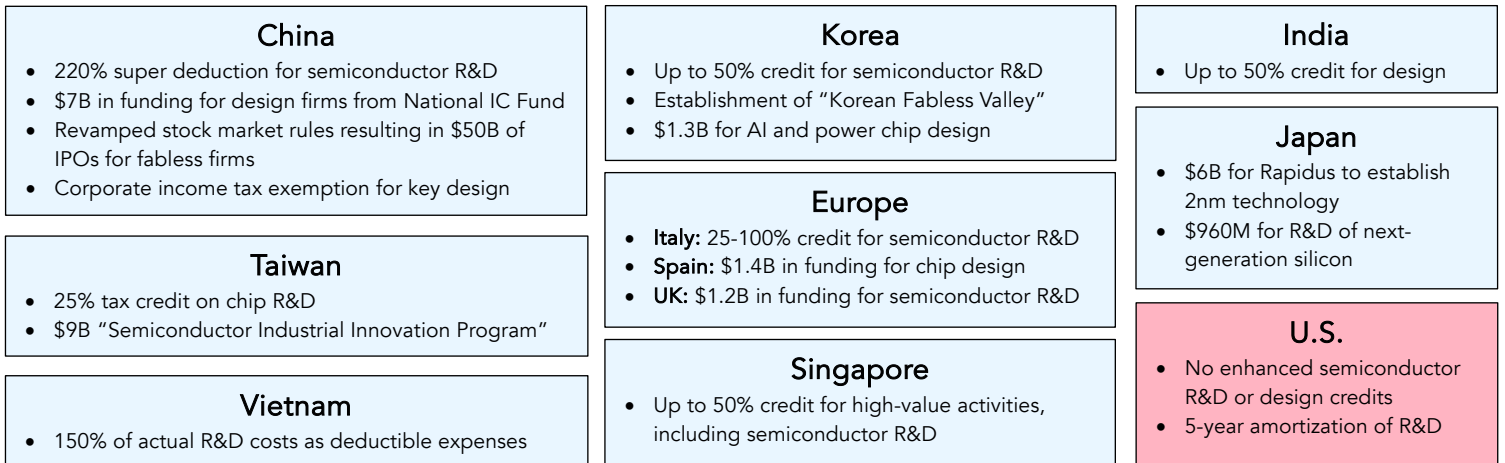
1. Incentives for semiconductor R&D in the U.S. are weaker than our global competitors

### R&D tax incentive rates, by region



Source: SIA/BCG

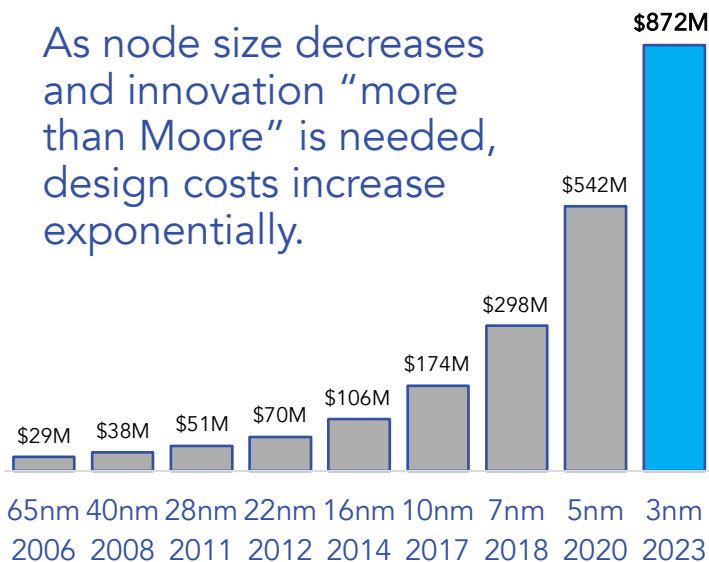
## 2. Global competitors have targeted and enhanced incentives for semiconductor design and R&D



Source: SIA analysis of government policies, company statements, and news reports.

## 3. Innovation costs are rising

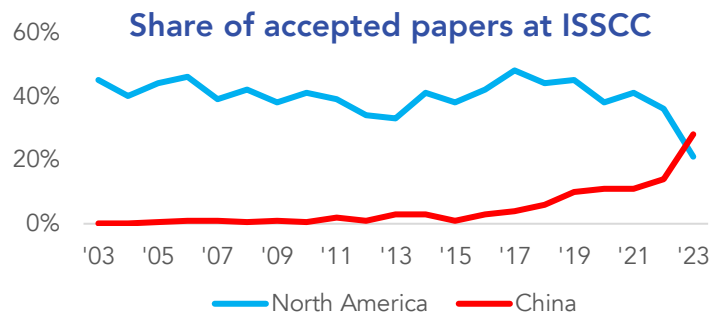
As node size decreases and innovation "more than Moore" is needed, design costs increase exponentially.



Source: BCG

## 4. Competition in scientific papers

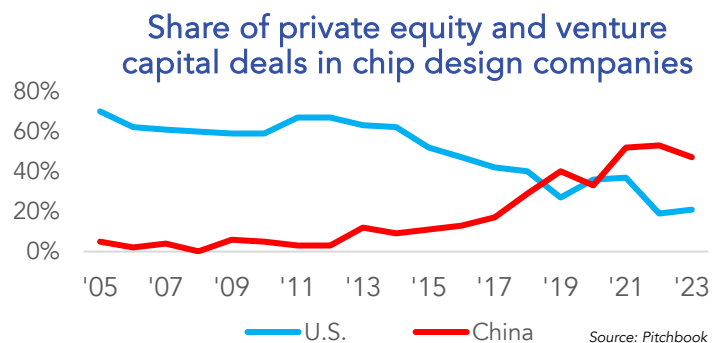
Trends in papers accepted for presentation at the International Solid-State Circuits Conference (ISSCC) provide a barometer for global chip R&D leadership. In 2023, China's share of accepted papers eclipsed the U.S. share for the first time. The share of papers from the U.S. dropped by roughly 50% since 2017.



Source: ISSCC, the foremost global forum for presentation of advances in solid-state circuits and systems-on-a-chip. Prof. Michael Flynn, University of Michigan  
Prof. Melissa Appleyard, Portland State University

## 5. Foreign growth in startups

Since 2013, China has substantially increased its share of investment deals in chip design firms, overtaking the U.S. for the first time in 2018. The number of Chinese private equity and venture capital deals for fabless companies is now double that of the U.S.



Source: Pitchbook

**AMERICA MUST COMPETE OR RISK BEING LEFT BEHIND**  
Congress should enact a 25% investment tax credit for semiconductor design to advance U.S. innovation leadership