



SEMICONDUCTOR
INDUSTRY
ASSOCIATION

CHIPS ACT OVERVIEW

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THE CHALLENGES FACING U.S. SEMICONDUCTOR SUPPLY CHAINS

SEMICONDUCTORS ARE CRITICAL FOR U.S. NATIONAL SECURITY & THE ECONOMY



5G



Quantum Computing



Artificial Intelligence



Autonomous Systems



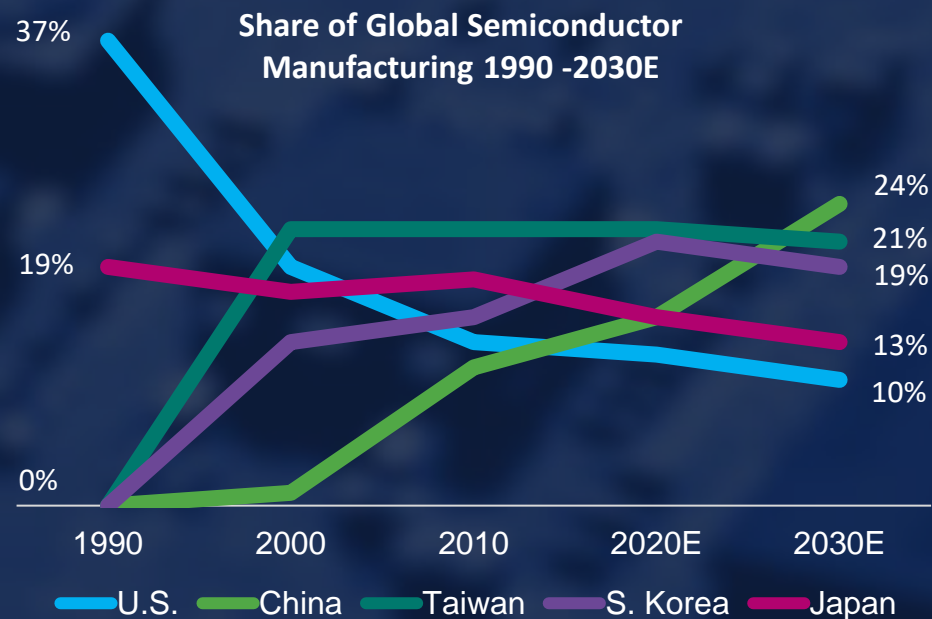
Space & Hypersonics



Cyber Security

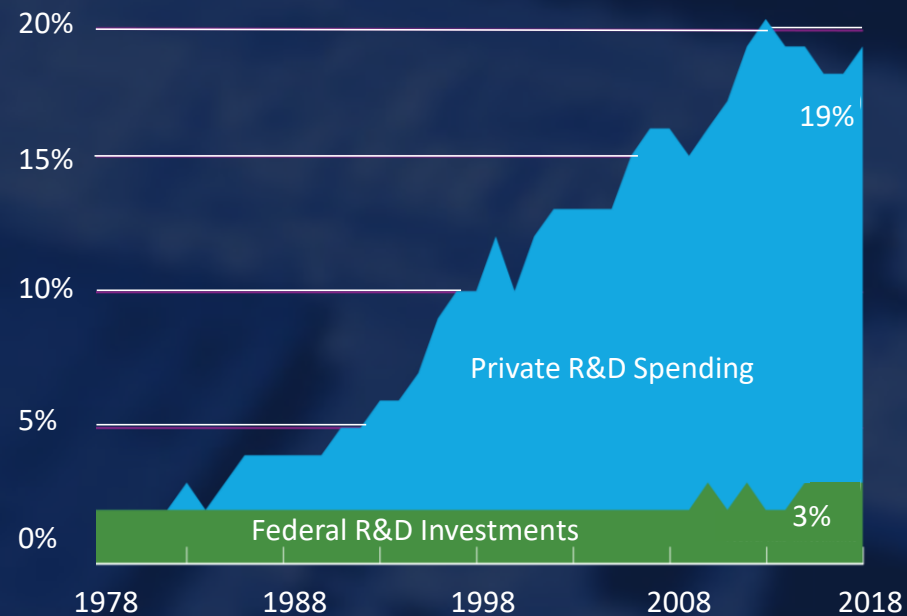
1

U.S. SHARE OF CHIP MANUFACTURING IS ERODING WHILE ASIA'S HAS GROWN TO 77% OF GLOBAL CAPACITY DUE TO GOVERNMENT INVESTMENT



2

FEDERAL SEMICONDUCTOR RESEARCH FUNDING NOT KEEPING PACE WITH NEEDS



U.S. share of global semiconductor manufacturing capacity has declined from 37% in 1990 to 12% today.

Cost to build and operate a fab in the US 25-50% more expensive than alternative locations abroad due to the lack of government incentives.

GLOBAL GOVERNMENT INCENTIVES FOR SEMICONDUCTOR RESEARCH, MANUFACTURING & DESIGN

KOREA



K-Belt Semi Strategy

By 2030

- ~\$55-65 billion
- Up to 50% R&D tax credit

INDIA



Production Linked Incentive Scheme

By 2027

- ~\$10 billion
- 20 domestic fabless champions with turnover of \$200M in 5 yrs

JAPAN



Japan Revitalization Strategy

By 2027

- ~\$8 billion
- Build a R&D Consortium for beyond 2nm

EU



EU Chips Act

By 2030

- \$43 billion from EU funds and member states
- Increase EU capacity to 20%

CHINA



14th Five-Year Plan

By 2025

- ~\$100 billion to chip funds
- 10-yr corporate income tax exemptions worth \$20 billion

CHINESE TAIPEI



Wafer Design & Semiconductor R&D Plan

Since 2018

- \$750 million annually for R&D
- Up to 50% R&D grants for pre-competitive R&D

U.S. CHIPS & SCIENCE ACT OF 2022

Creating Helpful Incentives for Producing
Semiconductors for America

PROGRAM	Program Subtotal
Semiconductor Manufacturing Incentives Department of Commerce	\$39 billion over 5 years <small>(Includes \$2B for legacy semiconductors)</small>
Semiconductor Research Programs Department of Commerce	\$11 billion over 5 years
Workforce Development National Science Foundation	\$0.2 billion over 5 years
CHIPS Defense Fund Department of Defense	\$2 billion over 5 years
International Technology Security Fund Department of State	\$0.5 billion over 5 years
<p>Appropriated Total</p> <p>\$52.7B</p> <p>Funds "to remain available until expended"</p>	

Advanced Manufacturing
Investment Tax Credit

OVERVIEW
<p>25% investment tax credit for "advanced manufacturing facility":</p> <ul style="list-style-type: none"> semiconductor manufacturing semiconductor manufacturing equipment <p>Election for payment against tax</p> <p>Subject to recapture for material expansions in countries of concern</p> <p>Timing – property placed in service after 12/31/2022 and for which construction begins prior to 1/1/2027</p>
<p>CBO Revenue Estimate</p> <p>\$24.3B</p>

CHIPS ACT IMPLEMENTATION

Eligibility

- Semiconductor manufacturing/research/packaging, and semiconductor equipment and materials
- Construction, expansion, or modernization
- Located in the U.S., and not a re-location

Conditions

- Restrictions on use of funding – permissible uses of funds, no stock buybacks or payment of dividends
- Clawback – missed project deadlines, certain expansions of facilities in China or other countries of concern for 10 years (exception for facilities that produce legacy semiconductors)

Considerations for Awards

- Address gaps and vulnerabilities in supply chain
- Address national security needs
- Address needs of key customers – critical industries
- Jobs and community investment
- Workforce development
- Commercial viability of projects

Other/Questions

- Timing for issuance of incentives
- Weighting of factors
- Mix of projects – fabs, equipment, materials
- Amounts of awards
- Interaction with Advanced Manufacturing Investment Credit
- Environmental review and permitting (NEPA, etc.)

RESEARCH PROGRAM APPROPRIATIONS

National Semiconductor Technology Center

- Structured as public-private consortium in coordination with DOE and NSF
- Work with DOL & universities to expand post-secondary education

Commerce

National Advanced Packaging Manufacturing Program

- Coordinate with NSTC and Manufacturing USA Institutes
- Funding merged with NSTC after first year

Commerce

National Network for Microelectronics R&D

- Implemented by the Dept. of Defense to transition R&D innovations into workable technologies
- DoD Commons program may fulfill this requirement

DoD

Manufacturing USA Institutes

- Establish up to 3 centers to research automation of semiconductor machinery, advanced ATP capabilities, and the development/deployment of skills training

NIST

No appropriations for DOE research in CHIPS

CHIPS IMPLEMENTATION – BIDEN PRIORITIES

Executive Order 14080 (8/25/22) outlines admin objectives, direction, and strategy





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