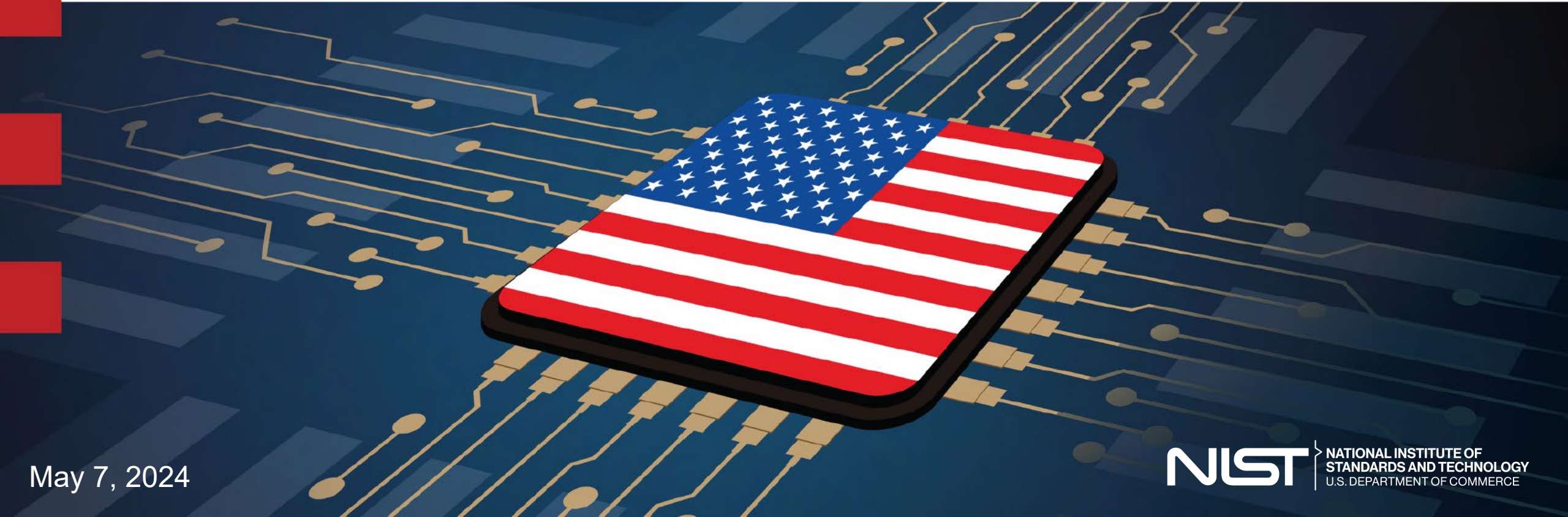
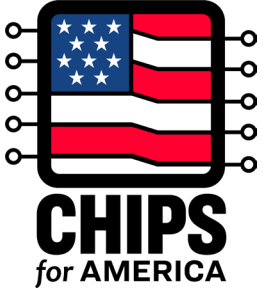
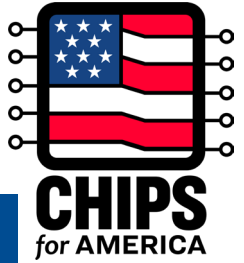


# CHIPS for America: SEDE Transformative Manufacturing State Convening



May 7, 2024

# Context for the CHIPS Act



## Three Critical Developments Leading to CHIPS Act Passage in August 2022

### 1. Offshoring of U.S. Semiconductor Capacity

- U.S. share of global fabrication capacity was **40% in 1990** and **12% in 2020**
  - U.S. companies account for ~46% of the semiconductor *design* market today

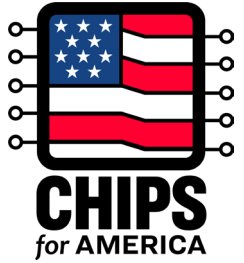
### 2. Concentration of Fabrication in East Asia

- **~80%** of semiconductor fabrication capacity today is in East Asia
- Geopolitical considerations and natural disasters threaten severe disruption

### 3. Pandemic Exposed Severe Impact of Chip Disruption

- Delays and shortages of semiconductors during the COVID-19 pandemic led to enormous economic losses
  - **An estimated 9.5 million light vehicles were *not* sold in 2021** due to a lack of the necessary semiconductors

# CHIPS for America Vision



## National Security

Support U.S. manufacturing of high-quality and secure chips for defense and other critical infrastructure applications.



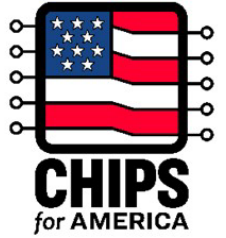
## Economic Security

Strengthen supply chain security and increase economic resilience in critical sectors.



## Future Innovation

Spur innovation, increase competitiveness, and ensure long-term U.S. leadership in the sector



# CHIPS for America Programs

## **\$39 billion for incentives**

1. Attract large-scale investments in advanced technologies such as leading-edge logic and memory
2. Incentivize expansion of manufacturing capacity for mature and other types of semiconductors

## **\$11 billion for R&D**

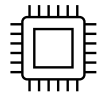
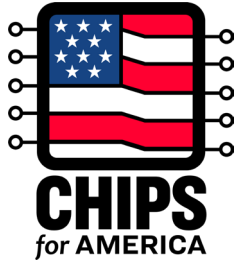
- National Semiconductor Technology Center
- National Advanced Packaging Manufacturing Program
- Manufacturing USA institute
- Metrology

Together with CHIPS initiatives from other agencies, including DOD, State, NSF, and Treasury



# Vision for Success

*Future projects will be prioritized based on whether they can be operational by 2030*



## Leading-Edge Logic

- ✓ Anticipating **~20% of global leading-edge logic** chip manufacturing and at least **two new large-scale clusters** of leading-edge logic fabs



## Advanced Packaging

- ✓ **Multiple high-volume** advanced packaging facilities



## Memory

- ✓ U.S.-based fabs will **produce high-volume, cost-competitive memory chips**

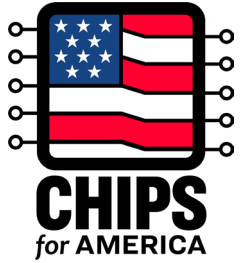


## Current-Generation and Mature

- ✓ **Strategic increase in production capacity** for current-gen and mature chips

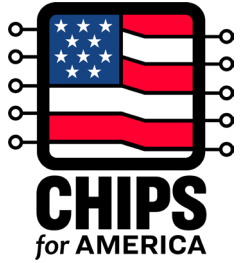


# Achieving this vision requires:



- Catalyzing private investment
- Protecting taxpayer dollars
- Building a skilled and diverse workforce
- Engaging with U.S. partners and allies
- Driving economic opportunity and inclusive economic growth

# CHIPS has made significant strides in the last year...



## Strong Industry Response

- Large and compelling set of opportunities, with 600+ Statements of Interest
- Corresponding **\$300B+** in private investment catalyzed

## On Track for Significant Impact on Leading Edge

- Anticipating **~20% leading-edge market share** in the U.S. by 2030 (up from 0% today)
- **Surpassing the expectation** of two leading-edge clusters

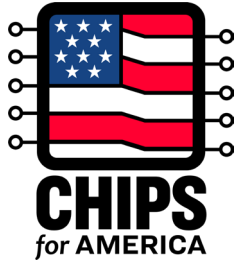
## Announced 7 PMTs\* to Date

- BAE Systems
- GlobalFoundries
- Intel
- Microchip
- Micron
- Samsung
- TSMC

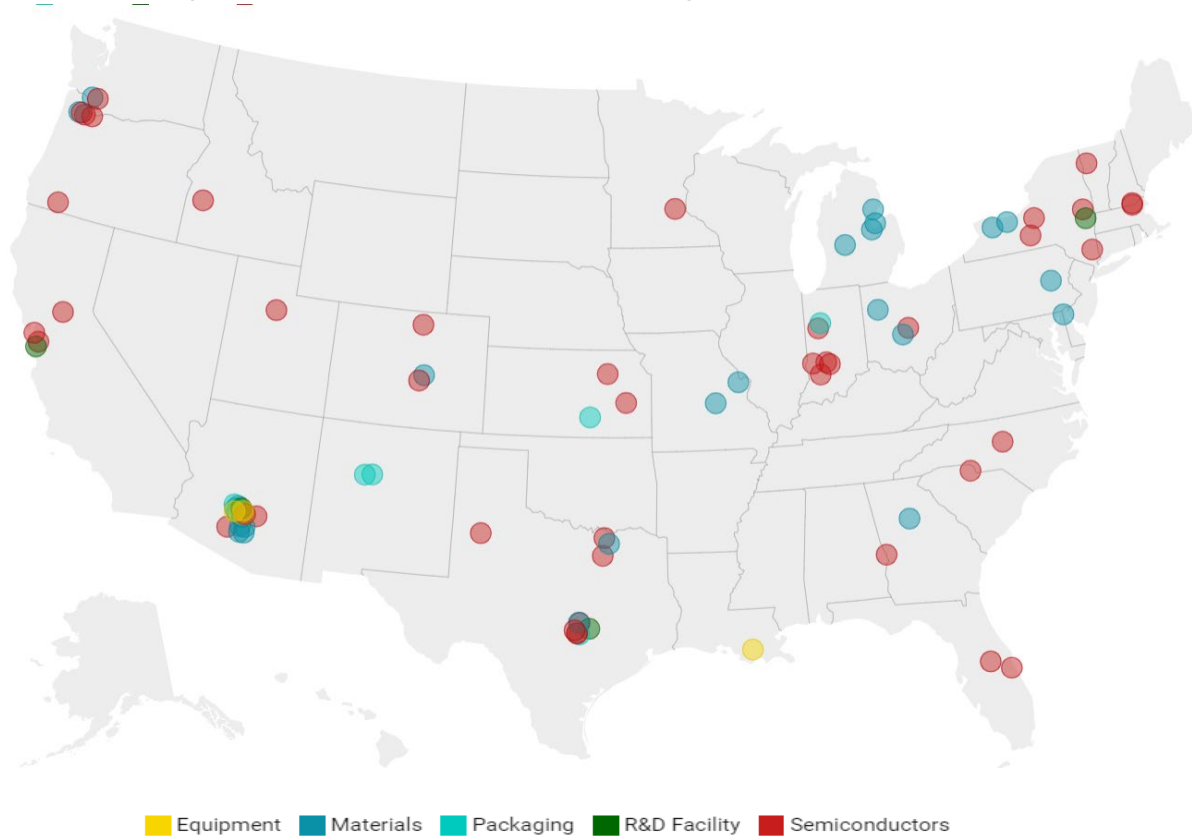
*\*PMT: Preliminary Memorandum of Terms*

***With much more to come over the course of this year...***

# ...And CHIPS is spurring investment in the semiconductor industry and supply chain across the country



Semiconductor industry manufacturing investments announced by the private sector from May 2020 to March 2024



Source: Semiconductor Industry Association

## CHIPS awards to date

### Leading-Edge Companies:

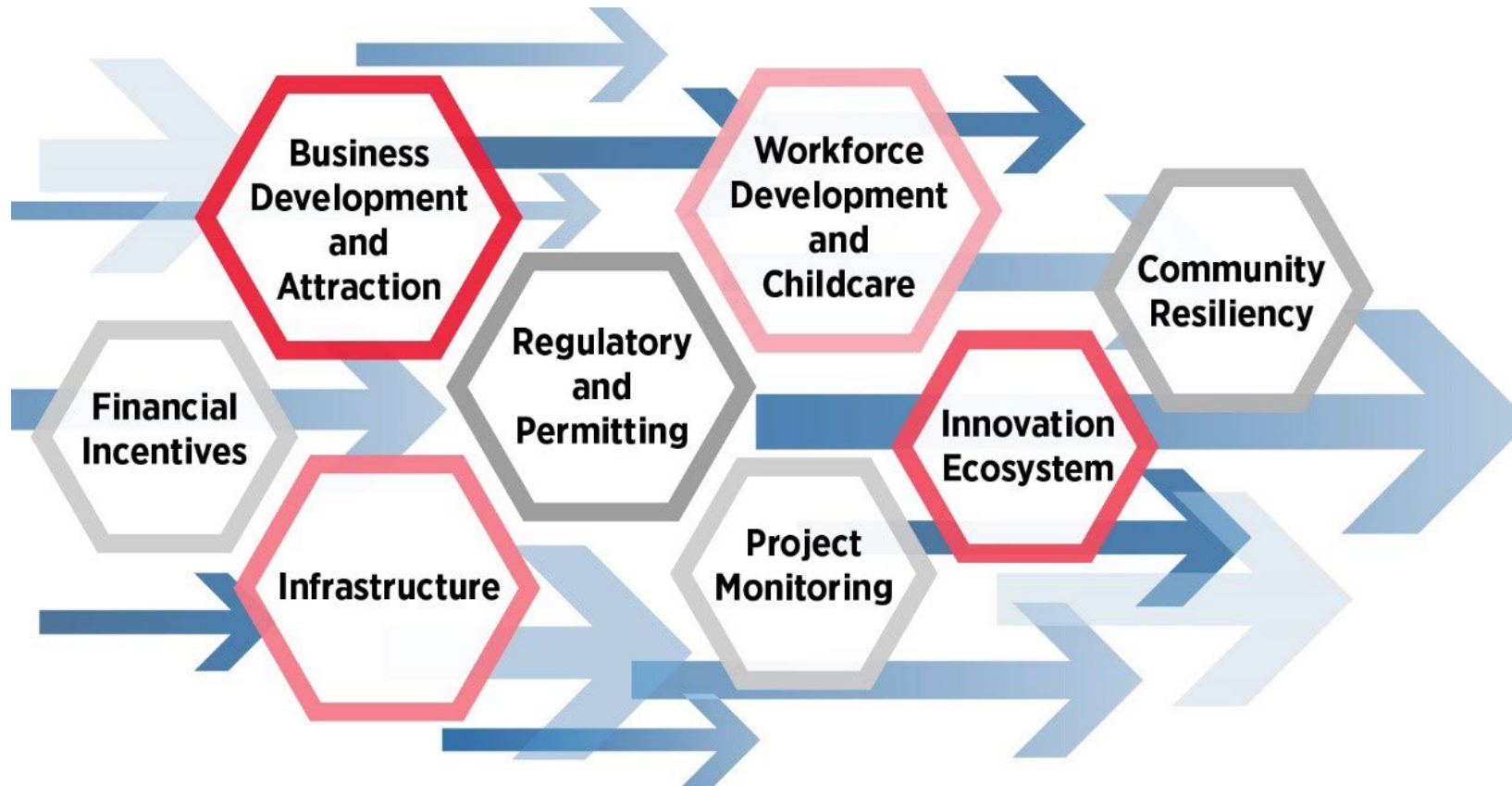
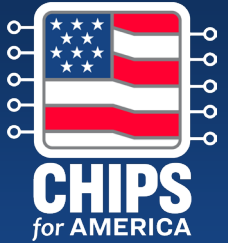
- Intel – facilities located in **Arizona, New Mexico, Ohio, and Oregon**
- TSMC – facilities located in **Arizona**
- Samsung – facilities located in **Texas**
- Micron – facilities located in **Idaho and New York**

### Current and Mature Node Companies:

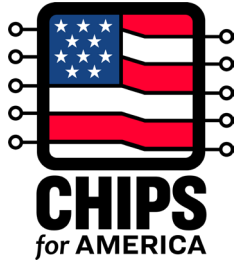
- BAE Systems – facility located in **New Hampshire**
- Microchip – facilities located in **Colorado and Oregon**
- GlobalFoundries – facilities located in **New York and Vermont**



# How can states and localities support the CHIPS for America long-term vision?



# States have already been actively investing to spur ecosystem development

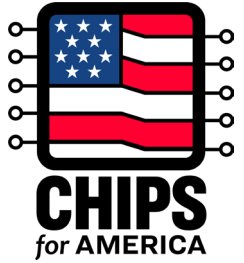


State-level CHIPS Legislation\*

State	Name	Date Signed
<b>Colorado</b>	CHIPS Refundable Tax Credit Program (HB23-1260)	May 2023
<b>Idaho</b>	Idaho Semiconductors for America Act (HB 678)	March 2023
<b>Illinois</b>	Manufacturing Illinois Chips for Real Opportunity Act (MICRO) (SB3917)	April 2022
<b>Minnesota</b>	Minnesota Forward Fund (HF2997)	May 2023
<b>Nebraska</b>	Creating Helpful Incentives to Produce Semiconductors (CHIPS) (LB 92)	June 2023
<b>New York</b>	Green CHIPS Program (S.9467/ A.10507)	August 2022
<b>Ohio</b>	Megaprojects Bill (HB 110/HB687)	September 2022
<b>Oregon</b>	Oregon CHIPS Act (SB4); R&D Tax Credit for Semiconductors (HB2009)	April 2023
<b>Texas</b>	Texas CHIPS Act (HB 5174)	June 2023

*\*Illustrative, not comprehensive*

# Federal, state, local, and private collaboration can accelerate national ecosystem development



*Opportunities for supply chain best practice sharing across state lines include:*

**Site selection and preparation**

**Small Business Support**

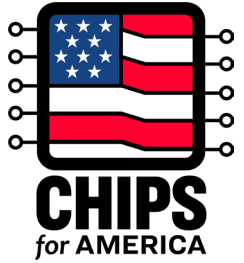
**Aftercare programs**

**Asset mapping**

**Permitting**

**Emergency Response Planning and Readiness**

# Industrial infrastructure development represents key opportunity for cross-state strategies



*Opportunities for best practice sharing across state lines include:*

**Regional Transportation  
Planning and Expansion**

**Smart Growth Planning**

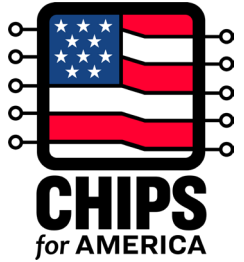
**Commercial Reuse Initiatives**

**Water, Wastewater, and  
Energy Capacity Planning  
and Expansion**

**Construction Workforce  
Housing**

**Infrastructure Financing**

# States play key role in CHIPS Supply Chain Vision for Success



## Strengthen Supply Chain Resilience

- ✓ The **U.S. and its allies** will reduce **chokepoint risks** flowing from **geographic concentration**
- ✓ Supply chain participants will improve the **transparency of demand and supply** to **reduce the risks of production disruptions**



## Advance U.S. Technology Leadership

- ✓ The U.S. will have **incentivized major U.S. equipment and materials suppliers** to **increase their footprints** in the U.S.
- ✓ **Non-U.S. suppliers** of the world's most advanced equipment, materials, and subsystems will also **establish large-scale footprints** in the U.S.

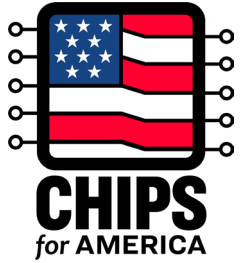
**By the  
end of the  
decade...**



## Support Vibrant U.S. Fab Clusters

- ✓ Each **CHIPS-funded fab cluster** in the U.S. will be **supported by dozens of suppliers**, including many **investing in the U.S. for the first time**
- ✓ **State and local entities** encouraged to help **facilitate the expansion of these ecosystems**

# CHIPS Manufacturing Incentives Update



*The CHIPS Program Office has received over 620 statements of interest, over 170 pre-applications and full applications, and over 160 small supplier concept plans.*

**February 28, 2023**

**June 23, 2023**

**September 29, 2023**

**For commercial leading-edge, current, and mature node fabrication facilities**

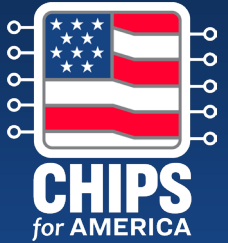
**For large semiconductor materials and equipment facility projects \$300M+**

**For smaller semiconductor materials and equipment facility projects under \$300M**

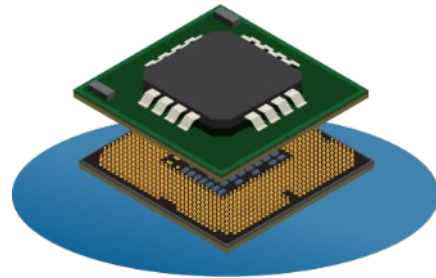
*\*Statements of interest from all potential applicants are currently being accepted on a rolling basis until June 18, 2024.*

*\*Concept plans were accepted between December 1, 2023, and February 1, 2024. Invited applicants must submit Full Applications by July 1, 2024.*

# CHIPS R&D Programs



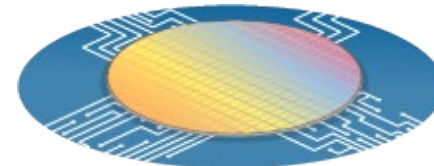
**Metrology Program**



**National Semiconductor Technology Center**



Natcast is an independent nonprofit organization and operator of the NSTC consortium



**National Advanced Packaging Manufacturing Program**

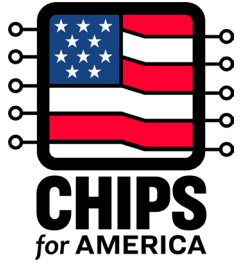


**CHIPS Manufacturing USA**



## Workforce Initiatives

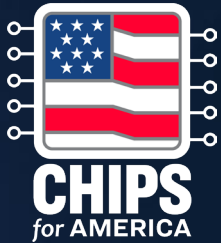




# Resources

- Visit CHIPS.gov for resources, including:
  - Funding Updates List
  - Funding Opportunities
  - Vision for Success papers
  - Applicant Guides and Templates
  - FAQs and fact sheet
- Join our mailing list
- Contact us
  - [askchips@chips.gov](mailto:askchips@chips.gov) – general inquiries
  - [apply@chips.gov](mailto:apply@chips.gov) – application-related inquiries





Thank You