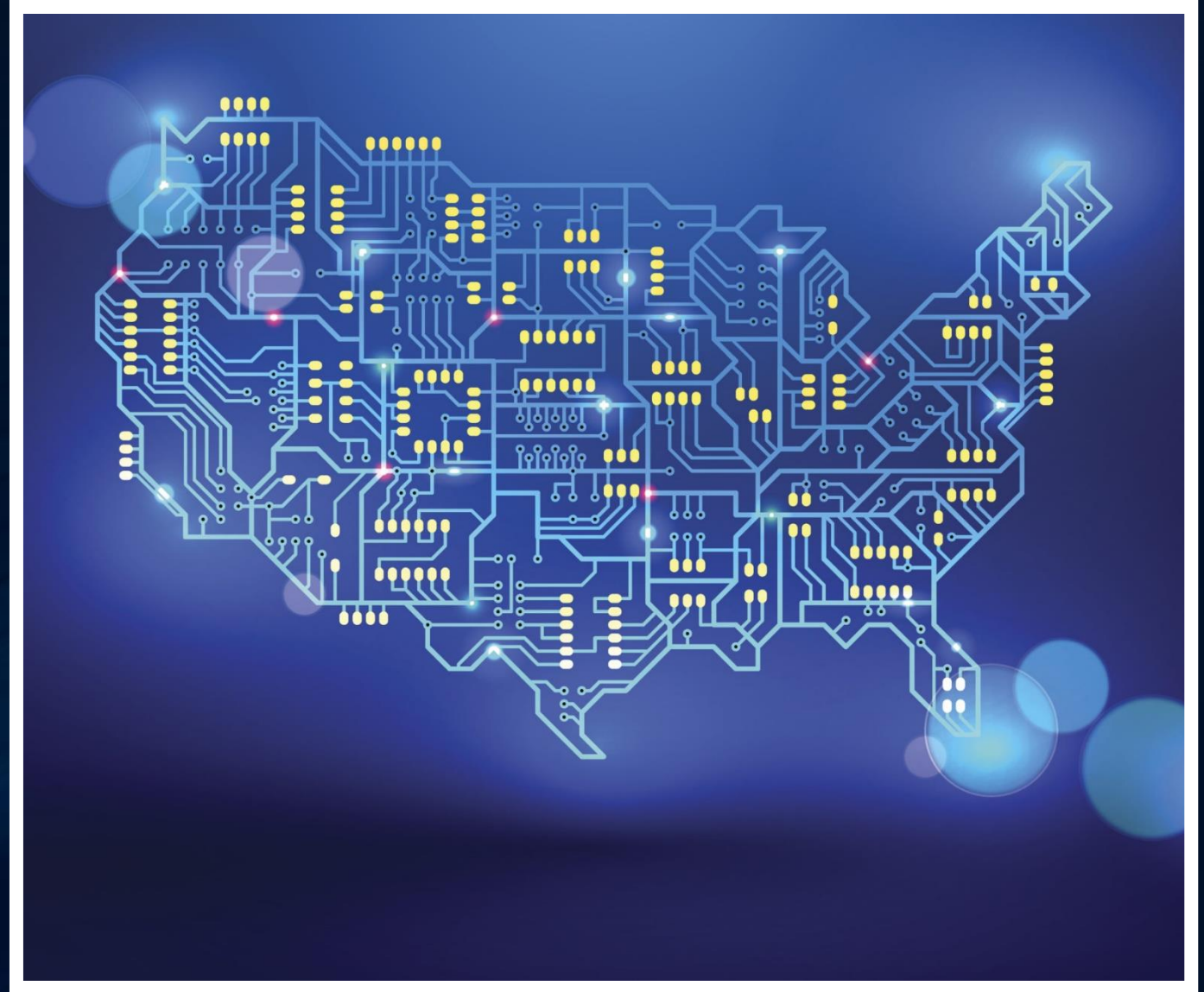


# CHIPS Incentives Program – Commercial Fabrication Facilities



# Introduction

- Semiconductors, or chips, are tiny electronic components that are essential to America's economic and national security
- Power our consumer electronics, automobiles, data centers, critical infrastructure, and virtually all military systems
- The U.S remains a global leader in semiconductor design and research and development, yet it only holds 10% of the global commercial production
- The law provides the Department of Commerce with \$50 billion for various programs to:
  - strengthen and secure the U.S position in semiconductor research, development, and manufacturing
  - while also focusing on American workers.

# Introduction

- The CHIPS Act encompasses two offices responsible for implementing the law:
  - i) the CHIPS Research and Development Office is investing \$11 billion into developing a robust domestic R&D ecosystem,
  - ii) while the CHIPS Program Office is dedicating \$39 billion to provide incentives for investment in facilities and equipment in the United States,
  - The current funding incentive is open to applications from semiconductor manufacturers and producers of semiconductor materials and equipment that want to build, renovate, or expand U.S. semiconductor facilities. Foreign organizations may apply, but funds must be utilized in the United States only.

# Which Are the Funding Opportunities?

- 1<sup>st</sup> Notice of Funding Opportunity (current):
  - For commercial leading edge, current, and mature node fabrication activities
- As of June 23, 2023, the current funding announcement has been expanded to also seek applications for the construction, expansion, or modernization of commercial facilities for semiconductor materials and manufacturing equipment facilities for which the capital investment equals or exceeds \$300 million.

**Note:** For current and future funding opportunities, a statement of interest is strongly encouraged to be submitted through the portal, three weeks prior to the submission of the full application

# Which Are the Funding Instruments?

## ➤ Direct Funding:

- Provide funding for eligible costs. It can take the form of grants, cooperative agreements, other transaction agreements. The amounts available are up to \$38.22 billion

## ➤ Direct Loans and Loan Guarantees:

- The amounts available are up to \$75 billion in direct loan or guaranteed principal

Note: The Department will not award the full amounts available under this funding notice as future funding calls are expected to open

# Vision for Success: Which are the Parameters?

## LEADING-EDGE LOGIC

- By the end of the decade, the U.S will have at least two new large-scale clusters of leading-edge logic fabs
- U.S-based engineers will develop the next gen of logic chips

## ADVANCED PACKAGING

- The U.S will host multiple high-volume advanced packaging facilities
- Strengthen U.S leadership position in commercial-scale advanced packaging technology

# Vision for Success (cont.)

## MEMORY

- U.S.-based fabs will produce high-volume memory chips on economically competitive terms
- Strong focus on R&D for next-generation memory technologies that will be conducted in the U.S

## CURRENT-GENERATION AND MATURE

- The U.S will acquire strategically increased its production capacity for current-gen and mature chips
- Chip producers will response more nimbly to future supply and demand shocks

# Program Priorities

## ECONOMIC AND NATIONAL SECURITY OBJECTIVES

- Increase U.S semiconductor production and align with U.S strategic needs
- Create a more resilient semiconductor supply chain
- Contribute to a self-sustaining ecosystem and catalyze future upgrades

## COMMERCIAL VIABILITY

- Demand for the product
- Existing and planned supply
- Stability and predictability of key suppliers



# Program Priorities

## FINANCIAL STRENGTH

- Financial strength and sustainability of the project
- Commitment of private/third-party investment
- Comprehensiveness and reasonableness of the CHIPS funding request

## PROJECT TECHNICAL FEASIBILITY AND READINESS

- Organizational readiness
- Clear project execution plan
- Compliance to environmental requirements

# Program Priorities

## WORKFORCE DEVELOPMENT

- A highly skilled, diverse workforce is essential:
  - Ability to recruit, train, hire, retain and upskill a diverse workforce in good jobs
- Include women/ disadvantaged communities
- Engage with local partners
- Child care

## BROADER IMPACTS

- Commitments to future investment
- Support for semiconductor R&D
- Inclusive opportunities for businesses
- Climate and environmental responsibility
- Upside sharing

# How Small Businesses Will Benefit from the CHIPS Act?

In addition to strengthening semiconductor production, the CHIPS Act will impact a wide range of industries by:

## → Revitalizing local economies

- By creating tech hubs around the country, the Act promises to have a positive knock-on effect on all businesses

## → Securing supply chain gaps

- By focusing on increasing domestic production

## → Building a strong and diverse workforce

- By funding STEM programs for schools, colleges, and universities that will train the next generation of technicians needed by regional semiconductor companies

# What Are Some of the Investments?

- Micron Technology, Inc., one of the world's largest semiconductor companies, announced \$4.0 billion investment in leading-edge memory manufacturing in the United States.
- Qualcomm and GlobalFoundries announced a partnership that includes a \$4.2 billion to manufacture chips in an expansion of GlobalFoundries' upstate New York facility.
- Wolfspeed announced it will build the world's largest silicon carbide semiconductor plant in Chatham County, North Carolina.

# Application Process

## REQUIRED DOCUMENTS

- Statement of interest
- Recommended pre-application
- Full application
- Due diligence
- Award preparation and insurance
- Pre-applications and full-applications are assessed on a rolling basis and applicants receive feedback at various stages

## SUBMISSION DATES

- Applications for leading-edge facilities:
  - Friday 31<sup>st</sup> March, 2023 (pre and full)
- Applications for current generation, mature-node, and back-end production facilities:
  - Monday 1<sup>st</sup> May 2023 (Pre) &
  - Monday 26<sup>th</sup> June 2023 (Full)
- Applications for wafer manufacturing facilities:
  - Friday 1<sup>st</sup> September 2023 (Pre) &
  - Monday 23<sup>rd</sup> October 2023 (Full)
- Applications for semi-conductor materials and manufacturing equipment facilities (capital exceeds \$300 million)
  - Friday 1<sup>st</sup> September 2023 (Pre) &
  - Monday 23<sup>rd</sup> October 2023 (Full)

From the onset of the COVID-19 pandemic in early 2020, the entire semiconductor business has seen a strong growth in demand. Shipments of chips increased by 40% from around 73 billion in 1Q20 to approximately 102 billion in 3Q21



# Forecast Summary Spring 2023

Spring 2023	Amounts in US\$M			Year on Year Growth in %		
	2022	2023	2024	2022	2023	2024
Americas	141,136	128,236	150,989	16.2	-9.1	17.7
Europe	53,853	57,253	61,637	12.8	6.3	7.7
Japan	48,158	48,724	52,534	10.2	1.2	7.8
Asia Pacific	330,937	280,881	310,838	-3.5	-15.1	10.7
<b>Total World - \$M</b>	<b>574,084</b>	<b>515,095</b>	<b>575,997</b>	<b>3.3</b>	<b>-10.3</b>	<b>11.8</b>
Discrete Semiconductors	33,993	35,904	38,192	12.0	5.6	6.4
Optoelectronics	43,908	45,949	45,881	1.2	4.6	-0.1
Sensors	21,782	20,410	21,575	13.7	-6.3	5.7
Integrated Circuits	474,402	412,832	470,349	2.5	-13.0	13.9
Analog	88,983	83,907	88,902	20.1	-5.7	6.0
Micro	79,073	71,470	75,855	-1.4	-9.6	6.1
Logic	176,578	173,413	185,266	14.0	-1.8	6.8
Memory	129,767	84,041	120,326	-15.6	-35.2	43.2
<b>Total Products - \$M</b>	<b>574,084</b>	<b>515,095</b>	<b>575,997</b>	<b>3.3</b>	<b>-10.3</b>	<b>11.8</b>

# Bibliography

- The Notice of Funding Opportunity: Commercial Fabrication is available on chips.gov
- The Full Press Release for Micron Technology: <https://investors.micron.com/news-releases/news-release-details/micron-announces-40-billion-investment-leading-edge-memory>
- The Full Press Release for Qualcomm and GlobalFoundries: <https://www.qualcomm.com/news/releases/2022/08/globalfoundries-and-qualcomm-announce-extension-of-long-term-agr>
- The Full Press Release on Wolfspeed: <https://www.wolfspeed.com/company/news-events/news/wolfspeed-selects-north-carolina-for-worlds-largest-silicon-carbide-materials-facility/>