



Arizona's All-in on CHIPS

An Overview

About the CHIPS Act

On August 9, 2022, President Biden signed into law the CHIPS and Science Act (CHIPS), historic legislation that invests nearly \$53 billion in U.S. semiconductor manufacturing, research and development, and workforce initiatives. The law also creates a 25 percent tax credit for capital investments in semiconductor manufacturing.

Arizona's Actions

As the nation's leader in new semiconductor jobs, investment, and supplier expansions, Arizona promises to play a leading role in the future of U.S. chip manufacturing and innovation.

To maximize opportunities under the CHIPS Act, Arizona has launched an unprecedented collaborative effort, bringing together stakeholders from state and local governments, industry, trade groups, economic development organizations, universities and community colleges, workforce partners, and more.

Working together, partners have announced important new initiatives to enhance the state's semiconductor ecosystem including new industry-led apprenticeships and workforce programs, investments in university infrastructure and R&D, first-of-its kind training accelerators at community colleges, a national industry roadmap, and more.

Arizona Semiconductor Task Force

Launched in August 2022, the Arizona Semiconductor Task Force represents a statewide effort led by the Arizona Commerce Authority (ACA) to coordinate the state's pursuit of competitive funding opportunities under the CHIPS Act, grow the semiconductor talent pipeline, strengthen and enhance connectivity throughout the supply chain, and invest in semiconductor R&D infrastructure. Driven by industry-led efforts, the group includes more than 100 partner organizations from private industry, academia, and the public sector working to maintain and grow Arizona's semiconductor leadership.

The group has convened eight full Task Force meetings as well as numerous subcommittee meetings in areas such as workforce, advanced packaging, and the supply chain.

Under the ACA's leadership, the Task Force is focused on helping companies navigate their applications for direct incentives and leveraging Arizona's unique capabilities and strengths to lead federal CHIPS R&D programs.



A convening of the full Arizona Semiconductor Task Force in October 2023

Supply Chain and R&D

Arizona Supplier Consortium

On September 29, 2023, the U.S. Department of Commerce released a funding opportunity for supply chain projects of less than \$300 million. In response, the ACA and partner organizations formed the Arizona Small-Scale Supplier Consortium (AZ SSC), a subgroup of the Arizona Semiconductor Task Force.

The consortium includes key supply chain operators in Arizona representing materials, equipment, R&D, advanced packaging, and more. The AZ SSC combined projects, which are backed by the support of more than 20 partner organizations in the state, represent nearly \$1.8 billion in investment and will create over 3,800 high-paying and high-skilled jobs in Arizona.

The consortium helps to highlight the importance of Arizona's semiconductor cluster and the critical role filled by suppliers to support larger manufacturing operations, such as those conducted by Intel, TSMC, and NXP.

University Investments

To maximize Arizona's competitive position for research and development opportunities under the CHIPS Act while spurring additional private sector investment, the State of Arizona allocated \$100 million to the ACA to further enhance Arizona's semiconductor infrastructure, workforce, and research capabilities.

Investments from the ACA include:

- ✓ **\$47.5 million** to ASU, enabling the first-of-its-kind Applied Materials/ASU Materials to Fab (MTF) Laboratory at ASU's MacroTechnology Works facility and supporting the development of advanced packaging and GaN capabilities;
- ✓ **\$35.5 million** to the University of Arizona, enabling a major expansion of the university's Micro/Nano Fabrication Center and advancing R&D and industry partnerships. The partnership includes a collaboration with Pima Community College and Central Arizona College to advance training opportunities;
- ✓ **\$13 million** to Northern Arizona University to launch the Microelectronics Metrology certificate program, training center, and research laboratory; and
- ✓ **\$4 million** to establish Registered Apprenticeship Programs for semiconductor technicians



Nation-Leading Investments

Arizona companies have secured significant new investments under the CHIPS Act, including:

- ✓ **\$7.9 billion** agreement with Intel
- ✓ **\$6.6 billion** preliminary agreement with TSMC, and
- ✓ **\$400 million** preliminary agreement with Amkor Technology

In addition, Arizona partners have secured more than \$200 million in CHIPS Act research and workforce development funding, including:

SWAP Hub - \$40 million: In September 2023, the Department of Defense selected an ASU-led consortium of more than 170 partners, including the ACA, as one of eight **Microelectronics Commons regional innovation hubs**. The Southwest Advanced Prototyping (SWAP) Hub will work to accelerate the lab-to-fab transition between research, development, and production and collaborate to build the microelectronics workforce of the future.

SWAP Hub R&D Initiatives - \$30 million: In September 2024, the ASU-led SWAP Hub was awarded nearly \$30 million to advance five microelectronics R&D initiatives, advancing innovation in areas such as 5G and 6G, AI, radio spectrum, and more.

SHIELD USA Initiative - \$100 million: In November 2024, NIST announced up to \$100 million to ASU and Deca Technologies to advance R&D related to advanced packaging technology. The award, which is focused on organic materials and substrates, represents the first of several R&D initiatives from the Advanced Packaging Manufacturing Program (NAPMP).

MCCCD NSTC Workforce Partner Alliance - \$1.7 million: In September 2024, the CHIPS Program Office selected Maricopa Community Colleges (MCCCD) for a \$1.7 million award through the NSTC Workforce Partner Alliance program to support expanded semiconductor technician training and the launch of the Maricopa Accelerated Semiconductor Training program.

International Technology Security and Innovation (ITSI) Fund - \$13.8 million: In February 2024, the State Department awarded ASU \$13.8 million to bolster assembly, testing, and packaging capabilities in partner countries in the Americas and Indo-Pacific.

Southwest Sustainability Innovation Engine (SWSIE) - \$15 million: In January 2024, NSF selected the ASU-led Southwest Sustainability Innovation Engine as one of the first Regional Innovation Engines authorized under the CHIPS Act. The NSF will fund SWSIE's initial development with \$15 million over the next two years. The engine can be renewed for up to 10 years with \$160 million in funding available for each regional engine.



A researcher inspects equipment at the ASU MacroTechnology Works facility

Timeline of Recent Semiconductor Actions

- SEPT 2021 — **ACA** convenes national effort to develop semiconductor industry roadmap (NSER)
- AUG 2022 — **CHIPS Act** signed into law
- AUG 2022 — **ACA** launches the **Arizona Semiconductor Task Force**, a statewide effort to coordinate CHIPS Act efforts
- DEC 2022 — Industry, state leaders publish **National Semiconductor Economic Roadmap (NSER)**
- JAN 2023 — **SEMICON West** announces **annual rotation** in Phoenix
- JUL 2023 — **Applied Materials, ASU, ACA** announce new **\$270 million** “Materials-to-Fab” Center
- SEPT 2023 — **ACA** forms Arizona Small-Scale Supplier Consortium (AZ SSC)
- SEPT 2023 — **DoD** selects ASU-led effort for **\$40 million** ME Commons hub (SWAP HUB)
- NOV 2023 — **ACA, U of A** announce **\$35.5 million** investment for Micro/Nano Fabrication Center (MNFC)
- NOV 2023 — **Governor Katie Hobbs** announces **new apprenticeships** support
- NOV 2023 — **Amkor** Announces **\$2 billion** advanced packaging and test facility in Peoria, Arizona
- DEC 2023 — **ASM** announces **\$300 million** R&D expansion in Scottsdale
- DEC 2023 — **ACA** allocates **\$17.5 million** to expand ASU R&D, workforce initiatives
- JAN 2024 — **Phoenix, TSMC** announce **new workforce initiatives**
- FEB 2024 — **ACA** allocates **\$13 million** for NAU training and research programs
- FEB 2024 — **ASU** awarded **\$13.8 million** from ITSI Fund
- MAY 2024 — 10 Arizona suppliers invited to round II of **Small-Scale Supplier NOFO**
- JULY 2024 — **Intel** and **Governor Katie Hobbs** announce the company will launch its first U.S. Registered Apprenticeship Program for manufacturing facility technicians
- JULY 2024 — **Amkor** to receive up to **\$400 million** in proposed CHIPS Act funding to support its Peoria facility
- SEPT 2024 — **SWAP Hub** awarded **\$30 million** to advance microelectronics R&D
- SEPT 2024 — **MCCCD** wins first award through NSTC Workforce Partner Alliance program
- NOV 2024 — **ASU, Deca Technologies** awarded **\$100 million** for advanced packaging substrates R&D
- NOV 2024 — **Governor Katie Hobbs, MCCCD, ACA** launch semiconductor-focused Future48 Workforce Accelerator
- NOV 2024 — **TSMC** finalizes **\$6.6 billion** agreement for CHIPS funding
- NOV 2024 — **Intel** finalizes **\$7.86 billion** agreement for CHIPS funding

Enhancing Arizona's Semiconductor Ecosystem



TSMC announces the expansion of its Registered Technician Apprenticeship program

For more than 70 years, Arizona has stood at the forefront of semiconductor design, development, and production. Combined with Arizona's rapid population growth and deep labor pool, which includes more than 3.6 million workers and counting, Arizona is poised better than any state to power the semiconductor workforce of the future.

Recent actions:

Launching the Future48 Workforce Accelerator: In November 2024, Governor Hobbs announced Arizona's semiconductor-focused Future48 Workforce Accelerator at GateWay Community College in Phoenix. Developed in collaboration with Maricopa Community Colleges and industry partners Intel, TSMC, and NXP, the facility will offer customized, hands-on training and feature state-of-the-art manufacturing equipment.



Governor Katie Hobbs announced a semiconductor-focused Future48 Workforce Accelerator at GateWay Community College in Phoenix

Launching semiconductor apprenticeships:

To support technician apprenticeship offerings, the ACA has launched the AZ Semi Career and Apprenticeship Network in partnership with the SEMI Foundation. Through the partnership, employers have access to customized training and curriculum as well as an established network of training providers, education institutions, and community-based organizations.

Enhancing Arizona's Semiconductor Ecosystem

Launching the Phoenix Workforce Hub: In January 2024, the City of Phoenix and senior government officials announced a \$5 million commitment from TSMC to establish a new semiconductor technician Registered Apprenticeship Program. The announcement also included a \$5 million commitment from philanthropic organizations to provide 1,500 Arizonans with supportive services to enter in-demand jobs of the future, new partnerships between unions and community colleges, and more.

Leading with NSER: In December 2022, after a year of development and extensive work alongside many state and national partners, the ACA released the much-anticipated *National Semiconductor Economic Roadmap (NSER)*, a blueprint to increase U.S. semiconductor competitiveness.

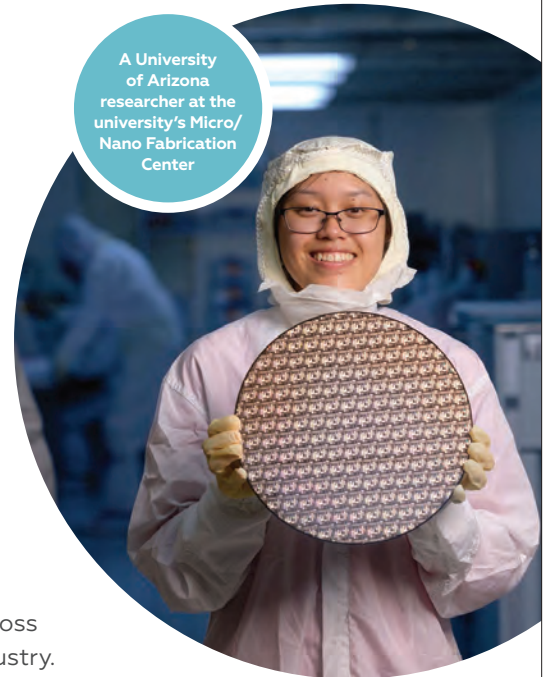
Meeting childcare needs: Arizona state agencies are collaborating to conduct a Childcare Needs Study to assess gaps across the state across all industries as well as challenges specific to the semiconductor industry.

Expanding Arizona's Semiconductor Technician Quick Start Program: In partnership with Intel and TSMC, Maricopa Community Colleges launched the Semiconductor Technician Quick Start program in 2022. The affordable, two-week program prepares students for careers as semiconductor technicians through hands-on learning from private-industry instructors.

Increasing trade apprentices through BuildItAZ: Launched in August 2023, the BuildItAZ Apprenticeship Initiative aims to double the number of construction and trades registered apprentices by 2026.

Expanding the Joint Apprenticeship Training Center: Arizona Pipe Trades plans to expand its Joint Apprenticeship Training Center after receiving a \$15 million investment from Taiwan Semiconductor Manufacturing Company. The Joint Apprenticeship Training Center supports about 1,000 apprentices at a time with plans to expand to over 2,000.

A University of Arizona researcher at the university's Micro/Nano Fabrication Center



Governor Hobbs announces new workforce training initiatives in November 2023

