

The CHIPPING IN Act of 2022

“Creating Helpful Initiatives to Produce Personnel in Needed Growth Industries” or “the CHIPPING IN Act of 2022.”

Efforts to expand and diversify the U.S. microelectronics workforce will be a critical piece of the effort to bring microelectronics manufacturing back to the United States. The bipartisan CHIPPING IN Act of 2022 supports the growth, retention, and development of a diverse, flexible, and sustainable chips workforce that meets the evolving needs of the microelectronics industry, academia, and government.

Problem: Over the last few decades, much of the U.S. microelectronics manufacturing capacity has been offshored. The U.S. share of global semiconductor manufacturing decreased from 37 percent in 1990 to just 12 percent today.

With the decrease in U.S. manufacturing came a subsequent loss of the U.S. semiconductor workforce, especially the technical workforce. Today, many countries in Asia have a competitive advantage over the United States in terms of high-skilled workforce capacity for semiconductor manufacturing. This lack of available technical workers is part of the reason that the United States does not have a single state-of-the-art fab capable of making the most advanced microelectronics.

Universities and colleges across the country will play an essential part of training the future semiconductor workforce; however, very few fully equipped programs exist. All education levels are needed to reshore – from technician certificates to postdoctoral training.

Summary: The bipartisan CHIPPING IN Act of 2022 creates NSF awards for institutions of higher education, non-profit organizations, and consortia to advance innovative approaches to developing, improving, and expanding evidence-based microelectronics education and workforce development activities. The bill will increase the integration of microelectronics into all STEM education levels.

Additionally, the bill establishes traineeship programs to fund research for students who pursue microelectronics in their masters or doctorate degree. The traineeship program will give priority to proposals that are led by a Historically Black College and University, Tribal College or University, or Minority Serving Institution, or that include partnership with or among such institutions to increase the recruitment of students from groups historically underrepresented in STEM to pursue graduate studies in microelectronics.

Finally, the CHIPPING IN Act of 2022 creates a national network for microelectronic education – competitive, merit-reviewed awards to institutions of higher education and non-profit organizations to establish partnerships to enhance and broaden participation in microelectronics education. This national network of partnerships for microelectronics ensures organizations coordinate activities, best practice sharing, and access to facilities across the partnerships.

In comments to the National Institute of Standards and Technology on strengthening the semiconductor workforce, Semiconductor Industry Association (SIA) and SEMI listed a number of workforce-related challenges facing the industry:

- Lack of supply of U.S. workers with advanced education
- Lack of academic programs supporting emerging technologies
- High competition among tech industries for high skilled workers
- Low awareness of the semiconductor industry among graduate students in STEM
- Lack of hands-on training to prepare graduates for work on the manufacturing floor
- Lack of diversity in STEM
- Retention issues due to cultural differences between young workers and the older workforce