



U.S. HOUSE OF REPRESENTATIVES COMMITTEE ON  
**SCIENCE, SPACE, & TECHNOLOGY**

---

## Opening Statement

**Chairwoman Eddie Bernice Johnson (D-TX)**

Full Committee Hearing:  
*Ensuring American Leadership in Microelectronics*

December 2, 2021

Good morning and welcome to today's hearing. And welcome to our distinguished panel of witnesses. I look forward to hearing your insights on how we can ensure United States leadership in microelectronics.

It wasn't news to the experts, but the last 2 years have brought into full public view the vulnerabilities in our microelectronics supply chains. Chips operate almost every piece of technology in our lives, from cell phones to cars. They are essential to our national security. Yet, the U.S. share of global semiconductor manufacturing decreased from 37 percent in 1990 to just 12 percent today. Hindsight allows us to see that our government and industry suffered a collective failure of imagination when we thought we could offshore our chips manufacturing capacity without consequence. Today, a single chip might go through 1,000 production steps in 70 countries before reaching its final product. It took a global pandemic to expose the weaknesses of that approach. But we should not be fooled that this is a once-in-a-hundred-year problem.

Fortunately, the U.S. semiconductor industry still leads the world in research and innovation. In 1954, the very first commercial silicon transistor was developed by Gordon Teal at Texas Instruments in Dallas TX. In 1958, Jack Kilby of TI invented the integrated circuit. And ever since then, because of investments by both the U.S. government and industry, we have continued to lead in microelectronics innovation. However, current technology is approaching certain physical limits. Long term growth will require breakthroughs in everything from fundamental materials science to manufacturing processes.

In the meantime, other countries are stepping up their investments. In particular, China is already outpacing the United States to bolster its domestic semiconductor capacity. Moreover, they are investing in research and innovation like they never did before. They no longer want to just manufacture yesterday's chip. They want to lead in innovating tomorrow's chip. That poses both an economic and national security risk to us.

To help maintain U.S. competitiveness in microelectronics, Congress passed *the CHIPS for America Act*. *The CHIPS Act* would make substantial investments in the future of semiconductor R&D. The Act also includes incentives to bring semiconductor manufacturing back to our shores. I support full funding for the *CHIPS Act*. However, a one-time infusion of funding will not be enough to maintain U.S. leadership in microelectronics innovation.

Advancing U.S. leadership in microelectronics will require a long-term, whole of government strategy. While incentives to re-shore capacity now are important, the future will be shaped by how we invest in innovation and the technical workforce. That is what we know and do best in this Committee. The Science, Space, and Technology Committee is ready to work with the administration, industry, and the research community to oversee the implementation of *the CHIPS Act*. In addition, we will continue to explore opportunities to strengthen and expand our investments in microelectronics research, including at the Department of Energy. This hearing is the beginning of a long-term effort by our Committee.

Thank you again to the expert witnesses before us today. I look forward to the discussion.

With that, I now recognize Ranking Member Lucas for his opening statement.