WINNING THE FUTURE.

A Blueprint for Sustained U.S. Leadership in Semiconductor Technology

SEMICONDUCTORS ARE VITAL TO AMERICA'S FUTURE

Semiconductors – the tiny chips that enable modern technologies – are critical to America's economy, job creation, technology leadership, and national security. **For 50 years, America has led the world in semiconductor innovation, driving transformative advances in nearly every modern technology, from computers to mobile phones to the Internet itself.** Today, semiconductors underpin the most exciting "must-win" technologies of the future, including artificial intelligence to power self-driving cars and other autonomous systems, quantum computing to analyze huge volumes of data and enhance digital encryption, and advanced wireless networks to seamlessly connect people at unprecedented speeds and security.

To secure America's leadership in these future technologies for the next 50 years, the United States must continue to lead the world in semiconductor research, design, and manufacturing.

CHALLENGES TO CONTINUED U.S. LEADERSHIP IN SEMICONDUCTOR TECHNOLOGY

Technology challenges and ambitious steps by foreign governments put at risk continued semiconductor innovation and U.S. leadership in this sector. Technology advancements are pushing against barriers of physics, and breakthroughs to move beyond these limits are constrained by massive capital costs. Although U.S. companies still lead the world with nearly half of global market share, state-backed competition from abroad seeks to displace U.S. leadership.

AMBITIOUS POLICY ACTION IS NEEDED TO SUSTAIN AND STRENGTHEN U.S. SEMICONDUCTOR LEADERSHIP

To overcome these challenges and ensure continued U.S. leadership of the global semiconductor industry, the U.S. must adopt an ambitious semiconductor competitiveness and innovation agenda.

1. **Invest in research** that will promote American semiconductor innovation.

   - Triple U.S. investments in semiconductor-specific research across federal scientific agencies from approximately $1.5 billion to $5 billion annually to advance new materials, designs, and architectures that will exponentially increase chip performance.

   - Double U.S. research investments in semiconductor-related fields such as materials science, computer science, engineering, and applied mathematics across federal scientific agencies to spur leap-ahead innovations in semiconductor technology that will drive key technologies of the future, including artificial intelligence, quantum computing, and advanced wireless networks.

2. **Attract and develop a skilled workforce** that will ensure U.S. leadership in semiconductor research, design, and manufacturing and in the development and implementation of future growth technologies.

   - Reform the high-skilled immigration system by eliminating counterproductive caps on green cards so qualified STEM graduates from U.S. colleges and universities, as well as STEM graduates from around the world, can work, innovate, and contribute to U.S. leadership in the semiconductor industry and boost our economy.

   - Increase U.S. investments in STEM education by 50 percent and implement a national STEM education initiative to double the number of American STEM graduates by 2029.

3. **Ensure access to global markets and protect intellectual property** so the U.S. semiconductor industry can compete, innovate, and grow in the future.

   - Approve and modernize free trade agreements, including the United States-Mexico-Canada Agreement, that remove market barriers, protect IP, and enable fair competition.

   - Increase resources for law enforcement and intelligence agencies to prevent and prosecute semiconductor intellectual property theft, including the misappropriation of trade secrets.

SIA

SEMICONDUCTOR INDUSTRY ASSOCIATION