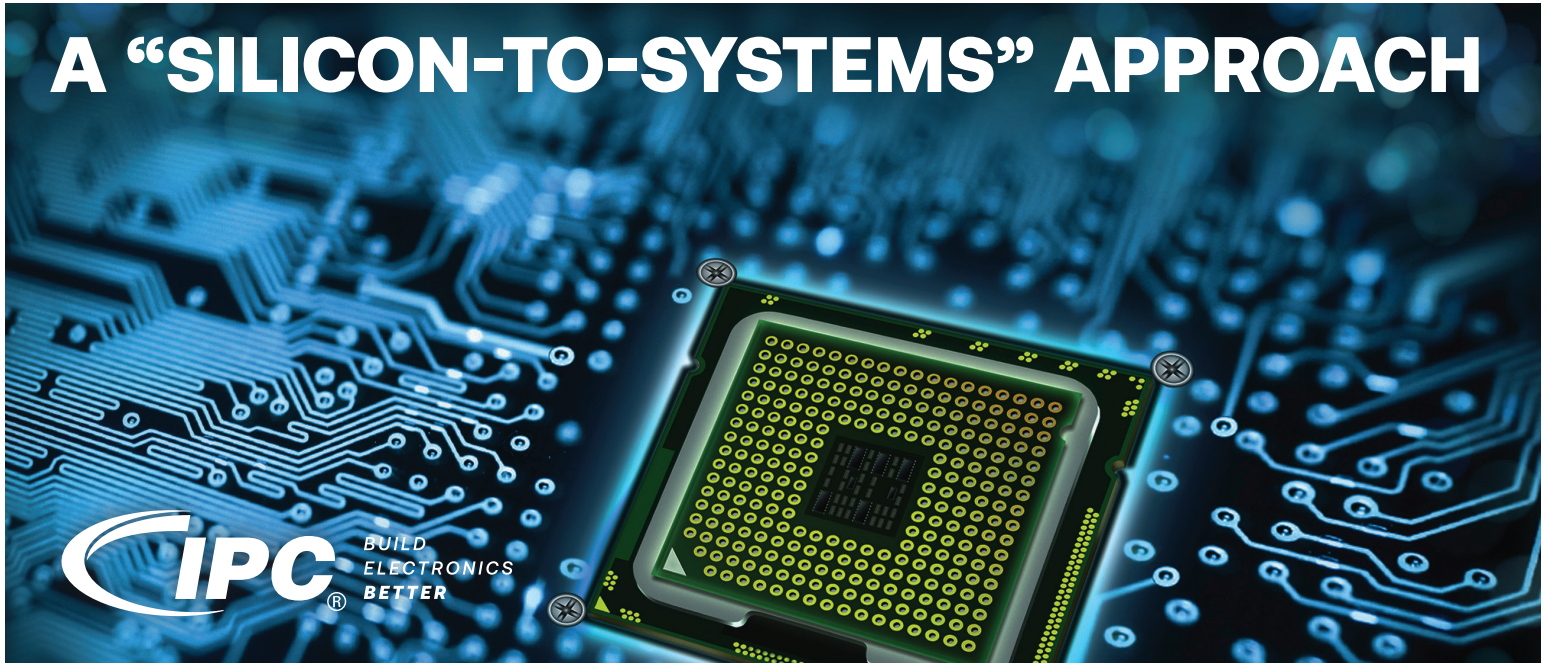


The U.S. Government Needs to Embrace A “SILICON-TO-SYSTEMS” APPROACH



The bipartisan CHIPS and Science Act of 2022 is launching a new era of leadership for U.S. semiconductor manufacturing and related industries.

However, **rebuilding the advanced electronics industry in the U.S. will require a long-term, sustained effort, and it is about more than just chips.**

Chips don’t float in thin air; they must be interconnected with other pieces of hardware and software for electronic systems to work. And **today’s more advanced chips require more advanced printed circuit boards (PCBs) and PCB assemblies.**

But alarmingly, the PCB sector has [withered to near extinction](#) in the United States. **Increasing domestic chips production without bolstering the PCB sector will not improve the overall supply chain**, as chips made in Arizona, California or Ohio will still need to be sent abroad for packaging and assembly into finished products, leaving the nation vulnerable to supply chain disruptions.

The United States is not only looking to build the greatest electronics components; it is trying to build the greatest electronic systems. That requires understanding the supply chain from “silicon to systems” and fixing the gaps. The U.S needs to abandon its de facto policy of regarding some segments of the electronics industry – specifically PCBs – as expendable.

H.R. 7677, the [Supporting American Printed Circuit Boards Act](#), will begin to fix this troubling gap in the U.S. supply chain.

- Specifically, the bill provides a 25 percent tax credit for the purchase and acquisition of American-made PCBs and establishes a financial system program, modeled on the CHIPS for America Act, for American facilities manufacturing or researching PCBs.
- This bill would spur the domestic manufacturing of PCBs by incentivizing purchases of domestically produced PCBs.
- It also would spur industry investments in factories, equipment, workforce training, and research and development.
- There are many small and medium-sized enterprises (SMEs) across America that will benefit from H.R. 7677, and they will help to realize the goals of the CHIPS Act. SMEs will lead the manufacturing renaissance.

The U.S. Government Needs to Embrace a “Silicon-to-Systems” Approach



What the U.S. Government Needs to Do

- Enact the Supporting American Printed Circuit Boards Act (H.R. 7677), which would incentivize purchases of domestically produced PCBs and investments in factories, equipment, workforce training, and R&D.
- Ensure that, as the CHIPS Act is being implemented, the \$2.5 billion in funding for “advanced packaging” is fully leveraged to upgrade and expand the U.S. PCB and EMS sectors.
- Issue a Presidential Determination on PCBs and IC substrates, pursuant to Section 303 of the Defense Production Act, to address industrial base vulnerability to safeguard the nation’s defense and technological leadership.
- Develop new public-private R&D opportunities, including a National Manufacturing Institute for Interconnection.
- Identify electronics manufacturing as a vital economic and security priority of the U.S. Government, and pursue a strategy aimed at revitalizing all segments of the industry.

U.S. Government and Industry Reports Confirm It

In February 2022, the U.S. departments of Commerce and Homeland Security released an [Assessment of the Critical Supply Chains Supporting the U.S. Information and Communications Technology Industry](#), including this key finding:

“Current State of ICT Manufacturing and Related Challenges: The United States continues to lead in ICT development and innovation in many product categories. However, the production of many products such as printed circuit boards (PCBs) and displays has become increasingly concentrated in China, along with electronics assemblies.”

The report urges greater federal support of the domestic PCB sector:

- *“Revitalize the U.S. ICT Manufacturing Base:* Support domestic investment and production of key ICT products, potentially including printed circuit boards (PCBs) and semiconductors, through appropriate federal procurement incentives and funding of programs like Title III of the Defense Production Act and the [CHIPS for America Act].”
- *“Build Resilience through Secure and Transparent Supply Chains:* Promote supply chain risk management practices through procurement and monitoring efforts such as implementing an Assured Supplier Program for PCBs for Federal Government and establishing a Critical Supply Chain Resilience Program at the Department of Commerce.”
- *“Continue to Study the ICT Industrial Base:* Conduct further industrial base studies on critical ICT products such as PCBs and related microelectronics ... to guide long-term policy planning.”

A recent [report](#) by IPC found that since 2000, the nation’s share of global PCB production has fallen from over 30 percent to just 4 percent, with China now accounting for around 50 percent. Only four of the top 20 electronics manufacturing services (EMS) companies are based in the United States, and any loss of access to non-domestic sources of PCBs would be catastrophic. Reports by the U.S. Department of Commerce in [2018](#) and [2022](#) confirm these risks.

About IPC

IPC is the voice of the electronics industry, connecting more than 3,000 member companies across the \$2 trillion electronics supply chain — including design, printed circuit board manufacturing, electronics assembly, and testing companies. About 80 percent of IPC members are small- and medium-sized businesses, but some are large household names.

The electronics manufacturing industry is at the heart of the modern economy. It is a large, vertical industry in its own right, but it is also a crucial link in the supply chain for thousands of goods and services. In today’s world, our lives depend on electronics.