Global Electronics Association™

electronics.org

POSITION PAPER
Review EU Chips Act: Europe needs a Chips Act Plus

Brussels, 25th November 2025

The Global Electronics Association (formerly IPC) welcomes the opportunity to contribute to the Call for Evidence and review of the European Chips Act.

While the Global Electronics Association welcomed the European Chips Act as a first step in building resiliency and technological leadership in semiconductors, our Association has repeatedly highlighted grave concern about the limited scope of the Chips Act and called for a broader electronics industrial strategy. In particular, we recommend that the Chips Act scope be expanded to cover the broader supply chain, including Printed Circuit Boards (PCBs), Printed Circuit Board Assemblies (PCBAs) and system integration, along with advanced electronics packaging projects.

As highlighted in the Draghi Report, European shortcomings in the information and communication technology (ICT) sectors is a central explanation for the EU's productivity gap in comparison with the United States during the 2000-2019 period. However, the primary focus on high end chip manufacturing has been an issue for our members and to the European industry at large. The current Chips Act leaves critical vulnerabilities in the back end of the electronics supply chain. These vulnerabilities leave the European Union (EU) exposed to supply chain disruptions for critical industries and diminishment of technological sovereignty and leadership. They undermine the ability to deploy cutting-edge chips and build electronic systems in the region for final industries. While producing cutting edge integrated circuits is an essential objective, the Chips Act overlooks that it is the complete electronic systems built around those chips that will utimately enable the EU to remain technologically relevant. The review provides a timely opportunity to address this.

A continuing focus on semiconductor chips alone – whether high end or legacy – will not be sufficient. We recall the essential point that semiconductors, or chips, have no functionality on their own. They gain functionality through conductive interconnections with other components on printed circuit boards (PCBs), assembled into electronic systems on Printed Circuit Board Assemblies (PCBAs) and final systems by Electronic Manufacturing Service Providers (EMS) and Original Equipment Manufacturers (OEMs).

These electronic systems feature prominently in key sectors like defence and space. They are vital to the achievement of the increased autonomy sought in the EU's 2030 Defence Readiness goals. They underpin Europe's economic security ambitions. Electronics are, moreover, key to almost every industry segment including automotive, industrial automation, and AI data centers which pose the greatest technological challenges of next generation electronics in high volume.

European PCB and EMS companies signal that the current Chips Act has had no benefit for their industry segments.

In this submission, we first provide an overview of the European electronics ecosystem, highlighting the current existential challenges faced by the sector, and which should be addressed in a new and broader iteration of the Chips Act. We then identify the critical gaps that are present in the current Chips Act, threatening European sovereignty and resilience. Thirdly, we set out the eight individual strategic sectors that are most dependent on electronics, and which should thus be accounted for

in the new Chips Act. Finally, we provide concrete policy recommendations to address the sharp deline in European key electronic system manufacturing.

European Electronics Ecosystem

The Global Electronics Association has provided extensive data, industry reports and positions since the adoption of the Chips Act underscoring the urgency of a broader approach to securing the European electronics ecosystem to secure Europe's objectives at a time of geopolitical change.

In brief, the following reports show the concerning state of the ecosystem. The figures highlight the decline in European shares of global production in PCBs, reductions in market share in EMS and electronics assembly, low capacities and capabilities in organic Integrated Circuit (IC) substrate technologies which are an evolution of PCB materials and processes and in advanced packaging. Data and recommendations to address this decline can be found in the following :

- 2023 Electronics Stakeholder Dialogue "Towards a Silicon to Systems Industrial Strategy" organized by European Commission DG GROW and curated by the Global Electronics Association (IPC) : https://emails.ipc.org/links/Electronics-Dialogue.pdf

The report notes that a resilient European electronics manufacturing industry requires globally competitive component manufacturers, EMS and PCB fabricators, as well as their equipment and materials suppliers. A 2023 survey indicates more than 95% of companies believe a robust European electronics ecosystem, including PCB and EMS industries, is critical to regional security, industrial resiliency, and economic competitiveness. Nevertheless, a clear majority also believe the EU lacks key PCB (88%) and EMS (61%) capabilities.

Despite its established presence, technical capabilities, and skilled workforce, the European electronics manufacturing industry faces challenges such as high production costs, lack of investment, an aging workforce, and international dependencies for supply chains. However, the industry can capitalize on growing demand and the trend towards advanced technology. To address these challenges investment support, R&D, training programs, and greater alignment with EU priorities are necessary.

- 2024 Industry report "Securing the European Union's electronics ecosystem" produced with partners DECISION Etudes & Conseil & in4ma. This report analyses the state of the ecosystem through the lens of the supply chains for 8 critical European sectors : aerospace & defence, automation, healthcare, mobility, renewable energies, security, servers, telecommunications infrastructure : https://emails.ipc.org/links/IPC-Securing-Europe-Electronics-Ecosystem.pdf

The 2024 study notes that since 2000, global PCB production has more than doubled, yet Europe's share in it has fallen from 13.8% to 2.2%. The EU is highly dependent on non-EU countries, and these dependencies are expected to worsen by 2035 without a strategic response. Across eight strategic sectors, the overall share of electronics systems manufactured in the EU is projected to decline, falling from 16.7% in 2023 to 15% in 2035. Diminished market share threatens OEM, ODM, and EMS competitiveness as companies struggle to keep pace with technological advancements, cost efficiencies, and innovation, potentially leading to reduced economic growth within the EU. To maintain its 2023 global market share of 16.7% in electronics systems, the EU must achieve an additional 16.8% growth over the next 12 years above its projected growth, resulting in a total electronics systems output in 2035 that is 11% higher than the current projection. Additionally,

without a strategic response, the EU's ability to satisfy PCB demand through domestic production will be further diminished by 2035. Furthermore, targets for Advanced Packaging and IC Substrate production should mirror semiconductor goals in the EU. As of 2023, the EU's share of the global market for advanced packaging and IC substrates was 2% and 1.3%, respectively. Without strategic prioritisation, the risk exists that these shares could drop to 1.4% and 0.7% by 2035

- 2025 Industry report " Securing the electronics value chain : the blind spot in the European Union's Defence Agenda ?" produced with DECISION Etudes & Conseil. https://go.electronics.org/electronics-value-chain

The report notes that EU's electronics manufacturing base has sharply declined over the past two decades, with its global production share falling from 18.6% in 2000 to just 11.6% in 2023. This downward trend undermines the EU's ability to meet its own defence requirements. The continued erosion of this industrial base has severe consequences, including longer lead times, rising costs, disrupted supply security, cybersecurity and trust concerns, the loss of strategic knowhow and weakened supply chains. The European PCB industry, in particular, is at a critical juncture, facing an unprecedented decline in production capacity and the risk of disappearing entirely from Europe. Today, only 12% of PCB companies that were operating in the EU in the mid-1980s remain active.

The first reports resulted in a 2024 Call to Action for an EU Electronics Strategy and holistic approach that would enable critical electronics supply and manufacturing in Europe at a time of geopolitical change. The Call to Action was signed by 66 companies, 17 Trade Associations across the EU including National Associations, ASD, ASD Eurospace and the European Space Agency. This Call remains pertinent and a high priority.

Electronics are indispensable to all industries, to Europe's security, its digital and green transitions. The revision of the EU Chips Act is an opportunity to strengthen the electronics ecosystem in Europe from silicon to systems for critical industries at a time of international transformations.

That means boosting investment in semiconductor fabrication and advanced packaging (component level), while simultaneously strengthening PCB fabrication, PCBA and systems assembly (system level) for critical industries. Only by building sovereign, end-to-end electronics value chains for cutting-edge technologies can Europe secure technological resilience, protect strategic industries and stay globally competitive.

Gaps in the Current Chips Act

The focus on Chip fabrication leaves critical gaps. This is critical as an increase in geopolitical uncertainty has exposed Europe's heavy reliance on the overseas sourcing of electronics for systems critical to security and economic competitiveness (as explained in our 2024 report Securing the European Union's electronics ecosystem – see above). Evidently, secure, end-to-end value chains from silicon to systems for critical industries are essential for European technological sovereignty and strategic resilience.

The emphasis in the Chips Act has primarily been on investments in front-end chip production. Nevertheless, advanced component-level packaging, PCBs, and PCBA delivered by EMS are strategic bottlenecks for deploying advanced technologies in real-world systems in Europe. To use an automotive analogy, a car with a performant engine but without wheels or chassis will hardly go anywhere. Attention must also be paid to the systems in which chips are embedded.

Moreover, structural weaknesses persist. Europe continues to rely heavily on overseas capacity for advanced packaging and assembly and PCB. PCB and EMS production has declined further since the Act's adoption, underscoring the lack of targeted incentives in these segments. Without investment beyond fabs, Europe risks building isolated chip capacity that cannot be efficiently integrated into final products, especially in defence, automotive, and other strategic industries within the region – further deterioriating its attempts for strategic autonomy.

To make things worse, innovation is at risk as well. Europe's chip R&D leadership will be undermined if downstream manufacturing capabilities cannot support advanced electronic packaging containing component- and system-level packaging innovation. It will further widen the gap between European and Asian capacity and capability of the electronics ecosystem, more cost uncertainty and vulnerability for critical sectors.

Critical market segments within Europe

In our 2024 report "Securing the European Union's Electronics Ecosystem", we identified eight sectors critical to the EU's digital and green transition as well as its security for which we urged the need for critical minimum capacity thresholds for electronics supply and manufacturing. The report identified growing dependencies on overseas supply in key segments of the electronics supply chain, notably PCBs, PCBAs, IC Substrates and Advanced Packaging.

In light of recent developments, we are reexamining the following critical market segments, which are at the forefront of technological development in the areas of computing, sensing, controlling, communicating and power:

Defence: Geopolitical tensions and in particular the war in the Ukraine have brought forward the need for fast development of state-of the-art defence systems. This includes Defence in Space (Satellite systems and networks), automated and non-automated airforce (drones, missiles and jet-fighters), as well as ground defence systems (drone and missile defence systems) and more. All those systems are dependent on next generation sense-control-communication electronics along with high performance compute and power electronics including chips, chiplets, component packages, ultra-high density PCBs and PCB assemblies as well as system integration. This includes the availability of materials' production within the region.

Automotive: The Automotive industry has been the backbone of the European industry for decades. Due to electrification and automatization trends, the rapid technological race to catch-up over developments in the last decade in China combined with an extreme cost competitiveness has put the automotive business model in the Union under pressure. To re-establish technological leadership, the development and standardization of automotive chiplets is required. While the European semiconductor industry is strong and timely with the development and manufacturing of automotive chips, the heterogeneous integration of chiplets using standardized advanced electronic packaging technologies at component and system level are crucial needs to maintain the European position as a major market player.

Industrial Automation: Europe's industrial automation sector is central to achieving the green and digital transition. To remain competitive globally, next-generation industrial electronics must embrace open, software-defined architectures that allow flexibility and interoperability. Embedding artificial intelligence requires edge computing combined with secure connectivity, ensuring low-latency operations and resilience against cyber threats. Advanced semiconductor packaging technologies such as 2.5D and 3D integration are needed for robotics and autonomous systems.

Policy actions should focus on research funding, standardization, and collaboration under a European Chips Act Plus.

AI Data Centers: The European Commission has urged the introduction of the "Apply AI Strategy" spanning a large number of industry sectors. The industrial sectors include healthcare and pharmaceuticals, mobility, transport and automotive, robotics, manufacturing, engineering and construction, climate and environment, energy, agri-food; defense, security and space, electronic communications, and cultural, creative and media sectors. To enable this strategy, and to maintain European sovereignty, it is crucial to develop the capabilities and capacities to build AI High-Performance Compute (HPC) Centers for Cloud and Edge-Computing Applications. Significant effort is critical to build semiconductior factories to produce the highest level next generation AI chips as well as packaging facilities on that level. IC-substrate as well as PCB assembly capabilities and capacities for these super advanced packages with high form factors need to be developed by Substrate, PCB and PCBA Electronics Manufacturing Industries.

Technological and Industrial Shifts
Advanced Electronics Packaging (AEP) = silicon to systems integration. To be resilient, Europe must build capabilities and capacities in component- and system-level packaging including PCB and PCBA and final system assembly and integration beyond semiconductors and advanced packages (AP).

To this end, the following observations must be accounted for as essential building blocks:

Printed Circuit Boards (PCBs) remain indispensable: Printed circuit boards are the interface for advanced packages and are critical for defense and high-reliability industries. Future competitiveness depends on next generation PCB technologies and trusted manufacturing. Ultra high-density interconnects (uHDI) and embedded components, as well as novel materials that meet the requirements of next-generation advanced packages, must be widely introduced across the European PCB industry. European PCB manufacturers need financial support to upgrade and expand production facilities within the region.

EMS modernisation and factory of the future : European EMS companies need support for automation, advanced equipment and scale to produce secure, complex systems domestically. The technological demands for EMS are becoming far more challenging, and only a few companies around the world are grappling with how to meet these technology requirements driven by advancements in semiconductor technology and requirements projected by high-performance and edge compute applications. The next generation of AI hardware uses large multi-chip modules (MCMs) with a rapidly growing number of interconnections, with decreasing distances between them. This presents significant challenges in terms of warpage, power dissipation, and signal integrity, necessitating innovative materials, manufacturing processes, and testing strategies.

Policy Recommendations

The sharp decline in the manufacturing in Europe of key electronic systems is fast becoming a significant point of European vulnerability. While the European Chips Act was an important first step, by focusing almost singularly on semiconductors, the region has not appropriately addressed the increasing dependencies of strategically important European industries. Moreover, the experience of Nexperia has shown that a focus on building production capacities for high end chips alone does not equate to supply chain security for European industries.

The Global Electronics Association recommends a shift in policy emphasis from the Digital Decade target of reaching 20% of global production of cutting edge semiconductors to a more holistic approach to address the needs of critical European industries. Ensuring, in parallel, that chips developed in Europe can be deployed in systems produced in the region.

In this context, the Global Electronics Association makes the following Recommendations :

- **Broaden the Chips Act's scope** from silicon to systems to reaffirm the importance of Advanced Electronics Packaging **Explicitly include in scope PCB, PCBA and system integration** as strategic priorities alongside chip fabrication and advanced packaging. Dedicated funds for these segments and industries should be made available in the Chips Act.

- In general, amend the Chips Act to **support the downstream electronics value chain as a whole**. This would ensure opportunities are not missed for the European industry as a whole, which could compromise the EU's achievement of its strategic policy objectives.

- In the context of the Chips Act or a dedicated separate Instrument, **create targeted funding for PCB, PCBA, and advanced electronics packaging projects serving critical industries** to address strategic dependencies and vulnerabilities and ensure that European companies remain viable. Moreover, there needs to be funding opportunities to support PCB and PCBA capacities and capabilities that meet a minimum strategic threshold of European origin to meet the required industrial autonomy. This is partly an industrial strategy choice combined with the demand of critical industries.

- **EU funding for electronics for strategic manufacturing projects** should also be created to provide direct EU support in complement to Member State-level funding. It should provide direct financial incentives for establishing and modernising key electronics manufacturing facilities. As highlighted in the Draghi Report, a centralised EU budgetary allocation, complemetary to Member States' allocations and dedicated to semiconductors, is needed. However, it should extend beyond semiconductors. Such a fund should be prioritised in the near term and as part of the European Competitiveness Fund (ECF), in order to secure Europe's urgent response to its electronic manufacturing crisis. A reduction in overall complexity and the streamlining of the administrative burden should be the hallmark as the majority of European electronics manufacturing companies are SMEs and/or midcaps. The complex processes they must go through constitute a competitive disadvantage and additional hurdles standing between them and supplying Europe with the electronics it needs.

- **Create a Standing Dialogue** between policymakers and the European electronics ecosystem within the governance of the Chips Act. This Dialogue should serve to identify requirements, gaps and needs for critical industries and infrastructure and for competitiveness in a dynamic fashion, identifying and addressing funding gaps across the electronics ecosystem at EU level. The European electronics industry is an essential strategic partner for Europe's success, with dialogue playing a key role in ensuring it enables the EU's wider objectives as needed.

- **Launch a European Electronics Strategy** to complement the Chips Act focused on building trusted, end-to-end manufacturing capabilities and capacities serving critical market

segments. The strategy should contribute to the EU's Defence Readiness 2030 plan and economic security strategy. To this end, it should include:

- A holistic approach to the electronics ecosystem, identifying the strategic importance of Advanced Electronics Packaging which includes PCBs, PCBAs, and final systems in addition to semiconductor chips, advanced packaging and heterogeneous integration for critical European sectors.

- Incentivising OEM participation by encouraging and incentivising sourcing and production of trusted electronics Made in Europe for identified critical sectors. A demand signal is key to future needed investments.

- Supporting the introduction of Made in Europe criteria for public procurement in strategic sectors which take into account electronics to strengthen European sourcing for defence and critical infrastructure.

- Accelerating the removal of tariffs on base materials for Printed Circuit Boards (PCBs). As highlighted in our 2023 Electronics Stakeholder Dialogue, companies pay tariffs on the import of base materials needed to produce PCBs but there are no tariffs on bare PCBs that are imported for assembly.

- Strengthening coordination with trusted trading partners to develop complementary packaging and integration capacity and to address needs for raw and base materials and equipment across the ecosystem, mapping requirements. To this end, the proposed Standing Dialogue would also serve to identify needs in a dynamic fashion.

- Working with industry and academia to develop a skilled workforce capable of working across the developing requirements of design, packaging and assembly.

- Recommending the introduction at National level of tax incentives for manufacturing investments including for PCB and EMS companies.