## **POSITION PAPER**



Brussels, 19 February 2025

#### STRATEGIC DIALOGUE ON THE FUTURE OF THE AUTOMOTIVE INDUSTRY

# Statement for the first high-level meeting on 'boosting datadriven innovation and digitalisation, based on forward-looking technologies such as AI and autonomous driving

Semiconductors are key enablers of electric, connected, and autonomous mobility, playing critical roles in engine control, driver assistance, and safety systems, and many more. They are a critical component of innovation in the automotive industry.

To be able to support the automotive sector, the semiconductor industry in Europe needs to stay globally competitive, also in the face of fierce international competition and increasing market distortion. To achieve this, we **need a holistic European semiconductor strategy** covering research, innovation and manufacturing as well as favourable investment conditions. A focus should lie on **building on Europe's strengths**, such as automotive chips.

The European semiconductor industry stands ready to work with the EU and the automotive industry in an inclusive and collaborative process to develop **strong partnerships along the value chain**.

# There is no electric, connected, and autonomous mobility without semiconductors

Semiconductor (or chips) have been an integral part of any vehicle for decades. They have been the driving force behind major trends in automotive innovation. The content of semiconductor devices in cars has increased with the move toward electrification: today, we find no less than ca. 1,500 in a combustion engine car and up to 3,000 in an electric vehicle (EV).

Automotive chips make driving on Europe roads safer, reduce transport-related emissions, and help mitigate overall traffic congestion. Those systems rely on a wide variety of chips to sense the surroundings, to communicate with other vehicles, road infrastructure, and cloud-based services without latency, as well as to instantaneously process inputs in real-time.

#### **Clear European strengths**

The semiconductor industry in Europe is recognised for its leadership in key technologies for automotive and advanced embedded solutions:

- Power semiconductors, battery management systems, motor control chips, and silicon carbide (SiC) / gallium nitride (GaN) technologies play a central role in the transition toward **electric** and **sustainable mobility**. They have a direct impact on engine efficiency and battery longevity. The more energy efficient the semiconductor, the longer the hybrid / EV can drive with its limited battery charge.
- 2) As vehicles progressively become intelligent systems, the need for powerful, efficient secure semiconductor solutions and integrated advanced cybersecurity protocols

increases to **protect the system** against malfunction and external threats. European semiconductor companies are leaders in supplying safe and secure semiconductor solutions for automotive applications and beyond.

- 3) Software-defined vehicles (SDV) represent a mega-trend for the development of vehicles, allowing more safety and real-time security updates. Through semiconductor-enabled connectivity, a vehicle can collect and transmit information about its operation, and can be optimised and upgraded continuously, allowing uninterrupted evolution after production, thereby prolonging its life cycle.
- European Integrated Device Manufacturers' (IDMs) also have leading positions in nextgeneration sensors, high-performance microcontrollers, wireless communication solutions, as well as localisation and car navigation for advanced driver-assistance system (ADAS) and autonomous vehicles.

### Supporting European chip technology for the future of mobility

Semiconductors is an R&D- and capital-intensive sector that requires large-scale upfront investments. A **long-term industrial vision** to guarantee predictability for multi-year investment and chip development cycles, adequately supported by **targeted innovation programmes** and **efficient European instruments**, should be put in place. Europe must **focus on key technologies** with achievable targets in the long run that will drive the mega-trends of the future.

- RISC-V. Thanks to its native approach to architecture customisation through software, RISC-V is going to play a central role. Core objective is developing a high-performance automotive reference platform and defining a set of IPs to become a shared asset for future competitive products and platforms.
- 2) Edge-AI. The European chip sector provides dedicated edge-AI semiconductor solutions, through chips that are designed to accelerate AI workloads without being power-hungry. They help make mobility smarter, render in-vehicle systems more powerful, protect data, and tailor features to the driver.
- 3) **Chiplets.** Small, modular chips that can be combined to create more complex SoC designs, have greatly accelerated design & production schedules including automotive.
- 4) Programmes such Important Projects of Common European Interest (IPCEIs) play an important role in delivering on the promise of technological progress made in Europe. The third IPCEI on Advanced Semiconductors Technology will be mission-critical to support the EU semiconductors industry's innovation from 2027 onward, including critical technologies for automotive.
- 5) Functional safe & secure **mission-critical real-time systems** with flexibility on architecture, being applicable to a wide spectrum of automobiles.

Holding intersectional dialogues between industries and involving them in regulatory discussion will be key for success, as will continued support & coordination from the EU and Members States alike. Especially is view of a **future** "*EU Chips Act 2.0*", a key success criterion will be its agility to capture and leverage fast-moving innovation cycles by alleviating administrative burden, while ensuring long-term predictability for large-scale semiconductor investments.

#### Strong partnerships with car OEMs are needed

Europe needs strong partnerships all along the automotive value chain to be resilient. Car OEMs, Tier-1 and Tier-2 suppliers should join forces to successfully shape the technological transformation ahead of us and work on maintaining Europe's tech leadership.

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#### ABOUT ESIA

The European Semiconductor Industry Association (ESIA) is the voice of the semiconductor industry in Europe. Its mission is to represent and promote the common interests of the Europe-based semiconductor industry towards the European institutions and stakeholders in order to ensure a sustainable business environment and foster its global competitiveness. As a provider of key enabling technologies, the industry creates innovative solutions for industrial development, contributing to economic growth and responding to major societal challenges. Being ranked as one of the most R&D-intensive sectors by the European Commission, the European semiconductor ecosystem supports approx. 200.000 jobs directly and up to 1.000.000 jobs indirectly in systems, applications and services in Europe. Overall, micro- and nano-electronics enable the generation of at least 10% of GDP in Europe and the world.