



PRESS RELEASE

New ICOS reports released: a step further in international cooperation for Semiconductors

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The ICOS – International Cooperation On Semiconductors – project was launched in January 2023, backed by the European Union’s HORIZON Europe research and innovation programme under GA N°101092562. The project aims at delivering a comprehensive analysis of the semiconductors industry, enabling Europe to forge strategic collaborations with influential countries and leverage collective strengths to shape the future of chips.

The ICOS project has released two thematic reports on Advanced Functionality and Computation, which serve as valuable assets for advancing the European Union’s strategic position within the competitive and diverse semiconductors industry. Besides analysing the key drivers and opportunities for emerging technologies in advanced computation systems and More than Moore semiconductor innovations, these reports are pointing areas where international collaboration is needed to address the gaps and challenges the industry is facing.

The Report **“Future Technologies for Advanced Functionality”** led by Fraunhofer IISB identifies critical areas for the development of smart systems enabling ubiquitous intelligence - from the smart wearables and smart appliances to the electrified autonomous vehicles, industry 5.0, smart grids and digital healthtech. Key topics include sensor design, the need for environmentally friendly materials in energy harvesting and the significance of III-V semiconductors in photonics to underline the benefits of cooperation. This report serves as an essential resource by summarising the key Advanced Functionality topics in which the European Union can actively participate, such as highly sensitive and more versatile sensors, energy harvesting and power electronics, or heterogeneous integration and packaging, leveraging these areas to create new opportunities internationally.

The Report **“Future Technologies for Advanced Computation”** led by CEA-Leti, examines the challenges faced by the future of computing, especially the growing demand for tailored solutions in terms of architectures. These new solutions must consider sustainable manufacturing, besides performance, power consumption, area and cost. In addition to meeting these criteria, there is also a pressing need to design novel computing architecture to support the diverse requirements of emerging applications such as artificial intelligence, machine learning or augmented and virtual reality. This report helps identifying the key factors expected to drive continued growth addressing the heterogeneous needs despite the slowing pace of CMOS scaling since 2008. This analysis presents the opportunities available for the European Union and the identified leading countries to strengthen research and development in advanced computing technologies.

The two deliverables dug into sources from existing international roadmaps, insights from previous studies, knowledge from the consortium and partner network, desk research and brainstorming sessions. The reports are public and available on the ICOS website. Aligned with the objectives of the EU Chips Act, several strategic actions require leverage from international cooperation as a key driver for the future of semiconductor technologies.





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