Forschungsfabrik Mikroelektronik Deutschland

FRAUNHOFER GROUP FOR MICROELECTRONICS IN COOPERATION WITH THE LEIBNIZ INSTITUTES FBH AND IHP

PRESS RELEASE

APECS affirms its commitment to Europe: Technological excellence and close cooperation among pilot lines at SEMICON Europe

The APECS pilot line continues to grow in strategic importance. At SEMICON Europe 2025, APECS clearly demonstrated its refined technological focus, deepened European partnerships, and active contribution to the *Chips for Europe Initiative*. At the joint booth of Chips Joint Undertaking and during the STCO workshop, APECS showcased its latest advancements in heterogeneous integration, packaging, and design. Additionally, APECS participated in the European pilot line panel discussion and held bilateral expert talks with a Dutch delegation.

As a European reference infrastructure, APECS, the pilot line for Advanced Packaging and Heterogeneous Integration for Electronic Components and Systems, brings together research, development, and pilot production in a unified framework. Through close cooperation with other European pilot lines and by providing low-threshold access to advanced technologies for industry, academia, SMEs, and start-ups, APECS enables broad engagement across the ecosystem. This work is further strengthened by the collaboration of ten partners from eight European countries. Over the past year, this joint effort has made a significant contribution to reinforcing Europe's technological resilience under the EU Chips Act and to enhancing the competitiveness and strategic autonomy of the semiconductor industry.

APECS becomes the central European effort for advanced packaging and heterogeneous integration

Visitors to SEMICON Europe were able to explore the potential and progress of the APECS pilot line at the Chips Joint Undertaking (Chips JU) booth, where all European pilot lines were represented. This joint presence highlighted the close collaboration within the European pilot line ecosystem and underscored the strategic role APECS plays in advancing the *Chips for Europe initiative*.

One of the key highlights of the event program was the APECS workshop on System Technology Co-Optimization (STCO). In his opening remarks, Johannes Rittner, Project Lead Technology APECS at the FMD office, emphasized the essential role of STCO in coordinating system design, testing, reliability, and manufacturing. He was followed by Benjamin Prautsch from Fraunhofer IIS/EAS, who outlined how STCO accelerates the development of heterogeneous prototypes while ensuring that performance, cost, and scalability targets are met. The workshop also featured discussions on important technological enablers, including chiplet technologies and 2.5D/3D integration.

How pilot lines drive Europe's semiconductor ecosystem

During the panel discussion "European Pilot Lines – Aligning Strategy, Efficiency, and Implementation," moderated by Jari Kinaret (Chips JU), Dr. Stephan Guttowski, Head of the FMD Business Office, presented central perspectives on the APECS pilot line. Together with representatives from the other European pilot lines NanoIC, FAMES, WBG, and PixEurope, he addressed key questions regarding the strategic direction of the pilot line landscape. Guttowski highlighted how APECS strengthens the European semiconductor ecosystem by providing low-threshold access to the advanced infrastructure of leading research institutes, thereby accelerating innovation in advanced packaging and heterogeneous integration. "By

Press Contact Romy Zschiedrich, Head of Communications
E-Mail romy.zschiedrich@mikroelektronik.fraunhofer.de | Mobile +49 173 5434 126
Anna-Louisa-Karsch-Straße 2 | 10178 Berlin | www.forschungsfabrik-mikroelektronik.de/en

connecting partners from across design, materials development, equipment, and manufacturing, APECS contributes to building robust European value chains, enhances Europe's technological resilience, and supports the transfer from research to industrial application. The pilot lines have already created strong momentum, and in the future, we aim to work even more closely with further European industry partners."

Reinforcing European Cooperation: Strategic Dialogue with a Dutch Delegation

Aligned with this year's SEMICON theme, "Global Cooperation for Europe's Economic Resilience," APECS strengthened its engagement with European partners, including through a co-hosted workshop with a Dutch delegation. The meeting provided an opportunity to further deepen the already close collaboration between Dutch research and technology institutions such as TNO, and German stakeholders including the Research Fab Microelectronics Germany (FMD), the German Chips Competence Center (G3C), and the APECS pilot line.

The bilateral exchange focused on identifying shared priority R&D topics and aligning national technology programs in both countries. It also served as a precursor to planned technology workshops in the Netherlands later this year and set the stage for the development of a German-Dutch action plan.

Press Contact Romy Zschiedrich, Head of Communications
E-Mail romy.zschiedrich@mikroelektronik.fraunhofer.de | Mobile +49 173 5434 126
Anna-Louisa-Karsch-Straße 2 | 10178 Berlin | www.forschungsfabrik-mikroelektronik.de/en

About the APECS Pilot Line

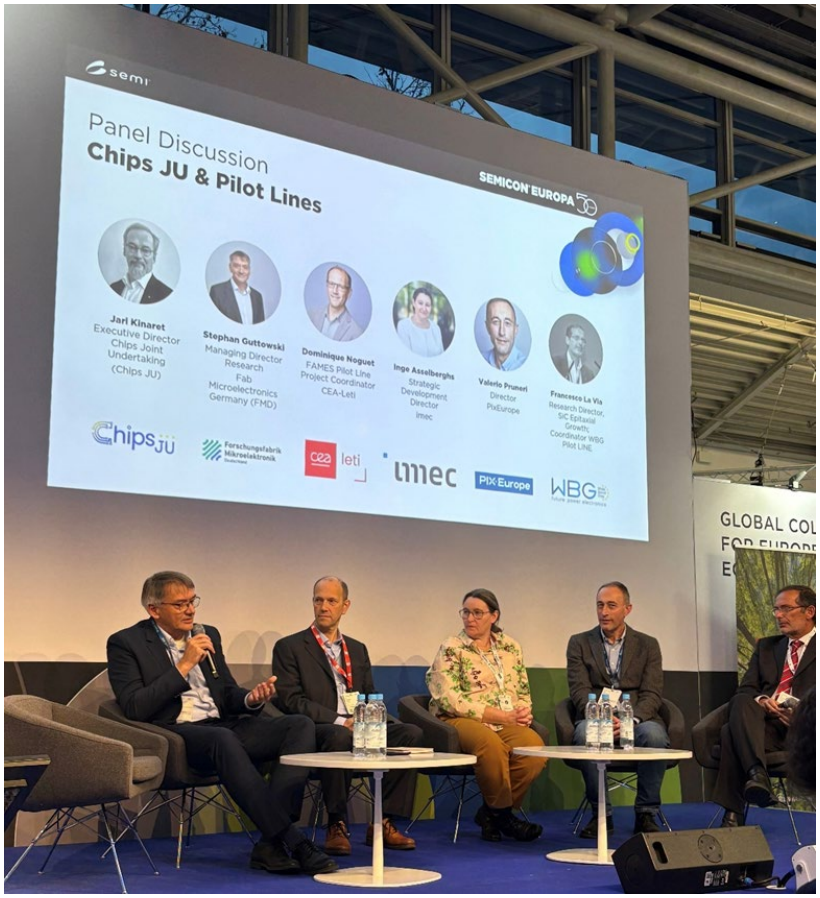
Under the EU Chips Act, FMD is implementing APECS, a comprehensive pilot line to support resilient and trusted heterogeneous systems over the coming years. The APECS pilot line enhances the innovative capacity of European industries across various sectors and serve as a crucial foundation for Europe's technological resilience. Through System Technology Co-Optimization (STCO), APECS introduces new functionalities and offers seamless design-to-production capabilities, facilitating the transition of research breakthroughs into scalable manufacturing solutions. As a single point of access, APECS serves stakeholders across nearly all industry sectors, including large enterprises, SMEs, and start-ups. This pilot line brings together the competences, infrastructure, and know-how of ten partners from eight European countries. In Germany twelve institutes from the Fraunhofer-Gesellschaft and two institutes from the Leibniz Association are participating in APECS. APECS is coordinated by the Fraunhofer-Gesellschaft and implemented by FMD, a cooperation of the Fraunhofer Group for Microelectronics with the Leibniz institutes IHP and FBH. Further information at https://www.apecs.eu/.

About Research Fab Microelectronics Germany (FMD)

The Research Fab Microelectronics Germany (FMD) is a cooperation between 13 Fraunhofer Institutes and the two Leibniz institutes FBH and IHP. It serves as the central point of contact for all matters related to micro- and nanoelectronics research and development in Germany and across Europe. As a one-stop shop, FMD brings together advanced technologies and system solutions from its cooperating institutes to provide a customized, comprehensive portfolio. Established within FMD's shared virtual framework in 2017, this joint research cooperation has grown into one of the largest of its kind, now comprising more than 5,400 employees and a uniquely broad range of expertise and infrastructure. Further information at www.forschungsfabrik-mikroelektronik.de/en.

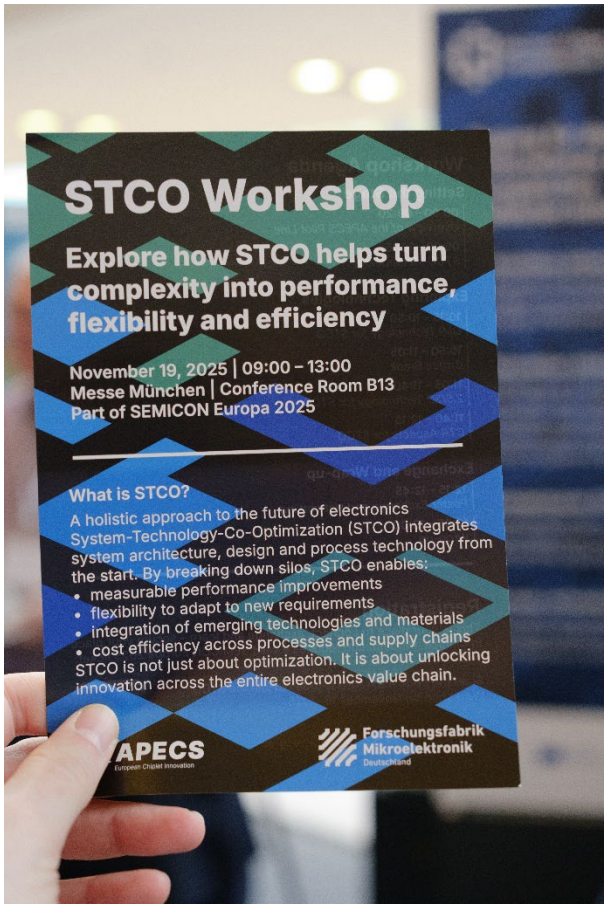
Press Contact Romy Zschiedrich, Head of Communications
E-Mail romy.zschiedrich@mikroelektronik.fraunhofer.de | Mobile +49 173 5434 126
Anna-Louisa-Karsch-Straße 2 | 10178 Berlin | www.forschungsfabrik-mikroelektronik.de/en

FRAUNHOFER GROUP FOR MICROELECTRONICS IN COOPERATION WITH THE LEIBNIZ INSTITUTES FBH AND IHP



During the panel discussion "European Pilot Lines – Aligning Strategy, Efficiency, and Implementation," Dr. Stephan Guttowski, Head of the FMD Business Office, highlighted how APECS strengthens the European semiconductor ecosystem by providing low-threshold access to the advanced infrastructure of leading research institutes, thereby accelerating innovation in advanced packaging and heterogeneous integration.
© Fraunhofer Mikroelektronik

Press Contact Romy Zschiedrich, Head of Communications
E-Mail romy.zschiedrich@mikroelektronik.fraunhofer.de | Mobile +49 173 5434 126 Anna-Louisa-Karsch-Straße 2 | 10178 Berlin | www.forschungsfabrik-mikroelektronik.de/en



One of the key highlights of the event program was the APECS work-shop on System Technology Co-Optimization (STCO): By unlocking new functionalities through the System Technology Co-Optimization approach, end-to-end design, and pilot production capabilities, the APECS pilot line accelerates the transition of innovations from research to practical, scalable manufacturing solutions.
© Fraunhofer Mikroelektronik

Press Contact Romy Zschiedrich, Head of Communications
E-Mail romy.zschiedrich@mikroelektronik.fraunhofer.de | Mobile +49 173 5434 126 Anna-Louisa-Karsch-Straße 2 | 10178 Berlin | www.forschungsfabrik-mikroelektronik.de/en

FRAUNHOFER GROUP FOR MICROELECTRONICS IN COOPERATION WITH THE LEIBNIZ INSTITUTES FBH AND IHP

Visitors to SEMICON Europe were able to explore the potential and progress of the APECS pilot line at the Chips Joint Undertaking (Chips JU) booth, where all European pilot lines were represented. This joint presence highlighted the close collaboration within the European pilot line ecosystem and underscored the strategic role APECS plays in advancing the *Chips for Europe initiative*.
© Fraunhofer Mikroelektronik

Press Contact Romy Zschiedrich, Head of Communications
E-Mail romy.zschiedrich@mikroelektronik.fraunhofer.de | Mobile +49 173 5434 126 Anna-Louisa-Karsch-Straße 2 | 10178 Berlin | www.forschungsfabrik-mikroelektronik.de/en