PRESS RELEASE

NeAIxt project launched to secure Europe's position in the AI industry

Cutting-edge research for the European AI market

On October, the 1st 2025, the *NeAIxt* research project was launched, bringing together over 55 partners from across the EU. The project's long-term goal is to strengthen Europe's position in the field of artificial intelligence (AI). The Fraunhofer Institute for Photonic Microsystems IPMS is playing a central role in the project, focusing on developing and integrating innovative edge AI technologies that are crucial for the efficiency and security of modern data processing systems.

The *NeAIxt* research project is dedicated to the rapid expansion of artificial intelligence (AI) applications, with a particular focus on edge AI and its integration into existing systems. Edge AI refers to the use of artificial intelligence directly at the point of data collection, i.e., at the edge of the network, rather than first sending the data to a central data center or cloud. This enables real-time decisions with low latency, increased security, and without a constant internet connection. The aim of the project is therefore to strengthen European independence and control over edge-AI technologies by developing innovative storage solutions, such as embedded non-volatile memory (eNVM), and powerful, highly reliable microcontrollers with AI capabilities.

As part of the project, Fraunhofer IPMS is working to further develop ferroelectric HfO_2 materials. Dr David Lehninger, project manager at Fraunhofer IPMS, explains: "These materials can permanently store electrical polarization states, enabling energy-efficient, non-volatile storage functions. They are an important element for the development of reliable electro electronic solutions in the future, including in the automotive sector."
The optimized ferroelectric layers are embedded in existing X-FAB CMOS technologies. Building on this, Fraunhofer IPMS is developing novel test chips that combine non-volatile memory concepts with AI acceleration functions. After production, the components undergo comprehensive electrical characterization and are compared with established technologies to evaluate their performance and efficiency.
By the end of the project, two demonstrators will be created: a non-volatile data storage device based on ferroelectric HfO_2 and a hardware-based AI accelerator.

About the Project

The *NeAIxt* project, which is funded by the EU as part of the Chips Joint Undertaking, has received a total of €25 million in funding. Through close cooperation and knowledge exchange, the project partners aim to create a European solution for reliable and independent edge AI applications. Research into energy-efficient

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computing is urgently needed because, without progress in this area, computing could account for a significant proportion of global energy consumption by the end of the 2030s. AI data centers with gigawatt-scale capacities are already being planned. The project will run until August 2028, promoting Europe's innovative strength and ensuring independence in the research and integration of AI technologies. This extensive, multidisciplinary research project will consolidate Europe's competitiveness in the global technology market, thereby making an important contribution to Europe's digital sovereignty.

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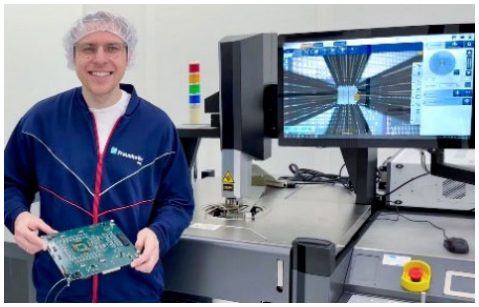
About Fraunhofer IPMS
Fraunhofer IPMS is a leading international research and development service provider for electronic and photonic microsystems in the application fields of Smart Industrial Solutions, Bio and Health, Mobility as well as Green and Sustainable Microelectronics. Research focuses on customer-specific miniaturized sensors and actuators, MEMS systems, microdisplays and integrated circuits as well as wireless and wired data communication. Services range from consulting and design to process development and pilot series production. With the Center Nanoelectronic Technologies (CNT), Fraunhofer IPMS offers applied research on 300 mm wafers for microchip producers, suppliers, device manufacturers and R&D partners.

Image



A look inside the Fraunhofer IPMS laboratory: Prof. Thomas Kämpfe demonstrates how state-of-the-art measurement technology supports the development of new memory and AI chips.
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