Press Release

2025-07-16

IHP, eMemory and its subsidiary PUFsecurity Break Ground on Open Access to Hardware PUF-based Security IP in Europe

Leibniz Institute for High Performance Microelectronics

Frankfurt (Oder) For the first time, world-class security IP for silicon Root of Trust is now available for academic research – thanks to a new collaboration between IHP – Leibniz Institute for High Performance Microelectronics, eMemory and its subsidiary PUFsecurity.

IHP, eMemory, and PUFsecurity have announced a strategic partnership to provide universities and research institutes with free access to eMemory's NeoFuse OTP and PUFsecurity's PUFrt IP for non-commercial academic research. These industrial-grade security technologies will be available for academic tape-outs using IHP's 130nm BiCMOS G2 process and open-source PDK (IHP-Open130-G2). This initiative enables academic teams to integrate proven Root of Trust (RoT) components for secure boot, attestation, and key management into their designs.

Root of Trust (RoT) components – such as One-Time Programmable (OTP) memory and Physically Unclonable Functions (PUF) – provide the foundation for establishing trust in a system by enabling secure boot, key storage, and hardware-based identity. Yet for a long time, these technologies remained locked behind proprietary, commercial barriers. By opening access, the partnership removes a key barrier to academic and open-source innovation in hardware security, empowering researchers to move beyond theory and prototype real, verifiable secure systems.

This collaboration also aligns with the goals of DI-SIGN-HEP, a project funded by the German Federal Ministry for Research, Technology and Space (BMFTR) as part of the national "Design Initiative". DI-SIGN-HEP seeks to build open, reliable hardware security platforms based on the open-source Caliptra Root of Trust architecture. By contributing industrial-grade IP to the open-source ecosystem, the initiative significantly advances Europe's capabilities in trustworthy electronics.

By unlocking access to industrial-grade security IP, the initiative fuels innovation across academia and industry alike. It paves the way for transparent, verifiable chip designs and accelerates the development of secure, next-generation electronic systems.
The security IP blocks will be integrated into the IHP-Open130-G2 platform and made available to eligible academic institutions via GitHub (https://github.com/IHP-GmbH). The first tape-out opportunities are expected to be available by the second quarter of 2026.

"We're excited to open up proven RoT IP for hands-on use in academic research," said Dr. Norbert Herfurth, Head of the Research Group 'Diagnostics, Sensory & Emerging Modules' at IHP. "This collaboration is a major step toward making secure silicon design more open and accessible. I'm especially looking forward to seeing the IP in action as part of a Caliptra-related integration here at IHP."

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"This partnership shows how NeoFuse and our PUF-based Root of Trust, PUFrt, can power the security designs that meet the Caliptra requirements – such as unique identity, secure storage, and random number generation," said Michael Ho, President of eMemory. "We're proud to provide our technology to help build highly trusted hardware ecosystems."

With funding from the:

Federal Ministry of Research, Technology and Space

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About IHP:
The IHP is an institute of the Leibniz Association and conducts research and development of silicon-based systems and ultrahigh frequency circuits and technologies including new materials. It develops innovative solutions for application areas such as wireless and broadband communication, security, medical technology, industry 4.0, automotive industry, and aerospace. The IHP employs approximately 365 people. It operates a pilot line for technological developments and the preparation of high-speed circuits with 0.13/0.25 µm SiGe BiCMOS technologies, located in a 1500 m² DIN EN ISO 14644-1 3 certified clean room.

www.ihp-microelectronics.com

About eMemory:
eMemory (TPEX:3529), founded in 2000, is a leading developer of logic-based Non-Volatile Memory (Logic NVM) and PUF-based security IPs. Renowned for NeoBit/NeoFuse OTP, it offers NeoMTP, NeoEE, NeoFlash, and NeoPUF technologies. Through its subsidiary PUFsecurity, eMemory provides advanced security solutions like PUFrt and PUFcc. Serving over 2,600 foundries, IDMs, and fabless firms globally, eMemory drives innovation in advanced applications. Visit www.ememory.com.tw for more.

About PUFsecurity:
PUFsecurity, an eMemory subsidiary, specializes in PUF-based security IP solutions. Leveraging NeoFuse OTP and NeoPUF, verified from 150nm to 3nm, it delivers high-performance, cost-effective products like PUFrt, PUFcc, and PUFhsm (launched 2024 for automotive chips). Certified by NIST, PSA Level 3, and SESIP, PUFcc accelerates secure chip development. PUFsecurity secures semiconductors across industries. Learn more at www.pufsecurity.com.

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