

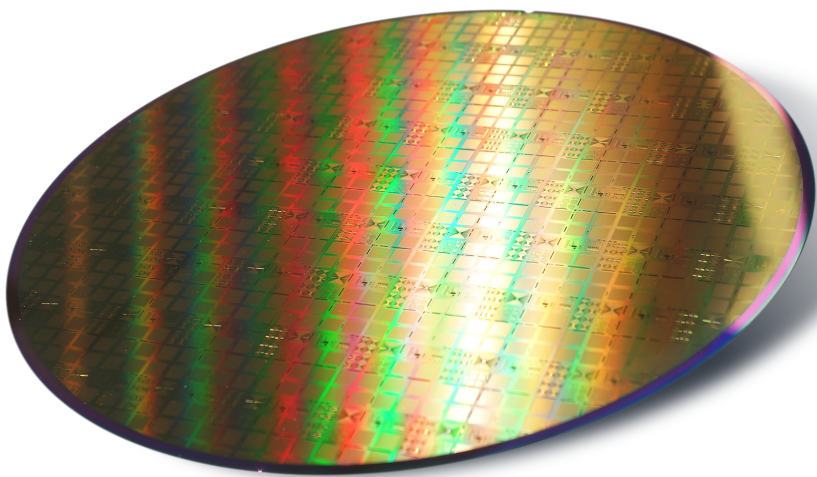
CMOS-Integratable PUF Technology

Among the first chip process technologies established at BRIDG is a unique CMOS-Integratable Physically Unclonable Function (CIPUF) process, currently in the qualification phase, that will enable the creation of an array of addressable PUF cells that are extremely low power, radiation tolerant, and anti-tamper risk averse. CIPUF technology is positioned to be a key hardware root-of-trust for next-generation secure microelectronics systems that enables more robust cryptography and chip-level "fingerprinting."

Utilizing CIPUF technology to create arrays of PUF cells based on physical variations naturally occurring in the materials during the manufacturing process makes it possible to easily differentiate otherwise identical chips for individual semiconductor devices. This enables the basis for unique digital fingerprints and improved next-generation encryption due to its large inter-PUF entropy.

Other intriguing aspects about these PUF cells are their relative hardness for being hacked and the relative ease at which they can be implemented in integrated circuits.

- The CIPUF overcomes the limitations exhibited by current state-of-the-art implementations.
- The CIPUF does not store charge or toggle to an arbitrary state upon startup, hence prohibiting tamper identification.
- A variable resistance permits an infinite number of encryption values for use in cybersecurity encryption schemes.



CMOS-Integratable Physically Unclonable Function (CIPUF) Technology provides:

- Very large inter-PUF variations with no internal traceable electrical (non-detectable) or deterministic turn-on characteristics, making it extremely difficult to discover, predict, or hack
- Root-of-trust for multiple layers of security that is extremely low power and highly integratable into any computer system, ASIC, SoC, and FPGA
- Anti-tamper protection against cloning, counterfeiting, overbuilding, reverse engineering, and data leakage
- Key storage, key management, and crypto functionality



Bridging the Innovation Development Gap

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