General information

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HW accelerated embedded security

Barco Silex is a Belgian company specialized in the development of embedded electronics based upon FPGA and SoC technologies, with a strong expertise in cryptography and data security , as well as on video encoding and image processing

Area of interest	Choose Y or N
o Functional encryption and reduction of leakage (e.g., anonymization or obfuscation)	Y
o Ultra-lightweight cryptology and ultra-high-speed cryptographic algorithms including quantum cryptography	Y
o Physical cryptanalysis, including tampering, side channel, faults injection attacks, and security of tools for good software implementation and validation practices	Y
o Authenticated encrypted token research for mobile payment solution	N
o Innovative cryptographic primitives and complementary non-cryptographic privacy-preserving mechanisms to enforce privacy	N
o New techniques, such as quantum safe cryptography, which are secure from quantum computers	Y
o Quantum key distribution	N
o Automated proof techniques for cryptographic protocols	N

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Competencies

Proposed expertise or activities to offer:

- Hardware acceleration cryptography for data security in embedded systems (Root-of-trust, TEE, TLS/SSL/VPN offloading, disk encryption…)

- Comprehensive embedded security platforms (HW&SW) for integrated systems (SoC)

- SoC development skills
    - Chip design
    - SoC FPGA design

Areas:

Implementation of novel cryptographic architectures

Integration in embedded security subsystems for:
- IoT, Wearables
- Connected vehicles, V2V, V2X
- HSMs for various applications (Government e-security, e-payments, ….)
- High throughput TLS/SSL connections
- High bandwidth networking(IPsec)
- Industrial networking
- Defense
- Data Centers