

# Use cases Security systems & devices

EXCEED Factsheet



**Security devices use cases**, Security aspects will apply in most defence products, either in stand-alone security devices or modules integrated in other products.

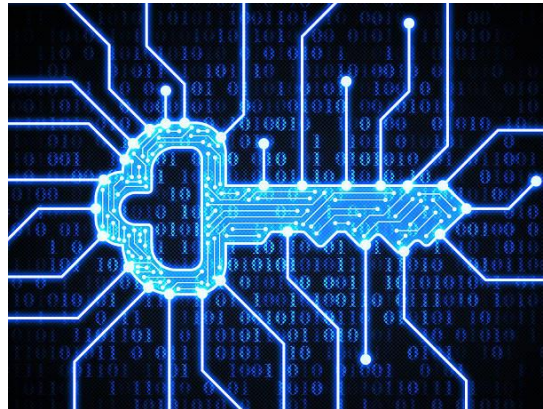
**Encryption devices:** Trustable devices that may undergo security evaluation by the national authorities. Includes layer 2 and layer 3 encryption devices, as well as key generation systems.

**Position, Navigation and Timing (PNT) applications:** Satellite communication systems used for PNT applications. Requires trust in integrity and authenticity.

**Secure communications among distributed sensors:** Distributed sensors are often placed unguarded. Integrity, authenticity, confidentiality and anti-TAMPER mechanisms are crucial.

**Research work within EXCEED is on:**

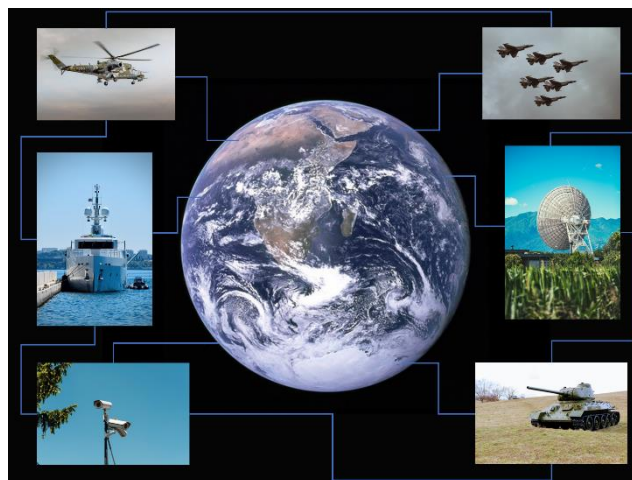
- Isolated trustable secure enclave
- Design providing the ability for security evaluation by the National Security Authorities.
- Red/black separation
- Agility for implementing proprietary encryption algorithms
- True Random Generator (TRN)
- Strong encryption algorithms provided
- ... and much more



Encryption Devices



Position, Navigation and Timing (PNT) applications



Secure communication among distributed sensors

## A trusted European supply chain based on a European cost effective and reliable technology: the 28nm FDSOI

### In response to today identified pain points

- Technology dependency
- Commercial dependency
- Aerospace & Defence market being a niche for major vendors

### Leading to

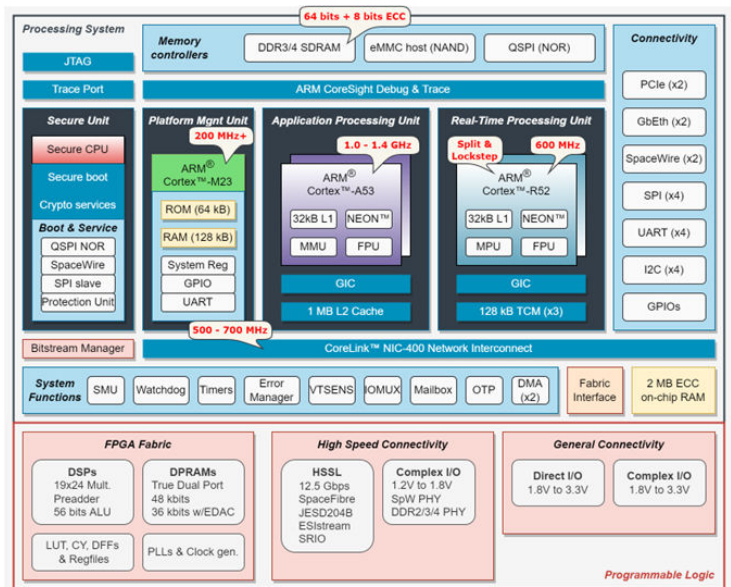
- Access limited to technologies subjected to non-EU governments control
- End user restrictions and Export restrictions
- Technology roadmap driven by other markets and applications

### EXCEED trusted/secure SoCs Key Features

- **Programmable processing:** dual core APU A53 (Linux OS support), Dual core RTP R52
- **Configurable processing:** field programmable capabilities e.g. LUT, DSP, DPRAM
- **Security:** secure boot, crypto accelerators, OTP key storage, TRN generator, Lifecycle management. Temperature, voltage, laser and EM sensors will assure the protection against environmental attacks.
- **Connectivity:** e.g., Legacy/high speed connectivity, programmable Direct/Complex I/O
- **Others:** red / black separation, Developed with FDSOI 28nm for low power, leading to a family of SoCs to support all Use Cases requested and identified requirements

### The EXCEED project will lead to

- Aligned semiconductor-OEM industry roadmaps
- Full control of technology and processes for security
- Risk mitigation for marketability and availability
- Backward compatibility with existing design bases



EXCEED SoC high-level block diagram

**EXCEED Duration:** Started Nov-2020 End Apr-2025

**Technology Readiness Level:** TRL 5

It will apply to a wide range of Aerospace & Defence industry applications (use cases)

### Tactical Systems and devices use cases

- Military Radios
- Electronics Devices for Dismounted Soldiers
- On-ground signal processor for real-time COMINT
- Unified real-time Homeland Tactical Situation
- EW digital receiver

### Security use cases

- Encryption devices
- Secure PNT applications
- Secure communications among distributed sensors

### Airborne embedded computing use cases

- Weapon control in missile systems
- Embedded applications of launcher avionics
- Seekers and sighting applications

### Contact us / Follow us

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