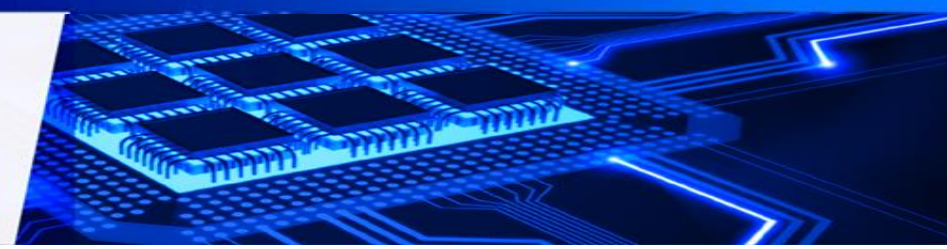


## Use cases Tactical systems & devices

EXCEED Factsheet



**Tactical devices use cases**, especially when man-portable or unattended, are characterized by SWaP constraints.

**Secure Software Defined Radio**: fully reprogrammable, multi-role, SW-defined secure radios with “all digital” Rx/Tx signal chain.

**Electronics Devices for Dismounted Soldiers**: portable multi-source data processing to provide augmented reality SA information.

**On ground, signal processor for real-time communications**: computing-intensive, power efficient processing for spectrum analysis (COMINT).

**Unified Real-Time Homeland Tactical Situation**: Situation Awareness Capture & Transmit System, multi-source multi-signal processing.

**Signal Processing and De-interleaving algorithm implementation in EW digital reception**: real-time digital (FW&SW) Rx processing for identification & classification of RADAR signals.

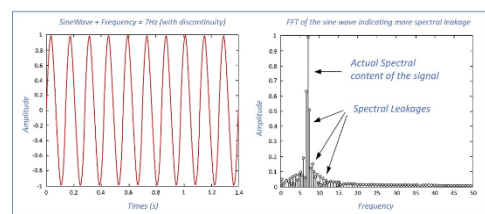
- Research work within EXCEED is on:
- Portability  $\Rightarrow$  size constraints  $\Rightarrow$  miniaturized electronics
  - Battery powered operation  $\Rightarrow$  power consumption constraints
  - Adaptive, dynamic re-programmability, multiple waveform/signal processing



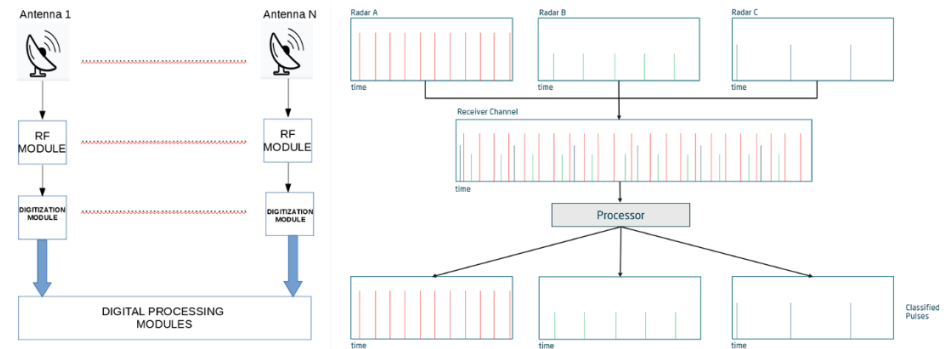
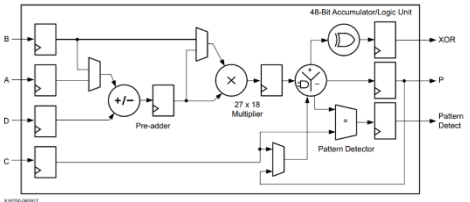
Secure Software Defined Radio



Electronics Devices for Dismounted Soldiers



Signal Processing and De-interleaving algorithm implementation in EW digital



EW digital receiver



Unified real-time Homeland Tactical Situation

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

### 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

### In response to today identified pain points

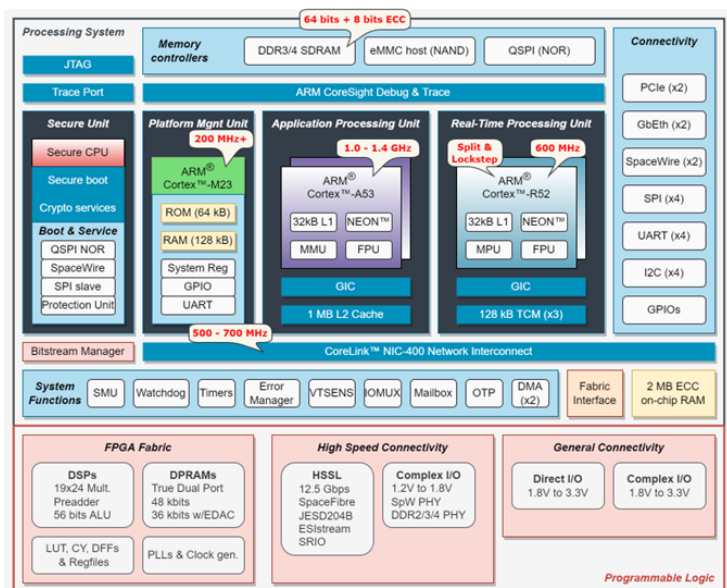
- Technology dependency
- Commercial dependency
- Aerospace & Defence market being a niche for major vendors

### Leading to

- Access to technology 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
- **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



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

EXCEED SoC high-level block diagram

**Technology Readiness Level:** TRL 5

It will apply to a wide range of beneficiary 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

#### Special environments use cases

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

#### Contact us / Follow us

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