

# Embedded Systems Security Services

At [intWave](#), we provide tailored embedded systems security [testing](#), [consulting](#) and [training](#) services that tackle every layer of a product — from hardware and firmware to communication protocols.

Whether you're building a new device, enhancing an existing one, building a reference platform, or building a platform component, our comprehensive approach ensures that your product is resilient, compliant, and ready to be connected to a constantly changing digital landscape.

## Industries

- Medical Devices
- Automotive
- Smart Meters
- Consumer IoT
- Telecom Equipment
- OT and ICS Products

## Standards

- Cyber Resilience Act (CRA)
- Radio Equipment Directive (RED)
- ETSI EN 303 645
- IEC 62443
- MDR and FDA
- GSMA IoT Security Guidelines

## Advanced techniques

- Fuzz Testing
- Reverse Engineering
- Instrumentation
- Static & Dynamic Analysis
- Source Code Auditing
- Emulation & Rehosting

## Experience in a wide range of technologies

BareMetal firmware,  
FreeRTOS, QNX, VxWorks,  
Embedded Linux, Android

Secure Boot, TEE, SE,TPM,  
Disk Encryption, CC,  
Virtualization

Assembly, C, C++, Rust,  
Python, Java, C#, Go, Ruby,  
PHP

OTA, Remote Device  
Management

UART, SPI, I2C, USB, JTAG,  
SWD, ICSP

CAN, LoRa, wM-Bus Wi-Fi,  
BLE, NFC, LTE

MQTT, CoAP, VPN, SSH, HTTP

SSL/TLS, AES, ECC, RSA, PKI,  
Hybrid PQC

## Get In Touch!

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## In the Hardware Lab

### Inspection of peripheral communications

Examination and security  
testing of peripheral  
communications such as  
**UART, SPI, I2C, etc.**

### Inspection of debug and programming interfaces

Ensuring security of debug /  
programming interfaces such  
as **JTAG, SWD, ICSP, etc.**

### Firmware analysis & testing

Extraction, reverse  
engineering, static/dynamic  
analysis and fuzz testing to  
identify and address  
weaknesses.

### Wired communications testing

Ethernet, CAN, USB, etc.

### Cellular and long range communications testing

LTE, LoRA, wM-Bus etc.

### Short-Range communications testing

BLE, NFC, Wi-Fi, ZigBee etc.