STMicroelectronics & ETAS/ESCRYPT together on Embedded SW and Embedded Security Solutions

Professional, safe and secure Automotive Microcontroller-solutions
General HW and SW challenges... require a holistic approach!
STMicroelectronics & ETAS/ESCRYPT
System solutions

Core Business:
HW components
(correlated with Embedded SW)

Core Business:
Embedded SW tools and components
Security and safety engineering & consulting

Customer benefit: System solutions
Secure, safe, AUTOSAR-conform computing platforms and infrastructures
STMicroelectronics & ETAS/ESCRYPT
Offering ST

Embedded SW Solutions Portfolio: Overview

- Complex Driver
  - Autosar 3.x
  - Autosar 4.0
  - Flash Drv
  - Lin 2.1 Drv
  - Instruction/ Core Self Test
  - HSM FW

- Powertrain
  - MCAL
  - SENT
  - eTPU PWT

- Chassis/Safety
  - MCAL
  - SENT
  - HSM FW

Embedded SW Engineering
Embedded software Customizations and silicon features usage/ optimization
Support & Consultancy
Basic Software and Tools (SW licenses)

AUTOSAR turn key solutions

Embedded SW Engineering Services

Customer-specific embedded software development (high quality and cost-effective)

Embedded SW Consulting Services

Expert support for development processes towards tomorrow’s ECU architectures
STMicroelectronics & ETAS/ESCRYPT
Offering ESCRYPT

Embedded Security

Security Governance Unterstützung
Security-processes, Security-organisation, trainings, competency development

Security Engineering
Analysis & concepts

Security Software
Licenses, implementation & maintenance

Security Testing
Evaluation, Testing & Certification

Security Operations
Production & operation

Successful projects with major OEMs and Tier1 since 2004
USA – Europe - Asia
STMicroelectronics & ETAS/ESCRYPT
Approach to the System Solution

Examples:
- Complete Autosar stack incl. STM – MCAL
- HSM HW incl. „Full EVITA“ SW
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Summary: Complete and easy customer solutions

- Automotive Microcontroller system solutions
- Pre-integrated solution, validated on silicon
- Safety & Security
- Consulting / Engineering / Integration
ETAS Overview: Tools, SW and Services

Solutions all over the Development Process

- Function and Software Development
- Prototyping
- Operating Systems & AUTOSAR RTE
- ECU Access and ECU Hardware
- Test and Validation
- Measurement and Calibration
- Services and Consulting
ETAS Overview: Tools, SW and Services

Solutions all over the Development Process

- ASCET: Model-based Development
- INTEGRIO: Integrated Prototyping Environment
- ES900 and ES 1000: Prototyping and Interface Modules
- RTA-OSEK: Real-time Operating System
- ETK/XETK: ECU Interfaces
- ESCRYPT: Embedded Security
- EHOOKS: Bypass Hook Insertion Tool
- DESK-LABCAR
- LABCAR: Hardware-in-the-Loop Simulatoren
- INCA: Measurement & Calibration Software
- ES400 & ES600: Measurement Modules
- ES500: ECU and Bus Interface Modules
- ES700: Road Testing Modules
- ASCMO: Statistical Modeling & Optimization Approaches for Engine Calibration and Development

Life: augmented
### STMicroelectronics & ETAS/ESCRYPT
#### Concrete ETAS/ESCRYPT offering

**ETAS**:
- **Autosar BSW** (v 3.2, 4.0, 4.2 upcoming):
  - can be ported on any ST µC
  - Chorus based starter kit in preparation
  - Several Chorus opportunities on ETAS-side
- **RTA-OS**: PowerPC SPC56x, SPC57x and SPC58x, STV0991 ARM
- Architecture and Safety **Consulting** (for all ST µC)
- Embedded SW / Complex driver development (for all ST µC)

**eSCRYPT**:
- **HSM Firmware** CycurHSM (up to „full Evita“):
  - can be ported on any ST µC (except 1-M – higher effort)
  - Eiger and Chorus ports already available off the shelf
- **Cryptographic library** CycurLIB (SW) (for all ST µC)
- **Key Management SW** CycurKEYS for backend (for all ST µC)
- **Security Consulting** (for all ST µC)
- Tier 1 – specific **Security engineering** (for all ST µC)
ETAS RTA-OS

- RTA-OS represents the third generation of automotive OS from ETAS
  - real time, up to ASIL-D, for AUTOSAR and non-AUTOSAR
  - used in all Automotive domains

- Proven history > 1 billion devices with 0 defects

- Highly flexible and easy to configure

### Diagram

1. **XML**
   - Step 1: Configure the OS

2. **RTA-OS Code Generator**
   - Step 2: Generate OS & IOC source code

3. **.c/.h**
4. **Compiler**
   - Step 3: Compile and link the OS library

5. **OS.lib**
ETAS RTA-BSW

- Complete AUTOSAR stack
  - Support for AUTOSAR 4.x

- Automated configuration
  - Dedicated functionality to support common configuration tasks

- Proven in use components
  - Deployed in over 1 Billion ECUs world-wide

- Complete support for achieving ISO 26262 Compliancy
  - Functional safety qualification package supports a Safety Element out of Context-based approach