

Elaborate evaluation and optimization of several hardware platforms for prototype implementations forced us to request an extension of the project lifetime by four additional months. This consentaneous internal decision was approved by the European Commission a few days ago. We are confident that with this additional time, we can further advance the project outcomes and maximise our exploitable results.

MESSAGE FROM THE COORDINATOR

In this issue

- Message from the coordinator
- Submitted and upcoming Deliverables & Milestones
- Latest Publications
- Project Progress
- Technical & General Assembly Meeting
- Upcoming Events

PUBLIC SUBMITTED DELIVERABLES (since the last newsletter)

- **D3.2: Final analysis of integrity algorithms** - This report describes the integrity methods and protection mechanisms related to data management, timing and thermal analysis for safe and secure systems as developed in WP3 (July 2017, M30).
- **D3.3: Integrity methodology** - The report will provide the design guidelines for ensuring the integrity of safe and secure systems based on the analysis methods and protection mechanisms developed in WP3 (July 2017, M30).
- **D7.3: Technology watch report** - his report is a public extract of the D7.2 business plan, technology watch and exploitation report, covering only technology aspects (July 2017, M30).

LASTEST PUBLICATIONS

- Robin Hofmann, Leonie Ahrendts, Haibo Zeng, Prachi Joshi, Daniel Thiele, Jonas Diemer, Philip Axer, Rolf Ernst, Petru Eles, **“Networked Real-Time Embedded Systems”**, Handbook of Hardware/Software Codesign

Further information at: <https://safure.eu/publications-deliverables>

SAFURE ensures Open Access to scientific publications: https://zenodo.org/collection/user-safure_h2020

TECHNICAL & GENERAL ASSEMBLY MEETING IN BARCELONA



In October 2017, the SAFURE **Technical and General Assembly Meeting** was hosted by Barcelona Supercomputing Center in Barcelona/Spain. The potential project extension, as well as the SAFURE use cases were the focus of the discussions. The team also started the planning of the SAFURE workshop which is co-located with the HiPEAC conference in January 2018. Furthermore, the SAFURE team discussed the current project status and the planning of upcoming tasks and reports.



Start date: 1 February 2015
End date: 31 May 2018
Duration: 40 months
Project reference: 644080
Project costs: € 5,702,631
Project funding: € 5,231,375

Consortium: 12 partners (6 countries)
Project coordinator: Dr. Klaus-Michael Koch
coordinaton@safure.eu
Technical leader: Andre Osterhues
andre.osterhues@escrypt.com
Project website: www.safure.eu



This project has recieved funding from the European Union’s Horison 2020 research and innovation programme under grant agreement No. 644080

Linked in

This work was supported (also) by the Swiss State Secretariat for Education, Research and Innovation (SERI) under contract number 15.0025. The opinions expressed and agreements employed herein do not necessarily reflect the official views of the Swiss Government.

https://twitter.com/SAFURE_H2020



PROJECT PROGRESS / HIGHLIGHTS

The consortium submitted the following two important, public deliverables in **WP3 "Timing, data & energy integrity algorithms"**:

D3.2 "Final analysis of integrity algorithms" covers final results regarding the extension of temperature, data, and timing integrity to safe and secure systems. This report describes integrity methods and protection mechanisms related to data management, timing and thermal analysis for safe and secure systems as developed in WP3, and is the follow-up deliverable of D3.1 "Interim analysis of integrity algorithms".

D3.3 "Integrity methodology" provides the design guidelines for ensuring the integrity of safe and secure systems based on the analysis methods and protection mechanisms developed in WP3.

Both deliverables are public and are available on our project website.

During the past months, the project consortium has developed two demonstrators within **WP4 "Run-time system & processor architecture"**. The METrICS tool from Thales SA (TRT) is a toolsuite for performance, time and timing interferences measurements in mixed critical systems.

On the other hand Scuola Superiore di S.Anna (SSSA) demonstrated the improvements of existing hypervisor for automotive (ARM-based) systems. Furthermore, a joint demonstrator by SYSGO AG and ESCRYPT GmbH Embedded Security on Secure Update on PikeOS and CyclicLIB has been announced and is now under development.

The WP4 team is currently preparing the deliverable **D4.2 "Analysis of run-time and software applications on multi-core"** which describes the methodology and application results.

In **WP5 "Predictable, Secure Communication Infrastructure"**, the consortium continued working on the network demonstrator (FPGA implementation) and security analysis of deterministic Ethernet.

In addition to that the work related to the automotive security assessment is still in progress.



In **WP6 "Integration and evaluation of Use Cases"**, partners proceeded to work on the **three industrial use cases**: telecommunication, automotive multi-core, and automotive network. For the **telecommunication use-case**, the secure bluetooth based communication between several devices on different physical architectures has been developed. Furthermore, for the combined **automotive use case** the hardware gateway has been finalized by TTTech Comuptertechnik AG and first CAN messages have been successfully en- and decrypted by Magneti Marelli S.p.A., using Escrypt crypto algorithms.

In **WP7 "Exploitation"**, we successfully submitted **D7.3 "Technology watch report"** in M30, July 2017. This deliverable performs a technology watch report related to the SAFURE Framework methodology to build safe and secure solutions on multi-core platforms for mixed-criticality markets. For further information you can also have a look at this public deliverable on our project website. Additionally, the Performance Monitoring Counter (PMC) infrastructure, has been developed by Barcelona Supercomputing Center (BSC) has been successfully tested on the multi-core automotive use case board.

In **WP8 "Dissemination and Communication"** the consortium is continuously planning and working on the project's dissemination activities. Currently the focus lies on the preparation for the HiPEAC conference in Manchester/UK in January 2018, where the SAFURE project will be presented. In addition, there will be a co-located SAFURE workshop during this conference, for which the planning is ongoing.



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 644080

This work was supported (also) by the Swiss State Secretariat for Education, Research and Innovation (SERI) under contract number 15.0025. The opinions expressed and agreements employed herein do not necessarily reflect the official views of the Swiss Government

LinkedIn



https://twitter.com/SAFURE_H2020

UPCOMING PUBLIC DELIVERABLES AND MILESTONES

- **D4.2: Analysis of run-time and software applications on multicore** - Methodology description and application results (November 2017, M34)
- **MS5: Final integrity algorithms and infrastructure prototypes available** (November 2017, M34)
- **D4.3: Final OS & RTE prototypes** - RTEs are implemented and run on top of PikeOS. This deliverable is marked with nature "DEM" (demonstrator, pilot, prototype, plan designs) and will be accompanied by a small written report outlining its structure and purpose in order to justify the achievement of the deliverable. (March 2018, M38)
- **MS6: Use Case demonstrators evaluated and SAFURE Framework specifications finalised** - (May 2018, M40)
- **D6.4: Evaluation of telecommunications demonstrator** - report on the evaluation of the telecommunications demonstrator and a final test report. (May 2018, M40)
- **D6.6: Evaluation of automotive demonstrator** - According to the requirements defined, develop a set of test cases able to verify if solutions developed fit with the initial requirements; execute a test campaign applying the defined set of test cases and produce test reports. (May 2018, M40)
- **D6.7: Final specifications of the SAFURE Framework and Methodology** - This report describes how development and designing a mixed-critical CPS has been carried out in SAFURE, and what tools support is possible during development and assessment. We demonstrate it by "lessons learned" from application of methodology on demonstrators. (May 2018, M40)
- **D7.4: Recommendations on standards evolution** - Based on applicable standards status and evolution and on T7.4 actions and results, this document provides information on applicable standards, states project partners' actions for their evolution and the achieved result. It also provides actual and future recommendations made on behalf of this project. (May 2018, M40)

UPCOMING EVENTS

HiPEAC Conference 2018 & SAFURE Workshop

22nd - 24th January 2018, Manchester/UK, <https://www.hipeac.net/2018/manchester/>

The SAFURE team is currently planning a **SAFURE workshop** which is co-located with the HiPEAC conference and will take place on **22nd January 2018**. Further information on this workshop will be soon available on our project website.

The topics of this workshop will be:

- *Modeling and analysis of Mixed-Critical systems*
- *Security risks posed by Temperature Measurements in Mobile Platforms*
- *Secure Update of Mixed Critical Sytsems*
- *Real-time Ethernet in Automotive Systems*
- *Deterministic Ethernet Security*
- *Ethernet Modelling and Worst-Case Timing Analysis as a Tool Solution in SymTA/S*
- *Secure CAN communication*
- *A Practical Methodology to Tightly Upperbound Contention in COTS Mulicores*
- *METriCS: a Mesurement Environment for Multi-Core Time Critical Systems*



Scuola Superiore
Sant'Anna



SYMTA VISION



Technische
Universität
Braunschweig



Barcelona
Supercomputing
Center
Centro Nacional de Supercomputación

ETH zürich

TECHNIKUN

escript
Embedded Security by ETAS

THALES



This project has recieved funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 644080

This work was supported (also) by the Swiss State Secretariat for Education, Research and Innovation (SERI) under contract number 15.0025. The opinions expressed and agreements employed herein do not necessarily reflect the official views of the Swiss Government

LinkedIn



https://twitter.com/SAFURE_H2020