



Continuous Observation of Embedded Multicore Systems

Fact Sheet

Project Information

COEMS

Grant agreement ID: 732016

[Project website](#)

DOI

[10.3030/732016](https://doi.org/10.3030/732016)

Project closed

EC signature date

12 October 2016

Start date

1 November 2016

End date

30 April 2020

Funded under

INDUSTRIAL LEADERSHIP - Leadership in enabling and industrial technologies - Information and Communication Technologies (ICT)

Total cost

€ 3 961 082,50

EU contribution

€ 3 961 082,50

Coordinated by

UNIVERSITAET zu LUEBECK



Germany

Objective

The ability to observe the internals of an execution of a computer-based system is a fundamental requirement for ultimately ensuring correctness and safe behaviour. Within COEMS (Continuous Observation of Embedded Multicore Systems) a novel observer platform with supporting verification methods for software systems is created. COEMS tackles the issues of detection and identification of non-deterministic software failures caused by race conditions and access to inconsistent data. It gives insight to the system's actual behaviour without affecting it allowing new verification methods.

An efficient real-time access and analysis as a critical element for operating safe

systems will be developed and validated by COEMS. Moreover, a cross-layer programming approach supporting failure detection will be proposed. COEMS aims at shortening the development cycle by considerably increased test efficiency and effectivity, by increased debug efficiency (especially for non-deterministically occurring failures) and by supporting performance optimization. COEMS improves the reliability of delivered systems, enabling software developers to identify, understand, and remove software defects before release, as well as improving efficiency of software for multi/many-core computing systems in terms of performance, real-time behaviour, and energy consumption.

The two Global Players Thales Group and Airbus Group, both active in safety-critical domains, will validate the COEMS approach by suitable demonstrators, i.e. testing and debugging of real-world multicore applications. In addition to these two domains, we will address the domains of safety-critical medical applications, automation and automotive industry, as well as the Internet of Things.

Technologically, COEMS will provide the world-wide first comprehensive online observation approach that is non-intrusive allowing improved testing and debugging. Altogether, COEMS will define a new state-of-the-art for software systems development.

Fields of science (EuroSciVoc)

[natural sciences](#) > [computer and information sciences](#) > [software](#) > [software applications](#) > **[system software](#)**

[natural sciences](#) > [computer and information sciences](#) > [software](#) > **[software development](#)**

[engineering and technology](#) > [mechanical engineering](#) > [vehicle engineering](#) > **[automotive engineering](#)**

[engineering and technology](#) > [environmental engineering](#) > **[energy and fuels](#)**

[engineering and technology](#) > [electrical engineering, electronic engineering, information engineering](#) > [electronic engineering](#) > [control systems](#) > **[home automation](#)**



Programme(s)

[H2020-EU.2.1.1. - INDUSTRIAL LEADERSHIP - Leadership in enabling and industrial technologies - Information and Communication Technologies.\(ICT\).](#) MAIN PROGRAMME

Topic(s)

[ICT-10-2016 - Software Technologies](#)

Call for proposal

[H2020-ICT-2016-2017](#)

[See other projects for this call](#)

Sub call

H2020-ICT-2016-1

Funding Scheme

[RIA - Research and Innovation action](#)

Coordinator



UNIVERSITAET zu LUEBECK

Net EU contribution

€ 810 038,75

Total cost

€ 810 038,75

Address

RATZEBURGER ALLEE 160

23562 Lubeck

 **Germany** 

Region

Schleswig-Holstein > Schleswig-Holstein > Lübeck, Kreisfreie Stadt

Activity type

Higher or Secondary Education Establishments

Links

[Contact the organisation](#)  [Website](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Participants (5)



ACCEMIC TECHNOLOGIES GMBH

 Germany

Net EU contribution

€ 951 800,00

Address

FRANZ-HUBER-STR 39
83088 Kiefersfelden 

SME 

Yes

Region

Bayern > Oberbayern > Rosenheim, Landkreis

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

[Contact the organisation](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Total cost

€ 951 800,00



THALES SYSTEMS ROMANIA SRL

 Romania

Net EU contribution

€ 485 908,75

Address

SOSEAUA ORHIDEELOR, NR.15A, ETAJ 6,7 (ZONA 2) SI 8
060071 BUCURESTI 

Region

Macroregiunea Trei > București-Ilfov > București

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

[Contact the organisation](#) 

[Participation in EU R&I programmes](#) 

Total cost

€ 485 908,75



HOGSKULEN PA VESTLANDET

 Norway

Net EU contribution

€ 746 435,00

Address

INNDALSVEIEN 28

5020 Bergen 

Activity type

Higher or Secondary Education Establishments

Links

[Contact the organisation](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Total cost

€ 746 435,00



HITACHI RAIL GTS AUSTRIA GMBH

 Austria

Net EU contribution

€ 467 512,50

Address

HANDELSKAI 92

1200 WIEN 

Region

Ostösterreich > Wien > Wien

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

[Contact the organisation](#)  [Website](#) 

[Participation in EU R&I programmes](#) 

Total cost

€ 467 512,50



AIRBUS DEFENCE AND SPACE GMBH

 Germany

Net EU contribution

€ 499 387,50

Address

WILLY-MESSERSCHMITT-STRASSE 1
82024 Taufkirchen 

Region

Bayern > Oberbayern > München, Landkreis

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

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[HORIZON collaboration network](#) 

Total cost

€ 499 387,50

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European Union, 2025