



CISTER
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Computing Systems

Poster

Embedded Multi-Core systems for Mixed Criticality applications in dynamic and changeable real-time environments

Eduardo Tovar

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CISTER Research Center

Polytechnic Institute of Porto (ISEP-IPP)

Rua Dr. António Bernardino de Almeida, 431

4200-072 Porto

Portugal

Tel.: +351.22.8340509, Fax: +351.22.8321159

E-mail: emt@isep.ipp.pt

<http://www.cister.isep.ipp.pt>

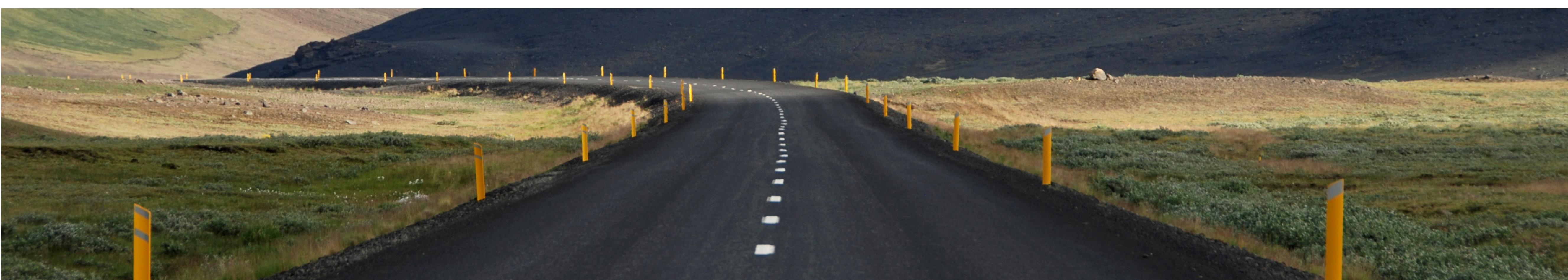
Abstract

EMC2 finds solutions for dynamic adaptability in open systems. It provides handling of mixed criticality multicore applications in real-time conditions, with scalability and utmost flexibility, full-scale deployment and management of integrated tool chains, through the entire lifecycle.



EMC²

Embedded Multi-Core systems for Mixed Criticality applications in dynamic and changeable real-time environments



PROJECT description

EMC² finds solutions for dynamic adaptability in open systems. It provides handling of mixed criticality multicore applications in real-time conditions, with scalability and utmost flexibility, full-scale deployment and management of integrated tool chains, through the entire lifecycle.

RELEVANCE CALL 2013 objectives

- > EMC² reduces cost of the system design by 15%.
- > It reduces by 15% the effort and time required to re-validate systems after making changes.
- > It achieves 15% reduction in development cycles, especially in sectors requiring qualification or certification.

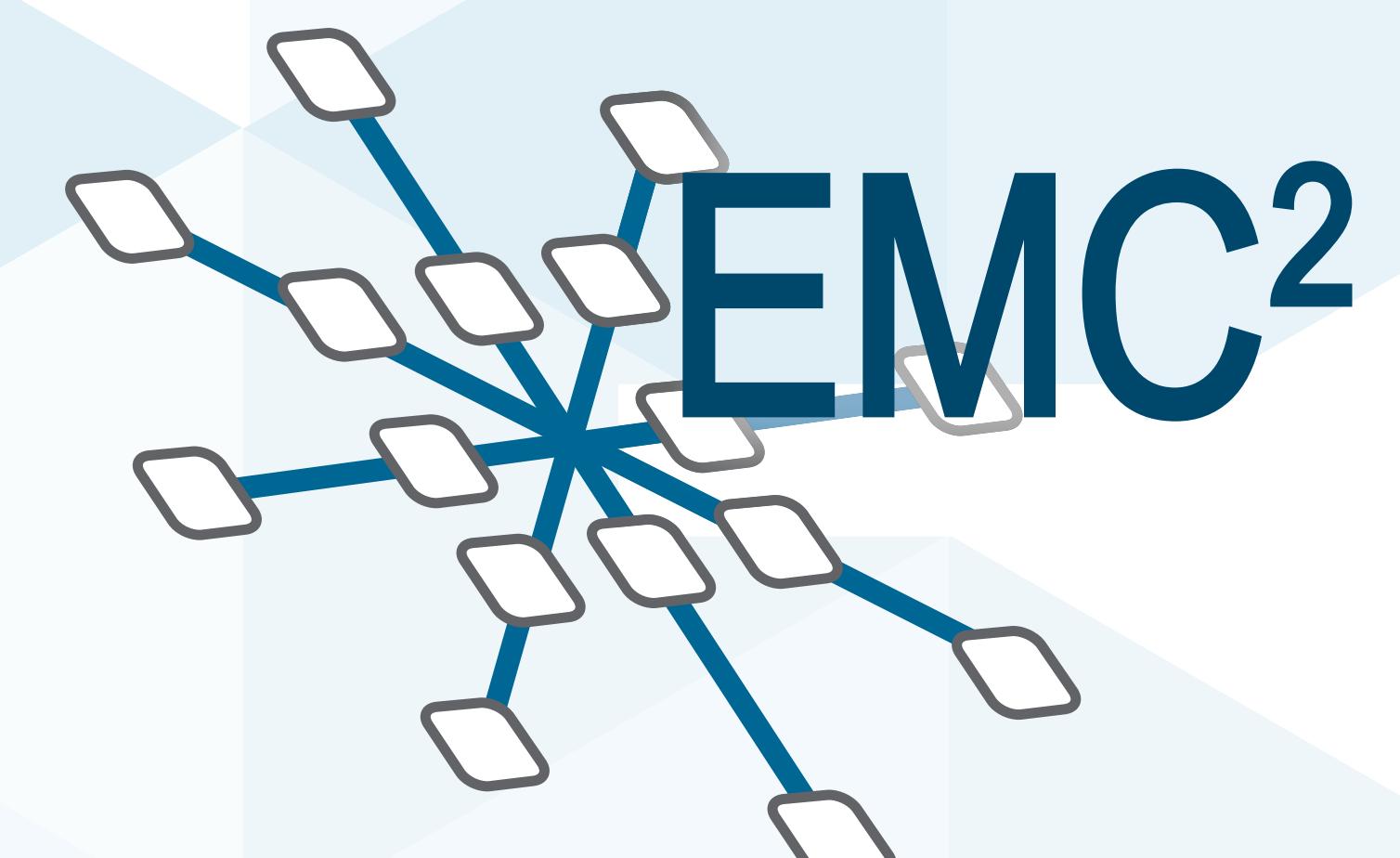
MARKET innovation

The EMC² project expects to facilitate the EU's ability to deploy and use Embedded Systems across important European market sectors:

- > Automotive: Embedded Systems are the key innovation driver, enabling the majority of innovations.
- > Avionics: main challenges are related to the acceleration of technology cycles and cost of software development.
- > Space: main challenges are related to the increase of performance/weight ratio, high reliability and long lifetime.
- > Industrial control and factory automation: the key areas will be energy efficiency and sustainability.
- > Healthcare: challenges are related to workflow efficiency, integration of diagnosis and treatment, quality assurance.
- > Internet of Things: the increased amount of data available, as well as safety and security issues, will need to be processed.

TECHNICAL innovation

- > Cost of the system design: EMC² multi-core architecture, with its development ecosystem of improved programmability, dynamic runtime environment and tool support, eases design and analysis.
- > Effort and time required for revalidation and recertification of systems after making changes: through architectural support for mixed-critical applications, the early consideration of non-functional properties and the holistic integration of development and validation/certification activities in the EMC² interoperability framework.
- > Management of increased complexity: EMC² multi-core architecture and the development ecosystem reduce software complexity and leverage the benefits of module consolidation.
- > Cross-sector reusability of Embedded Systems devices and architecture platforms: through crosssector embedded hardware architecture including a dynamic runtime environment.



PROJECT COORDINATOR

Werner Weber

START

1 April 2014

INSTITUTION

Infineon

DURATION

36 months

EMAIL

werner.weber@infineon.com

TOTAL INVESTMENT

€ 93.92 m

WEBSITE

www.artemis-emc2.eu

PARTICIPATING ORGANIZATIONS

100

NUMBER OF COUNTRIES

16

ABB AB	Kompetenzzentrum - Das virtuelle Fahrzeug, Forschungsgesellschaft GmbH	Thales Research and Technology
Aicas GmbH	KTH Royal Institute of Technology	The Irish software engineering research Centre
Airbus Defence and Space GmbH - Cassidian	Luleå University of Technology	The University of Manchester
Airbus Defence and Space GmbH - EADS	Magillem Design Services	TNO
Alenia Aermacchi S.p.A	MBDA Italia S.p.A.	TomTom International BV
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AMBAR Telecommunicaciones S.L.	NXP Semiconductors Germany GmbH	United Technologies Research Centre
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CRF, Centro Ricerche Fiat	Stichting Imec Nederland	
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Elektrobit Automotive GmbH	Sysgo s.r.o.	
EnSilica	Systematic	
ERICSSON AB	Systemite AB	
eVision Systems GmbH	Systonomy Limited	
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INESC ID Lisboa	Technolution B.V.	
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Infineon Technologies Austria AG	Telvent Energia SA	
Infineon Technologies UK Ltd	Test and Verification Solutions Ltd	
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Institute of Microelectronic Applications s.r.o.	Thales Alenia Space Spain	
Instituto Superior de Engenharia do Porto	Thales Austria GmbH	
Instituto Tecnológico de Informática	Thales Avionics SAS	
Integrays S.A.	Thales Communications & Security SAS	
Ixion Industry & Aerospace SL		



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