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Poster

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

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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.

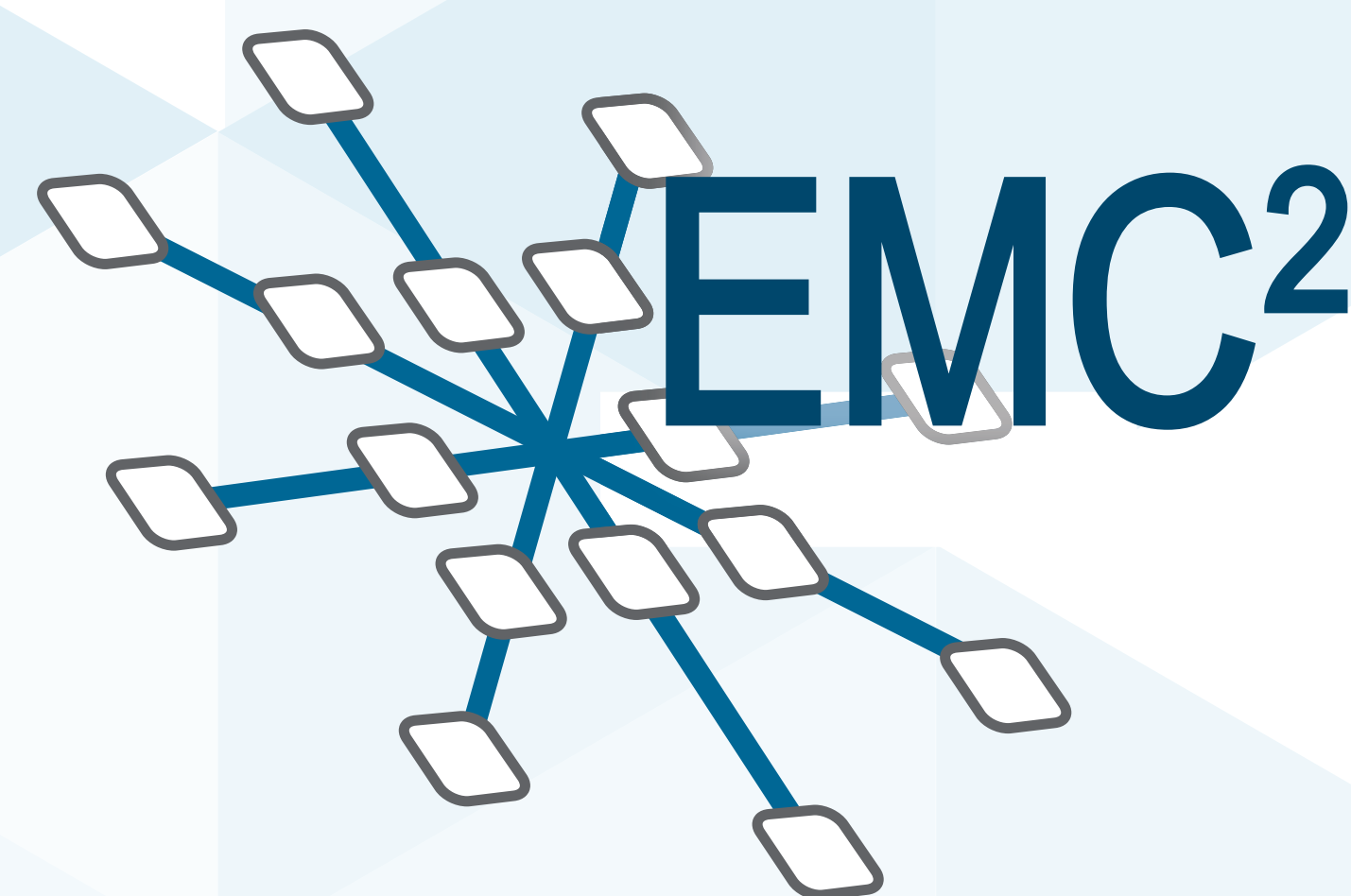
MARKET innovation

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
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TOTAL INVESTMENT
€ 93.92 m

WEBSITE
www.artemis-emc2.eu

PARTICIPATING ORGANISATIONS
100

NUMBER OF COUNTRIES
16

ABB AB
Aicas GmbH
Airbus Defence and Space GmbH - Cassidian
Airbus Defence and Space GmbH - EADS
Alenia Aermacchi S.p.A.
Alten Sweden AB
AMBAR Telecomunicaciones S.L.
ArcCore AB
Arcticus Systems AB
Austrian Institute of Technology
AVL List GmbH
AVL Software and Functions GmbH
Blueice BVBA
BMW AG
Brno University of Technology
CEA
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Consorzio Interuniversitario Nazionale per l'Informatica
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Critical Software
Danfoss Power Electronics A/S
Denso Automotive Deutschland GmbH
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Ixion Industry & Aerospace SL

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Lulea University of Technology
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