ARTEMIS Call 2013 Project
621429

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 multi-core 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 cross-sector embedded hardware architecture including a dynamic runtime environment.

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WEBSITE
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START
1 April 2014

DURATION
36 months

TOTAL INVESTMENT
€ 93.92 m

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
Chalmers University of Technology
Consorzio Interuniversitario Nazionale per l'Informatica
CRF, Centro Ricerche Fiat
Critical Software
Danfoss Power Electronics A/S
Denso Automotive Deutschland GmbH
Elektrobit Automotive GmbH
EnSilica
ERICSSON AB
eVision Systems GmbH
Fornebu Consulting AS
Fraunhofer IESE
Freescale Semiconductor Czech Republic
Frequentis AG
Harokopio University of Athens
HI-Iberia Ingenieria y Proyectos
INESC ID Lisboa
Infineon Technologies AG
Infineon Technologies Austria AG
Infineon Technologies UK Ltd
INRIA
Institute of Microelectronic Applications s.r.o.
Instituto Superior de Engenharia do Porto
Instituto Tecnológico de Informática
Integrasys S.A.
Ixion Industry & Aerospace SL
Kompetenzzentrum - Das virtuelle Fahrzeug, Forschungsgesellschaft GmbH
KTH Royal Institute of Technology
Lulea University of Technology
Magillem Design Services
MBDA Italia S.p.A.
NXP Semiconductors
NXP Semiconductors Germany GmbH
OFFIS
Philips Medical Systems Nederland B.V.
Politecnico di Torino
Quobis Networks SL
Riga Technical University
Rockwell Collins France
SELEX ES S.p.A.
Seven Solutions S.L.
Siemens AG
SILKAN S.A.
Simula Research Laboratory AS
Stichting Imec Nederland
Sundance Multiprocessor Technology Ltd
Swedish Institute of Computer Science AB
SYSGO AG
Sysgo s.r.o.
Systematic
Systemite AB
Systonomy Limited
Technical University Eindhoven
Technical University of Denmark
Technische Universität Braunschweig
Technische Universität Dortmund
Technische Universität Kaiserslautern
Technische Universität Wien
Technolution B.V.
TECNALIA
Telvent Energia SA
Test and Verification Solutions Ltd
Thales Alenia Space Italia
Thales Alenia Space Spain
Thales Austria GmbH
Thales Avionics SAS
Thales Communications & Security SAS
Thales Research and Technology
The Irish software engineering research Centre
The University of Manchester
TNO
TomTom International BV
TTTech Computertechnik AG
United Technologies Research Centre Ireland Ltd.
Universita degli Studi dell'Aquila
Universita degli Studi di Genova
University of Bristol
University of Oslo
University of Technology Delft
Ústav teorie informace a automatizace AV ČR, v.v.i.
Vector Fabrics B.V.
Visure Solutions S.L.
Volvo Technology AB
WesternGeco AS