

MULTIPARTES 2012 ADVISORY BOARD GATHERED RELEVANT EUROPEAN STAKEHOLDERS FROM ACADEMIA AND INDUSTRY

Enabling significant cost reduction by hypervisor virtualization for multicore

Project title

MULTIPARTES (MULTI-cores PARTitioning for Trusted Embedded Systems)

Project coordinator:

Dr. Salvador Trujillo
IK4-IKERLAN, Spain

Partners:

- IK4-IKERLAN, Spain
- ALSTOM WIND, Spain
- FentISS, Spain
- Technische Universität Wien, Austria
- TELETEL, Greece
- TRIALOG, France
- Universitat Politècnica de València, Spain
- Universidad Politécnica de Madrid, Spain
- Visual Tools, Spain

Project website:

<http://www.multipartes.eu/>

Project start date:

September 2011

Duration:

36 months



The MultiPARTES FP7 project aims to define a comprehensive approach to mixed-criticality systems engineering, based on hypervisors as the mechanism for multicore virtualization in industrial applications. The goal is to reduce cost by 25% and improve computation capability in terms of performance, while ensuring maximum reliability and other criteria (e.g. reduce energy consumption and volume, reduce wires and connectors).

With the purpose of providing advice and guidance to the project, a group of experts gathered on July 18th at the first MultiPARTES Advisory Board meeting. The School of Engineering at Bilbao (Spain) hosted a fruitful discussion on the research work developed by the project so far. Different viewpoints were presented, each sharing their scientific, technological or market perspective and knowledge.



Advisory Board members during AB session in Bilbao (from left to right): Mr. Farrall, Mr. Zulianello, Dr. Haugen and Prof. Marcos

The Advisory Board members are Dr. Guillem Bernat (Rapita Systems, UK), Dr. Tasos Dagiuklas (Univ. Messolonghi, Greece), Mr. Patrick Letteinturier (Infineon Technologies, Germany), Mr. Glenn Farrall (Infineon, UK), Prof. Marga Marcos (Univ. Basque Country, Spain), Dr. Michael Paulitsch (EADS, Germany), Dr. Øystein Haugen (SINTEF, Norway) and Mr. Marco Zulianello (ESA, Netherlands). The AB members have diverse expertise, including certification, multicore hardware, modelling languages, verification and validation for embedded systems (further details on AB members is available at multipartes.eu). This diversity guaranteed that all views were considered and future impacts were anticipated, especially in

IN THE SPOTLIGHT

the automotive, semiconductor and aerospace sectors.

Modern embedded applications typically integrate a multitude of functionalities with potentially different criticality levels into a single system. The Automotive

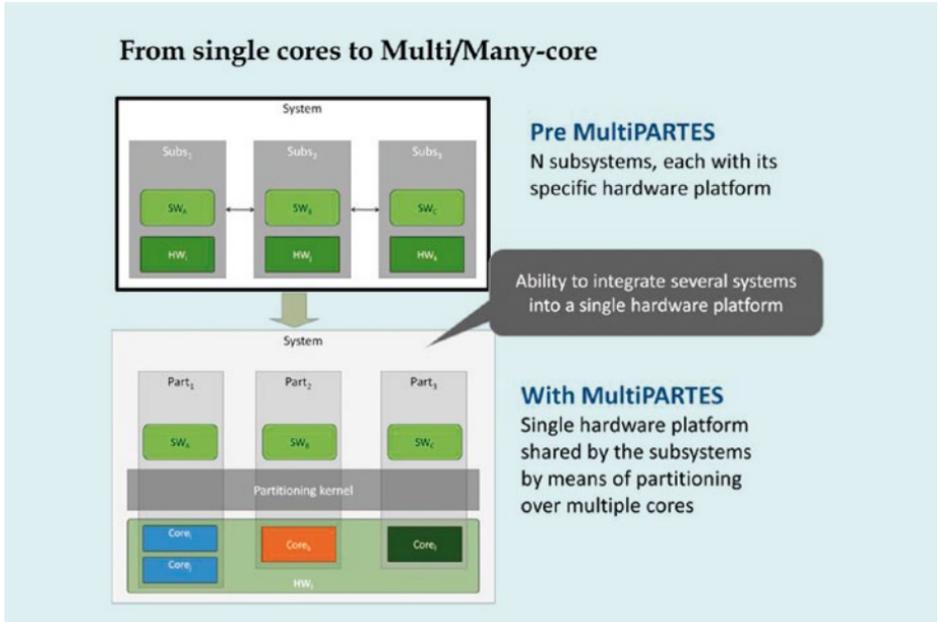
industry is a key example. A modern vehicle involves more than fifty control systems such as braking, motor control, entertainment, and navigation. Each system has a specific purpose and specific hardware and software to achieve it. Integrating all into one multicore platform will result in a

significant reduction in the occupied space, energy consumption and hardware cost.

Without appropriate preconditions, the integration of mixed-criticality subsystems can lead to a significant and potentially unacceptable increase in certification efforts. The approach of MultiPARTES is to avoid the increased validation and certification effort by incorporating mechanisms that establish multiple partitions with strict temporal and spatial separation. In this approach, subsystems with different levels of criticality can be placed in different partitions and can be verified and validated in isolation.

MultiPARTES is partially funded by the EU FP7 program with 2.85 million euros, and it has a total budget of over four million euros. This research work will contribute to strengthening the leadership and excellence of Europe in the development of systems and tools for the engineering of dependable multicore embedded systems.

More info at:
<http://twitter.com/#!/FP7MultiPARTES>
<http://www.youtube.com/user/FP7MultiPARTES>



MultiPARTES: From single cores to Multi/Many-core