



**ACROSS -  
A reference  
architecture  
for  
embedded  
systems**



## Welcome

A warm welcome to the 1st edition of the ACROSS newsletter.

ACROSS stands for "ARTEMIS Cross-Domain Architecture" and is one of the research projects that was selected under the 2nd ARTEMIS-JU call 2009. The ACROSS consortium is composed of 18 organizations from Germany, France, Italy & Austria and aims to develop an ARTEMIS cross-domain architecture for embedded Multi-Processor System-on-Chips. The project activities were launched on April 1, 2010, holding a successful kick-off meeting in Vienna mid April 2010. The first specification results were provided in September 2010.

The goal of this newsletter is to inform you on major project activities and to highlight the progress achieved. If you require more detailed information on ACROSS we are looking forward to receiving your request.

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ACROSS Project CoordinationTeam

## Where does ACROSS come from

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To put the ACROSS project in a holistic light we have to go back to activities of the ARTEMIS Working Group on Reference Designs and Architectures. Setting up a Strategic Research Agenda (SRA) this Working Group has acquired requirements and constraints for system architectures in order to enable more advanced embedded systems in Europe. The idea of a cross-domain architecture was born out of the perceived fragmentation in the research and development of embedded systems, although many of the challenges identified in the SRA are common to the different application domains and could be tackled by a cross-domain approach.

Driven by the goal of developing the blueprint of a cross-domain architecture, the FP7 project GENESYS (GENERIC

Embedded SYSTEM, FP7-213322) took the ARTEMIS SRA requirements and constraints as a starting point and developed a reference architecture template for embedded systems.

The ACROSS project is the next logical step based on GENESYS in order to put the theory to practice. Based on the architecture blueprint, developed in the FP7 project GENESYS, ACROSS will leverage the findings of the existing work by forging a versatile framework for a cross-domain MPSoC encompassing components, methods, and tools enabling the industrial uptake of the cumulative research of the past years.

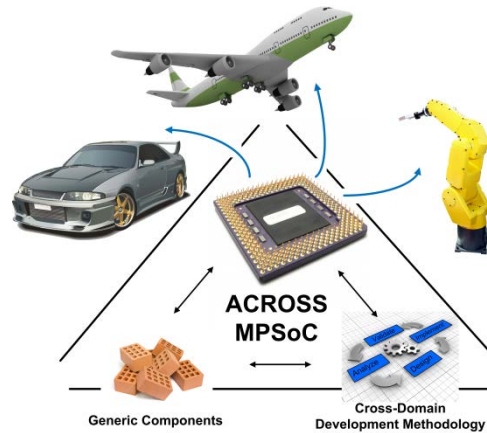
## What does ACROSS aim for

Within its duration of 36 months the ACROSS project will develop and implement an ARTEMIS cross-domain reference architecture for the following application domains: automotive, avionics, and industrial control systems.

The ACROSS project will contribute to the establishment of a common multi-domain architecture accompanied by appropriate methods and tool for advanced multi-core hardware solutions. ACROSS will offer domain-independent technology (middleware, tools and IP cores) which will enable European supplier industry to increase their market share and OEMs to benefit from mature cross-domain

technology at lower cost, reduced development cost and accelerated time-to-market. The results of ACROSS will ease the introduction of new cross-domain applications, which rely on the interplay of different, formerly disjointed, disciplines. The cross-domain solutions will also enable to benefit from the economies of scale in the semiconductor industry. For the end user, the composable architectural framework of ACROSS will result in more robust products (e.g., fewer recalls and higher dependability).

*ACROSS is offering solutions for the automotive, avionics and industrial control domain.*



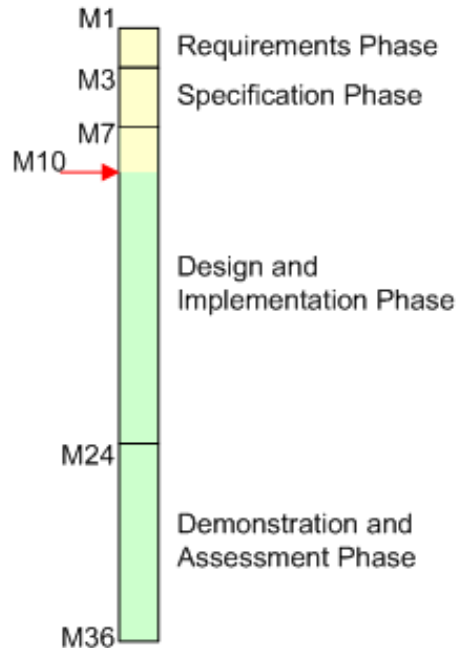
## What has been achieved so far

By the end of September 2010 the specification phase was successfully completed. This phase resulted in the delivery of specifications of core and optional services and the definition of the model-based development process. These results constitute the basis for the design and implementation of the ACROSS architecture. The public deliverables

describing the results from this phase have been made available on the ACROSS homepage.

# What are the coming steps on the way to the cross-domain architecture

As a next step towards a cross-domain reference architecture for embedded systems the design and implementation of the ACROSS technologies will be tackled. The efforts of the coming project months are dedicated to the design and the implementation of the ACROSS MPSoC, the core and optional services and to the models and tools that shall support the development process. The development of the ACROSS technology is guided by the ongoing design of demonstrators in the automotive, avionics and industrial domain in order to assure industrial applicability.



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## Dissemination Highlight

A first highlight in presenting ACROSS to a wider public was the ARTEMIS & ITEA Co-summit 2010, taking place October 26 to 27, 2010 in Ghent, Belgium, where ACROSS was represented with its own booth.

The concept and idea of ACROSS were not only presented to the many interested visitors but also to the ARTEMISIA Steering Board that visited selected ARTEMIS projects. Furthermore, the ACROSS project has been invited to give a talk in the multi-core session.



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## Project Details

Project partners:	18
Project duration:	36 months (April 1, 2010 – March 31, 2013)
Project funding:	7,6 Mio €
Project budget:	15,9 Mio €

## Consortium

