

# 1<sup>st</sup> International Workshop on Model Based Architecting and Construction of Embedded Systems (ACES<sup>MB</sup> 2008)

In conjunction with MoDELS 2008, Toulouse, France

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University of Toulouse, France  
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K.U.Leuven, Belgium  
**Susanne Graf**  
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**Mamoun Filali**  
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OOSE.de, Germany  
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VERIMAG, France

## Important Dates

### Submission Deadline:

July 15<sup>th</sup>, 2008

### Notification of Acceptance:

September 5<sup>th</sup>, 2008

(or before early registration deadline)

### Workshop Date:

September 29<sup>th</sup>, 2008

## Motivation

The development of embedded systems with real-time and other types of critical constraints raises distinctive problems. In particular, the development teams have to handle very specific architectural choices, as well as various types of critical non-functional constraints (related to real-time deadlines and to platform parameters like energy consumption, memory footprint, etc.). In this context, the last few years have seen an increased interest in using model-driven engineering (MDE) techniques. Such techniques are interesting for two main reasons: (1) they allow for capturing dedicated architectural and non-functional information in precise (preferably formal) domain-specific models, and (2) they provide the premise for a layered construction of systems, in which the (platform independent) functional aspects can be kept separated from architectural and non-functional (platform specific) aspects, after which they can be combined more or less automatically via model transformations to obtain the final system.

## Objective

The objective of this workshop is to bring together researchers and practitioners interested in model-based software engineering for real-time embedded systems. We are seeking contributions relating to this subject at different levels, from modelling languages and semantics to concrete application experiments, from model analysis techniques to model-based implementation and deployment. Given the criticality of the application domain, we particularly focus on model-based approaches yielding efficient and provably correct designs. Concerning models and languages, we welcome contributions presenting novel modelling approaches as well as contributions evaluating existing ones. We target in particular:

- **Architecture description languages (ADLs).** Architecture models are crucial elements in system and software development, as they capture the earliest decisions that have a huge impact on the realisation of the (non-functional) requirements, the remaining development of the system or software, its deployment, etc. In particular, we are interested in examining:
  - the position of ADLs in an MDE approach
  - the relation between architecture models and other types of models used during requirement engineering (e.g., SysML), design (e.g., UML), etc.
  - techniques for deriving architecture models from requirements, and deriving high-level design models from architecture models
  - verification and early validation using architecture models
- **Domain specific design and implementation languages.** To achieve the high confidence levels required from critical embedded systems through analytical methods, specific languages with particularly well-behaved semantics are often used in practice, such as synchronous languages and models (Lustre/SCADE, Signal/Polychrony, Esterel), super-synchronous models (TTA, Giotto), scheduling-friendly models (HRT-UML, Ada Ravenscar), etc. We are interested in examining the model-oriented counterparts of such languages, together with the related analysis and development methods.
- **Languages for capturing non-functional constraints** (UML-MARTE, AADL, OMEGA, etc.)
- **Component languages and system description languages** (SysML, BIP, FRACTAL, Ptolemy, etc.).

## Workshop Format

This full-day workshop will consist of an introduction by the organizers, presentations of accepted papers, an in-depth discussion of a set of topics that are identified by the attendees, and a concluding session presenting the results of the discussion groups.

## Submissions

Attendees are invited to submit a short position paper (max. 5 pages) or a full technical contribution (max. 15 pages) in PDF format. Submissions must conform to the Springer LNCS formatting guidelines. Papers can be submitted online at <http://www.easychair.org/conferences/?conf=acesmb08>. The authors will be notified about acceptance before the MoDELS 2008 early registration deadline. Only full papers can be candidate for the best paper nomination (to be included in the MoDELS 2008 Workshop Proceedings). All papers (full and short) are included in the Workshop Proceedings, which will be published in the form of a technical report having an ISBN in an electronic and potentially hardcopy form.

For further information, see <http://www.artist-embedded.org/artist/ACES-MB-08.html>.