



## Model Driven Engineering for distributed Real-Time Systems

### MARTE modelling, model transformations and their usages

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ISBN: 9781848211155

Publication Date: July 2010 Hardback 256 pp.

95.00 USD



#### Description

After introducing general concepts about model transformations, two presentations provide an overview of the MARTE profile. Model-driven implementations of software and hardware architectures are then given, covering the most common aspects of Model-Driven Development for Distributed Real-Time Systems: structuring architectures using components, mapping between different levels of abstraction, designing hardware and software architecture, evaluation and validation through tests and performance analysis.

In the context of Distributed and Real-time Embedded Systems (DRES), system developers are faced with reducing system development cost and time while developing correct (relating to safe and QoS properties) and increasingly complex systems. To take up this challenge, Model-Driven Development (MDD) advocates the intensive uses of models and model transformation on several level of abstractions.

This book includes contributions from academic and professional experts on a range of topics related to MD practices, methods and emerging technologies.

#### Contents

1. Model Transformation, A Survey of the State-of-the-Art, Tom Mens.
2. Model Based Code Generation, Chris Raistrick.
3. Testing Model Transformations: A Case for Test Generation from Input Domain Models, Benoit Baudry.
4. Symbolic Execution-Based Techniques for Conformance Testing, Christophe Gaston, Pascale Le Gall, Nicolas Rapin, Assia Touil.
5. Using MARTE and SysML for Modeling Real-Time Embedded Systems, Huascar Espinoza, Daniela Cancila, Sébastien Gérard, Bran Selic.
6. Software Model-based Performance Analysis, Dorina C. Petriu.
7. Model Integration for Formal Qualification of Timing-Aware Software Data Acquisition Components, Jean-Philippe Babau, Philippe Dhaussy, Pierre-Yves Pillain.
8. SoC/SoPC Development using MDD and MARTE profile, Denis Aulagnier, Ali Koudri, Stéphane Lecomte, Philippe Soulard, Joël Champeau, Jorgiano Vidal, Gilles Perrouin, Pierre Leray.

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