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Titolo	Embedded systems development : from functional models to implementations // Alberto Sangiovanni-Vincentelli, Haibo Zeng, Marco Di Natale, Peter Marwedel, editors
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Collana	Embedded Systems, , 2193-0155 ; ; 20
Disciplina	006.2/2
Soggetti	Embedded computer systems - Design and construction Systemes enfouis (informatique) - Conception et construction - Actes de congres
Lingua di pubblicazione	Inglese
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Livello bibliografico	Monografia
Note generali	"This book is an edited collection of contributions in selected topics related to embedded systems modeling, analysis, and synthesis. Most contributions are extended versions of papers that were originally presented at several workshops organized in the context of the Embedded Systems Week and Real-Time Systems Symposium in the last months of 2011 ... These workshops were the WSS, Workshop on Software Synthesis, the TiMoBD, Time Analysis and Model-Based Design, and the SOMRES, Workshop on Synthesis and Optimization Methods for Real-Time Embedded Systems"--Preface. "ISSN: 2193-0155." "ISSN: 2193-0163 (electronic)."
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Introduction: Modeling, Analysis and Synthesis of Embedded Software and Systems -- Part I Model-Based Design and Synthesis -- Modeling, Analysis, and Implementation of Streaming Applications for Hardware Targets -- Dataflow-based, Cross-Platform Design Flow for DSP Applications -- Part II Model-Driven, Integration and Verification of Heterogeneous Models -- On Integrating EAST-ADL and UPPAAL for Embedded System Architecture Verification -- Schedulability Analysis at Early Design Stages with MARTE -- Part III Component-Based Design and Real-Time Components -- Early Time-Budgeting for Component-Based Embedded Control Systems -- Contract-Based Reasoning for Component systems with Rich Interactions -- Extracting End-to-end

Timing Models from Component-Based Distributed Embedded Systems -- Part IV Timing Analysis and Time-Based Synthesis -- Distributed Priority Assignment in Real-Time Systems -- Exploration of Distributed Automotive Systems using Compositional Timing Analysis -- Design and Evaluation of Future Ethernet AVB-based ECU Networks.

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Sommario/riassunto

This book offers readers broad coverage of techniques to model, verify and validate the behavior and performance of complex distributed embedded systems. The authors attempt to bridge the gap between the three disciplines of model-based design, real-time analysis and model-driven development, for a better understanding of the ways in which new development flows can be constructed, going from system-level modeling to the correct and predictable generation of a distributed implementation, leveraging current and future research results. Describes integration of heterogeneous models; Discusses synthesis of task model implementations and code implementations; Compares model-based design vs. model-driven approaches; Explains how to enforce correctness by construction in the functional and time domains; Includes optimization techniques for control performance.

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