

Acces PDF Design Automation
Embedded Systems D E Event
Design

**Design Automation
Embedded Systems
D E Event Design**

This book presents the
technical program of the

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International Embedded
Systems Symposium (IESS)
2009. Timely topics,
techniques and trends in
embedded system design
are covered by the
chapters in this volume,

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including modelling,
simulation,
verification, test,
scheduling, platforms
and processors.

Particular emphasis is
paid to automotive

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systems and wireless sensor networks. Sets of actual case studies in the area of embedded system design are also included. Over recent years, embedded systems

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have gained an enormous amount of processing power and functionality and now enter numerous application areas, due to the fact that many of the formerly external

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components can now be integrated into a single System-on-Chip. This tendency has resulted in a dramatic reduction in the size and cost of embedded systems. As a

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unique technology, the design of embedded systems is an essential element of many innovations. Embedded systems meet their performance goals,

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including real-time constraints, through a combination of special-purpose hardware and software components tailored to the system requirements. Both the

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development of new features and the reuse of existing intellectual property components are essential to keeping up with ever more demanding customer requirements.

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Furthermore, design complexities are steadily growing with an increasing number of components that have to cooperate properly.

Embedded system

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designers have to cope
with multiple goals and
constraints simul-
taneously, including
timing, power,
reliability,
dependability,

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maintenance, packaging
and, last but not least,
price.

Due to the decreasing
production costs of IT
systems, applications
that had to be realised

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as expensive PCBs
formerly, can now be
realised as a system-on-
chip. Furthermore, low
cost broadband
communication media for
wide area communication

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as well as for the realisation of local distributed systems are available. Typically the market requires IT systems that realise a set of specific features

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for the end user in a given environment, so called embedded systems. Some examples for such embedded systems are control systems in cars, airplanes, houses or

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plants, information and communication devices like digital TV, mobile phones or autonomous systems like service- or entertainment robots. For the design of embedded

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systems the designer has to tackle three major aspects: The application itself including the man-machine interface, The (target) architecture of the system including all

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functional and non-
functional constraints
and, the design
methodology including
modelling,
specification,
synthesis, test and

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validation. The last two points are a major focus of this book. This book documents the high quality approaches and results that were presented at the

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International Workshop
on Distributed and
Parallel Embedded
Systems (DIPES 2000),
which was sponsored by
the International
Federation for

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Information Processing
(IFIP), and organised by
IFIP working groups
WG10.3, WG10.4 and
WG10.5. The workshop
took place on October
18-19, 2000, in Schloß

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Eringerfeld near

Paderborn, Germany.

Architecture and Design
of Distributed Embedded
Systems is organised
similar to the workshop.

Chapters 1 and 4

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(Methodology I and II)
deal with different
modelling and
specification paradigms
and the corresponding
design methodologies.
Generic system

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architectures for different classes of embedded systems are presented in Chapter 2. In Chapter 3 several design environments for the support of specific

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design methodologies are presented. Problems concerning test and validation are discussed in Chapter 5. The last two chapters include distribution and

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communication aspects
(Chapter 6) and
synthesis techniques for
embedded systems
(Chapter 7). This book
is essential reading for
computer science

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researchers and
application developers.
The first of two volumes
in the Electronic Design
Automation for
Integrated Circuits
Handbook, Second

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Edition, Electronic
Design Automation for IC
System Design,
Verification, and
Testing thoroughly
examines system-level
design,

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microarchitectural
design, logic
verification, and
testing. Chapters
contributed by leading
experts authoritatively
discuss processor

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modeling and design
tools, using performance
metrics to select
microprocessor cores for
integrated circuit (IC)
designs, design and
verification languages,

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digital simulation,
hardware acceleration
and emulation, and much
more. New to This
Edition: Major updates
appearing in the initial
phases of the design

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flow, where the level of abstraction keeps rising to support more functionality with lower non-recurring engineering (NRE) costs
Significant revisions

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reflected in the final phases of the design flow, where the complexity due to smaller and smaller geometries is compounded by the slow progress of

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shorter wavelength
lithography New coverage
of cutting-edge
applications and
approaches realized in
the decade since
publication of the

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previous edition—these are illustrated by new chapters on high-level synthesis, system-on-chip (SoC) block-based design, and back-annotating system-level

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models Offering improved
depth and modernity,
Electronic Design
Automation for IC System
Design, Verification,
and Testing provides a
valuable, state-of-the-

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art reference for
electronic design
automation (EDA)
students, researchers,
and professionals.

This book offers up a
deep understanding of

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concepts and practices
behind the composition
of heterogeneous
components. After the
analysis of existing
computation and
execution models used

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for the specification
and validation of
different sub-systems,
the book introduces a
systematic approach to
build an execution model
for systems composed of

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heterogeneous components. Mixed continuous/discrete and hardware/software systems are used to illustrate these concepts. The benefit of

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reading this book is to arrive at a clear vision of the theory and practice of specification and validation of complex modern systems. Numerous

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examples give designers highly applicable solutions.

This book constitutes the refereed proceedings of the Third International Conference

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on Embedded Software and
Systems, ICESS 2007,
held in Daegu, Korea,
May 2007. The 75 revised
full papers cover
embedded architecture,
embedded hardware,

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embedded software, HW-SW
co-design and SoC,
multimedia and HCI,
pervasive/ubiquitous
computing and sensor
network, power-aware
computing, real-time

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systems, security and dependability, and wireless communication. Synthesis Techniques and Optimization for Reconfigurable Systems discusses methods used

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to model reconfigurable applications at the system level, many of which could be incorporated directly into modern compilers. The book also discusses

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a framework for
reconfigurable system
synthesis, which bridges
the gap between
application-level
compiler analysis and
high-level device

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synthesis. The development of this framework (discussed in Chapter 5), and the creation of application analysis which further optimize its output

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(discussed in Chapters 7, 8, and 9), represent over four years of rigorous investigation within UCLA's Embedded and Reconfigurable Laboratory (ERLab) and

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UCSB's Extensible,
Programmable and
Reconfigurable Embedded
Systems (EXPRESS) Group.
The research of these
systems has not yet
matured, and we

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continually strive to develop data and methods, which will extend the collective understanding of reconfigurable system synthesis.

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Embedded System Design:
Modeling, Synthesis and
Verification introduces
a model-based approach
to system level design.
It presents modeling
techniques for both

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computation and
communication at
different levels of
abstraction, such as
specification,
transaction level and
cycle-accurate level. It

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discusses synthesis methods for system level architectures, embedded software and hardware components. Using these methods, designers can develop applications

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with high level models,
which are automatically
translatable to low
level implementations.
This book, furthermore,
describes simulation-
based and formal

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verification methods
that are essential for
achieving design
confidence. The book
concludes with an
overview of existing
tools along with a

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design case study
outlining the practice
of embedded system
design. Specifically,
this book addresses the
following topics in
detail: . System

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modeling at different
abstraction levels .

Model-based system
design .

Hardware/Software
codesign . Software and
Hardware component

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synthesis . System
verification This book
is for groups within the
embedded system
community: students in
courses on embedded
systems, embedded

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application developers,
system designers and
managers, CAD tool
developers, design
automation, and system
engineering.

This book is the latest

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contribution to the Chip
Design Languages series
and it consists of
selected papers
presented at the Forum
on Specifications and
Design Languages

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(FDL'07), in September 2007. The book represents the state-of-the-art in research and practice, and it identifies new research directions. It

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highlights the role of
specification and
modelling languages, and
presents practical
experiences with
specification and
modelling languages

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Design of

Hardware/Software

Embedded Systems

Dynamic Memory

Management for Embedded

Systems

Memory Controllers for

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Real-Time Embedded

Systems

Embedded Systems

Specification and Design

Languages

Natural Language

Processing for

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Electronic Design

Automation

High-Performance

Embedded Computing

Analysis, Architectures

and Modelling of

Embedded Systems

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Embedded Software and
Systems

Embedded Systems

Handbook

Secure Integrated

Circuits and Systems

Predictable and

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Composable Real-Time
Systems

6th IFIP WG 10.2

International Workshop,

SEUS 2008, Anacarpì,

Capri Island, Italy,

October 1-3, 2008,

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This title covers all software-related aspects of SoC design, from embedded and application-domain specific operating systems to system architecture for future SoC. It will give embedded software designers

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invaluable insights into the constraints imposed by the use of embedded software in an SoC context.

Considered a standard industry resource, the Embedded Systems Handbook provided researchers and

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technicians with the authoritative information needed to launch a wealth of diverse applications, including those in automotive electronics, industrial automated systems, and building automation and control. Now a new resource is

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required to report on current developments and provide a technical reference for those looking to move the field forward yet again. Divided into two volumes to accommodate this growth, the Embedded Systems Handbook,

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Second Edition presents a comprehensive view on this area of computer engineering with a currently appropriate emphasis on developments in networking and applications. Those experts directly involved in the creation and

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evolution of the ideas and technologies presented offer tutorials, research surveys, and technology overviews that explore cutting-edge developments and deployments and identify potential trends. This first self-contained

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volume of the handbook, Embedded Systems Design and Verification, is divided into three sections. It begins with a brief introduction to embedded systems design and verification. It then provides a comprehensive overview of

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embedded processors and various aspects of system-on-chip and FPGA, as well as solutions to design challenges. The final section explores power-aware embedded computing, design issues specific to secure embedded systems, and web services

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**for embedded devices. Those interested in taking their work with embedded systems to the network level should complete their study with the second volume: Network Embedded Systems.
Embedded Systems: A**

Contemporary Design Tool, Second Edition Embedded systems are one of the foundational elements of today's evolving and growing computer technology. From operating our cars, managing our smart phones, cleaning our homes,

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or cooking our meals, the special computers we call embedded systems are quietly and unobtrusively making our lives easier, safer, and more connected. While working in increasingly challenging environments, embedded systems

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give us the ability to put increasing amounts of capability into ever-smaller and more powerful devices.

Embedded Systems: A Contemporary Design Tool, Second Edition introduces you to the theoretical hardware and software

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foundations of these systems and expands into the areas of signal integrity, system security, low power, and hardware-software co-design. The text builds upon earlier material to show you how to apply reliable, robust solutions to a wide range of

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**applications operating in today's
often challenging environments.
Taking the user's problem and
needs as your starting point, you will
explore each of the key theoretical
and practical issues to consider when
designing an application in today's**

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world. Author James Peckol walks you through the formal hardware and software development process covering: Breaking the problem down into major functional blocks; Planning the digital and software architecture of the system; Utilizing

the hardware and software co-design process; Designing the physical world interface to external analog and digital signals; Addressing security issues as an integral part of the design process; Managing signal integrity problems and reducing

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power demands in contemporary systems; Debugging and testing throughout the design and development cycle; Improving performance. Stressing the importance of security, safety, and reliability in the design and

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**development of embedded systems
and providing a balanced treatment
of both the hardware and the
software aspects, Embedded
Systems: A Contemporary Design
Tool, Second Edition gives you the
tools for creating embedded designs**

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that solve contemporary real-world challenges.

Introduction to Hardware-Software Co-Design presents a number of issues of fundamental importance for the design of integrated hardware software products such as embedded,

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communication, and multimedia systems. This book is a comprehensive introduction to the fundamentals of hardware/software co-design. Co-design is still a new field but one which has substantially matured over the past few years.

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This book, written by leading international experts, covers all the major topics including: fundamental issues in co-design; hardware/software co-synthesis algorithms; prototyping and emulation; target architectures;

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compiler techniques; specification and verification; system-level specification. Special chapters describe in detail several leading-edge co-design systems including Cosyma, LYCOS, and Cosmos. Introduction to Hardware-Software

Co-Design contains sufficient material for use by teachers and students in an advanced course of hardware/software co-design. It also contains extensive explanation of the fundamental concepts of the subject and the necessary background to

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bring practitioners up-to-date on this increasingly important topic.

As almost no other technology, embedded systems is an essential element of many innovations in automotive engineering. New functions and improvements of

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already existing functions, as well as the compliance with traffic regulations and customer requirements, have only become possible by the increasing use of electronic systems, especially in the fields of driving, safety, reliability,

and functionality. Along with the functionalities that increase in number and have to cooperate, the complexity of the entire system will increase. Synergy effects resulting from distributed application functionalities via several electronic

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control devices, exchanging information through the network brings about more complex system architectures with many different sub-networks, operating with different velocities and different protocol implementations. To

manage the increasing complexity of these systems, a deterministic behaviour of the control units and the communication network must be provided for, in particular when dealing with a distributed functionality. From Specification to

Embedded Systems Application documents recent approaches and results presented at the International Embedded Systems Symposium (IESS 2005), which was held in August 2005 in Manaus (Brazil) and sponsored by the International

Federation for Information Processing (IFIP). The topics which have been chosen for this working conference are very timely: design methodology, modeling, specification, software synthesis, power management, formal

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**verification, testing, network,
communication systems, distributed
control systems, resource
management and special aspects in
system design.**

**This title serves as an introduction
and reference for the field, with the**

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papers that have shaped the hardware/software co-design since its inception in the early 90s.

The Industrial Information Technology Handbook focuses on existing and emerging industrial applications of IT, and on evolving

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trends that are driven by the needs of companies and by industry-led consortia and organizations.

Emphasizing fast growing areas that have major impacts on industrial automation and enterprise integration, the Handbook covers

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topics such as industrial communication technology, sensors, and embedded systems. The book is organized into two parts. Part 1 presents material covering new and quickly evolving aspects of IT. Part 2 introduces cutting-edge areas of

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**industrial IT. The Handbook
presents material in the form of
tutorials, surveys, and technology
overviews, combining fundamentals
and advanced issues, with articles
grouped into sections for a cohesive
and comprehensive presentation.**

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The text contains 112 contributed reports by industry experts from government, companies at the forefront of development, and some of the most renowned academic and research institutions worldwide. Several of the reports on recent

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**developments, actual deployments,
and trends cover subject matter
presented to the public for the first
time.**

**This book gives a comprehensive
introduction to the design challenges
of MPSoC platforms, focusing on**

early design space exploration. It defines an iterative methodology to increase the abstraction level so that evaluation of design decisions can be performed earlier in the design process. These techniques enable exploration on the system level

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before undertaking time- and cost-intensive development.

Synthesis Techniques and Optimizations for Reconfigurable Systems

Embedded Software

Applications in Cyber-Physical

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[Systems and Mobile Computing
Multiprocessor Systems on Chip
Third International Conference,
EMSOFT 2003, Philadelphia, PA,
USA, October 13-15, 2003,
Proceedings
Global Specification and Validation](#)

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Design

of Embedded Systems

Industrial Internet of Things

Architecture and Design of

Distributed Embedded Systems

8th International Workshop,

SCOPES 2004, Amsterdam, The

Netherlands, September 2-3, 2004,

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Proceedings

Integrating Heterogeneous

Components

System Design Automation

Third IFIP TC 10 International

Embedded Systems Symposium,

IESS 2009, Langenargen, Germany,

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[September 14-16, 2009, Proceedings](#)

Design automation of electronic and hybrid systems is a steadily growing field of interest and a permanent challenge for researchers in Electronics, Computer Engineering and Computer Science. System Design Automation presents some recent results in design automation of

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different types of electronic and mechatronic systems. It deals with various topics of design automation, ranging from high level digital system synthesis, through analogue and heterogeneous system analysis and design, up to system modeling and simulation. Design automation is treated from the aspects of

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its theoretical fundamentals, its basic approach and its methods and tools. Several application cases are presented in detail. The book consists of three chapters: High-Level System Synthesis (Digital Hardware/Software Systems). Here embedded systems, distributed systems and processor arrays as well as

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hardware-software codesign are treated. Also three special application cases are discussed in detail; Analog and Heterogeneous System Design (System Approach and Methodology). This chapter copes with the analysis and design of hybrid systems comprised of analog and digital, electronic and mechanical

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components; System Simulation and Evaluation (Methods and Tools). In this chapter object-oriented Modelling, analog system simulation including fault-simulation, parameter optimization and system validation are regarded. The contents of the book are based on material presented at the Workshop System Design

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Automation (SDA 2000) organised by the Sonderforschungsbereich 358 of the Deutsche Forschungsgemeinschaft at TU Dresden.

The design process of embedded systems has changed substantially in recent years. One of the main reasons for this change is the pressure to shorten time-to-market

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when designing digital systems. To shorten the product cycles, programmable processes are used to implement more and more functionality of the embedded system. Therefore, nowadays, embedded systems are very often implemented by heterogeneous systems consisting of ASICs, processors, memories and

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peripherals. As a consequence, the research topic of hardware/software co-design, dealing with the problems of designing these heterogeneous systems, has gained great importance.

Hardware/Software Co-design for Data Flow Dominated Embedded Systems introduces the different tasks of

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hardware/software co-design including system specification, hardware/software partitioning, co-synthesis and co-simulation. The book summarizes and classifies state-of-the-art co-design tools and methods for these tasks. In addition, the co-design tool COOL is presented which solves the co-design tasks for the

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class of data-flow dominated embedded systems. In Hardware/Software Co-design for Data Flow Dominated Embedded Systems the primary emphasis has been put on the hardware/software partitioning and the co-synthesis phase and their coupling. In contrast to many other publications in this area, a mathematical

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formulation of the hardware/software partitioning problem is given. This problem formulation supports target architectures consisting of multiple processors and multiple ASICs. Several novel approaches are presented and compared for solving the partitioning problem, including an MILP approach, a

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heuristic solution and an approach based on genetic algorithms. The co-synthesis phase is based on the idea of controlling the system by means of a static run-time scheduler implemented in hardware. New algorithms are introduced which generate a complete set of hardware and software specifications required to implement

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heterogeneous systems. All of these techniques are described in detail and exemplified. Hardware/Software Co-design for Data Flow Dominated Embedded Systems is intended to serve students and researchers working on hardware/software co-design. At the same time the variety of presented techniques

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automating the design tasks of hardware/software systems will be of interest to industrial engineers and designers of digital systems. From the foreword by Peter Marwedel: Niemann's method should be known by all persons working in the field. Hence, I recommend this book for everyone who is interested in

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hardware/software co-design.

High-Performance Embedded Computing, Second Edition, combines leading-edge research with practical guidance in a variety of embedded computing topics, including real-time systems, computer architecture, and low-power design.

Author Marilyn Wolf presents a

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comprehensive survey of the state of the art, and guides you to achieve high levels of performance from the embedded systems that bring these technologies together. The book covers CPU design, operating systems, multiprocessor programs and architectures, and much more. Embedded computing is a key

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component of cyber-physical systems, which combine physical devices with computational resources for control and communication. This revised edition adds new content and examples of cyber-physical systems throughout the book, including design methodologies, scheduling, and wide-area CPS to

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illustrate the possibilities of these new systems. Revised and updated with coverage of recently developed consumer electronics architectures and models of computing Includes new VLIW processors such as the TI Da Vinci, and CPU simulation Learn model-based verification and middleware for embedded systems

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Supplemental material includes lecture slides, labs, and additional resources
This book describes approaches for integrating more automation to the early stages of EDA design flows. Readers will learn how natural language processing techniques can be utilized during early design stages, in order to automate the

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requirements engineering process and the translation of natural language specifications into formal descriptions. This book brings together leading experts to explain the state-of-the-art in natural language processing, enabling designers to integrate these techniques into algorithms, through existing frameworks.

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On any advanced integrated circuit or "system-on-chip" there is a need for security. In many applications the actual implementation has become the weakest link in security rather than the algorithms or protocols. The purpose of the book is to give the integrated circuits and systems designer an insight into the basics of

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security and cryptography from the implementation point of view. As a designer of integrated circuits and systems it is important to know both the state-of-the-art attacks as well as the countermeasures. Optimizing for security is different from optimizations for speed, area, or power consumption. It is

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therefore difficult to attain the delicate balance between the extra cost of security measures and the added benefits.

Concurrent design, or co-design of hardware and software is extremely important for meeting design goals, such as high performance, that are the key to commercial competitiveness.

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Hardware/Software Co-Design covers many aspects of the subject, including methods and examples for designing: (1) general purpose and embedded computing systems based on instruction set processors; (2) telecommunication systems using general purpose digital signal processors as well as application

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specific instruction set processors; (3) embedded control systems and applications to automotive electronics. The book also surveys the areas of emulation and prototyping systems with field programmable gate array technologies, hardware/software synthesis and verification, and industrial design

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trends. Most contributions emphasize the design methodology, the requirements and state of the art of computer aided co-design tools, together with current design examples.

In 2007 The Design, Automation and Test in Europe (DATE) conference celebrated its tenth anniversary. As a tribute to the

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chip and system-level design and design technology community, this book presents a compilation of the three most influential papers of each year. This provides an excellent historical overview of the evolution of a domain that contributed substantially to the growth and competitiveness of the circuit electronics

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and systems industry.

"Models of Computation for Heterogeneous Embedded Systems" presents a model of computation for heterogeneous embedded systems called DFCharts. It targets heterogeneous systems by combining finite state machine (FSM) with synchronous dataflow graphs

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(SDFG). FSMs are connected in the same way as in Argos (a Statecharts variant with purely synchronous semantics) using three operators: synchronous parallel, refinement and hiding. The fourth operator, called asynchronous parallel, is introduced in DFCharts to connect FSMs with SDFGs. In the formal semantics of

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DFCharts, the operation of an SDFG is represented as an FSM. Using this representation, SDFGs are merged with FSMs so that the behaviour of a complete DFCharts specification can be expressed as a single, flat FSM. This allows system properties to be verified globally. The practical application of DFCharts has

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been demonstrated by linking it to widely used system-level languages Java, Esterel and SystemC.

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[Behavioral Modeling for Embedded
Systems and Technologies: Applications
for Design and Implementation
Selected Contributions from FDL'07
Third International Conference, ICES
2007, Daegu, Korea, May 14-16, 2007,
Proceedings
Design Space Exploration](#)

This book constitutes the refereed proceedings of the Third International Conference on Embedded Software, EMSOFT 2003, held in Philadelphia, PA, USA in October 2003. The

20 revised full papers presented together with three invited papers were carefully reviewed and selected from 60 submissions. All current topics in embedded

***software are addressed:
formal methods and
model-based
development, middleware
and fault tolerance,
modelling and analysis,
programming languages***

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and compilers, real-time scheduling, resource-aware systems, and systems on a chip.

This book constitutes the refereed proceedings of the 8th International

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***Workshop on Software
and Compilers for
Embedded Systems,
SCOPES 2004, held in
Amsterdam, The
Netherlands, in
September 2004. The 17***

***revised full papers
presented were carefully
reviewed and selected
from close to 50
submissions. The papers
are organized in topical
sections on application***

***synthesis, data flow
analysis, data
partitioning, task
scheduling, and code
generation.***

***"This book provides
innovative behavior***

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***models currently used for
developing embedded
systems, accentuating on
graphical and visual
notations" --Provided by
publisher.***

Embedded systems can be

defined as information processing systems embedded into enclosing products such as cars, telecommunication or fabrication equipment. Such systems come with a

large number of common characteristics, including real-time constraints, and dependability as well as efficiency requirements. Following the success of information technology

(IT) for office and workflow applications, embedded systems are considered to be the most important application area of IT during the coming years. This

importance of embedded systems is so far not well reflected in many of the current curricula.

Embedded System Design is intended as an aid for changing this situation. It

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***provides the material for
a first course on
embedded systems, but
can also be used by PhD
students and professors.
A key goal of this book is
to provide an overview of***

***embedded system design
and to relate the most
important topics in
embedded system design
to each other. It should
help to motivate students
as well as professors to***

put more emphasis on education in embedded systems. In order to facilitate teaching from this book, slides, exercises and other related material can be

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***downloaded via the
author's web page.
This volume of The
Circuits and Filters
Handbook, Third Edition
focuses on computer
aided design and design***

automation. In the first part of the book, international contributors address topics such as the modeling of circuit performances, symbolic analysis methods,

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***numerical analysis
methods, design by
optimization, statistical
design optimization, and
physical design
automation. In the second
half of the text, they turn***

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***their attention to RF CAD,
high performance
simulation, formal
verification, RTK
behavioral synthesis,
system-level design, an
Internet-based micro-***

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***electronic design
automation framework,
performance modeling,
and embedded computing
systems design.***

***This book develops the
core system science***

***needed to enable the
development of a complex
industrial internet of
things/manufacturing
cyber-physical systems
(IIoT/M-CPS). Gathering
contributions from***

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***leading experts in the
field with years of
experience in advancing
manufacturing, it fosters
a research community
committed to advancing
research and education in***

***IIoT/M-CPS and to
translating applicable
science and technology
into engineering practice.
Presenting the current
state of IIoT and the
concept of***

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cybermanufacturing, this book is at the nexus of research advances from the engineering and computer and information science domains. Readers will

***acquire the core system
science needed to
transform to
cybermanufacturing that
spans the full spectrum
from ideation to physical
realization.***

Verification of real-time requirements in systems-on-chip becomes more complex as more applications are integrated. Predictable and composable systems

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***can manage the
increasing complexity
using formal verification
and simulation. This book
explains the concepts of
predictability and
composability and shows***

how to apply them to the design and analysis of a memory controller, which is a key component in any real-time system.

Embedded and ubiquitous computing systems have

***considerably increased
their scope of application
over the past few years,
and they now also include
missi- and business-
critical scenarios. The
advances call for a variety***

***of compelling - sues,
including dependability,
real-time, quality-of-
service, autonomy,
resource constraints,
seamless interaction,
middleware support,***

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***modeling, verification,
validation, etc. The
International Workshop
on Software Technologies
for Future Embedded and
Ubiquitous Systems
(SEUS) brings together***

***experts in the field of
emb- ded and ubiquitous
computing systems with
the aim of exchanging
ideas and advancing the
state of the art about the
above-mentioned issues. I***

was honored to chair the sixth edition of the workshop, which continued the tradition of past editions with high-quality research results. I was particularly pleased

***to host the workshop in
the wonderful scenario of
Capri, with its stunning
views and traditions. The
workshop started in 2003
as an IEEE event, and
then in 2007 it became a***

***?agship event of the IFIP
Working Group 10.2 on
embedded systems. The
last few editions, held in
Hakodate (Japan), Vienna
(Austria), Seattle (USA),
Gyeongju (Korea), and***

***Santorini (Greece), were
co-located with the IEEE -
ternational Symposium on
Object/Component/Service-
Oriented Real-Time Dis-
tributed Computing
(ISORC). This year, SEUS***

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was held as a stand-alone event for the first time, and, in spite of the additional organizational difficulties, it resulted in a high-quality event, with papers from four continents

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(from USA, Europe, East Asia and Australia), (co-) authored and presented from senior scientists coming from academia or leading industrial research centers.

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Readings in
Hardware/software Co-
design
Principles and Practice
Software Technologies for
Embedded and
Ubiquitous Systems

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***Embedded Systems
Handbook of Research on
Embedded Systems
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Embedded Systems
Design and Verification
From Specification to***

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Embedded Systems

Application

IFIP

WG10.3/WG10.4/WG10.5

International Workshop

on Distributed and

Parallel Embedded

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Systems (DIPES 2000)

October 18-19, 2000,

Schloß Eringerfeld,

Germany

Software and Compilers

for Embedded Systems

EDA for IC System

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**Design, Verification, and
Testing**

EMBEDDED SYSTEM

DESIGN

The Industrial

Information Technology

Handbook

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Presenting a comprehensive overview of the design automation algorithms, tools, and methodologies used to design integrated circuits, the Electronic Design Automation for Integrated Circuits Handbook is available in

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two volumes. The first volume, EDA for IC System Design, Verification, and Testing, thoroughly examines system-level design, microarchitectural design, logical verification, and testing. Chapters contributed by leading

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experts authoritatively discuss processor modeling and design tools, using performance metrics to select microprocessor cores for IC designs, design and verification languages, digital simulation, hardware acceleration and

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emulation, and much more. Save on the complete set.

This cutting-edge resource offers you an in-depth understanding of metamodeling approaches for the reuse of intellectual properties (IPs) in the form of reusable design

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or verification components. The book covers the essential issues associated with fast and effective integration of reusable design components into a system-on-a-chip (SoC) to achieve faster design turn-around time. Moreover, it

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addresses key factors related to the use of reusable verification IPs for a "write once, use many times" verification strategy - another effective approach that can attain a faster product design cycle. As real-time and integrated

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systems become increasingly sophisticated, issues related to development life cycles, non-recurring engineering costs, and poor synergy between development teams will arise. The Handbook of Research on

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Embedded Systems Design provides insights from the computer science community on integrated systems research projects taking place in the European region. This premier references work takes a look at

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the diverse range of design principles covered by these projects, from specification at high abstraction levels using standards such as UML and related profiles to intermediate design phases. This work will be invaluable to

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designers of embedded software, academicians, students, practitioners, professionals, and researchers working in the computer science industry. This book provides a systematic and unified methodology,

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including basic principles and reusable processes, for dynamic memory management (DMM) in embedded systems. The authors describe in detail how to design and optimize the use of dynamic memory in modern, multimedia

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and network applications, targeting the latest generation of portable embedded systems, such as smartphones. Coverage includes a variety of design and optimization topics in electronic design automation of DMM, from

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high-level software optimization to microarchitecture-level hardware support. The authors describe the design of multi-layer dynamic data structures for the final memory hierarchy layers of the target portable embedded systems and

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how to create a low-fragmentation, cost-efficient, dynamic memory management subsystem out of configurable components for the particular memory allocation and de-allocation patterns for each type of application. The design

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methodology described in this book is based on propagating constraints among design decisions from multiple abstraction levels (both hardware and software) and customizing DMM according to application-specific

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data access and storage behaviors.

Este libro presenta los desafíos planteados por las nuevas y sumamente poderosas tecnologías de integración de sistemas electrónicos, que están en la base

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de los cambios sociales hacia lo que llaman la Sociedad de la Información; en la que los dispositivos electrónicos se harán una parte incorporada de la vida diaria, encajados en casi cada producto. Es necesario un

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conocimiento cuidadoso de los desafíos para aprovechar la amplia gama de ocasiones ofrecidas por tales capacidades de integración y las correspondientes posibilidades de diseño de sistemas electrónicos.

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Design technology to address the new and vast problem of heterogeneous embedded systems design while remaining compatible with standard “More Moore” flows, i.e. capable of simultaneously handling both silicon complexity

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and system complexity, represents one of the most important challenges facing the semiconductor industry today and will be for several years to come. While the micro-electronics industry, over the years and with

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its spectacular and unique evolution, has built its own specific design methods to focus mainly on the management of complexity through the establishment of abstraction levels, the emergence of device heterogeneity requires

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new approaches enabling the satisfactory design of physically heterogeneous embedded systems for the widespread deployment of such systems. Heterogeneous Embedded Systems, compiled largely from a set of contributions

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from participants of past editions of the Winter School on Heterogeneous Embedded Systems Design Technology (FETCH), proposes a necessarily broad and holistic overview of design techniques used to tackle

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the various facets of heterogeneity in terms of technology and opportunities at the physical level, signal representations and different abstraction levels, architectures and components based on hardware and software,

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in all the main phases of design (modeling, validation with multiple models of computation, synthesis and optimization). It concentrates on the specific issues at the interfaces, and is divided into two main parts. The first part examines

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mainly theoretical issues and focuses on the modeling, validation and design techniques themselves. The second part illustrates the use of these methods in various design contexts at the forefront of new

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technology and architectural developments.

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A Contemporary Design Tool
Hardware/Software Co-Design for
Data Flow Dominated Embedded
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