

# Design And Verification Of Axi Ocp Bridge Supporting Out

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## **On-Chip Communication Architectures** - Sudeep Pasricha 2010-07-28

Over the past decade, system-on-chip (SoC) designs have evolved to address the ever increasing complexity of applications, fueled by the era of digital convergence. Improvements in process technology have effectively shrunk board-level components so they can be integrated on a single chip. New on-chip communication architectures have been designed to support all inter-component communication in a SoC design. These communication architecture fabrics have a critical impact on the power consumption, performance, cost and design cycle time of modern SoC designs. As application complexity strains the communication backbone of SoC designs, academic and industrial R&D efforts and dollars are increasingly focused on communication architecture design. On-Chip Communication Architectures is a comprehensive reference on concepts, research and trends in on-chip communication architecture design. It will provide readers with a comprehensive survey, not available elsewhere, of all current standards for on-chip communication architectures. A definitive guide to on-chip communication architectures, explaining key concepts, surveying research efforts and predicting future trends Detailed analysis of all popular standards for on-chip communication architectures Comprehensive survey of all research on communication architectures, covering a wide range of topics relevant to this area, spanning the past several years, and up to date with the most current research efforts Future trends that will have a significant impact on research and design of communication architectures over the next several years

## **The Portuguese Columbus** - Maxcarenhas Barreto 1992-04-13

## **Communication Architectures for Systems-on-Chip** - José L. Ayala 2018-09-03

A presentation of state-of-the-art approaches from an industrial applications perspective, Communication Architectures for Systems-on-Chip shows professionals, researchers, and students how to attack the problem of data communication in the manufacture of SoC architectures. With its lucid illustration of current trends and research improving the performance, quality, and reliability of transactions, this is an essential reference for anyone dealing with communication mechanisms for embedded systems, systems-on-chip, and multiprocessor architectures—or trying to overcome existing limitations. Exploring architectures currently implemented in manufactured SoCs—and those being proposed—this book analyzes a wide range of applications, including: Well-established communication buses Less common networks-on-chip Modern technologies that include the use of carbon nanotubes (CNTs) Optical links used to speed up data transfer and boost both security and quality of service (QoS) The book's contributors pay special attention to newer problems, including how to protect transactions of critical on-chip information (personal data, security keys, etc.) from an external attack. They examine mechanisms, revise communication protocols involved, and analyze overall impact on system performance.

## **Reconfigurable Computing: Architectures, Tools, and Applications** - Diana Goehring 2014-04-09

This book constitutes the thoroughly refereed conference proceedings of the 10th International Symposium on

Reconfigurable Computing: Architectures, Tools and Applications, ARC 2014, held in Vilamoura, Portugal, in April 2014. The 16 revised full papers presented together with 17 short papers and 6 special session papers were carefully reviewed and selected from 57 submissions. The topics covered are applications; methods, frameworks and OS for debug, over-clocking, and relocation; memory architectures; methodologies and tools and architectures.

## **ASIC/SoC Functional Design Verification** - Ashok B. Mehta 2017-06-28

This book describes in detail all required technologies and methodologies needed to create a comprehensive, functional design verification strategy and environment to tackle the toughest job of guaranteeing first-pass working silicon. The author first outlines all of the verification sub-fields at a high level, with just enough depth to allow an engineer to grasp the field before delving into its detail. He then describes in detail industry standard technologies such as UVM (Universal Verification Methodology), SVA (SystemVerilog Assertions), SFC (SystemVerilog Functional Coverage), CDV (Coverage Driven Verification), Low Power Verification (Unified Power Format UPF), AMS (Analog Mixed Signal) verification, Virtual Platform TLM2.0/ESL (Electronic System Level) methodology, Static Formal Verification, Logic Equivalency Check (LEC), Hardware Acceleration, Hardware Emulation, Hardware/Software Co-verification, Power Performance Area (PPA) analysis on a virtual platform, Reuse Methodology from Algorithm/ESL to RTL, and other overall methodologies.

## **Digital Design with Chisel** - Martin Schoeberl 2019-08-30

This book is an introduction into digital design with the focus on using the hardware construction language Chisel. Chisel brings advances from software engineering, such as object-orientated and functional languages, into digital design. This book addresses hardware designers and software engineers. Hardware designers, with knowledge of Verilog or VHDL, can upgrade their productivity with a modern language for their next ASIC or FPGA design. Software engineers, with knowledge of object-oriented and functional programming, can leverage their knowledge to program hardware, for example, FPGA accelerators executing in the cloud. The approach of this book is to present small to medium-sized typical hardware components to explore digital design with Chisel.

## **Handbook of Hardware/Software Codesign** - Soonhoi Ha 2018-02-25

This handbook presents fundamental knowledge on the hardware/software (HW/SW) codesign methodology. Contributing expert authors look at key techniques in the design flow as well as selected codesign tools and design environments, building on basic knowledge to consider the latest techniques. The book enables readers to gain real benefits from the HW/SW codesign methodology through explanations and case studies which demonstrate its usefulness. Readers are invited to follow the progress of design techniques through this work, which assists readers in following current research directions and learning about state-of-the-art techniques. Students and researchers will appreciate the wide spectrum of subjects that belong to the design methodology from this handbook.

## **VLSI Design: Circuits, Systems and Applications** - Jie Li 2018-01-02

This book gathers a collection of papers by international experts presented at the International Conference on

NextGen Electronic Technologies (ICNETS2-2017), which cover key developments in the field of electronics and communication engineering. ICNETS2 encompassed six symposia covering all aspects of the electronics and communications domains, including relevant nano/micro materials and devices. This book showcases the latest research in very-large-scale integration (VLSI) Design: Circuits, Systems and Applications, making it a valuable resource for all researchers, professionals, and students working in the core areas of electronics and their applications, especially in digital and analog VLSI circuits and systems.

*Principles and Practices of Interconnection Networks* - William James Dally 2004-03-06

One of the greatest challenges faced by designers of digital systems is optimizing the communication and interconnection between system components. Interconnection networks offer an attractive and economical solution to this communication crisis and are fast becoming pervasive in digital systems. Current trends suggest that this communication bottleneck will be even more problematic when designing future generations of machines. Consequently, the anatomy of an interconnection network router and science of interconnection network design will only grow in importance in the coming years. This book offers a detailed and comprehensive presentation of the basic principles of interconnection network design, clearly illustrating them with numerous examples, chapter exercises, and case studies. It incorporates hardware-level descriptions of concepts, allowing a designer to see all the steps of the process from abstract design to concrete implementation. Case studies throughout the book draw on extensive author experience in designing interconnection networks over a period of more than twenty years, providing real world examples of what works, and what doesn't. Tightly couples concepts with implementation costs to facilitate a deeper understanding of the tradeoffs in the design of a practical network. A set of examples and exercises in every chapter help the reader to fully understand all the implications of every design decision.

*Multi-Processor System-on-Chip 1* - Liliana Andrade 2021-03-12

A Multi-Processor System-on-Chip (MPSoC) is the key component for complex applications. These applications put huge pressure on memory, communication devices and computing units. This book, presented in two volumes – Architectures and Applications – therefore celebrates the 20th anniversary of MPSoC, an interdisciplinary forum that focuses on multi-core and multi-processor hardware and software systems. It is this interdisciplinarity which has led to MPSoC bringing together experts in these fields from around the world, over the last two decades. Multi-Processor System-on-Chip 1 covers the key components of MPSoC: processors, memory, interconnect and interfaces. It describes advance features of these components and technologies to build efficient MPSoC architectures. All the main components are detailed: use of memory and their technology, communication support and consistency, and specific processor architectures for general purposes or for dedicated applications.

**Information and Communication Technology for Competitive Strategies** - Simon Fong 2018-08-30

This book contains 74 papers presented at ICTCS 2017: Third International Conference on Information and Communication Technology for Competitive Strategies. The conference was held during 16–17 December 2017, Udaipur, India and organized by Association of Computing Machinery, Udaipur Professional Chapter in association with The Institution of Engineers (India), Udaipur Local Center and Global Knowledge Research Foundation. This book contains papers mainly focused on ICT for Computation, Algorithms and Data Analytics and IT Security etc.

Transaction-Level Modeling with SystemC - Frank Ghenassia 2006-01-16

Suitable for bookstore catalogue

**Embedded Systems Handbook 2-Volume Set** - Richard Zurawski 2018-10-08

During the past few years there has been an dramatic upsurge in research and development, implementations of new technologies, and deployments of actual solutions and technologies in the diverse application areas of embedded systems. These areas include automotive electronics, industrial automated systems, and building automation and control. Comprising 48 chapters and the contributions of 74 leading experts from industry and

academia, the Embedded Systems Handbook, Second Edition presents a comprehensive view of embedded systems: their design, verification, networking, and applications. The contributors, directly involved in the creation and evolution of the ideas and technologies presented, offer tutorials, research surveys, and technology overviews, exploring new developments, deployments, and trends. To accommodate the tremendous growth in the field, the handbook is now divided into two volumes. New in This Edition: Processors for embedded systems Processor-centric architecture description languages Networked embedded systems in the automotive and industrial automation fields Wireless embedded systems Embedded Systems Design and Verification Volume I of the handbook is divided into three sections. It begins with a brief introduction to embedded systems design and verification. The book then provides a comprehensive overview of 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 for embedded devices. Networked Embedded Systems Volume II focuses on selected application areas of networked embedded systems. It covers automotive field, industrial automation, building automation, and wireless sensor networks. This volume highlights implementations in fast-evolving areas which have not received proper coverage in other publications. Reflecting the unique functional requirements of different application areas, the contributors discuss inter-node communication aspects in the context of specific applications of networked embedded systems.

**Model Reduction of Parametrized Systems** - Peter Benner 2017-09-05

The special volume offers a global guide to new concepts and approaches concerning the following topics: reduced basis methods, proper orthogonal decomposition, proper generalized decomposition, approximation theory related to model reduction, learning theory and compressed sensing, stochastic and high-dimensional problems, system-theoretic methods, nonlinear model reduction, reduction of coupled problems/multiphysics, optimization and optimal control, state estimation and control, reduced order models and domain decomposition methods, Krylov-subspace and interpolatory methods, and applications to real industrial and complex problems. The book represents the state of the art in the development of reduced order methods. It contains contributions from internationally respected experts, guaranteeing a wide range of expertise and topics. Further, it reflects an important effort, carried out over the last 12 years, to build a growing research community in this field. Though not a textbook, some of the chapters can be used as reference materials or lecture notes for classes and tutorials (doctoral schools, master classes).

**Statistical Orbit Determination** - Bob Schutz 2004-06-26

Statistical Orbit Determination presents fundamentals of orbit determination--from weighted least squares approaches (Gauss) to today's high-speed computer algorithms that provide accuracy within a few centimeters. Numerous examples and problems are provided to enhance readers' understanding of the material. Covers such topics as coordinate and time systems, square root filters, process noise techniques, and the use of fictitious parameters for absorbing un-modeled and incorrectly modeled forces acting on a satellite. Examples and exercises serve to illustrate the principles throughout each chapter.

*Liquid Metal Magnetohydrodynamics* - J.J. Lielpeteris 2012-12-06

Liquid metal MHD is within the scope of two series of international conferences. One is the International Congress on "MHD Power Generation", held every four years, which includes technical and economical aspects as well as scientific questions. The other is the Beer-Sheva Seminar on "MHD Flows and Turbulence", held every three years in Israel. In addition to these well established meetings, an IUTAM Symposium was previously organized in Cambridge (UK) in 1982 on "Metallurgical Applications of MHD" by the late Arthur Shercliff. It was focussed on a very specific subject developing rapidly from the middle of the 1970's. The magnetic field was generally AC, including frequencies high enough for the skin-depth to be much smaller than the typical length scale of the

liquide pool. And the development of new technologies, or the improvement of existing ones, was the main justification of most of the researches presented and discussed. Only two participants from Eastern countries attended this Symposium. By the middle of the 1980's we felt that on this very same topic ideas had reached much more maturity than in 1982. We also realized that a line of research on MHD flows related to fusion reactors (tokamaks) was developing significantly, with particular emphasis on flows at large interaction parameter.

**Modern Psychometrics with R** - Patrick Mair 2018-09-20

This textbook describes the broadening methodology spectrum of psychological measurement in order to meet the statistical needs of a modern psychologist. The way statistics is used, and maybe even perceived, in psychology has drastically changed over the last few years; computationally as well as methodologically. R has taken the field of psychology by storm, to the point that it can now safely be considered the lingua franca for statistical data analysis in psychology. The goal of this book is to give the reader a starting point when analyzing data using a particular method, including advanced versions, and to hopefully motivate him or her to delve deeper into additional literature on the method. Beginning with one of the oldest psychometric model formulations, the true score model, Mair devotes the early chapters to exploring confirmatory factor analysis, modern test theory, and a sequence of multivariate exploratory method. Subsequent chapters present special techniques useful for modern psychological applications including correlation networks, sophisticated parametric clustering techniques, longitudinal measurements on a single participant, and functional magnetic resonance imaging (fMRI) data. In addition to using real-life data sets to demonstrate each method, the book also reports each method in three parts-- first describing when and why to apply it, then how to compute the method in R, and finally how to present, visualize, and interpret the results. Requiring a basic knowledge of statistical methods and R software, but written in a casual tone, this text is ideal for graduate students in psychology. Relevant courses include methods of scaling, latent variable modeling, psychometrics for graduate students in Psychology, and multivariate methods in the social sciences.

**NANO-CHIPS 2030** - Boris Murmann 2020-06-08

In this book, a global team of experts from academia, research institutes and industry presents their vision on how new nano-chip architectures will enable the performance and energy efficiency needed for AI-driven advancements in autonomous mobility, healthcare, and man-machine cooperation. Recent reviews of the status quo, as presented in CHIPS 2020 (Springer), have prompted the need for an urgent reassessment of opportunities in nanoelectronic information technology. As such, this book explores the foundations of a new era in nanoelectronics that will drive progress in intelligent chip systems for energy-efficient information technology, on-chip deep learning for data analytics, and quantum computing. Given its scope, this book provides a timely compendium that hopes to inspire and shape the future of nanoelectronics in the decades to come.

**Formal System Verification** - Rolf Drechsler 2017-07-03

This book provides readers with a comprehensive introduction to the formal verification of hardware and software. World-leading experts from the domain of formal proof techniques show the latest developments starting from electronic system level (ESL) descriptions down to the register transfer level (RTL). The authors demonstrate at different abstraction layers how formal methods can help to ensure functional correctness. Coverage includes the latest academic research results, as well as descriptions of industrial tools and case studies.

Magnetohydrodynamic Modeling of the Solar Corona and Heliosphere - Xueshang Feng 2019-08-01

The book covers intimately all the topics necessary for the development of a robust magnetohydrodynamic (MHD) code within the framework of the cell-centered finite volume method (FVM) and its applications in space weather study. First, it presents a brief review of existing MHD models in studying solar corona and the heliosphere. Then it introduces the cell-centered FVM in three-dimensional computational domain. Finally, the book presents some

applications of FVM to the MHD codes on spherical coordinates in various research fields of space weather, focusing on the development of the 3D Solar-InterPlanetary space-time Conservation Element and Solution Element (SIP-CESE) MHD model and its applications to space weather studies in various aspects. The book is written for senior undergraduates, graduate students, lecturers, engineers and researchers in solar-terrestrial physics, space weather theory, modeling, and prediction, computational fluid dynamics, and MHD simulations. It helps readers to fully understand and implement a robust and versatile MHD code based on the cell-centered FVM.

**Proceedings of the 34th International MATADOR Conference** - Srichand Hinduja 2012-12-06

Presented here are 73 refereed papers given at the 34th MATADOR Conference held at UMIST in July 2004. The MATADOR series of conferences covers the topics of Manufacturing Automation and Systems Technology, Applications, Design, Organisation and Management, and Research. The 34th proceedings contains original papers contributed by researchers from many countries on different continents. The papers cover both the technological aspect of manufacturing processes; and the systems, business and management features of manufacturing enterprise. The papers in this volume reflect: - the importance of manufacturing to international wealth creation; - the necessity of responsiveness and agility of manufacturing companies to meet market-led requirements and international change; - the role of information technology and electronic communications in the growth of global manufacturing enterprises; - the impact of new technologies, new materials and processes, on the ability to produce goods of higher quality, more quickly, to meet markets needs at a lower cost. Some of the major generic developments which have taken place in these areas since the 33rd MATADOR conference was held in 2000 are reported in this volume.

*Proceedings of the 5th International Conference on Frontiers in Intelligent Computing: Theory and Applications* - Suresh Chandra Satapathy 2017-03-02

The book is a collection of high-quality peer-reviewed research papers presented at International Conference on Frontiers of Intelligent Computing: Theory and applications (FICTA 2016) held at School of Computer Engineering, KIIT University, Bhubaneswar, India during 16 - 17 September 2016. The book aims to present theories, methodologies, new ideas, experiences, applications in all areas of intelligent computing and its applications to various engineering disciplines like computer science, electronics, electrical, mechanical engineering, etc.

**MuPAD Pro Computing Essentials** - Mirosław Majewski 2012-12-06

This book explains basic principles of MuPAD commands. It teaches how to write simple programs and develop interactive environments for teaching mathematics. The text gives a large number of useful examples from different areas of undergraduate mathematics developed by the author during his long teaching experience. All the book examples are available online. Flash, SVG and JvX formats are used to display interactive and animated graphics.

Design, Automation, and Test in Europe - Rudy Lauwereins 2010-10-19

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

*On-Chip Networks* - Natalie Enright Jerger 2017-06-19

This book targets engineers and researchers familiar with basic computer architecture concepts who are interested in learning about on-chip networks. This work is designed to be a short synthesis of the most critical concepts in on-chip network design. It is a resource for both understanding on-chip network basics and for providing an

overview of state-of-the-art research in on-chip networks. We believe that an overview that teaches both fundamental concepts and highlights state-of-the-art designs will be of great value to both graduate students and industry engineers. While not an exhaustive text, we hope to illuminate fundamental concepts for the reader as well as identify trends and gaps in on-chip network research. With the rapid advances in this field, we felt it was timely to update and review the state of the art in this second edition. We introduce two new chapters at the end of the book. We have updated the latest research of the past years throughout the book and also expanded our coverage of fundamental concepts to include several research ideas that have now made their way into products and, in our opinion, should be textbook concepts that all on-chip network practitioners should know. For example, these fundamental concepts include message passing, multicast routing, and bubble flow control schemes.

**Worlds of Flow** - Olivier Darrigol 2005-09

This book provides the first fully-fledged history of hydrodynamics, including lively accounts of the concrete problems of hydraulics, navigation, blood circulation, meteorology, and aeronautics that motivated the main conceptual innovations. Richly illustrated, technically competent, and philosophically sensitive, it should attract a broad audience and become a standard reference for any one interested in fluid mechanics.

*MCQs and EMQs in Surgery: A Bailey & Love Companion Guide* - Christopher Bulstrode 2010-07-30

With over 1000 questions, MCQs and EMQs in Surgery is the ideal self-assessment companion guide to Bailey & Love's Short Practice in Surgery. The book assists readers in their preparation for examinations and to test their knowledge of the principles and practice of surgery as outlined within Bailey & Love. Sub-divided into 13 subject-

**Designing 2D and 3D Network-on-Chip Architectures** - Konstantinos Tatas 2013-10-08

This book covers key concepts in the design of 2D and 3D Network-on-Chip interconnect. It highlights design challenges and discusses fundamentals of NoC technology, including architectures, algorithms and tools. Coverage focuses on topology exploration for both 2D and 3D NoCs, routing algorithms, NoC router design, NoC-based system integration, verification and testing, and NoC reliability. Case studies are used to illuminate new design methodologies.

**SystemVerilog for Verification** - Chris Spear 2012-02-14

Based on the highly successful second edition, this extended edition of SystemVerilog for Verification: A Guide to Learning the Testbench Language Features teaches all verification features of the SystemVerilog language, providing hundreds of examples to clearly explain the concepts and basic fundamentals. It contains materials for both the full-time verification engineer and the student learning this valuable skill. In the third edition, authors Chris Spear and Greg Tumbush start with how to verify a design, and then use that context to demonstrate the language features, including the advantages and disadvantages of different styles, allowing readers to choose between alternatives. This textbook contains end-of-chapter exercises designed to enhance students' understanding of the material. Other features of this revision include: New sections on static variables, print specifiers, and DPI from the 2009 IEEE language standard Descriptions of UVM features such as factories, the test registry, and the configuration database Expanded code samples and explanations Numerous samples that have been tested on the major SystemVerilog simulators SystemVerilog for Verification: A Guide to Learning the Testbench Language Features, Third Edition is suitable for use in a one-semester SystemVerilog course on SystemVerilog at the undergraduate or graduate level. Many of the improvements to this new edition were compiled through feedback provided from hundreds of readers.

*Networks on Chip* - Axel Jantsch 2007-05-08

As the number of processor cores and IP blocks integrated on a single chip is steadily growing, a systematic approach to design the communication infrastructure becomes necessary. Different variants of packed switched on-chip networks have been proposed by several groups during the past two years. This book summarizes the state of

the art of these efforts and discusses the major issues from the physical integration to architecture to operating systems and application interfaces. It also provides a guideline and vision about the direction this field is moving to. Moreover, the book outlines the consequences of adopting design platforms based on packet switched network. The consequences may in fact be far reaching because many of the topics of distributed systems, distributed real-time systems, fault tolerant systems, parallel computer architecture, parallel programming as well as traditional system-on-chip issues will appear relevant but within the constraints of a single chip VLSI implementation.

**PROBABILITY AND MEASURE, 3RD ED** - Patrick Billingsley 2008-08-04

Now in its new third edition, Probability and Measure offers advanced students, scientists, and engineers an integrated introduction to measure theory and probability. Retaining the unique approach of the previous editions, this text interweaves material on probability and measure, so that probability problems generate an interest in measure theory and measure theory is then developed and applied to probability. Probability and Measure provides thorough coverage of probability, measure, integration, random variables and expected values, convergence of distributions, derivatives and conditional probability, and stochastic processes. The Third Edition features an improved treatment of Brownian motion and the replacement of queuing theory with ergodic theory. Probability · Measure · Integration · Random Variables and Expected Values · Convergence of Distributions · Derivatives and Conditional Probability · Stochastic Processes

High-Level Synthesis - Philippe Coussy 2008-08-01

This book presents an excellent collection of contributions addressing different aspects of high-level synthesis from both industry and academia. It includes an overview of available EDA tool solutions and their applicability to design problems.

*On-Chip Instrumentation* - Neal Stollon 2010-12-06

This book provides an in-depth overview of on chip instrumentation technologies and various approaches taken in adding instrumentation to System on Chip (ASIC, ASSP, FPGA, etc.) design that are collectively becoming known as Design for Debug (DfD). On chip instruments are hardware based blocks that are added to a design for the specific purpose and improving the visibility of internal or embedded portions of the design (specific instruction flow in a processor, bus transaction in an on chip bus as examples) to improve the analysis or optimization capabilities for a SoC. DfD is the methodology and infrastructure that surrounds the instrumentation. Coverage includes specific design examples and discussion of implementations and DfD tradeoffs in a decision to design or select instrumentation or SoC that include instrumentation. Although the focus will be on hardware implementations, software and tools will be discussed in some detail.

**Advances in Communication, Devices and Networking** - Rabindranath Bera 2019-02-15

The book covers recent trends in the field of devices, wireless communication and networking. It presents the outcomes of the International Conference in Communication, Devices and Networking (ICCDN 2018), which was organized by the Department of Electronics and Communication Engineering, Sikkim Manipal Institute of Technology, Sikkim, India on 2–3 June, 2018. Gathering cutting-edge research papers prepared by researchers, engineers and industry professionals, it will help young and experienced scientists and developers alike to explore new perspectives, and offer them inspirations on addressing real-world problems in the field of electronics, communication, devices and networking.

**Recent Advances in Chemical Engineering** - I Regupathi 2016-10-12

The book introduces the outcomes of latest research in the field of Chemical Engineering. The book also illustrates the application of Chemical Engineering principles to provide innovative and state of the art solutions to problems associated with chemical industries. It covers a wide spectrum of topics in the area of Chemical Engineering such as Transfer operations, novel separation processes, adsorption, photooxidation, process control, modelling, and

simulation. The book provides timely contribution towards implementation of recent approaches and methods in Chemical Engineering Research. It presents chapters focussed on several Chemical Engineering principles and methodologies of wide multidisciplinary applicability. The intended audience of this book will mainly consist of researchers, research students, and practitioners in Chemical Engineering and allied fields. The book can also serve researchers and students involved in multidisciplinary research.

**Dynamic Systems and Dynamic Classification Problems in Geophysical Applications** - Jacques Octave Dubois  
2013-03-13

This book is the latest volume in the series entitled " Data and Knowledge in a Changing World ", published by the Committee on Data for Science and Technology (CODATA) of the International Council of Scientific Unions (Icsu). This series was established to collect together, from many diverse fields, the wealth of information pertaining to the intelligent exploitation of data in the conduct of science and technology. This volume is the first in a two-volume series that will discuss techniques for the analysis of natural dynamic systems, and their applications to a variety of geophysical problems. The present volume lays out the theoretical foundations for these techniques. The second volume will use these techniques in applications to fields such as seismology, geodynamics, geoelectricity, geomagnetism, aeromagnetism, topography and bathymetry. The book consists of two parts, which describe two complementary approaches to the analysis of natural systems. The first, written by A. Gvishiani, deals with dynamic pattern recognition. It lays out the mathematical Fourier theory and the formalized algorithms that form the basis for the classification of vector objects and the use of this classification in the study of dynamical systems, with particular emphasis on the prediction of system behavior in space and time. It discusses the construction of classification schemes, and the evaluation of their stability and reliability.

**ESL Models and their Application** - Brian Bailey 2009-12-15

This book arises from experience the authors have gained from years of work as industry practitioners in the field of Electronic System Level design (ESL). At the heart of all things related to Electronic Design Automation (EDA), the core issue is one of models: what are the models used for, what should the models contain, and how should they be written and distributed. Issues such as interoperability and tool transportability become central factors that may decide which ones are successful and those that cannot get sufficient traction in the industry to survive. Through a set of real examples taken from recent industry experience, this book will distill the state of the art in terms of System-Level Design models and provide practical guidance to readers that can be put into use. This book is an invaluable tool that will aid readers in their own designs, reduce risk in development projects, expand the scope of design projects, and improve developmental processes and project planning.

*Broadband Direct-Coupled and Matching RF Network*

- Thomas Remy Cuthbert 1999

**Networks on Chips** - Giovanni De Micheli 2006-08-30

The design of today's semiconductor chips for various applications, such as telecommunications, poses various challenges due to the complexity of these systems. These highly complex systems-on-chips demand new approaches to connect and manage the communication between on-chip processing and storage components and networks on chips (NoCs) provide a powerful solution. This book is the first to provide a unified overview of NoC technology. It includes in-depth analysis of all the on-chip communication challenges, from physical wiring implementation up to software architecture, and a complete classification of their various Network-on-Chip approaches and solutions. \* Leading-edge research from world-renowned experts in academia and industry with state-of-the-art technology implementations/trends \* An integrated presentation not currently available in any other book \* A thorough introduction to current design methodologies and chips designed with NoCs

**Advanced Multicore Systems-On-Chip** - Abderazek Ben Abdallah 2017-09-10

From basic architecture, interconnection, and parallelization to power optimization, this book provides a comprehensive description of emerging multicore systems-on-chip (MCSocS) hardware and software design. Highlighting both fundamentals and advanced software and hardware design, it can serve as a primary textbook for advanced courses in MCSocS design and embedded systems. The first three chapters introduce MCSocS architectures, present design challenges and conventional design methods, and describe in detail the main building blocks of MCSocS. Chapters 4, 5, and 6 discuss fundamental and advanced on-chip interconnection network technologies for multi and many core SocS, enabling readers to understand the microarchitectures for on-chip routers and network interfaces that are essential in the context of latency, area, and power constraints. With the rise of multicore and many-core systems, concurrency is becoming a major issue in the daily life of a programmer. Thus, compiler and software development tools are critical in helping programmers create high-performance software. Programmers should make sure that their parallelized program codes will not cause race condition, memory-access deadlocks, or other faults that may crash their entire systems. As such, Chapter 7 describes a novel parallelizing compiler design for high-performance computing. Chapter 8 provides a detailed investigation of power reduction techniques for MCSocS at component and network levels. It discusses energy conservation in general hardware design, and also in embedded multicore system components, such as CPUs, disks, displays and memories. Lastly, Chapter 9 presents a real embedded MCSocS system design targeted for health monitoring in the elderly.