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MARCO RICH

The Arts of VLSI Circuit Design - Symmetry Approaches toward Zero PVT Sensitivity Springer Science & Business Media
Mos devices and circuits - Integrated system fabrication - Data and control flow in systematic structures - Implementing integrated system designs : from circuit topology to patterning geometry to wafer fabrication - Overview of an LSI computer system, and the design of the OM2 data PATH CHIP - Architecture and design of system controllers, and the design of the OM2 controller CHIP - System timing - Highly concurrent systems - Physics of computational systems.
Introduction to VLSI Circuits and Systems Taylor & Francis US
The field of CMOS integrated circuits has reached a level of maturity where it is now a mainstream technology for high-density digital system designs. This volume deals with circuit design in an integrated CMOS environment. Emphasis is placed on understanding the operation, performance, and design o
High-Performance Digital VLSI Circuit Design Cambridge University Press
This text is based on the class notes of a VLSI signal processing circuit course series (EEE598) the author developed for the EE department at Arizona State University. The materials are organized into nineteen special topics covering various state-of-the-arts symmetry based VLSI circuit design techniques for basic VLSI circuit elements, circuit modules and systems, where the symmetry principle and methods with inherently low PVT sensitivity are used to design VLSI circuits with superior scalability and performance for various VLSI SOC applications.
CMOS VLSI Design : A circuits and systems perspective McGraw-Hill Science, Engineering & Mathematics
This text is for undergraduate VLSI (Very Large Scale Integration) design courses in departments of electrical and computer engineering departments. A wide range of clear and understandable material is presented, with emphasis on the relationship between circuit layout design and electrical system performance. Topics range from basic physics of devices to introductory VLSI computer systems, in both N-MOS (N-Channel Metal Oxide Semiconductor) and CMOS (Complementary Metal Oxide Semiconductor). Many worked examples and assignments make this text appropriate for students with no prior VLSI exposure.
VLSI Circuit Design Methodology Demystified Springer
With the advance of semiconductors and ubiquitous computing, the use of system-on-a-chip (SoC) has become an essential technique to reduce product cost. With this progress and continuous reduction of feature sizes, and the development of very large-scale integration (VLSI) circuits, addressing the harder problems requires fundamental understanding of circuit and layout design issues. Furthermore, engineers can often develop their physical intuition to estimate the behavior of circuits rapidly without relying predominantly on computer-aided design (CAD) tools. Introduction to VLSI Systems: A Logic, Circuit, and System Perspective addresses the need for teaching such a topic in terms of a logic, circuit, and system design perspective. To achieve the above-mentioned goals, this classroom-tested book focuses on: Implementing a digital system as a full-custom integrated circuit Switch logic design and useful paradigms that may apply to various static and dynamic logic families The fabrication and layout designs of complementary metal-oxide-semiconductor (CMOS) VLSI Important issues of modern CMOS processes, including deep submicron devices, circuit optimization, interconnect modeling and optimization, signal integrity, power integrity, clocking and timing, power dissipation, and electrostatic discharge (ESD) Introduction to VLSI Systems builds an understanding of integrated circuits from the bottom up, paying much attention to logic circuit, layout, and system designs. Armed with these tools, readers can not only comprehensively understand the features and limitations of modern VLSI technologies, but also have enough background to adapt to this ever-changing field.
CMOS John Wiley & Sons
Very Large Scale Integration (VLSI) has become a necessity rather than a specialization for electrical and computer engineers. This unique text provides Engineering and Computer Science students with a comprehensive study of the subject, covering VLSI from basic design techniques to working principles of physical design automation tools to leading edge application-specific array processors. Beginning with CMOS design, the author describes VLSI design from the viewpoint of a digital circuit engineer. He develops physical pictures for CMOS circuits and demonstrates the top-down design methodology using two design projects - a microprocessor and a field programmable gate array. The author then discusses VLSI testing and dedicates an entire chapter to the working principles, strengths, and weaknesses of ubiquitous physical design tools. Finally, he unveils the frontiers of VLSI. He emphasizes its use as a tool to develop innovative algorithms and architecture to solve previously intractable problems. VLSI Design answers not only the question of "what is VLSI," but also shows how to use VLSI. It provides graduate and upper level undergraduate students with a complete and congregated view of VLSI engineering.
Introduction to VLSI Systems Lulu.com
This is one of a book in a VLSI circuit design book series Dr. Hongjiang Song published under the VLSI signal processing circuit techniques. This text covers various state-of-the-arts circuit design techniques based on VLSI symmetry principles. These methods offer inherently low PVT sensitivity for VLSI analog circuit design with superior scalability and performance.

Digital Integrated Circuits John Wiley & Sons
Low-Power Digital VLSI Design: Circuits and Systems addresses both process technologies and device modeling. Power dissipation in CMOS circuits, several practical circuit examples, and low-power techniques are discussed. Low-voltage issues for digital CMOS and BiCMOS circuits are emphasized. The book also provides an extensive study of advanced CMOS subsystem design. A low-power design methodology is presented with various power minimization techniques at the circuit, logic, architecture and algorithm levels. Features: Low-voltage CMOS device modeling, technology files, design rules Switching activity concept, low-power guidelines to engineering practice Pass-transistor logic families Power dissipation of I/O circuits Multi- and low-VT CMOS logic, static power reduction circuit techniques State of the art design of low-voltage BiCMOS and CMOS circuits Low-power techniques in CMOS SRAMS and DRAMS Low-power on-chip voltage down converter design Numerous advanced CMOS subsystems (e.g. adders, multipliers, data path, memories, regular structures, phase-locked loops) with several design options trading power, delay and area Low-power design methodology, power estimation techniques Power reduction techniques at the logic, architecture and algorithm levels More than 190 circuits explained at the transistor level.
VLSI Design John Wiley & Sons
This text is intended for the undergraduate engineering students in Electrical and Electronics Engineering, Electronics and Communication Engineering, and Electronics and Instrumentation Engineering, and those pursuing postgraduate courses in Applied Electronics and VLSI Design. With the electronic devices and chips becoming smaller and smaller, the sizes of circuits and transistors on the microchips are approaching atomic levels. And so, Very Large-Scale Integration (VLSI) Design refers to the process of placing hundreds of thousands of electronic components on a single chip which nearly all modern computer architectures employ, and this technology has assumed a significant role in today’s tech savvy world. This well-organized, up-to-date and compact text explains the basic concepts of MOS technology including the fabrication methods, MOS characteristic behaviour, and design processes for layouts, etc. in a crisp and easy-to-learn style. The latest and most advanced techniques for maximising performance, minimising power consumption, and achieving rapid design turnarounds are discussed with great skill by the authors. Key Features Gives an in-depth analysis of MOS structure, device characteristics, modelling and MOS device fabrication techniques. Provides detailed description of CMOS design of combinatorial, sequential and arithmetic circuits with emphasis on practical applications. Offers an insight into the CMOS testing techniques for the design of VLSI circuits. Gives a number of solved problems in VHDL and Verilog languages. Provides a number of short answer questions to help the students during examinations.
Principles of VLSI Design - Symmetry, Structures and Methods McGraw-Hill Companies
The fourth edition of the best-selling text details the modern techniques for the design of complex and high-performance CMOS systems on a chip. Covering the fundamentals of CMOS design from the digital systems level to the circuit level, this book explains the fundamental principles and is a guide to good design practices
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VLSI Design Lulu.com
- Applicable for bookstore catalogue

VLSI Design Techniques for Analog and Digital Circuits McGraw-Hill Companies
The fourth edition of CMOS Digital Integrated Circuits: Analysis and Design continues the well-established tradition of the earlier editions by offering the most comprehensive coverage of digital CMOS circuit design, as well as addressing state-of-the-art technology issues highlighted by the widespread use of nanometer-scale CMOS technologies. In this latest edition, virtually all chapters have been re-written, the transistor model equations and device parameters have been revised to reflect the sigificant changes that must be taken into account for new technology generations, and the material has been reinforced with up-to-date examples. The broad-ranging coverage of this textbook starts with the fundamentals of CMOS process technology, and continues with MOS transistor models, basic CMOS gates, interconnect effects, dynamic circuits, memory circuits, arithmetic building blocks, clock and I/O circuits, low power design techniques, design for manufacturability and design for testability.
Digital Integrated Circuits Xlibris Corporation
High-Performance Digital VLSI Circuit Design is the first book devoted entirely to the design of digital high-performance VLSI circuits. CMOS, BiCMOS and bipolar ciruits are covered in depth, including state-of-the-art circuit structures. Recent advances in both the computer and telecommunications industries demand high-performance VLSI digital circuits. Digital processing of signals demands high-speed circuit techniques for the GHz range. The design of such circuits represents a great challenge; one that is amplified when the power supply is scaled down to 3.3 V. Moreover, the requirements of low-power/high-performance circuits adds an extra dimension to the design of such circuits. High-Performance Digital VLSI Circuit Design is a self-contained text, introducing the subject of high-performance VLSI circuit design and explaining the speed/power tradeoffs. The first few chapters of the book discuss the necessary background material in the area of device design and device modeling, respectively. High-performance CMOS circuits are then covered, especially the new all-N-logic dynamic circuits. Propagation delay times of high-speed bipolar CML and ECL are developed analytically to give a thorough understanding of various interacting process, device and circuit parameters. High-current phenomena of bipolar devices are also addressed as these devices typically operate at maximum currents for limited device area. Different, new, high-performance BiCMOS circuits are presented and compared to their conventional counterparts. These new circuits find direct applications in the areas of high-speed adders, frequency dividers, sense amplifiers, level-shifters, input/output clock buffers and PLLs. The book concludes with a few system application examples of digital high-performance VLSI circuits. Audience: A vital reference for practicing IC designers. Can be used as a text for graduate and senior undergraduate students in the area.
Nature-Inspired VLSI Circuits - From Concept to Implementation PHI Learning Pvt. Ltd.
This is the first book devoted to low power circuit design, and its authors have been among the first to publish papers in this area.· Low-Power CMOS VLSI Design· Physics of Power Dissipation in CMOS FET Devices· Power Estimation· Synthesis for Low Power· Design and Test of Low-Voltage CMOS Circuits· Low-Power Static Ram Architectures· Low-Energy Computing Using Energy Recovery Techniques· Software Design for Low Power
Low-Power Cmos Vlsi Circuit Design CRC Press
This text is based on the class notes of a VLSI signal processing circuit course series (EEE598) the author developed for the EE department at Arizona State University. The materials are

organized into nineteen special topics covering various state-of-the-arts symmetry based VLSI circuit design techniques for basic VLSI circuit elements, circuit modules and systems, where the symmetry principle and methods with inherently low PVT sensitivity are used to design VLSI circuits with superior scalability and performance for various VLSI SOC applications.

VLSI Physical Design: From Graph Partitioning to Timing Closure Morgan Kaufmann

"Microelectronic Circuit Design" is known for being a technically excellent text. The new edition has been revised to make the material more motivating and accessible to students while retaining a student-friendly approach. Jaeger has added more pedagogy and an emphaisis on design through the use of design examples and design notes. Some pedagogical elements include chapter opening vignettes, chapter objectives, "Electronics in Action" boxes, a problem solving methodology, and "design note" boxes. The number of examples, including new design examples, has been increased, giving students more opportunity to see problems worked out. Additionally, some of the less fundamental mathematical material has been moved to the ARIS website. In addition this edition comes with a Homework Management System called ARIS, which includes 450 static problems.

The Arts of VLSI Circuit Design CRC Press

This is the textbook for Dr. Hongjiang Song's EEE598: VLSI Analog Circuit Design Based Symmetry class in Ira A. Fulton Schools of Engineering at Arizona State University. The course introduces structural VLSI analog circuit design concepts and techniques for analog circuit blocks and systems, such as the operational amplifiers, PLL/DLL, bandgap reference, A/D D/A converters. Symmetry principles and associated circuit constraints, structures and methods are adopted to mitigate VLSI PVT and other variations for better circuit performance, functionality, and design productivity across multiple VLSI process nodes.

VLSI Modulation Circuits - Signal Processing, Data Conversion, and Power Management Lulu.com

CD-ROM contains: AIM SPICE (from AIM Software) -- Micro-Cap 6 (from Spectrum Software) -- Silos III Verilog Simulator (from Simucad) -- Adobe Acrobat Reader 4.0 (from Adobe).

Design of VLSI Circuits I. K. International Pvt Ltd

A completely updated and expanded comprehensive treatment of VHDL and its applications to the design and simulation of real, industry-standard circuits. This comprehensive treatment of VHDL and its applications to the design and simulation of real, industry-standard circuits has been completely updated and expanded for the third edition. New features include all VHDL-2008 constructs, an extensive review of digital circuits, RTL analysis, and an unequaled collection of VHDL examples and exercises. The book focuses on the use of VHDL rather than solely on the language, with an emphasis on design examples and laboratory exercises. The third edition begins with a detailed review of digital circuits (combinatorial, sequential, state machines, and FPGAs), thus providing a self-contained single reference for the teaching of digital circuit design with VHDL. In its coverage of VHDL-2008, it makes a clear distinction between VHDL for synthesis and VHDL for simulation. The text offers complete VHDL codes in examples as well as simulation results and comments. The significantly expanded examples and exercises include many not previously published, with multiple physical demonstrations meant to inspire and motivate students. The book is suitable for undergraduate and graduate students in VHDL and digital circuit design, and can be used as a professional reference for VHDL practitioners. It can also serve as a text for digital VLSI in-house or academic courses.