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Synthesis of High Performance Low Power Cmos Circuit Design Newlam Swami 2012-07-17 Latches and flip-flops used in low power sequential circuits are discussed in this book. A synthesis technique for power optimization in combinational logic circuits has been described. A flip-flop has been proposed to reduce power consumption in CMOS circuits. A latch has been proposed which is evaluated from the standard ultra-voltage latch for low power application. Simulation results show that the proposed latch has the lowest power consumption with no speed penalty. The significant power and area savings can be achieved by using proposed design.

High Performance Architecture and Grid Computing Arunach Mandi 2011-07-05 This book constitutes the refereed proceedings of the International Conference on High Performance Architecture and Grid Computing, HPAGC, 2011, held in Chandigarh, India, in July 2011. The 87 revised full papers presented were carefully reviewed and selected from 181 submissions. The papers are organized in sections on cloud and grid computing; high performance architecture; information management and network security.

Low-Power Soc for High-Performance Soc Design-Runghwa You 2010-04-10 Chip Design and Implementation from a Practical Viewpoint focusing on chip implementation, Low-Power NCo for High-Performance Soc Design provides practical knowledge and real examples of how to use network-on-chip (NoC) in the design of system-on-chip (SoC). It deals with various architectural and theoretical studies of NoCs, including design methodology, topology exploration, quality-of-service guarantee, low-power design, and implementation trades. The Steps to Implement NoC: The book covers the full spectrum of the subject, from theory to actual chip design using NoC. Emphasizing the Unified Modeling Language (UML) throughout, it presents complicated concepts, such as models of computation and computation-computation, partitioning in a man way accessible to laypeople. The authors provide guidance on how to optimize the network-on-chip for the specific chip. In addition, they explore the novel NoC techniques and implementations of the Basic On-Chip Network (BONE) project. Examples of some of the circuits and processes influenced by the BONE project include the integrated core co-design tool NoC and Its Application to Soc Design. Emphasizing the application of NoC to SoC design, this book shows how to build the complicated interconnections on SoC while keeping a low power consumption.

Design of High Performance Mechatronics - 2nd Revised Edition M. Schmitt 2011-04-18 Since they entered our world around the middle of the 20th century, the application of mechatronics has enhanced our lives in a significantly meaningful manner. The engineering of electronic devices has brought the special class of mechatronics that has enabled the exceptional levels of accuracy and speed of high-tech equipment applied in the semiconductor industry, reducing the continual shrinking in detail of micro-electronics and MEMS. As the most frequently presented standard subjects of dynamics, motion control, electronics and electromechanics, this book includes an overview of systems engineering, optics and precision measurement systems. The new edition attempts to present them in a novel manner. This book is intended to explore the novel NoC techniques and implementations of the Basic On-Chip Network (BONE) project. Examples of some of the circuits and processes influenced by the BONE project include the integrated core co-design tool NoC and Its Application to Soc Design. Emphasizing the application of NoC to SoC design, this book shows how to build the complicated interconnections on SoC while keeping a low power consumption.

Digital System Clocking Igoijn C. Gobihuela 2005-03-11 Provides the easy-to-date source on the most recent advances in often complex and fascinating topic. The only book to be entirely devoted to clocking Clocking has become one of the most important topics in the field of digital system design A must-have book for advanced circuit engineers

Design of High-Performance CMOS Voltage-Controlled Oscillators Liang Dai 2005-03-11 Voltage-controlled oscillators (VCOs) with low phase noise are the most critical building block in high performance phase-locked loops (PLLs). With the rapid development of high-speed digital circuits, the design of low-phase-noise digital elements is getting more and more attention. The design of high-performance digital circuits is a phase noise modeling framework for CMOS ring oscillators. The analysis considers both linear and nonlinear operation. It indicates that fast rail-to-rail switching has to be achieved to minimize phase noise. Additionally, in conventional circuit design the flicker noise in the bias circuit can potentially dominate the phase noise at low offset frequencies. Therefore, for narrow bandwidth applications, only the flicker noise has to be considered. We analyze the flicker noise level (lip) for simple ring oscillators and predict its increase for CMOS processes with smaller feature sizes. The phase noise analysis is validated via simulation and measurement results. The digital switching noise coupled through the substrate can be reduced by using a low-jitter clock. This paper demonstrates the superiority of the supply substrate noise immunity of a PLL is a challenging job in hostile environments such as a microprocessor chip where millions of digital gates are present. This paper presents a design methodology for low-phase-noise CMOS Voltage-Controlled Oscillators (VCOs). The impact of the supply and substrate noise on the oscillator phase noise, and supports techniques for reducing the jitter due to the supply and substrate noise. The primary audience for Design of High-Performance CMOS Voltage-Controlled Oscillators is very broad. Many people will be interested in analog circuit design, and many will be interested in digital circuit design. This book will be also of interest to analog circuit designers.

High Performance Manufacturing Roger G. Schroeder 2002-03-14

Design of High Performance Low Voltage Building Blocks Using Floating Gate Transistors and Large Valued MOS Resistors-Monj Bikumikone 2004

High-Performance AD and DA Converters, IC Design in Scalable Technologies, and Time-Domain Signal Processing - Advances in Analog Circuit Design 2010 - Proceedings of the 7th Conference on Advances in Analog Circuit Design. Expert presenters design readers with information about a variety of topics at the leading edge of the technology. Every book in the Analog Circuit Design series is a valuable reference to the state-of-the-art, for anyone involved in analog circuit research and development.

High Performance Embedded Computing Handbook-David R. Martinez 2010-10-23 Over the past several decades, applications performed by digital signal processing have undergone unprecedented growth in capability. The editors and authors of High Performance Embedded Computing Handbook: A Systems Perspective have teamed up to bring this handbook together. The concepts and principles presented in the handbook are reinforced by examples drawn from the work. The chapters cover system component foundations in today’s HPEC systems by addressing design trade-offs, implementation options, and techniques of the trade, solidifying the concepts with specific HPEC system examples. This approach provides a more valuable learning tool. Because readers learn about three subject areas through real and practical cases drawn from the contributing authors’ own experiences. Discussions include: Key subsystems and components Computer-aided design (CAD) tools and embedded algorithms and architectures for the HPEC NoC Design guidelines for the development of multi-processor and multi-core systems and technologies such as analog-to-digital conversion, application-specific integrated circuits, field programmable gate arrays, and intellectual property-based design Programmable HPEC system technologies, including digital signal processors, microprocessors, and microcontrollers, and automatic code parallelization and optimization Examples of complex HPEC systems representative of actual production environments Applications of HPEC systems to high-performance embedded NoC Design, construct, and debug custom digital systems from scratch using XILINX Book Description Digital modern drivers used in homes, cars, and wearables contain highly sophisticated computing capabilities composed of combinations of microprocessors, microcontrollers, and digital signal processors. The Xilinx High-performance embedded design is based on the use of high-level synthesis tools, which are able to automatically generate highly optimized and efficient HDL code from the high-level design. This book provides a complete overview of the field of high-performance digital circuit and systems design. In addition, the book includes the design of electronic circuits and system design. The book will prove useful to researchers, students and professionals engaged in the domain of FPGA circuit optimization and implementation.

Design Principles for High Performance, Low Environmental Impact Silicon Chips - 2001 by Anand J. Jaunsukh Reddy

Architecting High-Precision Embedded Systems Jim Ledina 2002-02-05 Explores the complete process of designing and implementing embedded systems based on FPGA technology. Authors have designed and implemented a number of embedded systems covering a wide range of applications, from simple logic design to complex embedded processor systems and the construction and deployment of prototype embedded devices Key Features Learns the basics of embedded systems by building a simple time-operating system using FPGA technology Describes the implementation of a real-time digital FX engine including the use of multipliers and memory Implementing the design for a real-time digital FX engine including the use of multipliers and memory Costs $79.95; $59.95 with ISBN 978-0-415-33073-6. This book will prove useful to researchers, students and professionals engaged in the domain of FPGA circuit optimization and implementation.

A Handbook on Energy- and Water-Efficient Buildings and District-Energy Systems L.D. Danny Harvey 2012-08-21 Winner of Choice Magazine Outstanding Academic Titles 2012 list for Buildings accounts for over one third of global energy use and associated greenhouse gas emissions worldwide. Reducing energy use by buildings is therefore an emerging challenge. The strategy to address this problem has been to implement measures to increase energy efficiency and develop strategies to reduce or eliminate the harmful effects of greenhouse gas emissions, and thereby lessen the likelihood of anthropogenic climate change. Bringing together a wealth of hard-to-obtain information on energy use and energy efficiency in buildings at a level which can be easily digested and applied, Danny Harvey offers a comprehensive, accessible and readable guide to energy efficiency in buildings. To meet the challenge of energy efficiency in buildings, including the design and implementation of green buildings, and the use of renewable energy systems, the handbook offers techniques that are useful if you want to learn about the fundamentals of energy efficiency and all aspects of factors in making buildings in this field.

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