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Titolo	Advanced Digital System Design : A Practical Guide to Verilog Based FPGA and ASIC Implementation / / by Shirshendu Roy
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Descrizione fisica	1 online resource (0 pages)
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Soggetti	Electronic circuits Computers Computer-aided engineering Electrical engineering Electronic Circuits and Systems Computer Hardware Computer-Aided Engineering (CAD, CAE) and Design Electrical and Electronic Engineering
Lingua di pubblicazione	Inglese
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Nota di contenuto	Binary Number System -- Basics of Verilog HDL -- Basic Combinational Circuits -- Basic Sequential Circuits -- Memory Design -- Finite State Machines -- Design of Adder Circuits -- Design of Multiplier Circuits -- Division and Modulous Operation -- Square Root and its Reciprocal -- CORDIC Algorithm -- Floating Point Architectures -- Timing Analysis -- Digital System Implementation -- Low Power Digital System Design -- Digital System Design Examples.
Sommario/riassunto	The book is designed to serve as a textbook for courses offered to undergraduate and graduate students enrolled in electrical, electronics, and communication engineering. The objective of this book is to help the readers to understand the concepts of digital system design as well as to motivate the students to pursue research in this field. Verilog Hardware Description Language (HDL) is preferred in this book to realize digital architectures. Concepts of Verilog HDL are discussed in a separate chapter and many Verilog codes are given in this book for

better understanding. Concepts of system Verilog to realize digital hardware are also discussed in a separate chapter. The book covers basic topics of digital logic design like binary number systems, combinational circuit design, sequential circuit design, and finite state machine (FSM) design. The book also covers some advanced topics on digital arithmetic like design of high-speed adders, multipliers, dividers, square root circuits, and CORDIC block. The readers can learn about FPGA and ASIC implementation steps and issues that arise at the time of implementation. One chapter of the book is dedicated to study the low-power design techniques and another to discuss the concepts of static time analysis (STA) of a digital system. Design and implementation of many digital systems are discussed in detail in a separate chapter. In the last chapter, basics of some advanced FPGA design techniques like partial re-configuration and system on chip (SoC) implementation are discussed. These designs can help the readers to design their architecture. This book can be very helpful to both undergraduate and postgraduate students and researchers.
