Record Nr. Autore Titolo	UNINA9910830681303321 Rafiquzzaman Mohamed Fundamentals of digital logic and microcomputer design [[electronic resource] /] / M. Rafiquzzaman
Pubbl/distr/stampa	Hoboken, N.J., : J. Wiley & Sons, c2005
ISBN	1-280-27716-5 9786610277162 0-470-35893-9 0-471-73352-0 0-471-73349-0
Edizione	[5th ed.]
Descrizione fisica	1 online resource (842 p.)
Disciplina	621.39/5 621.395
Soggetti	Logic circuits Microcomputers - Design and construction Electronic digital computers - Circuits
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	"Wiley-Interscience."
Nota di bibliografia	Includes bibliographical references (p. 807-809) and index.
Nota di contenuto	Fundamentals of Digital Logic and Microcomputer Design; Contents; PREFACE; 1. INTRODUCTION TO DIGITAL SYSTEMS; 1.1 Explanation of Terms; 1.2 Design Levels; 1.3 Combinational vs. Sequential Systems; 1.4 Digital Integrated Circuits; 1.4.1 Diodes; 1.4.2 Transistors; 1.4.3 MOS Transistors; 1.5 Integrated Circuits (ICs); 1.6 Evolution of Computers; 1.7 A Typical Microcomputer-Based Application; 1.8 Trends and Perspectives in Digital Technology; 2. NUMBER SYSTEMS AND CODES; 2.1 Number Systems; 2.1.1 General Number Representation; 2.1.2 Converting Numbers from One Base to Another 2.2 Unsigned and Signed Binary Numbers2.3 Codes; 2.3.1 Binary- Coded-Decimal Code (8421 Code); 2.3.2 Alphanumeric Codes; 2.3.3 Excess-3 Code; 2.3.4 Gray Code; 2.3.5 Unicode; 2.4 Fixed-Point and Floating-Point Representations; 2.5 Arithmetic Operations; 2.5.1 Binary Arithmetic; 2.5.2 BCD Arithmetic; 2.5.3 Multiword Binary Addition and Subtraction; 2.6 Error Correction and Detection; Questions and Problems; 3. BOOLEAN ALGEBRA AND DIGITAL LOGIC GATES; 3.1 Basic

1.

	Logic Operations; 3.1.1 NOT Operation; 3.1.2 OR Operation; 3.1.3 AND Operation; 3.2 Other Logic Operations; 3.2.1 NOR Operation 3.2.2 NAND Operation3.2.3 Exclusive-OR Operation (XOR); 3.2.4 Exclusive-NOR Operation (XNOR); 3.3 IEEE Symbols for Logic Gates; 3.4 Positive and Negative Logic; 3.5 Boolean Algebra; 3.5.1 Boolean Identities; 3.5.2 Simplification Using Boolean Identities; 3.5.3 Consensus Theorem; 3.5.4 Complement of a Boolean Function; 3.6 Standard Representations; 3.7 Karnaugh Maps; 3.7.1 Two-Variable K- Map; 3.7.2 Three-Variable K-Map; 3.7.3 Four-Variable K-Map; 3.7.4 Prime Implicants; 3.7.5 Expressing a Function in Product-of-Sums Form Using a K-Map; 3.7.6 Don't Care Conditions; 3.7.7 Five-Variable K-Map 3.8 Quine-McCluskey Method3.9 Implementation of Digital Circuits with NAND, NOR, and Exclusive-OR Exclusive-NOR Gates; 3.9.1 NAND Gate Implementation; 3.9.2 NOR Gate Implementation; 3.9.3 XOR / XNOR Implementations; Questions and Problems; 4. COMBINATIONAL LOGIC DESIGN; 4.1 Basic Concepts; 4.2 Analysis of a Combinational Logic Circuit; 4.3 Design of a Combinational Circuit; 4.4 Multiple- Output Combinational Circuits; 4.5 Typical Combinational Circuits; 4.5.1 Binary / BCD Adders and Binary Subtractors; 4.5.2 Comparators; 4.5.3 Decoders; 4.5.4 Encoders; 4.5.5 Multiplexers; 4.5.6 Demultiplexers 4.6 IEEE Standard Symbols4.7 Read-Only Memories (ROMs); 4.8 Programmable Logic Devices (PLDs); 4.9 Commercially Available Field Programmable Devices (FPDs); 4.10 Hardware Description Language (HDL); Questions and Problems; 5. SEQUENTIAL LOGIC DESIGN; 5.1 Basic Concepts; 5.2 Flip-Flop; 5.2.1 SR Latch; 5.2.2 RS Flip-Flop; 5.2.3 D Flip-Flop; 5.2.4 JK Flip-Flop; 5.2.5 T Flip-Flop; 5.3 Master-Slave Flip- Flop; 5.4 Preset and Clear Inputs; 5.5 Summary of Flip-Flops; 5.6 Analysis of Synchronous Sequential Circuits; 5.7 Types of Synchronous Sequential Circuits; 5.8 Minimization of States
	5.9 Design of Synchronous Sequential Circuits
Sommario/riassunto	Fundamentals of Digital Logic and Microcomputer Design, has long been hailed for its clear and simple presentation of the principles and basic tools required to design typical digital systems such as microcomputers. In this Fifth Edition, the author focuses on computer design at three levels: the device level, the logic level, and the system level. Basic topics are covered, such as number systems and Boolean algebra, combinational and sequential logic design, as well as more advanced subjects such as assembly language programming and microprocessor-based system design. Numerous examples