

1. Record Nr.	UNINA9910877186403321
Titolo	Digital electronics : principles, devices and applications // Anil K. Maini
Pubbl/distr/stampa	Chichester, England ; ; Hoboken, NJ, : J. Wiley, c2007
ISBN	1-280-97396-X 9786610973965 0-470-51052-8 0-470-51051-X
Edizione	[1st edition]
Descrizione fisica	1 online resource (753 p.)
Classificazione	549 621.381
Disciplina	621.381
Soggetti	Digital electronics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Digital Electronics; Contents; Preface; 1 Number Systems; 1.1 Analogue Versus Digital; 1.2 Introduction to Number Systems; 1.3 Decimal Number System; 1.4 Binary Number System; 1.4.1 Advantages; 1.5 Octal Number System; 1.6 Hexadecimal Number System; 1.7 Number Systems - Some Common Terms; 1.7.1 Binary Number System; 1.7.2 Decimal Number System; 1.7.3 Octal Number System; 1.7.4 Hexadecimal Number System; 1.8 Number Representation in Binary; 1.8.1 Sign-Bit Magnitude; 1.8.2 1's Complement; 1.8.3 2's Complement; 1.9 Finding the Decimal Equivalent; 1.9.1 Binary-to-Decimal Conversion 1.9.2 Octal-to-Decimal Conversion 1.9.3 Hexadecimal-to-Decimal Conversion; 1.10 Decimal-to-Binary Conversion; 1.11 Decimal-to-Octal Conversion; 1.12 Decimal-to-Hexadecimal Conversion; 1.13 Binary-Octal and Octal-Binary Conversions; 1.14 Hex-Binary and Binary-Hex Conversions; 1.15 Hex-Octal and Octal-Hex Conversions; 1.16 The Four Axioms; 1.17 Floating-Point Numbers; 1.17.1 Range of Numbers and Precision; 1.17.2 Floating-Point Number Formats; Review Questions; Problems; Further Reading; 2 Binary Codes; 2.1 Binary Coded Decimal; 2.1.1 BCD-to-Binary Conversion; 2.1.2 Binary-to-BCD Conversion

2.1.3 Higher-Density BCD Encoding; 2.1.4 Packed and Unpacked BCD Numbers; 2.2 Excess-3 Code; 2.3 Gray Code; 2.3.1 Binary-Gray Code Conversion; 2.3.2 Gray Code-Binary Conversion; 2.3.3 n-ary Gray Code; 2.3.4 Applications; 2.4 Alphanumeric Codes; 2.4.1 ASCII code; 2.4.2 EBCDIC code; 2.4.3 Unicode; 2.5 Seven-segment Display Code; 2.6 Error Detection and Correction Codes; 2.6.1 Parity Code; 2.6.2 Repetition Code; 2.6.3 Cyclic Redundancy Check Code; 2.6.4 Hamming Code; Review Questions; Problems; Further Reading; 3 Digital Arithmetic; 3.1 Basic Rules of Binary Addition and Subtraction; 3.2 Addition of Larger-Bit Binary Numbers; 3.2.1 Addition Using the 2's Complement Method; 3.3 Subtraction of Larger-Bit Binary Numbers; 3.3.1 Subtraction Using 2's Complement Arithmetic; 3.4 BCD Addition and Subtraction in Excess-3 Code; 3.4.1 Addition; 3.4.2 Subtraction; 3.5 Binary Multiplication; 3.5.1 Repeated Left-Shift and Add Algorithm; 3.5.2 Repeated Add and Right-Shift Algorithm; 3.6 Binary Division; 3.6.1 Repeated Right-Shift and Subtract Algorithm; 3.6.2 Repeated Subtract and Left-Shift Algorithm; 3.7 Floating-Point Arithmetic; 3.7.1 Addition and Subtraction; 3.7.2 Multiplication and Division; Review Questions; Problems; Further Reading; 4 Logic Gates and Related Devices; 4.1 Positive and Negative Logic; 4.2 Truth Table; 4.3 Logic Gates; 4.3.1 OR Gate; 4.3.2 AND Gate; 4.3.3 NOT Gate; 4.3.4 EXCLUSIVE-OR Gate; 4.3.5 NAND Gate; 4.3.6 NOR Gate; 4.3.7 EXCLUSIVE-NOR Gate; 4.3.8 INHIBIT Gate; 4.4 Universal Gates; 4.5 Gates with Open Collector/Drain Outputs; 4.6 Tristate Logic Gates; 4.7 AND-OR-INVERT Gates; 4.8 Schmitt Gates; 4.9 Special Output Gates; 4.10 Fan-Out of Logic Gates; 4.11 Buffers and Transceivers; 4.12 IEEE/ANSI Standard Symbols; 4.12.1 IEEE/ANSI Standards - Salient Features

---

## Sommario/riassunto

The fundamentals and implementation of digital electronics are essential to understanding the design and working of consumer/industrial electronics, communications, embedded systems, computers, security and military equipment. Devices used in applications such as these are constantly decreasing in size and employing more complex technology. It is therefore essential for engineers and students to understand the fundamentals, implementation and application principles of digital electronics, devices and integrated circuits. This is so that they can use the most appropriate and effective technique

---