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COMPUTER ARCHITECTURE AND ORGANIZATION: AN INTEGRATED APPROACH

Cambridge University Press
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An Information Technology

Approach John Wiley & Sons

A no-nonsense, practical guide to current and future processor and computer

architectures, enabling you to design computer systems and develop better software applications across a variety of domains
Key Features
Understand digital circuitry with the help of transistors, logic gates, and sequential logic
Examine the architecture and instruction sets of x86, x64, ARM, and RISC-V processors
Explore the architecture of modern devices such as the iPhone X and high-performance gaming PCs
Book Description
Are you a software developer, systems designer, or computer architecture student looking for a methodical introduction to digital device architectures but overwhelmed by their complexity? This book will help you to learn how modern

computer systems work, from the lowest level of transistor switching to the macro view of collaborating multiprocessor servers. You'll gain unique insights into the internal behavior of processors that execute the code developed in high-level languages and enable you to design more efficient and scalable software systems. The book will teach you the fundamentals of computer systems including transistors, logic gates, sequential logic, and instruction operations. You will learn details of modern processor architectures and instruction sets including x86, x64, ARM, and RISC-V. You will see how to implement a RISC-V processor in a low-cost FPGA board and how to write a quantum computing program and run it on an actual quantum computer. By the end of this book, you will have a thorough understanding of modern processor and computer architectures and the future directions these architectures are likely to take. What you will learn Get to grips with transistor technology and digital circuit principles Discover the functional elements of computer processors Understand pipelining and superscalar execution Work with floating-point data formats Understand the purpose and operation of the supervisor mode Implement a complete RISC-V processor in a low-cost FPGA Explore the techniques used in virtual machine implementation Write a quantum computing program and run it on a quantum computer Who this book is for This book is for software developers, computer engineering students, system designers, reverse engineers, and anyone looking to understand the architecture and design principles underlying modern computer systems from tiny embedded devices to warehouse-size cloud server farms. A general understanding of computer processors is helpful but not required.

COMPUTER ORGANIZATION AND DESIGN Elsevier

Computer Architecture/Software Engineering

Studyguide for the Essentials of Computer Organization and Architecture by Null, Linda

The Essentials of Computer Organization and Architecture
Essentials of Computer Organization and Architecture

Never HIGHLIGHT a Book Again! Virtually all of the testable terms, concepts, persons, places, and events from the textbook are included. Cram101 Just the FACTS101 studyguides give all of the outlines, highlights, notes, and quizzes for your textbook with optional online comprehensive practice tests. Only Cram101 is Textbook Specific.

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Computer Organization & Architecture 7e
Jones & Bartlett Learning

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concepts, persons, places, and events from the textbook are included. Cram101 Just the FACTS101 studyguides give all of the outlines, highlights, notes, and quizzes for your textbook with optional online comprehensive practice tests. Only Cram101 is Textbook Specific.

Accompanys: 9780763737696 .

The Hardware Software Interface
CRC Press

Designed as an introductory text for the students of computer science, computer applications, electronics engineering and information technology for their first course on the organization and architecture of computers, this accessible, student friendly text gives a clear and in-depth analysis of the basic principles underlying the subject.

This self-contained text devotes one full chapter to the basics of digital logic. While the initial chapters describe in detail about computer organization, including CPU design, ALU design, memory design and I/O organization, the text also deals with Assembly Language Programming for Pentium using NASM assembler. What

distinguishes the text is the special attention it pays to Cache and Virtual Memory organization, as well as to RISC architecture and the intricacies of pipelining. All these discussions are climaxed by an illuminating discussion on parallel computers which shows how processors are interconnected to create a variety of parallel computers.

KEY FEATURES Self-contained presentation starting with data representation and ending with

advanced parallel computer architecture. Systematic and logical organization of topics. Large number of worked-out examples and exercises. Contains basics of assembly language programming. Each chapter has learning objectives and a detailed summary to help students to quickly revise the material.

Introduction to Computer Organization
University of West Florida Jones & Bartlett Learning

For graduate and undergraduate courses in computer science, computer engineering, and electrical engineering. Comprehensively covers processor and computer design fundamentals Computer Organization and Architecture , 11th Edition is about the structure and function of computers. Its purpose is to present, as clearly and completely as possible, the nature and characteristics of modern-day computer systems. Written in a clear, concise, and engaging style, author William Stallings provides a thorough discussion of the fundamentals of computer organization and architecture and relates these to contemporary design issues. Subjects such as I/O functions and structures, RISC, and parallel processors are thoroughly explored alongside real-world examples that enhance the text and build interest. Incorporating brand-new material and strengthened pedagogy, the 11th Edition keeps readers up to date with recent innovations and improvements in the field of computer organization and architecture This title is a Pearson eText , an affordable, simple-to-use, mobile reading experience that lets instructors and students extend learning beyond class time. Students can study, highlight, and take notes in their Pearson eText on Android and iPhone mobile phones and tablets -- even when they are offline. Access to this eText can be purchased

using an access code card or directly online once the instructor creates a course. Learn more about Pearson eText. The Essentials of Computer Organization and Architecture PHI Learning Pvt. Ltd. Computer Architecture/Software Engineering

Data Structures and Algorithms Using Java Springer

"Presents the fundamentals of hardware technologies, assembly language, computer arithmetic, pipelining, memory hierarchies and I/O"--

Digital Design, Fundamentals of Computer Architecture and Assembly Language Pearson Education India

The performance of software systems is dramatically affected by how well software designers understand the basic hardware technologies at work in a system. Similarly, hardware designers must understand the far-reaching effects their design decisions have on software applications. For readers in either category, this classic introduction to the field provides a look deep into the computer. It demonstrates the relationships between the software and hardware and focuses on the foundational concepts that are the basis for current computer design.

The Essentials of Computer Organization and Architecture Pearson Higher Ed

Updated and revised, The Essentials of Computer Organization and Architecture, Third Edition is a comprehensive resource that addresses all of the necessary organization and architecture topics, yet is appropriate for the one-term course.

Fundamentals and Principles of Computer Design, Second Edition

Jones & Bartlett Learning

An introduction to applying predicate logic to testing and verification of software and digital circuits that focuses on applications rather than theory. Computer scientists use logic for testing and verification of software and digital circuits, but many computer science students study logic only in the context of traditional mathematics, encountering the subject in a few lectures and a handful of problem sets in a discrete math course. This book offers a more substantive and rigorous approach to logic that focuses on applications in computer science. Topics covered include predicate logic, equation-based software, automated testing and theorem proving, and large-scale computation. Formalism is emphasized, and the book employs three formal notations: traditional algebraic formulas of propositional and predicate logic; digital circuit diagrams; and the widely used partially automated theorem prover, ACL2, which provides an accessible introduction to mechanized formalism. For readers who want to see formalization in action, the text presents examples using Proof Pad, a lightweight ACL2 environment. Readers will not become ACL2 experts, but will learn how mechanized logic can benefit software and hardware engineers. In addition, 180 exercises, some of them extremely challenging, offer opportunities for problem solving. There are no prerequisites beyond

high school algebra. Programming experience is not required to understand the book's equation-based approach. The book can be used in undergraduate courses in logic for computer science and introduction to computer science and in math courses for computer science students.

The Essentials of Computer Organization and Architecture "O'Reilly Media, Inc."

The Architecture of Computer Hardware, Systems Software and Networking is designed help students majoring in information technology (IT) and information systems (IS) understand the structure and operation of computers and computer-based devices. Requiring only basic computer skills, this accessible textbook introduces the basic principles of system architecture and explores current technological practices and trends using clear, easy-to-understand language. Throughout the text, numerous relatable examples, subject-specific illustrations, and in-depth case studies reinforce key learning points and show students how important concepts are applied in the real world. This fully-updated sixth edition features a wealth of new and revised content that reflects today ' s technological landscape. Organized into five parts, the book first explains the role of the computer in information systems and provides an overview of its components. Subsequent sections discuss the representation of data in the computer, hardware architecture and operational concepts, the basics of computer networking, system software and operating systems, and various interconnected systems and

components. Students are introduced to the material using ideas already familiar to them, allowing them to gradually build upon what they have learned without being overwhelmed and develop a deeper knowledge of computer architecture.

Computer Architecture Morgan Kaufmann

The merging of computer and communication technologies with consumer electronics has opened up new vistas for a wide variety of designs of computing systems for diverse application areas. This revised and updated third edition on Computer Organization and Design strives to make the students keep pace with the changes, both in technology and pedagogy in the fast growing discipline of computer science and engineering. The basic principles of how the intended behaviour of complex functions can be realized with the interconnected network of digital blocks are explained in an easy-to-understand style. WHAT IS NEW TO THIS EDITION : Includes a new chapter on Computer Networking, Internet, and Wireless Networks. Introduces topics such as wireless input-output devices, RAID technology built around disk arrays, USB, SCSI, etc. Key Features Provides a large number of design problems and their solutions in each chapter. Presents state-of-the-art memory technology which includes EEPROM and Flash Memory apart from Main Storage, Cache, Virtual Memory, Associative Memory, Magnetic

Bubble, and Charged Couple Device. Shows how the basic data types and data structures are supported in hardware. Besides students, practising engineers should find reading this design-oriented text both useful and rewarding.

Designing Embedded Hardware Basic Books

With the new developments in computer architecture, fairly recent publications can quickly become outdated. Computer Architecture: Software Aspects, Coding, and Hardware takes a modern approach. This comprehensive, practical text provides that critical understanding of a central processor by clearly detailing fundamentals, and cutting edge design features. With its balanced software/hardware perspective and its description of Pentium processors, the book allows readers to acquire practical PC software experience. The text presents a foundation-level set of ideas, design concepts, and applications that fully meet the requirements of computer organization and architecture courses. The book features a "bottom up" computer design approach, based upon the author's thirty years experience in both academe and industry. By combining computer engineering with electrical engineering, the author describes how logic circuits are designed in a CPU. The extensive coverage of a microprogrammed CPU and new processor design features gives the insight of current computer development. Computer Architecture: Software Aspects, Coding, and Hardware presents a comprehensive review of the subject, from beginner to advanced levels. Topics include: o Two's complement numbers o Integer overflow o Exponent overflow and underflow o Looping o Addressing modes o Indexing o Subroutine linking o I/O structures o Memory mapped I/O o Cycle stealing o Interrupts o Multitasking o

Microprogrammed CPU o Multiplication tree o Instruction queue o Multimedia instructions o Instruction cache o Virtual memory o Data cache o Alpha chip o Interprocessor communications o Branch prediction o Speculative loading o Register stack o JAVA virtual machine o Stack machine principles

Computer Organization and Design RISC-V Edition Morgan Kaufmann

"The author begins by describing the classic von Neumann architecture and then presents in detail a number of performance models and evaluation techniques. He goes on to cover user instruction set design, including RISC architecture. A unique feature of the book is its memory-centric approach - memory systems are discussed before processor implementations. The author also deals with pipelined processors, input/output techniques, queuing modes, and extended instruction set architectures. Each topic is illustrated with reference to actual IBM and Intel architectures."--Jacket.

Computer Architecture Elsevier

The Essentials of Computer Organization and Architecture Essentials of Computer Organization and Architecture Jones & Bartlett Publishers

Computer Architecture and Implementation Academic Internet Pub Incorporated

Business Data Communications, 6/e, is ideal for use in Business Data Communications, Data Communications, and introductory Networking for Business courses. Business Data Communications,

6/e, covers the fundamentals of data communications, networking, distributed applications, and network management and security. Stallings presents these concepts in a way that relates specifically to the business environment and the concerns of business management and staff, structuring his text around requirements, ingredients, and applications. While making liberal use of real-world case studies and charts and graphs to provide a business perspective, the book also provides the student with a solid grasp of the technical foundation of business data communications. Throughout the text, references to the interactive, online animations supply a powerful tool in understanding complex protocol mechanisms. The Sixth Edition maintains Stallings' superlative support for either a research projects or modeling projects component in the course. The diverse set of projects and student exercises enables the instructor to use the book as a component in a rich and varied learning experience and to tailor a course plan to meet the specific needs of the instructor and students.

Computer Organisation & Architecture
Jones & Bartlett Publishers

This easy to read textbook provides an introduction to computer architecture, while focusing on the essential aspects of hardware that programmers need to know. The topics are explained from a programmer's point of view, and the text emphasizes consequences for programmers. Divided in five parts, the book covers the basics of digital logic,

gates, and data paths, as well as the three primary aspects of architecture: processors, memories, and I/O systems. The book also covers advanced topics of parallelism, pipelining, power and energy, and performance. A hands-on lab is also included. The second edition contains three new chapters as well as changes and updates throughout.

Computer Organization and Design
Pearson

/*4204Q-9, 0-13-142044-5, Britton, Robert, MIPS Assembly Language Programming, 1/E*/" Users of this book will gain an understanding of the fundamental concepts of contemporary computer architecture, starting with a Reduced Instruction Set Computer (RISC). An understanding of computer architecture needs to begin with the basics of modern computer organization. The MIPS architecture embodies the fundamental design principles of all contemporary RISC architectures. This book provides an understanding of how the functional components of modern computers are put together and how a computer works at the machine-language level." Well-written and clearly organized, this book covers the basics of MIPS architecture, including algorithm development, number systems, function calls, reentrant functions, memory-mapped I/O, exceptions and interrupts, and floating-point instructions." For employees in the field of systems, systems development, systems analysis, and systems maintenance.