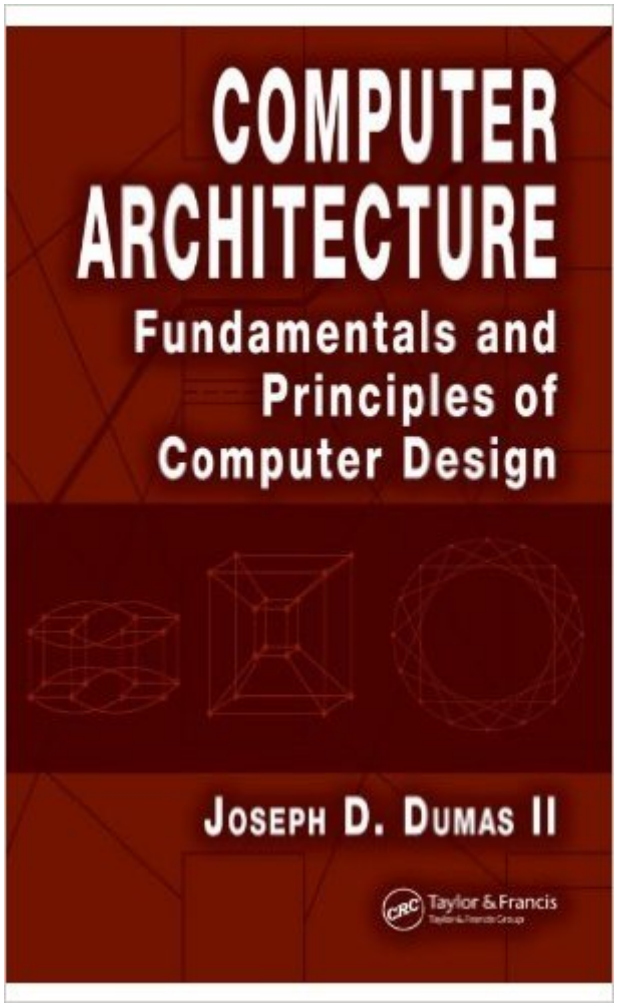
Computer Architecture: Fundamentals And Principles Of Computer Design



Synopsis

Future computing professionals must become familiar with historical computer architectures because many of the same or similar techniques are still being used and may persist well into the future. Computer Architecture: Fundamentals and Principles of Computer Design discusses the fundamental principles of computer design and performance enhancement that have proven effective and demonstrates how current trends in architecture and implementation rely on these principles while expanding upon them or applying them in new ways. Rather than focusing on a particular type of machine, this textbook explains concepts and techniques via examples drawn from various architectures and implementations. When necessary, the author creates simplified examples that clearly explain architectural and implementation features used across many computing platforms. Following an introduction that discusses the difference between architecture and implementation and how they relate, the next four chapters cover the architecture of traditional, single-processor systems that are still, after 60 years, the most widely used computing machines. The final two chapters explore approaches to adopt when single-processor systems do not reach desired levels of performance or are not suited for intended applications. Topics include parallel systems, major classifications of architectures, and characteristics of unconventional systems of the past, present, and future.This textbook provides students with a thorough grounding in what constitutes high performance and how to measure it, as well as a full familiarity in the fundamentals needed to make systems perform better. This knowledge enables them to understand and evaluate the many new systems they will encounter throughout their professional careers.

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Customer Reviews

This was surprisingly one of if not the best written books I read during my college career. Technical books tend to be my bane as I have a hard time getting through them and staying interested enough in the material to remember anything I read. This book I actually found to be very entertaining and pulled me into the subject as I read. The book has two main strong points. The language used in the book makes the reading material easy to follow while staying interesting and the book is very easy to navigate to find what you need. Both issues can hinder a technical book. Overall well written.

I had Dr. Dumas as a professor twice now and I admit this is hard stuff but its a pretty good book! For content this technical, this is probably one of the better books you'll ever get on the subject. He welcomes feedback and improves on the book.

The depth and breadth of the material covered in this book (and the associated class) is overwhelming. If you want to know how computers actually work, then this is the book for you. Dr. Dumas covers every major topic in computer architecture in great detail, from the construction and inner workings of the first computers, to the design of various modern arithmetic and logic units, to the message passing schemes of various large scale computer systems.This is one of the few textbooks books I plan to keep as a reference.

Design, Fourth Edition: The Hardware/Software Interface (The Morgan Kaufmann Series in Computer Architecture and Design) Computer Organization and Design, Third Edition: The Hardware/Software Interface, Third Edition (The Morgan Kaufmann Series in Computer Architecture and Design) Computer Organization and Design: The Hardware Software Interface: ARM Edition (The Morgan Kaufmann Series in Computer Architecture and Design) Skew-Tolerant Circuit Design (The Morgan Kaufmann Series in Computer Architecture and Design) Rendering in SketchUp: From Modeling to Presentation for Architecture, Landscape Architecture, and Interior Design HACKING: Beginner's Crash Course - Essential Guide to Practical: Computer Hacking, Hacking for Beginners, & Penetration Testing (Computer Systems, Computer Programming, Computer Science Book 1) Computer Architecture: From Microprocessors to Supercomputers (The Oxford Series in Electrical and Computer Engineering) Fundamentals of Nursing: Human Health and Function (Craven, Fundamentals of Nursing: Human Health and Functionraven, Fundamentals of Nurs) ARM System Developer's Guide: Designing and Optimizing System Software (The Morgan Kaufmann Series in Computer Architecture and Design) Foundations of Analog and Digital Electronic Circuits (The Morgan Kaufmann Series in Computer Architecture and Design) Chinese Architecture and Metaphor: Song Culture in the Yingzao Fashi Building Manual (Spatial Habitus: Making and Meaning in Asia's Architecture) Digital Design and Computer Architecture See MIPS Run, Second Edition (The Morgan Kaufmann Series in Computer Architecture and Design) Mansilla Y Tunon: Recent Work (2G: International Architecture Review S.) (2G: International Architecture Review Series) (Spanish and English Edition) Material Strategies: Innovative Applications in Architecture (Architecture Briefs)