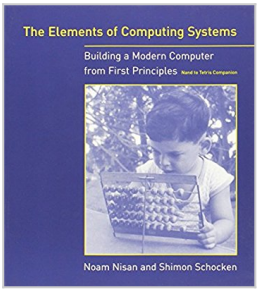

The Elements of Computing Systems: Building a Modern Computer from First Principles

By Noam Nisan, Shimon Schocken

Download now

Read Online

The Elements of Computing Systems: Building a Modern Computer from First Principles By Noam Nisan, Shimon Schocken

In the early days of computer science, the interactions of hardware, software, compilers, and operating system were simple enough to allow students to see an overall picture of how computers worked. With the increasing complexity of computer technology and the resulting specialization of knowledge, such clarity is often lost. Unlike other texts that cover only one aspect of the field, *The Elements of Computing Systems* gives students an integrated and rigorous picture of applied computer science, as its comes to play in the construction of a simple yet powerful computer system.

Indeed, the best way to understand how computers work is to build one from scratch, and this textbook leads students through twelve chapters and projects that gradually build a basic hardware platform and a modern software hierarchy from the ground up. In the process, the students gain hands-on knowledge of hardware architecture, operating systems, programming languages, compilers, data structures, algorithms, and software engineering. Using this constructive approach, the book exposes a significant body of computer science knowledge and demonstrates how theoretical and applied techniques taught in other courses fit into the overall picture.

Designed to support one- or two-semester courses, the book is based on an abstraction-implementation paradigm; each chapter presents a key hardware or software abstraction, a proposed implementation that makes it concrete, and an actual project. The emerging computer system can be built by following the chapters, although this is only one option, since the projects are self-contained and can be done or skipped in any order. All the computer science knowledge necessary for completing the projects is embedded in the book, the only pre-requisite being a programming experience.

The book's web site provides all tools and materials necessary to build all the hardware and software systems described in the text, including two hundred test programs for the twelve projects. The projects and systems can be modified to meet various teaching needs, and all the supplied software is open-source.

Download The Elements of Computing Systems: Building a Mode ...pdf

Read Online The Elements of Computing Systems: Building a Mo ...pdf

The Elements of Computing Systems: Building a Modern Computer from First Principles

By Noam Nisan, Shimon Schocken

The Elements of Computing Systems: Building a Modern Computer from First Principles By Noam Nisan, Shimon Schocken

In the early days of computer science, the interactions of hardware, software, compilers, and operating system were simple enough to allow students to see an overall picture of how computers worked. With the increasing complexity of computer technology and the resulting specialization of knowledge, such clarity is often lost. Unlike other texts that cover only one aspect of the field, *The Elements of Computing Systems* gives students an integrated and rigorous picture of applied computer science, as its comes to play in the construction of a simple yet powerful computer system.

Indeed, the best way to understand how computers work is to build one from scratch, and this textbook leads students through twelve chapters and projects that gradually build a basic hardware platform and a modern software hierarchy from the ground up. In the process, the students gain hands-on knowledge of hardware architecture, operating systems, programming languages, compilers, data structures, algorithms, and software engineering. Using this constructive approach, the book exposes a significant body of computer science knowledge and demonstrates how theoretical and applied techniques taught in other courses fit into the overall picture.

Designed to support one- or two-semester courses, the book is based on an abstraction-implementation paradigm; each chapter presents a key hardware or software abstraction, a proposed implementation that makes it concrete, and an actual project. The emerging computer system can be built by following the chapters, although this is only one option, since the projects are self-contained and can be done or skipped in any order. All the computer science knowledge necessary for completing the projects is embedded in the book, the only pre-requisite being a programming experience.

The book's web site provides all tools and materials necessary to build all the hardware and software systems described in the text, including two hundred test programs for the twelve projects. The projects and systems can be modified to meet various teaching needs, and all the supplied software is open-source.

The Elements of Computing Systems: Building a Modern Computer from First Principles By Noam Nisan, Shimon Schocken Bibliography

- Sales Rank: #29876 in Books
- Brand: Brand: The MIT Press
- Published on: 2005-03-31
- Original language: English
- Number of items: 1
- Dimensions: 9.00" h x .69" w x 8.00" l, 1.39 pounds
- Binding: Paperback
- 344 pages

Download The Elements of Computing Systems: Building a Mode ...pdf

Read Online The Elements of Computing Systems: Building a Mo ...pdf

Download and Read Free Online The Elements of Computing Systems: Building a Modern Computer from First Principles By Noam Nisan, Shimon Schocken

Editorial Review

Review

A refreshingly new way of looking at computer systems as a whole by considering all aspects of a complete system in an integrated manner.

(**Jonathan Bowen** *Times Higher Education Supplement*)

About the Author

Noam Nisan is Professor at the Institute of Computer Science and Engineering, Hebrew University of Jerusalem.

Shimon Schocken is the IDB Professor of Information Technologies and Dean of the Efi Arazi School of Computer Science, Interdisciplinary Center Herzliya.

Users Review

From reader reviews:

Lola Hernandez:

Do you have favorite book? Should you have, what is your favorite's book? Guide is very important thing for us to learn everything in the world. Each e-book has different aim or goal; it means that book has different type. Some people really feel enjoy to spend their time and energy to read a book. They are reading whatever they have because their hobby is usually reading a book. What about the person who don't like reading through a book? Sometime, man feel need book if they found difficult problem or perhaps exercise. Well, probably you'll have this The Elements of Computing Systems: Building a Modern Computer from First Principles.

Anne Shivers:

Reading a reserve can be one of a lot of pastime that everyone in the world adores. Do you like reading book therefore. There are a lot of reasons why people love it. First reading a guide will give you a lot of new information. When you read a publication you will get new information mainly because book is one of numerous ways to share the information or perhaps their idea. Second, reading a book will make you actually more imaginative. When you reading a book especially tale fantasy book the author will bring you to definitely imagine the story how the characters do it anything. Third, you may share your knowledge to some others. When you read this The Elements of Computing Systems: Building a Modern Computer from First Principles, you may tells your family, friends and also soon about yours reserve. Your knowledge can inspire the others, make them reading a publication.

Marcela Beach:

Often the book The Elements of Computing Systems: Building a Modern Computer from First Principles has a lot associated with on it. So when you read this book you can get a lot of advantage. The book was written by the very famous author. The author makes some research before write this book. This kind of book very easy to read you can get the point easily after looking over this book.

Jerri Jackson:

Beside this The Elements of Computing Systems: Building a Modern Computer from First Principles in your phone, it can give you a way to get closer to the new knowledge or data. The information and the knowledge you may got here is fresh from your oven so don't possibly be worry if you feel like an aged people live in narrow small town. It is good thing to have The Elements of Computing Systems: Building a Modern Computer from First Principles because this book offers to you readable information. Do you often have book but you would not get what it's facts concerning. Oh come on, that won't happen if you have this within your hand. The Enjoyable option here cannot be questionable, similar to treasuring beautiful island. Use you still want to miss this? Find this book along with read it from now!

Download and Read Online The Elements of Computing Systems: Building a Modern Computer from First Principles By Noam Nisan, Shimon Schocken #ZBE7UQ5OJKR

Read The Elements of Computing Systems: Building a Modern Computer from First Principles By Noam Nisan, Shimon Schocken for online ebook

The Elements of Computing Systems: Building a Modern Computer from First Principles By Noam Nisan, Shimon Schocken Free PDF d0wnl0ad, audio books, books to read, good books to read, cheap books, good books, online books, books online, book reviews epub, read books online, books to read online, online library, greatbooks to read, PDF best books to read, top books to read The Elements of Computing Systems: Building a Modern Computer from First Principles By Noam Nisan, Shimon Schocken books to read online.

Online The Elements of Computing Systems: Building a Modern Computer from First Principles By Noam Nisan, Shimon Schocken ebook PDF download

The Elements of Computing Systems: Building a Modern Computer from First Principles By Noam Nisan, Shimon Schocken Doc

The Elements of Computing Systems: Building a Modern Computer from First Principles By Noam Nisan, Shimon Schocken Mobipocket

The Elements of Computing Systems: Building a Modern Computer from First Principles By Noam Nisan, Shimon Schocken EPub