



Digital Design and Computer Architecture, Second Edition

By David Harris, Sarah Harris

Download now

Read Online →

Digital Design and Computer Architecture, Second Edition By David Harris, Sarah Harris

Digital Design and Computer Architecture, Second Edition, takes a unique and modern approach to digital design, introducing the reader to the fundamentals of digital logic and then showing step by step how to build a MIPS microprocessor in both Verilog and VHDL. This new edition combines an engaging and humorous writing style with an updated and hands-on approach to digital design. It presents new content on I/O systems in the context of general purpose processors found in a PC as well as microcontrollers found almost everywhere.

Beginning with digital logic gates and progressing to the design of combinational and sequential circuits, the book uses these fundamental building blocks as the basis for the design of an actual MIPS processor. It provides practical examples of how to interface with peripherals using RS232, SPI, motor control, interrupts, wireless, and analog-to-digital conversion. SystemVerilog and VHDL are integrated throughout the text in examples illustrating the methods and techniques for CAD-based circuit design. There are also additional exercises and new examples of parallel and advanced architectures, practical I/O applications, embedded systems, and heterogeneous computing, plus a new appendix on C programming to strengthen the connection between programming and processor architecture.

This new edition will appeal to professional computer engineers and to students taking a course that combines digital logic and computer architecture.

Updated based on instructor feedback with more exercises and new examples of parallel and advanced architectures, practical I/O applications, embedded systems, and heterogeneous computing

- Presents digital system design examples in both VHDL and SystemVerilog (updated for the second edition from Verilog), shown side-by-side to compare and contrast their strengths
- Includes a new chapter on C programming to provide necessary prerequisites and strengthen the connection between programming and processor architecture
- Companion Web site includes links to Xilinx CAD tools for FPGA design,

lecture slides, laboratory projects, and solutions to exercises.

Instructors can also register at textbooks.elsevier.com for access to:

- Solutions to all exercises (PDF)
- Lab materials with solutions
- HDL for textbook examples and exercise solutions
- Lecture slides (PPT)
- Sample exams
- Sample course syllabus
- Figures from the text (JPG, PPT)

 [Download Digital Design and Computer Architecture, Second E ...pdf](#)

 [Read Online Digital Design and Computer Architecture, Second ...pdf](#)

Digital Design and Computer Architecture, Second Edition

By David Harris, Sarah Harris

Digital Design and Computer Architecture, Second Edition By David Harris, Sarah Harris

Digital Design and Computer Architecture, Second Edition, takes a unique and modern approach to digital design, introducing the reader to the fundamentals of digital logic and then showing step by step how to build a MIPS microprocessor in both Verilog and VHDL. This new edition combines an engaging and humorous writing style with an updated and hands-on approach to digital design. It presents new content on I/O systems in the context of general purpose processors found in a PC as well as microcontrollers found almost everywhere.

Beginning with digital logic gates and progressing to the design of combinational and sequential circuits, the book uses these fundamental building blocks as the basis for the design of an actual MIPS processor. It provides practical examples of how to interface with peripherals using RS232, SPI, motor control, interrupts, wireless, and analog-to-digital conversion. SystemVerilog and VHDL are integrated throughout the text in examples illustrating the methods and techniques for CAD-based circuit design. There are also additional exercises and new examples of parallel and advanced architectures, practical I/O applications, embedded systems, and heterogeneous computing, plus a new appendix on C programming to strengthen the connection between programming and processor architecture.

This new edition will appeal to professional computer engineers and to students taking a course that combines digital logic and computer architecture.

Updated based on instructor feedback with more exercises and new examples of parallel and advanced architectures, practical I/O applications, embedded systems, and heterogeneous computing

- Presents digital system design examples in both VHDL and SystemVerilog (updated for the second edition from Verilog), shown side-by-side to compare and contrast their strengths
- Includes a new chapter on C programming to provide necessary prerequisites and strengthen the connection between programming and processor architecture
- Companion Web site includes links to Xilinx CAD tools for FPGA design, lecture slides, laboratory projects, and solutions to exercises.

Instructors can also register at textbooks.elsevier.com for access to:

- Solutions to all exercises (PDF)
- Lab materials with solutions
- HDL for textbook examples and exercise solutions
- Lecture slides (PPT)
- Sample exams
- Sample course syllabus
- Figures from the text (JPG, PPT)

Digital Design and Computer Architecture, Second Edition By David Harris, Sarah Harris
Bibliography

- Sales Rank: #293349 in Books
- Brand: imusti
- Published on: 2012-08-07
- Original language: English
- Number of items: 1
- Dimensions: 1.40" h x 7.50" w x 9.20" l, 3.15 pounds
- Binding: Paperback
- 712 pages

 [Download Digital Design and Computer Architecture, Second E ...pdf](#)

 [Read Online Digital Design and Computer Architecture, Second ...pdf](#)

Download and Read Free Online Digital Design and Computer Architecture, Second Edition By David Harris, Sarah Harris

Editorial Review

Review

"...intended as a course text for college or university level students, this book would serve just as well for anyone who just wants to learn about computer architecture or design... it stands as one of the best introductions to the subject and seems ideal for anyone wanting to learn digital design with no prior knowledge. The time investment would be handsomely rewarded and the range of topics covered, as well as the clear explanation of trickier issues, is extremely impressive." --**BCS.org, April 2013**

"Harris and Harris have taken the popular pedagogy from Computer Organization and Design down to the next level of refinement, showing in detail how to build a MIPS microprocessor in both Verilog and VHDL. Given the exciting opportunity that students have to run large digital designs on modern FPGAs, the approach the authors take in this book is both informative and enlightening." --**David A. Patterson, University of California at Berkeley, Co-author of Computer Organization and Design**

"Developed at Harvey Mudd College, this undergraduate textbook introduces combinatorial logic and sequential logic circuit design, describes the computer's microarchitecture that connects hardware with software, and explains how to build a MIPS microprocessor." --**Reference and Research Book News, February 2013**

From the Back Cover

Digital Design and Computer Architecture

Second Edition

David Money Harris and Sarah L. Harris

"Harris and Harris have taken the popular pedagogy from Computer Organization and Design down to the next level of refinement, showing in detail how to build a MIPS microprocessor in both Verilog and VHDL. Given the exciting opportunity that students have to run large digital designs on modern FPGAs, the approach the authors take in this book is both informative and enlightening."

?David A. Patterson, *University of California at Berkeley, Co-author of Computer Organization and Design*

Digital Design and Computer Architecture takes a unique and modern approach to digital design. Beginning with digital logic gates and progressing to the design of combinational and sequential circuits, Harris and Harris use these fundamental building blocks as the basis for what follows: the design of an actual MIPS processor. SystemVerilog and VHDL are integrated throughout the text in examples illustrating the methods and techniques for CAD-based circuit design. By the end of this book, readers will be able to build their own microprocessor and will have a top-to-bottom understanding of how it works. Harris and Harris have combined an engaging and humorous writing style with an updated and hands-on approach to digital design.

This second edition has been updated with new content on I/O systems in the context of general purpose

processors found in a PC as well as microcontrollers found almost everywhere. The new edition provides practical examples of how to interface with peripherals using RS232, SPI, motor control, interrupts, wireless, and analog-to-digital conversion. High-level descriptions of I/O interfaces found in PCs include USB, SDRAM, WiFi, PCI Express, and others. In addition to expanded and updated material throughout, SystemVerilog is now featured in the programming and code examples (replacing Verilog), alongside VHDL. This new edition also provides additional exercises and a new appendix on C programming to strengthen the connection between programming and processor architecture.

SECOND Edition Features

- Covers the fundamentals of digital logic design and reinforces logic concepts through the design of a MIPS microprocessor.
- Features side-by-side examples of the two most prominent Hardware Description Languages (HDLs) SystemVerilog and VHDL which illustrate and compare the ways each can be used in the design of digital systems.
- Includes examples throughout the text that enhance the reader's understanding and retention of key concepts and techniques.
- Companion Web site includes links to CAD tools for FPGA design from Altera and Mentor Graphics, lecture slides, laboratory projects, and solutions to exercises.

David Money Harris Professor of Engineering, Harvey Mudd College

Sarah L. Harris Associate Professor of Engineering, Harvey Mudd College

About the Author

David Money Harris is an associate professor of engineering at Harvey Mudd College. He received his Ph.D. in electrical engineering from Stanford University and his M.Eng. in electrical engineering and computer science from MIT. Before attending Stanford, he worked at Intel as a logic and circuit designer on the Itanium and Pentium II processors. Since then, he has consulted at Sun Microsystems, Hewlett-Packard, Evans & Sutherland, and other design companies.

David's passions include teaching, building chips, and exploring the outdoors. When he is not at work, he can usually be found hiking, mountaineering, or rock climbing. He particularly enjoys hiking with his son, Abraham, who was born at the start of this book project. David holds about a dozen patents and is the author of three other textbooks on chip design, as well as two guidebooks to the Southern California mountains.

Sarah L. Harris is an Assistant Professor of Engineering at Harvey Mudd College. She received her Ph.D. and M.S. in Electrical Engineering from Stanford University. Before attending Stanford, she received a B.S. in Electrical and Computer Engineering from Brigham Young University. Sarah has also worked with Hewlett-Packard, the San Diego Supercomputer Center, Nvidia, and Microsoft Research in Beijing.

Sarah loves teaching, exploring and developing new technologies, traveling, wind surfing, rock climbing, and playing the guitar. Her recent exploits include researching sketching interfaces for digital circuit design, acting as a science correspondent for a National Public Radio affiliate, and learning how to kite surf. She speaks four languages and looks forward to learning more in the near future.

Users Review

From reader reviews:

Stacey Stern:

Book is to be different for each grade. Book for children until adult are different content. To be sure that book is very important normally. The book Digital Design and Computer Architecture, Second Edition seemed to be making you to know about other understanding and of course you can take more information. It is rather advantages for you. The reserve Digital Design and Computer Architecture, Second Edition is not only giving you much more new information but also to be your friend when you sense bored. You can spend your own personal spend time to read your e-book. Try to make relationship using the book Digital Design and Computer Architecture, Second Edition. You never really feel lose out for everything in case you read some books.

Valerie Gray:

This Digital Design and Computer Architecture, Second Edition book is not ordinary book, you have after that it the world is in your hands. The benefit you will get by reading this book is definitely information inside this book incredible fresh, you will get data which is getting deeper you read a lot of information you will get. This Digital Design and Computer Architecture, Second Edition without we recognize teach the one who studying it become critical in imagining and analyzing. Don't be worry Digital Design and Computer Architecture, Second Edition can bring any time you are and not make your carrier space or bookshelves' grow to be full because you can have it inside your lovely laptop even phone. This Digital Design and Computer Architecture, Second Edition having excellent arrangement in word along with layout, so you will not really feel uninterested in reading.

Christopher Sanchez:

Reading a reserve can be one of a lot of pastime that everyone in the world loves. Do you like reading book so. There are a lot of reasons why people love it. First reading a reserve will give you a lot of new data. When you read a book you will get new information mainly because book is one of many ways to share the information or perhaps their idea. Second, reading a book will make you actually more imaginative. When you studying a book especially fictional book the author will bring someone to imagine the story how the personas do it anything. Third, you can share your knowledge to others. When you read this Digital Design and Computer Architecture, Second Edition, you are able to tells your family, friends and soon about yours book. Your knowledge can inspire different ones, make them reading a guide.

Homer Holmes:

Is it you actually who having spare time after that spend it whole day through watching television programs or just resting on the bed? Do you need something new? This Digital Design and Computer Architecture, Second Edition can be the solution, oh how comes? A book you know. You are therefore out of date, spending your spare time by reading in this new era is common not a nerd activity. So what these textbooks have than the others?

**Download and Read Online Digital Design and Computer
Architecture, Second Edition By David Harris, Sarah Harris
#BA18WZTPDFJ**

Read Digital Design and Computer Architecture, Second Edition By David Harris, Sarah Harris for online ebook

Digital Design and Computer Architecture, Second Edition By David Harris, Sarah Harris 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 Digital Design and Computer Architecture, Second Edition By David Harris, Sarah Harris books to read online.

Online Digital Design and Computer Architecture, Second Edition By David Harris, Sarah Harris ebook PDF download

Digital Design and Computer Architecture, Second Edition By David Harris, Sarah Harris Doc

Digital Design and Computer Architecture, Second Edition By David Harris, Sarah Harris Mobipocket

Digital Design and Computer Architecture, Second Edition By David Harris, Sarah Harris EPub

BA18WZTPDFJ: Digital Design and Computer Architecture, Second Edition By David Harris, Sarah Harris