

Digital Design and Computer Architecture: RISC-V Edition By Sarah L. Harris, David Harris

The newest addition to the Harris and Harris family of Digital Design and Computer Architecture books this RISC V Edition covers the fundamentals of digital logic design and reinforces logic concepts through the design of a RISC V microprocessor. Combining an engaging and humorous writing style with an updated and hands on approach to digital design this book takes the reader from the fundamentals of digital logic to the actual design of a processor. Beginning with digital logic gates and progressing to the design of combinational and sequential circuits this book uses these fundamental building blocks as the basis for designing a RISC V processor. The companion website includes a chapter on I/O systems with practical examples that show how to use SparkFuns RED V RedBoard to communicate with peripheral devices such as LCDs Bluetooth radios and motors. This book will be a valuable resource for students taking a course that combines digital logic and computer architecture or students taking a two quarter sequence in digital logic and computer organization/architecture. Covers the fundamentals of digital logic design and reinforces logic concepts through the design of a RISC V microprocessor Gives students a full understanding of the RISC V instruction set architecture enabling them to build a RISC V processor and program the RISC V processor in hardware simulation software simulation and in hardware Includes both SystemVerilog and VHDL designs of fundamental building blocks as well as of single cycle multicycle and pipelined versions of the RISC V architecture Features a companion website with a bonus chapter on I/O systems with practical examples that show how to use SparkFuns RED V RedBoard to communicate with peripheral devices such as LCDs Bluetooth radios and motors The companion website also includes appendices covering practical digital design issues and C programming as well as links to CAD tools lecture slides laboratory projects and solutions to exercises See the companion EdX MOOCs ENGR85A and ENGR85B with video lectures and interactive problems Digital Design and Computer Architecture: RISC-V Edition



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Sarah L. Harris
David Harris

I find this book teaches the subject very well: By the end of this book readers will be able to build their own RISC V microprocessor and will have a top to bottom understanding of how it works: SystemVerilog and VHDL are integrated throughout the text in examples illustrating the methods and techniques for CAD based circuit design. Viewing on a Kindle is not easy as the lessons taught discuss diagrams and graphics, the graphics and diagrams don't display on the same page doesn't matter if I view on a computer iPad or Kindle. To fully grasp the concepts one must view the graphics on another device such as a computer or iPad while reading on another device: I am glad the publishers allowed us to have copies on multiple devices: After being in my class for two weeks I am ordering a physical book. I am glad I have the Kindle version as it allows searching just wish they included community notes! Digital Design and Computer Architecture: RISC-V Edition.