Digital Logic and Microprocessor Design with VHDL

By Enoch O. Hwang

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This book will teach students how to design digital logic circuits, specifically combinational and sequential circuits. Students will learn how to put these two types of circuits together to form dedicated and general-purpose microprocessors. This book is unique in that it combines the use of logic principles and the building of individual components to create data paths and control units, and finally the building of real dedicated custom microprocessors and general-purpose microprocessors. After understanding the material in the book, students will be able to design simple microprocessors and implement them in real hardware.

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Chapter 1. Designing Microprocessors 1.1 Overview of a Microprocessor 1.2 Design Abstraction Levels 1.3 Examples of a 2-to-1 Multiplexer 1.4 Introduction to VHDL 1.5 Synthesis 1.6 Going Forward 1.7 Summary Checklist 1.8 Problems Chapter 2. Digital Circuits 2.1 Binary Numbers 2.2 Binary Switch 2.3 Basic Logic Operators and Logic Expressions 2.4 Truth Tables 2.5 Boolean Algebra and Boolean Function 2.6 Minterms and Maxterms 2.7 Canonical, Standard, and non-Standard Forms 2.8 Logic Gates and Circuit Diagrams 2.9 Example: Designing a Car Security System 2.10 VHDL for Digital Circuits 2.11 Summary Checklist 2.12 Problems Chapter 3. Combinational Circuits 3.1 Analysis of Combinational Circuits 3.2 Synthesis of Combinational Circuits 3.3 * Technology Mapping 3.4 Minimization of Combinational Circuits 3.5 * Timing Hazards and Glitches 3.6 7-Segment Decoder Example 3.7 VHDL for Combinational Circuits 3.8 Summary Checklist 3.9 Problems Chapter 4. Standard Combinational Components 4.1 Signal Naming Conventions 4.2 Adder 4.3 Two?s Complement Binary Numbers 4.4 Subtractor 4.5 Adder-Subtractor Combination 4.6 Arithmetic Logic Unit 4.7 Decoder 4.8 Encoder 4.9 Multiplexer 4.10 Tri-state Buffer 4.11 Comparator 4.12 Shifter-Rotator 4.13 Multiplier 4.14 Summary Checklist 4.15 Problems Chapter 5. * Implementation Technologies 5.1 Physical Abstraction 5.2 Metal-Oxide-Semiconductor Field-Effect Transistor (MOSFET) 5.3 CMOS Logic 5.4 CMOS Circuits 5.5 Analysis of CMOS Circuits 5.6 Using ROMs to Implement a Function 5.7 Using PLAs to Implement a Function 5.8 Using PALs to Implement a Function 5.9 Complex Programmable Logic Device (CPLD) 5.10 Field-Programmable Gate Array (FPGA) 5.11 Summary Checklist 5.12 Problems Chapter 6. Latches and Flip-Flops 6.1 Bistable Element 6.2 SR Latch 6.3 SR Latch with Enable 6.4 D Latch 6.5 D Latch with Enable 6.6 Clock 6.7 D Flip-Flop 6.8 D Flip-Flop with Enable 6.9 Asynchronous Inputs 6.10 Description of a Flip-Flop 6.11 Timing Issues 6.12 Example: Car Security System ? Version 2 6.13 VHDL for Latches and Flip-Flops 6.14 * Flip-Flop Types 6.15 Summary Checklist 6.16 Problems Chapter 7. Sequential Circuits 7.1 Finite-State-Machine (FSM) Model 7.2 State Diagrams 7.3 Analysis of Sequential Circuits 7.4 Synthesis of Sequential Circuits 7.5 Unused State Encodings and the Encoding of States 7.6 Example: Car Security System ? Version 3 7.7 VHDL for Sequential Circuits 7.8 * Optimization for Sequential Circuits 7.9 Summary Checklist 7.10 Problems Chapter 8. Standard Sequential Components 8.1 Registers 8.2 Shift Registers 8.3 Counters 8.4 Register Files 8.5 Static Random Access Memory 8.6 * Larger Memories 8.6.1 More Memory Locations 8.7 Summary Checklist 8.8 Problems Chapter 9. Datapaths 9.1 General Datapath 9.2 Using a General Datapath 9.3 Timing Issues 9.4 A More Complex General Datapath 9.5 Dedicated Datapath 9.6 Designing Dedicated Datapaths 9.7 Using a Dedicated Datapath 9.8 VHDL for Datapaths 9.9 Summary Checklist 9.10 Problems Chapter 10. Control Units 10.1 Constructing the Control Unit 10.2 Examples 10.3 Generating Status Signals 10.4 Timing Issues 10.5 Standalone Controllers 10.6 * ASM Charts and State Action Tables 10.7 VHDL for Control Units 10.8 Summary Checklist 10.9 Problems Chapter 11. Dedicated Microprocessors 11.1 Manual Construction of a Dedicated Microprocessor 11.2 Examples 11.3 VHDL for Dedicated Microprocessors 11.4 Summary Checklist 11.5 Problems Chapter 12. General-Purpose Microprocessors 12.1 Overview of the CPU Design 12.2 The EC-1 General-Purpose Microprocessor 12.3 The EC-2 General-Purpose Microprocessor 12.4 VHDL for General-Purpose Microprocessors 12.5 Summary Checklist 12.6 Problems Appendix A. Schematic Entry Tutorial 1 A.1 Getting Started A.2 Using the Graphic Editor A.3 Specifying the Top-Level File and Project A.4 Synthesis for Functional Simulation A.5 Circuit Simulation A.6 Creating and Using the Logic Symbol Appendix B. VHDL Entry Tutorial 2 B.1 Getting Started B.2 Synthesis for Functional Simulation B.3 Circuit Simulation Appendix C. UP2 Programming Tutorial 3 C.1 Getting Started C.2 Synthesis for Programming the PLD C.3 Circuit Simulation C.4 Using the Floorplan Editor C.5 Fitting the Netlist and Pins to the PLD C.6 Hardware Setup C.7 Programming the PLD C.8 Testing the Hardware C.9

About the Author

Dr. Enoch Hwang has a Ph.D. in Computer Science from the University of California, Riverside. He currently serves as a Professor of Computer Science at La Sierra University in Southern California, teaching digital logic and microprocessor design. In 2015, Dr. Hwang was invited to serve as a visiting professor to Zhejiang University in Hangzhou, China, where he taught their Digital Systems Design course. Many new ideas from that class have been incorporated into this edition of the book. From as early as childhood, Dr. Hwang was fascinated with electronic circuits. In one of his first experiments, he attempted to connect a microphone to the speaker inside a portable radio through the earphone plug. Instead of hearing sound from the microphone through the speaker, smoke was seen coming out of the radio. Thus ended that experiment and his family's only radio. He now continues on his interest in digital circuits with research in embedded microprocessor systems, controller automation, power optimization, and robotics.

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