Digital Electronics Laboratory Experiments Using the Xilinx XC95108 CPLD with Xilinx Foundation: Design and Simulation Software (2nd Edition)

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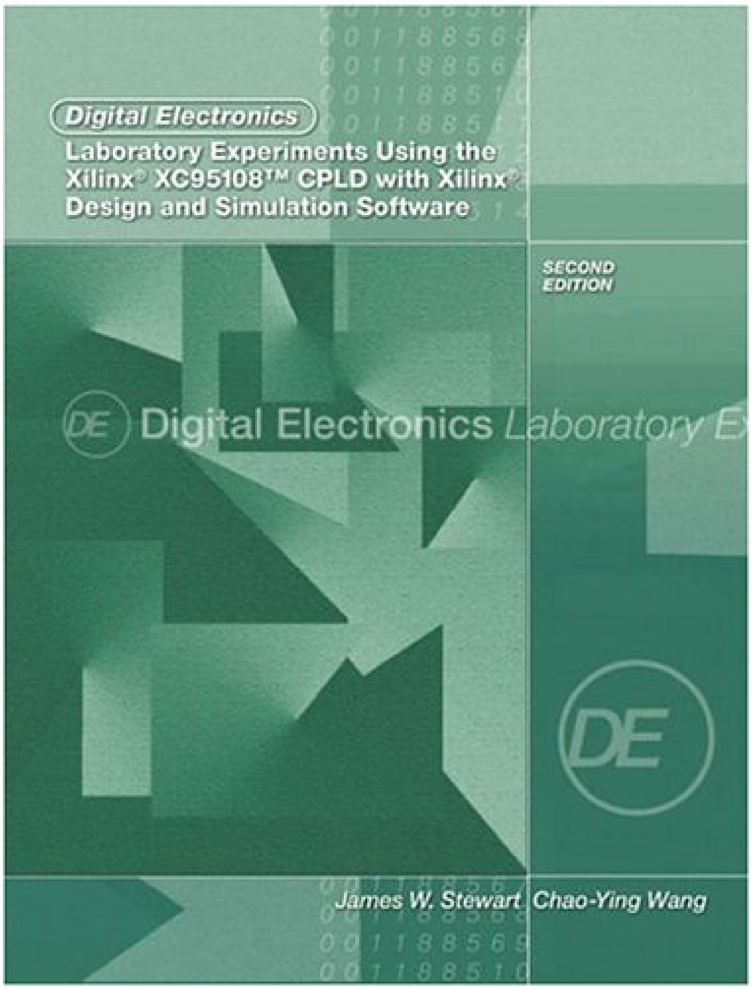

#4133551 in Books 2003-04-27Original language:EnglishPDF # 1 10.90 x .90 x 8.20l, .0 #File Name: 0131131249320 pages | File size: 41.Mb

James Stewart, Chao-Ying Wang : Digital Electronics Laboratory Experiments Using the Xilinx XC95108 CPLD with Xilinx Foundation: Design and Simulation Software (2nd Edition) before purchasing it in order to gage whether or not it would be worth my time, and all praised Digital Electronics Laboratory Experiments Using the Xilinx XC95108 CPLD with Xilinx Foundation: Design and Simulation Software (2nd Edition):

This manual offers an easy-to-read, easy-to-follow approach to digital fundamentals through the use of Complex Programmable Logic Devices (CPLDs). The use of advanced logic device technology prepares readers for using an industry-standard design environment. The first shorter section of the book contains a set of lab jobs using a single TTL chip: the 74LS00 quad 2-input NAND gate, allowing students to build a few simple circuits immediately. The second section contains a set of hands-on lab jobs with step-by-step instructions on using the Xilinx XC95108 CPLD. With its comprehensive appendices, this manual can prove useful to those who work with large-scale programmable devices such as CPLDs and FPGAs in the fields of electronics and engineering.

From the Back CoverThis manual offers an easy-to-read, easy-to-follow approach to digital fundamentals through the use of Complex Programmable Logic Devices (CPLDs). The use of advanced logic device technology prepares readers for using an industry-standard design environment. The first shorter section of the book contains a set of lab jobs using a single TTL chip: the 74LS00 quad 2-input NAND gate, allowing students to build a few simple circuits immediately. The second section contains a set of hands-on lab jobs with step-by-step instructions on using the Xilinx XC95108 CPLD. With its comprehensive appendices, this manual can prove useful to those who work with large-scale programmable devices such as CPLDs and FPGAs in the fields of electronics and engineering.Excerpt. Reprinted by permission. All rights reserved. Up until recently, almost all lab manuals for introductory digital courses at the Electronics Engineering Technology (EET) or Electronics and Computer Technology (ECT) level have been written around the use of TTL chips. But TTL is becoming hard to find since the industry has long since moved on to large-scale programmable devices such as CPLDs and FPGAs. Now several vendors are supplying CPLD-based experiment boards aimed at students. The switches and LEDs of the target board are used to supply the input-output functions. Besides the problem of finding suitable lab boards, there is the perception that a steep learning curve has to be climbed in order to use the software tools required for programmable logic. The reality is that it's not as steep as it seems, as this manual attempts to show. We have written a set of hands-on lab jobs with step-by-step instructions on using the design software. The lab jobs are based on the Xilinx XC95108 CPLD, and use the student version of software supplied by Xilinx. The manual is in two sections. The first, shorter section is a set of lab jobs using a single TTL chip: the 74LSOO quad 2-input NAND gate. This allows the students to build a few simple circuits immediately. The TTL labs can be skipped if desired since the same concepts are covered in the CPLD labs. The second section, on using the CPLD, is the bulk of the manual. The first few labs in the CPLD section explore basic gates and Boolean algebra. We then move on to combinatorial circuits including adders, multiplexers, encoders, and decoders. Next we explore latches and flip-flops, followed by counters and registers. Appendices include data for the XC95108 as well as documentation for two target boards and a glossary of terms for future reference. Selecting a target board is a key task for the instructor using this manual. The first decision is whether to build or buy. If the decision is to build, the board described in the appendix of Dave Van den Bout's The Practical Xilinx Designer Lab Book from Prentice Hall is a good example. If the decision is to buy, two possibilities are the XS95 / XStend board combination from XESS Corporation and the PLDT-3 board from RSR Electronics. The XESS board set is more advanced and supports mouse, VGA, and CODEC interfaces as well as switches, LEDs, and displays. It has an on-board 8051 microcontroller. In contrast, the RSR board is a basic prototyping board with switches, LEDs, 7-segment displays, and connectors for wiring. In writing this manual, we thought it would be useful to refer to a specific target board in order to avoid vagueness. Therefore many of the labs in this manual refer to the PLDT-3 board, but the labs can be implemented on any target board using the same CPLD device. We were pleased by the many adoptions of the first edition. In this second edition, we have added a lab on a 256x8 RAM module. We have also spread out the TTL material over four labs instead of three. We wish to thank the following people for their support and help on this project: Dean Yehya Abdellatif, Tinu Patel, Vincenzo Pappano, the Network Support Staff, and our other colleagues at DeVry College of New Jersey; Patrick Kane of Xilinx; Ajit Gulati and Robert Wichiciel of RSR Incorporated; and Dave Van den Bout of XESS Corporation.