

Lab No. 01

INTRODUCTION TO DIGITAL LOGIC DESIGN LAB EQUIPMENT

Objective:

To Study the operation of different parts of Digital Analog Training System (ETS-7000)

Tools:

- 1- **Digital Analog Trainer (ETS-7000):**
The digital analog trainer is designed for beginners to enhance their concepts about digital and analog theory. It has a solderless breadboard with other parts like switches, LEDs, Seven Segment Display and other slots for wires.
- 2- **Breadboard:**
It is used for the prototyping and hardware simulation of a circuit. It is used to test and check a circuit before soldering the circuit components on a PCB or a Vero board. It makes the testing and analysis of a circuit, a reversible and easy to troubleshoot process unlike the analysis of a circuit on a Vero board.
- 3- **Jumper Wire:**
This wire is used with a breadboard to transmit electric signals. It is used as a conductor with high conductivity and low resistivity.
- 4- **Logic Indicator:**
This indicator is mounted on the trainer and is used to monitor the logic state of the circuit.
- 5- **Logic Switch:**
It is a diode arrangement present on the ETS-7000 trainer and is capable of directing an input signal.
- 6- **DC Power Supply:**
It is an electronic device used in order to supply DC energy to an electrical load.



Figure 1: ETS-7000 (Digital Analog Trainer)

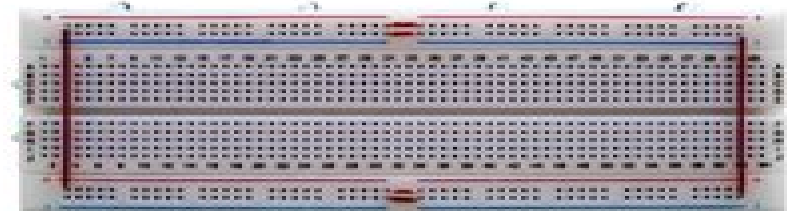


Figure 3: Jumper Wires



Analog Circuit And Logic Design Lab Manual

Sunggu Lee



Analog Circuit And Logic Design Lab Manual:

Digital Circuit Design Laboratory Manual, 4th edition (Global) Akhan Almagambetov, J. Matt Pavlina, Yelena Mukhortova, 2002-05-06

Computer-Aided Design of Analog Integrated Circuits and Systems Rob A. Rutenbar, Georges G. E. Gielen, 2002-05-06

The tools and techniques you need to break the analog design bottleneck Ten years ago analog seemed to be a dead end technology Today System on Chip SoC designs are increasingly mixed signal designs With the advent of application specific integrated circuits ASIC technologies that can integrate both analog and digital functions on a single chip analog has become more crucial than ever to the design process Today designers are moving beyond hand crafted one transistor at a time methods They are using new circuit and physical synthesis tools to design practical analog circuits new modeling and analysis tools to allow rapid exploration of system level alternatives and new simulation tools to provide accurate answers for analog circuit behaviors and interactions that were considered impossible to handle only a few years ago To give circuit designers and CAD professionals a better understanding of the history and the current state of the art in the field this volume collects in one place the essential set of analog CAD papers that form the foundation of today s new analog design automation tools Areas covered are Analog synthesis Symbolic analysis Analog layout Analog modeling and analysis Specialized analog simulation Circuit centering and yield optimization Circuit testing

Computer Aided Design of Analog Integrated Circuits and Systems is the cutting edge reference that will be an invaluable resource for every semiconductor circuit designer and CAD professional who hopes to break the analog design bottleneck

The Art and Science of Analog Circuit Design Jim Williams, 1998-08-24

In this companion text to *Analog Circuit Design Art Science and Personalities* seventeen contributors present more tutorial historical and editorial viewpoints on subjects related to analog circuit design By presenting divergent methods and views of people who have achieved some measure of success in their field the book encourages readers to develop their own approach to design In addition the essays and anecdotes give some constructive guidance in areas not usually covered in engineering courses such as marketing and career development Includes visualizing operation of analog circuits Describes troubleshooting for optimum circuit performance Demonstrates how to produce a saleable product

The Macmillan Guide to Correspondence Study Modoc Press, 1996

Digital Design from Zero to One Jerry D. Daniels, 1996-04-19

Takes a fresh look at basic digital design From definition to example to graphic illustration to simulation result the book progresses through the main themes of digital design Technically up to date this book covers all the latest topics Field programmable gate arrays PALs and ROMs The latest memory chips for SRAM and DRAM are shown Software for creating the excitation equations of FSM are covered as well as LogicWorks and Beige Bag PC and more

Computer Design Aids for VLSI Circuits P. Antognetti, Donald O. Pederson, Hugo De Man, 2013-11-11

The Nato Advanced Study Institute on Computer Design Aids for VLSI Circuits was held from July 21 to August 1 1980 at Sogesta Urbino Italy Sixty three carefully chosen professionals were invited to participate in this institute together with 12 lecturers and 7

assistants The 63 participants were selected from a group of almost 140 applicants Each had the background to learn effectively the set of computer IC design aids which were presented Each also had individual expertise in at least one of the topics of the Institute The Institute was designed to provide hands on type of experience rather than consisting of solely lecture and discussion Each morning detailed presentations were made concerning the critical algorithms that are used in the various types of computer IC design aids Each afternoon a lengthy period was used to provide the participants with direct access to the computer programs In addition to using the programs the individual could if his expertise was sufficient make modifications of and extensions to the programs or establish limitations of these present aids The interest in this hands on activity was very high and many participants worked with the programs every free hour The editors would like to thank the Direction of SOGESTA for the excellent facilities 1r R Riccioni of the SOGESTA Computer Center and Mr 11 Vanzi of the University of Genova for enabling all the programs to run smoothly on the set date P Antognetti D O Pederson Urbino Summer 1980 Christian Home Educators' Curriculum Manual Cathy Duffy,1995-07 Cathy Duffy draws upon her many years of home education experience both in teaching and researching curriculum to bring us the most thorough and useful book available on teaching teenagers at home Scientific and Technical Aerospace Reports ,1992-06 **Subject Guide to Books in Print** ,1983 **Resources in Education** ,1976 AN INTRODUCTION TO VLSI DESIGN AND TESTING P. Brundavani ,B. Abdul Raheem ,Rachapudi Prabahakar ,2025-05-20 VLSI Design and Testing provides a concise yet comprehensive guide to the design analysis and testing of integrated circuits Covering key topics such as IC types Moore s Law MOSFET and CMOS fabrication and SOI technology the book builds a strong foundation in VLSI principles It explores the design flow CMOS logic gates layout techniques and both static and dynamic logic circuits Readers will also learn about circuit performance parameters scaling theory and subsystem design including adders shifters and comparators The book concludes with essential concepts in VLSI design styles FPGA gate array full custom and CMOS testing including fault models ATPG and BIST Ideal for students and professionals it blends theory with practical design strategies in modern VLSI systems Visit garuda publishers com Technical Abstract Bulletin ,1964 Sigma-Delta Converters: Practical Design Guide Jose M. de la Rosa,2018-11-05 Thoroughly revised and expanded to help readers systematically increase their knowledge and insight about Sigma Delta Modulators Sigma Delta Modulators SDMs have become one of the best choices for the implementation of analog digital interfaces of electronic systems integrated in CMOS technologies Compared to other kinds of Analog to Digital Converters ADCs Ms cover one of the widest conversion regions of the resolution versus bandwidth plane being the most efficient solution to digitize signals in an increasingly number of applications which span from high resolution low bandwidth digital audio sensor interfaces and instrumentation to ultra low power biomedical systems and medium resolution broadband wireless communications Following the spirit of its first edition Sigma Delta Converters Practical Design Guide 2nd Edition takes a comprehensive look at SDMs their diverse types of architectures circuit

techniques analysis synthesis methods and CAD tools as well as their practical design considerations It compiles and updates the current research reported on the topic and explains the multiple trade offs involved in the whole design flow of Sigma Delta Modulators from specifications to chip implementation and characterization The book follows a top down approach in order to provide readers with the necessary understanding about recent advances trends and challenges in state of the art Ms It makes more emphasis on two key points which were not treated so deeply in the first edition It includes a more detailed explanation of Ms implemented using Continuous Time CT circuits going from system level synthesis to practical circuit limitations It provides more practical case studies and applications as well as a deeper description of the synthesis methodologies and CAD tools employed in the design of converters Sigma Delta Converters Practical Design Guide 2nd Edition serves as an excellent textbook for undergraduate and graduate students in electrical engineering as well as design engineers working on SD data converters who are looking for a uniform and self contained reference in this hot topic With this goal in mind and based on the feedback received from readers the contents have been revised and structured to make this new edition a unique monograph written in a didactical pedagogical and intuitive style *Government Reports*

Announcements ,1974 'American Book Publishing Record' Cumulative R. R. Bowker LLC,1978 **Design of Computers**

and Other Complex Digital Devices Sunggu Lee,2000 Uniquely this advanced digital logic design textbook has as its design target an actual commercial 8 bit processor the Intel 8080 serving as an extended example of the effective use of VHDL a hardware description language EPG As field programmable gate arrays and the ASM Algorithmic State Machine method to achieve this end Part I provides a refresher course in basic digital logic design Part II examines the use of programmable logic devices hardware description languages and the ASM method for implementation of general algorithms in hardware Part III details the microprocessor s design and implementation specifications Appends an overview of the Intel 8080 instruction set and suggested lab projects for junior and senior level students in electrical and computer engineering

Summaries of Projects Completed in Fiscal Year ... , **Summaries of Projects Completed** National Science Foundation (U.S.), *Summaries of Projects Completed in Fiscal Year ...* National Science Foundation (U.S.),1979 **The Software Encyclopedia 2001** ,2001

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