

Cadence Orcad Pcb Designer 16 Virginia Tech

New, updated and expanded topics in the fourth edition include: EBCDIC, Grey code, practical applications of flip-flops, linear and shaft encoders, memory elements and FPGAs. The section on fault-finding has been expanded. A new chapter is dedicated to the interface between digital components and analog voltages. *A highly accessible, comprehensive and fully up to date digital systems text *A well known and respected text now revamped for current courses *Part of the Newnes suite of texts for HND/1st year modules

PSpice for Circuit Theory and Electronic Devices is one of a series of five PSpice books and introduces the latest Cadence Orcad PSpice version 10.5 by simulating a range of DC and AC exercises. It is aimed primarily at those wishing to get up to speed with this version but will be of use to high school students, undergraduate students, and of course, lecturers. Circuit theorems are applied to a range of circuits and the calculations by hand after analysis are then compared to the simulated results. The Laplace transform and the s-plane are used to analyze CR and LR circuits where transient signals are involved. Here, the Probe output graphs demonstrate what a great learning tool PSpice is by providing the reader with a visual verification of any theoretical calculations. Series and parallel-tuned resonant circuits are investigated where the difficult concepts of dynamic impedance and selectivity are best understood by sweeping different circuit parameters through a range of values. Obtaining semiconductor device characteristics as a laboratory exercise has fallen out of favour of late, but nevertheless, is still a useful exercise for understanding or modelling semiconductor devices. Inverting and non-inverting operational amplifiers characteristics such as gain-bandwidth are investigated and we will see the dependency of bandwidth on the gain using the performance analysis facility. Power amplifiers are examined where PSpice/Probe demonstrates very nicely the problems of cross-over distortion and other problems associated with power transistors. We examine power supplies and the problems of regulation, ground bounce, and power factor correction. Lastly, we look at MOSFET device characteristics and show how these devices are used to form basic CMOS logic gates such as NAND and NOR gates.

Anyone involved in circuit design that needs the practical know-how it takes to design a successful circuit or product, will find this practical guide to using Capture-PSpice (written by a former Cadence PSpice expert for Europe) an essential book. The text delivers step-by-step guidance on using Capture-PSpice to help professionals produce reliable, effective designs. Readers will learn how to get up and running quickly and efficiently with industry standard software and in sufficient detail to enable building upon personal experience to avoid common errors and pit-falls. This book is of great benefit to professional electronics design engineers, advanced amateur electronics designers, electronic engineering students and academic staff looking for a book with a real-world design outlook. Provides both a comprehensive user guide, and a detailed overview of simulation Each chapter has worked and ready to try sample designs and provides a wide range of to-do exercises Core skills are developed using a running case study circuit Covers Capture and PSpice together for the first time Provides step-by-step instructions on basic hacking techniques and reverse engineering skills along with information on Xbox security, hardware, and software.

This domain derives from such diverse disciplines as electronics, mechanical engineering, fluid dynamics, thermodynamics, chemistry, physics, metallurgy and optics. The author, with nearly four decades of experience in R&D, technology development, and education and training, provides a practical and hand-on approach to the subject, by covering the latest technological developments and covering all the

vital aspects of PCB, i.e. design, fabrication, assembly, testing, including reliability and quality. With this coverage, the book will be useful to designers, manufacturers, and students of electrical and electronic engineering.

Electrochemical Impedance Spectroscopy is a compendium of contributions from experts in the field of electrochemical impedance spectroscopy (EIS). This compilation of investigations and reviews addresses the groundbreaking applications of EIS in different fields. An array of exploitations are revealed throughout this book such as the use of EIS in monitoring and controlling of corrosion, in medicine where accurate information on fluid distribution is needed as well as environmental applications in food, water, and drug analyses. Competency of EIS as an approach compared to the traditional electrochemical techniques is assessed in almost every application. This book, therefore, is a valuable reference for students, researchers, and anyone interested in electrochemical impedance spectroscopy.

This book provides instruction on how to use the OrCAD design suite to design and manufacture printed circuit boards. The primary goal is to show the reader how to design a PCB using OrCAD Capture and OrCAD Editor. Capture is used to build the schematic diagram of the circuit, and Editor is used to design the circuit board so that it can be manufactured. The book is written for both students and practicing engineers who need in-depth instruction on how to use the software, and who need background knowledge of the PCB design process. Beginning to end coverage of the printed circuit board design process. Information is presented in the exact order a circuit and PCB are designed Over 400 full color illustrations, including extensive use of screen shots from the software, allow readers to learn features of the product in the most realistic manner possible Straightforward, realistic examples present the how and why the designs work, providing a comprehensive toolset for understanding the OrCAD software Introduces and follows IEEE, IPC, and JEDEC industry standards for PCB design. Unique chapter on Design for Manufacture covers padstack and footprint design, and component placement, for the design of manufacturable PCB's FREE CD containing the OrCAD demo version and design files

Engineering productivity in integrated circuit product design and development today is limited largely by the effectiveness of the CAD tools used. For those domains of product design that are highly dependent on transistor-level circuit design and optimization, such as high-speed logic and memory, mixed-signal analog-digital interfaces, RF functions, power integrated circuits, and so forth, circuit simulation is perhaps the single most important tool. As the complexity and performance of integrated electronic systems has increased with scaling of technology feature size, the capabilities and sophistication of the underlying circuit simulation tools have correspondingly increased. The absolute size of circuits requiring transistor-level simulation has increased dramatically, creating not only problems of computing power resources but also problems of task organization, complexity management, output representation, initial condition setup, and so forth. Also, as circuits of more complexity and mixed types of functionality are attacked with simulation, the spread between time constants or event time scales within the circuit has tended to become wider, requiring new strategies in simulators to deal with large time constant spreads.

FREE PCB SOFTWARE! The EagleCAD light software inside does all the tasks described in this book -- schematic capture, layout, and autorouting. Run it on Windows or Linux. DESIGN TO PRODUCTION -- EVERYTHING YOU NEED TO MAKE YOUR OWN PCBs With Build Your Own Printed Circuit Board, you can eliminate or reduce your company's reliance on outsourcing to

board houses, and cut costs significantly. Perfect for advanced electronics hobbyists as well, this easy-to-follow guide is by far the most up-to-date source on making PCBs. Complete in itself, the handbook even gives you PCB CAD software, on CD, ready to run on either Windows or Linux. (Some PCB software costs from \$10,000 to \$15,000!) STEP-BY-STEP DIRECTIONS, AND A PRACTICE RUNTHROUGH Written by a PCB designer and electronics expert, Build Your Own Printed Circuit Board gives you absolutely everything you need to design and construct a professional-looking prototype or production-ready PCB files with modern CAD tools. You get: * Instructions for every phase of project flow, from design schematics, sizing, layout, and autorouting fabrication * The latest in PCB tips, tricks, and techniques * Cutting-edge tactics for shrinking boards * Guidance on generating CAM (computer-aided manufacturing) files to produce the board yourself or send it out * A sample project, demonstrating all the book's techniques, that you can build and use in practical applications * Discussions on using service bureaus to produce designs * Expert comparison of CAD program options THE BEST GUIDE TO BUILDING YOUR OWN PCBs!

Many different kinds of FPGAs exist, with different programming technologies, different architectures and different software. Field-Programmable Gate Array Technology describes the major FPGA architectures available today, covering the three programming technologies that are in use and the major architectures built on those programming technologies. The reader is introduced to concepts relevant to the entire field of FPGAs using popular devices as examples. Field-Programmable Gate Array Technology includes discussions of FPGA integrated circuit manufacturing, circuit design and logic design. It describes the way logic and interconnect are implemented in various kinds of FPGAs. It covers particular problems with design for FPGAs and future possibilities for new architectures and software. This book compares CAD for FPGAs with CAD for traditional gate arrays. It describes algorithms for placement, routing and optimization of FPGAs. Field-Programmable Gate Array Technology describes all aspects of FPGA design and development. For this reason, it covers a significant amount of material. Each section is clearly explained to readers who are assumed to have general technical expertise in digital design and design tools. Potential developers of FPGAs will benefit primarily from the FPGA architecture and software discussion. Electronics systems designers and ASIC users will find a background to different types of FPGAs and applications of their use.

The PIC microcontroller from Microchip is one of the most widely used 8-bit microcontrollers in the world. In this book, the authors use a step-by-step and systematic approach to show the programming of the PIC18 chip. Examples in both Assembly language and C show how to program many of the PIC18 features such as timers, serial communication, ADC, and SPI.

This new book, written by Andre Vladimirescu, who was instrumental in the development of SPICE at the University of California Berkeley, introduces computer simulation of electrical and electronics circuits based on the SPICE standard. Relying on the functionality first supported in SPICE2 that is now supported in all SPICE programs, this text is addressed to all users of electrical simulation. The approach to learning circuit simulation is to interpret simulation results in relation to electrical engineering fundamentals; the book asks the student to solve most circuit examples by hand before verifying the results with SPICE.

Addressed to both the SPICE novice and the experienced user, the first six chapters provide the relevant information on SPICE

functionality for the analysis of linear as well as nonlinear circuits. Each of these chapters starts out with a linear example accessible to any new user of SPICE and proceeds with nonlinear transistor circuits. The latter part of the book goes into more detail on such issues as functional and hierarchical models, distortion analysis, basic algorithms in SPICE and related options parameters, and, how to direct SPICE to find a solution when it does not converge to a solution. The approach emphasizes that SPICE is not a substitute for knowledge of circuit operation but a complement. The SPICE Book is different from previously published books in the approach of solving circuit problems with a computer. The solution to most circuit examples is sketched out by hand first and followed by a SPICE verification. For more complex circuits it is not feasible to find the solution by hand but the approach stresses the need for the SPICE user to understand the results. Readers gain a better comprehension of SPICE thanks to the importance placed on the relation between EE fundamentals and computer simulation. The tutorial approach advances from the hand solution of a circuit to SPICE verification and simulation results interpretation. This book teaches the approach to electrical circuit simulation rather than a specific simulation program. Examples are simulated alternatively with SPICE2, SPICE3 or PSPICE. Accurate descriptions, simulation rationale and cogent explanations make this an invaluable reference.

Before putting digital systems for information technology or telecommunication applications on the market, an essential requirement is to perform tests in order to comply with the limits of radiated emission imposed by the standards. This book provides an investigation into signal integrity (SI) and electromagnetic interference (EMI) problems. Topics such as reflections, crosstalk, switching noise and radiated emission (RE) in high-speed digital systems are covered, which are essential for IT and telecoms applications. The highly important topic of modelling is covered which can reduce costs by enabling simulation data to demonstrate that a product meets design specifications and regulatory limits. According to the new European EMC directive, this can help to avoid the expensive use of large semi-anechoic chambers or open area test sites for radiated emission assessments. Following a short introduction to signalling and radiated interference in digital systems, the book provides a detailed characterization of logic families in terms of static and dynamic characteristic useful for modelling techniques. Crosstalk in multi-coupled line structures are investigated by analytical, graphical and circuit-based methods, and techniques to mitigate these phenomena are provided. Grounding, filtering and shielding with multilayer PCBs are also examined and design rules given. Written by authors with extensive experience in industry and academia. Explains basic conceptual problems from a theoretical and practical point of view by using numerous measurements and simulations. Presents models for mathematical and SPICE-like circuit simulators. Provides examples of using full-wave codes for SI and RE investigations. Companion website containing lists of codes and sample material. Signal Integrity and Radiated Emission of High-Speed Digital Systems is a valuable resource to industrial designers of information technology, telecommunication equipment and automation equipment as well as to development engineers. It will also be of interest to managers and designers of consumer electronics, and researchers in electronics.

The #1 guide to signal integrity, updated with all-new coverage of power integrity, high-speed serial links, and more * * Up-to-the-minute comprehensive guidance: everything engineers need to know to understand and design for signal integrity. * Authored by world-renowned signal integrity trainer, educator, and columnist Eric Bogatin. * Focuses on intuitive understanding, practical tools, and engineering discipline - not theoretical derivation or mathematical rigor. Today's marketplace demands faster devices and systems that deliver more functionality and longer life in smaller packaging. Signal Integrity - Simplified, Second Edition is the first book to bring together all the up-to-the-minute techniques designers need to overcome all of those challenges. Renowned expert Eric Bogatin thoroughly reviews the root causes of all four families of signal integrity problems, and shows how to design them out early in the design cycle. Drawing on his experience teaching 5,000+ engineers, he illuminates signal integrity, physical design, bandwidth, inductance, and impedance; presents practical tools for solving signal integrity problems; and offers specific design guidelines and solutions. In this edition, Bogatin adds extensive coverage of power integrity and high speed serial links: topics at the forefront of signal integrity design. Three new chapters address: * * Designing power delivery networks to support high-speed signal processing. * Using 4-Port S-parameters, the emerging standard for describing interconnects in high speed serial links. * Working with today's measurement and simulation tools and technologies

"Matt Scarpino has provided a great tool for the hobbyist starting out in the circuit board design world, demonstrating all the features you'll need to create your own circuit board projects. However, the experienced engineer will also benefit from the book, as it serves as a complete reference guide to all EAGLE software configuration settings and features. His insightful guidance helps simplify difficult tasks, and his handy tips will help save you hours of trial-and-error experimentation." --Rich Blum, author, Sams Teach Yourself Arduino Programming in 24 Hours and Sams Teach Yourself Python Programming for Raspberry Pi in 24 Hours

Powerful, flexible, and inexpensive, EAGLE is the ideal PCB design solution for every Maker/DIYer, startup, hobbyist, or student. Today, all open source Arduino designs are released in EAGLE format: If you want to design cost-effective new PCBs, this is the tool to learn. Matthew Scarpino helps you take full advantage of EAGLE's remarkable capabilities. You won't find any differential equations here: only basic circuit theory and hands-on techniques for designing effective PCBs and getting innovative new gadgets to market. Scarpino starts with an accessible introduction to the fundamentals of PCB design. Next, he walks through the design of basic, intermediate, and complex circuit boards, starting with a simple inverting amplifier and culminating in a six-layer single-board computer with hundreds of components and thousands of routed connections. As the circuits grow more complex, you'll master advanced EAGLE features and discover how to automate crucial design-related tasks. Whatever your previous experience, Scarpino's start-to-finish examples and practical insight can help you create designs of stunning

power and efficiency. Understand single-sided, double-sided, and multilayer boards Design practical circuits with the schematic editor Transform schematics into physical board designs Convert board designs into Gerber output files for fabrication Expand EAGLE's capabilities with new libraries and components Exchange designs with LTspice and simulate their responses to input Automate simple repetitive operations with editor commands Streamline circuit design and library generation with User Language programs (ULPs) Design for the advanced BeagleBone Black, with high-speed BGA devices and a 32-bit system on a chip (SoC) Use buses to draw complex connections between components Configure stackups, create/route BGA components, and route high-speed signals eagle-book.com provides an archive containing the design files for the book's circuits. It also includes EAGLE libraries, scripts, and User Language programs (ULPs).

This book features selected papers presented at the Fourth International Conference on Nanoelectronics, Circuits and Communication Systems (NCCS 2018). Covering topics such as MEMS and nanoelectronics, wireless communications, optical communications, instrumentation, signal processing, the Internet of Things, image processing, bioengineering, green energy, hybrid vehicles, environmental science, weather forecasting, cloud computing, renewable energy, RFID, CMOS sensors, actuators, transducers, telemetry systems, embedded systems, and sensor network applications in mines, it offers a valuable resource for young scholars, researchers, and academics alike.

Bringing to you the special issue on wearables with Electronics For You, June 2015. It will help you guide the golden rules related to design wearable devices, identify how flexible electronics is helping in the promotion of wearables and a buyer's guide for selecting the right wearable device. This is not all, this issue will also help you select the right wireless modules and...

Praise for CMOS: Circuit Design, Layout, and Simulation Revised Second Edition from the Technical Reviewers "A refreshing industrial flavor. Design concepts are presented as they are needed for 'just-in-time' learning. Simulating and designing circuits using SPICE is emphasized with literally hundreds of examples. Very few textbooks contain as much detail as this one. Highly recommended!" --Paul M. Furth, New Mexico State University "This book builds a solid knowledge of CMOS circuit design from the ground up. With coverage of process integration, layout, analog and digital models, noise mechanisms, memory circuits, references, amplifiers, PLLs/DLLs, dynamic circuits, and data converters, the text is an excellent reference for both experienced and novice designers alike." --Tyler J. Gomm, Design Engineer, Micron Technology, Inc. "The Second Edition builds upon the success of the first with new chapters that cover additional material such as oversampled converters and non-volatile memories. This is becoming the de facto standard textbook to have on every analog and mixed-signal designer's bookshelf." --Joe Walsh, Design Engineer, AMI Semiconductor CMOS

circuits from design to implementation CMOS: Circuit Design, Layout, and Simulation, Revised Second Edition covers the practical design of both analog and digital integrated circuits, offering a vital, contemporary view of a wide range of analog/digital circuit blocks, the BSIM model, data converter architectures, and much more. This edition takes a two-path approach to the topics: design techniques are developed for both long- and short-channel CMOS technologies and then compared. The results are multidimensional explanations that allow readers to gain deep insight into the design process. Features include: Updated materials to reflect CMOS technology's movement into nanometer sizes Discussions on phase- and delay-locked loops, mixed-signal circuits, data converters, and circuit noise More than 1,000 figures, 200 examples, and over 500 end-of-chapter problems In-depth coverage of both analog and digital circuit-level design techniques Real-world process parameters and design rules The book's Web site, CMOSedu.com, provides: solutions to the book's problems; additional homework problems without solutions; SPICE simulation examples using HSPICE, LTspice, and WinSpice; layout tools and examples for actually fabricating a chip; and videos to aid learning Today, most, if not all microelectronic circuit design is performed with the aid of a computer-aided circuit analysis program. SPICE has become the industry standard software for computer-aided circuit analysis for microelectronic circuits. This text is ideal as a companion to Sedra and Smith's Microelectronic Circuits, Third Edition, but is also a very effective stand-alone tutorial text on computer-aided circuit analysis using SPICE.

When I attended college we studied vacuum tubes in our junior year. At that time an average radio had 7 vacuum tubes and better ones even seven. Then transistors appeared in 1960s. A good radio was judged to be one with more than ten transistors. Later good radios had 15–20 transistors and after that everyone stopped counting transistors. Today modern processors running personal computers have over 10 million transistors and more millions will be added every year. The difference between 20 and 20M is in complexity, methodology and business models. Designs with 20 transistors are easily generated by design engineers without any tools, whilst designs with 20M transistors can not be done by humans in reasonable time without the help of Prof. Dr. Gajski demonstrates the Y-chart automation. This difference in complexity introduced a paradigm shift which required sophisticated methods and tools, and introduced design automation into design practice. By the decomposition of the design process into many tasks and abstraction levels the methodology of designing chips or systems has also evolved. Similarly, the business model has changed from vertical integration, in which one company did all the tasks from product specification to manufacturing, to globally distributed, client server production in which most of the design and manufacturing tasks are outsourced.

Using the book and the software provided with it, the reader can build his/her own tester arrangement to investigate key aspects of analog-, digital- and mixed system circuits Plan of attack based on traditional testing, circuit design and circuit manufacture allows the reader to appreciate a testing regime from the point of view of all the participating interests Worked examples based on theoretical bookwork, practical experimentation and simulation exercises teach the reader how to test circuits thoroughly and

effectively

Electric relays pervade the electronics that dominate our world. They exist in many forms, fulfill many roles, and each have their own behavioral nuances and peculiarities. To date, there exists no comprehensive reference surveying the broad spectrum of electric relays, save one—*Electric Relays: Principles and Applications*. This ambitious work is not only unique in its scope, but also in its practical approach that focuses on the operational and functional aspects rather than on theory and mathematics.

Accomplished engineer Dr. Vladimir Gurevich builds the presentation from first principles, unfolding the concepts and constructions via discussion of their historical development from the earliest ideas to modern technologies. He uses a show-not-tell approach that employs nearly 1300 illustrations and reveals valuable insight based on his extensive experience in the field. The book begins with the basic principles of relay construction and the major functional parts, such as contact and magnetic systems. Then, it devotes individual chapters to the various types of relays. The author describes the principles of function and construction for each type as well as features of several relays belonging to a type that operate on different principles. Remarkably thorough and uniquely practical, *Electric Relays: Principles and Applications* serves as the perfect introduction to the plethora of electric relays and offers a quick-reference guide for the experienced engineer.

Allegro PCB Layout 16.X shi wu Complete PCB Design Using OrCad Capture and Layout Elsevier

Thermal management is one of the fastest-growing areas of the PCB segment, far outpacing the projected growth for the overall industry. While demand was originally driven by high-power telecommunication and mil-aero applications, it has rapidly expanded to include automotive, consumer electronics, and medical sectors. Written by Anaya Vardya, this book serves as a desk reference for designers on the most current thermal management techniques and methods from a PCB fabrication perspective, including a case study on an extreme mixed-technology design. Vardya also shares considerations designers should discuss with their PCB fabricators to ensure manufacturability, cost-effective solutions, and successful product launches. PCB designers and design engineers, both new and veteran, will learn how to "beat the heat" by gaining a thorough understanding of thermal management design processes.

The fast development of LED and its applications has enabled a new generation of lighting device with higher efficiency and long lifespan. By employing a primary-side sensing flyback converter and the PIC18F micro-controller series, an LED driver could achieve two important features: (1) the compatibility with the available lighting fixtures, and (2) reducing unit price. The flyback converter was chosen for its simplicity, competitive low cost, and its ability to provide a constant output current, a necessarily important factor to an LED driver. Meanwhile, the PIC18F micro-controller series offer numerous advanced features which include but not limited to pulse-width modulation (PWM), 10-bit 13-channel Analog-to-Digital Converter (ADC) etc., which suitably meet the requirements for regulating a primary-side sensing flyback converter. The design process was first conducted in simulation stage with aid from MatlabRTM-Simulink and Cadence OrCAD Capture

CIS (PSpice). By using PI based control scheme and making full use of built-in Analog Behavioral Modelling (ABM) blocks, the simulation-relevant difficulties due to lacking of appropriate model for the PIC18F series micro-controller were completely solved. The simulation results matched well with the intended design specifications: the output voltage is 32 VDC while the load current is 350 mA. More importantly, the simulation results demonstrated the feasibility of deploying a primary-side sensing flyback converter in conjunction with a PIC18F micro-controller as an LED driver. Next, a demo printed-circuit board (PCB) was layout by using OrCAD PCB Editor. Finally, the PIC18F4550 micro-controller was programmed to undertake control tasks of the LED driver. The experimental results reflect the project's success with all the parts of the driver harmoniously work as expected.

Explore the latest power electronics principles, practices, and applications This electrical engineering guide offers comprehensive coverage of design, modeling, simulation, and control for power electronics. The book describes real-world applications for the technology and features case studies worked out in both MATLAB and Simulink. Presented in an accessible style, Power Electronics Step-by-Step: Design, Modeling, Simulation, and Control focuses on the latest technologies, such as DC-based systems, and emphasizes the averaging technique for both simulation and modeling. You will get photos, diagrams, flowcharts, graphs, equations, and tables that illustrate each topic. Circuit components Non-isolated DC/DC conversion Power analysis DC to single-phase AC conversion Single-phase AC to DC conversion Galvanic isolated DC/DC conversion Power conversion for three-phase AC Bidirectional power conversion Averaging model for simulation Dynamic modeling of DC/DC converters Regulation of voltage and current

Digital Systems Design with FPGAs and CPLDs explains how to design and develop digital electronic systems using programmable logic devices (PLDs). Totally practical in nature, the book features numerous (quantify when known) case study designs using a variety of Field Programmable Gate Array (FPGA) and Complex Programmable Logic Devices (CPLD), for a range of applications from control and instrumentation to semiconductor automatic test equipment. Key features include: * Case studies that provide a walk through of the design process, highlighting the trade-offs involved. * Discussion of real world issues such as choice of device, pin-out, power supply, power supply decoupling, signal integrity- for embedding FPGAs within a PCB based design. With this book engineers will be able to: * Use PLD technology to develop digital and mixed signal electronic systems * Develop PLD based designs using both schematic capture and VHDL synthesis techniques * Interface a PLD to digital and mixed-signal systems * Undertake complete design exercises from design concept through to the build and test of PLD based electronic hardware This book will be ideal for electronic and computer engineering students taking a practical or Lab based course on digital systems development using PLDs and for engineers in industry looking for concrete advice on developing a digital system using a

FPGA or CPLD as its core. Case studies that provide a walk through of the design process, highlighting the trade-offs involved. Discussion of real world issues such as choice of device, pin-out, power supply, power supply decoupling, signal integrity- for embedding FPGAs within a PCB based design.

The Analog to Digital Converters represent one half of the link between the world we live in - analog - and the digital world of computers, which can handle the computations required in digital signal processing. These devices are mathematically very complex due to their nonlinear behavior and thus fairly difficult to analyze without the use of simulation tools. High Speed A/D Converters: Understanding Data Converters Through SPICE presents the subject from the practising engineer's point of view rather than from the academic's point of view. A practical approach is emphasized. High Speed A/D Converters: Understanding Data Converters Through SPICE is intended as a learning tool by providing building blocks that can be stacked on top of each other to build higher order systems. The book provides a guide to understanding the various topologies used in A/D converters by suggesting simple methods for the blocks used in an A/D converter. The converters discussed throughout the book constitute a class of devices called undersampled or Nyquist converters. The tools used in deriving the results presented are: TopSpice® by Penzar - a mixed mode SPICE simulator - version 5.90. The files included in Appendix A were written for this tool. However, most circuit files need only minor adjustments to be used on other SPICE simulators such as PSpice, Hspice, IS_Spice and Micro-Cap IV; Mathcad 2000 - Professional by Mathsoft. This tool is very useful in performing FFT analysis as well as drawing some of the graphs. Again, the mathcad files are included to help the user analyze the data. High Speed A/D Converters: Understanding Data Converters Through SPICE not only supplies the models for the A/D converters for SPICE program but also describes the physical reasons for the converter's performance.

During the academic year 2002-2003, the Faculty of Automatic Control and Computer Engineering of Iași (Romania), and its Departments of Automatic Control and Industrial Informatics and of Computer Engineering respectively, celebrated 25 years from the establishment of the specialization named Automatic Control and Computer Engineering within the framework of the former Faculty of Electrical Engineering of Iași, and, at the same time, 40 years since the first courses on Automatic Control and Computers respectively, were introduced in the curricula of the former specializations of Electromechanical Engineering and Electrical Power Engineering at the already mentioned Faculty of Electrical Engineering. The reader interested to know some important moments of our evolution during the last five decades is invited to see the Addendum of this volume, where a short history is presented. And, to highlight once more the nice coincidences, it must be noted here that in 2003 our Technical University "Gheorghe Asachi" of Iași celebrated 190 years from the emergence of the first cadastral engineering degree course in Iași (thanks to the endeavor of Gheorghe Asachi),

which is today considered to be the beginning of the engineering higher education in Romania. Generally speaking, an anniversary is a celebration meant to mark special events of the past, with festivities to be performed solemnly and publicly according to a specific ritual.

Complete PCB Design Using OrCad Capture and Layout provides instruction on how to use the OrCAD design suite to design and manufacture printed circuit boards. The book is written for both students and practicing engineers who need a quick tutorial on how to use the software and who need in-depth knowledge of the capabilities and limitations of the software package. There are two goals the book aims to reach: The primary goal is to show the reader how to design a PCB using OrCAD Capture and OrCAD Layout. Capture is used to build the schematic diagram of the circuit, and Layout is used to design the circuit board so that it can be manufactured. The secondary goal is to show the reader how to add PSpice simulation capabilities to the design, and how to develop custom schematic parts, footprints and PSpice models. Often times separate designs are produced for documentation, simulation and board fabrication. This book shows how to perform all three functions from the same schematic design. This approach saves time and money and ensures continuity between the design and the manufactured product. Information is presented in the exact order a circuit and PCB are designed. Straightforward, realistic examples present the how and why the designs work, providing a comprehensive toolset for understanding the OrCAD software. Introduction to the IPC, JEDEC, and IEEE standards relating to PCB design. Full-color interior and extensive illustrations allow readers to learn features of the product in the most realistic manner possible.

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