It is a great pleasure to write a preface to this book. In my view, the content is unique in that it blends traditional teaching approaches with the use of mathematics and a mainstream Hardware Design Language (HDL) as formalisms to describe key concepts. The book keeps the “machine” separate from the “application” by strictly following a bottom-up approach: it starts with transistors and logic gates and only introduces assembly language programs once their execution by a processor is clearly defined. Using a HDL, Verilog in this case, rather than static circuit diagrams is a big deviation from traditional books on computer architecture. Static circuit diagrams cannot be explored in a hands-on way like the corresponding Verilog model can. In order to understand why I consider this shift so important, one must consider how computer architecture, a subject that has been studied for more than 50 years, has evolved. In the pioneering days computers were constructed by hand. An entire computer could (just about) be described by drawing a circuit diagram. Initially, such diagrams consisted mostly of analogue components before later moving toward digital logic gates. The advent of digital electronics led to more complex cells, such as half-adders, flip-flops, and decoders being recognised as useful building blocks.

You have a Pi 2, but what exactly can you do with it? This book takes you on a tour of the Pi 2 hardware and all of the fantastic things that you can do to create innovative and useful projects with your Pi. Start with creating a workstation that does actual work, and move into installing a custom kernel, creating a clock, learning the ins and outs of the GPIO interface, and pick up some useful C++ skills along the way. Warren Gay, author of Mastering the Raspberry Pi, takes you through a set of experiments to show just what the Pi 2 is capable of and how you can use it to make your own fantastic creations. What You Will Learn: How to create an experimenter’s workstation for the Pi 2, complete with breadboard and even Arduino All the details of GPIO, including a custom command for working with it Useful projects like a general purpose clock and the PiSpy Quick intro to C++ for the Pi How to make a multi-core webserver

Who this book is for:Intermediate electronics enthusiasts and Pi fans, makers, students, teachers, and everyone who wants to know how to make the Pi really work.

Demonstrates programming basics while explaining how to use GTK++--an object-oriented application programming interface--to create and customize GUIs.

Handbook of Open Source Tools introduces a comprehensive collection of advanced open source tools useful in developing software applications. The book contains information on more than 200 open-source tools which include software construction utilities for compilers, virtual-machines, database, graphics, high-performance computing, OpenGL, geometry, algebra, graph theory, GUIs and more. Special highlights for software construction utilities and application libraries are included. Each tool is covered in the context of a real like application development setting. This unique handbook presents a comprehensive discussion of advanced tools, a valuable asset used by most application developers and programmers; includes a special focus on Mathematical Open Source Software not available in most Open Source Software books, and introduces several tools (eg ACL2,
CLIPS, CUDA, and COIN) which are not known outside of select groups, but are very powerful. Handbook of Open Source Tools is designed for application developers and programmers working with Open Source Tools. Advanced-level students concentrating on Engineering, Mathematics and Computer Science will find this reference a valuable asset as well. The skills and guidance needed to master RTL hardware design. This book teaches readers how to systematically design efficient, portable, and scalable Register Transfer Level (RTL) digital circuits using the VHDL hardware description language and synthesis software. Focusing on the module-level design, which is composed of functional units, routing circuit, and storage, the book illustrates the relationship between the VHDL constructs and the underlying hardware components, and shows how to develop codes that faithfully reflect the module-level design and can be synthesized into efficient gate-level implementation. Several unique features distinguish the book: * Coding style that shows a clear relationship between VHDL constructs and hardware components * Conceptual diagrams that illustrate the realization of VHDL codes * Emphasis on the code reuse * Practical examples that demonstrate and reinforce design concepts, procedures, and techniques * Two chapters on realizing sequential algorithms in hardware * Two chapters on scalable and parameterized designs and coding * One chapter covering the synchronization and interface between multiple clock domains. Although the focus of the book is RTL synthesis, it also examines the synthesis task from the perspective of the overall development process. Readers learn good design practices and guidelines to ensure that an RTL design can accommodate future simulation, verification, and testing needs, and can be easily incorporated into a larger system or reused. Discussion is independent of technology and can be applied to both ASIC and FPGA devices. With a balanced presentation of fundamentals and practical examples, this is an excellent textbook for upper-level undergraduate or graduate courses in advanced digital logic. Engineers who need to make effective use of today's synthesis software and FPGA devices should also refer to this book.

In this book “Radar Technology”, the chapters are divided into four main topic areas: Topic area 1: “Radar Systems” consists of chapters which treat whole radar systems, environment and target functional chain. Topic area 2: “Radar Applications” shows various applications of radar systems, including meteorological radars, ground penetrating radars and glaciology. Topic area 3: “Radar Functional Chain and Signal Processing” describes several aspects of the radar signal processing. From parameter extraction, target detection over tracking and classification technologies. Topic area 4: “Radar Subsystems and Components” consists of design technology of radar subsystem components like antenna design or waveform design.

VERILOG HDL, Second Edition by Samir Palnitkar With a Foreword by Prabhu Goel. Written for both experienced and new users, this book gives you broad coverage of Verilog HDL. The book stresses the practical design and verification perspective of Verilog rather than emphasizing only the language aspects. The information presented is fully compliant with the IEEE 1364-2001 Verilog HDL standard. Among its many features, this edition: * Bull; Bull; Describes state-of-the-art verification methodologies Bull; Provides full coverage of gate, dataflow (RTL), behavioral and switch modeling Bull; Introduces you to the Programming Language Interface (PLI) Bull; Describes logic synthesis methodologies Bull; Explains timing and delay simulation Bull; Discusses user-defined primitives
bull;Offers many practical modeling tips Includes over 300 illustrations, examples, and exercises, and a Verilog resource list.Learning objectives and summaries are provided for each chapter. About the CD-ROMThe CD-ROM contains a Verilog simulator with a graphical user interface and the source code for the examples in the book. Whatpeople are saying about Verilog HDL- "Mr. Palnitkar illustrates how and why Verilog HDL is used to develop today's most complex digital designs. This book is valuable to both the novice and the experienced Verilog user. I highly recommend it to anyone exploring Verilog-based design." -Rajeev Madhavan, Chairman and CEO, Magma Design Automation "This book is unique in its breadth of information on Verilog and Verilog-related topics. It is fully compliant with the IEEE 1364-2001 standard, contains all the information that you need on the basics, and devotes several chapters to advanced topics such as verification, PLI, synthesis and modeling techniques." -Michael McNamara, Chair, IEEE 1364-2001 Verilog Standards Organization This has been my favorite Verilog book since I picked it up in college. It is the only book that covers practical Verilog. A must have for beginners and experts." -Berend Ozceri, Design Engineer, Cisco Systems, Inc. "Simple, logical and well-organized material with plenty of illustrations, makes this an ideal textbook." -Arun K. Somani, Jerry R. Junkins Chair Professor, Department of Electrical and Computer Engineering, Iowa State University, Ames PRENTICE HALL Professional Technical Reference Upper Saddle River, NJ 07458 www.phptr.com ISBN: 0-13-044911-3 If you need a reliable tool for technical documentation, this clear and concise reference will help you take advantage of DocBook, the popular XML schema originally developed to document computer and hardware projects. DocBook 5.0 has been expanded and simplified to address documentation needs in other fields, and it's quickly becoming the tool of choice for many content providers. DocBook 5: The Definitive Guide is the complete, official documentation of DocBook 5.0. You'll find everything you need to know to use DocBook 5.0's features--including its improved content model--whether you're new to DocBook or an experienced user of previous versions. Learn how to write DocBook XML documents Understand DocBook 5.0's elements and attributes, and how they fit together Determine whether your documents conform to the DocBook schema Learn about options for publishing DocBook to various output formats Customize the DocBook schema to meet your needs Get additional information about DocBook editing and processing Covering both the classical and emerging nanoelectronic technologies being used in mixed-signal design, this book addresses digital, analog, and memory components. Winner of the Association of American Publishers' 2016 PROSE Award in the Textbook/Physical Sciences & Mathematics category. Nanoelectronic Mixed-Signal System Design offers professionals and students a unified perspective on the science, engineering, and technology behind nanoelectronics system design. Written by the director of the NanoSystem Design Laboratory at the University of North Texas, this comprehensive guide provides a large-scale picture of the design and manufacturing aspects of nanoelectronic-based systems. It features dual coverage of mixed-signal circuit and system design, rather than just digital or analog-only. Key topics such as process variations, power dissipation, and security aspects of electronic system design are discussed. Top-down analysis of all stages--from design to manufacturing Coverage of current and developing nanoelectronic technologies--not just nano-CMOS Describes the basics of nanoelectronic technology and
the structure of popular electronic systems Reveals the techniques required for design excellence and manufacturability
Master FPGA digital system design and implementation with Verilog and VHDL This practical guide explores the development and
deployment of FPGA-based digital systems using the two most popular hardware description languages, Verilog and VHDL.
Written by a pair of digital circuit design experts, the book offers a solid grounding in FPGA principles, practices, and applications
and provides an overview of more complex topics. Important concepts are demonstrated through real-world examples, ready-to-
run code, and inexpensive start-to-finish projects for both the Basys and Arty boards. Digital System Design with FPGA:
Implementation Using Verilog and VHDL covers: • Field programmable gate array fundamentals • Basys and Arty FPGA boards •
The Vivado design suite • Verilog and VHDL • Data types and operators • Combinational circuits and circuit blocks • Data storage
elements and sequential circuits • Soft-core microcontroller and digital interfacing • Advanced FPGA applications • The future of
FPGA
Cataglyphis ants can set out across vast expanses of desert terrain in search of prey, and then find the shortest way home.
Rüdiger Wehner has devised elegant experiments to unmask how they do it. Through a lively and lucid narrative, he offers a
firsthand look at the extraordinary navigational skills of these charismatic creatures.
This book constitutes the refereed proceedings of the 6th International Conference on Supercomputing, ISUM 2015, held in
México, Mexico, in March 2015. The 38 revised full papers presented were carefully reviewed and selected from 102 submissions.
The papers are organized in topical sections on perspectives in supercomputer infrastructure and applications; parallel algorithms
and optimization; HPC applications and simulations;
This book constitutes thoroughly revised and selected papers from the 7th International Conference on Model-Driven Engineering
and Software Development, MODELSWARD 2019, held in Prague, Czech Republic, in February 2019. The 16 thoroughly revised
and extended papers presented in this volume were carefully reviewed and selected from 76 submissions. They address some of
the most relevant challenges being faced by researchers and practitioners in the field of model-driven engineering and software
development and cover topics like language design and tooling; programming support tools; code and text generation from
models, behavior modeling and analysis; model transformations and multi-view modeling; as well as applications of MDD and its
related techniques to cyber-physical systems, cyber security, IoT, autonomous vehicles and healthcare.
This book introduces a modern approach to embedded system design, presenting software design and hardware design in a
unified manner. It covers trends and challenges, introduces the design and use of single-purpose processors ("hardware") and
general-purpose processors ("software"), describes memories and buses, illustrates hardware/software tradeoffs using a digital
camera example, and discusses advanced computation models, controls systems, chip technologies, and modern design tools.
For courses found in EE, CS and other engineering departments.
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.

This book constitutes the proceedings of the 14th International Conference on Applied Reconfigurable Computing, ARC 2018, held in Santorini, Greece, in May 2018. The 29 full papers and 22 short presented in this volume were carefully reviewed and selected from 78 submissions. In addition, the volume contains 9 contributions from research projects. The papers were organized in topical sections named: machine learning and neural networks; FPGA-based design and CGRA optimizations; applications and surveys; fault-tolerance, security and communication architectures; reconfigurable and adaptive architectures; design methods and fast prototyping; FPGA-based design and applications; and special session: research projects.

Rapid Prototyping of Digital Systems, Second Edition provides an exciting and challenging laboratory component for an undergraduate digital logic design class. The more advanced topics and exercises are also appropriate for consideration at schools that have an upper level course in digital logic or programmable logic. Design engineers working in industry will also want to consider this book for a rapid introduction to FPLD technology and logic synthesis using commercial CAD tools, especially if they have not had previous experience with the new and rapidly evolving technology. Two tutorials on the Altera CAD tool environment, an overview of programmable logic, and a design library with several easy-to-use input and output functions were developed for this book to help the reader get started quickly. Early design examples use schematic capture and library components. VHDL is used for more complex designs after a short introduction to VHDL-based synthesis. A coupon is included with the text for purchase of the new UP 1X board. The additional logic and memory in the UP 1X's FLEX 10K70 is useful on larger design projects such as computers and video games. The second edition includes an update chapter on programmable logic, new robot sensors and projects, optional Verilog examples, and a meta assembler which can be used to develop assemble language programs for the computer designs in Chapters 8 and 13.

Computer Systems Organization -- general.
mental improvements during the same period. What is clearly needed in verification techniques and technology is the equivalent of a synthesis productivity breakthrough. In the second edition of Writing Testbenches, Bergeron raises the verification level of abstraction by introducing coverage-driven constrained-random transaction-level self-checking testbenches all made possible through the introduction of hardware verification languages (HVLs), such as e from Verisity and OpenVera from Synopsys. The state-of-art methodologies described in Writing Testbenches will contribute greatly to the much-needed equivalent of a synthesis breakthrough in verification productivity. I not only highly recommend this book, but also I think it should be required reading by anyone involved in design and verification of today's ASIC, SoCs and systems. Harry Foster Chief Architect Verplex Systems, Inc.

PREFACE

If you survey hardware design groups, you will learn that between 60% and 80% of their effort is now dedicated to verification.

This book constitutes the refereed proceedings of the 5th International Conference on Dependability in Sensor, Cloud, and Big Data Systems and Applications, DependSys, held in Guangzhou, China, in November 2019. The volume presents 39 full papers, which were carefully reviewed and selected from 112 submissions. The papers are organized in topical sections on dependability and security fundamentals and technologies; dependable and secure systems; dependable and secure applications; dependability and security measures and assessments; explainable artificial intelligence for cyberspace.

This book trains the next generation of scientists representing different disciplines to leverage the data generated during routine patient care. It formulates a more complete lexicon of evidence-based recommendations and support shared, ethical decision making by doctors with their patients. Diagnostic and therapeutic technologies continue to evolve rapidly, and both individual practitioners and clinical teams face increasingly complex ethical decisions. Unfortunately, the current state of medical knowledge does not provide the guidance to make the majority of clinical decisions on the basis of evidence. The present research infrastructure is inefficient and frequently produces unreliable results that cannot be replicated. Even randomized controlled trials (RCTs), the traditional gold standards of the research reliability hierarchy, are not without limitations. They can be costly, labor intensive, and slow, and can return results that are seldom generalizable to every patient population. Furthermore, many pertinent but unresolved clinical and medical systems issues do not seem to have attracted the interest of the research enterprise, which has come to focus instead on cellular and molecular investigations and single-agent (e.g., a drug or device) effects. For clinicians, the end result is a bit of a "data desert" when it comes to making decisions. The new research infrastructure proposed in this book will help the medical profession to make ethically sound and well informed decisions for their patients.
This book is an introduction into digital design with the focus on using the hardware construction language Chisel. Chisel brings advances from software engineering, such as object-orientated and functional languages, into digital design. This book addresses hardware designers and software engineers. Hardware designers, with knowledge of Verilog or VHDL, can upgrade their productivity with a modern language for their next ASIC or FPGA design. Software engineers, with knowledge of object-oriented and functional programming, can leverage their knowledge to program hardware, for example, FPGA accelerators executing in the cloud. The approach of this book is to present small to medium-sized typical hardware components to explore digital design with Chisel. SystemC provides a robust set of extensions to C++ that enables rapid development of complex hardware/software systems. This book focuses on the practical uses of the language for modeling real systems. The wealth of examples and downloadable code methodically guide the reader through the finer points of the SystemC language. This work provides: - A step-by-step build-up of syntax - NEW features of SystemC 2.1 - Code examples for each concept, - Many resource references - Coding styles and guidelines - Over 52 downloadable code examples (over 8,000 lines) - Exercises throughout the book - How SystemC fits into the system design methodology - Why features are as they are. Well known consultants in the EDA industry, both David Black and Jack Donovan have been involved in the adoption and teaching of new technologies and methodologies for a combined total of 42+ years. Recently, they jointly founded a consultancy, Eklectic Ally, focused on helping companies adopt SystemC methodologies. One of the biggest challenges in chip and system design is determining whether the hardware works correctly. That is the job of functional verification engineers and they are the audience for this comprehensive text from three top industry professionals. As designs increase in complexity, so has the value of verification engineers within the hardware design team. In fact, the need for skilled verification engineers has grown dramatically--functional verification now consumes between 40 and 70% of a project's labor, and about half its cost. Currently there are very few books on verification for engineers, and none that cover the subject as comprehensively as this text. A key strength of this book is that it describes the entire verification cycle and details each stage. The organization of the book follows the cycle, demonstrating how functional verification engages all aspects of the overall design effort and how individual cycle stages relate to the larger design process. Throughout the text, the authors leverage their 35 plus years experience in functional verification, providing examples and case studies, and focusing on the skills, methods, and tools needed to complete each verification task. Comprehensive overview of the complete verification cycle Combines industry experience with a strong emphasis on functional verification fundamentals Includes real-world case studies Simulation of brain neurons in real-time using biophysically-meaningful models is a pre-requisite for comprehensive understanding
of how neurons process information and communicate with each other, in effect efficiently complementing in-vivo experiments. In spiking neural networks (SNNs), propagated information is not just encoded by the firing rate of each neuron in the network, as in artificial neural networks (ANNs), but, in addition, by amplitude, spike-train patterns, and the transfer rate. The high level of realism of SNNs and more significant computational and analytic capabilities in comparison with ANNs, however, limit the size of the realized networks. Consequently, the main challenge in building complex and biophysically-accurate SNNs is largely posed by the high computational and data transfer demands. Real-Time Multi-Chip Neural Network for Cognitive Systems presents novel real-time, reconfigurable, multi-chip SNN system architecture based on localized communication, which effectively reduces the communication cost to a linear growth. The system use double floating-point arithmetic for the most biologically accurate cell behavior simulation, and is flexible enough to offer an easy implementation of various neuron network topologies, cell communication schemes, as well as models and kinds of cells. The system offers a high run-time configurability, which reduces the need for resynthesizing the system. In addition, the simulator features configurable on- and off-chip communication latencies as well as neuron calculation latencies. All parts of the system are generated automatically based on the neuron interconnection scheme in use. The simulator allows exploration of different system configurations, e.g., the interconnection scheme between the neurons, the intracellular concentration of different chemical compounds (ions), which affect how action potentials are initiated and propagate.

The Student's Guide to VHDL is a condensed edition of The Designer's Guide to VHDL, the most widely used textbook on VHDL for digital system modeling. The Student's Guide is targeted as a supplemental reference book for computer organization and digital design courses. Since publication of the first edition of The Student's Guide, the IEEE VHDL and related standards have been revised. The Designer's Guide has been revised to reflect the changes, so it is appropriate that The Student's Guide also be revised. In The Student's Guide to VHDL, 2nd Edition, we have included a design case study illustrating an FPGA-based design flow. The aim is to show how VHDL modeling fits into a design flow, starting from high-level design and proceeding through detailed design and verification, synthesis, FPGA place and route, and final timing verification. Inclusion of the case study helps to better serve the educational market. Currently, most college courses do not formally address the details of design flow. Students may be given informal guidance on how to proceed with lab projects. In many cases, it is left to students to work it out for themselves. The case study in The Student's Guide provides a reference design flow that can be adapted to a variety of lab projects.

The Definitive, Up-to-Date Guide to Digital Design with SystemVerilog: Concepts, Techniques, and Code To design state-of-the-art digital hardware, engineers first specify functionality in a high-level Hardware Description Language (HDL)—and today's most powerful, useful HDL is SystemVerilog, now an IEEE standard. Digital System Design with SystemVerilog is the first comprehensive introduction to both SystemVerilog and the contemporary digital hardware design techniques used with it. Building on the proven approach of his bestselling Digital System Design with VHDL, Mark Zwolinski covers everything engineers need to...
know to automate the entire design process with SystemVerilog—from modeling through functional simulation, synthesis, timing simulation, and verification. Zwolinski teaches through about a hundred and fifty practical examples, each with carefully detailed syntax and enough in-depth information to enable rapid hardware design and verification. All examples are available for download from the book's companion Web site, zwolinski.org. Coverage includes Using electronic design automation tools with programmable logic and ASIC technologies Essential principles of Boolean algebra and combinational logic design, with discussions of timing and hazards Core modeling techniques: combinational building blocks, buffers, decoders, encoders, multiplexers, adders, and parity checkers Sequential building blocks: latches, flip-flops, registers, counters, memory, and sequential multipliers Designing finite state machines: from ASM chart to D flip-flops, next state, and output logic Modeling interfaces and packages with SystemVerilog Designing testbenches: architecture, constrained random test generation, and assertion-based verification Describing RTL and FPGA synthesis models Understanding and implementing Design-for-Test Exploring anomalous behavior in asynchronous sequential circuits Performing Verilog-AMS and mixed-signal modeling Whatever your experience with digital design, older versions of Verilog, or VHDL, this book will help you discover SystemVerilog's full power and use it to the fullest.

Real-Time Multi-Chip Neural Network for Cognitive Systems

Shape analyses focusing on inferring highly complex properties of heap-manipulating programs are techniques used in the automatic verification of infinite-state programs. This survey provides a comprehensive introduction to the field of shape analysis, and presents the foundation of the topic in an accessible manner to readers who are not familiar with it. To do so, the authors characterize the essence of shape analysis compared to more classical pointer analyses as well as giving the intuition underlying the abstractions commonly used in shape analysis and the algorithms that allow to statically compute intricate semantic properties. The authors cover the main families of shape analysis abstraction and algorithms, highlight the similarities between them, and characterize the main differences between the most common approaches. Finally, the authors demonstrate the impact of the field by describing a few other static analysis works - array abstractions, dictionary abstractions and interprocedural analyses - that were influenced by the ideas of shape analysis. Researchers and students new to the concept of shape analysis will find this monograph a one-stop shop of information that will quickly get them up to speed on all aspects of the topic. With a comprehensive set of references, this accessible survey will enable the reader to adopt the techniques quickly in their own further research.

SPARC (Scalable Processor Architecture) is the industry's only openly defined and evolved RISC architecture. Version 9 is the new 64-bit incarnation of SPARC - the most significant change since SPARC's introduction in 1987! Unlike other RISC (Reduced Instruction Set Computer) designs, SPARC specifies not a hardware implementation ("chip"), but an open, standard architecture belonging to the community of SPARC vendors and users. The SPARC specification is defined by the SPARC Architecture Committee, a technical arm of the computer-maker consortium, SPARC International. Version 9 provides 64-bit data and addressing, support for fault tolerance, fast context switching, support for advanced compiler optimizations, efficient design for
Superscalar processors, and a clean structure for modern operating systems. The V9 architecture supplements, rather than replaces, the 32-bit Version 8 architecture. The non-privileged features of Version 9 are upward-compatible from Version 8, so 32-bit application software can execute natively, without modification, on Version 9 systems - no special "compatibility mode" is required. Publication of the Version 9 architecture marks a three-year development effort by SPARC International member companies from a broad cross-section of disciplines.

There are only two mainstream solutions for building the graphical interface of Linux-based desktop applications, and GTK+ (GIMP Toolkit) is one of them. It is a necessary technology for all Linux programmers. This book guides the reader through the complexities of GTK+, laying the groundwork that allows the reader to make the leap from novice to professional. Beginning with an overview of key topics such as widget choice, placement, and behavior, readers move on to learn about more advanced issues. Replete with real-world examples, the developer can quickly take advantages of the concepts presented within to begin building his own projects.

Solaris™ Application Programming is a comprehensive guide to optimizing the performance of applications running in your Solaris environment. From the fundamentals of system performance to using analysis and optimization tools to their fullest, this wide-ranging resource shows developers and software architects how to get the most from Solaris systems and applications. Whether you're new to performance analysis and optimization or an experienced developer searching for the most efficient ways to solve performance issues, this practical guide gives you the background information, tips, and techniques for developing, optimizing, and debugging applications on Solaris. The text begins with a detailed overview of the components that affect system performance. This is followed by explanations of the many developer tools included with Solaris OS and the Sun Studio compiler, and then it takes you beyond the basics with practical, real-world examples. In addition, you will learn how to use the rich set of developer tools to identify performance problems, accurately interpret output from the tools, and choose the smartest, most efficient approach to correcting specific problems and achieving maximum system performance. Coverage includes A discussion of the chip multithreading (CMT) processors from Sun and how they change the way that developers need to think about performance A detailed introduction to the performance analysis and optimization tools included with the Solaris OS and Sun Studio compiler Practical examples for using the developer tools to their fullest, including informational tools, compilers, floating point optimizations, libraries and linking, performance profilers, and debuggers Guidelines for interpreting tool analysis output Optimization, including hardware performance counter metrics and source code optimizations Techniques for improving application performance using multiple processes, or multiple threads An overview of hardware and software components that affect system performance, including coverage of SPARC and x64 processors

Debian GNU/Linux, a very popular non-commercial Linux distribution, is known for its reliability and richness. Built and maintained by an impressive network of thousands of developers throughout the world, the Debian project is cemented by its social contract. This foundation text defines the project's objective: fulfilling the needs of users with a 100% free
operating system. The success of Debian and of its ecosystem of derivative distributions (with Ubuntu at the forefront) means that an increasing number of administrators are exposed to Debian's technologies. This Debian Administrator's Handbook, which has been entirely updated for Debian 8 “Jessie”, builds on the success of its 6 previous editions. Accessible to all, this book teaches the essentials to anyone who wants to become an effective and independent Debian GNU/Linux administrator. It covers all the topics that a competent Linux administrator should master, from installation to updating the system, creating packages and compiling the kernel, but also monitoring, backup and migration, without forgetting advanced topics such as setting up SELinux or AppArmor to secure services, automated installations, or virtualization with Xen, KVM or LXC. This book is not only designed for professional system administrators. Anyone who uses Debian or Ubuntu on their own computer is de facto an administrator and will find tremendous value in knowing more about how their system works. Being able to understand and resolve problems will save you invaluable time. Learn more about the book on its official website: debian-handbook.info

Advances in Computer and Information Sciences and Engineering includes a set of rigorously reviewed world-class manuscripts addressing and detailing state-of-the-art research projects in the areas of Computer Science, Software Engineering, Computer Engineering, and Systems Engineering and Sciences. Advances in Computer and Information Sciences and Engineering includes selected papers from the conference proceedings of the International Conference on Systems, Computing Sciences and Software Engineering (SCSS 2007) which was part of the International Joint Conferences on Computer, Information and Systems Sciences and Engineering (CISSE 2007).

Provides students with a system-level perspective and the tools they need to understand, analyze and design complete digital systems using Verilog. It goes beyond the design of simple combinational and sequential modules to show how such modules are used to build complete systems, reflecting digital design in the real world.

This text applies engineering science and technology to biological cells and tissues that are electrically conducting and excitable. It describes the theory and a wide range of applications in both electric and magnetic fields.

This book constitutes thoroughly revised and selected papers from the 8th International Conference on Model-Driven Engineering and Software Development, MODELSWARD 2020, held in Valletta, Malta, in February 2020. The 15 revised and extended papers presented in this volume were carefully reviewed and selected from 66 submissions. They present recent research results and development activities in using models and model driven engineering techniques for software development. The papers are organized in topical sections on? methodologies, processes and platforms; applications and software development; modeling languages, tools and architectures.

Field Programmable Gate Arrays (FPGAs) are devices that provide a fast, low-cost way for embedded system designers
to customize products and deliver new versions with upgraded features, because they can handle very complicated functions, and be reconfigured an infinite number of times. In addition to introducing the various architectural features available in the latest generation of FPGAs, The Design Warrior’s Guide to FPGAs also covers different design tools and flows. This book covers information ranging from schematic-driven entry, through traditional HDL/RTL-based simulation and logic synthesis, all the way up to the current state-of-the-art in pure C/C++ design capture and synthesis technology. Also discussed are specialist areas such as mixed hardware/software and DSP-based design flows, along with innovative new devices such as field programmable node arrays (FPNAs). Clive "Max" Maxfield is a bestselling author and engineer with a large following in the electronic design automation (EDA) and embedded systems industry. In this comprehensive book, he covers all the issues of interest to designers working with, or contemplating a move to, FPGAs in their product designs. While other books cover fragments of FPGA technology or applications this is the first to focus exclusively and comprehensively on FPGA use for embedded systems. First book to focus exclusively and comprehensively on FPGA use in embedded designs World-renowned best-selling author Will help engineers get familiar and succeed with this new technology by providing much-needed advice on choosing the right FPGA for any design project

Copyright: 087fd7b50dc27459c51d75867188784a