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The Computer Engineering Handbook Newnes

An essential book for 3rd party developers and others interested in products using the PowerPC including those from IBM, Apple, and many other vendors. The book covers the architecture for the entire family of processors from either IBM or Motorola and is the official documentation of the IBM reference manual.

Make: AVR Programming Pearson Education

There is arguably no field in greater need of a comprehensive handbook than computer engineering. The unparalleled rate of technological advancement, the explosion of computer applications, and the now-in-progress migration to a wireless world have made it difficult for engineers to keep up with all the developments in specialties outside their own

MicroC/OS-II lakeview research llc

New design architectures in computer systems have surpassed industry expectations. Limits, which were once thought of as fundamental, have now been broken. Digital Systems and Applications details these innovations in systems design as well as cutting-edge applications that are emerging to take advantage of the fields increasingly sophisticated capabilities. This book features new chapters on parallelizing iterative heuristics, stream and wireless processors, and lightweight embedded systems. This fundamental text— Provides a clear focus on computer systems, architecture, and applications Takes a top-level view of system organization before moving on to architectural and organizational concepts such as superscalar and vector processor, VLIW architecture, as well as new trends in multithreading and multiprocessing. includes an entire section dedicated to embedded systems and their applications Discusses topics such as digital signal processing applications, circuit implementation aspects, parallel I/O algorithms, and operating systems Concludes with a look at new and future directions in computing Features articles that describe diverse aspects of computer usage and potentials for use Details implementation and performance-enhancing techniques such as branch prediction, register renaming, and virtual memory Includes a section on new directions in computing and their penetration into many new fields and aspects of our daily lives

A Hands on Approach FriesenPress

Microcontrollers exist in a wide variety of models with varying structures and numerous application opportunities. Despite this diversity, it is possible to find consistencies in the architecture of most microcontrollers. Microcontrollers: Fundamentals and Applications with PIC focuses on these common elements to describe the fundamentals of microcontroller design and programming. Using clear, concise language and a top-bottom approach, the book describes the parts that make up a microcontroller, how they work, and how they interact with each other. It also explains how to program medium-end PICs using assembler language. Examines analog as well as digital signals This volume describes the structure and resources of general microcontrollers as well as PIC microcontrollers, with a special focus on medium-end devices. The authors discuss memory organization and structure, and the assembler language used for programming medium-end PIC microcontrollers. They also explore how microcontrollers can acquire, process, and generate digital signals, explaining available techniques to deal with parallel input or output, peripherals, resources for real-time use, interrupts, and the specific characteristics of serial data interfaces in PIC microcontrollers. Finally, the book describes the acquisition and generation of analog signals either using resources inside the chip or by connecting peripheral circuits. Provides hands-on clarification Using practical examples and applications to supplement each topic, this volume provides the tools to thoroughly grasp the architecture and programming of microcontrollers. It avoids overly specific details so readers are quickly led toward design

implementation. After mastering the material in this text, they will understand how to efficiently use PIC microcontrollers in a design process.

Asia Electronics Industry Asia Electronics Industry AEI The Engineering Handbook

This new edition has been fully revised and updated to include extensive information on the ARM Cortex-M4 processor, providing a complete up-to-date guide to both Cortex-M3 and Cortex-M4 processors, and which enables migration from various processor architectures to the exciting world of the Cortex-M3 and M4. This book presents the background of the ARM architecture and outlines the features of the processors such as the instruction set, interrupt-handling and also demonstrates how to program and utilize the advanced features available such as the Memory Protection Unit (MPU). Chapters on getting started with IAR, Keil, gcc and CooCox ColIDE tools help beginners develop program codes. Coverage also includes the important areas of software development such as using the low power features, handling information input/output, mixed language projects with assembly and C, and other advanced topics. Two new chapters on DSP features and CMSIS-DSP software libraries, covering DSP fundamentals and how to write DSP software for the Cortex-M4 processor, including examples of using the CMSIS-DSP library, as well as useful information about the DSP capability of the Cortex-M4 processor A new chapter on the Cortex-M4 floating point unit and how to use it A new chapter on using embedded OS (based on CMSIS-RTOS), as well as details of processor features to support OS operations Various debugging techniques as well as a troubleshooting guide in the appendix topics on software porting from other architectures A full range of easy-to-understand examples, diagrams and quick reference appendices

Microcontroller Theory and Applications with the PIC18F "O'Reilly Media, Inc."

Hardware/software co-verification is how to make sure that embedded system software works correctly with the hardware, and that the hardware has been properly designed to run the software successfully -before large sums are spent on prototypes or manufacturing. This is the first book to apply this verification technique to the rapidly growing field of embedded systems-on-a-chip (SoC). As traditional embedded system design evolves into single-chip design, embedded engineers must be armed with the necessary information to make educated decisions about which tools and methodology to deploy. SoC verification requires a mix of expertise from the disciplines of microprocessor and computer architecture, logic design and simulation, and C and Assembly language embedded software. Until now, the relevant information on how it all fits together has not been available. Andrews, a recognized expert, provides in-depth information about how co-verification really works, how to be successful using it, and pitfalls to avoid. He illustrates these concepts using concrete examples with the ARM core - a technology that has the dominant market share in embedded system product design. The companion CD-ROM contains all source code used in the design examples, a searchable e-book version, and useful design tools. * The only book on verification for systems-on-a-chip (SoC) on the market * Will save engineers and their companies time and money by showing them how to speed up the testing process, while still avoiding costly mistakes * Design examples use the ARM core, the dominant technology in SoC, and all the source code is included on the accompanying CD-Rom, so engineers can easily use it in their own designs

The Designer's Guide to the Cortex-M Processor Family Prentice Hall

A hands-on introduction to microcontroller project design with dozens of example

circuits and programs. Presents practical designs for use in data loggers, controllers, and other small-computer applications. Example circuits and programs in the book are based on the popular 8052-BASIC microcontroller, whose on-chip BASIC programming language makes it easy to write, run, and test your programs. With over 100 commands, instructions, and operators, the BASIC-52 interpreter can do much more than other single-chip BASICs. Its abilities include floating-point math, string handling, and special commands for storing programs in EPROM, EEPROM, or battery-backed RAM.

Designing Embedded Hardware Intel Corporation (CA)

Features intermediate and advanced projects that demonstrate the capabilities of Atmel AVR series microcontrollers.

VAX Architecture Reference Manual Elsevier

In this new, highly practical guide, expert embedded designer and manager Lewin Edwards answers the question, "How do I become an embedded engineer? Embedded professionals agree that there is a treacherous gap between graduating from school and becoming an effective engineer in the workplace, and that there are few resources available for newbies to turn to when in need of advice and direction. This book provides that much-needed guidance for engineers fresh out of school, and for the thousands of experienced engineers now migrating into the popular embedded arena. This book helps new embedded engineers to get ahead quickly by preparing them for the technical and professional challenges they will face. Detailed instructions on how to achieve successful designs using a broad spectrum of different microcontrollers and scripting languages are provided. The author shares insights from a lifetime of experience spent in-the-trenches, covering everything from small vs. large companies, and consultancy work vs. salaried positions, to which types of training will prove to be the most lucrative investments. This book provides an expert's authoritative answers to questions that pop up constantly on Usenet newsgroups and in break rooms all over the world. * An approachable, friendly introduction to working in the world of embedded design * Full of design examples using the most common languages and hardware that new embedded engineers will be likely to use every day * Answers important basic questions on which are the best products to learn, trainings to get, and kinds of companies to work for

The Microcontroller Idea Book Elsevier

A family of internationally popular microcontrollers, the Atmel AVR microcontroller series is a low-cost hardware development platform suitable for an educational environment. Until now, no text focused on the assembly language programming of these microcontrollers. Through detailed coverage of assembly language programming principles and technique

A Specification for a New Family of RISC Processors Tata McGraw-Hill Education

This book was written with the novice or intermediate 8052 developer in mind. Assuming no prior knowledge of the 8052, it takes the reader step-by-step through the architecture including discussions and explanations of concepts such as internal RAM, external RAM, Special Function Registers (SFRs), addressing modes, timers, serial I/O, and interrupts. This is followed by an in-depth section on assembly language which explains each instruction in the 8052 instruction set as well as related concepts such as assembly language syntax, expressions, assembly language directives, and how to implement 16-bit mathematical functions. The book continues with a thorough explanation of the 8052 hardware itself, reviewing the function of each pin on the microcontroller and follows this with the design and explanation of a fully functional single board computer- every section of the schematic design is explained in detail to provide the reader with a full understanding of how everything is connected, and why. The book closes with a section on hardware interfacing and software examples in which the reader will learn about the SBCMON monitor program for use on the single board computer, interfacing with a 4x4 keypad, communicating with a 16x2 LCD in direct-connect as well as memory-mapped fashion, utilizing an external serial EEPROM via the SPI protocol, and using the I2C communication standard to access an external real time clock. The book takes the reader with absolutely no knowledge of the 8052 and provides him with the information necessary to understand the architecture, design and build a functioning circuit based on the 8052, and write software to operate the 8052 in assembly language.

Design and Debug for Systems on Chip "O'Reilly Media, Inc."

Architectural specifications can make for dry reading, but this volume should be of interest to at least three types of readers. Serious computer engineers specializing in machine design, application or systems programmers of VAX computers, and computer science or engineering students. This volume provides an example of a successful

computer architecture, and how it should be documented. It is a complete description of the machine language interface for VAX computers. And it provides a case study in design and computer organization or assembly language programming.

Everything You Need to Develop Custom USB Peripherals Make Books

In the mid-1950s, close to a decade after the end of WWII, a mother and her six sons step off a boat that has transported them from a small village in Greece to a new home in Canada. Gus, the youngest, is four. In a tough working-class Toronto neighborhood, they rejoin Gus's alcoholic father, who is still fighting the war in his head. Their new home at 18 Napier Street will define the next twelve years of Gus's life. Crowded under its roof are Gus, his parents, his five brothers and one sister, not to mention the resident rats and bedbugs. Food is in short supply, alcohol is not. Through Gus's eyes we see episodes of violent interactions, experience the sting of discrimination, and witness tragedy. But Gus's world is a vibrant one: alongside him we watch him have fun with his friends, discover the thrill of go-carting, joyous street hockey, and both illicit and permitted adventures, as Gus and his friends embrace all that life has to offer. The close bonds Gus forges with his childhood friends are unbreakable. 18 Napier Street is about friendship, family, and community—what rips them apart and what binds them together.

Version 8 Newnes

The Designer's Guide to the Cortex-M Family is a tutorial-based book giving the key concepts required to develop programs in C with a Cortex M-based processor. The book begins with an overview of the Cortex-M family, giving architectural descriptions supported with practical examples, enabling the engineer to easily develop basic C programs to run on the Cortex-M0/M0+/M3 and M4. It then examines the more advanced features of the Cortex architecture such as memory protection, operating modes and dual stack operation. Once a firm grounding in the Cortex M processor has been established the book introduces the use of a small footprint RTOS and the CMSIS DSP library. With this book you will learn: The key differences between the Cortex M0/M0+/M3 and M4 How to write C programs to run on Cortex-M based processors How to make best use of the Coresight debug system How to do RTOS development The Cortex-M operating modes and memory protection Advanced software techniques that can be used on Cortex-M microcontrollers How to optimise DSP code for the cortex M4 and how to build real time DSP systems An Introduction to the Cortex microcontroller software interface standard (CMSIS), a common framework for all Cortex M-based microcontrollers Coverage of the CMSIS DSP library for Cortex M3 and M4 An evaluation tool chain IDE and debugger which allows the accompanying example projects to be run in simulation on the PC or on low cost hardware

Embedded Systems Design Springer Science & Business Media

This book serves as a practical guide for practicing engineers who need to design embedded systems for high-speed data acquisition and control systems. A minimum amount of theory is presented, along with a review of analog and digital electronics, followed by detailed explanations of essential topics in hardware design and software development. The discussion of hardware focuses on microcontroller design (ARM microcontrollers and FPGAs), techniques of embedded design, high speed data acquisition (DAQ) and control systems. Coverage of software development includes main programming techniques, culminating in the study of real-time operating systems. All concepts are introduced in a manner to be highly-accessible to practicing engineers and lead to the practical implementation of an embedded board that can be used in various industrial fields as a control system and high speed data acquisition system.

John Wiley & Sons

First published in 1995, The Engineering Handbook quickly became the definitive engineering reference. Although it remains a bestseller, the many advances realized in traditional engineering fields along with the emergence and rapid growth of fields such as biomedical engineering, computer engineering, and nanotechnology mean that the time has come to bring this standard-setting reference up to date. New in the Second Edition 19 completely new chapters addressing important topics in bioinstrumentation, control systems, nanotechnology, image and signal processing, electronics, environmental systems, structural systems 131 chapters fully revised and updated Expanded lists of engineering associations and societies The Engineering Handbook, Second Edition is designed to enlighten experts in areas outside their own specialties, to refresh the knowledge of mature practitioners, and to educate engineering novices. Whether you work in

industry, government, or academia, this is simply the best, most useful engineering reference you can have in your personal, office, or institutional library.

EDN CRC Press

This book provides an in-depth overview of on chip instrumentation technologies and various approaches taken in adding instrumentation to System on Chip (ASIC, ASSP, FPGA, etc.) design that are collectively becoming known as Design for Debug (DfD). On chip instruments are hardware based blocks that are added to a design for the specific purpose and improving the visibility of internal or embedded portions of the design (specific instruction flow in a processor, bus transaction in an on chip bus as examples) to improve the analysis or optimization capabilities for a SoC. DfD is the methodology and infrastructure that surrounds the instrumentation. Coverage includes specific design examples and discussion of implementations and DfD tradeoffs in a decision to design or select instrumentation or SoC that include instrumentation. Although the focus will be on hardware implementations, software and tools will be discussed in some detail.

Introduction to Neural Networks Using Matlab 6.0 CRC Press

A thorough revision that provides a clear understanding of the basic principles of microcontrollers using C programming and PIC18F assembly language This book presents the fundamental concepts of assembly language programming and interfacing techniques associated with typical microcontrollers. As part of the second edition's revisions, PIC18F assembly language and C programming are provided in separate sections so that these topics can be covered independent of each other if desired. This extensively updated edition includes a number of fundamental topics. Characteristics and principles common to typical microcontrollers are emphasized. Interfacing techniques associated with a basic microcontroller such as the PIC18F are demonstrated from chip level via examples using the simplest possible devices, such as switches, LEDs, Seven-Segment displays, and the hexadecimal keyboard. In addition, interfacing the PIC18F with other devices such as LCD displays, ADC, and DAC is also included. Furthermore, topics such as CCP (Capture, Compare, PWM) and Serial I/O using C along with simple examples are also provided. Microcontroller Theory and Applications with the PIC18F, 2nd Edition is a comprehensive and self-contained book that emphasizes characteristics and principles common to typical microcontrollers. In addition, the text: Includes increased coverage of C language programming with the PIC18F I/O and interfacing techniques Provides a more detailed explanation of PIC18F timers, PWM, and Serial I/O using C Illustrates C interfacing techniques through the use of numerous examples, most of which have been implemented successfully in the laboratory This new edition of Microcontroller Theory and Applications with the PIC18F is excellent as a text for undergraduate level students of electrical/computer engineering and computer science.

Programming Embedded Systems in C and C++ Springer Science & Business Media

This book is a thoroughly practical way to explore the 8051 and discover C programming through project work. Through graded projects, Dogan Ibrahim introduces the reader to the fundamentals of microelectronics, the 8051 family, programming in C, and the use of a C compiler. The specific device used for examples is the AT89C2051 - a small, economical chip with re-writable memory, readily available from the major component suppliers. A working knowledge of microcontrollers, and how to program them, is essential for all students of electronics. In this rapidly expanding field many students and professionals at all levels need to get up to speed with practical microcontroller applications. Their rapid fall in price has made microcontrollers the most exciting and accessible new development in electronics for years - rendering them equally popular with engineers, electronics hobbyists and teachers looking for a fresh range of projects. Microcontroller Projects in C for the 8051 is an ideal resource for self-study as well as providing an interesting, enjoyable and easily mastered alternative to more theoretical textbooks. Practical projects that enable students and practitioners to get up and running straight away with 8051 microcontrollers A hands-on introduction to practical C programming A wealth of project ideas for students and enthusiasts

AEI Newnes

This in-depth guide to Version 8 SPARC, a high-speed RISC computer chip, provides the reader with the background, design philosophy, high-level features and implementations of this new model. Includes an expanded index of terms for easy reference and a table of synthetic instructions added to

the suggested assembly language syntax.