

Real Time C Efficient Object Oriented And Template Microcontroller Programming

If you ally infatuation such a referred **Real Time C Efficient Object Oriented And Template Microcontroller Programming** ebook that will allow you worth, acquire the enormously best seller from us currently from several preferred authors. If you desire to humorous books, lots of novels, tale, jokes, and more fictions collections are with launched, from best seller to one of the most current released.

You may not be perplexed to enjoy all books collections Real Time C Efficient Object Oriented And Template Microcontroller Programming that we will completely offer. It is not regarding the costs. Its practically what you need currently. This Real Time C Efficient Object Oriented And Template Microcontroller Programming , as one of the most operational sellers here will unquestionably be along with the best options to review.

Real-Time Rendering - Tomas Akenine-Möller 2019-01-18

Thoroughly revised, this third edition focuses on modern techniques used to generate synthetic three-dimensional images in a fraction of a second. With the advent of programmable shaders, a wide variety of new algorithms have arisen and evolved over the past few years. This edition discusses current, practical rendering methods used in games and other applications. It also presents a solid theoretical framework and relevant mathematics for the field of interactive computer graphics, all in an approachable style. The authors have made the figures used in the book available for download for fair use.:Download Figures. Reviews Rendering has been a required reference for professional graphics practitioners for nearly a decade. This latest edition is as relevant as ever, covering topics from essential mathematical foundations to advanced techniques used by today's cutting edge games. -- Gabe Newell, President, Valve, May 2008 Rendering ... has been completely revised and revamped for its updated third edition, which focuses on modern techniques used to generate three-dimensional images in a fraction of the time old processes took. From practical rendering for games to math and details for better interactive applications, it's not to be missed. -- The Bookwatch, November 2008 You'll get brilliantly lucid explanations of concepts like vertex morphing and variance shadow mapping—as well as a new respect for the incredible craftsmanship that goes into today's PC games. -- Logan Decker, PC Gamer Magazine , February 2009

Programming 32-bit Microcontrollers in C - Lucio Di Jasio 2011-04-08

*Just months after the introduction of the new generation of 32-bit PIC microcontrollers, a Microchip insider and acclaimed author takes you by hand at the exploration of the PIC32 *Includes handy checklists to help readers perform the most common programming and debugging tasks The new 32-bit microcontrollers bring the promise of more speed and more performance while offering an unprecedented level of compatibility with existing 8 and 16-bit PIC microcontrollers. In sixteen engaging chapters, using a parallel track to his previous title dedicated to 16-bit programming, the author puts all these claims to test while offering a gradual introduction to the development and debugging of embedded control applications in C. Author Lucio Di Jasio, a PIC and embedded control expert, offers unique insight into the new 32-bit architecture while developing a number of projects of growing complexity. Experienced PIC users and newcomers to the field alike will benefit from the text's many thorough examples which demonstrate how to nimbly side-step common obstacles, solve real-world design problems efficiently and optimize code using the new PIC32 features and peripheral set. You will learn about: *basic timing and I/O operation *debugging methods with the MPLAB SIM *simulator and ICD tools *multitasking using the PIC32 interrupts *all the new hardware peripherals *how to control LCD displays *experimenting with the Explorer16 board and *the PIC32 Starter Kit *accessing mass-storage media *generating audio and video signals *and more! TABLE OF CONTENTS Day 1 And the adventure begins Day 2 Walking in circles Day 3 Message in a Bottle Day 4 NUMB3RS Day 5 Interrupts Day 6 Memory Part 2 Experimenting Day 7 Running Day 8 Communication Day 9 Links Day 10 Glass = Bliss Day 11 It's an analog world Part 3 Expansion Day 12 Capturing User Inputs Day 13 UTube Day 14 Mass Storage Day 15 File I/O Day 16 Musica Maestro! 32-bit microcontrollers are becoming the technology of choice for high performance embedded control applications including portable media players, cell phones, and GPS receivers. Learn to use the C programming language for advanced embedded control designs and/or learn to migrate your applications from previous 8 and 16-bit architectures.

Expert C Programming - Peter Van der Linden 1994

Software -- Programming Languages.

Design Patterns in Modern C++ - Dmitri Nesteruk 2018-04-18

Apply modern C++17 to the implementations of classic design patterns. As well as covering traditional design patterns, this book fleshes out new patterns and approaches that will be useful to C++ developers. The author presents concepts as a fun investigation of how problems can be solved in different ways, along the way using varying degrees of technical sophistication and explaining different sorts of trade-offs. Design Patterns in Modern C++ also provides a technology demo for modern C++, showcasing how some of its latest features (e.g., coroutines) make difficult problems a lot easier to solve. The examples in this book are all suitable for putting into production, with only a few simplifications made in order to aid readability. What You Will Learn Apply design patterns to modern C++ programming Use creational patterns of builder, factories, prototype and singleton Implement structural patterns such as adapter, bridge, decorator, facade and more Work with the behavioral patterns such as chain of responsibility, command, iterator, mediator and more Apply functional design patterns such as Monad and more Who This Book Is For Those with at least some prior programming experience, especially in C++.

Effective C++ - Scott Meyers 1998

Effective C++ has been updated to reflect the latest ANSI/ISO standards. The author, a recognised authority on C++, shows readers fifty ways to improve their programs and designs.

Object-Oriented Computation in C++ and Java - Conrad Weisert 2013-07-15

This is the digital version of the printed book (Copyright 2007). Virtually all business, scientific, and engineering applications are heavily reliant on numeric data items. C++ and Java offer object-oriented programmers unique flexibility and control over the computations required within such applications. However, most books on object-oriented programming gloss over such numeric data items, emphasizing instead one-dimensional containers or collections and components of the graphical user interface. Object-Oriented Computation in C++ and Java fills the gap left by such books. Drawing on more than twenty years' experience as a software developer, tester, consultant, and professor, Conrad Weisert shows readers how to use numeric objects effectively. Not limited to any language or methodology, the concepts and techniques discussed in this book are entirely independent of one's choice of design and coding methodology. Practitioners of Extreme Programming, UML-driven design, agile methods, incremental development, and so on will all develop these same data classes. Whether you are a seasoned professional or an advanced computer science student, this book can teach you techniques that will improve the quality of your programming and the efficiency of your applications. The exercises (and answers) presented in this book with teach you new ways to implement the computational power of C++, Java, and numeric data items. Topics include taxonomy of data types developing and using object-oriented classes for numeric data design patterns for commonly occurring numeric data types families of interacting numeric data types choosing efficient and flexible internal data representations techniques for exploiting pattern reuse in C++ conventions for arithmetic operations in Java numeric vectors and matrices

Hands-On Design Patterns with C++ - Fedor G. Pikus 2019-01-30

A comprehensive guide with extensive coverage on concepts such as OOP, functional programming, generic programming, and STL along with the latest features of C++ Key FeaturesDelve into the core patterns and components of C++ in order to master application designLearn tricks, techniques, and best practices to solve common design and architectural challenges Understand the limitation imposed by C++ and

how to solve them using design patterns

Book Description C++ is a general-purpose programming language designed with the goals of efficiency, performance, and flexibility in mind. Design patterns are commonly accepted solutions to well-recognized design problems. In essence, they are a library of reusable components, only for software architecture, and not for a concrete implementation. The focus of this book is on the design patterns that naturally lend themselves to the needs of a C++ programmer, and on the patterns that uniquely benefit from the features of C++, in particular, the generic programming. Armed with the knowledge of these patterns, you will spend less time searching for a solution to a common problem and be familiar with the solutions developed from experience, as well as their advantages and drawbacks. The other use of design patterns is as a concise and an efficient way to communicate. A pattern is a familiar and instantly recognizable solution to specific problem; through its use, sometimes with a single line of code, we can convey a considerable amount of information. The code conveys: "This is the problem we are facing, these are additional considerations that are most important in our case; hence, the following well-known solution was chosen." By the end of this book, you will have gained a comprehensive understanding of design patterns to create robust, reusable, and maintainable code. What you will learn

Recognize the most common design patterns used in C++

Understand how to use C++ generic programming to solve common design problems

Explore the most powerful C++ idioms, their strengths, and drawbacks

Rediscover how to use popular C++ idioms with generic programming

Understand the impact of design patterns on the program's performance

Who this book is for This book is for experienced C++ developers and programmers who wish to learn about software design patterns and principles and apply them to create robust, reusable, and easily maintainable apps.

Object Oriented Programming using Java - Simon Kendal 2009

Inside the C++ Object Model - Stanley B. Lippman 1996

There is a lot of misinformation and myth about the overhead and costs associated with C++. Now Stan Lippman, the acclaimed author of the C++ Primer, answers the call for a book that gives strategy guidelines for C++ programming. Inside the C++ Object Model explains where overhead costs reside and what they actually consist of. The author explains which parts vary by implementation and which are invariant. He tells how the various implementation models arose, points out areas where they are likely to evolve, and explains why they are what they are. This book is a must for C++ programmers who want to understand the semantic implications of the C++ object model and how the model affects their programs.

Hands-On Embedded Programming with C++17 - Maya Posch 2019-01-31

Build safety-critical and memory-safe stand-alone and networked embedded systems

Key Features

- Know how C++ works and compares to other languages used for embedded development
- Create advanced GUIs for embedded devices to design an attractive and functional UI
- Integrate proven strategies into your design for optimum hardware performance

Book Description C++ is a great choice for embedded development, most notably, because it does not add any bloat, extends maintainability, and offers many advantages over different programming languages. Hands-On Embedded Programming with C++17 will show you how C++ can be used to build robust and concurrent systems that leverage the available hardware resources. Starting with a primer on embedded programming and the latest features of C++17, the book takes you through various facets of good programming. You'll learn how to use the concurrency, memory management, and functional programming features of C++ to build embedded systems. You will understand how to integrate your systems with external peripherals and efficient ways of working with drivers. This book will also guide you in testing and optimizing code for better performance and implementing useful design patterns. As an additional benefit, you will see how to work with Qt, the popular GUI library used for building embedded systems. By the end of the book, you will have gained the confidence to use C++ for embedded programming. What you will learn

- Choose the correct type of embedded platform to use for a project
- Develop drivers for OS-based embedded systems
- Use concurrency and memory management with various microcontroller units (MCUs)
- Debug and test cross-platform code with Linux
- Implement an infotainment system using a Linux-based single board computer
- Extend an existing embedded system with a Qt-based GUI
- Communicate with the FPGA side of a hybrid FPGA/SoC system

Who this book is for If you want to start developing effective embedded

programs in C++, then this book is for you. Good knowledge of C++ language constructs is required to understand the topics covered in the book. No knowledge of embedded systems is assumed.

More Exceptional C+ - Dov Bulka 2000

Solving PDEs in C++ - Yair Shapira 2012-06-07

In this much-expanded second edition, author Yair Shapira presents new applications and a substantial extension of the original object-oriented framework to make this popular and comprehensive book even easier to understand and use. It not only introduces the C and C++ programming languages, but also shows how to use them in the numerical solution of partial differential equations (PDEs). The book leads readers through the entire solution process, from the original PDE, through the discretization stage, to the numerical solution of the resulting algebraic system. The high level of abstraction available in C++ is particularly useful in the implementation of complex mathematical objects, such as unstructured mesh, sparse matrix, and multigrid hierarchy, often used in numerical modeling. The well-debugged and tested code segments implement the numerical methods efficiently and transparently in a unified object-oriented approach.

Real-time Design Patterns - Bruce Powel Douglass 2003

This revised and enlarged edition of a classic in Old Testament scholarship reflects the most up-to-date research on the prophetic books and offers substantially expanded discussions of important new insight on Isaiah and the other prophets.

Practical UML Statecharts in C/C++ - Miro Samek 2008-10-03

Practical UML Statecharts in C/C++ Second Edition bridges the gap between high-level abstract concepts of the Unified Modeling Language (UML) and the actual programming aspects of modern hierarchical state machines (UML statecharts). The book describes a lightweight, open source, event-driven infrastructure, called QP that enables direct manual coding UML statecharts and concurrent event-driven applications in C or C++ without big tools. This book is presented in two parts. In Part I, you get a practical description of the relevant state machine concepts starting from traditional finite state automata to modern UML state machines followed by state machine coding techniques and state-machine design patterns, all illustrated with executable examples. In Part II, you find a detailed design study of a generic real-time framework indispensable for combining concurrent, event-driven state machines into robust applications. Part II begins with a clear explanation of the key event-driven programming concepts such as inversion of control (Hollywood Principle), blocking versus non-blocking code, run-to-completion (RTC) execution semantics, the importance of event queues, dealing with time, and the role of state machines to maintain the context from one event to the next. This background is designed to help software developers in making the transition from the traditional sequential to the modern event-driven programming, which can be one of the trickiest paradigm shifts. The lightweight QP event-driven infrastructure goes several steps beyond the traditional real-time operating system (RTOS). In the simplest configuration, QP runs on bare-metal microprocessor, microcontroller, or DSP completely replacing the RTOS. QP can also work with almost any OS/RTOS to take advantage of the existing device drivers, communication stacks, and other middleware. The accompanying website to this book contains complete open source code for QP, ports to popular processors and operating systems, including 80x86, ARM Cortex-M3, MSP430, and Linux, as well as all examples described in the book.

Making Embedded Systems - Elecia White 2011-10-25

Interested in developing embedded systems? Since they don't tolerate inefficiency, these systems require a disciplined approach to programming. This easy-to-read guide helps you cultivate a host of good development practices, based on classic software design patterns and new patterns unique to embedded programming. Learn how to build system architecture for processors, not operating systems, and discover specific techniques for dealing with hardware difficulties and manufacturing requirements. Written by an expert who's created embedded systems ranging from urban surveillance and DNA scanners to children's toys, this book is ideal for intermediate and experienced programmers, no matter what platform you use. Optimize your system to reduce cost and increase performance

- Develop an architecture that makes your software robust in resource-constrained environments
- Explore sensors, motors, and other I/O devices
- Do more with less: reduce RAM consumption, code space, processor cycles, and power consumption
- Learn how to update embedded code directly in the processor
- Discover how to implement complex mathematics on small processors
- Understand

what interviewers look for when you apply for an embedded systems job "Making Embedded Systems is the book for a C programmer who wants to enter the fun (and lucrative) world of embedded systems. It's very well written—entertaining, even—and filled with clear illustrations." —Jack Ganssle, author and embedded system expert.

Programming Embedded Systems in C and C++ - Michael Barr 1999

An introduction to embedding systems for C and C++ programmers encompasses such topics as testing memory devices, writing and erasing Flash memory, verifying nonvolatile memory contents, and much more. Original. (Intermediate).

Object-Oriented Graphics Programming in C++ - Roger T. Stevens 2014-05-10

Object-Oriented Graphics Programming in C++ provides programmers with the information needed to produce realistic pictures on a PC monitor screen. The book is comprised of 20 chapters that discuss the aspects of graphics programming in C++. The book starts with a short introduction discussing the purpose of the book. It also includes the basic concepts of programming in C++ and the basic hardware requirement. Subsequent chapters cover related topics in C++ programming such as the various display modes; displaying TGA files, and the vector class. The text also tackles subjects on the processing of objects; how the ray tracing process works; how to put the program together and compile and run it; and animation. Computer programmers will find the book very useful.

Real-Time C++ - Christopher Kormanyos 2021-07-14

With this book, Christopher Kormanyos delivers a highly practical guide to programming real-time embedded microcontroller systems in C++. It is divided into three parts plus several appendices. Part I provides a foundation for real-time C++ by covering language technologies, including object-oriented methods, template programming and optimization. Next, part II presents detailed descriptions of a variety of C++ components that are widely used in microcontroller programming. It details some of C++'s most powerful language elements, such as class types, templates and the STL, to develop components for microcontroller register access, low-level drivers, custom memory management, embedded containers, multitasking, etc. Finally, part III describes mathematical methods and generic utilities that can be employed to solve recurring problems in real-time C++. The appendices include a brief C++ language tutorial, information on the real-time C++ development environment and instructions for building GNU GCC cross-compilers and a microcontroller circuit. For this fourth edition, the most recent specification of C++20 is used throughout the text. Several sections on new C++20 functionality have been added, and various others reworked to reflect changes in the standard. Also several new example projects ranging from introductory to advanced level are included and existing ones extended, and various reader suggestions have been incorporated. Efficiency is always in focus and numerous examples are backed up with runtime measurements and size analyses that quantify the true costs of the code down to the very last byte and microsecond. The target audience of this book mainly consists of students and professionals interested in real-time C++. Readers should be familiar with C or another programming language and will benefit most if they have had some previous experience with microcontroller electronics and the performance and size issues prevalent in embedded systems programming.

Design Patterns - Erich Gamma 1995
Software -- Software Engineering.

Real-Time Systems Design and Analysis - Phillip A. Laplante 1997
Acknowledgments. Basic Real-Time Concepts. Computer Hardware. Languages Issues. The Software Life Cycle. Real-Time Specification and Design Techniques. Real-Time Kernels. Intertask Communication and Synchronization. Real-Time Memory Management. System Performance Analysis and Optimization. Queuing Models. Reliability, Testing, and Fault Tolerance. Multiprocessing Systems. Hardware/Software Integration. Real-Time Applications. Glossary. Bibliography. Index.

Modern Software Tools for Scientific Computing - A. Bruaset 2012-12-06

Looking back at the years that have passed since the realization of the very first electronic, multi-purpose computers, one observes a tremendous growth in hardware and software performance. Today, researchers and engineers have access to computing power and software that can solve numerical problems which are not fully understood in terms of existing mathematical theory. Thus, computational sciences must in many respects be viewed as experimental disciplines. As a consequence, there is a demand for high quality, flexible software that allows, and even encourages,

experimentation with alternative numerical strategies and mathematical models. Extensibility is then a key issue; the software must provide an efficient environment for incorporation of new methods and models that will be required in future problem scenarios. The development of such kind of flexible software is a challenging and expensive task. One way to achieve these goals is to invest much work in the design and implementation of generic software tools which can be used in a wide range of application fields. In order to provide a forum where researchers could present and discuss their contributions to the described development, an International Workshop on Modern Software Tools for Scientific Computing was arranged in Oslo, Norway, September 16-18, 1996. This workshop, informally referred to as Sci Tools '96, was a collaboration between SINTEF Applied Mathematics and the Departments of Informatics and Mathematics at the University of Oslo. Object-Oriented and Classical Software Engineering - Stephen R. Schach 2001-11

Classical and Object-Oriented Software Engineering, 5/e is designed for an introductory software engineering course. This book provides an excellent introduction to software engineering fundamentals, covering both traditional and object-oriented techniques. Schach's unique organization and style makes it excellent for use in a classroom setting. It presents the underlying software engineering theory in Part I and follows it up with the more practical life-cycle material in Part II. Many software engineering books are more like reference books, which do not provide the appropriate fundamentals before inundating students with implementation details. In this edition, more practical material has been added to help students understand how to use what they are learning. This has been done through the use of "How To" boxes and greater implementation detail in the case study. Additionally, the new edition contains the references to the most current literature and includes an overview of extreme programming. The website in this edition will be more extensive. It will include Solutions, PowerPoints that incorporate lecture notes, newly developed self-quiz questions, and source code for the term project and case study.

Real-Time Object-Oriented Modeling - Bran Selic 1994-05-06

Are you looking for a more effective approach to real-time systems development? Real-Time Object-Oriented Modeling The development of real-time distributed systems is one of the most difficult engineering problems ever faced, taxing the capabilities of traditional real-time software development approaches. Real-Time Object-Oriented Modeling is the first book that brings together, in a single harmonious approach, the power of object-oriented concepts tailored specifically for real-time systems, with an iterative and incremental process based on the use of executable models. Developed by practitioners, the proven methodology described here is becoming a leader in the industry. Using a learn-by-example approach, this book offers: * A single consistent set of graphical modeling concepts, chosen to improve developer effectiveness, which apply uniformly to analysis, design, and implementation. This reduces the learning curve to master the entire method and eliminates expensive discontinuities across different stages of development. * An approach to the object paradigm that is easy to learn and that applies to the construction of reusable architectural design components, not just low-level language elements. This unleashes the true power of the object paradigm. * Techniques for constructing executable models to gain early confidence in specifications and design decisions. * Approaches to project management that deliver the benefits of the object paradigm and executable models.

Object-Oriented JavaScript - Second Edition - Stoyan Stefanov 2013-01-01

You will first be introduced to object-oriented programming, then to the basics of objects in JavaScript. This book takes a do-it-yourself approach when it comes to writing code, because the best way to really learn a programming language is by writing code. You are encouraged to type code into Firebug's console, see how it works and then tweak it and play around with it. There are practice questions at the end of each chapter to help you review what you have learned. For new to intermediate JavaScript developer who wants to prepare themselves for web development problems solved by smart JavaScript.

Real-Time C++ - Christopher Kormanyos 2015-02-08

The C++ language has powerful object-oriented and template features that can improve software design and portability while simultaneously reducing code complexity and the risk of error. Furthermore, C++ compiles highly efficient native code. This unique and effective combination makes C++ well-suited for programming microcontroller systems that require compact size, high performance and safety-critical

reliability. With this book, Chris Kormanyos delivers a highly practical guide to programming real-time embedded microcontroller systems in C++. It is divided into three parts plus several appendices. Part I provides a foundation for real-time C++ by covering language technologies, including object-oriented methods, template programming and optimization. Next, part II presents detailed descriptions of a variety of C++ components that are widely used in microcontroller programming. It details some of C++'s most powerful language elements, such as class types, templates and the STL, to develop components for microcontroller register access, low-level drivers, custom memory management, embedded containers, multitasking, etc. Finally, part III describes mathematical methods and generic utilities that can be employed to solve recurring problems in real-time C++. The appendices include a brief C++ language tutorial, information on the real-time C++ development environment and instructions for building GNU GCC cross-compilers and a microcontroller circuit. The most recent specification of C++11 in ISO/IEC 14882:2011 is used throughout the text. To facilitate portability, no libraries other than those specified in the language standard itself are used. Efficiency is always in focus and numerous examples are backed up with real-time performance measurements and size analyses that quantify the true costs of the code down to the very last byte and microsecond. The target audience of this book mainly consists of students and professionals interested in real-time C++. Readers should be familiar with C or another programming language and will benefit most if they have had some previous experience with microcontroller electronics and the performance and size issues prevalent in embedded systems programming.

Real-Time C++ - Christopher Kormanyos 2018-05-02

With this book, Christopher Kormanyos delivers a highly practical guide to programming real-time embedded microcontroller systems in C++. It is divided into three parts plus several appendices. Part I provides a foundation for real-time C++ by covering language technologies, including object-oriented methods, template programming and optimization. Next, part II presents detailed descriptions of a variety of C++ components that are widely used in microcontroller programming. It details some of C++'s most powerful language elements, such as class types, templates and the STL, to develop components for microcontroller register access, low-level drivers, custom memory management, embedded containers, multitasking, etc. Finally, part III describes mathematical methods and generic utilities that can be employed to solve recurring problems in real-time C++. The appendices include a brief C++ language tutorial, information on the real-time C++ development environment and instructions for building GNU GCC cross-compilers and a microcontroller circuit. For this third edition, the most recent specification of C++17 in ISO/IEC 14882:2017 is used throughout the text. Several sections on new C++17 functionality have been added, and various others reworked to reflect changes in the standard. Also several new sample projects are introduced and existing ones extended, and various user suggestions have been incorporated. To facilitate portability, no libraries other than those specified in the language standard itself are used. Efficiency is always in focus and numerous examples are backed up with real-time performance measurements and size analyses that quantify the true costs of the code down to the very last byte and microsecond. The target audience of this book mainly consists of students and professionals interested in real-time C++. Readers should be familiar with C or another programming language and will benefit most if they have had some previous experience with microcontroller electronics and the performance and size issues prevalent in embedded systems programming.

Programming with Objects - Avinash C. Kak 2003-04-07

C++ is a general purpose programming language that, in addition to systems applications, is extensively used for scientific computation, financial applications, embedded systems, realtime control, and other applications. Emphasizing the commonality between C++ and Java as object oriented languages, this text prepares the reader to program with objects.

Embedded Programming with C++ Cookbook - Igor Viarheichyk 2020-04-17

This book is a collection of practical examples for understanding how embedded development is different from other desktop application development. You'll learn to build an embedded application and use specialized memory and custom allocators. By the end of the book, you'll be able to build robust and secure embedded applications with C++20.

C++ - Kayshav Dattatri 2000

8676J-4 Learn to program the way commercial developers do! C++:

Effective Object Oriented Software Construction, Second Edition is crafted to help you understand the C++ object-oriented paradigm in depth. It enables you to translate object concepts to practical solutions, no matter what software development environment you encounter. This edition is updated for the new ANSI C++ standard. The book introduces the fundamentals of object-oriented design/programming in the context of real world C++ software development, presenting proven strategies for using C++ to engineer elegant, high-quality software as quickly and efficiently as possible. You'll learn about: Classes, objects, and data abstraction Object design techniques and strategies for building efficient and stable architectures The C++ object model, and its cost/benefit implications C++ code style guidelines for projects Tips for writing multi-threaded object-oriented software Single and multiple inheritance, generic programming, and error management In this book, the author reveals the strategies professional developers have learned to maximize code and design reuse. You'll learn how to manage the extensive "housekeeping" that's associated with effective C++ software development. Then, you'll walk through detailed, real-world comparisons of the strengths and weaknesses of the major object-oriented languages. In addition, this book uses UML (Unified Modeling Language) to illustrate its design examples. Whether you're a new programmer, a programmer familiar with procedural languages, or a C++ programmer who isn't using object-oriented techniques to their full potential, C++: Effective Object Oriented Software Construction will help you achieve your most critical goals as a developer.

C++ Network Programming, Volume I - Douglas Schmidt 2001-12-10

As networks, devices, and systems continue to evolve, software engineers face the unique challenge of creating reliable distributed applications within frequently changing environments. C++ Network Programming, Volume 1, provides practical solutions for developing and optimizing complex distributed systems using the ADAPTIVE Communication Environment (ACE), a revolutionary open-source framework that runs on dozens of hardware platforms and operating systems. This book guides software professionals through the traps and pitfalls of developing efficient, portable, and flexible networked applications. It explores the inherent design complexities of concurrent networked applications and the tradeoffs that must be considered when working to master them. C++ Network Programming begins with an overview of the issues and tools involved in writing distributed concurrent applications. The book then provides the essential design dimensions, patterns, and principles needed to develop flexible and efficient concurrent networked applications. The book's expert author team shows you how to enhance design skills while applying C++ and patterns effectively to develop object-oriented networked applications. Readers will find coverage of: C++ network programming, including an overview and strategies for addressing common development challenges The ACE Toolkit Connection protocols, message exchange, and message-passing versus shared memory Implementation methods for reusable networked application services Concurrency in object-oriented network programming Design principles and patterns for ACE wrapper facades With this book, C++ developers have at their disposal the most complete toolkit available for developing successful, multiplatform, concurrent networked applications with ease and efficiency.

Interfacing with C++ - Jayantha Katupitiya 2006-05-14

Learn to write C++ programs by interfacing a computer to a wide range of popular and fundamental real-world technologies. Unique and original approach to use the PC to do real things- not just number crunching and graphics - but writing programs to interact with the outside world. Learn C++ programming in an enjoyable and powerful way. Includes a purpose-designed circuit board

Programming - Bjarne Stroustrup 2014

An introduction to programming by the inventor of C++, Programming prepares students for programming in the real world. This book assumes that they aim eventually to write non-trivial programs, whether for work in software development or in some other technical field. It explains fundamental concepts and techniques in greater depth than traditional introductions. This approach gives students a solid foundation for writing useful, correct, maintainable, and efficient code. This book is an introduction to programming in general, including object-oriented programming and generic programming. It is also a solid introduction to the C++ programming language, one of the most widely used languages for real-world software. It presents modern C++ programming techniques from the start, introducing the C++ standard library to simplify programming tasks.

Hands-On RTOS with Microcontrollers - Brian Amos 2020-05-15

Build a strong foundation in designing and implementing real-time systems with the help of practical examples Key Features Get up and running with the fundamentals of RTOS and apply them on STM32 Enhance your programming skills to design and build real-world embedded systems Get to grips with advanced techniques for implementing embedded systems Book Description A real-time operating system (RTOS) is used to develop systems that respond to events within strict timelines. Real-time embedded systems have applications in various industries, from automotive and aerospace through to laboratory test equipment and consumer electronics. These systems provide consistent and reliable timing and are designed to run without intervention for years. This microcontrollers book starts by introducing you to the concept of RTOS and compares some other alternative methods for achieving real-time performance. Once you've understood the fundamentals, such as tasks, queues, mutexes, and semaphores, you'll learn what to look for when selecting a microcontroller and development environment. By working through examples that use an STM32F7 Nucleo board, the STM32CubeIDE, and SEGGER debug tools, including SEGGER J-Link, Ozone, and SystemView, you'll gain an understanding of preemptive scheduling policies and task communication. The book will then help you develop highly efficient low-level drivers and analyze their real-time performance and CPU utilization. Finally, you'll cover tips for troubleshooting and be able to take your new-found skills to the next level. By the end of this book, you'll have built on your embedded system skills and will be able to create real-time systems using microcontrollers and FreeRTOS. What you will learn Understand when to use an RTOS for a project Explore RTOS concepts such as tasks, mutexes, semaphores, and queues Discover different microcontroller units (MCUs) and choose the best one for your project Evaluate and select the best IDE and middleware stack for your project Use professional-grade tools for analyzing and debugging your application Get FreeRTOS-based applications up and running on an STM32 board Who this book is for This book is for embedded engineers, students, or anyone interested in learning the complete RTOS feature set with embedded devices. A basic understanding of the C programming language and embedded systems or microcontrollers will be helpful.

Data Structures and Algorithms in C++ - Michael T. Goodrich 2011-02-22

An updated, innovative approach to data structures and algorithms Written by an author team of experts in their fields, this authoritative guide demystifies even the most difficult mathematical concepts so that you can gain a clear understanding of data structures and algorithms in C++. The unparalleled author team incorporates the object-oriented design paradigm using C++ as the implementation language, while also providing intuition and analysis of fundamental algorithms. Offers a unique multimedia format for learning the fundamentals of data structures and algorithms Allows you to visualize key analytic concepts, learn about the most recent insights in the field, and do data structure design Provides clear approaches for developing programs Features a clear, easy-to-understand writing style that breaks down even the most difficult mathematical concepts Building on the success of the first edition, this new version offers you an innovative approach to fundamental data structures and algorithms.

Programming Embedded Systems - Michael Barr 2006-10-11

Authored by two of the leading authorities in the field, this guide offers readers the knowledge and skills needed to achieve proficiency with embedded software.

Effective Modern C++ - Scott Meyers 2014-11-11

Coming to grips with C++11 and C++14 is more than a matter of familiarizing yourself with the features they introduce (e.g., auto type declarations, move semantics, lambda expressions, and concurrency support). The challenge is learning to use those features effectively—so that your software is correct, efficient, maintainable, and portable. That's where this practical book comes in. It describes how to write truly great software using C++11 and C++14—i.e. using modern C++. Topics include: The pros and cons of braced initialization, noexcept specifications, perfect forwarding, and smart pointer make functions The

relationships among std::move, std::forward, rvalue references, and universal references Techniques for writing clear, correct, effective lambda expressions How std::atomic differs from volatile, how each should be used, and how they relate to C++'s concurrency API How best practices in "old" C++ programming (i.e., C++98) require revision for software development in modern C++ Effective Modern C++ follows the proven guideline-based, example-driven format of Scott Meyers' earlier books, but covers entirely new material. "After I learned the C++ basics, I then learned how to use C++ in production code from Meyer's series of Effective C++ books. Effective Modern C++ is the most important how-to book for advice on key guidelines, styles, and idioms to use modern C++ effectively and well. Don't own it yet? Buy this one. Now". -- Herb Sutter, Chair of ISO C++ Standards Committee and C++ Software Architect at Microsoft

C++ High Performance - Björn Andrist 2020-12-30

A comprehensive guide to help aspiring and professional C++ developers elevate the performance of their apps by allowing them to run faster and consume fewer resources Key Features Updated to C++20 with completely revised code and more content on error handling, benchmarking, memory allocators, and concurrent programming Explore the latest C++20 features including concepts, ranges, and coroutines Utilize C++ constructs and techniques to carry out effective data structure optimization and memory management Book Description C++ High Performance, Second Edition guides you through optimizing the performance of your C++ apps. This allows them to run faster and consume fewer resources on the device they're running on without compromising the readability of your codebase. The book begins by introducing the C++ language and some of its modern concepts in brief. Once you are familiar with the fundamentals, you will be ready to measure, identify, and eradicate bottlenecks in your C++ codebase. By following this process, you will gradually improve your style of writing code. The book then explores data structure optimization, memory management, and how it can be used efficiently concerning CPU caches. After laying the foundation, the book trains you to leverage algorithms, ranges, and containers from the standard library to achieve faster execution, write readable code, and use customized iterators. It provides hands-on examples of C++ metaprogramming, coroutines, reflection to reduce boilerplate code, proxy objects to perform optimizations under the hood, concurrent programming, and lock-free data structures. The book concludes with an overview of parallel algorithms. By the end of this book, you will have the ability to use every tool as needed to boost the efficiency of your C++ projects. What you will learn Write specialized data structures for performance-critical code Use modern metaprogramming techniques to reduce runtime calculations Achieve efficient memory management using custom memory allocators Reduce boilerplate code using reflection techniques Reap the benefits of lock-free concurrent programming Gain insights into subtle optimizations used by standard library algorithms Compose algorithms using ranges library Develop the ability to apply metaprogramming aspects such as constexpr, constraints, and concepts Implement lazy generators and asynchronous tasks using C++20 coroutines Who this book is for If you're a C++ developer looking to improve the efficiency of your code or just keen to upgrade your skills to the next level, this book is for you.

The C Programming Language - Brian W. Kernighan 1988

Introduces the features of the C programming language, discusses data types, variables, operators, control flow, functions, pointers, arrays, and structures, and looks at the UNIX system interface

Compiler Construction - Poland) Etaps 200 (2003 Warsaw 2003-03-14

This book constitutes the refereed proceedings of the 12th International Conference on Compiler Construction, CC 2003, held in Warsaw, Poland, in April 2003. The 20 revised full regular papers and one tool demonstration paper presented together with two invited papers were carefully reviewed and selected from 83 submissions. The papers are organized in topical sections on register allocation, language constructs and their implementation, type analysis, Java, pot pourri, and optimization.

The Design and Evolution of C++ - Bjarne Stroustrup 1994-10-08