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SHANIYA KAISER

Practical Statecharts in C/C++ Springer 'Downright revolutionary... the title is a major understatement... 'Quantum Programming' may ultimately change the way embedded software is designed.' -- Michael Barr, Editor-in-Chief, Embedded Systems Programming magazine (Click here
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Apply business requirements to IT infrastructure and deliver a high-quality product by understanding architectures such as microservices, DevOps, and cloud-native using modern C++ standards and features Key FeaturesDesign scalable large-scale applications with the C++ programming languageArchitect software solutions in a cloud-based environment with continuous integration and continuous delivery (CI/CD)Achieve architectural goals by leveraging design patterns, language features, and useful toolsBook Description Software architecture refers to the high-level design of complex applications. It is evolving just like the languages we use, but there are architectural concepts and patterns that you can learn to write high-performance apps in a high-level language without sacrificing readability and maintainability. If you're working with modern C++, this practical guide will help you put your knowledge to work and design distributed, large-scale apps. You'll start by getting up to speed with architectural concepts, including established patterns and rising trends, then move on to understanding what software architecture actually is and start exploring its components. Next, you'll discover the design concepts involved in application architecture and the patterns in software development, before going on to learn how to build, package, integrate, and deploy your components. In the concluding chapters, you'll explore different architectural qualities, such as maintainability, reusability, testability, performance, scalability, and security. Finally, you will get an overview of distributed systems, such as service-oriented architecture,

microservices, and cloud-native, and understand how to apply them in application development. By the end of this book, you'll be able to build distributed services using modern C++ and associated tools to deliver solutions as per your clients' requirements. What you will learnUnderstand how to apply the principles of software architectureApply design patterns and best practices to meet your architectural goalsWrite elegant, safe, and performant code using the latest C++ featuresBuild applications that are easy to maintain and deployExplore the different architectural approaches and learn to apply them as per your requirementSimplify development and operations using application containersDiscover various techniques to solve common problems in software design and developmentWho this book is for This software architecture C++ programming book is for experienced C++ developers looking to become software architects or develop enterprise-grade applications.

Haskell High Performance Programming Simon and Schuster Parallel and High Performance Computing offers techniques guaranteed to boost your code’s effectiveness. Summary Complex calculations, like training deep learning models or running large-scale simulations, can take an extremely long time. Efficient parallel programming can save hours—or even days—of computing time. Parallel and High Performance Computing shows you how to deliver faster run-times, greater scalability, and increased energy efficiency to your programs by mastering parallel techniques for multicore processor and GPU hardware. About the technology Write fast, powerful, energy efficient programs that scale to tackle huge volumes of data. Using parallel programming, your code spreads data processing tasks across multiple CPUs for radically better performance. With a little help, you can create software that maximizes both speed and efficiency. About the book Parallel and High Performance Computing offers techniques guaranteed to boost your code’s effectiveness. You’ll learn to evaluate hardware architectures and work with industry standard tools such as OpenMP and MPI. You’ll master the data structures and algorithms best suited for high performance computing and learn techniques that save energy on handheld devices. You’ll even run a massive tsunami simulation across a bank of GPUs. What's inside Planning a new parallel project Understanding differences in CPU and GPU architecture Addressing underperforming kernels and loops Managing applications with batch scheduling About the reader For experienced programmers proficient with a high-performance computing language like C, C++, or Fortran. About the author Robert Robey works at Los Alamos National Laboratory and has been active in the field of parallel computing for over 30 years. Yuliana Zamora is currently a PhD student and Siebel Scholar at the University of Chicago, and has lectured on programming modern hardware at numerous national conferences. Table of Contents PART 1 INTRODUCTION TO PARALLEL COMPUTING 1 Why parallel computing? 2 Planning for parallelization 3 Performance limits and profiling 4 Data design and performance models 5 Parallel algorithms and patterns PART 2 CPU: THE PARALLEL WORKHORSE 6 Vectorization: FLOPs for free 7 OpenMP that performs 8 MPI: The parallel backbone PART 3 GPUS: BUILT TO

ACCELERATE 9 GPU architectures and concepts 10 GPU programming model 11 Directive-based GPU programming 12 GPU languages: Getting down to basics 13 GPU profiling and tools PART 4 HIGH PERFORMANCE COMPUTING ECOSYSTEMS 14 Affinity: Truce with the kernel 15 Batch schedulers: Bringing order to chaos 16 File operations for a parallel world 17 Tools and resources for better code

Rust High Performance Packt Publishing Ltd

This is one of the first books that describe all the steps that are needed in order to analyze, design and implement Monte Carlo applications. It discusses the financial theory as well as the mathematical and numerical background that is needed to write flexible and efficient C++ code using state-of-the art design and system patterns, object-oriented and generic programming models in combination with standard libraries and tools. Includes a CD containing the source code for all examples. It is strongly advised that you experiment with the code by compiling it and extending it to suit your needs. Support is offered via a user forum on www.datasimfinancial.com where you can post queries and communicate with other purchasers of the book. This book is for those professionals who design and develop models in computational finance. This book assumes that you have a working knowledge of C ++.

Boost C++ Application Development Cookbook Packt Publishing Ltd

This open access book is a modern guide for all C++ programmers to learn Threading Building Blocks (TBB). Written by TBB and parallel programming experts, this book reflects their collective decades of experience in developing and teaching parallel programming with TBB, offering their insights in an approachable manner. Throughout the book the authors present numerous examples and best practices to help you become an effective TBB programmer and leverage the power of parallel systems. Pro TBB starts with the basics, explaining parallel algorithms and C++'s built-in standard template library for parallelism. You'll learn the key concepts of managing memory, working with data structures and how to handle typical issues with synchronization. Later chapters apply these ideas to complex systems to explain performance tradeoffs, mapping common parallel patterns, controlling threads and overhead, and extending TBB to program heterogeneous systems or system-on-chips. What You'll Learn Use Threading Building Blocks to produce code that is portable, simple, scalable, and more understandableReview best practices for parallelizing computationally intensive tasks in your applications Integrate TBB with other threading packages Create scalable, high performance data-parallel programs Work with generic programming to write efficient algorithms Who This Book Is For C++ programmers learning to run applications on multicore systems, as well as C or C++ programmers without much experience with templates. No previous experience with parallel programming or multicore processors is required.

Parallel and High Performance Computing Packt Publishing Ltd

The most widely read and trusted guide to the C++ language, standard library, and design techniques includes significant new updates and two new appendices on internationalization and Standard Library technicalities. It is the

only book with authoritative, accessible coverage of every major element of ISO/ANSI Standard C++.
Effective TCP/IP Programming Packt Publishing Ltd
In today's fast and competitive world, a program's performance is just as important to customers as the features it provides. This practical guide teaches developers performance-tuning principles that enable optimization in C++. You'll learn how to make code that already embodies best practices of C++ design run faster and consume fewer resources on any computer—whether it's a watch, phone, workstation, supercomputer, or globe-spanning network of servers. Author Kurt Guntheroth provides several running examples that demonstrate how to apply these principles incrementally to improve existing code so it meets customer requirements for responsiveness and throughput. The advice in this book will prove itself the first time you hear a colleague exclaim, "Wow, that was fast. Who fixed something?" Locate performance hot spots using the profiler and software timers Learn to perform repeatable experiments to measure performance of code changes Optimize use of dynamically allocated variables Improve performance of hot loops and functions Speed up string handling functions Recognize efficient algorithms and optimization patterns Learn the strengths—and weaknesses—of C++ container classes View searching and sorting through an optimizer's eye Make efficient use of C++ streaming I/O functions Use C++ thread-based concurrency features effectively
Expert C Programming Pearson Deutschland GmbH
Write code that scales across CPU registers, multi-core, and machine clusters Key Features Explore concurrent programming in C++ Identify memory management problems Use SIMD and STL containers for performance improvement Book Description C++ is a highly portable language and can be used to write both large-scale applications and performance-critical code. It has evolved over the last few years to become a modern and expressive language. This book will guide you through optimizing the performance of your C++ apps by allowing them to run faster and consume fewer resources on the device they're running on without compromising the readability of your code base. The book begins by helping you measure and identify bottlenecks in a C++ code base. It then moves on by teaching you how to use modern C++ constructs and techniques. You'll see how this affects the way you write code. Next, you'll see the importance of data structure optimization and memory management, and how it can be used efficiently with respect to CPU caches. After that, you'll see how STL algorithm and composable Range V3 should be used to both achieve faster execution and more readable code, followed by how to use STL containers and how to write your own specialized iterators. Moving on, you'll get hands-on experience in making use of modern C++ metaprogramming and reflection to reduce boilerplate code as well as in working with proxy objects to perform optimizations under the hood. After that, you'll learn concurrent programming and understand lock-free data structures. The book ends with an overview of parallel algorithms using STL execution policies, Boost Compute, and OpenCL to utilize both the CPU and the GPU. What

you will learn Benefits of modern C++ constructs and techniques Identify hardware bottlenecks, such as CPU cache misses, to boost performance 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 Perform under-the-hood optimizations with preserved readability using proxy objects Gain insights into subtle optimizations used by STL algorithms Utilize the Range V3 library for expressive C++ code Parallelize your code over CPU and GPU, without compromising readability Who this book is for If you're a C++ developer looking to improve the speed of your code or simply wanting to take your skills up to the next level, then this book is perfect for you.

Effective C++ John Wiley & Sons

Find bottlenecks, identify the proper algorithm to use, optimize performance, and create really efficient Rust applications Key Features Understand common performance pitfalls and improve the performance of your applications. Get to grips with parallel programming and multithreading with Rust. Learn metaprogramming in Rust. Book Description At times, it is difficult to get the best performance out of Rust. This book teaches you to optimize the speed of your Rust code to the level of languages such as C/C++. You'll understand and fix common pitfalls, learn how to improve your productivity by using metaprogramming, and speed up your code by concurrently executing parts of it safely and easily. You will master the features of the language which will make you stand out and use them to really improve the efficiency of your algorithms The book begins with a gentle introduction to help you identify bottlenecks when programming in Rust. We highlight common performance pitfalls, along with strategies to detect and resolve these issues early. We move on to mastering Rust's type system, which will enable us to create impressive optimizations in both performance and safety at compile time. You will then learn how to effectively manage memory in Rust, mastering the borrow checker. We move on to measuring performance and you will see how this affects the way you write code. Moving ahead, you will perform metaprogramming in Rust to boost the performance of your code and your productivity. You will finally learn parallel programming in Rust, which enables efficient and faster execution by using multithreading and asynchronous programming. What you will learn Master tips and tricks to make your code faster. Learn how to identify bottlenecks in your Rust applications Discover how to profile your Rust software. Understand the type system to create compile-time optimizations. Master the borrow checker . Learn metaprogramming in Rust to avoid boilerplate code. Discover multithreading and work stealing in Rust. Understand asynchronous programming in Rust. Who this book is for This book is for Rust developers keen to improve the speed of their code or simply to take their skills to the next level.

Data Parallel C++ Independently Published

Proven methodologies and concurrency techniques that will help you write faster and better code with Go programming Key FeaturesExplore Go’s profiling tools to write faster programs by identifying and fixing bottlenecksAddress Go-

specific performance issues such as memory allocation and garbage collectionDelve into the subtleties of concurrency and discover how to successfully implement it in everyday applicationsBook Description Go is an easy-to-write language that is popular among developers thanks to its features such as concurrency, portability, and ability to reduce complexity. This Golang book will teach you how to construct idiomatic Go code that is reusable and highly performant. Starting with an introduction to performance concepts, you'll understand the ideology behind Go's performance. You'll then learn how to effectively implement Go data structures and algorithms along with exploring data manipulation and organization to write programs for scalable software. This book covers channels and goroutines for parallelism and concurrency to write high-performance code for distributed systems. As you advance, you'll learn how to manage memory effectively. You'll explore the compute unified device architecture (CUDA) application programming interface (API), use containers to build Go code, and work with the Go build cache for quicker compilation. You'll also get to grips with profiling and tracing Go code for detecting bottlenecks in your system. Finally, you'll evaluate clusters and job queues for performance optimization and monitor the application for performance regression. By the end of this Go programming book, you'll be able to improve existing code and fulfill customer requirements by writing efficient programs. What you will learnOrganize and manipulate data effectively with clusters and job queuesExplore commonly applied Go data structures and algorithmsWrite anonymous functions in Go to build reusable appsProfile and trace Go apps to reduce bottlenecks and improve efficiencyDeploy, monitor, and iterate Go programs with a focus on performanceDive into memory management and CPU and GPU parallelism in GoWho this book is for This Golang book is a must for developers and professionals who have an intermediate-to-advanced understanding of Go programming, and are interested in improving their speed of code execution.

MariaDB High Performance Prentice Hall Professional

"This book should be on every C++ programmer's desk. It's clear, concise, and valuable." - Rob Green, Bowling Green State University This bestseller has been updated and revised to cover all the latest changes to C++ 14 and 17! C++ Concurrency in Action, Second Edition teaches you everything you need to write robust and elegant multithreaded applications in C++17. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology You choose C++ when your applications need to run fast. Well-designed concurrency makes them go even faster. C++ 17 delivers strong support for the multithreaded, multiprocessor programming required for fast graphic processing, machine learning, and other performance-sensitive tasks. This exceptional book unpacks the features, patterns, and best practices of production-grade C++ concurrency. About the Book C++ Concurrency in Action, Second Edition is the definitive guide to writing elegant multithreaded applications in C++. Updated for C++ 17, it carefully addresses every aspect of concurrent

development, from starting new threads to designing fully functional multithreaded algorithms and data structures. Concurrency master Anthony Williams presents examples and practical tasks in every chapter, including insights that will delight even the most experienced developer. What's inside Full coverage of new C++ 17 features Starting and managing threads Synchronizing concurrent operations Designing concurrent code Debugging multithreaded applications About the Reader Written for intermediate C and C++ developers. No prior experience with concurrency required. About the Author Anthony Williams has been an active member of the BSI C++ Panel since 2001 and is the developer of the just::thread Pro extensions to the C++ 11 thread library. Table of Contents Hello, world of concurrency in C++! Managing threads Sharing data between threads Synchronizing concurrent operations The C++ memory model and operations on atomic types Designing lock-based concurrent data structures Designing lock-free concurrent data structures Designing concurrent code Advanced thread management Parallel algorithms Testing and debugging multithreaded applications

Optimized C++ Packt Publishing Ltd

An Essential Reference for Intermediate and Advanced R Programmers Advanced R presents useful tools and techniques for attacking many types of R programming problems, helping you avoid mistakes and dead ends. With more than ten years of experience programming in R, the author illustrates the elegance, beauty, and flexibility at the heart of R. The book develops the necessary skills to produce quality code that can be used in a variety of circumstances. You will learn: The fundamentals of R, including standard data types and functions Functional programming as a useful framework for solving wide classes of problems The positives and negatives of metaprogramming How to write fast, memory-efficient code This book not only helps current R users become R programmers but also shows existing programmers what’s special about R. Intermediate R programmers can dive deeper into R and learn new strategies for solving diverse problems while programmers from other languages can learn the details of R and understand why R works the way it does.

Advanced R Pearson Education

This book breaks down the C++ STL, teaching you how to extract its gems and apply them to your programming. About This Book Boost your productivity as a C++ developer with the latest features of C++17 Develop high-quality, fast, and portable applications with the varied features of the STL Migrate from older versions (C++11, C++14) to C++17 Who This Book Is For This book is for developers who would like to master the C++ STL and make full use of its components. Prior C++ knowledge is assumed. What You Will Learn Make your own iterator types, allocators, and thread pools. Master every standard container and every standard algorithm. Improve your code by replacing new/delete with smart pointers. Understand the difference between monomorphic algorithms, polymorphic algorithms, and generic algorithms. Learn the meaning and applications of vocabulary type, product type and sum type. In Detail Modern C++ has come a long way since 2011. The latest update, C++17, has just been ratified and several implementations are on the way. This book is your guide to the C++

standard library, including the very latest C++17 features. The book starts by exploring the C++ Standard Template Library in depth. You will learn the key differences between classical polymorphism and generic programming, the foundation of the STL. You will also learn how to use the various algorithms and containers in the STL to suit your programming needs. The next module delves into the tools of modern C++. Here you will learn about algebraic types such as std::optional, vocabulary types such as std::function, smart pointers, and synchronization primitives such as std::atomic and std::mutex. In the final module, you will learn about C++'s support for regular expressions and file I/O. By the end of the book you will be proficient in using the C++17 standard library to implement real programs, and you'll have gained a solid understanding of the library's own internals. Style and approach This book takes a concise but comprehensive approach to explaining and applying the C++ STL, one feature at a time.

Expert C++ Packt Publishing Ltd

Filled with dozens of working code examples that illustrate the use of over 40 popular Boost libraries, this book takes you on a tour of Boost, helping you to independently build the libraries from source and use them in your own code. The first half of the book focuses on basic programming interfaces including generic containers and algorithms, strings, resource management, exception safety, and a miscellany of programming utilities that make everyday programming chores easy. Following a short interlude that introduces template metaprogramming and functional programming, the later chapters are devoted to systems programming interfaces, focusing on directory handling, I/O, concurrency, and network programming

High Performance Habits CRC Press

Design and architect real-world scalable C++ applications by exploring advanced techniques in low-level programming, object-oriented programming (OOP), the Standard Template Library (STL), metaprogramming, and concurrency Key FeaturesDesign professional-grade, maintainable apps by learning advanced concepts such as functional programming, templates, and networkingApply design patterns and best practices to solve real-world problemsImprove the performance of your projects by designing concurrent data structures and algorithmsBook Description C++ has evolved over the years and the latest release – C++20 – is now available. Since C++11, C++ has been constantly enhancing the language feature set. With the new version, you’ll explore an array of features such as concepts, modules, ranges, and coroutines. This book will be your guide to learning the intricacies of the language, techniques, C++ tools, and the new features introduced in C++20, while also helping you apply these when building modern and resilient software. You’ll start by exploring the latest features of C++, and then move on to advanced techniques such as multithreading, concurrency, debugging, monitoring, and high-performance programming. The book will delve into object-oriented programming principles and the C++ Standard Template Library, and even show you how to create custom templates. After this, you’ll learn about different approaches such as test-driven development (TDD), behavior-driven development (BDD), and domain-driven design (DDD), before taking a look at the coding best practices and

design patterns essential for building professional-grade applications. Toward the end of the book, you will gain useful insights into the recent C++ advancements in AI and machine learning. By the end of this C++ programming book, you'll have gained expertise in real-world application development, including the process of designing complex software. What you will learnUnderstand memory management and low-level programming in C++ to write secure and stable applicationsDiscover the latest C++20 features such as modules, concepts, ranges, and coroutinesUnderstand debugging and testing techniques and reduce issues in your programsDesign and implement GUI applications using Qt5Use multithreading and concurrency to make your programs run fasterDevelop high-end games by using the object-oriented capabilities of C++Explore AI and machine learning concepts with C++Who this book is for This C++ book is for experienced C++ developers who are looking to take their knowledge to the next level and perfect their skills in building professional-grade applications.
C++ Crash Course "O'Reilly Media, Inc."
Boost the performance of your Haskell applications using optimization, concurrency, and parallel programming About This Book Explore the benefits of lazy evaluation, compiler features, and tools and libraries designed for high performance Write fast programs at extremely high levels of abstraction Work through practical examples that will help you address the challenges of writing efficient code Who This Book Is For To get the most out of this book, you need to have a working knowledge of reading and writing basic Haskell. No knowledge of performance, optimization, or concurrency is required. What You Will Learn Program idiomatic Haskell that's also surprisingly efficient Improve performance of your code with data parallelism, inlining, and strictness annotations Profile your programs to identify space leaks and missed opportunities for optimization Find out how to choose the most efficient data and control structures Optimize the Glasgow Haskell Compiler and runtime system for specific programs See how to smoothly drop to lower abstractions wherever necessary Execute programming for the GPU with Accelerate Implement programming to easily scale to the cloud with Cloud Haskell In Detail Haskell, with its power to optimize the code and its high performance, is a natural candidate for high performance programming. It is especially well suited to stacking abstractions high with a relatively low performance cost. This book addresses the challenges of writing efficient code with lazy evaluation and techniques often used to optimize the performance of Haskell programs. We open with an in-depth look at the evaluation of Haskell expressions and discuss optimization and benchmarking. You will learn to use parallelism and we'll explore the concept of streaming. We'll demonstrate the benefits of running multithreaded and concurrent applications. Next we'll guide you through various profiling tools that will help you identify performance issues in your program. We'll end our journey by looking at GPGPU, Cloud and Functional Reactive Programming in Haskell. At the very end there is a catalogue of robust library recommendations with code samples. By the end of the book, you will be able to boost the performance of any app and prepare it to stand up to real-world

punishment. Style and approach This easy-to-follow guide teaches new practices and techniques to optimize your code, and then moves towards more advanced ways to effectively write efficient Haskell code. Small and simple practical examples will help you test the concepts yourself, and you will be able to easily adapt them for any application.
Effective Modern C++ Addison-Wesley Professional
Software -- Programming Languages.
Monte Carlo Frameworks CRC Press
A pragmatic recipe book for acquiring a comprehensive understanding of the complexities and core fundamentals of C++ programming Key FeaturesExplore the latest language and library features of C++20 such as modules, coroutines, concepts, and rangesShed new light on the core concepts in C++ programming, including functions, algorithms, threading, and concurrency, through practical self-contained recipesLeverage C++ features like smart pointers, move semantics, constexpr, and more for increased robustness and performanceBook Description C++ has come a long way to be one of the most widely used general-purpose languages that is fast, efficient, and high-performance at its core. The updated second edition of Modern C++ Programming Cookbook addresses the latest features of C++20, such as modules, concepts, coroutines, and the many additions to the standard library, including ranges and text formatting. The book is organized in the form of practical recipes covering a wide range of problems faced by modern developers. The book also delves into the details of all the core concepts in modern C++ programming, such as functions and classes, iterators and algorithms, streams and the file system, threading and concurrency, smart pointers and move semantics, and many others. It goes into the performance aspects of programming in depth, teaching developers how to write fast and lean code with the help of best practices. Furthermore, the book explores useful patterns and delves into the implementation of many idioms, including pimpl, named parameter, and attorney-client, teaching techniques such as avoiding repetition with the factory pattern. There is also a chapter dedicated to unit testing, where you are introduced to three of the most widely used libraries for C++: Boost.Test, Google Test, and Catch2. By the end of the book, you will be able to effectively leverage the features and techniques of C++11/14/17/20 programming to enhance the performance, scalability, and efficiency of your applications. What you will learnUnderstand the new C++20 language and library features and the problems they solveBecome skilled at using the standard support for threading and concurrency for daily tasksLeverage the standard library and work with containers, algorithms, and iteratorsSolve text searching and replacement problems using regular expressionsWork with different types of strings and learn the various aspects of compilationTake advantage of the file system library to work with files and directoriesImplement various useful patterns and idiomsExplore the widely used testing frameworks for C++Who this book is for The book is designed for entry- or medium-level C++ programmers who have a basic knowledge of C++ and want to master the language and become prolific modern C++ developers. Experienced C++ programmers can leverage this book to strengthen their command of

C++ and find a good reference to many language and library features of C++11/14/17/20.

Pro TBB O'Reilly Media

Push the limits of what C - and you - can do, with this high-intensity guide to the most advanced capabilities of C Key FeaturesMake the most of C's low-level control, flexibility, and high performanceA comprehensive guide to C's most powerful and challenging featuresA thought-provoking guide packed with hands-on exercises and examplesBook Description There's a lot more to C than knowing the language syntax. The industry looks for developers with a rigorous, scientific understanding of the principles and practices. Extreme C will teach you to use C's advanced low-level power to write effective, efficient systems. This intensive, practical guide will help you become an expert C programmer. Building on your existing C knowledge, you will master preprocessor directives, macros, conditional compilation, pointers, and much more. You will gain new insight into algorithm design, functions, and structures. You will discover how C helps you squeeze maximum performance out of critical, resource-constrained applications. C still plays a critical role in 21st-century programming, remaining the core language for precision engineering, aviations, space research, and more. This book shows how C works with Unix, how to implement OO principles in C, and fully covers multi-processing. In Extreme C, Amini encourages you to think, question, apply, and experiment for yourself. The book is essential for anybody who wants to take their C to the next level. What you will learnBuild advanced C knowledge on strong foundations, rooted in first principlesUnderstand memory structures and compilation pipeline and how they work, and how to make most out of themApply object-oriented design principles to your procedural C codeWrite low-level code that's close to the hardware and squeezes maximum performance out of a computer systemMaster concurrency, multithreading, multi-processing, and integration with other languagesUnit Testing and debugging, build systems, and inter-process communication for C programmingWho this book is for Extreme C is for C programmers who want to dig deep into the language and its capabilities. It will help you make the most of the low-level control C gives you.

Learning Boost C++ Libraries Hay House, Inc

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. Purchase of the print or Kindle book includes a free eBook in PDF format. 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.