
Concurrent Programming On Windows Architecture Principles And Patterns Microsoft Net Development

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Concurrent Programming on Windows

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Programming Massively Parallel Processors

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The JR Programming Language

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C++ Concurrency in Action

Code You Can Believe In
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Parallel Programming
Design Principles and Patterns
Build solid enterprise software using task
parallelism and multithreading
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Programming Erlang
Concurrency in .NET
When Threads Unravel
Parallel Computer Architecture
An Introduction to General-Purpose GPU
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latest features
Build scalable apps with patterns in
multithreading, synchronization, and functional
programming

Modern patterns of concurrent and parallel programming

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This book is a must-have tutorial for software developers aiming to write concurrent programs in Scala, or broaden their existing knowledge of concurrency. This book is intended for Scala programmers that have no prior knowledge about concurrent programming, as well as those seeking to

broaden their existing knowledge about concurrency. Basic knowledge of the Scala programming language will be helpful. Readers with a solid knowledge in another programming language, such as Java, should find this book easily accessible.

Concurrent
Programming on
Windows John Wiley & Sons

Microsoft has introduced a large number of changes to the way that the .NET Framework operates. Familiar technologies have being altered, best practices replaced, and developer methodologies adjusted. Many developers find it hard

to keep up with the pace of change across .NET's ever-widening array of technologies. You may know what's happening in C#, but how about the Azure cloud? How is that going to affect your work? What are the limitations of the pLINQ syntax? What you need is a roadmap. A guide to help you see the innovations that matter and to give you a head start on the opportunities available in the new framework. Introducing .NET 4.0: with Visual Studio 2010 is designed to provide you with just that roadmap. It serves as a no-nonsense primer that will help experienced .NET developers understand the impact of the new framework and its associated technologies. This book

will keep you updated on the changes and help you to seize new opportunities confidently and quickly.

Erlang Programming

Addison-Wesley Professional

Expert guidance for those programming today's dual-core processors PCs As PC processors explode from one or two to now eight processors, there is an urgent need for programmers to master concurrent programming. This book dives deep into the latest technologies available to programmers for creating professional parallel applications using C#, .NET 4, and Visual Studio 2010. The book covers task-based programming, coordination data structures, PLINQ,

thread pools, asynchronous programming model, and more. It also teaches other parallel programming techniques, such as SIMD and vectorization. Teaches programmers professional-level, task-based, parallel programming with C#, .NET 4, and Visual Studio 2010 Covers concurrent collections, coordinated data structures, PLINQ, thread pools, asynchronous programming model, Visual Studio 2010 debugging, and parallel testing and tuning Explores vectorization, SIMD instructions, and additional parallel libraries Master the tools and technology you need to develop thread-safe concurrent

applications for multi-core systems, with Professional Parallel Programming with C#. **Programming Massively Parallel Processors** Addison Wesley Publishing Company Both theory and practice are blended together in order to learn how to build real operating systems that function within a distributed environment. An introduction to standard operating system topics is combined with newer topics such as security, microkernels and embedded systems. This book also provides an overview of operating system fundamentals. For programmers who want to refresh their basic skills and be brought up-to-date on

those topics related to operating systems.

Java 9 Concurrency

Cookbook Pearson Education

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 Features Design professional-grade, maintainable apps by learning advanced concepts such as functional programming, templates, and networking Apply design patterns and best practices to solve real-world problems Improve the performance of your projects by designing concurrent data

structures and algorithms Book 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 learn Understand memory management and low-level programming in C++ to write secure and stable applications Discover the latest C++20 features such as modules, concepts, ranges, and coroutines Understand debugging and testing techniques and reduce issues in your programs Design and implement GUI applications using Qt5 Use multithreading and concurrency to make your programs run faster Develop 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.

Design of

Multithreaded Software

Microsoft Press

Summary Concurrency in .NET teaches you

how to build

concurrent and

scalable programs in

.NET using the

functional paradigm.

This intermediate-level guide is aimed at

developers, architects,

and passionate

computer

programmers who are

interested in writing

code with improved

speed and

effectiveness by

adopting a declarative and pain-free programming style.

Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications.

About the Technology

Unlock the incredible performance built into your multi-processor machines. Concurrent

applications run faster because they spread

work across processor cores, performing

several tasks at the same time. Modern

tools and techniques on the .NET platform,

including parallel LINQ, functional

programming, asynchronous

programming, and the Task Parallel Library,

offer powerful alternatives to

traditional thread-based concurrency.

About the Book

Concurrency in .NET teaches you to write code that delivers the speed you need for performance-sensitive applications. Featuring examples in both C# and F#, this book guides you through concurrent and parallel designs that emphasize functional programming in theory and practice. You'll start with the foundations of concurrency and master essential techniques and design practices to optimize code running on modern multiprocessor systems. What's Inside The most important concurrency abstractions Employing the agent programming model Implementing real-time event-stream processing Executing unbounded

asynchronous operations Best concurrent practices and patterns that apply to all platforms About the Reader For readers skilled with C# or F#. About the Book Riccardo Terrell is a seasoned software engineer and Microsoft MVP who is passionate about functional programming. He has over 20 years' experience delivering cost-effective technology solutions in a competitive business environment. Table of Contents PART 1 - Benefits of functional programming applicable to concurrent programs Functional concurrency foundations Functional programming techniques for concurrency Functional data structures and immutability PART 2 -

<p>How to approach the different parts of a concurrent program</p> <p>The basics of processing big data: data parallelism, part 1</p> <p>PLINQ and MapReduce: data parallelism, part 2</p> <p>Real-time event streams: functional reactive programming</p> <p>Task-based functional parallelism</p> <p>Task asynchronicity for the win</p> <p>Asynchronous functional programming in F#</p> <p>Functional combinators for fluent concurrent programming</p> <p>Applying reactive programming everywhere with agents</p> <p>Parallel workflow and agent programming with TPL</p> <p>Dataflow PART 3 - Modern patterns of concurrent programming applied</p> <p>Recipes and design patterns for successful concurrent</p>	<p>programming Building a scalable mobile app with concurrent functional programming</p> <p><u>Concurrent Programming on Windows Vista</u> Springer Science & Business Media</p> <p>Master the art of fast, effective Java development with the power of concurrent and parallel programming</p> <p>About This Book Get detailed coverage of important recipes on multi-threading and parallel programming</p> <p>This book takes a close look at the Java 9 APIs and their impact on concurrency</p> <p>See practical examples on thread safety, high-performance classes, safe sharing, and a whole lot more</p> <p>Who This Book Is For The book is for Java</p>
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developers and programmers at an intermediate to advanced level. It will be especially useful for developers who want to take advantage of task-based recipes using Java 9's concurrent API to program thread-safe solutions. What You Will Learn Find out to manage the basic components of the Java Concurrency API Use synchronization mechanisms to avoid data race conditions and other problems of concurrent applications Separate the thread management from the rest of the application with the Executor framework Solve problems using a parallelized version of the divide and conquer paradigm with the Fork / Join framework Process massive data

sets in an optimized way using streams and reactive streams See which data structures we can use in concurrent applications and how to use them Practice efficient techniques to test concurrent applications Get to know tips and tricks to design concurrent applications In Detail Writing concurrent and parallel programming applications is an integral skill for any Java programmer. Java 9 comes with a host of fantastic features, including significant performance improvements and new APIs. This book will take you through all the new APIs, showing you how to build parallel and multi-threaded applications. The book covers all the elements of the Java

Concurrency API, with essential recipes that will help you take advantage of the exciting new capabilities. You will learn how to use parallel and reactive streams to process massive data sets. Next, you will move on to create streams and use all their intermediate and terminal operations to process big collections of data in a parallel and functional way. Further, you'll discover a whole range of recipes for almost everything, such as thread management, synchronization, executors, parallel and reactive streams, and many more. At the end of the book, you will learn how to obtain information about the status of some of the most useful

components of the Java Concurrency API and how to test concurrent applications using different tools. Style and approach This recipe-based book will allow you to explore the exciting capabilities of concurrency in Java. After reading this book, you will be able to comfortably build parallel applications in Java 9. *Asynchronous, Parallel, and Multithreaded Programming* Pragmatic Bookshelf Programming Massively Parallel Processors: A Hands-on Approach, Second Edition, teaches students how to program massively parallel processors. It offers a detailed discussion of various techniques for constructing parallel

programs. Case studies are used to demonstrate the development process, which begins with computational thinking and ends with effective and efficient parallel programs. This guide shows both student and professional alike the basic concepts of parallel programming and GPU architecture. Topics of performance, floating-point format, parallel patterns, and dynamic parallelism are covered in depth. This revised edition contains more parallel programming examples, commonly-used libraries such as Thrust, and explanations of the latest tools. It also provides new coverage of CUDA 5.0, improved performance, enhanced development tools, increased

hardware support, and more; increased coverage of related technology, OpenCL and new material on algorithm patterns, GPU clusters, host programming, and data parallelism; and two new case studies (on MRI reconstruction and molecular visualization) that explore the latest applications of CUDA and GPUs for scientific research and high-performance computing. This book should be a valuable resource for advanced students, software engineers, programmers, and hardware engineers. New coverage of CUDA 5.0, improved performance, enhanced development tools, increased hardware support, and more Increased

coverage of related technology, OpenCL and new material on algorithm patterns, GPU clusters, host programming, and data parallelism Two new case studies (on MRI reconstruction and molecular visualization) explore the latest applications of CUDA and GPUs for scientific research and high-performance computing

Concurrent Programming in an Extended Java

Newnes
Enhance your enterprise application development skills by mastering parallel programming techniques in .NET and C# Key Features Write efficient, fine-grained, and scalable parallel code with C# and .NET Core Experience how parallel programming

works by building a powerful application Learn the fundamentals of multithreading by working with IIS and Kestrel Book Description In today's world, every CPU has a multi-core processor. However, unless your application has implemented parallel programming, it will fail to utilize the hardware's full processing capacity. This book will show you how to write modern software on the optimized and high-performing .NET Core 3 framework using C# 8. Hands-On Parallel Programming with C# 8 and .NET Core 3 covers how to build multithreaded, concurrent, and optimized applications that harness the power of multi-core

processors. Once you've understood the fundamentals of threading and concurrency, you'll gain insights into the data structure in .NET Core that supports parallelism. The book will then help you perform asynchronous programming in C# and diagnose and debug parallel code effectively. You'll also get to grips with the new Kestrel server and understand the difference between the IIS and Kestrel operating models. Finally, you'll learn best practices such as test-driven development, and run unit tests on your parallel code. By the end of the book, you'll have developed a deep understanding of the core concepts of concurrency and

asynchrony to create responsive applications that are not CPU-intensive. What you will learn Analyze and break down a problem statement for parallelism Explore the APM and EAP patterns and how to move legacy code to Task Apply reduction techniques to get aggregated results Create PLINQ queries and study the factors that impact their performance Solve concurrency problems caused by producer-consumer race conditions Discover the synchronization primitives available in .NET Core Understand how the threading model works with IIS and Kestrel Find out how you can make the most of server resources Who this book is for If you want

to learn how task parallelism is used to build robust and scalable enterprise architecture, this book is for you. Whether you are a beginner to parallelism in C# or an experienced architect, you'll find this book useful to gain insights into the different threading models supported in .NET Standard and .NET Core. Prior knowledge of C# is required to understand the concepts covered in this book.

Data Parallel C++

Pearson Education
In *More Effective C#*, Microsoft C# MVP and Regional Director Bill Wagner introduces fifty brand-new ways to write more efficient and more robust software. This all-new book follows the same format as Wagner's

best-selling *Effective C#* (Addison-Wesley, 2005), providing clear, practical explanations, expert tips, and plenty of realistic code examples. Wagner shows how to make the most of powerful innovations built into Microsoft's new C# 3.0 and .NET Framework 3.5, as well as advanced C# language capabilities not covered in his previous book. Drawing on his unsurpassed C# experience, the author reveals new best practices for working with LINQ, generics, metaprogramming, and many other features. He also uncovers practices that compromise performance or reliability and shows exactly how to avoid them. *More Effective C#* shows how to Use

generics to express your design intent more effectively Master advanced generics techniques, such as constraints, method constraints, and generic specialization Use the multithreaded techniques you'll need to work with the .NET framework every day Express modern design idioms using the rich palette of C# language features Successfully mix object oriented and functional programming constructs Create composable interfaces and avoid confusion in public interfaces Use extension methods to separate contracts from implementation Program successfully with C# closures and anonymous types Write more effective LINQ queries Make the most of LINQ Lazy

Evaluation Queries and Lambda Expressions Distinguish and convert between delegates and expression trees Efficiently utilize nullable types and partial classes Use implicit properties for mutable, nonserializable data You're already a successful C# programmer—this book can help you become an outstanding one. *The JR Programming Language* Morgan Kaufmann This book outlines a set of issues that are critical to all of parallel architecture--communication latency, communication bandwidth, and coordination of cooperative work (across modern designs). It describes

the set of techniques available in hardware and in software to address each issues and explore how the various techniques interact.

A Concurrent Approach to Software Development

John Wiley & Sons
Get to grips with modern software demands by learning the effective uses of Rust's powerful memory safety. Key Features Learn and improve the sequential performance characteristics of your software Understand the use of operating system processes in a high-scale concurrent system Learn of the various coordination methods available in the Standard library
Book Description Most programming

languages can really complicate things, especially with regard to unsafe memory access. The burden on you, the programmer, lies across two domains: understanding the modern machine and your language's pain-points. This book will teach you to how to manage program performance on modern machines and build fast, memory-safe, and concurrent software in Rust. It starts with the fundamentals of Rust and discusses machine architecture concepts. You will be taken through ways to measure and improve the performance of Rust code systematically and how to write collections with confidence. You will learn about the

Sync and Send traits applied to threads, and coordinate thread execution with locks, atomic primitives, data-parallelism, and more. The book will show you how to efficiently embed Rust in C++ code and explore the functionalities of various crates for multithreaded applications. It explores implementations in depth. You will know how a mutex works and build several yourself. You will master radically different approaches that exist in the ecosystem for structuring and managing high-scale systems. By the end of the book, you will feel comfortable with designing safe, consistent, parallel,

and high-performance applications in Rust. What you will learn Probe your programs for performance and accuracy issues Create your own threading and multi-processing environment in Rust Use coarse locks from Rust's Standard library Solve common synchronization problems or avoid synchronization using atomic programming Build lock-free/wait-free structures in Rust and understand their implementations in the crates ecosystem Leverage Rust's memory model and type system to build safety properties into your parallel programs Understand the new features of the Rust programming language to ease the writing of parallel programs Who this book is for This

book is aimed at software engineers with a basic understanding of Rust who want to exploit the parallel and concurrent nature of modern computing environments, safely. *C++ Concurrency in Action* Apress

This easy-to-use, fast-moving tutorial introduces you to functional programming with Haskell. You'll learn how to use Haskell in a variety of practical ways, from short scripts to large and demanding applications. *Real World Haskell* takes you through the basics of functional programming at a brisk pace, and then helps you increase your understanding of Haskell in real-world issues like I/O,

performance, dealing with data, concurrency, and more as you move through each chapter. *Code You Can Believe In* Gulf Professional Publishing

If you have a working knowledge of Haskell, this hands-on book shows you how to use the language's many APIs and frameworks for writing both parallel and concurrent programs. You'll learn how parallelism exploits multicore processors to speed up computation-heavy programs, and how concurrency enables you to write programs with threads for multiple interactions. Author Simon Marlow walks you through the process with lots of code examples that you can run, experiment with, and extend. Divided into

separate sections on Parallel and Concurrent Haskell, this book also includes exercises to help you become familiar with the concepts presented: Express parallelism in Haskell with the Eval monad and Evaluation Strategies Parallelize ordinary Haskell code with the Par monad Build parallel array-based computations, using the Repa library Use the Accelerate library to run computations directly on the GPU Work with basic interfaces for writing concurrent code Build trees of threads for larger and more complex programs Learn how to build high-speed concurrent network servers Write distributed programs that run on multiple machines in a network

Essential COM "O'Reilly Media, Inc."

The end of dramatic exponential growth in single-processor performance marks the end of the dominance of the single microprocessor in computing. The era of sequential computing must give way to a new era in which parallelism is at the forefront. Although important scientific and engineering challenges lie ahead, this is an opportune time for innovation in programming systems and computing architectures. We have already begun to see diversity in computer designs to optimize for such considerations as power and throughput. The next generation of discoveries is likely to require advances at both the hardware and

software levels of computing systems. There is no guarantee that we can make parallel computing as common and easy to use as yesterday's sequential single-processor computer systems, but unless we aggressively pursue efforts suggested by the recommendations in this book, it will be "game over" for growth in computing performance. If parallel programming and related software efforts fail to become widespread, the development of exciting new applications that drive the computer industry will stall; if such innovation stalls, many other parts of the economy will follow suit. The Future of Computing Performance describes

the factors that have led to the future limitations on growth for single processors that are based on complementary metal oxide semiconductor (CMOS) technology. It explores challenges inherent in parallel computing and architecture, including ever-increasing power consumption and the escalated requirements for heat dissipation. The book delineates a research, practice, and education agenda to help overcome these challenges. The Future of Computing Performance will guide researchers, manufacturers, and information technology professionals in the right direction for sustainable growth in computer performance, so that we may all

enjoy the next level of benefits to society.

Parallel Programming

Pearson Education
Concurrent Programming on Windows
Pearson Education

Design Principles and Patterns Morgan Kaufmann

If you're one of the many developers uncertain about concurrent and multithreaded development, this practical cookbook will change your mind. With more than 75 code-rich recipes, author Stephen Cleary demonstrates parallel processing and asynchronous programming techniques, using libraries and language features in .NET 4.5 and C# 5.0. Concurrency is

becoming more common in responsive and scalable application development, but it's been extremely difficult to code. The detailed solutions in this cookbook show you how modern tools raise the level of abstraction, making concurrency much easier than before. Complete with ready-to-use code and discussions about how and why the solution works, you get recipes for using: async and await for asynchronous operations Parallel programming with the Task Parallel Library The TPL Dataflow library for creating dataflow pipelines Capabilities that Reactive Extensions build on top of LINQ Unit testing with concurrent code

Interop scenarios for combining concurrent approaches Immutable, threadsafe, and producer/consumer collections Cancellation support in your concurrent code Asynchronous-friendly Object-Oriented Programming Thread synchronization for accessing data *Build solid enterprise software using task parallelism and multithreading* Packt Publishing Ltd

CUDA is a computing architecture designed to facilitate the development of parallel programs. In conjunction with a comprehensive software platform, the CUDA Architecture enables programmers to draw on the immense power of graphics processing units (GPUs) when

building high-performance applications. GPUs, of course, have long been available for demanding graphics and game applications. CUDA now brings this valuable resource to programmers working on applications in other domains, including science, engineering, and finance. No knowledge of graphics programming is required—just the ability to program in a modestly extended version of C. CUDA by Example, written by two senior members of the CUDA software platform team, shows programmers how to employ this new technology. The authors introduce each area of CUDA development through working examples. After a concise

introduction to the CUDA platform and architecture, as well as a quick-start guide to CUDA C, the book details the techniques and trade-offs associated with each key CUDA feature. You'll discover when to use each CUDA C extension and how to write CUDA software that delivers truly outstanding performance. Major topics covered include Parallel programming Thread cooperation Constant memory and events Texture memory Graphics interoperability Atomics Streams CUDA C on multiple GPUs Advanced atomics Additional CUDA resources All the CUDA software tools you'll need are freely available for download from NVIDIA.

<http://developer.nvidia.com/object/cuda-by-example.html>

Expert C++ Simon and Schuster
A multi-user game, web site, cloud application, or networked database can have thousands of users all interacting at the same time. You need a powerful, industrial-strength tool to handle the really hard problems inherent in parallel, concurrent environments. You need Erlang. In this second edition of the bestselling Programming Erlang, you'll learn how to write parallel programs that scale effortlessly on multicore systems. Using Erlang, you'll be surprised at how easy it becomes to deal with parallel problems, and how much faster and more efficiently your

programs run. That's because Erlang uses sets of parallel processes-not a single sequential process, as found in most programming languages. Joe Armstrong, creator of Erlang, introduces this powerful language in small steps, giving you a complete overview of Erlang and how to use it in common scenarios. You'll start with sequential programming, move to parallel programming and handling errors in parallel programs, and learn to work confidently with distributed programming and the standard Erlang/Open Telecom Platform (OTP) frameworks. You need no previous knowledge of functional or parallel programming. The

chapters are packed with hands-on, real-world tutorial examples and insider tips and advice, and finish with exercises for both beginning and advanced users. The second edition has been extensively rewritten. New to this edition are seven chapters covering the latest Erlang features: maps, the type system and the Dialyzer, WebSockets, programming idioms, and a new stand-alone execution environment. You'll write programs that dynamically detect and correct errors, and that can be upgraded without stopping the system. There's also coverage of rebar (the de facto Erlang build system), and information on how to share and use Erlang

projects on github, illustrated with examples from cowboy and bitcask. Erlang will change your view of the world, and of how you program. What You Need The Erlang/OTP system. Download it from erlang.org.
Programming Erlang
Addison-Wesley
Professional
A complete source of

information on almost all aspects of parallel computing from introduction, to architectures, to programming paradigms, to algorithms, to programming standards. It covers traditional Computer Science algorithms, scientific computing algorithms and data intensive algorithms.

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