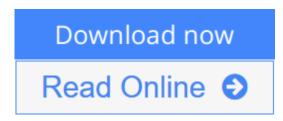# Multicore Application Programming: for Windows, Linux, and Oracle Solaris (Developer's Library)

By Darryl Gove

Multicore Application Programming: for Windows, Linux, and Oracle Solaris (Developer's Library) By Darryl Gove

Write High-Performance, Highly Scalable Multicore Applications for Leading Platforms

Multicore Application Programming is a comprehensive, practical guide to high-performance multicore programming that any experienced developer can use.

Author Darryl Gove covers the leading approaches to parallelization on Windows, Linux, and Oracle Solaris. Through practical examples, he illuminates the challenges involved in writing applications that fully utilize multicore processors, helping you produce applications that are functionally correct, offer superior performance, and scale well to eight cores, sixteen cores, and beyond.

The book reveals how specific hardware implementations impact application performance and shows how to avoid common pitfalls. Step by step, you'll write applications that can handle large numbers of parallel threads, and you'll master advanced parallelization techniques. You'll learn how to

- Identify your best opportunities to use parallelism
- Share data safely between multiple threads
- Write applications using POSIX or Windows threads
- Hand-code synchronization and sharing
- Take advantage of automatic parallelization and OpenMP
- Overcome common obstacles to scaling
- Apply new approaches to writing correct, fast, scalable parallel code

Multicore Application Programming isn't wedded to a single approach or platform: It is for every experienced C programmer working with any contemporary multicore processor in any leading operating system environment.

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Editorial Review

From the Back Cover
Write High-Performance, Highly-Scalable Multicore Applications for Any Leading Hardware and OS Environment Programmers who know how to leverage today's multicore processors can achieve remarkable performance improvements, but multicore programming has traditionally been viewed as complex and difficult. "Multicore Application Programming" is the solution: a comprehensive, practical guide to high-performance multicore programming that any experienced developer can use. Author Darryl Gove covers all leading approaches to virtualization on multiple leading platforms, including Linux, Oracle Solaris, Mac OS X, and Windows. Through practical examples, he illuminates the challenges involved in writing applications that fully utilize multicore features, helping you produce applications that are functionally correct, offer superior performance, and scale well to eight cores, sixteen cores, and beyond. Gove reveals how specific hardware implementations impact application performance and shows how to avoid common potential programming pitfalls. Step by step, you'll write applications that can handle large numbers of parallel threads, and you'll master today's most advanced parallelization techniques. You'll learn how to: Identify your best opportunities to use parallelismShare data safely between multiple threadsWrite applications using POSIX or Windows threadsTake advantage of automatic parallelization and OpenMPHand-code synchronization and sharingOvercome common obstacles to scalingApply new approaches to writing correct, fast, scalable parallel code "Multicore Application Programming" isn't wedded to a single approach or platform: It is for every experienced C programmer working with any contemporary multicore processor in any leading operating system environment.

About the Author
Darryl Gove is a senior principal software engineer in the Oracle Solaris Studio compiler team. He works on the analysis, parallelization, and optimization of both applications and benchmarks. Darryl has a master's degree and a doctorate in operational research from the University of Southampton, UK. He is the author of the books *Solaris Application Programming* (Prentice Hall, 2008) and *The Developer's Edge* (Sun Microsystems, 2009). He writes regularly about optimization and coding and maintains a blog at www.darrylgove.com.

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