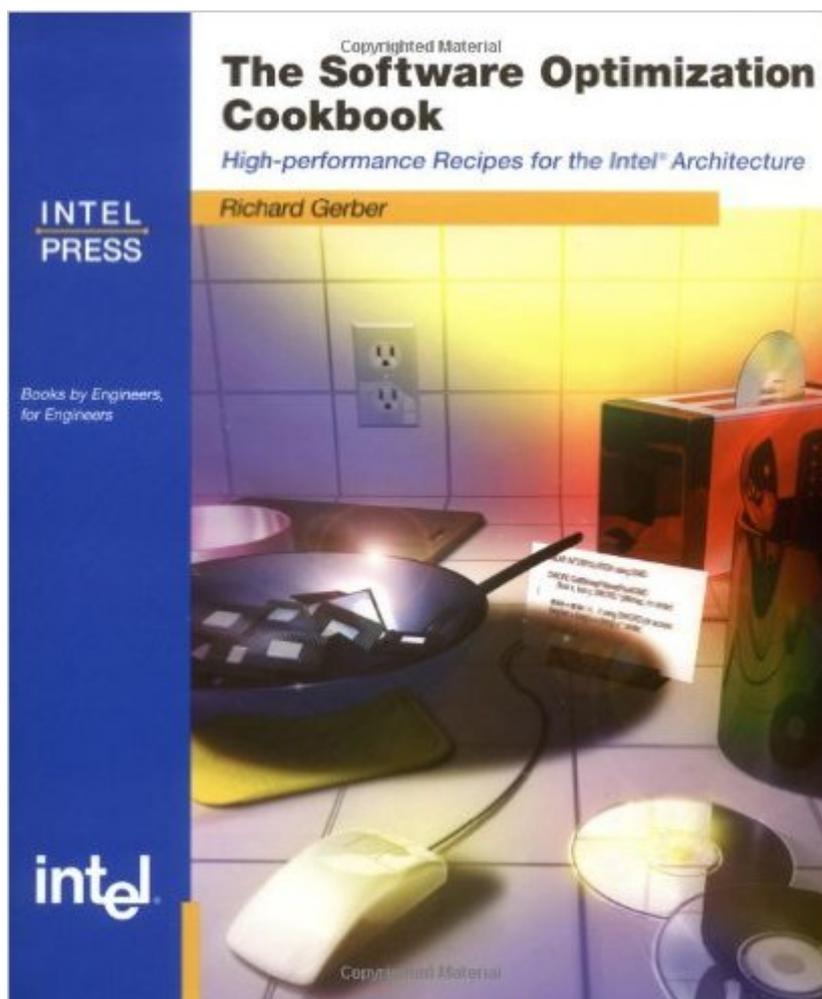# Software Optimization Cookbook: High-Performance Recipes For The Intel Architecture

Synopsis

Revealing the secrets of the software tuning process, The Software Optimization Cookbook provides recipes for high-performance applications on the Intel® Pentium® III and Pentium® 4 processors. Simple explanations and C language examples show you how to address performance issues with algorithms, memory access, branching, SIMD instructions, multiple threads, and floating-point calculations. With this book, you need not be a processor architect or assembly language expert to get the full power out of your software on the 32-bit Intel Architecture. Learn how to: Use performance tools and tested concepts to analyze and improve applications. Determine which portions of an application should be given highest priority for optimizations. Identify the reasons that certain portions of your application are slower than they should be. Improve an application by working directly on the root cause of a software bottleneck. Design an application from the ground up for maximum performance.

Book Information

Average Customer Review: 4.2 out of 5 stars See all reviews (4 customer reviews)

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Customer Reviews

This text demonstrates how the Intel C++ Compiler and Intel VTune tools can be used for profiling and optimization. The text also dives into CPU specific issues such as the pipeline, memory cache, branch prediction, instruction latencies, instruction throughput, and register stalls. My favorite part is the description of four methods for implementing SIMD instructions on pages 23-26. The methods

are automatic vectorization, C++ classes, intrinsics, and inline assembly language.The author covers some traditional optimization topics such as hotspot detection, algorithms, loop unrolling, loop invariant work, and slow operations. The author does not mention the high cost of disk operations. An introduction to multiprocessing gives advice on executing instructions in parallel with threads. A case study in Chapter 16 & 17 demonstrates the process of optimizing a sample application.

This book, written by an Intel engineer, presents numerous discussions of non-obvious ways to improve code performance. Gerber makes the material, which sometimes can be a bit abstruse, easy to read and understand. You frequently get the feeling you have completely understood something that four pages prior you'd never heard of nor thought about.The code is mostly in C, with occasional assembly language. My only hesitation with the book is that it makes frequent reference to Intel's VTune performance profiler. VTune is an excellent product. I own a copy. However, if you don't have VTune, you can download a full-blown 30-day time-locked version from Intel's website. If you're going to read through this book sequentially, I highly suggest having VTune at hand.The book came out prior to the release of the Pentium 4, so some optimizations for this processor are simply not addressed. Otherwise, a very good, very readable book

I really like the book. The author did an amazing job explaining the material in such a way that it's not only easy to understand but also easy to remember.The only big problem I had with my copy was that pages 139-162 were missing and pages 115-138 were duplicated instead. Obviously the publisher didn't do a very good job. I don't know if all copies have this problem or only mine. Be careful when you buy the book, check for duplicated/missing pages.

I am happy to have found this book! I am a software guy who was faced with the need to optimize my applications on the Intel platforms. This book helped me to make a start in meeting my needs without necessarily having to become a hardware guru. The content is presented in an easy-to-read style.

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