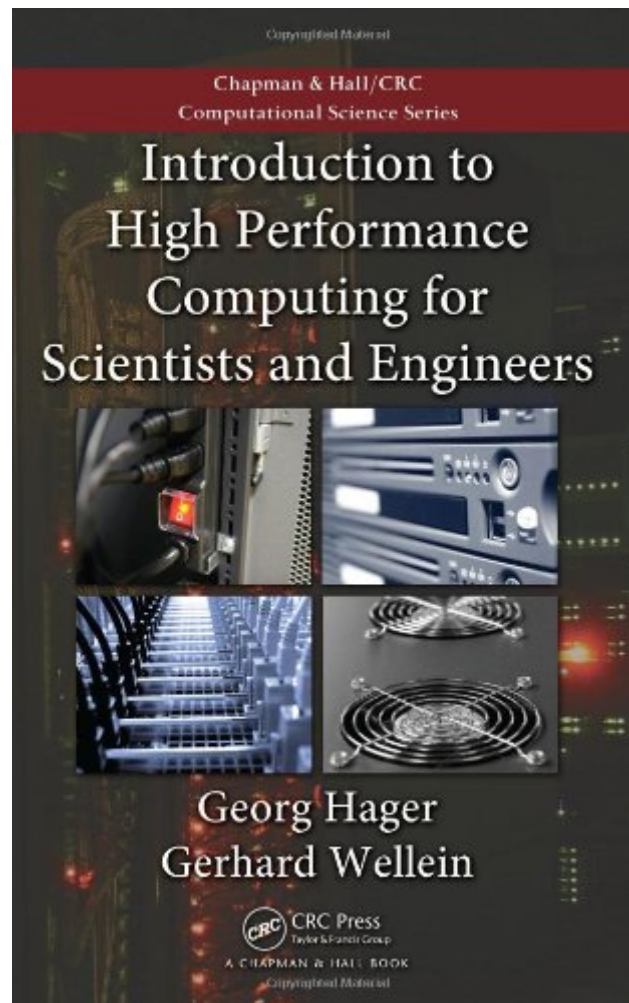


Introduction to High Performance Computing for Scientists and Engineers (Chapman & Hall/CRC Computational Science) PDF



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Introduction to High Performance Computing for Scientists and Engineers (Chapman & Hall/CRC Computational Science) by Georg Hager, Gerhard Wellein ISBN 143981192X

Written by high performance computing (HPC) experts, **Introduction to High Performance Computing for Scientists and Engineers** provides a solid introduction to current mainstream computer architecture, dominant parallel programming models, and useful optimization strategies for scientific HPC. From working in a scientific computing center, the authors gained a unique perspective on the requirements and attitudes of users as well as manufacturers of parallel computers.

The text first introduces the architecture of modern cache-based microprocessors and discusses their inherent performance limitations, before describing general optimization strategies for serial code on cache-based architectures. It next covers shared- and distributed-memory parallel computer architectures and the most relevant network topologies. After discussing parallel computing on a theoretical level, the authors show how to avoid or ameliorate typical performance problems connected with OpenMP. They then present cache-coherent nonuniform memory access (ccNUMA) optimization techniques, examine distributed-memory parallel programming with message passing interface (MPI), and explain how to write efficient MPI code. The final chapter focuses on hybrid programming with MPI and OpenMP.

Users of high performance computers often have no idea what factors limit time to solution and whether it makes sense to think about optimization at all. This book facilitates an intuitive understanding of performance limitations without relying on heavy computer science knowledge. It also prepares readers for studying more advanced literature.

Read about the authors' recent honor: Informatics Europe Curriculum Best Practices Award for Parallelism and Concurrency

Introduction to High Performance Computing for Scientists and Engineers (Chapman & Hall/CRC Computational Science) Review

This Introduction to High Performance Computing for Scientists and Engineers (Chapman & Hall/CRC Computational Science) book is not really ordinary book, you have it then the world is in your hands. The benefit you get by reading this book is actually information inside this reserve incredible fresh, you will get information which is getting deeper an individual read a lot of information you will get. This kind of Introduction to High Performance Computing for Scientists and Engineers (Chapman & Hall/CRC Computational Science) without we recognize teach the one who looking at it become critical in imagining and analyzing. Don't be worry Introduction to High Performance Computing for Scientists and Engineers (Chapman & Hall/CRC Computational Science) can bring any time you are and not make your tote space or bookshelves' grow to be full because you can have it inside your lovely laptop even cell phone. This Introduction to High Performance Computing for Scientists and Engineers (Chapman & Hall/CRC Computational Science) having great arrangement in word and layout, so you will not really feel uninterested in reading.