1. Record Nr. UNINA9910462474603321 Autore McCool Michael Titolo Structured parallel programming [[electronic resource]]: patterns for efficient computation / / Michael McCool, Arch D. Robison, James Reinders Amsterdam; ; Boston, Mass., : Elsevier/Morgan Kaufmann, 2012 Pubbl/distr/stampa **ISBN** 1-280-77921-7 9786613689603 0-12-391443-4 Edizione [1st edition] Descrizione fisica 1 online resource (433 p.) Altri autori (Persone) RobisonArch D ReindersJames 005.1 Disciplina 005.275 Soggetti Parallel programming (Computer science) Structured programming Electronic books. Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Note generali Description based upon print version of record. Includes bibliographical references and index. Nota di bibliografia Front Cover: Structured Parallel Programming: Patterns for Efficient Nota di contenuto Computation: Copyright: Table of Contents: Listings: Preface: Preliminaries; 1 Introduction; 1.1 Think Parallel; 1.2 Performance; 1.3 Motivation: Pervasive Parallelism: 1.3.1 Hardware Trends Encouraging Parallelism: 1.3.2 Observed Historical Trends in Parallelism: 1.3.3 Need for Explicit Parallel Programming; 1.4 Structured Pattern-Based Programming: 1.5 Parallel Programming Models: 1.5.1 Desired Properties: 1.5.2 Abstractions Instead of Mechanisms: 1.5.3 Expression of Regular Data Parallelism; 1.5.4 Composability 1.5.5 Portability of Functionality1.5.6 Performance Portability; 1.5.7 Safety, Determinism, and Maintainability: 1.5.8 Overview of Programming Models Used: Cilk Plus: Threading Building Blocks (TBB): OpenMP; Array Building Blocks (ArBB); OpenCL; 1.5.9 When to Use Which Model?; 1.6 Organization of this Book; 1.7 Summary; 2

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Sommario/riassunto

Programming is now parallel programming. Much as structured programming revolutionized traditional serial programming decades ago, a new kind of structured programming, based on patterns, is relevant to parallel programming today. Parallel computing experts and industry insiders Michael McCool, Arch Robison, and James Reinders describe how to design and implement maintainable and efficient parallel algorithms using a pattern-based approach. They present both theory and practice, and give detailed concrete examples using multiple programming models. Examples are primarily given using two of