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   Titolo Compiler Optimizations for Scalable Parallel Systems : Languages, Compilation Techniques, and Run Time Systems / / edited by Santosh Pande, Dharma P. Agrawal

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   Soggetti Software engineering
   Computer architecture
   Programming languages (Electronic computers)
   Operating systems (Computers)
   Computer networks
   Computer programming
   Software Engineering/Programming and Operating Systems
   Computer System Implementation
   Programming Languages, Compilers, Interpreters
   Operating Systems
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Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Languages -- High Performance Fortran 2.0 -- The Sisal Project: Real World Functional Programming -- HPC++ and the HPC++Lib Toolkit -- A Concurrency Abstraction Model for Avoiding Inheritance Anomaly in Object-Oriented Programs -- Analysis -- Loop Parallelization Algorithms -- Array Dataflow Analysis -- Interprocedural Analysis Based on Guarded Array Regions -- Automatic Array Privatization -- Communication Optimizations -- Optimal Tiling for Minimizing Communication in Distributed Shared-Memory Multiprocessors -- Communication-Free Partitioning of Nested Loops -- Solving Alignment Using Elementary Linear Algebra -- A Compilation Method for Communication-Efficient Partitioning of DOALL Loops -- Compiler Optimization of Dynamic Data Distributions for Distributed-Memory Multicomputers -- A Framework for Global Communication Analysis and Optimizations -- Tolerating Communication Latency through Dynamic Thread Invocation in a Multithreaded Architecture -- Code Generation -- Advanced Code Generation for High Performance Fortran -- Integer Lattice Based Methods for Local Address Generation for Block-Cyclic Distributions -- Task Parallelism, Dynamic Data Structures and Run Time Systems -- A Duplication Based Compile Time Scheduling Method for Task Parallelism -- SPMD Execution in the Presence of Dynamic Data Structures -- Supporting Dynamic Data Structures with Olden -- Runtime and Compiler Support for Irregular Computations.
Sommario/riassunto	Scalable parallel systems or, more generally, distributed memory systems offer a challenging model of computing and pose fascinating problems regarding compiler optimization, ranging from language design to run time systems. Research in this area is foundational to many challenges from memory hierarchy optimizations to communication optimization. This unique, handbook-like monograph assesses the state of the art in the area in a systematic and comprehensive way. The 21 coherent chapters by leading researchers provide complete and competent coverage of all relevant aspects of compiler optimization for scalable parallel systems. The book is divided into five parts on languages, analysis, communication optimizations, code generation, and run time systems. This book will serve as a landmark source for education, information, and reference to students, practitioners, professionals, and researchers interested in updating their knowledge about or active in parallel computing.