1. Record Nr. UNISA996465909903316

Titolo	Recent Advances in the Message Passing Interface [[electronic resource]] : 17th European MPI User's Group Meeting, EuroMPI 2010, Stuttgart, Germany, September12-15, 2010, Proceedings / / edited by Rainer Keller, Edgar Gabriel, Jack Dongarra
Pubbl/distr/stampa	Berlin, Heidelberg : , : Springer Berlin Heidelberg : , : Imprint : Springer, , 2010
ISBN	1-280-38885-4 9786613566775 3-642-15646-0
Edizione	[1st ed. 2010.]
Descrizione fisica	1 online resource (XIV, 308 p. 120 illus.)
Collana	Programming and Software Engineering ; ; 6305
Disciplina	005.11
Soggetti	Computer programming Algorithms Computer communication systems Software engineering Computer organization Computer simulation Programming Techniques Algorithm Analysis and Problem Complexity Computer Communication Networks Software Engineering Computer Systems Organization and Communication Networks Simulation and Modeling
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Large Scale Systems -- A Scalable MPI_Comm_split Algorithm for Exascale Computing -- Enabling Concurrent Multithreaded MPI Communication on Multicore Petascale Systems -- Toward Performance Models of MPI Implementations for Understanding Application Scaling Issues -- PMI: A Scalable Parallel Process-Management Interface for Extreme-Scale Systems -- Run-Time Analysis and Instrumentation for

Communication Overlap Potential -- Efficient MPI Support for Advanced Hybrid Programming Models -- Parallel Filesystems and I/O -- An HDF5 MPI Virtual File Driver for Parallel In-situ Post-processing -- Automated Tracing of I/O Stack -- MPI Datatype Marshalling: A Case Study in Datatype Equivalence -- Collective Operations -- Design of Kernel-Level Asynchronous Collective Communication -- Network Offloaded Hierarchical Collectives Using ConnectX-2's CORE-Direct Capabilities -- An In-Place Algorithm for Irregular All-to-All Communication with Limited Memory -- Applications -- Massively Parallel Finite Element Programming -- Parallel Zero-Copy Algorithms for Fast Fourier Transform and Conjugate Gradient Using MPI Datatypes -- Parallel Chaining Algorithms -- MPI Internals (I) -- Precise Dynamic Analysis for Slack Elasticity: Adding Buffering without Adding Bugs -- Implementing MPI on Windows: Comparison with Common Approaches on Unix -- Compact and Efficient Implementation of the MPI Group Operations -- Characteristics of the Unexpected Message Queue of MPI Applications -- Fault Tolerance -- Dodging the Cost of Unavoidable Memory Copies in Message Logging Protocols -- Communication Target Selection for Replicated MPI Processes -- Transparent Redundant Computing with MPI -- Checkpoint/Restart-Enabled Parallel Debugging -- Best Paper Awards -- Load Balancing for Regular Meshes on SMPs with MPI -- Adaptive MPI Multirail Tuning for Non-uniform Input/Output Access -- Using Triggered Operations to Offload Collective Communication Operations -- MPI Internals (II) -- Second-Order Algorithmic Differentiation by Source Transformation of MPI Code -- Locality and Topology Aware Intra-node Communication among Multicore CPUs -- Transparent Neutral Element Elimination in MPI Reduction Operations -- Poster Abstracts -- Use Case Evaluation of the Proposed MPIT Configuration and Performance Interface -- Two Algorithms of Irregular Scatter/Gather Operations for Heterogeneous Platforms -- Measuring Execution Times of Collective Communications in an Empirical Optimization Framework -- Dynamic Verification of Hybrid Programs -- Challenges and Issues of Supporting Task Parallelism in MPI.

2. Record Nr. UNINA9911020465303321

Autore	Baker A. J. <1936->
Titolo	Finite elements : computational engineering sciences / / A.J. Baker
Pubbl/distr/stampa	Hoboken, N.J., : Wiley, 2012
ISBN	9786613886569 9781283574112 128357411X 9781118369890 1118369890 9781118369920 1118369920 9781118369913 1118369912 9781118379929 1118379926
Descrizione fisica	1 online resource (289 p.)
Disciplina	620.001/51825
Soggetti	Finite element method
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Finite Elements: Computational Engineering Sciences; Contents; Preface; About the Author; Notations; 1 The Computational Engineering Sciences: an introduction; 1.1 Engineering Simulation; 1.2 A Problem-Solving Environment; 1.3 Weak Formulation Essence; 1.4 Decisions on Forming WSN; 1.5 Discrete WSh Implementations; 1.6 Chapter Summary; References; 2 Problem Statements: in the engineering sciences; 2.1 Engineering Simulation; 2.2 Continuum Mechanics Viewpoint; 2.3 Continuum Conservation Principle Forms; 2.4 Constitutive Closure for Conservation Principle PDEs 2.5 Engineering Science Continuum MechanicsReferences; 3 Some Introductory Material: PDEs, BCs, solutions, discrete concepts; 3.1 Example Linear Heat Conduction Solutions; 3.2 Multidimensional PDEs, Separation of Variables; 3.3 Mathematical Foundation Essence for

GWSN; 3.4 A Legacy FD Construction; 3.5 An FD Approximate Solution; 3.6 Lagrange Interpolation Polynomials; 3.7 Chapter Summary; Exercises; References; 4 Heat Conduction: an FE weak statement tutorial; 4.1 A Steady Heat Conduction Example; 4.2 Weak Form Approximation, Error Extremization
5.6 Global Theory, Asymptotic Error Estimate5.7 Nonsmooth Data, Theory Generalization; 5.8 Temperature-Dependent Conductivity, Nonlinearity; 5.9 Static Condensation, p-Elements; 5.10 Chapter Summary; Exercises; Computer Labs; References; 6 Engineering Sciences, n = 1: GWSh {Nk()} implementations in the computational engineering sciences; 6.1 Introduction; 6.2 The Euler-Bernoulli Beam Equation; 6.3 Euler-Bernoulli Beam Theory GWSh Reformulation; 6.4 Timoshenko Beam Theory; 6.5 Mechanical Vibrations of a Beam; 6.6 Fluid Mechanics, Potential Flow; 6.7 Electromagnetic Plane Wave Propagation
6.8 Convection-Radiation Finned Cylinder Heat Transfer6.9 Chapter Summary; Exercises; Computer Labs; References; 7 Steady Heat Transfer, n > 1: n = 2, 3 GWSh for D E+ BCs, FE bases, convergence, error mechanisms; 7.1 Introduction; 7.2 Multidimensional FE Bases and DOF; 7.3 Multidimensional FE Operations for {Nk( )}; 7.4 The NCk = 1,2 Basis FE Matrix Library; 7.5 NC Basis {WS}e Template, Accuracy, Convergence; 7.6 The Tensor Product Basis Element Family; 7.7 Gauss Numerical Quadrature, k = 1 TP Basis Library; 7.8 Convection-Radiation BC GWSh Implementation
7.9 Linear Basis GWSh Template Unification

Sommario/riassunto

Approaches computational engineering sciences from the perspective of engineering applications Uniting theory with hands-on computer practice, this book gives readers a firm appreciation of the error mechanisms and control that underlie discrete approximation implementations in the engineering sciences. Key features: Illustrative examples include heat conduction, structural mechanics, mechanical vibrations, heat transfer with convection and radiation, fluid mechanics and heat and mass transportTakes a cross-discipline continuum mechanics viewpoi