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Nota di contenuto	Computational Physics on Graphics Processing Units -- Preparing Scientific Application Software for Exascale Computing -- PRACE DECI (Distributed European Computing Initiative) Minisymposium -- Parallel Electronic Structure Calculations Using Multiple Graphics Processing Units -- An Environment for Service Composition, Execution and Resource Allocation -- Multicore and Accelerator Development for a Leadership-Class Stellar Astrophysics Code -- Steering and In-situ Visualization for Simulation of Seismic Wave Propagation on Graphics Cards -- PCJ - New Approach for Parallel Computations in Java -- Parallel Numerical Simulation of Seismic Waves Propagation with Intel Math Kernel Library -- Blocked Schur Algorithms for Computing the Matrix Square Root -- Distributed Evolutionary Computing System

Based on Web Browsers with JavaScript -- Parallel Implementation of the Sherman-Morrison Matrix Inverse Algorithm -- Parallel Interval Newton Method on CUDA -- Heterogeneous Multi-agent Evolutionary System for Solving Parametric Interval Linear Systems -- Interval Finite Difference Method for Solving the One-Dimensional Heat Conduction Problem with Heat Sources -- Interval Arithmetic and Automatic Differentiation on GPU Using Open CL -- Tuning the Interval Algorithm for Seeking Pareto Sets of Multi-criteria Problems -- A Central-Backward Difference Interval Method for Solving the Wave Equation -- Using State-of-the-Art Sparse Matrix Optimizations for Accelerating the Performance of Multiphysics Simulations -- Schedule Optimisation for Interactive Parallel Structure Simulations -- Computational Chemistry Studies of LIGNOLs -- A Lightweight Task Graph Scheduler for Distributed High-Performance Scientific Computing.

Sommario/riassunto

This volume constitutes the refereed proceedings of the 11th International Conference on Applied Parallel and Scientific Computing, PARA 2012, held in Helsinki, Finland, in June 2012. The 35 revised full papers presented were selected from numerous submissions and are organized in five technical sessions covering the topics of advances in HPC applications, parallel algorithms, performance analyses and optimization, application of parallel computing in industry and engineering, and HPC interval methods. In addition, three of the topical minisymposia are described by a corresponding overview article on the minisymposia topic. In order to cover the state-of-the-art of the field, at the end of the book a set of abstracts describe some of the conference talks not elaborated into full articles.
