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Nota di contenuto	Sustained Petascale Performance of Seismic Simulations with SeisSol on Super MUC.- SNAP: Strong Scaling High Fidelity Molecular Dynamics Simulations on Leadership-Class Computing Platforms.- Exascale Radio Astronomy: Can We Ride the Technology Wave.- On the Performance Portability of Structured Grid Codes on Many-Core Computer Architectures.- Performance Predictions of Multilevel Communication Optimal LU and QR Factorizations on Hierarchical Platforms. - Hourglass: A Bandwidth-Driven Performance Model for Sorting Algorithms -- Performance Analysis of Graph Algorithms on P7IH. - Sparsifying Synchronization for High-Performance Shared-Memory Sparse Triangular Solver.- Scalability and Parallel Execution of OmpSs-Open CL Tasks on Heterogeneous CPU-GPU Environment -- Automatic Exploration of Potential Parallelism in Sequential Applications.- Core

TSAR: Adaptive Work sharing for Heterogeneous Systems.- History-Based Predictive Instruction Window Weighting for SMT Processors. - The Brand-New Vector Supercomputer, SX-ACE.- Impact of Future Trends on Exascale Grid and Cloud Computing.- SADDLE: A Modular Design Automation Framework for Cluster Supercomputers and Data Centres.- The SIOX Architecture – Coupling Automatic Monitoring and Optimization of Parallel I/O.- Framework and Modular Infrastructure for Automation of Architectural Adaptation and Performance Optimization for HPC Systems.- Designing MPI Library with Dynamic Connected Transport (DCT) of InfiniBand: Early Experiences.- RADAR: Runtime Asymmetric Data-Access Driven Scientific Data Replication.- Fast Multiresolution Reads of Massive Simulation Datasets -- Rebasing I/O for Scientific Computing: Leveraging Storage Class Memory in an IBM BlueGene/Q Supercomputer -- Orthrus: A Framework for Implementing Efficient Collective I/O in Multi-core Clusters.- Fast and Energy-efficient Breadth-First Search on a Single NUMA System.- Evaluation of the Impact of Direct Warm-Water Cooling of the HPC Serverson the Data Center Ecosystem.- A Case Study of Energy Aware Scheduling on Super MUC.- Exploiting SIMD and Thread-Level Parallelism in Multi block CFD.- The Performance Characterization of the RSC PetaStream Module -- Deploying Darter - A Cray XC30 System -- Cyme: A Library Maximizing SIMD Computation on User-Defined Containers.- A Compiler-Assisted OpenMP Migration Method Based on Automatic Parallelizing Information.- A Type-Oriented Graph500 Benchmark.- A Dynamic Execution Model Applied to Distributed Collision Detection. - Implementation and Optimization of Three-Dimensional UPML-FDTD Algorithm on GPU Clusters -- Real-Time Olivary Neuron Simulations on Dataflow Computing Machines.- Tofu Interconnect 2: System-on-Chip Integration of High-Performance Interconnect.- Compression by Default – Reducing Total Cost of Ownership of Storage Systems -- Predictive Performance Tuning of Open ACC Accelerated Applications -- Particle-in-Cell Plasma Simulation on CPUs, GPUs and Xeon Phi Coprocessors.- Application Tracking Using the Ichnaea Tools -- Open FFT: An Open-Source Package for 3-D FFTs with Minimal Volume of Communication.

Sommario/riassunto

This book constitutes the refereed proceedings of the 29th International Supercomputing Conference, ISC 2014, held in Leipzig, Germany, in June 2014. The 34 revised full papers presented together were carefully reviewed and selected from 79 submissions. The papers cover the following topics: scalable applications with 50K+ cores; advances in algorithms; scientific libraries; programming models; architectures; performance models and analysis; automatic performance optimization; parallel I/O and energy efficiency.