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   Titolo   Recent Advances in Parallel Virtual Machine and Message Passing
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                        by Matti Ropo, Jan Westerholm, Jack Dongarra

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   Collana   Programming and Software Engineering ; ; 5759

   Disciplina   004/.35

   Soggetti   Architecture, Computer
                        Computer programming
                        Programming languages (Electronic computers)
                        Microprocessors
                        Computer system failures
                        Computer software—Reusability
                        Computer System Implementation
                        Programming Techniques
                        Programming Languages, Compilers, Interpreters
                        Processor Architectures
                        System Performance and Evaluation
                        Performance and Reliability

   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   Invited Talks (Abstracts) -- Real-Time Message Compression in
                        Software -- The MPI 2.2 Standard and the Emerging MPI 3 Standard --
                        MPI at Exascale: Challenges for Data Structures and Algorithms --
                        Model-Based Optimization of MPI Collective Operations for
                        Computational Clusters -- Using MPI to Implement Scalable Libraries --
                        Formal Verification for Scientific Computing: Trends and Progress --
                        Tutorial -- Practical Formal Verification of MPI and Thread Programs --
                        Outstanding Papers -- The Design of Seamless MPI Computing

Environment for Commodity-Based Clusters -- MPI on a Million Processors -- Scalable Detection of MPI-2 Remote Memory Access Inefficiency Patterns -- Processing MPI Datatypes Outside MPI -- Applications -- Fine-Grained Data Distribution Operations for Particle Codes -- Experiences Running a Parallel Answer Set Solver on Blue Gene -- Fault Tolerance -- Challenges and Issues of the Integration of RADIC into Open MPI -- In-Memory Checkpointing for MPI Programs by XOR-Based Double-Erasure Codes -- Library Internals -- MPC-MPI: An MPI Implementation Reducing the Overall Memory Consumption -- Towards an Efficient Process Placement Policy for MPI Applications in Multicore Environments -- Dynamic Communicators in MPI -- VolpexMPI: An MPI Library for Execution of Parallel Applications on Volatile Nodes -- MPI I/O -- Using Non-blocking I/O Operations in High Performance Computing to Reduce Execution Times -- Conflict Detection Algorithm to Minimize Locking for MPI-IO Atomicity -- Exploiting Efficient Transpacking for One-Sided Communication and MPI-IO -- Multiple-Level MPI File Write-Back and Prefetching for Blue Gene Systems -- OpenMP -- Performance Evaluation of MPI, UPC and OpenMP on Multicore Architectures -- Automatic Hybrid MPI+OpenMP Code Generation with llc -- Performance -- Optimizing MPI Runtime Parameter Settings by Using Machine Learning -- CoMPI: Enhancing MPI Based Applications Performance and Scalability Using Run-Time Compression -- A Memory-Efficient Data Redistribution Algorithm -- Impact of Node Level Caching in MPI Job Launch Mechanisms -- Programming Paradigms and Collective Operations -- Towards Efficient MapReduce Using MPI -- Process Arrival Pattern and Shared Memory Aware Alltoall on InfiniBand -- Verification of MPI Programs -- How Formal Dynamic Verification Tools Facilitate Novel Concurrency Visualizations -- Sound and Efficient Dynamic Verification of MPI Programs with Probe Non-determinism -- Bringing Reverse Debugging to HPC -- ParSim -- 8th International Special Session on Current Trends in Numerical Simulation for Parallel Engineering Environments -- A Parallel Simulator for Mercury (Hg) Porosimetry -- Dynamic Load Balancing Strategies for Hierarchical p-FEM Solvers -- Simulation of Primary Breakup for Diesel Spray with Phase Transition -- Posters Abstracts -- Implementing Reliable Data Structures for MPI Services in High Component Count Systems -- Parallel Dynamic Data Driven Genetic Algorithm for Forest Fire Prediction -- Hierarchical Collectives in MPICH2 -- An MPI-1 Compliant Thread-Based Implementation -- Static-Analysis Assisted Dynamic Verification of MPI Waitany Programs (Poster Abstract).

| Sommario/riassunto | This book constitutes the refereed proceedings of the 16th European PVM/MPI Users' Group Meeting on Recent Advances in Parallel Virtual Machine and Message Passing Interface, EuroPVM/MPI 2009, held in Espoo, Finland, September 7-10, 2009. The 27 papers presented were carefully reviewed and selected from 48 submissions. The volume also includes 6 invited talks, one tutorial, 5 poster abstracts and 4 papers from the special session on current trends in numerical simulation for parallel engineering environments. The main topics of the meeting were Message Passing Interface (MPI)performance issues in very large systems, MPI program verification and MPI on multi-core architectures. |