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Soggetti	Computer organization Computer programming Algorithms Computer-aided engineering Computer mathematics Computer Systems Organization and Communication Networks Programming Techniques Algorithm Analysis and Problem Complexity Computer-Aided Engineering (CAD, CAE) and Design Computational Mathematics and Numerical Analysis
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Nota di contenuto	Industrial application areas of high-performance computing -- Using HPC in gas turbines blade fault diagnosis -- HIPERCLASS: High performance industrial inspection and defect classification in steel industry -- PIERS: A parallel integrated environment for reliability evaluation of structures -- High Performance Discrete Event Simulations to evaluate Complex Industrial Systems -- HIPERCOMBATS: A parallel industrial tool for two-wheeler suspensions design -- Using scalable distributed computers in telecommunications -- Validation and performance analysis of a parallel ported code for simulating the effects of lightning strokes on telecommunication buildings -- Parallel irregular software for wave propagation simulation -- EUROMED — Combining WWW and HPCN to support advanced medical imaging --

Coupling HPCN and Virtual Reality in a telemedical information society -- Hybrid fractal/wavelet image compression in a high performance computing environment -- Phase difference stereo disparity computation on a SIMD parallel machine -- A comparison of spatial subdivision algorithms for sort-first rendering -- The 3D Object Mediator: Handling 3D models on internet -- Distributed parallel volume rendering on shared memory systems -- Teleconferencing and Collaboration in Virtual Environments -- Parallelization of an algorithm used to simulate Atomic Force Microscope images -- A data parallel pseudo-spectral semi-implicit magnetohydrodynamics code -- High performance simulation for resonant-mass gravitational radiation antennas -- Parallel simulation of ion recombination in nonpolar liquids -- Development of parallel applications for MEGA-D — System for oil and gas prospecting -- Parallel algorithms in molecular biology -- Steering smog prediction -- Versatile Advection Code -- Performance optimization of an Atmospheric model in massively parallel computers -- Exploiting two-level parallelism in FEM applications -- Parallel simulation of an ash melting furnace -- High performance computations for an optimal portfolio choice problem -- Characteristics of a parallel data mining application implemented on an ATM connected PC cluster -- A two-way BSP algorithm for tridiagonal systems -- BLAS-3 for the quadrics parallel computer -- Parallel iterative solvers with localized ILU preconditioning -- Non-overlapping preconditioners for a parallel implicit Navier-Stokes solver -- Parallel solution of irregular, sparse matrix problems using High Performance Fortran -- Sparse matrix ordering with Scotch -- Domain decomposition for an implicit shallow-water transport solver -- The improved quasi-minimal residual method on massively distributed memory computers -- The development of an MPP implementation of a suite of finite element codes -- Parallel efficiency of a boundary integral equation method for nonlinear water waves -- Block incomplete LU-preconditioners for implicit solution of advection dominated problems -- Linear algebra subprograms on shared memory computers -- Solving PDE problems on parallel and distributed computer systems using the NAG Parallel Library -- Isoefficiency analysis of CGLS algorithm for parallel least squares problems -- Distributed resource management for parallel applications in networks of workstations -- A metacomputer architecture based on cooperative resource management -- A distributed web-based metacomputing environment -- Distributed data management support for collaborative computing -- Ninf: A network based information library for global world-wide computing infrastructure -- A lightweight communication interface for parallel programming environments -- Object-oriented library of parallel genetic algorithms and its implementation on workstations and HP/Convex Exemplar -- Parallel fluid flow simulations by means of a lattice-Boltzmann scheme -- Programming high performance models of soil contamination by a cellular automata language -- Implementation of PIC method on MIMD multicomputers with assembly technology -- Heuristics for 1D rectilinear partitioning as a low cost and high quality answer to dynamic load balancing -- Preserving locality for optimal parallelism in task allocation -- Performance comparison of strategies for static mapping of parallel programs -- A distributed algorithm for optimal concurrent communication and load balancing in parallel systems -- PMPI: High-level message passing in Fortran77 and C -- A real time kernel to support the Transputer programming model -- Performance of the MOSIX parallel system for a cluster of PC's -- Application support by software reuse: The ALWAN approach -- An application-level

dependable technique for farmer-worker parallel programs --
Integration of automated and user-level tools toward efficient parallel
objects allocation -- The potential of exploiting coarse-grain task
parallelism from sequential programs -- Scheduling image processing
program activities on Instruction Level Parallel RISC through program
transformations -- The economic addition of functionality to a network
-- A programming interface for NUMA shared-memory clusters -- PM:
An operating system coordinated high performance communication
library -- On the coexistence of shared-memory and message-passing
in the programming of parallel applications -- Simulation of High-
Performance computer systems -- Modeling Instruction Level Parallel
architectures efficiency in image processing applications -- Modeling
synchronization and communication abstractions for dynamical
parallelization -- Lessons learned from implementing BSP -- Evaluation
of High Performance Fortran through application kernels -- Effective
symbolic analysis to support parallelizing compilers and performance
analysis -- Barrier synchronisation optimisation -- Overlapped
communications automatically generated in a parallelisation tool --
Parallelization of irregular out-of-core applications for distributed-
memory systems -- Improving irregular parallel communication
through sorting -- Combining inter- and intradimensional alignment
analysis to support data distribution -- Estimating cache performance
for sequential and data parallel programs -- A bus arbitration scheme
with smoothly-distributed waiting time -- Avoiding the cache-
coherence problem in a parallel/distributed file system -- The Macramé
1024 node switching network -- Visualization of do-loop performance
-- Automatic hardware synthesis of nested loops using UET grids and
VHDL -- Overcoming the limitations of the traditional loop
parallelization -- Visualizing the iteration space in PEFPT -- Boolean
function manipulation on a parallel system using BDDs -- A parallel
architecture for video processing -- Generational replacement schemes
for a WWW caching proxy server -- Earliest-Deadline-First scheduling
on nonpreemptive real-time threads for a continuous media server --
How to build up an efficient simulation tool for complex parallel
relational query processing based on High-level Petri nets --
Experiences with the C++ Standard Template Library and MPI for a
parallel particle simulation method -- Solving large sparse finite
element systems of nonlinear equations by explicit semi-direct
methods based on approximate inverse preconditioners -- The effects
on responsiveness of priority scheduling of packet transmissions in
parallel OLTP systems -- Parallelization of Estet-Astrid code on CRAY
C98 -- The simulation of dynamos on massive parallel computers --
An integrated storage and data management system for a high energy
physics experiment -- Architecture-independent locality analysis and
efficient PRAM simulations -- On designing Genetic Algorithms for
hypercube machines -- Metacomputing to overcome the power limits
of a single machine -- Near-optimal scheduling of synchronous data-
flow graphs by exact calculation of inter-processor communication
costs -- A parallel system for dynamic 3D medical imaging -- The
Teraflop parallel computer APEmille -- Remote operations on post
production applications -- Application of HPCN to direct numerical
simulation of turbulent flow -- Domain decomposition techniques:
Analysis of a parallel implementation on hp-convex exemplar systems
-- Performance analysis environment for parallel applications on
networked workstations -- A parallel preprocessor applied to fluid
dynamics problems -- Performance evaluation of HPCN applications --
Collaborative management environment: A web-based management
tool -- Parallel simulation of a foreign exchange market model --

Recursive 3D mesh indexing with improved locality -- Towards metacomputing — A case study of Pozna? Supercomputing and Networking Center -- Parallel FEM simulation of forging processes on workstations and HP/Convex Exemplar -- High performance simulation of thermal convection using quasi-particle approach -- Distributed coordination in optimization algorithms -- An environment for quick design and efficient implementation of message-passing applications -- Neural networks for code transformation -- Knowledge assisted code generation and analysis -- An ATM-based distributed high performance computing system -- Geographic information systems applications on an ATM-based distributed high performance computing system -- Using parallel method of moments (PMoM) to solve multi-plate scattering problems -- Sea air land modelling operational network -- Parallel synthesis of large combinational circuits for FPGAs -- Study on parallelization method of structural-analysis code -- A parallel solution for generalized eigenvalue problems -- VISTA virtual interactive studio television applications using networked graphical supercomputers.

Sommario/riassunto

This book constitutes the refereed proceedings of the 1997 International Conference and Exhibition on High-Performance Computing and Networking, HPCN EUROPE 1997, held in Vienna, Austria, in April 1997. The book comprises a total of 94 revised full papers selected from more than 200 submissions; also included are 35 poster presentations. The volume spans the whole spectrum of high-performance computing issues, from theoretical and conceptual issues to end-user applications in a variety of different areas. The volume is organized in tracks on industrial and general end-user applications, computational science, and computer science.
