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Soggetti	Architecture, Computer Computers Special purpose computers Computer communication systems Algorithms Numerical analysis Computer System Implementation Theory of Computation Special Purpose and Application-Based Systems Computer Communication Networks Algorithm Analysis and Problem Complexity Numerical Analysis
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Nota di contenuto	Computational fluid dynamics on workstation clusters in industrial environments -- PVM implementations of advection-chemistry modules of air pollution models -- A parallel tree N-body code for heterogeneous clusters -- Parallel computation of the eigenstructure of Toeplitz-plus-Hankel matrices on Multicomputers -- Singular Value Decomposition on the Connection Machine CM-5/CM-5E -- Computing eigenvalues of sparse matrices on the connection machine -- Preliminary experiences with extrapolation methods for parallel solution of differential algebraic equations -- A transform approach to

fast matrix multiplication -- Quantum mechanical treatment of reactive scattering problems -- Visualizing the critical dynamics of monopole current clusters — Global/local programming on the Connection Machine CM-5 -- Load-balancing procedure for distributed short-range molecular dynamics -- Comparison of massively parallel SIMD computers using air pollution models -- Parallel distributed 2-D short-range molecular dynamics on networked workstations -- Implementation of parallel lattice gas program on workstations under PVM -- Constructing numerical software libraries for high-performance computing environments -- The CERFACS experience -- Towards an automatic portation of programs from nCUBE2 to KSR1 -- Seismic data processing: Parallel and conservative computations on the multitransputer system -- Heterogeneous processing: A Combined approach -- Experiences in numerical software on IBM distributed memory architectures -- Shared memory and message passing implementations of parallel algorithms for numerical integration -- A new algorithm for the traveling salesman problem on networked workstations -- Cluster computing: The wave of the future? -- Nonlinear finite element problems on parallel computers -- The finite element method applied to the exterior Helmholtz problem on the IBM SP-1 -- The challenge of portable libraries for high performance machines -- Parallel issues of regularization problems -- Two enhancements in a partitioned sparse code -- Numerical algorithms for the Cray T3D (Cray massively parallel computer) -- Nonlinear dynamics in biochemical control systems -- Scientific software libraries for scalable architectures -- The EFACT system for parallel programming -- The Object-Oriented development of a parallel application in polymer dynamics -- On some difference analogues of PDEs with a delay -- Parallel interval methods for perturbed linear systems -- Limiting factors in high performance computing -- Programming the Convex Exemplar Series SPP system -- The full quantum mechanical three body problem of H_2^+ -- Molecular dynamics: experiences with connection machines CM-200 and CM-5 -- Solving ordinary differential equations on parallel computers — applied to dynamic rolling bearings simulation -- Solving linear recurrence systems on a Cray Y-MP -- Selected techniques for efficient parallel implementation of dense linear algebra algorithms on the connection machine CM-5/CM-5E -- Parallelization of HIRLAM on MIMD platforms -- Simulation of fluid dynamical flow problems -- Parallel algorithms for the partial eigensolution of large sparse matrices on novel architecture computers -- SP2 architecture and performance -- Real time simulation in a cluster computing environment -- Parallel computations in molecular dynamics -- Efficient high-accuracy computations in massively parallel systems -- Stability of parallel bidiagonal solvers -- Wavelet transforms computing on PVM -- PARASPAR: Parallel solvers for sparse linear algebraic systems -- Fair metacomputer — FMC.

Sommario/riassunto

This volume presents the proceedings of the First International workshop on Parallel Scientific Computing, PARA '94, held in Lyngby, Denmark in June 1994. It reports interdisciplinary work done by mathematicians, scientists and engineers working on large-scale computational problems in discussion with computer science specialists in the field of parallel methods and the efficient exploitation of modern high-performance computing resources. The 53 full refereed papers provide a wealth of new results: an up-to-date overview on high-speed computing facilities, including different parallel and vector computers as well as workstation clusters, is given and the most important numerical algorithms, with a certain emphasis on computational linear algebra, are investigated.
