

Contents

Preface

Acknowledgements

Foreword...

Workshop Coordinator's Message

Keynote Address : Parallel Computing Overview

V. Raja Raman, Indian Institute of Science, Bangalore

PARAM 10000 Advanced Parallel Computing System

P.K. Sinha, Centre for Development of Advanced Computing, Pune

C-DAC HPCC Software for Unix Clusters

Rajalakshmy M., Centre for Development of Advanced Computing, Bangalore

Class-room Lectures

Parallel Machine Architectures

Atul Bodas, Centre for Development of Advanced Computing, Pune

Communication Architecture

Nitin Parab, Centre for Development of Advanced Computing, Bangalore

Performance and Scalability Analysis

VCV. Rao, Centre for Development of Advanced Computing, Pune

Writing Message-Passing Parallel Programs with MPI

Sharath Kumar B., Centre for Development of Advanced Computing, Bangalore

Benchmark and Parallel Libraries

Chetan Kumar, Centre for Development of Advanced Computing, Pune

Principles of Parallel Algorithm Design

VCV. Rao, Centre for Development of Advanced Computing, Pune

Parallel Matrix Computations

Dheeraj Bhardwaj, Centre for Development of Advanced Computing, Pune

Parallel Matrix Computations

VCV. Rao, Centre for Development of Advanced Computing, Pune

Parallel Graph Algorithms

Chaman Singh Verma, Centre for Development of Advanced Computing, Pune

Parallel Graph Coloring

VCV. Rao, Centre for Development of Advanced Computing, Pune

Fast Fourier Transform

S.S. Kadam, Centre for Development of Advanced Computing, Pune

Parallel Sorting Algorithms

VCV. Rao, Centre for Development of Advanced Computing, Pune

Invited Lectures (Abstracts)

High Performance Computing Biotechnology

Rajendra R. Joshi, University of Pune, Pune

PARAM 10000 – Advanced Parallel Computing System

P.K. Sinha, Centre for Development of Advanced Computing, Pune

Trends In Cluster Computing

Nitin Parab, Centre for Development of Advanced Computing, Bangalore

Spectral Methods For Hyperbolic Initial Boundary Value Problems on Parallel Computers

Pravir Dutt, Indian Institute of Technology, Kanpur

Weather Forecasting Activities on PARAM 10000

Akshara Kaginalkar, Centre for Development of Advanced Computing, Pune

Parallel Computing in Genetic Algorithm

V. Sundararajan, Centre for Development of Advanced Computing, Pune

Parallel Finite Element Computation of Internal and External Flows

Sanjay Mittal, Indian Institute of Technology, Kanpur

Parallel Computing in Seismic Data Processing

Dheeraj Bhardwaj, Centre for Development of Advanced Computing, Pune

Supercomputing Research Activities in Educational Institutes

N. Balakrishnan, Indian Institute of Science, Bangalore

High Performance Computing at TIFR

N. Karmarkar, Tata Institute of Fundamental Research, Pune

Parallel Computing Requirements in Space Technology – CFD

Pradeep Kumar, R. Balu & V. Adimurthy, VSSC, Thiruvananthapuram

Application of Parallel Computing in Atmospheric Studies

Ravi S. Nanjundiah, Indian Institute of Science, Bangalore

Trends in Parallel Unstructured Mesh Computations

VCV. Rao, Centre for Development of Advanced Computing, Pune

Performance of CFD Applications on PARAM 10000

Chaman Singh Verma, Centre for Development of Advanced Computing, Pune

Parallel Computing in Computational Fluid Dynamics

T. S. Prahlad, National Aerospace Laboratories, Bangalore

Applications on PARAM 10000

Genetic Algorithms (GA)

Weather Simulation (WEATHER)

Seismic Data Processing (WAVES)

Flow Visualization Tool-kit (FLOWVIS)

Computational Fluid Dynamics Applications (CFD)

PARallel Unstructured MESH Technology (PAUMET)

Molecular Modeling (AMBER)

Finite Element Analysis & Composites (FEMCOMP, PAM-CRASH)