Preface

The year 1998 marked the eleventh anniversary of the annual Workshop on Languages and Compilers for Parallel Computing (LCPC), an international forum for leading research groups to present their current research activities and latest results. The LCPC community is interested in a broad range of technologies, with a common goal of developing software systems that enable real applications. Among the topics of interest to the workshop are language features, communication code generation and optimization, communication libraries, distributed shared memory libraries, distributed object systems, resource management systems, integration of compiler and runtime systems, irregular and dynamic applications, performance evaluation, and debuggers. LCPC'98 was hosted by the University of North Carolina at Chapel Hill (UNC-CH) on 7 - 9 August 1998, at the William and Ida Friday Center on the UNC-CH campus. Fifty people from the United States, Europe, and Asia attended the workshop.

The program committee of LCPC'98, with the help of external reviewers, evaluated the submitted papers. Twenty-four papers were selected for formal presentation at the workshop. Each session was followed by an open panel discussion centered on the main topic of the particular session. Many attendees have come to regard the open panels as a very effective format for exchanging views and clarifying research issues. Using feedback provided both during and after the presentations, all of the authors were given an opportunity to improve their papers before submitting the final manuscript contained in this volume. This collection documents important research activities from the past year in the design and implementation of programming languages and environments for parallel computing.

The major themes of the workshop included both classical issues (Fortran, instruction scheduling, dependence analysis) as well as emerging areas (Java, memory hierarchy issues, network computing, irregular applications). These themes reflect several recent trends in computer architecture: aggressive hardware speculation, deeper memory hierarchies, multilevel parallelism, and "the network is the computer." In this final editing of the workshop papers, we have grouped the papers into these categories.

In addition to the regular paper sessions, LCPC'98 featured an invited talk by Charles Leiserson, Professor of Computer Science at the MIT Laboratory for Computer Science, entitled "Algorithmic Multithreaded Programming in Cilk". This talk was the first exposure to the Cilk system for many of the participants and resulted in many interesting discussions. We thank Prof. Leiserson for his special contribution to LCPC'98.

We are grateful to the Department of Computer Science at UNC-CH for its generous support of this workshop. We benefited especially from the efforts of Linda Houseman, who ably coordinated the logistical matters before, during, and after the workshop. Thanks also go out to our local team of volunteers: Brian Blount, Vibhor Jain, and Martin Simons. Special thanks are due to the

LCPC'98 Steering and Program Committes for their time and energy in reviewing the submitted papers. Finally, and most importantly, we thank all the authors and participants of the workshop. It is their significant research work and their enthusiastic discussions throughout the workshop that made LCPC'98 a success.

May 1999   Siddhartha Chatterjee
                                                            Program Chair

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