Preface

This year, 1997, is the tenth anniversary of the Annual International Workshop on Languages and Compilers for Parallel Computing (LCPC), a forum for leading research groups to present their current research activities and latest results. The workshop has also been a meeting place to provide intensive interaction and exchanges of ideas about future directions in this dynamic field. Cosponsored by the Minnesota Supercomputing Institute and Cray Research, Inc. (a Silicon Graphics Company), LCPC'97 was hosted by the University of Minnesota from August 7 to August 9, 1997, at the Hubert H. Humphrey Center on the University of Minnesota Twin Cities campus in Minneapolis. Seventy-seven people attended the workshop.

The program committee of LCPC'97, with the help of external reviewers, evaluated the submitted papers. Twenty-eight 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. In addition, a poster session was held where several groups, with or without formally presented papers, exhibited and discussed their work. 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. We believe that this collection of papers documents important research activities from the past year in the design and implementation of programming languages and environments for parallel computing.

Recent trends in computer system architecture have been to incorporate multiple levels of parallelism and multiple levels of memory hierarchy. These trends were clearly reflected in the work presented at this year's workshop. Most of the presentations fell into four broad categories: data locality enhancement, parallel programming models and parallel languages, automatic parallelization, and synchronization and communication. In the final editing of these proceedings, we grouped the workshop papers into the above categories.

Two additional events during the workshop gave participants an opportunity to learn about the status of two major research projects in the field. Ken Kennedy, a Noah Harding Professor of Computer Science at Rice University and a member of the National Academy of Engineering, gave a keynote speech titled "High Performance Fortran: A Ten-Year Retrospective View." Professor Kennedy led the effort in making High-Performance Fortran (HPF) an industry standard beginning about ten years ago. His invited speech was part of the celebration for the 10th anniversary of this workshop. A special session titled "SUIF Compiler Infrastructure" was organized by Professor Monica Lam of Stanford University and Professor Martin Rinard of MIT. This special session outlined the goals and the technical details of this ARPA-funded national parallelizing compiler infrastructure project. We thank Professors Kennedy, Lam, and Rinard

for their special contributions to LCPC'97.

We also are grateful to Silicon Graphics/Cray Research, Inc., for their generous financial support of this workshop. We are indebted to the Minnesota Supercomputing Institute (MSI) not only for its generous financial contribution but also for its excellent administrative assistance. We were very fortunate to have Michael Olesen of MSI, assisted by Susan Kalenze, coordinating the innumerable logistical matters before, during, and after the workshop. Their efforts made LCPC'97 a pleasant experience for all of the participants.

Special thanks are due to the LCPC'97 Steering Committee and Program Committee for their many suggestions on the organization of the workshop, and for their time and energy in reviewing the submitted papers. Lastly, but most importantly, we wish to thank all of the authors and participants of LCPC'97. It is their significant research work and their enthusiastic discussions throughout the workshop that made LCPC'97 a tremendous success.

Zhiyuan Li
Pen-Chung Yew
Program Co-Chairs

February 1998

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