Preface

This was the year of the 14th International Conference on Parallel Processing. Just a few years ago, parallel processing was held by many to be essentially of academic interest only. This is certainly not true, as proven by recent events. Just two years ago, a phenomenal increase in participation at this conference began, and no signs of slowing down are appearing. In 1981 we had 136 papers submitted; this was a record number of submissions. We had 124 submissions in 1982. Then, quite suddenly and totally unexpectedly, 240 papers were received in 1983, the very next year, and then again, 205 were received in 1984. This year’s total of 251 is yet another record. Also, a significant number of emerging companies are now offering sophisticated, commercially available parallel processor systems, and the number of placements of these systems is impressive. Consequently, we opened this year’s conference with a special vendor session. Certainly, the field has experienced considerable growth, and the 1980’s are clearly proving, as Bob Keller pointed out, to be “the decade of parallel processing.”

This special issue is a collection of some of the best papers presented at the conference. Selecting them from the very many interesting papers proved a difficult task, one which required the support of a large number of referees. While these papers do present significant research and results in parallel processing, it would be unfair to claim that they represent even a fraction of the whole field of parallel processing. No small number of papers can adequately do this, as the field is growing rapidly, encompassing more and more of all computing. We are becoming the victims of our own success. However, the current collection of papers is an attempt to do as much justice to the problem as possible.

I would like to thank all those persons involved in producing this special issue, especially the authors and many referees, all of whom worked under incredibly short deadlines. I thank Peter Kogge for his assistance as Special Project Editor for this issue: his help was of immense value. And finally, I thank Tse-yun Feng, Editor-in-Chief of this TRANSACTIONS.

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Doug DeGroot (S'78–M'80) received the B.S. degree in mathematics and the Ph.D. degree in computer science from the University of Texas at Austin.

While at the University of Texas he was a member of the Texas Reconfigurable Array Computer (TRAC) project, with special responsibility for operating system design and machine performance simulations. Upon graduating in 1981 he joined IBM’s T.J. Watson Research Center where he worked on the design of a highly concurrent numeric processor. Following this he was made manager of IBM’s Parallel Symbolic Processors Group, a new group formed to perform research in the area of parallel logic programming machines. In July 1985 he became Vice President of Research and Engineering at Quintus Computer Systems, a company devoted to the advancement of logic programming technologies for fifth-generation computer systems.

Dr. DeGroot has recently been elected Chairman of ACM’s SIGARCH and served as Technical Chairman of the IEEE 1985 International Conference on Parallel Processing and General Chairman of the IEEE 1985 Symposium on Logic Programming.