

## Guest Editors' Introduction

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Welcome to this special issue comprised of selected papers from the 23rd International Conference on Supercomputing. We were delighted by the quality of the papers accepted into the conference. Consequently, when approached by the editors of the International Journal of Parallel Programming to prepare a special issue based on ICS, we knew it would be both a terrific opportunity and a challenge to choose just a few from the many excellent papers.

We ended up selecting five papers to be extended for this special issue. The papers were selected for their quality and also for their broad level of interest to the parallel processing community. The paper by Meng and Skadron explores the execution of stencil computations on GPUs. Given the pervasiveness of stencil computations in scientific applications and the increasing popularity and power of GPUs, this paper is particularly relevant to modern computing. The paper by Scarpazza addresses improving the performance of regular expression matching in unstructured text, an application of great importance in the growing field of business intelligence. The paper by Belgin, Back, and Ribbens describes a new, more efficient approach for representing ever-present sparse matrices and, in particular, performing sparse matrix-vector multiply. The paper by Shriraman and Dwarkadas analyzes policies for managing conflicts and contention in hardware transactional memory. Transactional memory is a topic of intense activity in both academia and industry, and this paper makes a significant contribution in that area. Finally, the paper by van Nieuwpoort and Romein contains an

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in-depth study of one of the largest scale parallel applications, the processing of signals from large arrays of radio astronomy antennas. They investigate both performance and power efficiency for several architectures that are of great interest to the community.

This special issue was the result of the work of many people. In addition to the authors of our selected papers, we thank the editors of IJPP, Utpal Banerjee, Nick Carriero, and Alex Nicolau, the members of its editorial board, and all the Journal staff who worked hard to make this happen.

We believe we have put together a special issue of the International Journal of Parallel Programming that will be of great interest to the community. We hope that you will enjoy reading this exciting collection of papers.