

Topic 1: Support Tools and Environments (Introduction)

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Topic Committee

Despite an impressive body of research, parallel and distributed computing remains a complex task prone to subtle software issues that can affect both the correctness and the performance of the computation. This track focuses on tools and techniques to tackle that complexity. Submissions covered a wide range of challenges of parallel and distributed computing, including, but not limited to, scalability, programmability, portability, correctness, reliability, performance and energy efficiency. This topic brings together tool designers, developers, and users to share their concerns, ideas, solutions, and products for a wide range of platforms.

We received numerous submissions on these important topics. The submissions were subjected to a rigorous review process, drawing on experts from across parallel computing to assess their novelty, correctness and importance. Through this process we selected two papers for publication.

One of the accepted papers provides a novel mechanism to detect synchronization in shared memory programs. The technique controls thread execution in order to determine when a specific thread waits for the actions of another, specific thread. This technique can simplify automatic analysis of the correctness of shared memory programs.

The other accepted paper details advances in system simulation. The paper specifically discusses simulation of the BlueGene/Q processor. The paper presents techniques to reduce the time per simulated instruction while still providing an accurate timing. model. Overall, these techniques support evaluation of system software and application performance prior to fabrication of the actual processor chips.

We thank the authors of these papers and all submissions. In addition, we thank our many reviewers, all of who provided detailed evaluations of the submissions that ensured that the accepted papers in this topic are of the highest quality.