Topic 3
Scheduling and Load Balancing

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Topic Chairs

An increasing variety of parallel and distributed systems is being developed throughout the world. Parallelism is available at granularities ranging from multi-core processors, via SMPs and clusters, to Grids. However, much of the computing power in these systems remains unusable because adequate algorithms and software for managing these resources are unavailable.

Topic 3 is devoted to scheduling and resource management. The broad objective of our topic is to develop the theory and technology so that the vast computing power of parallel and distributed systems can be used more efficiently. The subjects presented in Topic 3 cover many aspects of scheduling and load-balancing, including system-level techniques, theoretical foundations, applications, and scheduling tools. New trends and emerging models are also discussed.

Scheduling is the common term for the allocation of resources over time to computational tasks. In parallel computing, these resources include the computing devices (processors, computers), the communication medium (networks, buses, etc), and memory (disk, registers, etc). New parameters, such as heterogeneity, hierarchical character of memory or communication links, and large-scale computing, are also considered. As parallel and distributed computing evolves, classical models and techniques sometimes apply, but often new ones must be proposed, implemented, and validated.

There were 27 papers submitted to the Topic 3 track. Each submitted paper has been reviewed by 4 reviewers, and finally 11 papers were chosen for inclusion in the final program. They reflect the synergy between theoretical approaches (models, analysis of algorithms, complexity, approximability results, multi-criteria analysis) and practical realizations and tools (new methods, simulation results, experiments, specific tuning for an application).

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– Michael, Dror, Allan, and Uwe