

# Preface

Multiprocessor platforms play an important role in modern computational systems, and appear in various applications, ranging from energy-limited hand-held/battery-powered devices to large data centers. As their performance increases, energy consumption in these systems also increases significantly. Dynamic Voltage and Frequency Scaling (DVFS), which allows processors to dynamically adjust the supply voltage and the clock frequency to operate on different power/energy levels, is considered an effective way to achieve the goal of saving energy. Recently, energy-aware task scheduling on DVFS multiprocessor platforms has been a hot topic. Our work in this book surveys existing researches that have been done on this topic. We notice that energy-aware scheduling problems are intrinsically optimization problems, the formulations of which greatly depend on the platform and task models under consideration. Thus, we classify existing works according to two key dimensions, namely, homogeneity/heterogeneity of multiprocessor platforms and the task types under consideration. Under this classification, other sub-issues are also included in this book, namely, slack reclamation, fixed/dynamic priority scheduling, partition-based/global scheduling, task preemption/non-preemption and application-specific power consumption, etc. Our work provides an overall and comprehensive survey on energy-aware scheduling on multiprocessor platforms.

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