Abstract

Today the computation capability of modern computational systems increased. Multi-core processors achieve improved performance with lower power consumption. Dynamic Voltage and Frequency Scaling (DVFS) technique, permits processors to dynamically change their supply voltages and execution frequencies so it can work on many power/energy levels. This scheme is considered as an efficient technique to fulfill the goal of saving energy. This paper, considered scheduling task set on homogeneous multiprocessor platforms using Dynamic Voltage and Frequency Scaling. Achieving minimal overall system energy consumption was our goal. We propose an integrated approach that assigns a dynamic priority to each task in ready queue related to every ready processor based on task deadline and processor load. We are experimentally inspected the effect of our dynamic priority algorithm using feasibility, energy and feasibility/energy performance measurement. Our evaluation results show considerable energy gains with acceptable performance when compared with other well-known heuristics.
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Index Terms

Computer Science                Control Systems

Keywords

Multi-core processor, Dynamic priority Scheduling, Dynamic Voltage and Frequency Scaling, Energy-Aware Scheduling