Abstract

A traditional multiprocessor real-time scheduling partition a task set and applies uniprocessor scheduling on each processor. For architectures where the penalty of migration is low, such as uniform-memory access shared-memory multiprocessors, the nonpartitioned method becomes a viable alternative. By allowing a task to resume on another processor than the task was preempted on, some task sets can be scheduled where the partitioned method fails. We address fixed-priority scheduling of periodically arriving tasks on equally powerful processors having a non-partitioned ready queue. We propose a new priority-assignment scheme for the non-partitioned method. Using an extensive simulation study, we show that the priority-assignment scheme has equivalent performance to the best existing partitioning algorithms, and outperforms existing fixed-priority assignment schemes for the non-partitioned method.
Permanent Precedence Blocking Preemptive Multiprocessor Scheduling

References


Index Terms

Computer Science  
Emerging Trends in Technology

Keywords

Hared-memory Multiprocessor