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先进计算

# 多处理器固定优先级算法的可调度性分析

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**摘要:** 针对多处理器实时调度中的固定优先级(FP)调度算法,提出了一种改进的可调度性判定方法。引入Baruah的最早截止期优先(EDF)窗口分析框架,将高优先级任务带入作业的最大数量限定为m-1(m为处理器个数),进而对任务的干涉上界进行重新界定,并由此得到一个更加紧密的可调度性判定充分条件。仿真实验结果表明,该方法增加了通过判定任务集的数量,体现出更优的可调度判定性能。

**关键词:** 多处理器 实时调度 固定优先级 可调度性判定 干涉

## Analysis on schedulability of fixed-priority multiprocessor scheduling

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Abstract: Concerning the Fixed-Priority (FP) algorithm of multiprocessor real-time scheduling, an improved schedulability test was proposed. This paper applied Baruah's window analytical framework of Earliest Deadline First (EDF) to FP, bounded the max number of higher priority tasks doing carry-in by m-1 (with m being the number of processors), and thus got a new upper bound of interference a task suffered. Then, a tighter sufficient condition to determine schedulability was derived. The simulation results show the schedulability test is more efficient by increasing the number of detected schedulable task sets.

Keywords: multiprocessor real-time scheduling Fixed-Priority (FP) schedulability test interference

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