

عنوان مقاله:

A Novel Federated Earliest Deadline First Real-time Task Scheduler for Multiprocessors

محل انتشار:

هفتمین همایش بین المللی مهندسی فناوری اطلاعات، کامپیوتر و مخابرات ایران (سال: 1402)

تعداد صفحات اصل مقاله: 10

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خلاصه مقاله:

This research paper focuses on the development of scheduling algorithms for real-time systems, with a specific emphasis on multiprocessor environments. The primary objective is to ensure the timely execution of hard real-time tasks to avoid any detrimental consequences caused by missed deadlines. To achieve this goal, Federated Earliest Deadline First (fEDF) scheduler is proposed, which exhibits promising capabilities in meeting the desired objective. The fEDF algorithm incorporates shared and dedicated modes, enhancing flexibility and minimizing idle time and overhead through the utilization of shared tasks. Experimental results validate the effectiveness of the proposed algorithm, demonstrating its ability to significantly improve utilization and maximize processor efficiency while maintaining comparable overhead to the single processor mode. This research contributes to the advancement of scheduling algorithms for multiprocessor systems, effectively addressing the challenges associated with reliable and efficient real-time task execution.

کلمات کلیدی:

Federated EDF, Semi-partitioned scheduler, Hard real-time scheduler, Real-time periodic tasks, Multiprocessors

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