عنوان مقاله:

A Novel Dynamic EDF Scheduling for Multimedia Applications on Multiprocessor System on Chip

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خلاصه مقاله:

One of the most critical bottlenecks in many novel multimedia applications is caused by their very dynamic concurrent behavior. This is especially true because of the quality of service (QoS) aspects of these applications. In order to deal with these dynamic issues where tasks and complex data types are created and deleted at run- time based on non-deterministic events, a novel system design paradigm is required. Because of high computation and communication requirements of these applications, multiprocessor system-on-chip (MPSoC) is more and more accepted as a suitable solution. The task scheduling on such multiprocessor, embedded multimedia systems forms a real challenge. The Earlier Deadline First (EDF) algorithm has been recognized as an optimum real-time scheduling technique. In this paper, a novel dynamic scheduling algorithm for embedded multimedia applications on multiprocessor based on EDF is presented. Simulation results indicate that using the proposed algorithm increases hardware resource utilization compared to the static original EDF algorithm. Simulation results show an improvement of more than 30% in resource utilization using the proposed algorithm compared to traditional EDF.

کلمات کلیدی:

Real Time Scheduling, Earliest Deadline First, Multiprocessor System on Chip.

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