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Title: Improving the Efficiency of Highly Predictable Wireless Sensor Platforms With Hybrid Scheduling

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Abstract: We focus on increasing the execution efficiency and flexibility of fully predictable embedded platforms, with direct applications in wireless sensor networks. The proposed technique is a hybrid scheduling mechanism, which combines the high predictability of a non-preemptive cyclic scheduler with the efficiency of a modified version of the Earliest Deadline First algorithm. Implementation details on ARM7-based platforms are provided, along with a case study of real-time wireless communication driver for sensor networks. The experimental results prove that this method achieves the proposed goals: an increased execution efficiency and flexibility while preserving the required real-time predictability of the systems.

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