Title: Hard Real-Time Execution Environment Extension for FreeRTOS

Author(s): Stangaciu, CS (Stangaciu, Cristina S.); Micea, MV (Micea, Mihai V.); Cretu, VI (Cretu, Vladimir I.)

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Abstract: In this paper, a hard real-time execution environment extension is proposed for an open source real-time operating system, FreeRTOS, in order to support a special case of hard real-time tasks, called ModXs. The goal is to obtain a real-time system which has both the capabilities offered by a dynamic, preemptive, priority based scheduling and execution environment and the determinism and predictability of a hard real time execution environment. This paper also presents an implementation of the system which was tested and validated on a hardware platform EFM32-G8900-STK.

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Addresses: [Stangaciu, Cristina S.; Micea, Mihai V.; Cretu, Vladimir I.] Politehn Univ Timisoara, Comp & Software Engn Dept, Timisoara 300223, Romania.

Reprint Address: Stangaciu, CS (reprint author), Politehn Univ Timisoara, Comp & Software Engn Dept, 2 Vasile Parvan Blvd, Timisoara 300223, Romania.

E-mail Addresses: certejan@dsplabs.cs.upt.ro; mihai.micea@cs.upt.ro; vladimir.cretu@cs.upt.ro

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