

RTEMS Multi-Core and PROBA OBSW demonstrator

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Abstract:

RTEMS, after more than 20 years in operation from single-core to multi-core. We present the first steps towards a single-core operating system running on a multi-core machine by means of a giant lock. The status quo is investigated via profiling information gathered through the test suite. New features like clustered/partitioned scheduling, the multiprocessor resource sharing protocol (MrsP), thread local storage and timecounters are discussed. Core services like events, semaphores and message queues were re-implemented utilizing fine grained locking which shows massive performance improvements. Is RTEMS now ready for the next generation of space hardware?