WCET analysis with locked instruction caches (Lock-MS)

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ABSTRACT
The WCET (worst case execution time) of a program is difficult to compute because of the lack of predictability of conventional caches. In this work we propose a new WCET analysis module which considers a program in its binary form executing in a real-time processor with locked down instruction caches. We assume the instruction selection to be performed by the existing Lock-MS method. Our module is able to give the set of ILP constraints needed both for the WCET computation and the optimal selection of the instruction cache lines to be locked into the cache. As a result we can compute the WCET for a large number of system configurations, including cache design parameters. Moreover, our module is able to analyse realistic complex programs with a large number of paths.

ACM Reference format:

REFERENCES