Abstract

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Throughput and Wasted Work in Contention Management for Software Transactional Memory

We study contention management in software transactional memory. We study the issue of throughput in software transactional memory and attempt to maximize it by explicitly taking into consideration wasted work. Specifically, we design algorithms that maximize throughput for systems in which transactions are of equal size, and maximize object reference throughput, a metric we describe in this paper, in all other cases. We come up with three different measures of work, and then use these measures of work to design algorithms that minimize, as much as possible, the amount of wasted work. We compare the developed algorithms to the literature and show that by explicitly taking wasted work into account, we are able to obtain the desired result. This is shown both analytically and empirically.