Android-based Simulator to Support Tomasulo Algorithm Teaching and Learning

Volume 170 - Number 2
Year of Publication: 2017

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Abstract

Tomasulo’s algorithm is a dynamic instruction scheduling algorithm that allows out-of-order execution, to minimize “Read-After-Write” (RAW) hazards and by register renaming to reduce “Write-After-Read” (WAR) and “Write-After-Write” (WAW) hazards. This paper describes an Android based simulator that shows how dynamic scheduling is obtained using Tomasulo's Algorithm. The simulator is configurable, while the simulation can be operated in a step by step mode and with animation in order to help students comprehend the concepts of dynamic scheduling anytime, anywhere.

References


Index Terms

Computer Science

Algorithms

Keywords

Tomasulo’s algorithm, Simulator, Computer architecture, Interactive animation.