Energy consumption analysis for two embedded Java virtual machines

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Abstract

In this paper we present a general framework for estimating the energy consumption of an embedded Java virtual machine (JVM). We have designed a number of experiments to find the constant overhead and establish an energy consumption cost for individual Java opcodes for two JVMs. The results show that there is a basic constant overhead for every Java program, and that a subset of Java opcodes have an almost constant energy cost. We also show that memory access is a crucial energy consumption component.

Keywords: Energy consumption; Embedded java virtual machine; Java opcode

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