

The Effects Of Compiler Optimizations On Embedded System Power Consumption

Abstract

Power consumption is a subject of serious consideration in embedded systems design because embedded systems are constrained to stringent power and energy requirements. The mission of lowering power consumption and energy usage of such systems is an important task to prolong their usage in real time situations. In this paper, we study the effects of compiler optimizations on embedded systems energy usage and power consumption in real time situations and the importance of running efficient binary codes in realizing a more power efficient, and better performing embedded system. Compiler optimizations at various levels involving different architectural features have been experimented and it is shown that architecture driven compiler optimizations have a better impact on reducing power consumption and energy usage in embedded system than blind code optimizations.