



A METHODOLOGY FOR THE OPTIMIZATION OF MULTI-PROGRAM SHARED SCRATCHPAD MEMORY

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Abstract- Processors used in wireless and ad hoc networks bring more strict requirements on performance and power consumption. The hardware and software need to coordinate more efficiently to meet such requirements. With the rapid development of semi-conductor technology, more memory can be integrated into the processor. ScratchPad Memory (SPM) is a kind of the on-chip memory, is a SRAM based memory with fast response, small on-chip area and low power consumption. It is still a

big challenge on how to take advantages of SPM because SPM must be explicitly used by software to achieve high performance. This paper proposes a novel methodology to share SPM during multiprograms. The applications are analyzed and memory objects are generated. During the executions, multi-programs can share SPM through these memory objects. The experimental results show that our approach can reduce both the execution time and the energy consumption effectively.

Index terms: methodology, optimization, scratchpad memory, high performance.