

COMPUTER SCIENCE SEMINAR SERIES

Department of Computer Science
City University of Hong Kong

Joint Variable Partitioning and Bank Selection Instruction Optimization on Embedded Systems with Multiple Memory Banks

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Date :

27 October 2009 (Tuesday)

Time :

2:00pm - 3:00pm

Venue

CS Seminar Room, Room Y6405, 6th Floor, Yellow Zone, Academic Building, City
University of Hong Kong, Tat Chee Avenue, Kowloon Tong

Abstract

Multiple memory banks with bank switching is a technique to increase memory size without extending address buses. A special instruction, Bank Selection Instruction (BSL) is inserted into the original programs to modify the bank register to point to the right bank, which increases both the code size and runtime overhead. In this work, we carefully partition variables into different banks and insert BSLs at different positions so that the overheads can be minimized. Minimizing code size and minimizing runtime overhead are two objectives investigated in this work. Experiments show that the algorithms proposed can reduce the overhead caused by BSLs efficiently.

This paper will be presented in the 2010 Asia and South-Pacific Design Automation Conference (ASP-DAC2010), Taipei, Taiwan, Jan 18-21, 2010.

Supervisor: Dr LI Minming

Research Interests: Embedded Systems, Memory Optimization

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All are welcome!

*In case of questions, please contact Dr LI Minming at Tel: 2788 9538, E-mail: minmli@cs.cityu.edu.hk, or
visit the CS Departmental Seminar Web at <http://www.cs.cityu.edu.hk/>.*