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Administrative data

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Session number 3

Biography

Masaaki Kondo received the B.E. degree in College of Information Sciences and the M.E degree in Doctoral Program in Engineering from University of Tsukuba in 1998 and 2000 respectively. He received the Ph.D. degree in Graduate School of Engineering from the University of Tokyo in 2003. He is currently an associate professor of Graduate School of Information Systems at The University of Electro-Communications. His research interests include computer architecture, high-performance computing, and dependable computing.

Abstract

Recently, power dissipation has emerged as a major concern of high-performance microprocessor design. As semiconductor technology advances, leakage power has become a large factor in the total power dissipation. To reduce run-time leakage power, we are investigating a fine-grain power-gating (PG) technique which tries to minimize leakage power by powering on and off circuit components of a processor during the program execution in much finer temporal/spatial granularity. We are developing a prototype-chip called Geyser, which is a MIPS R3000 compatible processor, for evaluating the effectiveness and feasibility of the fine-grain PG technique. In this presentation, I will describe the proposed PG approach and preliminary evaluation results derived from the real design of the Geyser processor.