

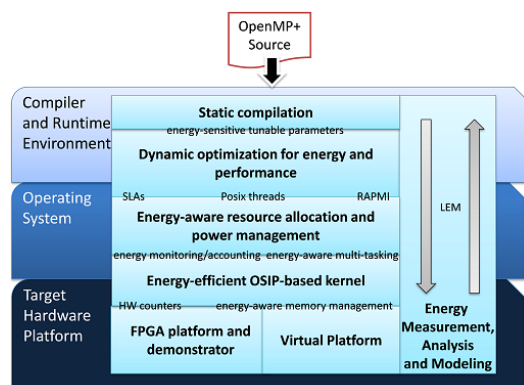
GREENER MOBILE SYSTEMS BY CROSS LAYER INTEGRATED ENERGY MANAGEMENT

Goal of the project

The GEMSCLAIM project aims at introducing novel approaches for reducing the “greed for energy” of modern battery powered systems, thereby improving the user experience and enabling new opportunities for mobile computing.

Short description of the project

Mobile terminals and consumer devices are among the fastest growing markets in computing. In the long term, further growth is endangered by the “power/ energy wall”. The purpose of GEMSCLAIM is to explore new techniques in energy optimization via an interdisciplinary vertical approach: a novel combined optimization across the major HW/SW system layers (compiler/OS/HW platform).



Main activities

In a world of de-facto standards as well as huge amounts of legacy HW and SW, it is very difficult to achieve real breakthrough in system-wide energy savings beyond fragmented point solutions, e.g. at the HW or OS level.

GEMSCLAIM’s mission is to overcome this hurdle by a novel cross layer energy optimization approach that combines the following major research activities: (1) Development of an energy-aware optimizing and parallelizing compiler; (2) Component aware energy-efficient operating system and (3) Customizable HW modelling with energy monitoring facilities.

Project implemented by

Mobile Computing, Sensors Network and Embedded Systems Research Laboratory

Implementation period

01.09.2012–31.08.2015

Results

(1) The Virtual Prototype of the experimental HW/OS/Compiler platform and (2) FPGA Prototype experimental HW/OS/Compiler with Power Monitors.

Applicability and transferability of the results

Mobile HW/OS/SW solutions development

Fields of interest

Heterogenous multi-core embedded systems

Research centre

Research Centre for Computers and Information Technology

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Research team

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