



Titel of project

ENTRA

Project coordinator at Roskilde University

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Project partners

- Roskilde University, Denmark (Coordinator)
- University of Bristol, UK
- IMDEA Software Institute, Spain
- XMOS Ltd, UK

Project period

1. October 2012 - 30. September 2015

Total budget

2.1 million Euro

Budget for RUC partner

630.000 Euro

Purpose

The ENTRA project promotes energy efficiency as a first-class software design goal

The ENTRA project develops tools that facilitate the production of “greener” software, resulting in systems that make a certifiably more efficient use of their available resources: primarily energy, but also execution time, memory, disk space, and so on. The project will facilitate predictions of energy consumption to be made early in the software design phase, thus enabling the development of greener IT products through energy transparency.

Key techniques enabling energy transparency

The two main techniques for enabling energy transparency are advanced program analysis and modeling of energy consumption in computer systems. Program analysis yields information about the energy usage of a program while it is still under development, and before it is actually executed on hardware. Energy modeling provides knowledge on how energy is consumed during a computation. Such models can be established at different levels of abstraction, ranging from low-level machine instructions to higher-level code blocks and procedures. The final energy models, irrespective of their level of abstraction, provide information that feeds into static resource usage program analysis algorithms.

The ENTRA project vision

It is thus the vision of the ENTRA project to enable energy-efficient system design, especially energy-efficient software engineering, through resource usage analysis, verification and optimization, both during code development and at runtime, based on whole-system energy transparency.

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