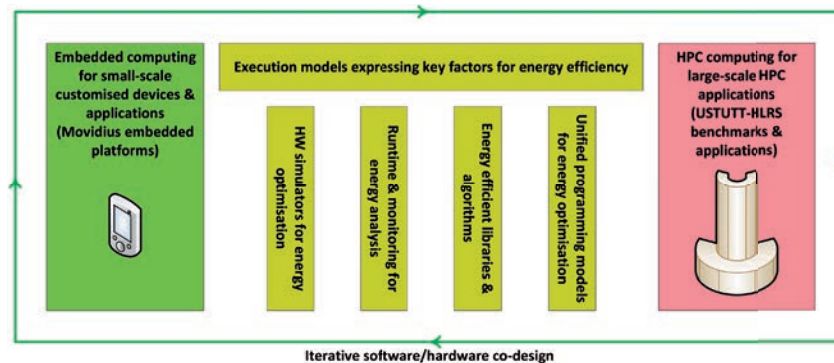


Excess

Execution Models for Energy-Efficient Computing Systems (EXCESS)

The EXCESS scientific and technological concept in addressing energy efficiency is defined by novel execution models between common High Performance Computing infrastructures and Embedded Systems. In order to synthesize energy optimisation in embedded computing and performance optimisation in HPC computing, we need to bridge the gaps between embedded technologies that are typically developed for small-scale customised devices and applications (e.g. smartphones and their applications) and HPC technologies which are demanded by large-scale applications and the corresponding systems.



EXCESS will take a holistic approach and will introduce novel programming methodologies to drastically simplify the development of energy-aware applications that will be energy-portable in a wide range of computing systems while preserving relevant aspects of performance.

The EXCESS project is going to be driven by the following technical components that will be developed during the EXCESS project:

- Complete software stacks (including programming models, libraries/ algorithms and runtimes) for energy efficient computing.
- Uniform, generic development methodology and prototype software tools that enable leveraging additional optimisation opportunities for energy-efficient computing by coordinating optimisation at different levels of the system stack, enabled by appropriate modelling abstractions at each level.
- Configurable energy-aware simulation systems for future energy-efficient architectures.



The EXCESS consortium unites Europe's leading experts in high-performance computing as well as embedded computing. The consortium consists of world-class research centres, universities and companies that bring in the required expertise to accomplish the ambitious, but realistic goals of EXCESS.

Project Partners

- High Performance Computing Center Stuttgart (HLRS), Germany
- Chalmers Tekniska Högskola AB (Chalmers), Sweden
- Linköpings Universitet (LIU), Sweden
- Movidius LTD (Movidius), Ireland
- Universitetet i Tromsø (UiT), Norway

Contact: Dr.-Ing. Bastian Koller / Uwe Küster
 Höchstleistungsrechenzentrum Universität Stuttgart
 Nobelstraße 19, 70569 Stuttgart, Germany
 Phone: 49-711-685-65891 / 49-711-685-87232
 Fax: +49-711-685-65832 / +49-71-685-87209
 E-Mail: koller@hlrs.de / kuester@hlrs.de