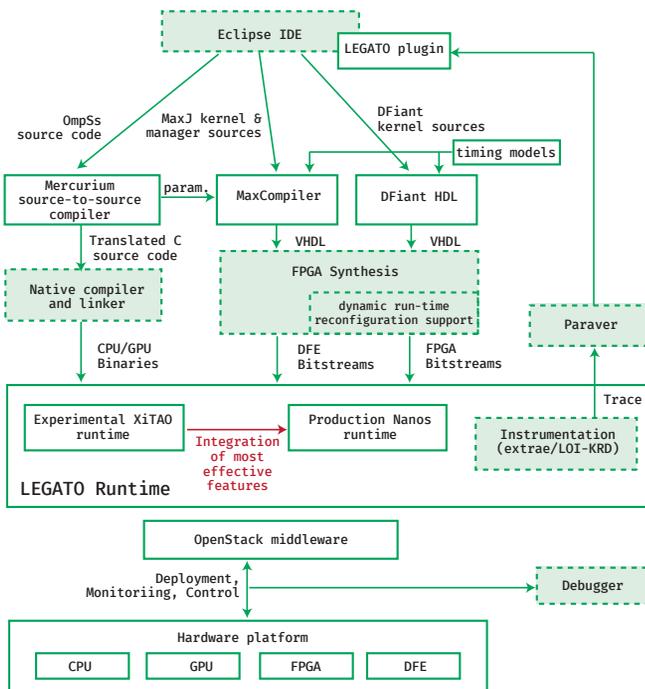


Our partners

LEGaTO stack

Sequential task-based OmpSs program (high-level clean interface)



LEGaTO

Low Energy Toolset for Heterogeneous Computing

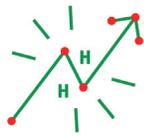
Plugging the software-stack support gap for energy-efficient computing



The LEGaTO project has received funding from the European Union's Horizon 2020 research and innovation programme under the grant agreement No. 780681

www.legato-project.eu

Project goals



One order of magnitude improvement in energy-efficiency for heterogeneous hardware through the use of the energy-optimised programming model and runtime.



5× decrease in Mean Time to Failure through energy-efficient software-based fault tolerance.



Size reduction of the trusted computing base by at least an order of magnitude.



5× increase in FPGA designer productivity through the design of novel features for hardware design using dataflow languages.

LEGaTO approach

- Starting with Made-in-Europe mature software stack, and optimising this stack to support energy-efficiency
- Integrated software stack supporting task-based programming model
- Computing on a commercial cutting-edge European-developed CPU-GPU-FPGA heterogeneous hardware substrate and FPGA-based Dataflow Engines (DFE)
- Three use-cases (Smart home/city, AI, health) to test the integrated stack

Use cases



Healthcare: Will demonstrate not only a decrease in energy consumption but an increase in healthcare application resilience and security.



IoT for Smart Homes and Cities: The LEGaTO project software-hardware framework for the IoT will demonstrate ease of programming and energy savings in smart homes and smart cities application.



Machine Learning: Will improve energy efficiency by employing accelerators and tuning the accuracy of computations at runtime using CNNs and LSTM.