**Introduction:** As embedded systems grow more complex and shift toward heterogeneous architectures, understanding workload performance characteristics becomes increasingly difficult. In this regard, run-time monitoring systems can support on obtaining the desired visibility to characterize a system.

**Demo Description:** This demo presents a framework that allows to develop complex heterogeneous architectures composed of programmable processors and dedicated accelerators on FPGA, together with customizable monitoring systems, keeping under control the introduced overhead. The whole development flow (and related prototypal EDA tools), that starts with the accelerators creation using a dataflow model, in parallel with the monitoring system customization using a library of elements, showing also the final joining, will be shown. Moreover, a comparison among different monitoring systems functionalities on different architectures developed on Zynq7000 SoC will be illustrated.

This work has been partially supported by the ECSEL FITOPTIVIS (GA 783162) project.