

**Invited talk #3:**

**Title:** High-level synthesis developments in the context of European space technology research

**Speaker:** Fabrizio Ferrandi, Politecnico Di Milano

**Abstract:**

European efforts to boost competitiveness in the space services sector promote the research and development of advanced software and hardware solutions. The EU-funded HERMES project contributes to the effort by qualifying radiation-hardened, high-performance programmable microprocessors and developing a software ecosystem that facilitates the deployment of complex applications on such platforms. The main objectives of the project include reaching a technology readiness level of 6 (i.e., validated and demonstrated in relevant environment) for the rad-hard NG-ULTRA FPGA with its ceramic hermetic package CGA 1752, developed within projects of the European Space Agency, French National Centre for Space Studies and the European Union. An equally important share of the project is dedicated to the development and validation of tools that support multicore software programming and FPGA acceleration. The HERMES project selected Bambu high-level synthesis tool to integrate capabilities to translate C/C++ code into Verilog/VHDL in its development ecosystem. In HERMES, Bambu has been and will be extended to support new FPGA targets, architectural models, model-based design, and input applications. The increased performance offered by FPGAs is made so available also to software developers that do not have hardware design expertise. During the workshop presentation, we will share the latest results and developments of the Bambu high-level synthesis tool developed in the context of the EU H2020-funded HERMES project.

**Brief CV:**

Fabrizio Ferrandi received the Laurea (cum laude) degree in electronic engineering in 1992 and the Ph.D. degree in information and automation engineering (computer engineering) from the Politecnico di Milano, Italy, in 1997. He was an assistant professor with the Politecnico di Milano until 2002. Currently, he is an associate professor with the Dipartimento di Elettronica, Informazione e Bioingegneria of the Politecnico di Milano. His research interests include synthesis, verification simulation, and testing of digital circuits and systems. He has been a member of the IEEE Computer Society since 1995, the Test Technology Technical Committee, and the European Design and Automation Association.