

**Title of the doctoral program**

Computer and control engineering

**Title of the research activity**

FPGA for Trusted Cloud Computing

**Short description of the research activity**

Cloud computing services offer many benefits for different customers: high-availability, massive computing power, no need for in-house technical expertise, etc. Generally applications run within a virtual machine on public cloud servers operating often on sensitive data. This opens a significant research problem for the existing cloud paradigm. From the client's viewpoint, they may be hesitant to place this type of data on a publically accessible system to which they do not have exclusive and ultimate administrator control. Thus, clients with sensitive data need more explicit guarantees regarding the security of their computations and data. In modern Cloud infrastructure, the FPGAs are programmed to form a flexible, independent third party compute platform within the cloud infrastructure. The research activity will aim at ambitiously revolutionize the actual cloud paradigm, inherently unsecure, by providing the usage of FPGA not only as an additional computing platform but also as a trusted device seamlessly integrated with Cloud paradigm with the final aim to deliver trusted services.

**Scientific responsible (name, surname, role, email)**Paolo Prinetto, Full Professor, [paolo.prinetto@polito.it](mailto:paolo.prinetto@polito.it)**Number of vacancies for XXXI cycle (3 years program)**

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**Specific requirements (experiences, skills)**

Digital Design, FPGA, C

**Website of the research group (if any)**[www.testgroup.polito.it](http://www.testgroup.polito.it)