



PhD in INGEGNERIA DELL'INFORMAZIONE / INFORMATION TECHNOLOGY - 38th cycle

Research Area n. 1 - Computer Science and Engineering

THEMATIC Research Field: DESIGN OF EFFICIENT AND SECURE MULTI-CORES

Monthly net income of PhDscholarship (max 36 months)

€ 1350.0

In case of a change of the welfare rates during the three-year period, the amount could be modified.

Context of the research activity

Motivation and objectives of the research in this field	<p>IoT end edge devices are in charge of a number of mission critical tasks also involving the processing of personal and private data. Security and efficiency of computation are crucial aspects in the design of such systems, that are becoming complex multi-cores architectures possibly augmented with ad-hoc accelerators.</p> <p>Important aspects to be covered by the research, given the deployment in the field of such systems, include: security at the edge from side-channel attacks, optimization of the energy consumption and the search of a proper trade-off between energy-performance, security and implementation complexity.</p>
Methods and techniques that will be developed and used to carry out the research	<p>Design methodologies to realize custom hardware accelerators and general-purpose multicores with emphasis on security and efficiency aspects. The designed circuits will be prototyped on FPGAs</p>
Educational objectives	<p>The student will acquire strong skills in hardware design (Verilog/SystemVerilog) and low-level system software development (typically C) as well as an in-depth knowledge of modern computing platforms ranging from edge to HPC systems.</p>
Job opportunities	<p>Recent graduates in this field have been hired by major</p>



	semiconductor and technology companies. Post-Docs research opportunities are also available. Cooperation with other academic institutions and start-up at Polimi can open additional job opportunities
Composition of the research group	0 Full Professors 6 Associated Professors 4 Assistant Professors 3 PhD Students
Name of the research directors	Davide Zoni

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Additional support - Financial aid per PhD student per year (gross amount)	
Housing - Foreign Students	--
Housing - Out-of-town residents (more than 80Km out of Milano)	--

Scholarship Increase for a period abroad	
Amount monthly	675.0 €
By number of months	6

Additional information: educational activity, teaching assistantship, computer availability, desk availability, any other information
<p>LIST OF UNIVERSITIES, COMPANIES, AGENCIES AND/OR NATIONAL OR INTERNATIONAL INSTITUTIONS THAT ARE COOPERATING IN THE RESEARCH: ATOS – FR; CEA – FR; CINI – IT; E4 – IT; SECI - IT</p> <p>EDUCATIONAL ACTIVITIES (purchase of study books and material, including computers, funding for participation in courses, summer schools, workshops and conferences): financial aid per PhD student 5.503,32 Euro per student</p> <p>TEACHING ASSISTANTSHIP: (availability of funding in recognition of supporting teaching activities by the PhD student)</p> <p>There are various forms of financial aid for activities of support to the teaching practice. The PhD student is encouraged to take part in these activities, within the limits allowed by the regulations.</p>



COMPUTER AVAILABILITY: individual use

DESK AVAILABILITY: individual use