Postdoc position

« Energy-Efficient Multicore Heterogeneous Architecture Design »

Keywords:
Heterogeneous Multicore, Computer Architecture, Runtime System, Low Power, High-Performance, gem5, FPGA prototyping

Description:
Energy-efficiency is nowadays a major cross-domain concern, going from embedded to high-performance computing domains. The central challenge is to execute applications with the best compromise in terms of performance and power consumption. From system design point of view, the candidate ingredients required for a successful answer to this issue are present throughout different system components. The inherent heterogeneity of these components naturally calls for a global heterogeneous design discipline, which is capable of leveraging the energy-efficiency opportunities available at different levels, e.g., programming models, system software, execution architectures and hardware component technologies.

This postdoc focuses on energy-efficiency challenge by investigating the design of a heterogeneous multicore architecture prototype in collaboration with a major industrial partner specialized in low power core design. Among candidate design exploration platforms are the gem5 simulator (for fast design evaluation) and FPGA support for prototyping.

The successful applicant to this postdoc position should have a strong background in computer engineering (computer architecture), VHDL and FPGA; good skills in runtime management. Some knowledge about gem5 or similar simulation tools will be highly appreciated. The applicant will benefit of strong collaboration with word-leading academic and industrial partners in embedded computing.

Finally, this one-year postdoc offer is funded by the CONTINUUM project[1], ideally from October or November 2017. It will be hosted in the LIRMM lab, which is a cross-faculty research entity of the University of Montpellier and the French National Center for Scientific Research (CNRS). Located in Montpellier (France), LIRMM is one of the largest multi-disciplinary research laboratory in Europe. Its Microelectronics department carries out cutting-edge research in the fields of design and testing integrated systems and micro-systems, with a focus on architectural aspects, modeling and methodology.

Contact:
Applications (including a CV, academic records, motivation letter and appreciation letters if available) must be sent to the following persons:

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[1] http://www.lirmm.fr/continuum-project/index.html