

Postdoc Position at Lab-STICC
18 Months, available in June 2017
Hybrid-NoC SystemC Simulation

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The two CNRS labs Lab-STICC¹ (Lorient / Brest) and IRISA (Lannion / Rennes) join their efforts in an ambitious project named BBC (*Broadcast-Based parallel Computing*) funded by the french *CominLabs Laboratories of Excellence Initiative*². The objective of the project is mainly to explore Network on Chip (NoC) hybrid technologies to take advantage of broadcast mechanisms within manycore architectures. The originality of the project firstly relies in the combination of 3 technologies that all have different benefits and drawbacks and can be used efficiently within a single NoC to transmit different types of data and synchronisation messages.

We consider three layers, the first of is one the physical level where experts provide the abstract models for communications over radio channels and optical links in addition with usual wired NoC. Given these models we design a radio transceiver (mac, encoding, modulation) and reuse optical / CMOS interface components in order to develop new computing approaches based on broadcast and on the flexible sharing of communication resources.

The work will first consist in the design of SystemC NoC simulator that will abstract the different technology layers (radio, optical, wires) with different access protocols as well as timing and power models. Secondly it will be necessary to add new communication mechanisms that cannot be detailed here. The last point concerns the interface with multiprocessor simulators.

A strong background in SystemC and parallel computing is required. A good knowledge of NoC tools and techniques will be highly appreciated. The successful candidate will join the MoCS team in Lorient. The fellowship is awarded for a period of 18months in Summer or Fall 2017.

Interested candidats are expected to send, by email to jean-philippe.diguët@univ.ubs.fr, a detailed academic CV and references such as contact information of former supervisors.

1. <http://www.lab-sticc.fr>
2. <http://www.cominlabs.ueb.eu/fr>