

Internal BSC LOCA technical series

Tech Talk & Reading club sessions

Motivation

In an effort by the European Institutions to achieve technological independence from third parties, there is a clear commitment to the promotion and adoption of RISC-V architectures for chips development able to impact significantly to strengthen the HW/SW open-source ecosystem. BSC institution, as a well-recognized research center in Europe and over the world in the HPC domain, is leading several initiatives fully aligned with this European trend. Initiatives and activities that have led to a rapid growth of the center. However, a sustainable growth over time must rely on two main factors: 1) the human capital (BSC employees), and 2) a solid and up-to-date knowledge base. In order to support and enrich these factors, it is required to:

- Know, value and take advantage of the talent and experience of all the professionals who currently participate in research and/or development activities at BSC.
- Promote a dynamic framework that incorporates technical groupal activities, which allows and encourages technical discussions on the state-of-the-art about relevant topics for the center, whether related to present or future interests for BSC.

Description

To contribute to a sustainable and organic growth of the hardware design area at BSC, we propose organizing Internal LOCA Tech sessions. A monthly event whose objectives are: 1) promotion of internal BSC talent (Tech-Talk sessions), and 2) continuous learning/development mechanism (Reading club sessions).

- Tech-Talk session: Technical presentations on specific topics with the aim of putting the spotlight on the most senior and post-doc community's background and know-how, and also making visible the research and/or interests areas of work of each of those members.
- Reading club session: Technical sessions in the form of a presentation with the objectives of: 1) actively involving members with less experience in research activities, and 2) offering a "light-weight" training/retraining mechanism for all members that allows them to keep up to date with the state of the art.

Scope and goals

The general objective of LOCA Technical sessions is to value the knowledge, talent and experience of the center's workers and researchers, and support the creation of a multidisciplinary work team based on the strengths of each and every one of its members. On the one hand, the Tech talk series aims to cover the following objectives:

- Publicize the interests, lines of work and strengths of the most senior members and post-docs of the center.
- Share interests between different groups in the department.
- Create awareness and synergies between the different groups, which can materialize in the form of collaboration in projects.
- Have clear pointers/figures to contact with by specific topics, based on the interests, know-how and experience of the different members; so that they can actively participate, directly (hands-on) or indirectly (consultants) in the proposal definition, writing, development and implementation of projects.
- Making knowledge accessible, and making visible the strengths of the members of the work team to allow the elaboration of more complete and solid project proposals supported by their own knowledge.
- Identification of the strengths and weaknesses of the critical mass of work, which will make it possible to more clearly identify which profiles, academic and/or industrial, it is necessary to look for to complement the lines of work.

On the other hand, the Reading club will allow it to meet several objectives:

- Allow profiles with less experience to be interested in research and actively participate in the training and technical discussions of the center (at least partially).
- Allow members of different groups, with different profiles, to collaborate with each other. Actively involve all workers in defining the BSC's future lines of research.
- Staying up-to-date with the latest research topics.

Topics of interest

- Heterogeneous architectures
- Physical design
- Verification methodologies, techniques, and tools
- Accelerators and processors
- Tools exploitation
- Memory optimizations
- Implementation technologies
- Reconfigurable systems in HPC
- Neuromorphic systems
- Simulators
- RISC-V Extensions (official and non-official)
- Open-source tools and projects
- Other computer architecture and related topics...

Targeted audience

The Tech talks and reading club sessions will be open to all BSC

Schedule and format (in person + virtual)

Format: Hybrid (in person and virtual (Zoom))

Periodicity: monthly

- *Tech-Talent session*: As an example, each second Tuesday afternoon of each month
- *Reading club session*: As an example, each third Tuesday afternoon of each month

Structure:

- *Tech-Talent session*: 60 min (45min presentation, plus 15min tech discussion and Q&As)

- One speaker per session (senior engineer or post-doc)
- Presentation format (max 45min)
- Followed by a Q&A slot, and tech discussion
- All sessions will be recorded and uploaded to the HW_Design wiki, as part of the hw_design gitlab repository.

- *Reading club sesión*: 60 min (15min summary of two tech papers, followed by 15min of Q&As)

- Three speakers per session (junior engineer/researcher, or anyone interested on this)
 - Each of them will be responsible for summarizing one paper
- Presentation format (max 15min per paper)
- Q&As (max. 15min)
- All sessions will be recorded and uploaded to the HW_Design wiki, as part of the hw_design gitlab repository..

First Sessions Plan (tentative list)

| LOCA Session | | Topic | Speaker |
|--------------|--------------|---|--|
| 1 | Tech talk | <i>Low-power deep learning acceleration</i> (European Exascale Accelerator) | Gopinath |
| | Reading club | <i>Title_1</i> (TBD) <i>Title_2</i> (TBD) <i>Title_3</i> (TBD) | Name_1 () Name_2 () Name_3 () |
| 2 | Tech talk | <i>TBC</i> (Memory Technologies) | Pouya Es |
| | Reading club | <i>Title_1</i> (TBD) <i>Title_2</i> (TBD) <i>Title_3</i> (TBD) | Name_1 () Name_2 () |
| 3 | Tech talk | <i>ProNoC</i> (High Performance Domain-Specific Architectures) | Alireza M |
| | Reading club | <i>Title_1</i> (TBD) <i>Title_2</i> (TBD) <i>Title_3</i> (TBD) | Name_1 () Name_2 () |

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