Introduction to the Set of Keynotes on Languages for High-Performance Computing

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From June 29 to July 2, 2013, Lyon



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Outline

1 Keynotes on HPC languages: Why and how?

- Labex thematic quarter
- Organization principles

2 Audience and program

- Participants
- Program

Labex thematic quarter Organization principles

Labex MILYON and labex compilation

Labex funding is a national mechanism to structure research at the regional level, through a national loan for investment.

Labex thematic quarter Organization principles

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Thematic quarter on compilation

- April 2-4: French compilation days.
- May 13-17: School on polyhedral code analysis & optimizations.
- June 29-July 2: Keynotes for a dive into HPC languages.
- July 3-5: CPC'13, 17th workshop on compilers for parallel computing

Check out http://labexcompilation.ens-lyon.fr

Many thanks to Alexandre Isoard, Laetitia Lécot, Sophie Azzaro.

Labex thematic quarter Organization principles

Principles of the keynotes

Goals

- Not a network meeting, a school, a workshop: long keynotes.
- Broader target audience, linked to HPC parallel programming.
- Expose performance and compilation issues to computer scientists, industrials, and HPC users.
- Unique event with many languages/approaches together.
- Invite people I wanted to hear for a long time!

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Organization principles

- In Lyon, cheap, widely open, with some support for students.
- Not too far from CPC'13 (22/51 CPC participants).
- With as many long talks (1.5-2 hours) as possible.
- Have some time together to talk to speakers.

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 - Coffee breaks, all lunches (special situation for Sunday);
 - Cocktail/dinner on Monday night (7pm).
 - Constraint: no overlap with CPC'13.

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Welcome to all participants!

70 registered people, including the 13 speakers.

Note: some people will come only after the week-end.

Origin

France (42), USA (11), Denmark (6), Switzerland (3), The Netherlands (2), Italy (2), Sweden (2), Spain (1), India (1).

Status

Academic (37), PhD students (21), Industry (12).

Main origins

- Academic: mostly from computer science but also some "HPC users" (19 Inria, 6 from Copenhagen, 3 from ETH Zurich, etc.).
- Industry: Hewlett Packard, IBM, Cray, Intel, CGG (geoscience), CEA (energy), STMicroelectronics (semiconductors), Easii-IC SAS (embedded systems), Limagrain (agriculture).

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Vivek Sarkar Analysis/transformations of parallel programs. François Bodin Directive-based approaches (e.g., OpenAcc). Rodric Rabbah Programming for heterogeneity (GPU, FPGA). Rosa Badia The OmpSs approach from UPC Barcelona. Albert Cohen Streaming data flow.

Yann Orlarey A journey into audio and music DSLs.

Kathleen Knobe CnC: Intel's data & control flow HPC language. Sadayappan Domain-specific abstractions.

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Participants Program

Some views of Lyon

Saône river



Place Bellecour (in a green rare situation)



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Some views of Lyon

Country side (golden villages)



Vieux Lyon



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Some views of Lyon

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