

Adaptive Compilation Cluster

Barcelona Meeting
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Michael O'Boyle and Timothy Jones



Agenda

- Welcome
 - David Bernstein: Industrial perspectives
 - Presentations from cluster members
 - HiPEAC funding
 - Upcoming EU calls
 - HiPEAC roadmap
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Cluster Collaboration Grants

- Funding for collaboration between cluster members
 - We have 15,000 euros budget per year
 - Money for site visits to perform joint research
 - One collaboration already started
 - Grigori Fursin, Paul Kelly, Anton Lokhmotov
 - Optimisation and runtime adaptation of sequential libraries for multi-cores
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PhD Collaboration Grants

- Grants for PhD students or junior post-docs
 - Provide 5,000 euros for a 3 month collaborative visit
 - Covers travel, housing, etc
 - Work on a specific joint piece of research
 - With a publication as the end result
 - Requirements
 - Origin or destination must be a HiPEAC member
 - Money can't be used as a salary
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Upcoming EU Funding Calls

- Want to form interested groups around the EU calls
 - Provide “match-making” service
 - Link interested parties
 - We will provide
 - Specialised email groups for each area
 - Let us know what you're interested
 - Provide us with small paragraph on it
 - We'll put it on the web to attract others
 - Provide a synthesis
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EU Calls: Computing Systems

- Four areas – all compiler related
 - Auto-parallelisation and programmability
 - Methodologies, techniques and tools
 - Continuous adaptation
 - Virtualisation
 - Customisation
 - System simulation and analysis
 - Technology implications
 - Estimated funding: 25M euros
 - Funded through STREPs
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Concurrent Tera-Device Computing

- FET proactive
 - Three areas
 - Complexity of design and runtime of many-core heterogeneous systems
 - Design of dependable systems with faulty components
 - Breakthrough programming paradigms
 - Estimated funding: 15M euros
 - Funded through STREPs and Integrated Projects
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Embedded Systems Design

- Two areas relevant to compilers
 - Theory and novel methods for embedded system design
 - Including toolchains
 - Modules and tools for embedded platform-based design
 - Design-space exploration tools
 - Estimated funding: 28M euros
 - Funded through: STREPs, Integrated Projects,
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Roadmap: Domain-Specific Questions

- What are the main problems/challenges you see in the next 5 years?
 - What are the main problems/challenges you see in the next 5 to 10 years?
 - What are the main problems/challenges you see after the next 10 years?
 - Name at least one subject in your field that you're not going to work on (because you don't believe it will happen, for example).
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Questions About The Challenges

For all of the challenges you enumerate, please give an assessment of:

- Who is working on that? (Country, university, industry, ...)
 - Are there already any promising solutions? Which ones? Are they similar?
 - What is the activity of Europe in that? Of the Hipeac partners?
 - What could be the impact if the challenges are not solved?
 - What could be the impact if the challenges are solved?
 - Address societal problems like environment, energy, ageing.
 - Suggest what will create jobs, what might cost European jobs?
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Domain Overview Questions

- What will be the most important domain in 10 yrs from now?
- Do you see other challenges in other domains that could impact (positively or negatively) your domain?
 - Explain.
- What do you see as probable key evolutions in your domain in the next 5 years?
 - In the next 5 to 10 years?
 - Beyond 15 years?

(This is different from the first questions: current and probable evolution could ignore a problem/challenge !)

Generic Questions

- Give your view of the future in the domain of Hipeac
 - Other problems
 - What technical issues can solve them?
 - Technology drivers?
 - High tech opportunities in the next 10 years?
 - Directions where we lost jobs if we don't invest?
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