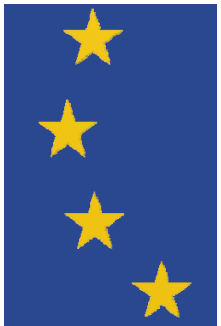


EUINCOOP international workshop in Bangalore

HiPEAC and Artemis models of collaborations

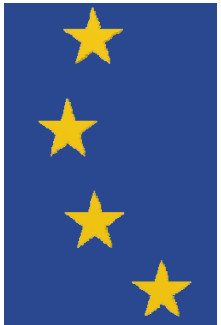
Prof. Avi Mendelson

Technion – Israel

(member of the advisory board of HiPEAC and ACM-Europe Council)

Who I am?

- Prof. Avi Mendelson has a blend of vast industrial and academic experience in several different areas such as Computer architecture, Operating systems, Power management, reliability, cloud computing and HPC (GPGPU).
- He is a professor at the departments of Computer Science and Electrical Engineering, Technion, Israel.
- Graduated from the CS department, Technion, (BSC and MSC) and got his PhD from University of Massachusetts at Amherst (UMASS)
- Industrial experience:
  - Manager of the Academic outreach program at Microsoft R&D center in Israel, where he was mainly focused on entrepreneur programs
  - Senior researcher and Principle engineer in the Mobile Computer Architecture Group, Intel. While at Intel he was the chief architect of the CMP (multi-core-on-chip) feature of the first dual core processors Intel developed. Thus he is recognized as one of the key people to start the CMP revolution.



Agenda

- HiPEAC – Organization and vision
- What's next?

HiPEAC-I – *High-Performance Embedded Architectures and Compilers*

SIXTH FRAMEWORK PROGRAMME
PRIORITY
Information Society Technologies IST

- Vision:

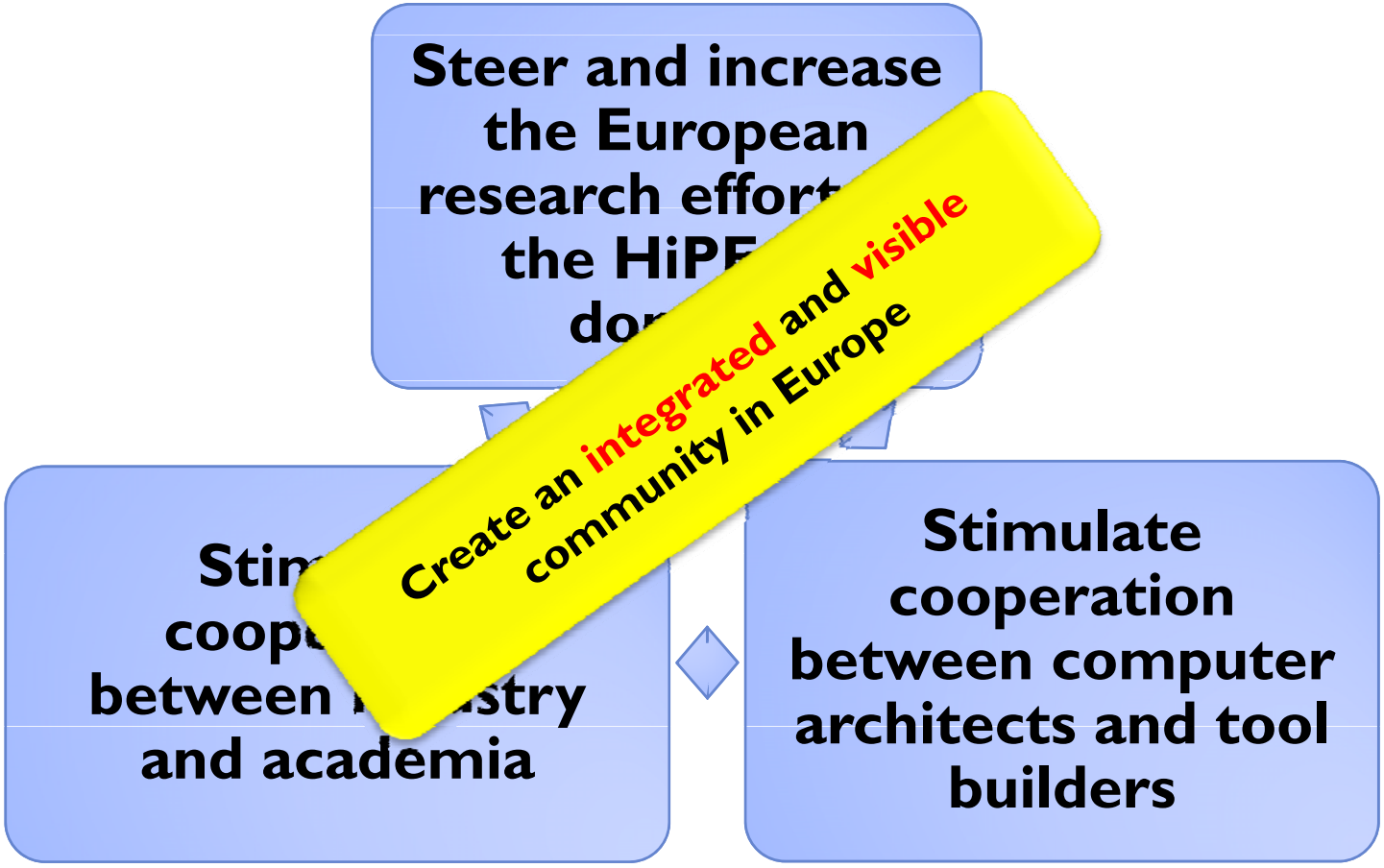
  Addresses design and implementation challenges of high-performance commodity computing *devices in the 10+ year horizon, covering both the processor design, the optimising compiler infrastructure, and the evaluation of upcoming applications made possible by the increased computing power of future devices.*

- Target:

  to create a virtual centre of excellence in high-performance compilers and architectures for embedded processors.

Core Objectives

Core objectives of HiPEAC



HiPEAC - II

WP1: Mobility

WP2: Research Program

WP3: Spreading Excellence

WP4: Management

WP1: Mobility

1.1 Internships

1.2 Collaboration grants

1.3 Mini-sabbaticals

1.4 Cluster meetings

WP2: Research

2.1 Multi-core architecture

2.2 Programming models and operating systems

2.3 Adaptive compilation

2.4 Interconnects

2.5 Reconfigurable computing

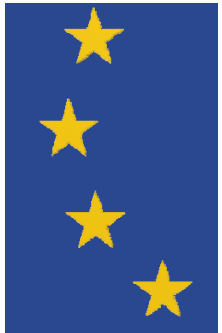
2.6 Design methodology and tools

2.7 Binary translation and virtualization

2.8 Simulation platform

2.9 Compilation platform

TF Low power
TF Education and training
TF Applications
TF Reliability and availability

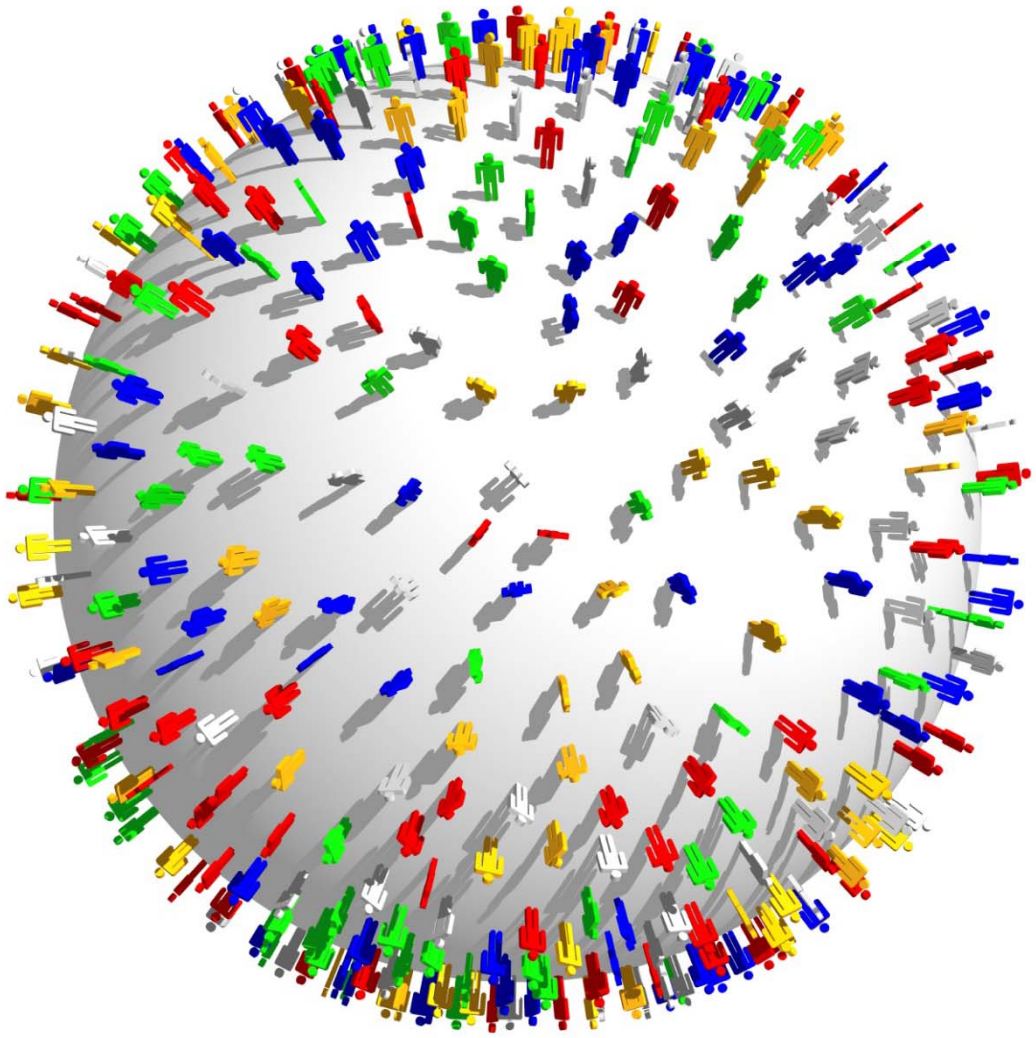


Research Collaboration

Research Collaboration

WP2: Research Program	# active members	# companies involved	# publication output	# joint papers	# joint papers with industry
T2.1: Multi-core architecture	64	8	68	16	3
T2.2: Programming models and OS	56	7	52	15	-
T2.3: Adaptive Compilation	51	7	44	6	2
T2.4: Interconnects	36	3	52	22	3
T2.5: Reconfigurable Computing	41	3	112	26	5
T2.6: Design methodology and Tools	43	6	38	8	2
T2.7: Binary Translation and Virtualization	42	10	7	4	1
T2.8: Simulation Platform	59	9	26	1	1
T2.9: Compilation Platform	47	7	38	12	2
Task Force on Education and Training	8	2	2	-	-
Task Force on Reliability and Availability	28	4	14	5	-
Task Force on Applications	23	2	46	21	-
Task Force on Low Power	16	1	11	3	-

WP3: Spreading excellence



- 3.1 Conference
- 3.2 Summer school
- 3.3 Journal
- 3.4 Roadmap
- 3.5 Newsletter
- 3.6 HiPEAC tech reports
- 3.7 Web site
- 3.8 Web seminars
- 3.9 Industrial workshops
- 3.10 Promoting start-ups
- 3.11 Award program

WP4: Management

4.1 Steering committee meetings

4.2 General assembly meetings

4.3 Reimbursement service

4.4 Membership management

4.5 Administrative staff

4.6 Technical staff

HiPEAC3

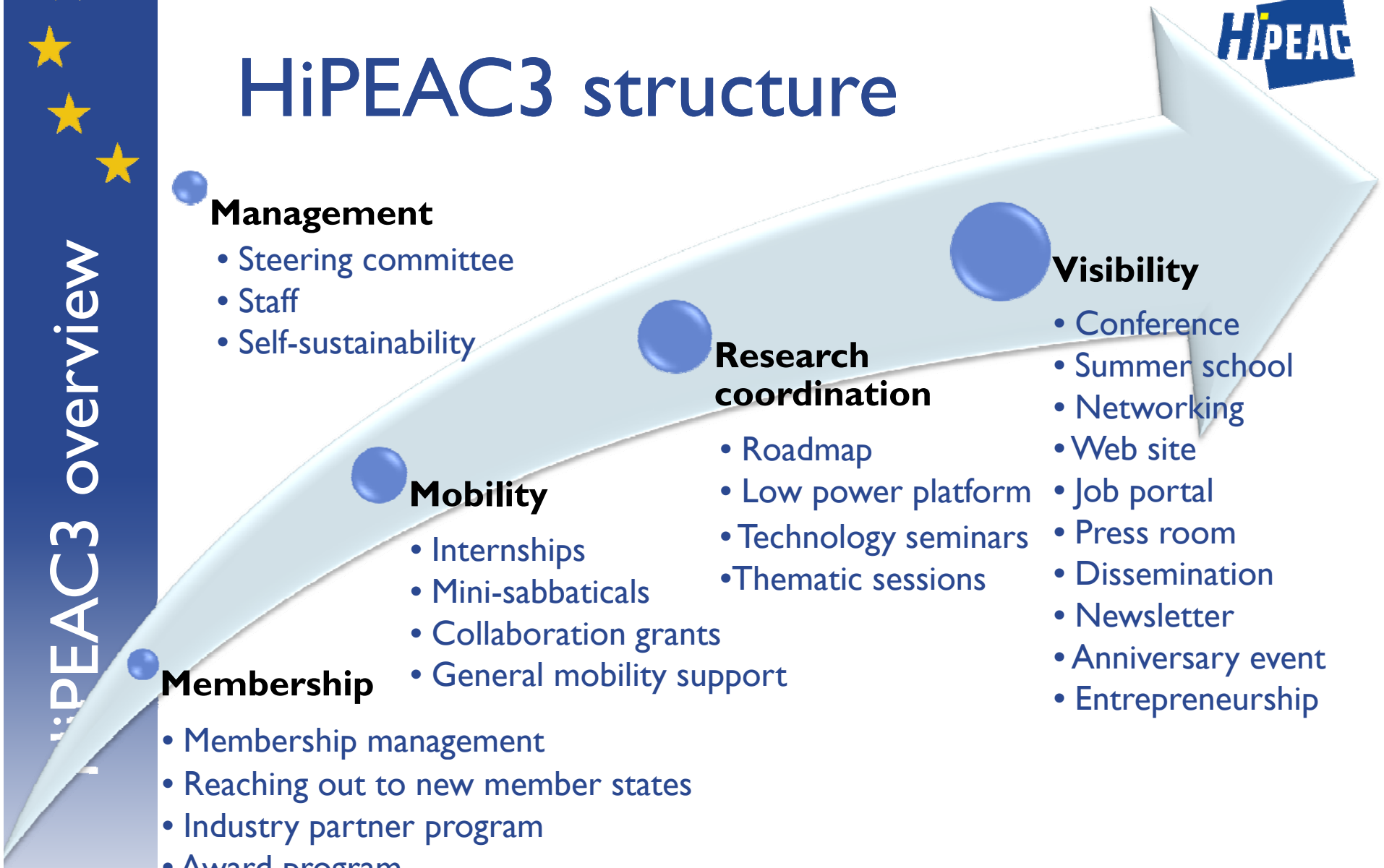
High-Performance and Embedded Architecture and Compilation

HiPEAC Partners

7 Key goals

- Increase industry participation
  - balancing the number of industrial and academic partners
  - dedicated industrial membership task
  - HiPEAC industry partner program
  - Technology transfer awards
- Reach out to new member states and beyond
- Grow the conference into a much bigger computing systems event
- Make Europe a more attractive working place for EU and non-EU researchers in computing systems – job portal.
- Improve HiPEAC roadmap on computing systems
- Support the European low power industry by promoting their platform ecosystems in the community
- Prepare the HiPEAC community for the challenges posed by upcoming technological changes (3D stacking, new memory types, …)

HiPEAC3 structure



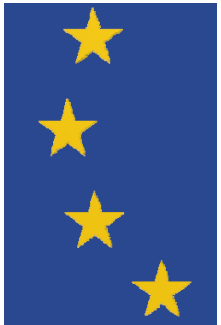
Management
- Steering committee
- Staff
- Self-sustainability

Membership
- Membership management
- Reaching out to new member states
- Industry partner program
- Award program

Mobility
- Internships
- Mini-sabbaticals
- Collaboration grants
- General mobility support

Research coordination
- Roadmap
- Low power platform
- Technology seminars
- Thematic sessions

Visibility
- Conference
- Summer school
- Networking
- Web site
- Job portal
- Press room
- Dissemination
- Newsletter
- Anniversary event
- Entrepreneurship



WP2: Mobility program

WP2: Mobility program

Coordinator: Mike O'Boyle, University of Edinburgh

- Task 2.1 Internships
- Task 2.2 Collaboration grants
- Task 2.3 Mini-sabbaticals
- Task 2.4 General mobility support

WP3: Research coordination program

Coordinator: Olivier Temam, INRIA

Task no.	Name	Aim	Leading partner
3.1	Roadmap	Long term vision development	CEA
3.2	Supporting European champions: a low power platform ecosystem	Support low power industry in EU	UEDIN
3.3	Technology seminars	Create technology awareness	INRIA
3.4	HiPEAC workgroups	Basic networking instrument	INRIA

Task 3.1: Bi-annual vision document

M. DURANTON, D. BLACK-SHAFFER, S. YEHIA, K. DE BOSSCHERE

http://www.hipeac.net/roadmap

The Roadmap Document

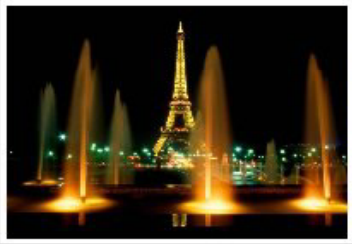
- Mainly focused at Europe; mainly covers
  - Embedded systems
  - Mobile systems
  - Data center computing
  - Energy efficiency
  - System complexity
  - Dependability
- Misses few other areas such as security.
- Few interesting conclusions; suggest to focus on (partial list)
  - global optimization of storage, communications, and processing with orders of magnitude less energy than today
  - Global integration of devices (IoT)
  - Intelligent Processing
  - Personalized services

Task 3.3 - Yearly HiPEAC Conference

Previous announcements

- HiPEAC '12: Keynotes available online
- HiPEAC '12 - Student Poster awards decided
- HiPEAC '12 Student Travel Grant Information
- HiPEAC '12: Call for Workshop papers
- HiPEAC '12: Call for papers
- A New Publication Model for HiPEAC
- Submission instructions for papers submitted to the Special Issue of HiPEAC
- Call for Workshops & Tutorials
- The 7th HiPEAC conference will take place in Paris

The 7th HiPEAC conference will take place in Paris



The HiPEAC conference provides a forum for experts in computer architecture, programming models, compilers, and operating systems for embedded and general-purpose systems. The conference aims at the dissemination of advanced scientific knowledge and the promotion of international contacts among scientists from academia and industry.

The 7th HiPEAC conference will take place in Paris, France from Monday 23 to Wednesday 25 January 2012. Associated workshops, tutorials, special sessions, a large poster session and an exhibition hall will run in parallel with the conference.

Previous editions:

- HiPEAC 2011, Heraklion, Crete, Greece
- HiPEAC 2010, Pisa, Italy
- HiPEAC 2009, Paphos, Cyprus
- HiPEAC 2008, Goteborg, Sweden
- HiPEAC 2007, Ghent, Belgium

HiPEAC 2012
hipeac2012

hipeac2012 ACM TACO special issue on HiPEAC: 34 papers of the main track now online on the digital library: dl.acm.org/citation.cfm?i...
47 days ago · reply · retweet · favorite

hipeac2012 Several participants are on a waiting list for the social event. Please inform the registration desk if you signed in then changed plans.
47 days ago · reply · retweet · favorite

hipeac2012 The organization committee wishes all participants a safe and pleasant

twitter
Join the conversation

Highlights

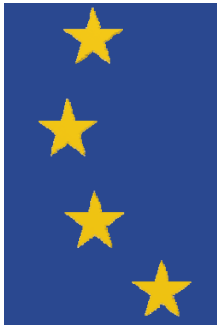
- New publication model with ACM TACO
- Keynote presentations
- Main track of invited presentations
- Parallel tracks with workshops
- Tutorials
- Student poster sessions
- Industrial exhibits
- Updates on ongoing FP7 projects in computing systems

Deadlines

- Workshops/tutorials: June 8, 2011

Task 3.4 - Computing systems weeks

Göteborg - April 2012



Task 3.4 HiPEAC thematic sessions

Task 3.4 HiPEAC thematic sessions

Topic	Partner/Member	Event
Multicore architecture	CHALMERS	Gothenburg CSW (U. Uppsala)
Design and simulation	RWTH	DATE 2012, Dresden
Virtualization	UGENT	Ghent
Roadmap workgroup	CEA	Ghent
Cloud computing	ERICSSON	Gothenburg
Mission critical applications	THALES	(HiPEAC 2013)
Interconnection networks	FORTH	HiPEAC 2012
Scalable storage and I/O	FORTH	(Tallinn 2013)
Parallel programming languages and models (incl. GPU)	BSC + FORTH	Gothenburg, Ghent
Exascale systems for scientific computing	BSC	HPC for Life Sciences, Brussels
Multicore-based hard-real time systems	BSC	Gothenburg
Reliability	U CYPRUS	Ghent
Parallelism discovery and mapping	UEDIN	Ghent
Compilation (ahead-of-time and just-in-time)	IBM	Compiler, Architecture and Tools Day
New technology seminars	INRIA	Gothenburg, Ghent
Reconfigurable computing	RECORE + CHALMERS	Gothenburg (CHALMERS), Ghent (RECORE)
Low power	ARM + UEDIN	Gothenburg, Ghent
Cloud-enabled client devices	ST	Ghent

Quarterly magazine

Task 4.2 Summer school

Yearly ACACES Summer school

HiPEAC COMPILATION ARCHITECTURE

Acaces '12

Eighth International Summer School on Advanced Computer Architecture and Compilation for High-Performance and Embedded Systems

8-14 july, 2012, Fiuggi, Italy

The growing sophistication and complexity of embedded applications requires similarly rapid increases in embedded systems performance. This trend is both a challenge for the embedded systems community and an opportunity for the emergence of novel technologies in architecture, compilation and programming.

The HiPEAC Summer School is organized by the HiPEAC Network of Excellence.

The European HiPEAC network of excellence addresses the design and implementation of high-performance commodity computing devices for embedded systems, covering both processor architecture and programming/ compilation infrastructure.

The goal of the HiPEAC network is to strengthen the research community in this domain, by gathering the leading European academic and industrial groups in one virtual center of excellence.

The "HiPEAC Summer School" is a **one week summer school for computer architects and compiler builders** working in the field of high performance computer architecture and compilation for embedded systems. The school aims at the **dissemination of advanced scientific knowledge and the promotion of international contacts** among scientists from academia and industry.

A distinguishing feature of this Summer School is its **broad scope** ranging from low level technological issues to advanced compilation techniques. In the design of modern computer systems one has to be knowledgeable about architecture as well as about the quality of the code, and how to improve it. This summer school offers the ideal mix of the two worlds – both at the entry level and at the most advanced level.

The summer school is **open to everybody** but previous training and/or experience in computer science as well as a background in computer architecture or compilation is indispensable.

News

- Early registration deadline: **31 March 2012**

Sponsored by

SEVENTH FRAMEWORK PROGRAMME

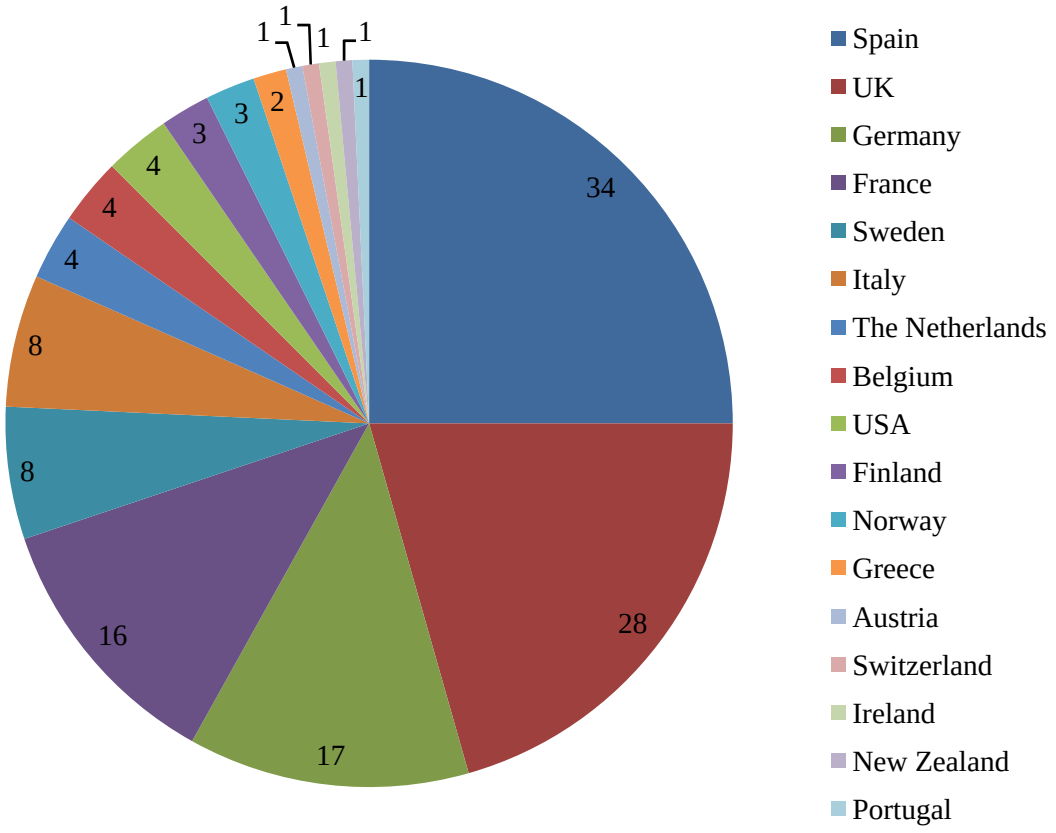
Steering Committee

- Chair: Koen De Bosschere, Ghent University, Belgium
- Emre Ozer, ARM, UK
- Mateo Valero, BSC, Spain
- Marc Duranton, CEA, France
- Per Stenström, Chalmers, Sweden
- Mike O'Boyle, University of Edinburgh, UK
- András Vajda, Ericsson, Sweden
- Manolis Katevenis, FORTH, Greece
- Bilha Mendelsohn, IBM Haifa, Israel
- Olivier Temam, INRIA Futurs, France
- Paul Heysters, Recore Systems, The Netherlands
- Rainer Leupers, RWTH Aachen, Germany

Task 4.5 Job portal

Task 4.5 Job portal

In 2012, 136 jobs were posted



HiPEAC Website

European Network of Excellence on High Performance and Embedded Architecture and Compilation

admin | ••••••••• | Login | Register

Home | Activities | Press room | Mobility | Research | Publications | Tools | Industry | Jobs | The Network | Contact | About

HiPEAC Press Release

- Innovations in computing systems are essential to countering European societal challenges
- Europe goes for computing technologies as driver for competitiveness

In the spotlight

- Call for thematic sessions for the Spring Computing Systems Week

ACACES 2012: 8 - 14 july 2012 (Fiuggi, Italy)

HiPEAC roadmap

Call for thematic sessions for the Spring Computing Systems Week

We are looking for members wishing to organize thematic sessions during the upcoming Computing Systems Week in Göteborg. Click here for more information.

Read more

Share / Save

Spring Computing Systems Week will take place in Göteborg!

Our next event is the computing systems week which will take place in Göteborg, Sweden, in the week of April 23. This event continues to be the biannual networking event for the HiPEAC community. New is that all members will have to opportunity to propose and organize workgroup meetings at the CSW. More news will follow in the coming weeks.

Read more

Share / Save

Newsletter

Clusters (HiPEAC2)

- Binary translation and virtualization
- Compilation
- Design and Simulation
- Interconnects
- Multi-core architecture
- Programming models and operating systems
- Reconfigurable computing
- TF Low Power
- TF on Applications
- TF on Education
- TF Reliability & Availability

What's next – Events and Activities

- As part of the ISCA's workshops, we intend to have an open discussion on "roadmap of the Computer Architecture – the next decay. http://isca2013.eew.technion.ac.il/
  - Two sessions:
    - General Purpose – High Performance
    - Devices and embedded systems (including cellular phones).

  You are welcome to attend/present
- We are planning to establish SIGARCH-EU, it will be great to collaborate on that.

Backup