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On behalf of the coordinator (Mateo Valero, UPC)  
and the Steering Committee



# Outline

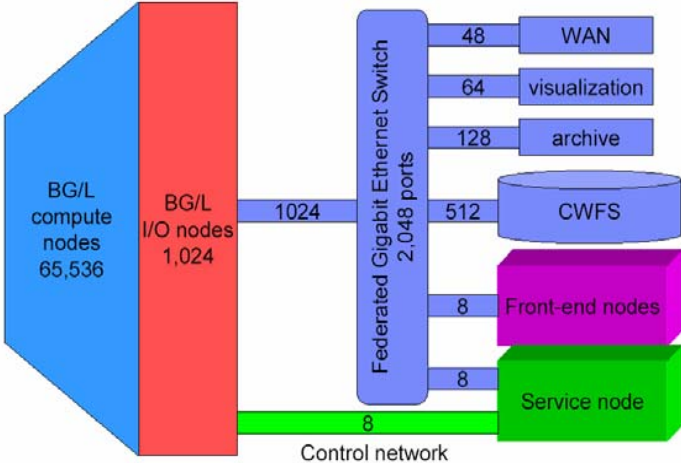
- **HiPEAC:**  
**High-Performance Embedded Architectures and Compilers**
  - Motivation
  - European context
  - HiPEAC
  - Who & Organization
  - Activities
- Overview HiPEAC-NSF (*Nacho Navarro, UPC*)
- *Liviu Iftode, Rutgers University*
- *Margaret Martonosi, Princeton University*

# Motivation (1)

- **Convergence** between high-performance & embedded computing



Nokia N-Gage

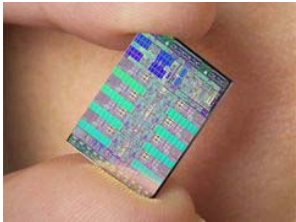
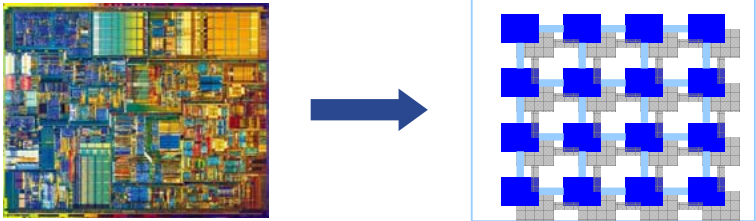


IBM BlueGene/L

USA-EU Workshop

# Motivation (2)

- Drastic architecture & compiler changes ahead
- Strong shift toward **CMP** (Chip Multi-Processors)
  - Complexity of single-core architectures
  - Moore's law slowing down (power,...)



The Cell

USA-EU Workshop

# European Context

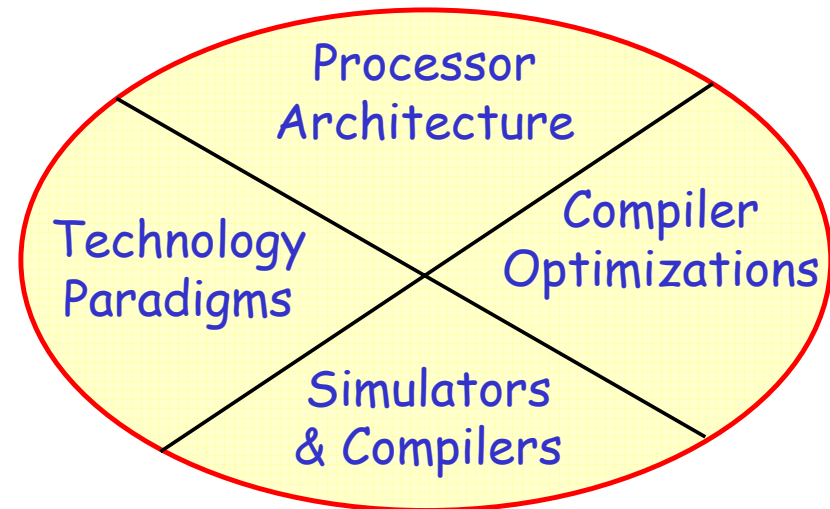
USA-EU Workshop

- Ambitious goals
  - Lisbon 2000 → Europe set itself the goal of becoming a world leader in IT
  - Barcelona 2002 → Invest 3% of GDP in research by 2010
- We need strong positions in all IT layers
  - Applications and software
  - OS / Run-time system software / Middleware
  - **Compilers**
  - **Computer architecture**
  - Electronic design tools
  - Integrated circuit fabrication
- Strong
  - companies in embedded computing
  - academic groups in high-performance & embedded computing



## HiPEAC

- Key research issues:
  - Next processor architectures ?
  - How to program them efficiently ?
- Better cooperation between architecture/compiler communities
- Common platforms
  - Simulation
  - Compilation



# Who & Organization

- Started September 2004
- ~70 persons, in 9 Countries
- A steering committee (10 persons)
- An industrial advisory board

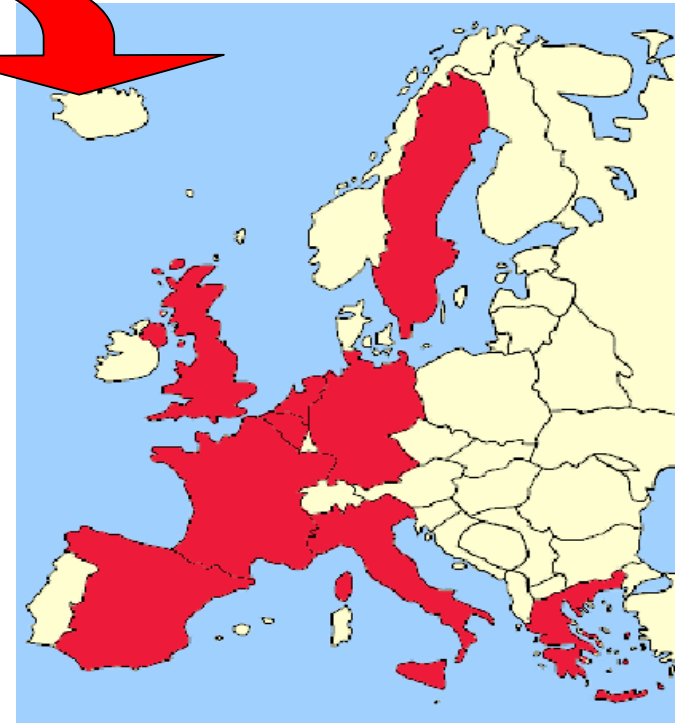
## Academic partners

Chalmers University, **SE**  
CNRS, **FR**  
TU Delft, **NL**  
Edinburgh University, **UK**  
Ghent University, **BE**  
INRIA, **FR**  
University of Augsburg, **DE**  
FORTH, **GR**  
University of Pisa, **IT**  
UPC, **ES**

## Industrial partners

ARM , **UK**  
STMicro, **FR**  
Infineon, **DE**  
(Virtutech, **SE**)  
IBM Haifa, **IL**  
Kayser Italia, **IT**  
(Philips Research, **NL**)

USA-EU Workshop



- Roadmap
- **Research clusters**
- Common platforms
- Summer school
- Conference & Journal
- Newsletter
- Misc:
  - video seminars,
  - web site,
  - computing platform,...

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