European Exascale Software Initiative

IESP meeting

San Francisco, 6-7 April 2011

Introduction

Jean-Yves Berthou, EDF R&D
EESI coordinator
Characteristics of the EESI project

Coordination and support action – FP7/Infrastructures

Coordinator: EDF R&D, Jean-Yves Berthou
Starting date: 1st of June 2010, for 18 months
Requested EC contribution: 640 000 €
Consortium: 8 contractual partners:

17 associated participants
About 120 contributing participants

The project has received funding from the European Community's Seventh Framework Programme (FP7/2007-2013) under grant agreement n° 261513
EESI associated participants
Motivations for launching EESI

**Coordinate** the European contribution to IESP

**Enlarge** the European community involved in the software roadmapping activity

**Build and consolidate** a vision and roadmap at the European Level, including applications, both from academia and industry
EESI main goals

Build a European **vision and roadmap** to address the challenge of performing scientific computing on the new generation of computers which will provide **multi-Petaflop** performances in 2010 and **Exaflop** performances in 2020

- investigate how Europe is located, its strengths and weaknesses, in the overall international HPC landscape and competition
- identify priority actions
- identify the sources of competitiveness for Europe induced by the development of Peta/Exascale solutions and usages
- Are European stakeholders willing/able to build an exa-scale prototype/by when?
- investigate and propose programs in education and training for the next generation of computational scientists
- identify and stimulate opportunities of worldwide collaborations
European Exascale Software Initiative AGENDA

**Initial International workshop**
- Enabling technologies for Exaflop computing
  - Hardware roadmap, links with vendors
  - Software eco-systems
  - Numerical libraries, solvers and algorithms
  - Scientific software engineering
- Final conference: public presentation of project result

**Application Grand Challenges**
- Industrial and Engineering Applications (Transport, Energy)
- Weather, Climatology and Earth Sciences
- Fundamental Sciences (Chemistry, Physics)
- Life science, Health, BPM
- Synthesis of all contributions and production of a set of recommendations

**Constitution of WG, Setup of guidelines, organisation modes**
- Initial cartography of existing HPC projects, initiatives in Europe, US and ASIA
- Updated cartography of existing HPC projects, initiatives in Europe, US and ASIA

**Important Dates**
- T0: June 1, 2010
- T0+5: October 2010
- T0+12: June 2011
- T0+16: November 2011