INTERTWINE
Project ID: 671602
Funded under: H2020-EU.1.2.2. - FET
Proactive

Programming Model INTERoperability ToWards Exascale (INTERTWinE)

From 2015-10-01 to 2018-09-30 | INTERTWINE Website

Project details

<table>
<thead>
<tr>
<th>Total cost:</th>
<th>EU contribution:</th>
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<td>EUR 3 861 400,99</td>
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<th>Coordinated in:</th>
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<tr>
<td>United Kingdom</td>
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<th>Topic(s):</th>
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<tr>
<td>FETHPC-1-2014 - HPC Core Technologies, Programming Environments and Algorithms for Extreme Parallelism and Extreme Data Applications</td>
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<th>Call for proposal:</th>
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<td>H2020-FETHPC-2014</td>
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<tr>
<th>Funding scheme:</th>
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<td>RIA - Research and Innovation action</td>
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Objective

This project addresses the problem of programming model design and implementation for the Exascale. The first Exascale computers will be very highly parallel systems, consisting of a hierarchy of architectural levels. To program such systems effectively and portably, programming APIs with efficient and robust implementations must be ready in the appropriate timescale. A single, “silver bullet” API which addresses all the architectural levels does not exist and seems very unlikely to emerge soon enough. We must therefore expect that using combinations of different APIs at different system levels will be the only practical solution in the short to medium term. Although there remains room for improvement in individual programming models and their implementations, the main challenges lie in interoperability between APIs. It is this interoperability, both at the specification level and at the implementation level, which this project seeks to address and to further the state of the art.

INTERTWinE brings together the principal European organisations driving the evolution of programming models and their implementations. The project will focus on seven key programming APIs: MPI, GASPI, OpenMP, OmpSs, StarPU, QUARK and PaRSEC, each of which has a project partner with extensive experience in API design and implementation. Interoperability requirements, and evaluation of implementations will be driven by a set of kernels and applications, each of which has a project partner with a major role in their development. The project will implement a co-design cycle, by feeding back advances in API design and implementation into the applications and kernels, thereby driving new requirements and hence further advances.

Related information

Report Summaries

Periodic Reporting for period 2 - INTERTWINE (Programming Model INTERoperability ToWards Exascale (INTERTWinE))

News

The race toward exascale supercomputing targets 2020
The semiotics of supercomputers
**Coordinator**

THE UNIVERSITY OF EDINBURGH  
OLD COLLEGE, SOUTH BRIDGE  
EH8 9YL EDINBURGH  
United Kingdom

**Activity type:** Higher or Secondary Education Establishments

**EU contribution:** EUR 823,750

**Participants**

<table>
<thead>
<tr>
<th>Activity type</th>
<th>Organisation</th>
<th>Country</th>
<th>EU contribution</th>
</tr>
</thead>
</table>
| **Research Organisations** | BRINELVAGEN 8  
100 44 STOCKHOLM  
Sweden | Sweden | EUR 315,000 |
| **Higher or Secondary Education Establishments** | DOMAINE DE VOLUCEAU ROCQUENCOURT  
78153 LE CHESNAY CEDEX  
France | France | EUR 344,544,74 |
| **Research Organisations** | FRAUNHOFER GESELLSCHAFT ZUR FOERDERUNG DER ANGEWANDTEN FORSCHUNG E.V.  
HANSASTRASSE 27C  
80686 MUNCHEN  
Germany | Germany | EUR 556,250 |
DEUTSCHES ZENTRUM FUER LUFT - UND RAUMFAHRT EV
Linder Hoehe
51147 KOELN
Germany
See on map

Activity type: Research Organisations

Contact the organisation

EU contribution: EUR 344 858,75

T-SYSTEMS SOLUTIONS FOR RESEARCH GMBH
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82234 WESSLING
Germany
See on map

Activity type: Private for-profit entities (excluding Higher or Secondary Education Establishments)

EU contribution: EUR 250 125

UNIVERSITAT JAUME I DE CASTELLON
AVENIDA VICENT SOS BAYNAT S/N
12006 CASTELLON DE LA PLANA
Spain
See on map

Activity type: Higher or Secondary Education Establishments

EU contribution: EUR 396 750

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OXFORD ROAD
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United Kingdom
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Activity type: Higher or Secondary Education Establishments

EU contribution: EUR 308 872,50

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