Exascale-ready workflows for future exascale systems

The emergence of powerful computers and advanced numerical algorithms has enabled more realistic simulation of complex systems through the use of artificial intelligence technologies. One of the fields that require exascale computing is computational fluid dynamics (CFD), which is crucial in both engineering and academic workflows. The EU funded CEEC project will adopt exascale-ready workflows to tackle challenges for future exascale systems, including those provided by EuroHPC. The project will utilise accelerated hardware architectures and innovative adaptive mixed-precision calculations to achieve substantial gains in energy efficiency, and highlight new and improved algorithms for next generation
exascale architectures. CEEC will develop five lighthouse examples covering physical and engineering topics of interest, which span the entire spectrum of CFD applications.

**Fields of science**

natural sciences > computer and information sciences > artificial intelligence
natural sciences > physical sciences > classical mechanics > fluid mechanics > fluid dynamics > computational fluid dynamics
engineering and technology > electrical engineering, electronic engineering, information engineering > electronic engineering > computer hardware > supercomputers

**Keywords**

CFD  Exascale  Algorithms

**Programme(s)**

HORIZON.2.4 - Digital, Industry and Space  MAIN PROGRAMME

**Topic(s)**

HORIZON-EUROHPC-JU-2021-COE-01-01 - Centres of Excellence preparing applications in the Exascale era

**Call for proposal**

HORIZON-EUROHPC-JU-2021-COE-01

See other projects for this call

**Funding Scheme**

HORIZON-JU-RIA - HORIZON JU Research and Innovation Actions

**Coordinator**
KUNGLIGA TEKNISKA HOEGSKOLAN

Net EU contribution
€ 590 105,63

Address
Brinellvagen 8
100 44 Stockholm
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Region
Östera Sverige > Stockholm > Stockholms län

Activity type
Higher or Secondary Education Establishments

Links
Contact the organisation  Website  Participation in EU R&I programmes  HORIZON collaboration network

Other funding
€ 590 105,62

Participants (7)

ARISTOTELIO PANEPISTIMIO THESSALONIKIS

Greece
Net EU contribution
€ 216 406,00

Address
Kedea building, tritis septemvriou, aristotle university campus
546 36 Thessaloniki

Region
Βόρεια Ελλάδα > Κεντρική Μακεδονία > Θεσσαλονίκη

Activity type
Higher or Secondary Education Establishments

Links
Contact the organisation  Website  Participation in EU R&I programmes  HORIZON collaboration network
BARCELONA SUPERCOMPUTING CENTER CENTRO NACIONAL DE SUPERCOMPUTACION

Spain

Net EU contribution

€ 577 343,75

Address

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08034 Barcelona

Region

Este > Cataluña > Barcelona

Activity type

Research Organisations

Links

Contact the organisation Website Participation in EU R&I programmes HORIZON collaboration network

Other funding

€ 577 343,75

FRIEDRICH-ALEXANDER-UNIVERSITAET ERLANGEN-NUERNBERG

Germany

Net EU contribution

€ 699 218,75

Address

Schlossplatz 4
91054 Erlangen

Region

Bayern > Mittelfranken > Erlangen, Kreisfreie Stadt

Activity type

Higher or Secondary Education Establishments
UNIVERSITY OF STUTTGART
Germany
Net EU contribution
€ 909 875,00
Address
Keplerstrasse 7
70174 Stuttgart
Region
Baden-Württemberg › Stuttgart › Stuttgart, Stadtkreis
Activity type
Higher or Secondary Education Establishments
Links
Contact the organisation  
Website  
Participation in EU R&T programmes  
HORIZON collaboration network  
Other funding
€ 909 875,00

UMEA UNIVERSITET
Sweden
Net EU contribution
€ 513 593,75
Address
Universitetomradet
901 87 Umeå
Region
Norra Sverige › Övre Norrland › Västerbottens län
**Activity type**
Higher or Secondary Education Establishments

**Links**
- Contact the organisation
- Website
- Participation in EU R&I programmes
- HORIZON collaboration network

**Other funding**
€ 513 593,75

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**DANMARKS TEKNISKE UNIVERSITET**

**Net EU contribution**
€ 241 375,00

**Address**
Anker engelunds vej 101
2800 Kongens lyngby

**Region**
Danmark > Hovedstaden > Københavns omegn

**Activity type**
Higher or Secondary Education Establishments

**Links**
- Contact the organisation
- Website
- Participation in EU R&I programmes
- HORIZON collaboration network

**Other funding**
€ 241 375,00

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**BUNDESANSTALT FUER MATERIALFORSCHUNG UND -PRUEFUNG**

**Net EU contribution**
€ 158 437,50

**Address**
Unter den eichen 87
12205 Berlin
Berlin

Activity type
Research Organisations

Links
Contact the organisation  Website  Participation in EU R&I programmes  HORIZON collaboration network

Other funding
€ 158 437,50

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