



DEISA



# Proposal

## for a challenging project within the DEISA Extreme Computing Initiative (DECI-6)

*DEISA is an EU FP7 Research Infrastructure Project to advance computational sciences in the area of supercomputing in Europe.*

*The DEISA Extreme Computing Initiative is aiming at leading, ground breaking applications in selected areas of science and technology dealing with complex, demanding, innovative simulations with a label of excellence from at least one national evaluation committee.*

*The initial focus on “Grand Challenge” applications with only little or moderate application enabling work for the DEISA environment has been expanded to include medium to long term support for important complex application enabling.*

Please mail this **Proposal** to the DEISA Executive Committee [execomm@deisa.eu](mailto:execomm@deisa.eu) (and in cc to: [ataskf@deisa.eu](mailto:ataskf@deisa.eu)) not later than **February 16, 2010**.  
For technical questions please contact the DEISA Applications Task Force [ataskf@deisa.eu](mailto:ataskf@deisa.eu)

<b>Project Title</b>	
<b>Project Acronym</b> (maximum 8 characters)	
<b>Principal Investigator</b>	



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## DEISA Extreme Computing Initiative

### *Principal Investigator*

<i>Institution:</i>	
<i>Name of Investigator:</i>	
<i>Street address:</i>	
<i>City and postal Code:</i>	
<i>Country:</i>	
<i>Email:</i>	
<i>Phone (incl. country code):</i>	

### *Further investigator from a different institution*

<i>Institution:</i>	
<i>Name of Investigator:</i>	
<i>Street address:</i>	
<i>City and postal Code:</i>	
<i>Country:</i>	
<i>Email:</i>	
<i>Phone (incl. country code):</i>	

In case of further cooperating institutions, please extend the above table.

**Research area:** <please describe the research area here, and also tick one box only below>

<b>Principle area</b>	
<i>Astrophysics</i>	<input type="checkbox"/>
<i>Bio-Sciences</i>	<input type="checkbox"/>
<i>Earth Sciences</i>	<input type="checkbox"/>
<i>Engineering</i>	<input type="checkbox"/>
<i>Materials Science</i>	<input type="checkbox"/>
<i>Plasma Physics</i>	<input type="checkbox"/>



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<i>Particle Physics</i>	<input type="checkbox"/>
<if 'Other', specify here>	<input type="checkbox"/>



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Type of proposal with respect to resource requirements

	low	medium	high
Computing time requirements: <b>total number of core-hours</b>			
Computational resources requirements: <b>number of cores per job</b>			
<b>Storage requirements</b> within DEISA			
Requirements for <b>application enabling</b>			

Proposals with 'application enabling requirements only' will also be considered.

For the above table, examples for low, medium or high requirements are:

core-hours: low: < 300 k core hours; high: > 1 M core hours  
 number of cores: low: < 128 cores per job; high: => 1024 cores per job  
 storage resources: low: < 500 GB; high: > 5 TB  
 application enabling: low: < 1 FTE month; high: > 3 FTE months  
 where

FTE is a Full Time Equivalent of a single person;  
 low implies limited migration effort, else application requires specific fine tuning and optimization, and potentially includes eventual redesign (I/O redesign, scalability extension, workflow design, etc.);  
 medium: 1 FTE more than 1 month and less than 3 months;  
 high: 1 FTE more than 3 and less than 6 months.

## Resource Requirements per Application

If you have more than one application, i.e. a pre-processor, post-processor, workflow of applications, etc., then please **copy this table for each application**

<b>Total number of core hours</b> <i>(elapsed time of a single run)*</i> <i>(number of cores used in a single run) *</i> <i>(total number of runs).</i> <i>Include a lower bound, if relevant.</i>	
<b>Type of core, clock rate and architecture on which this Total number of core hours requirement is based</b> (i.e. IBM Power5/Power6/ PowerPC, SGI Itanium-2, NEC SX-8 or Cray XT4/XT5 Opteron)	
<b>Requirements for a typical run</b>	
<i>Maximum number of usable cores</i>	

<i>Minimal memory per core (GB) at maximum number of cores</i>	
<i>Total memory for smallest target problem</i>	
<i>Total memory for largest target problem</i>	
<i>Temporary disk space requirement during a single run (input, output, restart files, etc.)</i>	
<i>Storage requirements for the total project (incl. mass storage)</i>	
<i>Name of application and role (i.e. pre-processor, main application, etc)</i>	
<i>Pure MPI or mixed-mode (MPI + OpenMP) communication</i>	
<i>Own / 3<sup>rd</sup> party code</i>	
<i>Own / 3<sup>rd</sup> party input files</i>	
<i>Code commercial (yes/no)?</i>	
<i>Code publicly available (yes/no)?</i>	
<i>Commercial library requirements</i>	
<i>Non-commercial library requirements</i>	
<i>Architecture(s) where application is already used in production, if any</i>	
<i>Site name(s) where application is already used in production, if any</i>	
<i>Preferred target architecture(s)</i>	
<i>Data management tools requirements, i.e. if runtime access to remote databases is required, are they public or private?</i>	
<i>Application enabling work requirements (porting, code optimisations - single core and/or improved scaling)</i>	
<i>Any other requirements</i>	
<i>Physical problem simulated (e.g. MHD, CFD, Solid Mechanics, MD, weather, QCD, galaxy formation, etc.)</i>	
<i>Main computation kernel (e.g. SPH, T/DFT, FEM, FVM, Spectral, etc.)</i>	
<i>DEISA middleware requirements/preferences (UNICORE, DESHL, GridFTP, etc.)</i>	



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# DEISA Extreme Computing Initiative

**Project Title:**

**Project Acronym:**

**Abstract:**

*(150 – 300 words, ready for publication on the DEISA web pages in the event the proposal is accepted; please delete this sentence in your text)*

## **Detailed Project Description and Relevance for DEISA**

*Please provide 3-4 pages, including:*

- 1. scientific objectives*
- 2. scientific and technical innovation potential*
- 3. current profile and performance of code(s), including scalability, requirements on interconnect, I/O, architecture, clarification of how requested core-hours was calculated, are jobs independent, chained and/or workflows, etc.*
- 4. computational objectives*
- 5. specific benefits expected from DEISA*
- 6. summary*