

Call for proposals for the use of the HPC for Fusion

Deadline for answers (first round)
31st January 2012

At its meeting in Culham on 6th October 2008, the EFDA Steering Committee approved the HPC Implementing Agreement (EFDA (08) 39/4.1), enabling operation and exploitation by the European fusion community of the HPC for Fusion (HPC-FF), a dedicated European high performance computer for fusion applications which has been built at the Forschung-Zentrum Jülich Supercomputing Centre (JSC). The HPC-FF started its operation on 6th August 2009.

In order to make efficient use of this European facility, we would like to invite your association staff to propose project(s) to be run on the HPC-FF. Projects shall concern fusion R&D and primarily deal with numerical simulations in the following areas:

- Plasma Turbulence
- Fast particle physics
- Nonlinear and/or Extended MHD
- Edge physics
- Radio-Frequency Heating and Current Drive
- Physical Modelling of Materials and DEMO related studies

Applications that are particularly suited for use on the HPC-FF are large, highly scalable parallel applications requiring exceptional computational resources: the minimum requirements suggested are **300,000** CPU hours per year (CPU = one core of Intel “Nehalem-EP” (quad core) processor @ 2.93GHz).

The proposal should detail the scientific objectives of the project, the numerical tools used and the required resources following the attached “**Template for applications_CPU.doc**”.

Proposals will be selected according to a selection process defined by the HPC Board; only proposals which are technically fit for the HPC-FF will be kept while the final selection will be made according to the scientific merit of the proposals taking into account the following criteria:

- a) Importance for Fusion and achievability
- b) Computational suitability of the project
- c) Innovation potential and scientific excellence
- d) Level of EU collaboration

In addition the proposals will be checked (if applicable) against the achievements of the objectives of similar projects in the previous HPC-FF Calls and corresponding reporting obligations.

It is the sole responsibility of the applicants to ensure the required software to execute the project is licensed for HPC-FF use (if applicable) and is compatible with HPC-FF architecture.

The amount of nodes available for the users is in principle limited to 512 nodes for a single run; however in exceptional cases the possibility of using all HPC-FF resources (up to 1080 nodes) might be offered. Requests for more than 512 nodes should be indicated in the application form with proper justification; they will be subjected to an additional review process.

EFDA is applying for some CPU time through the PRACE consortium. If this application is successful then some proposals submitted under this Call will be selected to receive PRACE (<http://www.prace-project.eu/>) resources on suitable available architectures.

The proposals for the first round should arrive at EFDA CSU (duarte.borba@efda.org) with copy to the HPC Board Chairperson Tim Hender tim.hender@ccfe.ac.uk and to the administrator for HPC-FF applications Anja Bauer (ajw@ipp.mpg.de), by **31 January 2012**. Successful projects will be implemented on the HPC-FF starting from 1st June 2012. Since the HPC Implementing Agreement completes on 30th April 2013, **CPU time can only be awarded for 11 months** – please take this into account in the request for CPU time.

The call for proposals will remain open until 1st October 2012, therefore proposals can be submitted later in the year and will be **evaluated in July and November**.

It should be noted, however, that the majority of the CPU resources will be allocated to the first proposals. The CPU time for projects submitted later will be granted according to the availability of the CPU resources.

After completion of the project a short written report (i.e. 1-2 pages) presenting the main results is required from the project coordinator and shall be sent to the HPC Board Secretary (duarte.borba@efda.org).