

FF4EuroHPC: HPC Innovation for European SMEs

EuroHPC Project 951745 <https://www.ff4eurohpc.eu>

Call for Proposals for HPC Application Experiments

FF4EuroHPC is funded by the EuroHPC Joint Undertaking (EuroHPC JU) within the section of its work programme covered by the call H2020-JTI-EuroHPC-2019-2, topic EuroHPC-05-2019, “Stimulating the innovation potential of SMEs”. The project will contribute to the achievement of the broader EuroHPC goals in addition to those of the abovementioned specific topic:

- *Increasing the innovation potential of industry, and in particular of SMEs, using advanced High Performance Computing (HPC) infrastructures, applications and services.*
- *Providing access to HPC-based infrastructures and services to a wide range of users - in the FF4EuroHPC context, specifically industrial users and SMEs in particular - for new and emerging data and compute-intensive applications and services.*
- *Fostering wider innovations, for example by exchanging and promoting best practice use cases or application experiences.*
- *Providing an effective mechanism for inclusion of innovative, agile SMEs lowering the barriers for small actors to enter the market and exploit new business opportunities.*

FF4EuroHPC is a successor project to the Fortissimo and Fortissimo 2 projects, funded within the Factories of the Future (ICT for Manufacturing SMEs) work programmes of the European Commission’s 7th Framework Programme and Horizon 2020 Framework Programme.

This call for proposals targets highest quality experiments involving innovative, agile SMEs and with work plans built around innovation targets arising from the use of advanced HPC services. Proposals are sought that address business challenges from European SMEs from varied application domains, but preference being given to engineering and manufacturing, or sectors able to demonstrate fast economic growth or particular economic impact for Europe. Priority will be given to consortia centred on SMEs that are new to the use of advanced HPC services; in particular, a prior involvement in the Fortissimo or Fortissimo 2 projects would require the innovation aspects for the proposed experiment to be clearly justified, the same applies for activities already funded through other programs.

The key concept behind FF4EuroHPC is to demonstrate to SMEs how they can strongly benefit from the use of advanced HPC services (for example, modelling & simulation, data analytics, machine-learning and AI, and possibly combinations thereof) and thereby take advantage of these innovative ICT solutions for business benefit. Europe has all of the components to enable, in particular, engineering and manufacturing SMEs to benefit from these new technologies: public and private HPC and HPDA resource providers; modelling, simulation, data analytics and AI experts; a thriving Independent Software Vendor (ISV) sector; and excellent public and private applied research organisations.

The FF4EuroHPC project is organised around the portfolio of experiments using HPC resources, technologies and advanced services to address SMEs' business needs and thereby creating innovation potential for the participating SMEs. These will create demonstrations to the corresponding industrial sectors of the impact and business benefits, thus promoting the widening of the HPC user base.

The FF4EuroHPC experiments will not be restricted to collaboration with the HPC Centres within FF4EuroHPC and collaboration with the new HPC Competence Centres¹ (and deploying the HPC systems of that extended set) is encouraged.

FF4EuroHPC will organise two calls for proposals for HPC application experiments. “Call-1”, covered by this document, addresses experiments executing for a 15-month period, with expected commencement in June 2021.

With respect to the objective to promote a widening of the HPC user base amongst European SMEs, FF4EuroHPC seeks to achieve a broad geographical distribution of participants. In particular, SMEs based in countries with a previously low level of HPC adoption are encouraged to submit a proposal and may expect to be assisted by their national HPC Competence Centre.

Furthermore, demonstrating additional innovation potential beyond that achieved within the prior Fortissimo and Fortissimo 2 projects is extremely important, and complementarity with respect to those experiments is thus a priority (a description of the existing Fortissimo and Fortissimo 2 experiments can be found at:

<http://www.fortissimo-project.eu/experiments>). For the sake of clarity, there is no requirement for FF4EuroHPC experiments to have links to the prior Fortissimo projects.

¹ For more info see the EuroCC website: <https://www.eurocc-project.eu/>

Expectations for the experiments

The expectations for the proposed experiments are that they should:

- Involve all necessary parties required for the effective and efficient execution of the investigation and impact demonstration to address SME business challenges through the use of HPC systems or advanced HPC services. Appropriate technical management within an experiment is a necessary component.
- Define the resources they need and budget for them, possibly using computing resources provided directly by the EuroHPC JU or through national actions such as, but not restricted to, the HPC National Competence Centres. (FF4EuroHPC will not be in a position to provide computing resources).
- Define the data protection and data/information access issues that impact its proposed work plan and ensure that the operation of the experiment adheres to those requirements.
- Generate publishable success stories – preferably in multi-media form – based on solution of the SME’s real-world problems that clearly identify the business benefits realised or obtained.
- Align, where appropriate, with regional priorities, such as industrial specialisation areas.
- Be complementary to those already included in the past Fortissimo and Fortissimo 2 projects.

Taking into consideration the first two points above, proposers are encouraged to include a European HPC Centre within the consortium for the proposed experiment.

In the context of the FF4EuroHPC open calls, complementarity of experiments is understood to mean activities that address new applications, services, business cases, industrial sectors and market segments and the enhancement of the project’s ability to demonstrate the impact of the Fortissimo approach for a broad set of industrial users. Extensions of past experiments are thus not considered to be complementary.

As previously mentioned, priority will be given to experiments that are driven by the requirements of first-time users of advanced HPC services and which address business challenges of European SMEs, with an emphasis on those from engineering and manufacturing, but also from sectors able to demonstrate fast economic growth or particular economic impact for Europe. **The business-relevance of the application experiments is essential**, as FF4EuroHPC places considerable emphasis on the exploitation of opportunities at all levels of the value chain ranging from the end-user, through Independent Software Vendors (ISVs), domain experts and technology providers to the HPC infrastructure provider.

Innovation in the experiments shall be addressed at all levels of the value chain:

- (1) End-users get access to HPC resources, technologies and advanced services that are novel to them.
- (2) Independent software vendors provide access to their software and ensure the full and effective use of available HPC resources.
- (3) Domain and software experts deliver the innovative ICT solution to the end-user while making sure that the HPC resources are used effectively
- (4) Resource providers arrange efficient, secure and adequately private access to well-managed HPC resources.

Proposal submission

Detailed instructions for proposal submission, together with information about the evaluation criteria to be applied, are provided online at:

<https://www.ff4eurohpc.eu/calls/submission>.

Submission deadline for FF4EuroHPC Call-1:

submission will be exclusively in electronic form and all submissions must be made by 17:00 Brussels local time, 27th January, 2021.

FF4EuroHPC will make use of the Financial Support for Third Parties method² to enable the inclusion of new experiment partners. The indicative total funding budget for Call-1 is €3 M.

The funding for an individual experiment may not exceed €200 K (covering all participants). Proposers should consider their actual needs and not target this figure. The evaluation will take into account the appropriateness of the requested resources.

The maximum funding that can be allocated to any Third Party, across all FF4EuroHPC experiments in which that Third Party is involved, is €150 K.

While the participation of certain³ FF4EuroHPC beneficiaries in experiments is eligible, the costs for their activities in experiments are not included within the requested funding for experiments.

FF4EuroHPC reserves the right to make the appropriate and necessary budget cuts in the case that erroneous budget data is included in accepted proposals.

² Integration of new Third Parties will conform with the Horizon 2020/EuroHPC JU grant agreements

³ Specified in the FF4EuroHPC Grant Agreement and excluding those beneficiaries involved in the coordination and evaluation activities linked to the open calls.