![Fortissimo Plus logo]
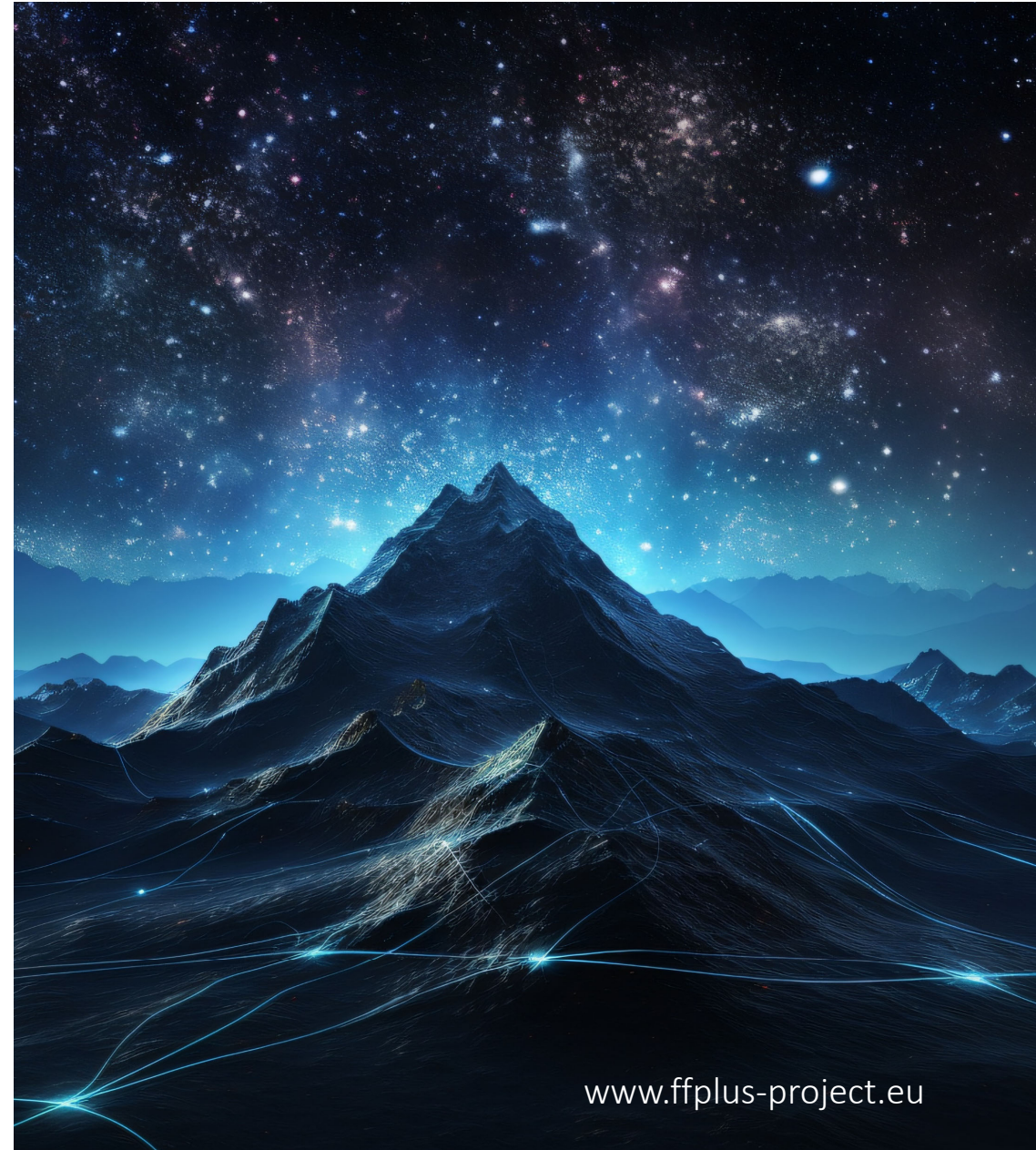
FORTISSIMO
PLUS

First Call for Business Experiments addressing the uptake of HPC by SMEs

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www.ffplus-project.eu

Overview

- Intro to the Fortissimo Approach & the FFplus project
  - HPC for Business Innovation, Fortissimo Success Stories

- FFplus Call-1 Type-1:
  Business experiments addressing the uptake of HPC by SMEs
    - Objectives; expectations; funding & eligibility

- Summary of info sources and submission procedure

Fortissimo & Fortissimo-2

Fortissimo – 2013-2016

- Business relevant investigations and demonstrations of simulation services in the Fortissimo HPC Cloud creating <u>future business benefits for manufacturing SMEs</u>

Fortissimo 2 – 2015-2018

- Demonstrating the business potential of an ecosystem for HPC-Cloud services, specifically for applications involving <u>simulation of coupled physical processes or high-performance data analytics.</u>

Political context

- All major economies world-wide are investing in large supercomputers on the road to Exascale
- EuroHPC is a major commitment by the European Union
- Business Case is for **Science and Industry**
- European citizens expect their taxes to be spent wisely for the good of everyone
- We must ensure our Universities **and** our Companies can access and benefit from investment in supercomputing

The Fortissimo Approach

- Execution of „experiments" with SMEs, delivering real business impact through use of HPC

- The bulk of project funding is used for these experiments and the highest quality, innovative SME-oriented experiments are acquired through the execution of **open calls for proposals**

FF & FF-2 executed 92 experiments generating 79 impressive, business-oriented success stories

https://www.fortissimo-project.eu/

Examples of business benefits

Ergolines Success Story

- SME based in Italy
- Speciality steels technology
- Simulation of slag carry-over from ladle to tundish
  - New monitoring system developed
  - Better overall steel quality
  - Reduced re-melting
- Reduced steel loss by 6,000 tonnes per year
- Savings between 420,000 € - 600,000 € per year

Ergolines received the IDC HPC Innovation Award 2016 for their demonstration of economical benefit of using HPC during their Fortissimo experiment.

Experiment Partners:
Ergolines
Arctur
- SME Industrial End-user
- HPC Centre / Expert

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Sports-car aerodynamics - Koenigsegg

- The SME Koenigsegg designs & manufactures high-performance sports-cars
- Aerodynamics development for the Koenigsegg One:1 - HPC-based CFD:
- 250km/h → 250% higher down-force
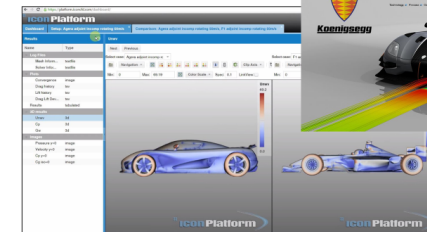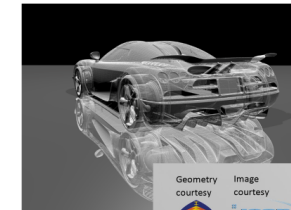- 440 km/h → 50% higher down-force

Benefits of Cloud-based HPC
- Reduce design costs by 30%
- Reduce wind tunnel testing by 50%
- Reduce prototyping costs by 60%
- Reduce time-to-market by 30%

Experiment Partners:
Koenigsegg
ICON
NTUA
CINECA
- SME Industrial End-user
- ISV
- HPC Expert
- HPC Centre

Geometry courtesy   Image courtesy

Copyright 2016 Members of the Fortissimo Consortium and the Fortissimo 2 Consortium

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ff4EuroHPC

FF4EuroHPC **in numbers**

6
project
partners

42
high-quality
experiments

€**8**
million
funding budget

Experiment partners

118 organisations

22 countries

wide variety of
industrial sectors,
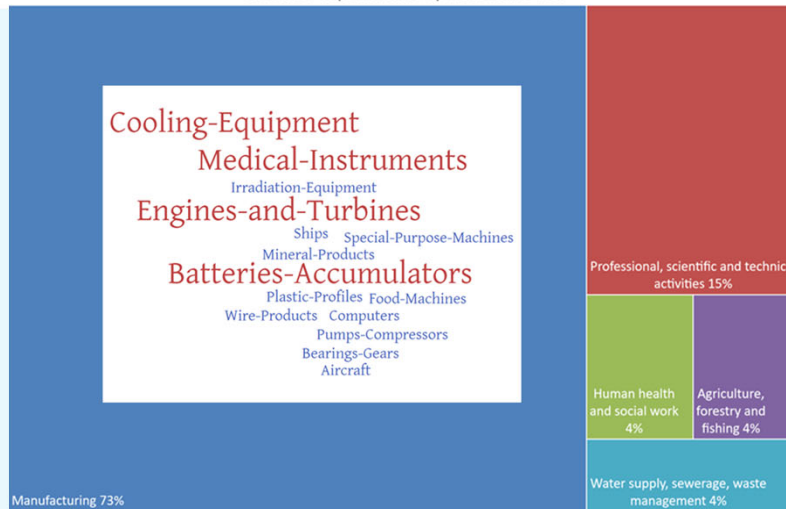focus on
manufacturing
57%

FF4EuroHPC Experiments

Call-1

Call-2

Success Stories

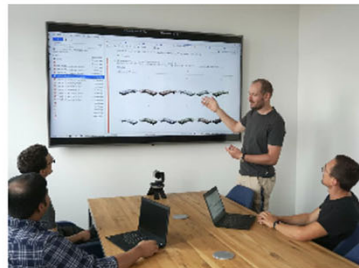Molecular Dynamics Simulations for New Battery Materials Development
Read more ▸

AI and HPC for Reservoir Monitoring
Read more ▸

HPC-based Hand Gesture Dataset Generation for Detection & Tracking
Read more ▸

Improvement of Productivity in Aquaculture
Read more ▸

Market Innovation Sourcing
Read more ▸

HPC Vessel Maintenance Optimization by Natural Language Assistance
Read more ▸

Success Stories
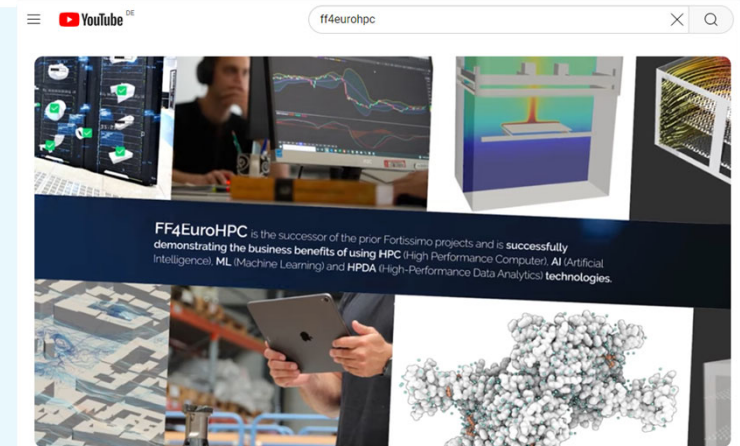

FF4EuroHPC
Success Stories
SME Innovation Through HPC
2nd Edition

FF4EuroHPC Success Stories Videos ▶ Play all

HPC plays a key role in different sectors and industries enabling industrial and commercial companies to become more innovative and productive. This HPC impact is emerging also for SM...

Success Story: Boosting CFD Simulation of Thermal...
FFplus Project
158 views · 8 months ago

Success Story: HPC-based Design of Wind Assisted...
FFplus Project
249 views · 8 months ago

Success Story: HPC-Based Navigation System for...
FFplus Project
52 views · 8 months ago

Success Story: Accelerated Structural Design of...
FFplus Project
517 views · 8 months ago

FF4EuroHPC: Multi-Phase Modelling of Nanofluid...
FFplus Project
386 views · 8 months ago

https://www.youtube.com/@ffplusproject

FFplus Objectives

- Empower SMEs with advanced computational capabilities based on HPC, enabling them to drive innovation, enhance competitiveness, and overcome challenges in the digitalisation of R&D and business processes.

- FFplus will execute 6 open calls (3 for business experiments, 3 for innovation studies) with a funding budget over 24 M€

- Business experiments will address the uptake of HPC by SMEs new to using HPC to solve specific business challenges

- Innovation studies will support European SMEs and Start-ups already active in the field of generative AI technology, which lack the necessary computational resources to scale up.

FFplus Consortium & Project Data

- Fortissimo Plus

- Funded by the EuroHPC JU action DIGITAL-EUROHPC-JU-2023-SME-01 "Supporting the competitiveness and innovation potential of SMEs".

- Commenced 1.5.2024; 48 months duration

- Coordinator

- Other Partners:

FFplus 1st open call

https://www.ffplus-project.eu/

FFplus_Call-1-Type-1

First call for business experiments addressing the uptake of HPC by SMEs

- Deadline: September 4th, 2024 at 17:00 Brussels local time

- Expected duration of business experiments: 15 months, with targeted commencement January 1st, 2025

- The indicative total funding budget for all business experiments funded under this call is € 4M.

- "Main participant" SMEs may only participate in one type of sub-project

FFplus_Call-1-Type-1 - Objectives

- Proposals to address uptake of HPC by SMEs in order to solve specific business challenges of SMEs that have had no prior use of, or experience with, HPC services.

- Demonstrate (to European SME ecosystem) that HPC uptake solves business challenges and leads to positive business impact through … HPC-based computational methods (modelling and simulation, data analytics, AI, etc.) ➔ Key outputs are success stories (c.f. FF4EuroHPC)

- Varied application domains – priority for highest business impact

- "Research-oriented" SMEs not in scope (defn in call text)

- Target for widening HPC user-base in Europe

FFplus_Call-1-Type-1 – Expectations 1/3

- Be fully aligned with the FFplus call objectives

- Explain & justify the business challenge and the need for HPC (systems and advanced services)
  → explain & justify the expected business impact & value creation

- Define specific objectives to successfully address the business challenge and proposal work plan

- Involve the necessary parties required for the effective and efficient execution of the experiment and demonstration of the impact on SME business challenges

FFplus_Call-1-Type-1 – Expectations 2/3

- Define the resources needed to meet objectives and the associated costs.

  - HPC resources possibly involving EuroHPC computing systems, e.g. through their <u>benchmark and development access system</u>, or through national actions.

  - The NCCs may be able to aid with the selection of appropriate resources and the application process.

  - FFplus cannot provide computing resources itself.

FFplus_Call-1-Type-1 – Expectations 3/3

- Data protection
  - Declare issues that might impact the proposed work plan,
  - Define data/information protection mechanisms (EU law)
  - Ensure that the operation of the experiment adheres to these.
- Support the FFplus project in the generation of publishable success stories – including in multi-media form – which discuss how the SME's real-world problems were addressed and clearly identify the business benefits realised or obtained.
- Be complementary to past Fortissimo experiments , i.e. avoid duplication of specific activities carried out in the prior Fortissimo, Fortissimo 2 and FF4EuroHPC projects.

FFplus_Call-1-Type-1 – Eligibility Criteria -1/2

- Only organisations with head offices based in an EU Member State or in associated countries that are eligible to receive funding from the Digital Europe Programme are eligible to receive funding. (Natural persons are ineligible)

- Main Participant = SME or Start-up new to use of HPC and whose business challenge is addressed. <u>Main participants may participate in only one experiment.</u>

- Supporting participants = organisations supporting the main participant to complete activities foreseen for the experiment.

- SME participation in the FFplus innovation studies for generative AI development and in the business experiments covered by this open call are mutually exclusive. That is, for the SMEs whose business challenge defines the business experiment or innovation study, funding may only be provided for one type of action.

FFplus_Call-1-Type-1 – Eligibility Criteria -2/2

- Applications are to be submitted by one or more main participants sharing a business case/challenge and <u>optionally (if well justified)</u> one or more supporting participants. All participants must have a clearly-defined role.

- Maximum number of consortium partners (main participant and supporting participants) = 5

- <u>For supporting participants, only engineering activities are eligible for funding</u>. Activities such as business consultancy, marketing initiatives, administrative tasks, and other non-engineering activities are not eligible for funding.

- FFplus beneficiaries are ineligible to participate as either main or supporting participants.

FFplus_Call-1-Type-1 – Funding Conditions – 1/2

- Third Parties will receive 100% funding of incurred, eligible direct costs necessary for the completion of experiment activities; <u>no indirect costs or overheads will be funded.</u>

- The maximum duration of the experiments is 15 months, with a maximum funding budget of 200 K€. The maximum funding per organisation (in the case of supporting participants, over all experiments in which they participate) is 150 K€.

- The major part of the funding requested should be allocated to the main participants. <u>Any deviations from this principle must be duly justified.</u>

FFplus_Call-1-Type-1 – Funding Conditions – 2/2

Budget module	Additional details
Personnel	Personnel costs need to be commensurate with the work to be performed
Equipment	Depreciation costs only. Only specialized equipment necessary for conducting the experiment is permitted. Costs for common-use equipment such as laptops, monitors, etc., are not eligible.
Travel	Travel must be justified in terms of the necessity for performance of the proposed experiment work plan.
HPC compute capacity	Compute Resources need to be justified. Ideally, EuroHPC systems will be used for the work. A decision not to apply for access to the EuroHPC systems should be duly justified.
Material	1. Costs for acquiring specialized SW licenses for conducting the experiment (licenses for general office software, for example, are not eligible). 2. Costs for acquiring or using data sets or collections needed to conduct the experiment.

FFplus_Call-1-Type-1 – Evaluation Criteria

1. Impact: industrial relevance (including potentially societal relevance), exploitation plans and alignment with the objectives of the call.

2. Excellence: Soundness of concept, innovation, and quality of the work plan.

3. Quality of the consortium: as a whole and of the individual proposers including their ability to carry out the proposed work.

4. Resources: Effective and justified deployment of resources.

Criteria 1 to 4 will carry a score ranging from 0 to 5. Criterion 1 will have a weight of 2×, Criteria 2 to 4 a weight of 1× (leading to a maximum score of 25 points).

A threshold score of 3 will apply to the first three criteria.

In case of a tie in the overall score ranking, proposals are ranked based on the individual criteria scoring applying the following priority: Impact, Excellence, Quality of the Consortium, Resources, and finally total requested funding.

FFplus_Call-1-Type-1 – Proposal Submission

- Submission deadline: September 4th, 2024, 17:00 Brussels local time

- Submissions in English

- Electronic submission using the tool accessible via the FFplus website: https://www.ffplus-project.eu/open-call/en/business-experiments/

- Upload of 2 PDF files (Part A – admin., Part B - content) – each max. 5MB
  - Details in the call announcement (website & document)
  - Only requested information should be included in Part A. Addition of extraneous information... will result in the proposal being rejected without further evaluation.
  - Proposals submitted with a Part B whose length (excluding the cover page) exceeds the 10-page limit will be rejected without further evaluation.

FFplus Call-1: 2 Sub-Calls with Separate Documentation & Proposal Submission

- Each Sub-call has a distinct area of the FFplus Website:
  https://www.ffplus-project.eu/open-call/en/business-experiments/
  https://www.ffplus-project.eu/open-call/en/innovation-studies/

- Both of these provide:
  - Call Announcement & Proposer's Guide
  - Proposal Templates as Word documents (Part A & Part B exemplars)
  - Frequently Asked Questions (FAQ)
  - Proposer-Evaluator check-list
  - **Access to the proposal submission tool**

Still have questions about the call for business experiments?
ffplus-call-t1@scapos-tools.de

→ Q&A Session

EuroHPC
Joint Undertaking

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