EuroHPC JOINT UNDERTAKING

DECISION OF THE GOVERNING BOARD OF THE EuroHPC JOINT UNDERTAKING No 18/2020

Adopting the launch of the call H2020-JTI-EuroHPC-2020-2:

Framework Partnership Agreement in

European low-power microprocessor technologies (Phase 2)

THE GOVERNING BOARD OF THE EuroHPC JOINT UNDERTAKING,

Having regard to Council Regulation (EU) 2018/1488 of 28 September 2018 establishing the European High Performance Computing (EuroHPC) Joint Undertaking (hereinafter "Regulation")[1],

Having regard to the Statutes the EuroHPC Joint Undertaking annexed to the Regulation (thereinafter "Statutes") and in particular to Articles 1(o), 7 (4) (b), 7 (5) (b) and 18 of thereof,

Having regard to the Governing Board Decision No 01/2020 of 10 March 2020 adopting the amended EuroHPC Joint Undertaking Work Plan for the year 2020,

WHEREAS

(1) The amended annual Work Plan of the EuroHPC Joint Undertaking for the year 2020, has been adopted by the Governing Board by its Decision No 1/2020 of 10 March 2020.

(2) The Governing Board should approve the launch of Calls for Proposals, in accordance with the annual work plan.

(3) The Executive Director of the EuroHPC Joint Undertaking should manage the calls for proposals as provided for in the annual work plan and administer the grant agreements and decisions;

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[1] OJ L 252, 08.10.2018, p. 1-34

HAS ADOPTED THIS DECISION:

Article 1

The Governing Board hereby approves the launch of Calls for Proposals H2020-JTI-EuroHPC-2020-2 (SGA-RIA), in accordance with the annual Work Plan of the EuroHPC Joint Undertaking for the year 2020, as amended by Governing Board Decision No 01/2020 of 10 March 2020.

Article 2

The Interim Executive Director of the EuroHPC Joint Undertaking is hereby instructed to launch the EuroHPC call for proposals H2020-JTI-EuroHPC-2020-2 (SGA-RIA), further to the adoption of and in accordance with the annual Work Plan of the EuroHPC Joint Undertaking for the year 2020, as amended by Governing Board Decision No 01/2020 of 10 March 2020.

The Call for Proposals shall be published at least:

- on the website of the EuroHPC Joint Undertaking;
- on the H2020 single portal for participants (Funding and Tenders Opportunity Portal).

Article 4

This Decision shall enter into force on the date of its adoption

Done at Luxembourg, on 6 July 2020.

For the Governing Board

[signed]

Herbert Zeisel

The Chair

Annex: Call text and conditions for the call 'Framework Partnership Agreement in European low-power microprocessor technologies (Phase 2)' - H2020-JTI-EuroHPC-2020-2

EuroHPC Joint Undertaking Call for Proposals

Framework Partnership Agreement in
European low-power microprocessor technologies (Phase 2)

H2020-JTI-EuroHPC-2020-2

NOTICE

For UK applicants: Please be aware that following the entry into force of the EU-UK Withdrawal Agreement[2] on 1 February 2020 and in particular Articles 127(6), 137 and 138, the references to natural or legal persons residing or established in a Member State of the European Union are to be understood as including natural or legal persons residing or established in the United Kingdom. UK residents and entities are therefore eligible to participate under this call.

In accordance with the Statutes of the EuroHPC JU annexed to Council Regulation (EU) 2018/1488 and with the Financial Rules of the EuroHPC JU.

The call text will be made publicly available after its adoption by the Governing Board.

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[2] Agreement on the withdrawal of the United Kingdom of Great Britain and Northern Ireland from the European Union and the European Atomic Energy Community

CALL H2020-JTI-EUROHPC-2020-2 - FRAMEWORK PARTNERSHIP AGREEMENT IN EUROPEAN LOW-POWER MICROPROCESSOR TECHNOLOGIES (PHASE 2)

The European Processor Initiative (EPI) develops and implements the roadmap for European HPC chips and accelerators facilitating the development of exascale machines. The aim is to provide industry in Europe with a competitive edge in processor technology to be further exploited across a wide range of applications from engineering, science and bio-medical to automotive, manufacturing, finance and emerging big-data and smart objects fields.

Within the Framework Partnership Agreement in European low-power microprocessor technologies awarded in 2017[3], the first phase of EPI (EPI Phase 1) is funded by the Horizon 2020 work programme 2018-2019 through a Specific Grant Agreement (SGA).[4] The purpose of this Call is to support the second phase of EPI (EPI Phase 2), which will be implemented by the EuroHPC JU in view of the transfer of High Performance Computing activities in 2019 and 2020 to the JU.

One Proposal will be invited against the following topic:

> *EuroHPC-2020-02*: **Framework Partnership Agreement in European low-power microprocessor technologies (Phase 2)**

Specific Challenge: Within the Framework Partnership Agreement[5] in European low-power microprocessor technologies awarded in 2017, the selected consortium will be invited to submit a Research and Innovation Action proposal for the second phase of the design and development of European low-power processors and related technologies for extreme-scale, high-performance big-data, AI and emerging applications, in accordance with the research roadmap defined in the respective FPA.

Scope: In particular, the proposal will build on the results of the Phase 1 of the European Processor Initiative (EPI), and is expected to cover the following topics:

a) Development of the second generation of low-power general purpose processing system units. Generate the functional and non-functional requirements (using representative HPC and big-data benchmarks, emerging applications specifications (in the automotive sector for example), and targeting maximum energy-efficiency and reliability; design the architecture of the processing system units; verify, tape-out, validate, test and bring up the processing system units; develop the required firmware and system software leveraging, as much as possible, on open source efforts and solutions.

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[3] The FPA (Ref: 800928) was first called for by European Union's Horizon 2020 programme in the 2017 calls (H2020-ICT-2017-2), under the topic ICT-42-2017 Framework Partnership Agreement in European low-power microprocessor technologies (Call ICT-42-2017).

[4] Two SGA-EPI calls in for implementing the EPI-FPA were envisaged:
In 2018, a first call (first EPI phase) of 80 million Euros that started in December 2018 with the signature of the first SGA contract under the EPI FPA.
This would be followed by a second call (second EPI phase) of 40 million Euros planned for the WP 2020. In the meantime, the EuroHPC JU was established in October 2018 and all the ICT-LEIT calls related to High Performance Computing (HPC) were transferred to the EuroHPC JU, including the budget of 40 million Euros that was foreseen for the EPI Phase 2 in LEIT-ICT WP 2020. As a result, in the H2020 Work Programme 2018-2020 *Topic ICT-14-2020: Co-designing Extreme Scale Demonstrators (EsD) in the Framework Partnership Agreement in European low-power microprocessor technologies (Phase 2)* has been removed from the Work Programme in view of the transfer of High Performance Computing activities in 2019 and 2020 to the EuroHPC Joint Undertaking.

[5] FPA Framework Partnership Agreement in European low-power microprocessor technologies (Ref: 800928) for that purpose. The EuroHPC Joint Undertaking will become a co-signatory in this FPA.

b) <u>Development of the second generation of low-power processing system units for application acceleration</u>. Generate their functional and non-functional requirements (using relevant representative HPC and big data benchmarks and emerging applications) and design their architecture to accelerate specific HPC and big data applications, including as edge and embedded automotive applications or other emerging applications. The applications must have high-volume potential. Processing units will be realised as standalone components, distributed collaborating systems or IP-blocks, and will include stand-alone open RISC V hardware approaches for accelerators with connectivity not limited to the EPI processing units, addressing a large number of application areas. Work in this topic is required to interface with topic a) in order to achieve maximum interoperability (including IP-block interfacing) and roadmap synchronisation.

c) <u>Validation of the first generation of low-power processing system units developed in Phase 1 (and Phase 2)</u>. Finalize the required firmware and system software leveraging, as much as possible, on open source efforts and solutions; development and integration of the boards/blades and test benches to demonstrate the processing units and accelerators developed in Phase 1 (and Phase 2) of EPI with the porting of representative sets of real-life kernels for the chosen application(s). This will address also the integration and interconnection of the EPI hardware ecosystem with other approaches.

d) <u>Support for a hardware and software development platform common to different processor and accelerator types</u>. This platform should be accessible by a wide range of interested parties. Support should also be directed towards maximising early on the uptake by users of processor and accelerator technology developed in Phases 1 and 2 of EPI for testing purposes.

The developed technologies will demonstrate the synergies between HPC at the exascale level and scalability to distributed collaborating systems in emerging computing applications, in the automotive sector for example. The designs should follow a modular approach that would allow a rapid scale-up or scale-down. Sustainability and economic viability of the developed solutions are key aspects.

Wherever appropriate in order to address specific technology needs and/or activities, the consortium should seek additional partners to join the FPA consortium, provided they respect the objectives of the project.

The EuroHPC JU considers that a proposal requesting a contribution from the JU of up to EUR 35 million, matched by the Participating States with a similar amount, and a duration of up to 3 years would allow this specific challenge to be addressed appropriately. Nevertheless this does not preclude submission and selection of a proposal with another duration or requesting other amounts.

Wherever appropriate, the proposal could seek synergies and co-financing from relevant national or regional research and innovation programmes, including structural funds addressing smart specialisation. Work combining different sources of financing should include a concrete financial plan detailing the use of these funding sources for the different parts of the activities.

Considering the specific objectives of the call for proposals and the fact that these calls concern areas of critical importance for the security of Union and the Digital Single Market and may pose potential risk to ensuring European technological autonomy in line with Article 9(5) of the Rules for Participation, the EuroHPC JU may limit the participation of legal entities established in associated countries and legal entities established in the EU but controlled from third countries.

<u>Expected Impact</u>: Proposals should describe how the proposed work will contribute to the impacts listed below and include a baseline, targets and metrics to measure impact.

1. Contribution to the realisation of the EuroHPC JU's overall and specific objectives[6]

2. Strengthening scientific leadership as well as the competitiveness and innovation potential of European industry, contributing to a sustainable exascale HPC supply ecosystem in Europe and ensuring European technological autonomy in this field

3. Provide European industry with a competitive edge in processor technology with potential for a wide range of applications from engineering, science and bio-medical to automotive, manufacturing, finance and emerging big-data and smart objects fields

4. Leveraging the efforts on the European low power processing technologies (in particular the European Processor Initiative) and contributing to the realisation of future exascale system architectures based on such technologies

5. Creation, promotion and exploitation potential of European IP

6. Maturity of solutions and potential for exploitation in future European exascale HPC systems

<u>Type of Action</u>: Specific Grant Agreement (SGA) – Research and Innovation Action

Call management rules

Conditions for the Call - H2020-JTI-EuroHPC-2020-02

<u>Opening date(s), deadline(s), indicative budget(s):</u>

Topics (Type of Action)	Budgets (EUR million)	Deadlines
	2020	
Opening: 22 July 2020		
EuroHPC-2020-02 (Specific Grant Agreement RIA)	35.00	12 January 2021
Overall indicative budget	35.00	

<u>Indicative timetable for evaluation and grant agreement signature:</u>

For single stage procedure:

- Information on the outcome of the evaluation: Maximum 5 months from the final date for submission; and

- Indicative date for the signing of grant agreements: Maximum 8 months from the final date for submission.

<u>Eligibility and admissibility conditions:</u> The conditions are described in General Annexes A, B and C of the Horizon 2020 Work Programme 2018-2020[7].

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[6] Council Regulation 2018/1488 of 28 September 2018 establishing the European High Performance Computing Joint Undertaking (EuroHPC) https://eurohpc-ju.europa.eu/documents/Regulation.pdf

Evaluation criteria, scoring and threshold: The criteria, scoring and threshold are described in General Annex H of the Horizon 2020 Work Programme 2018-2020.

Evaluation Procedure: The procedure for setting a priority order for proposals with the same score is given in General Annex H of the Horizon 2020 Work Programme 2018-2020.

The full evaluation procedure is described in the relevant guide published on the Funding & Tenders Portal.

Grant Conditions:

EuroHPC-2020-02	As an exception from General Annex D of the Horizon 2020 Work Programme 2018-2020, the funding rate for eligible costs in grants awarded by the JU for this topic will be 50% of the eligible costs.
EuroHPC-2020-02	For grants awarded under this topic the JU may object to a transfer of ownership or the exclusive licensing of results to a third party established in a third country not associated to Horizon 2020. The respective option of Article 30.3 of the EuroHPC JU Model Grant Agreement will be applied. Additionally, the Work Plan foresees additional exploitation obligations, requiring that first exploitation of the results takes place in Europe using an option of Article 28 of the EuroHPC JU Model Grant Agreement as a default option.

Consortium agreement:

EuroHPC-2020-02	Members of consortium are required to conclude a consortium agreement, in principle prior to the signature of the grant agreement.

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7   http://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-ga_en.pdf.