EuroHPC JOINT UNDERTAKING

DECISION OF THE GOVERNING BOARD OF THE EuroHPC JOINT UNDERTAKING No 03/2021

Amending the Joint Undertaking's Work Plan and Budget for the year 2021

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 Joint Undertaking (hereinafter "Regulation")[1],

Having regard to the Statutes the European High Performance Computing 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 01/2021 of 29 January 2021 adopting the amended EuroHPC Joint Undertaking Work Plan and Budget for the year 2021,

WHEREAS

(1) The Statutes of the EuroHPC JU confer on the Governing Board the powers to adopt the annual work plan and its annual budget including the staff establishment plan.

(2) The annual Work Plan and Budget for the year 2021 adopted by the Governing Board by its Decision No 31/2020 of 23 December 2020 and amended by its Decision No 01/2021 of 29 January 2021 needs to be amended in order to include the call text for the call H2020-JTI-EuroHPC-2020-03 in the Work Plan and Budget 2021.

(3) The Executive Director of the EuroHPC Joint Undertaking submitted the amended draft work plan to the Governing Board,

(4) In the interest of legal certainty and clarity, an amended annual Work Plan and Budget of the EuroHPC Joint Undertaking for the year 2021 should be adopted by the Governing Board,

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

HAS ADOPTED THIS DECISION:

Article 1

The amended annual Work Plan and Budget of the EuroHPC Joint Undertaking for the year 2021 annexed to this decision is adopted.

Article 2

The Executive Director shall make the amended Annual Work Plan and Budget 2021 publicly available on the website of the EuroHPC Joint Undertaking.

Article 3

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

Done at Luxembourg, on 05 March 2021.

For the Governing Board

[signed]

Herbert Zeisel

The Chair

Annex: European High Performance Computing Joint Undertaking Amended Annual Work Plan and Budget 2021

AMENDED WORK PLAN and BUDGET
EuroHPC JOINT UNDERTAKING (JU)

2021

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INTRODUCTION

The EuroHPC Joint Undertaking (hereinafter "EuroHPC JU"), established by the Council Regulation (EU) 2018/1488[2] (hereinafter "Regulation"), will contribute to the ambition of value creation in the Union with the overall mission to develop, deploy, extend and maintain in the Union an integrated world class supercomputing and data infrastructure and to develop and support a highly competitive and innovative High Performance Computing (HPC) ecosystem. In particular, the overall objectives of the Join Undertaking can be summarised as follows (Article 3 of the 2018 Regulation):

- to provide the research and scientific community, as well as the industry including SMEs, and the public sector from the Union or countries associated to Horizon 2020 with the best available and competitive High Performance Computing and data infrastructure and to support the development of its technologies and its applications across a wide range of fields;
- to provide a framework for the acquisition of an integrated, demand-oriented and user-driven world-class petascale and pre-exascale supercomputing and data infrastructure in the Union;
- to provide Union-level coordination and adequate financial resources to support the development and acquisition of such infrastructure, which will be accessible to users from the public and private sector primarily for research and innovation purposes;
- to support an ambitious research and innovation agenda to develop and maintain in the Union a world-class High Performance Computing ecosystem, exascale and beyond, covering all scientific and industrial value chain segments, including low-power processor and middleware technologies, algorithms and code design, applications and systems, services and engineering, interconnections, know-how and skills, for the next generation supercomputing era;
- to promote the uptake and systematic use of research and innovation results generated in the Union by users from science, industry, including SMEs, and the public sector.
- The support for a sustainable exascale HPC ecosystem in Europe requires action on the technology supply to develop extreme scale, power-efficient and highly resilient HPC and data technologies.

In September 2020, the Commission adopted a new draft Council Regulation which will, when agreed, provide the basis for the Work Plan of the Joint Undertaking for the period 2021-2027. The long-term objectives are unchanged with focus on the deployment and operation of a world-class High Performance Computing and data infrastructure, and the development and promotion of an excellent European HPC ecosystem.

When the new draft Council Regulation is agreed by the Council of Ministers, it will provide the basis for the Work Plan of the Joint Undertaking for the period 2021-2027. At this time, an amended work plan and budget will be put to the Governing Board in order to implement the

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[2] OJ L 252, 8.10.2018, p. 1-34.

new draft Regulation and the budget allocated. The updated work plan will include a strategy to update the governance structure of the JU – in line with the new Regulation.

<p style="text-align:center">ANNUAL WORK PLAN YEAR 2021</p>

<u>Operations:</u>

1. Research

In 2020 the EuroHPC JU implemented indirect actions based on the proposed research and innovation programme provided for by the Strategic Research and Innovation Agenda (SRA) and adopted by the Research and Innovation Advisory Group (RIAG) of the EuroHPC Joint Undertaking[3].

For now[4], there are no new R&D actions foreseen in 2021. The focus of the 2021 Work Plan will therefore be on the implementation of indirect actions initiated in 2019 and 2020.

The JU intends to conclude grant agreements for the proposals submitted to the two Calls[5] for proposals launched in 2020 and monitor the implementation. As a reminder, these are:

- H2020-JTI-EuroHPC-2020-01 – *Advanced pilots towards the European exascale supercomputers* for Research and Innovation Actions (EuroHPC-RIA). The winning consortia will begin work in Q1 2021.
- H2020-JTI-EuroHPC-2020-02 – *Framework Partnership Agreement in European low-power microprocessor technologies (Phase 2)* for Research and Innovation Actions (EuroHPC-SGA-RIA). The call will be awarded in early 2021 and the winning consortium will begin work in mid-2021.

With regards to the development of European supercomputing technology in Europe, the JU will continue to make this a priority and to ensure that the second generation of European low-power microprocessor technology is developed in Europe, in order to follow-up the work already achieved by the European Processor Initiative (EPI). The focus will be on the integration with a co-design approach of technology building blocks (developed in EPI and other previous European R&I actions) in advanced pilot systems aiming at exascale performance in operational environments.

H2020-JTI-EuroHPC-2020-03 Training and Education on High Performance Computing

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[3] https://eurohpc-ju.europa.eu/documents/EuroHPC_RIAG_Strategic_Agenda_2019.pdf
[4] This will be subject to revision in 2021

<u>Specific Challenge</u>: Central objective of this call is to develop and implement the pilot(s) of the European Master of Science (MSc) programme(s) for High Performance Computing (HPC). The graduate education programme(s) will focus HPC and HPC-usage. They will demonstrate the added value of a pan-European education programme, committed to academic excellence, that offers students an outstanding career perspective in international companies and research institutes.

HPC is a rapidly accelerating field of research and development with a strong potential for economic growth. HPC, data science, data analytics and the data-economy are becoming increasingly important for many industry and commercial sectors. While basic computer science and programming languages are included in many university curricula, existing education programmes do not meet the demands on modern education adapted to a rapidly developing HPC technology ecosystem. Increased HPC awareness and an HPC-proficient workforce are essential to develop a competitive HPC ecosystem in Europe in the next years. The availability of HPC experts to drive the European digital transformation, such as HPC administrators and architects, HPC proficient data scientists, HPC application developers and expert users, depends on the education of highly skilled and talented graduate students.

The call aims at creating one or more pan-European pilots for the development of a modern HPC-centred education programme to reach scientific and industrial target groups and to serve key actors in the private and public sector.

<u>Scope</u>:

1. European Master (MSc) programme in HPC

Proposals under this action should detail a pilot programme that aims to develop a quality-controlled educational master programme for HPC and industrial applications in HPC of pan-European reach.

The action should support the design and delivery of a master programme of pan-European reach for 50+ students per annual intake, equivalent to 120 ECTS and targeting advanced skills development to widen the scientific and industrial use of HPC applications. Two cohorts of students should complete the pilot programme.

The proposed projects must fulfil the following objectives:

● Educate students able to contribute in areas such as the design, deployment, operation, and/or the use of current and future generation HPC and HPC-related technologies in Europe.
● Educate experts skilled in driving HPC adoption and knowledge transfer in industry and academia in different strategic domains, thereby linking HPC activities in industry and academia.

The proposed master programmes should address all of the following aspects:

● Design the framework and pilot of a two-year European joint master programme and its learning outcomes, and detail how excellence in academic content, teaching and talent development will be achieved and sustained among all partners in the consortium.
● Propose a general curriculum for a master programme on the design of HPC platforms, HPC adoption in industry, expertise in HPC environments and applications using HPC.
● Ensure a modular design of the curriculum, with clear identification of scientific disciplines, industrial applications and HPC usage profiles (designer, developer, administrator, user), that facilitates full or partial adoption of the modules into new or existing MSc programmes.

- Explain how students will be immersed in research activities and educated in European technology and applications throughout the curriculum and according to their specific interests.
- Provide information on the envisaged learning environment and opportunities for personal development and the development of a collaborative and inclusive student community.
- Describe the details of the awarded MSc degree, which academic institutions at pan-European level will award it and in what form (e.g. joint or multiple degrees).
- Define a transparent, effective and competitive selection process for the admission of students, addressing the requirements of European stakeholders.
- Explain how a balanced intake of students regarding geographical origin and underrepresented groups will be achieved.
- Explain which measures will be implemented to ensure that only students who are nationals of EU or Participating States may receive financial benefits by the programme.
- Educate students and provide room for creativity in using leading and emerging European HPC systems and technology as part of the MSc programme.
- Clearly elaborate the benefits of a pan-European MSc programme for students and stakeholders. Ensure excellence to attract talents and partners from the public and private sector.
- Develop and implement an action plan using existing links to industry, entrepreneurship centres, business incubators, academic partners and other European initiatives to support students after graduation in their careers in HPC.
- Promote the programme across Europe and specifically in countries where HPC adoption is low to increase diversity, underrepresented groups participation and to support a broad geographical coverage of applicants.
- Develop substantial content, teaching materials and online courses to complement on-site courses, which should also be provided to a broader community under an open license using a coherent structure and format to support the adoption by other education programmes.
- Explain the mechanisms to share expertise and resources among the consortium.
- Address the requirements and needs of relevant European industry players (supply and user industry). Expectations and commitment of industry partners, e. g. in mentorship programmes, should be described in detail and the added value clearly identified.
- Demonstrate how the requirements of SMEs will be taken into account in the education programme.

The proposed action should deliver a set of lessons learned for the implementation of a pan-European education programme in HPC inspired by the present pilot programme. Moreover, concrete recommendations including a roadmap to achieve a sustainable and successful MSc programme on the basis of the pilot should be provided by the end of the project.

The action should also facilitate mobility and internships for students as a part of HPC master programme.

- Student mobility between European universities, research centres and industry should be designed as a part of the study programme in synergy and coordination with other mobility programmes (Summer of HPC, HPC Europe, Erasmus+ etc.) to support awareness and collaboration across communities. Proposals should also explain how mobility will be achieved.

- For students pursuing an industry-focussed track of the MSc programme, student internships at industry or at research institutions will be a mandatory part of the study programme curricula. Expected duration of the internships is from 3 to 6 months during the second year of the study. The consortium should implement appropriate measures to ensure a high quality and comprehensive supervision of the students during the internship (clear work plan, personal supervisor, monitoring and on-site visits by coordinator, feedback loop etc.). Costs incurred by entities hosting students during internships are not eligible.

2. Requirements on consortium

The consortium should demonstrate a good mix of excellence in education, research and in HPC technologies and applications, with solid links to the HPC supply and user industry in Europe. Moreover, the participating institutions should demonstrate complementary and well-justified roles in the programme with an outstanding track record in their respective field. The consortium should support inclusivity in Europe and help in creating a level-playing field across Europe, and in particular for those countries currently developing their HPC infrastructure and ecosystem.

As consortium partners following types of institutions are eligible:

- Higher education institutions (HEI) that are able to deliver a curriculum equivalent to 120 ECTS credits and award a master degree diploma (coordinator and main partners)
- Supercomputing centers
- Research institutions focused on HPC
- Other entities eligible for participation in H2020, including private and for-profit companies, are eligible to participate in the action in exceptional and well-justified cases.

Each HEI in the consortium should provide a letter of commitment from the respective legal representative.

The consortium as a whole should provide a clear plan how the availability of state-of-the-art computing resources and emerging technology will be ensured for the activities within the project.

An advisory board consisting of industry and academic representatives must be constituted for the project. Letters of commitment from potential members of the advisory board should be provided as a part of the project proposal.

The EuroHPC JU considers that proposals requesting a contribution from the JU for a duration of up to 4 years would allow this specific challenge to be addressed appropriately. Nevertheless this does not preclude submission and selection of proposals with another duration.

Expected Impact: Proposals should describe how the proposed work will contribute to the impacts listed below:

1. Contribution to the realisation of the EuroHPC JU's overall and specific objectives
2. Establishment of a high quality, internationally competitive MSc programme in HPC across the Union with measurable key performance indicators and addressing requirements and needs of the European industry
3. Improved coordination and increased availability of educational activities on HPC
4. MSc students and graduates connected to industry and more broadly preparing a skilled young future workforce in HPC ready to be employed by the European industry

5. A large number of new specialists, in particular from underrepresented groups, trained in the use of current and future generation HPC and HPC-related technologies and applications in Europe.

Type of Action: Coordination and Support Action

Conditions for the Call - H2020-JTI-EuroHPC-2020-03

Opening date(s), deadline(s), indicative budget(s):

Topics (Type of Action)	Budgets (EUR million)	Deadlines
	2020	
Opening: 17 March 2021		
EuroHPC-2020-03 (Specific Grant Agreement CSA)	7.00	1 July 2021
Overall indicative budget	7.00	

Indicative timetable for evaluation and grant agreement signature:

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.

Eligibility and admissibility conditions:

EuroHPC-2020-03	The conditions are described in General Annexes A, B and C of the Horizon 2020 Work Programme 2018-2020.

Evaluation criteria, scoring and threshold:

EuroHPC-2020-03	The criteria, scoring and threshold are described in General Annex H of the Horizon 2020 Work Programme 2018-2020.

Evaluation Procedure:

EuroHPC-2020-03	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.

Grant Conditions:

EuroHPC-2020-03	The funding rate for eligible costs in grants awarded by the JU for this topic will be 100% of the eligible costs.
EuroHPC-2020-03	Grants awarded under this topic will be complementary. The respective options of Article 2, Article 31.6 and Article 41.4 of the EuroHPC JU Model Grant Agreement will be applied.

Consortium agreement:

EuroHPC-2020-03	Members of consortium are required to conclude a consortium agreement, in principle prior to the signature of the grant agreement.

2. Procurement

For now, there are no plans for further acquisitions of supercomputers. In 2021, the JU will further work with the Hosting Entities to ensure that the procured supercomputers are delivered on schedule and on budget.

3. Access policy

The JU will also seek to get approval from the GB Board on a Memorandum of Understanding (MoU) on 'user access policy' to be signed with PRACE. This MoU will set out the interaction between EuroHPC-JU and PRACE on the allocation of access time to EuroHPC supercomputers that are operational in 2021.

Furthermore, in order to allocate access time of EuroHPC supercomputers from 2022 and beyond, the JU will prepare a call in order to develop benchmarks in preparation for an allocation system which is user friendly and tailored to all the existing and future user communities.

4. Commercial Access to EuroHPCs

The JU will deliver in 2021 a policy document on commercial access of super computers. To do this, the JU will procure a study which will set out the market situation in Europe with regards to commercial use of supercomputing, market pricing for the use of access time including the supporting services provided. This study should also provide information comparing the market situation in third countries such the US, and China.

Support to Operations

1. Communication and events

In 2021, the EuroHPC JU plans to take advantage of press and social media activities as well as the following events to communicate the achievements of the EuroHPC JU or as a platform

to engage with the public at large. Taking into account of the ongoing COVID-19 pandemic, all events are currently planned to take place virtually.

EuroHPC Summit week

The EuroHPC Summit Week (EHPCSW) is the major HPC event that brings together relevant European supercomputing stakeholders and decision makers, allowing them to share the latest technological developments, define synergies, express their current and future needs, and participate in shaping the future of European supercomputing. EHPCSW is also a platform to present the latest developments of the EuroHPC Joint Undertaking, both from a political and from a technological point of view.

The 2020 edition of the event, due to take place on 23–27 March 2020 in Porto, Portugal was cancelled due to the COVID-19 pandemic. The 2021 edition of this event will take place on 22-26 March and will be co-organised by PRACE with the EuroHPC JU.

The JU will use the event to showcase progress on research and procurements. The event will take place virtually and will be an opportunity to bring together, through the series of panel discussions, with all relevant European HPC stakeholders, from technology suppliers and HPC infrastructures to scientific and industrial HPC users in Europe.

Inauguration of EuroHPC JU office

The EuroHPC JU office space was made available to EuroHPC staff by the Luxembourgish government in September 2020. It is located in the Drosbach building, which is in proximity of DG CNECT's offices in Luxembourg. Subject to the participation of the Luxembourg authorities, the office will be officially opened in early 2021.

Inauguration of the EuroHPC Supercomputers

In the course of 2020, the procurement of the two pre-exascale and the four petascale supercomputers was completed. In 2021, the MareNostrum5 and Deucalion procurement will be signed. In addition, he beginning of the installation of the supercomputers at the hosting sites and their entry into service mark significant milestones for the achievement of an essential objective of the Joint Undertaking.

2. IT and logistics

In 2021, work will be ongoing to ensure that all necessary equipment and infrastructure is operational and work can be done independently from the Commission.

3. EuroHPC JU Team – HR matters

The Executive Director took up his post in September 2020. By the end of 2020, 11 out of the 15 posts (including the Executive Director) foreseen in the EuroHPC JU staff establishment plan were filled. Posts in legal, HR and accountancy are currently being filled.

In 2021, there will be a further recruitment for a programme assistant (bringing up the total staff to 16 FTEs). In addition, once the new Draft Regulation is adopted, an updated staff establishment plan will be presented to the Governing Board. It is expected to respond to the concern expressed by the Governing Board about the lack of staff to run all the programmes as well as back office functions supporting these.

In 2021, a staff training and wellness at work plan will be developed in order that the team can perform duties efficiently and professionally. Other issues like ensuring that all HR functions are managed well will be a priority as well as ensuring that all staff work in a safe, respectful and rewarding environment.

4. Administrative budget and finance

The main objective for Finance and Budget is to ensure a sound financial management of the Programme Office resources.

This is mainly achieved though the alignment of planned activities with budgeted resources, the establishment of commitments for respecting legal obligations, the payment execution for the grants, procurement contracts, goods and services delivered and the monitoring of the budget execution.

In 2021 activities will focus on the following:

- Continue to ensure the smooth transition of all budgetary activities since the JU got its autonomy in September 2020.
- Ensure efficient budget forecast and maintaining a high level of accuracy in budgetary forecasting for the grants and procurements. To this end, the spending pace of the grants and procurements will be closely monitored and checked against the forecast presented by the different consortia and hosting entities.
- Update 2021 budget in liaison with DG CNECT and DG BUDG, once the final MFF figures are known.
- Report on 2020 budget execution and financial management.
- Prepare reports containing key elements to budget execution and sound financial management (payment delays, budget execution).
- Work with DG BUDG to ensure transactions are financially and procedurally correct, that they are in conformity with the contracts and respecting the Financial Regulations and other relevant rules in operations; timely handling of all types of transactions.
- Work with the European Court of Auditors to ensure that all transactions and procedures are correctly undertaken and explained fully.
- Set up targeted KPIs to the EuroHPC JU as well as general ones such as budget execution and Time-To-Payment necessary to measure activities.
- Implement internal controls framework and ensure that the JU gets its first Budget Discharge in line with EU Financial Regulations.

5. Governance

For now, no changes to the governance structure of the JU are planned.

In 2021, membership of RIAG and INFRAG will be reviewed. In order to allow the current RIAG and INFRAG time to finalise the **Strategic Research and Innovation Agenda 2020 (SRIAG)** , the Governing Board will asked to extend the mandate of the two groups for a 7 month period.

BUDGET YEAR 2021

1. Revenue

In accordance with the provisions of the legal framework applicable to the EuroHPC JU, the contributors to the budget of the JU are:

- The European Union covering administrative and operational costs.
- The Participating States shall make a contribution to the administrative and operational costs of the Joint Undertaking that will be commensurate to the Union's financial contribution set out in Article 4(1) and Article 6 of Council Regulation (EU) 2018/1488 from 2024 .
- The Private Members shall make shall make a contribution to the administrative and operational costs of the Joint Undertaking that will be commensurate to the Union's financial contribution set out in Article 4(1) and Article 6 of Council Regulation (EU) 2018/1488 from 2024

The 2021 budget is an interim budget. Once we receive confirmation of new revenues allocated to the JU by the new multiannual financial framework (MFF), 2021-2027 we will need to update this work plan and budget.

In addition we do not expect any revenues from fees and charges in 2021, as the first EuroHPC JU supercomputers would become operational in mid-year and it is unlikely they would already provide commercial services in 2021

Furthermore, as the projects funded by the EuroHPC JU will just have started, the EuroHPC JU will most probably not issue recovery orders before mid-2021. Therefore an updated Budget will be prepared in the course of 2021.

2. How is the budget organised?

Title 1 and **Title 2**: The EuroHPC JU continues to work with Union funding received from the EU Budget for its administrative expenditure, as foreseen in the Regulation establishing the EuroHPC JU.

Title 3: Operational funds have been calculated on the basis of an assessment of funds required to implement the Procurements and Calls (see table on page 15-16 of this document).

In 2021 therefore, unused appropriations incurred in 2019 and 2020 will be used up, subject to availability of the EU budget. If the JU needs additional funds for operational purposes, the JU will make a further duly justified request to the Governing Board which will include a full budgetary assessment subject availability of the EU budget.

Finally, in line with the JU Regulation, the Participating States will contribute to the JU operational budget in 2021 for the acquisition of the three precursor to exascale supercomputers, as well as the petascale supercomputer hosted by Portugal.

For all titles, in accordance with the EEA Agreement[6], the financial contributions of EFTA States are added to the JU budget, proportionally to the EU budget. Being additional to the general EU budget, they are represented separately from the EU contributions. The EFTA rate is the same for administrative and operational budgets.

Furthermore, the JU received commitments appropriations and payment appropriations accruing from contributions from third parties (non-European Economic Area) to research and technological development which will remain subject to availability of the EU budget.

Table 4 Reactivations:

Unspent administrative and operational expenditure in 2019 and 2020 will be reactivated 2021. The JU will ensure that that all carried over budget from both administrative and operational budget is committed to ensure sound functioning of the JU and cost effective use of funds for operational activities described in the 2021 Workplan.

Tables 5 and 6 below sets out the amounts of Commitment appropriations and expenses outstanding from 2019 and 2020 to be transferred into the Joint Undertakings 2021 Accounts.

Table 1: Commitment Appropriations

REVENUE (EUR)	2019 (executed)	2020 (executed)	2021 (estimated)
1. REVENUE FROM FEES AND CHARGES			
2. EU CONTRIBUTION			
- of which Administrative[8] (Title 1 and Title 2)	636.670	2.686.000	3.002.433
- of which Operations[9] (Title 3)	193.143.257	283.459.000	
3. THIRD COUNTRIES CONTRIBUTION			
- of which EEA/EFTA[10]	4.611.961	4.028.000	82.047
- of which non-EEA[11]	44.823.777	15.000.000	
4. OTHER CONTRIBUTIONS			
- Participating States		222.930.000 [12]	
- Private Members		0	
TOTAL REVENUE *(EU + 3rd Countries + Participating States contributions)*	243.230.665	509.075.000	3.084.480

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[6] [Protocol 32 on financial modalities for implementation of Article 82](#)

[7] Figures received year end 2020

[8] i.e. Staff expenditure, building, equipment and costs for running the EuroHPC JU office

[9] i.e. procurement of the supercomputers, R&I calls for proposals

[10] 2019 EFTA rate – 2.38%, 2020 EFTA rate – 2.41%, 2021 EFTA rate – 2.66%

[11] Appropriations accruing from contributions from (non-European Economic Area) third parties to research and technological development. Additional budget made available by the Commission to fund the third pre-exascale supercomputer

[12] Only contributions for pre-exascale machines

Table 2: Payment Appropriations

REVENUE (EUR)	2019 (executed)	2020 (executed)	2021 (estimated)
1. REVENUE FROM FEES AND CHARGES			
2. EU CONTRIBUTION			
- of which Administrative (Title 1 and Title 2)	323.183	2.563.000	3.084.480
- of which Operations (Title 3)	2.482.631	178.926.000[14]	283.670.069,81
3. THIRD COUNTRIES CONTRIBUTION			
- of which EEA/EFTA[15]	1.690.746	4.312.116	7545.623
- of which non-EEA		15.000.000	
4. OTHER CONTRIBUTIONS			
- Participating States		57.442.275[16]	220.902.719, 27[17]
- Private Members			
TOTAL REVENUE	4.496.560	258.243.391 [18]	504.572.789

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[13] These estimates will be updated at the end of 2020 when all payments have been made

[14] Pre-financing grants retained for funding from the 2019 calls for proposals, and pre-financing of the acquisition of the supercomputers – EU contribution

[15] 2019 EFTA rate – 2.38%, 2020 EFTA rate – 2.41%, 2021 EFTA rate – 2.66%

[16] Pre-financing of the acquisition of the supercomputers – Participating State's contribution 2020

[17] Financing of the acquisition of the supercomputers – Participating State's contribution 2021

[18] JU Total Payment Appropriations on Revenue without PS contribution is EUR 181.489.000

3. Budget Expenditure

Titles 1&2: 100% of the commitment appropriations were committed. The EU funding share to these appropriations will be released according to the JU needs during the period of 2020–2023. It will add up to 10.000.000 € – the amount foreseen in the Regulation establishing the EuroHPC JU.

Title 3: The operational expenditure will be used for grants and procurement of the EuroHPC JU supercomputers. More details of pre-financing and interim payments can be found below.

Table 3: Commitment Appropriations

COMMITMENTS	Commitment Appropriations (EUR)		
	2019 (executed)	2020 (executed)	2021 (estimated)
Title 1. Staff Expenditure	**77.830**	**315.000**	**1 679 .880**
11 Salaries and Allowances	40.000	287.000	1 404 880
- of which establishment plan posts	*20.000*	*184.000*	552 000
- of which external personnel	*20.000*	*103.000*	852 880
12 Expenditure relating to recruitment	47.963	3.000	5 000
13 Mission and travel expenses		8.000	70 000
14 Socio-medical infrastructure and training		17.000	200 000
Title 2. Building, Equipment and Operating Costs	**612.217**	**306.000**	**1 404 600**
20 Buildings and associated costs		111.000	84 600
21 Information Technology	426.350	99.000	250 000
22 Movable property and associated costs		0.	20 000
23 Current administrative expenditure	1.000	44.000	200 000
24 Postage and Telecommunications		6.000	10 000
25 Expenditure of formal events and other meetings	33.670	6.000	330 000
26 Running costs in connection with operational activities		10.000	150 000
27 Information, Studies Publishing	1.000	10.000	10 000
28 Expert contracts and meetings	150.197	20.000	350 000
Title 3. Operational Expenditure	**242.540.618**	**486.435.000**	**0**
30 Grants, HPC Operations, R&I Activities	202.521.074	78.000.000	0
31 HPC Infrastructure Activities	40.019.544	408.435.000	0
TOTAL	**243.230.665**	**487.056.000**	**3.084.480**

Table 4 Payment Appropriations

PAYMENTS	Payment Appropriations (EUR)		
	2019 (executed)	2020 (executed)	2021 (estimated)
Title 1. Staff Expenditure	54.992	289.000	1.679.880
Title 2. Building, Equipment and Operating Costs	321.568	94.000	1.404.600
Title 3. Operational Expenditure	4.120.000	40.371.000	283.670.069,81
30 Grants, HPC Operations, R&I Activities		6.083.000	*112.000.000*
31 HPC Infrastructure Activities		34.288.000	*171.670.070*
TOTAL	**4.496.560**	**40.754.000**	**286.754.549,81**

Table 5: Budget reactivated in 2021 (Administrative)

	Commitment appropriations (CA)	Payment appropriations (PA)
Budget reactivated in 2021 (Administrative) (*of which***)**	2.122.279,83	2.179.060,55
2019	*57.967,84*	*0*
2020	*2.064.311,99*	*2.179.060,55*

Table 6: Budget reactivated in 2021 (Operational)

	Commitment appropriations (CA)	Payment appropriations (PA)
Budget reactivated in 2021 (Operational) (of which)	28.832.276,01[20]	138.555.153,12
2019	*8.878.350,01*	*0*
2020	*19.953.926*	*138.555.153,12*

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[20] Reactivated to fund PF of EPI2 and Education an skills Calls

4. Details on the use of financial resources

a) Title 1: Staff Expenditure

Chapter 11 – Salaries and Allowances

The Joint Undertaking will organise the recruitment of new staff and cover the salaries, social security and other related allowances of staff in place. This appropriation is to cover the remuneration cost of establishment plan posts (temporary staff) and external personnel (contract staff, Seconded National Experts, interim), in accordance with the Staff Regulations.

It includes the cost for basic salaries, promotions, family allowances, expatriation and foreign residence allowances. It is also intended to cover the employers' social security contributions, insurance against sickness, accidents and occupational disease, unemployment insurance, birth and death allowances, annual travel costs from the place of employment to the place of origin, in accordance with the Staff Regulations of Officials of the European Union and the Conditions of Employment of Other Servants of the Union[21]. This chapter also covers the costs for the SLA signed with PMO which is the Commission organisation that handles salaries and staff benefits.

Chapter 12 – Expenditure relating to recruitment

This appropriation is to cover the expenditure arising from the search for suitable candidates (publishing vacancies) and subsequent administration costs of the recruitment of new staff members (installation, resettlement and daily subsistence allowances, removal and travel expenses).

Chapter 13 – Mission and travel expenses

As part of its duties and the sanitary situation permits, the staff of the Joint Undertaking will have to travel to various conferences, meetings and workshops related to the activities of the Joint Undertaking and to the actions funded. The mission appropriation is to cover travel expenses, daily subsistence allowances and ancillary or exceptional expenditure incurred by statutory staff in the interest of the service.

Chapter 14 – Socio-medical infrastructure and Training

This appropriation is intended to cover the costs of the annual medical check-up of staff and associated analyses required, complementary health insurance and schooling allowances. As the JU is growing, this line has been reinforced. This chapter also covers the cost for training of staff and the SLAs signed with the Commission's DG HR.

b) Title 2: Building, Equipment and Operating Costs

Chapter 20 – Buildings and associated costs

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[21] Regulation (EEC, Euratom, ECSC) No 259/68 of the Council of 29 February 1968 laying down the Staff Regulations of Officials and the Conditions of Employment of Other Servants of the European Communities and instituting special measures temporarily applicable to officials of the Commission (OJ L 56, 4.3.1968, p. 1).

The JU has to ensure that the working conditions of its staff comply with the standards of the EU institutions. The office premises are provided by the JU hosting country. This appropriation includes costs related to the infrastructure including insurance, water, electricity and heating, cleaning and maintenance, security and surveillance. The SLA from OIL is also covers in this chapter.

Chapter 21 – Information Technology

To allow its staff to perform its work, the Joint Undertaking is equipped with state-of-the-art office equipment and networking facilities, allowing to use the standard IT toolchain of the EU programmes and institutions. This appropriation is intended to cover the purchase of computing and other similar electronic office equipment and hardware as well as the installation, configuration and maintenance of this equipment. The procurement and maintenance of program packages and software licences necessary for the normal operation of the JU; the expenditure on services contracts for analysis, programming and technical assistance necessary for the JU, the cost of external services contracts to manage and maintain the data and systems, training and other support activities.

It covers the cost of SLAs with a number of Commission departments, necessary for the provision of IT equipment/services (SLA with the Commission DGs: DIGIT, REA, RTD and/or CNECT) to allow for the smooth running of the JU. It also includes costs specific to the secure data communication needs of the JU and to access the JU's accounting and auditing systems.

Chapter 22 – Movable property and associated costs

This chapter includes the necessary resources to cover the costs of office organisation, archive spaces and meeting rooms.

Chapter 23 – Current administrative expenditure

This chapter includes costs of office supplies, stationery, badges, office material and other consumables necessary for the operation of the office as well as any costs incurred for any mandatory translations) In this chapter are covered the costs related to the SLAs signed with CdT and the costs for the SLA with signed DG BUDG.

Chapter 24 – Postage and Telecommunications

This chapter is to cover all correspondence, postage and telecommunication (fixed, mobile telephony and videoconference equipment/licencing) costs of the JU.

Chapter 25 – Expenditure of formal events and other meetings

When the sanitary situation improves, and as part of the activities of the Joint Undertaking, some meetings (like Governing Board meetings and community workshops) are likely to require conference facilities that are not available at the JU premises. These appropriations are to finance meetings that are taking place inside or outside of the JU premises. Funds will also be used to prepare the Access policy implementation activities.

Chapter 26 – Running costs in connection with operational activities

Auditing and legal assistance are key elements to ensure that the JU complies with the legal framework. This appropriation is covering all audit related expenditure: the possible costs for internal audit capability, external auditors and ex-post audits.

In addition, the communication policy of the Joint Undertaking is an important element to ensure public awareness and understanding of the programme. This appropriation is also covering the activities related to communications and publications, and in particular:

- Communication material for conferences, info days and workshops,

- Website development and consolidation,

- General public relations and publicity.

Chapter 27 – Information, Studies and Publishing

This appropriation is intended to cover costs of the communication activities of the Joint Undertaking, to ensure public awareness and understanding of the scopes. It is also covering the activities related to production and printing the Annual Activity and other Reports. It will cover the costs of studies that the JU may wish to undertake.

Chapter 28 – Expert contracts and meetings

This chapter includes the costs related to the evaluation, selection and review of projects, as well as the costs incurred for evaluators and reviewers.

c) Title 3: Operational Expenditure

The main purpose of the Joint Undertaking is the indirect implementation of EU budget in the field of High Performance Computing. Detailed description of the operational activities is presented in the Work Plan.

Chapter 30 – Grants, HPC Operations, R&I Activities

As a reminder, the calls for proposals published in 2019 by the EuroHPC JU foresaw a maximum total Union funding of 95.000.000 €, while the 2020 calls for proposal foresee a maximum total Union funding of 85.000.000 €.

In 2021, a total of EUR 112.000.000 of EU funding will be used for pre-financing and interim payments on grants awarded in the 2019 and 2020 calls.

R&I Calls 2019/ 2020 (EUR)	Budget Committed	2020 (Prefinancing)	2021 (estimate of Prefinancing)
EuroHPC-01-2019 Extreme scale computing and data driven technologies	25.000.000		20.000.000
EuroHPC-02-2019 HPC and data driven application oriented platforms	20.000.000		16.000.000
EuroHPC-03-2019 Industrial applications on extreme scale computing environments	10.000.000		8.000.000
EuroHPC-04-2019 HPC Competence Centres[22]	30.000.000	24.000.000	
EuroHPC-05-2019 Stimulating the innovation potential of SMEs[23]	10.000.000	8.000.000	
H2020-JTI-EuroHPC-2020-01-a Advanced pilots towards the European supercomputers	37.000.000		29.600.000
H2020-JTI-EuroHPC-2020-01-b Pilot on quantum simulator	6.000.000		4.800.000
H2020-JTI-EuroHPC-2020-02 FPA in EPI (phase II)	35.000.000[24]		28.000.000
H2020-CSA-EuroHPC-2020-03 Training and Education on HPC	7.000.000		5.600.000
Total	**180.000.000**	**32.000.000**	**112.000.000**

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[22] No PF in 2021 as it has already been paid in 2020

[23] No PF in 2021 as it has already been paid in 2020

[24] EUR 180.000 has been committed by DG Connect in 2020 to REA to pay for expertise to undertake the evaluation after the close of the call on 12 Jan 2021. This commitment will be reassigned by CNECT to REA in 2021.

Chapter 31 – HPC Infrastructure Activities

This appropriation is related to the acquisition of two exascale supercomputers (to be foreseen once the Council Regulation is adopted), the three precursor to exascale supercomputers and five petascale supercomputers.

Precursors to exascale supercomputers

As the EuroHPC JU will be the owner of the pre-exascale supercomputers it procures, the Participating States will transfer to the EuroHPC JU their share to match the financing paid by the EuroHPC JU. The installation of the precursor to exascale supercomputers is planned to start beginning 2021 and the payment schedule is foreseen as follows.

LUMI: will be financed on the basis of several milestones in 2021 and final payment (50% of set-up) planned for early 2022.

LEONARDO: prefinancing of 30% of set-up took place in 2020, a delivery payment (20% of set-up) in 2021 and an acceptance payments (50% of set-up) is planned for end 2021.

Mare Nostrum 5: We expect a prefinancing of 30% of set-up planned in 2021, a delivery payment (20% of set-up) and an acceptance payments (50% of set-up) in 2021

Supercomputer maintenance will be paid annually from 2022.

Contributor to pre-exascale HPCs	Total amount (in EUR)	2020 payments (in EUR)	2021 payments (in EUR)
EU funds	206.205.000	53.153.107	139.994.624
Participating States	209.705.000	16.565.496	161.428.651
Total	*415.910.000*	*69.718.603,41*	*301.423.275*

Petascale supercomputers

The installation of all five petascale supercomputers is planned to be completed by the end of 2021.

The JU will own 35% of the four other Petascale supercomputers (LU, BG, SI, CZ) andare run by the Hosting Entities who own the other 65% of these Petascale machines.

Following the explicit request of Portugal, this petascale supercomputer is being procured by the Joint Undertaking. As the EuroHPC JU will become the owner of this supercomputer, the appropriation includes not only EU funding but also the Participating State's share (13.225.000 €). This sum will be recovered by the JU in 2021, after the contract and administrative agreement have been signed. The operating costs of this supercomputer will be covered by the Hosting Entity.

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[25] Payments of prefinancing for LUMI and Leonard

Breakdown of payment by country in 2021 of each Petascale computer:

Petascale HPCs	Country	Payment 2021 (EUR)
Meluxina	Luxembourg	19.906.153,50
EURO-IT4I	Czech Republic	9.725.000
Vega	Slovenia	11.356.577,70
Deucalion	Portugal	13.225.000[26]
PetaSC	Bulgaria	5.261.337,27
Total		**59.474.068,47**

- Breakdown by Petascale HPC of JU contribution in 2021:

JU contribution to Petascale HPCs	Payment 2021 (EUR)
Meluxina	10.498.846,50
EURO-IT4I	5.130.000
Vega March 21	5.900.000
Deucalion (2020)[27]	*5.514.982,50*
Deucalion (2021)	1.410.017,50
PetaSC	3.221.599,31
Total	**31.675.445,81**

5. Staff establishment plan

The Staff establishment plan gives an overview and forecast of annual staff positions for 2021. This will be reviewed once the new Council Regulation on the EuroHPC JU has been adopted.

The estimation of the cost of human resources is based on the total average cost. Considering that the recruitment of the staff will be progressive over the year, 11 full-time equivalents now accounted at year end. A further 3 FTES will join the team in Q1 2021, 2 more FTEs will be recruited in 2021 accounting for the 100% of the 2020 staff establishment plan.

In 2021, we will complete recruitment for all 16 posts that have been provided to the JU. As well as ongoing recruitments, a staff training and wellness at work plan will be developed in order that the team can perform duties efficiently and professionally. The JU leadership team will ensure that all HR functions are managed well and ensure that all staff work in a safe, respectful and rewarding environment.

Staff expenditure justification for 2020 with estimates for 2021

	2019	2020	2021 estimate
Establishment plan posts: TA-AD	4	4	4
Establishment plan posts: TA-AST			

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[26] Deucalion total cost is € 20,149,072.00.

[27] As the Deucalion contract will only be signed in late December 2020, this sum will only be paid in 2021.

Total establishment plan posts	4	4	4
Contract Agents	7	10	11
Seconded National Experts		1	1
Total Staff	**11**	**15**	**16**

Category and grade	2019		2020		2021 estimate	
	Officials	TA	Officials	TA	Officials	TA
AD 16						
AD 15						
AD 14				1		1
AD 13						
AD 12						
AD 11						
AD 10				1		1
AD 9						
AD 8		1		2		2
AD 7						
AD 6						
AD 5						
Total AD		1		4		4
Total AST/SC						
TOTAL		4		4		4

External Personnel – Contract Agents	2019	2020	2021 estimate
Function Group IV	1	4	5
Function Group III		4	4
Function Group II		2	2
Function Group I			
Total Staff	**1**	**10**	**11**

Staff Costs	2019	2020 (	2021 estimate
Temporary Staff	12.083	362.500	580.000
Contract Staff	18.650	431.900	766.480
Seconded National Experts		29.200	58.400
Total	**30.733**	**823.600**	**1.404.880**

6. Details of the staff establishment plan for 2021

Executive Director (TA-AD14)

The Executive Director is the chief executive responsible for the day-to-day management of the EuroHPC Joint Undertaking providing leadership at the strategic and operational level ensuring the achievement of the Joint Undertaking's objectives. The Executive Director is its legal representative and he/she shall perform his/her tasks with independence and shall be accountable to the Governing Board

Executive Secretary (CA-FGII)

The Executive Secretary provides the Secretariat of the Executive Director, planning the activities of the Executive Director's Office, provides administrative support in the relations

with EuroHPC JU Bodies, and does the general coordination of the document management within the JU.

Office Secretary (CA-FGII)

The Office Assistant provides the Secretariat of the JU staff, supports the communication activities and ensures the logistics for the call for proposals evaluations, technical project reviews and internal meetings.

Senior Programme Officer (TA-AD10)

The Senior Program Officer supports the Executive Director in all his work and decisions, upon request in his/her mission in respect of technical issues. This includes preparation of calls for proposals/tenders including their evaluation, expert assignment, grant agreement management, National points of contact and project coordinators. He/She also leads the functions of a Programme Officer Infrastructure and/or Programme Officer R&D.

Programme Officer Infrastructure (TA-AD8)

The Program Officer organises and is involved in the evaluation of public tenders (publication, opening, selection of experts, logistics etc.), manages the selection process, monitors and reviews the execution of associated grant agreements, monitors the allocation of supercomputer access times and ensures compliance with the prevailing rules and regulations.

Programme Officer R&I (TA-AD8)

The Programme Officer organises and is involved in the evaluation of proposals (selection of experts, logistics etc.), manages the process of selection of projects, monitors and reviews the execution of grant agreements, carries out project reviews and ensures compliance with the prevailing rules and regulations. He/She works with the other programme officers and also negotiates strategic, scientific, managerial and financial aspects of research contracts and amendments.

Programme Officer (SNE)

The Programme Officer organises and is involved in the evaluation of proposals (selection of experts, logistics etc.) , manages the process of selection of projects, monitors and reviews the execution of grant agreements, carries out project reviews and ensures compliance with the prevailing rules and regulations. He/She works with the other programme officers and also negotiates strategic, scientific, managerial and financial aspects of research contracts and amendments. This role is currently vacant. Recruitment is ongoing.

Junior Project Officer (FGIII)

The Junior Project Officer provides support to the implementation of the JUs program activities, such as evaluation of proposals for R&D grants and public tenders, grant preparation, monitoring the technical execution of the grants, and provides any technical support to the Programme Officers. He/she will also support the auditing activities including KPIs related to grants and procurement activities and ensures compliance with the prevailing rules and regulations. He/She works with the other programme and administrative officers and supports them. This role is currently vacant. Recruitment will take place in 2021.

Accounting Officer (CA-FGIV)

The Accounting Officer monitors that the JU is complying with the applicable EU financial and accounting rules, is the interface with the EC Accountant (DG BUDG), provides advice and recommendations to improve the efficiency, effectiveness and financial management of the JU. This role is currently vacant. Recruitment is ongoing.

Financial Assistant (CA-FGIII)

The Financial Assistant verifies the financial and administrative compliance of the grants and contracts, performs the administrative quality checks on files for signature, monitors the operational and administrative expenditures, provides budget planning and reporting for operational and administrative expenditures.

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The Financial Assistant verifies the financial and administrative compliance of the grants and contracts, performs the administrative quality checks on files for signature, monitors the operational and administrative expenditures, provides budget planning and reporting for operational and administrative expenditures.

Legal Officer (CA-FGIV)

The Legal Officer provides the Executive Director with all relevant legal advice and support for the smooth operation of the activities of the JU, monitors the implementation of contractual obligations of the JU, drafts the legal documents of the JU and is the JU's Data Protection Officer. This role is currently vacant. Recruitment is ongoing.

Administrative Officer (CA-FGIV)

The Administrative Officer maintains the Unit activity plans and ensures follow-up and respect of deadlines of the Unit activities, provides support to the activities of the Governing Board, contributes to administrative quality checks on files for signature, participates in the planning of logistics needs.

HR Officer (CA – FGIV)

The HR Officer is responsible for HR personnel files, develops, with the Executive Director, a staff development plan and HR policies; assists in the implementation of the staff policy, manages SYSPER and is the contact point with PMO. This role is currently vacant. Recruitment is ongoing.

Communication Officer (CA – FGIV)

The Communication Officer is responsible for the JU's communication activities, including managing the JU website, developing and overseeing the execution of a communications activity plan implementing the Communications Strategy of the EuroHPC JU.

IT Assistant (CA – FGIII)

The IT Assistant is responsible for the management of IT and Telecommunication Systems, monitoring to correct operation of the systems, ensuring IT systems respond to business needs; ensuring the correct operation of the systems; ensuring information security requirements; and representing the JU in internal and external meetings in relation with the ICT domain.