



Access to high performance computing

Opportunity status:	Open
Funders:	Engineering and Physical Sciences Research Council (EPSRC)
Funding type:	Other
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[Start application ►](#)

Apply for access to high performance computing (HPC) services to support any research in EPSRC's remit.

The services available are:

- tier 1 ARCHER2, for simulations and calculations that need parallelised processing cores
- tier 2 services with a range of architectures for different computational needs.

You must live in the UK and be from one of these UK organisations:

- higher education institution
- research council institute
- UKRI-independent research organisation
- NHS body with research capacity.

[Close all](#)

Who can apply

Standard EPSRC eligibility rules apply. The opportunity is open to:

- UK higher education institutions
- research council institutes
- UKRI-approved independent research organisations
- NHS bodies with research capacity.

[Read the guidance on institutional eligibility.](#)

You can apply if you are resident in the UK and meet at least one of the bullets below:

- are employed at the submitting research organisation at lecturer level or equivalent
- hold a fixed-term contract that extends beyond the duration of the proposed project, and the host research organisation is prepared to give you all the support normal for a permanent employee
- hold an EPSRC, Royal Society or Royal Academy of Engineering fellowship aimed at later career stages
- hold fellowships under other schemes (please contact EPSRC to check eligibility, which is considered on a case-by-case basis).

Holders of postdoctoral level fellowships are not eligible to apply for an EPSRC grant.

Please note the following specific cases for this funding opportunity:

- research technical professionals, including research software engineers, are considered as academic employees and thus they are eligible to be a [principle or co-investigator under the same terms as traditional researchers](#)
- students wishing to access the HPC resources available through this call must seek an eligible PI to apply on their behalf, who will oversee the preparation of the proposal and who will be responsible for how any time awarded is used.

Each applicant is limited to be an investigator (PI or Co-I) on at most one proposal to each service. If an applicant is part of the submission for more than one project on this call, each proposal must be a unique and distinct project.

What we're looking for

Synopsis

Researchers throughout engineering and the physical sciences need access to a variety of computational capabilities in order to conduct their work efficiently and effectively. EPSRC funded HPC services provide access to a range of specialised capabilities which cannot be provided at the local university level.

Scope

EPSRC's access to HPC opportunity is there to provide an open and flexible route to computational support for projects in EPSRC remit. A wide variety of activities are supported, with high risk/high return research projects, embracing new concepts or techniques being particularly encouraged.

EPSRC's objectives for these opportunities are to:

- supply computational time to underpin high quality research within EPSRC's remit
- provide an open route to computational capacity for all EPSRC researchers, particularly those with limited access through other routes
- support and enable short-term projects, including but not limited to:
 - computational projects which may not warrant a full grant application
 - computational projects linking consecutive grant applications or aiding the preparation of a full grant or fellowship application
 - extended feasibility/proof of concept studies (at a larger scale than is possible in pump priming projects as described above)
 - collaborations with industrial and international partners
- increase the development of computational science skills, such as allowing students to work jointly with PIs to achieve the aims of the application.

The individual computational projects funded through this opportunity will be required to:

- conduct high-quality research of which the majority is within EPSRC remit
- make efficient use of the computational resource by ensuring the codes are run on technically suitable system(s) and that they scale appropriately
- use the entirety of their allocation within a year of the project start date, unless an extension is awarded by EPSRC.

[Find out more about EPSRC's portfolio and strategies.](#)

Other routes to accessing HPC

It is expected that this opportunity will run twice a year with the next opportunity opening in August 2021 and the projects starting in January 2022. This opportunity will also run alongside the pioneer projects opportunity which will be run once a year and provide ARCHER2 time in December 2021.

It is recognised that the above objectives may not be appropriate for a number of projects in need of computational support. Therefore, in addition to this opportunity, there are a variety of other specialised routes through which researchers can access EPSRC HPC services. EPSRC recommends applicants familiarise themselves with these routes to ensure they apply to the most appropriate one for their project. If you have any questions on the below you can direct them to researchinfrastructure@epsrc.ukri.org.

ARCHER2

- grants – researchers can request computational time to support their work as part of their grant application to UKRI-EPSC
- High End Computing (HEC) consortia – if a researcher’s work is within remit of one of the HEC Consortia, formed around research communities with substantial and continuous computational needs, then they can apply for ARCHER2 time by [joining the relevant consortium](#)
- pioneer projects – researchers can apply for large amounts of ARCHER2 compute for ambitious, computationally intensive simulations and calculations in support of an individual project through EPSC’s [ARCHER2 pioneer projects opportunity](#). This is the successor scheme to the ARCHER Leadership opportunities. This opportunity will be run once a year with the next opportunity opening in approximately August
- pump-priming – researchers can request a small amount of resource awarded through a light-touch process in order to try, test and scale their code on ARCHER2. This is the successor scheme to [ARCHER instant access](#)
- driving test – a small allocation for new ARCHER2 users to get them started using the Tier-1 service
- [read additional information on these access routes](#).

Tier-2

- grants – following a prior discussion with EPSC, researchers can request computational time on Cirrus and CSD3 to support their work as part of their full grant applications
- pump-priming – researchers can request a small amount of resource awarded through a light-touch process in order to try, test and scale their code on the following systems:
 - [CSD3](#) or email resources@csd3.cam.ac.uk
 - [Cirrus](#)
 - [JADE](#).

Additional information on these access routes can be found on the service websites.

Funding available

The resource available through this opportunity is computational time from EPSC funded HPC services, there is no financial resource funding. The services available are ARCHER2, the Tier-1 national supercomputer accessible to engineering and physical sciences researchers, and most of the EPSC funded Tier-2 HPC services:

- Isambard
- Kelvin-2
- JADE
- Cirrus
- NICE
- CSD3
- Baskerville
- Sulis.

EPSRC's final Tier-2 service, the Materials Modelling Hub, is not accessible through this opportunity but can be accessed through EPSRC's Materials Chemistry Consortium (MCC) and UK Carr-Parrinello Consortium (UKCP). Further details on this can be found in the supporting documentation.

Indicative levels of computational resource available at each available service, as well as service specific restrictions on projects, can be found in the supporting documentation. Precise levels are subject to variations in the current usage of the services. EPSRC encourages applicants to contact the service they are applying to early, to discuss whether the level of resource they are requesting is realistic and reasonable, and to refine this whilst completing their technical assessments. EPSRC reserves the right to adjust the overall level of computational resource available and delay the start dates of projects where circumstances require.

Please also note that services will expect users to either use existing software on the system or to build their own software but will provide support where possible.

The start date of each funded project must be within two months from the notification of outcome. If the relevant service is not operational at the time of notification, then applicants are expected to start their project within two months of the start of service as determined by EPSRC. Please note that Baskerville and Sulis are new services and as such, successful projects from this opportunity will be among the first on these systems and set up of projects may take longer.

Exclusions

See below for details on circumstances where it is not suitable to apply for computational resources through the Access to HPC opportunity:

- projects in HEC consortia remit requiring ARCHER2: Projects in the remit of the consortia cannot apply for ARCHER2 time through this opportunity. Applicants who wish to use ARCHER2 for work in the remit of a consortium should apply through the relevant consortium
- projects in the remit of UKCP or MCC requiring Tier-2: Projects requiring Tier-2 and in the remit of either the [UKCP](#) or the [MCC](#) are expected to be accommodated through their allocations on the MMM Hub unless the service is not technically appropriate for the work. The applicants should contact the consortium directly and apply for access to the MMM Hub. Where the MMM Hub services is not technically appropriate for the proposed work the applicant may apply for access to a suitable Tier-2 service through this opportunity. To do so they should ask the relevant consortia to confirm that this is the case directly and in writing with EPSRC
- projects in the remit of HEC BioSim requiring [JADE](#): Projects in the remit of HEC BioSim requiring JADE are expected to apply to through HEC BioSim's opportunities for access to JADE and thus are not eligible for access to JADE through this opportunity
- applicants with institutional access to a Tier-2 service: Where a potential applicant is based at an institution which is a partner in or has access to a Tier-2 service they must apply for this resource by contacting the service directly. If the potential applicant needs to access a different Tier-2 service for a distinct

capability, then they are eligible to apply for a suitable computational resource through this opportunity

- technical suitability to Tiers 1 & 2: Projects which could be conducted on Tier-3 (local university HPC) are not funded through this opportunity and instead applicants should access their local HPC service
- service specific exclusions and requirements: Each service may have additional requirements on projects and details of these can be found in the supporting documentation. Applicants should check these requirements before preparing their application.

To assist with the implementation of these policies all applicants will be required to inform EPSRC in their application if they are a member of a HEC Consortium, and the chair of said consortium will be informed of details of their application if it is successful. EPSRC strongly encourage that if the applicant is part of a HEC Consortia or has institutional access to a Tier-2 service that they first contact the consortia/service to ensure that the Access to HPC opportunity is the correct mechanism for them to access compute time on the services. If you have access to a service via a consortium/institution, we will ask in the application why you believe this route was the most suitable.

EPSRC retains the right to remove allocations (on any EPSRC funded service) from successful applicants if it is established that these exclusions are being breached post award.

How to apply

A two-stage application process will be used.

Stage one – Applicants must submit a technical assessment form to the service they are applying to access, which includes a short project description. This form will be assessed by the service and returned to the applicant. The contact details applicants must use for each service can be found in the supporting documentation.

Stage two – Applicants must then submit their application via the form on the EPSRC opportunity page, where they:

- must submit the following as separate PDF documents:
 - document one: A completed application form
 - document two: A one-page diagrammatic workplan
 - document three: A completed and approved technical assessment
- optional: Applicants may separately submit a cover letter which will be seen only by EPSRC and not sent to peer review.

Stage one: Obtain a technical assessment

All full proposals must be accompanied by a technical assessment completed by both the applicant(s) and service they wish to access. This step is to ensure that

the resource request is appropriate and so that all technical requirements have been considered prior to submission.

The services will examine and comment on the technical assessment form, and applicants will have the opportunity to amend the technical aspects based on these comments before the service decides whether to give its approval.

In order to obtain a completed technical assessment, applicants should:

1. Complete section one of the technical assessment form (available for download from the EPSRC opportunity page where you accessed this document, note there are different forms for ARCHER2 and Tier-2).
2. Submit the technical assessment form (with section one completed) to service they are applying to by 2 April 2021 16:00, using the details listed in the supporting documentation. Please make sure the subject header of your submission email states that this is an "Access to HPC submission".

Please note we will not accept proposals that reuse previous technical assessments without the explicit consent of the service. Doing so may cause your proposal to be rejected.

The service will normally return the technical assessment (either approved or with requests for amendments) to the applicant promptly, but this is dependent upon the service and the level of demand at the time of submission.

EPSRC and the services cannot be held responsible for applications that miss the final deadline if the applicant has not met the deadline specified above for submission of the technical assessment.

Stage two: Application form and workplan

Applicants should download the application form from the EPSRC opportunity page, where they accessed this document.

When completing your application form you should take into account the assessment criteria given below and keep in mind that proposals will be assessed by a generalist panel drawn from research areas across EPSRC's remit with computational expertise.

Applications submitted on an incorrect form will not be considered. Unless explicitly stated otherwise, only information contained in the application form and the technical assessment, as well as a separate diagrammatic workplan will be considered by the panel. No additional letters of support are allowed.

Submitting an application

To submit their application to EPSRC the applicant must create up to four separate PDF files containing:

- document one : A completed application form
- document two : A one-page diagrammatic workplan
- document three : A technical assessment approved by the service
- document four (optional) : Cover letter

and submit it via the [SmartSurvey](#) which can be found on the EPSRC opportunity page before the call deadline. A checklist of the required information can be found in the supporting documentation, and further details are given in the 'guidance on writing an application' section below.

Please note we will not accept proposals that reuse previous technical assessments without the explicit consent of the service. Doing so may cause your proposal to be rejected.

Guidance on writing an application

When drafting the sections below, the applicant(s) should keep in mind:

- the assessment criterion: the criterion with which the panels will score the proposals can be found in the assessment criteria section below
- the panel expertise: the panel run by each service will draw upon a broad cross-section of HPC users from disciplines within engineering and the physical sciences. Each service aims to engage panel members who cover the expertise of the research areas of the submitted applications. However, it is not guaranteed that there will be an expert for every application area. Therefore, it is important that the case for support can be understood by a general scientific audience with significant computational expertise.

Objectives (max ½ page)

Briefly list the main objectives of the proposed research. Explain how access to your chosen service will help you to meet these objectives.

Description of the proposed research and its context (max 2½ pages)

Describe your proposed computational research project: detail the scientific and wider context, explain what you are aiming to achieve with the computational resource and how the project will advance the current context, highlight the novelty and timeliness of the work. Explain how the project will deliver or enable high-quality scientific research.

Identify any potential applications of the proposed work. Include how it would contribute to computational science, for example through generating new code, development of existing code, increased computational efficiency, opening up HPC for new scientific areas and industrial sectors.

Please explain why the service applied for is the most appropriate resource for this work.

Importance (max 1 page)

Explain why this proposal warrants support in terms of the importance to the UK. This could include (but is not limited to) economic or industrial impacts, advancing world leading research activities and identifying how the proposed research contributes to national and [EPSRC priority areas](#).

Expertise and track record of the team (max 1 pages)

Provide details of the applicant(s) track record in computational science and engineering, porting, developing and using codes and on the use of relevant HPC facilities. Highlight any previous publications or other scientific outputs arising from HPC work related to this application. If you are new to HPC, explain how you plan to involve partners and use service support to ensure there is sufficient computational expertise to achieve the stated objectives. Include any other information you think is relevant to demonstrate applicant(s) suitability to undertake this work.

Other associated resources (max ½ page)

State details of any additional financial and/or technical support for this or related research projects relevant to this application. As this proposal is for computing resources only, applicants should give details of how any other necessary resources for the project (for example, staff time) will be made available.

Resource management (max 1½ pages)

Please state the requested number of compute units needed throughout the project; as approved by the technical assessment.

Explain how you plan to use and manage the allocated computational resources. It is imperative that applicants only request an allocation they can realistically use in the allocation period. This should take into account queuing times, potential issues with newly ported codes, scheduled maintenance periods and the time needed to interpret intermediate results. Any compute units which have not been used by the end of the period will be lost.

Please remember that the total number of compute units allocated through this process is limited. You need to demonstrate that your code(s) can make optimal use of this resource – for example, by providing detailed, relevant, benchmarking and scaling data. Please note, the panels can recommend a reduction in units or time awarded if the original request is not fully justified.

Describe the staff resources available and how they will be used to complete the project. Keep in mind that it is important that you start the project promptly (see funding requirements in the funding available section), use the resource efficiently and finish within the allocation period.

If the work has particularly novel elements that could be considered high-risk/high reward please indicate how the risks will be managed.

Work plan (max 1 page)

Please attach a diagrammatic work plan for the proposed project to justify the requested amount of time and use of the compute units.

Cover letter (no page limit, optional)

Applicants can use the proposal cover letter to express any other information they feel is relevant to their application.

This letter will only be seen by EPSRC and will not be sent to peer review, in particular the letter will not be shared with the service unless this is specifically requested by the applicant. If the letter contains sensitive information, then the applicant should state clearly whether the information is confidential. The proposal cover letter should also be used to highlight anything that has been discussed and agreed with EPSRC staff beforehand. For example:

- applicant is on maternity leave until a certain date
- [declaration of interest](#)
- additional information about eligibility to apply that would not be appropriately shared in the track record
- [conflict of interest](#) for EPSRC to consider in reviewer or panel participant selection
- the application is an invited resubmission.

Other guidance

EPSRC will not fund a project if it believes that there are ethical concerns that have been overlooked or not appropriately accounted for. If the research will involve human participation or the use of animals covered by the Animals (Scientific Procedures) Act 1986 it is recommended that applicants pay particular attention to the guidance highlighted below. EPSRC reserves the right to reject applications prior to peer review if the Ethical Information sections are not completed correctly.

Other relevant guidance includes: [EPSRC's policy on animal use in research](#) and the [Responsible Innovation Framework](#).

[Read advice on writing proposals.](#)

How we will assess your application

Assessment process

Applications to this opportunity are not subject to postal peer review. The proposals will be reviewed and prioritised directly by a Resource Allocation Panel run by either a Tier-2 service or EPSRC in the case of ARCHER2.

Stage one – technical assessment

Technical assessment forms will be reviewed by technical reviewers at the service you have submit your form to.

The technical assessment stage is carried out to ensure that the level of resources requested have been appropriately scoped and that all technical requirements have been considered prior to submission of an application to EPSRC. Applicants can find the criteria the services will use to assess their technical submission in section two of the technical assessment form. Applicants will receive comments made by technical reviewers on the technical assessment form and should respond to these by amending the technical aspects of their forms. The technical reviewer

may recommend applying to a more appropriate service at this stage. Once the technical reviewer at the service is satisfied that their comments have been addressed, they will approve the technical assessment, and the form will be returned by email with sections one and two completed as required for the full proposal stage.

It is recommended that applicants encrypt the email request for a technical assessment when it is sent to the appropriate service.

At the end of this stage applicants will submit their full proposal to EPSRC as per the submitting an application section.

Please note we will not accept proposals that reuse previous technical assessments without the explicit consent of the service. Doing so may cause your proposal to be rejected.

Stage two – HPC Triaging Committee: Pre-panel meeting

Following the proposal submission deadline, the HPC Triaging Committee (hosted by EPSRC) will consider whether proposals should be moved between services prior to the panel. The aim of this step is to coordinate resource allocation across HPC centres in the UK and allow the transfer of applications which are more appropriate to another system. Therefore, proposals which a service deems more suited to a different HPC machine may be awarded HPC time on another machine.

The HPC Triaging Committee includes representatives from each Tier-2 service (the Director and panel coordinators), the ARCHER2 Service Provider (from the CSE team) and EPSRC. All proposals will be shared with the committee.

The factors the HPC Triaging Committee will use to determine whether a proposal is moved at this stage are:

- the overall demand on each service from the applicants
- the available capacity from the service over the allocation period
- which service is most technically suitable for the proposed work.

Should the HPC Triaging Committee decide to move your proposal to a panel at a different service you will be notified at this stage.

Stage three – Resource Allocation Panel

Applications to this call are not subject to postal peer review and will be reviewed and prioritised directly by a Resource Allocation Panel hosted by the relevant HPC service.

Once applications have been received by EPSRC they will be shared with the panel members.

There will be one panel meeting at each service. At the panel meeting, the panel will rank the submitted proposals in priority order for allocation. The panel can recommend a resubmission of a proposal if appropriate. All proposals will be considered equally against the assessment criterion including those which originally submitted to a different service. Each service will then decide on the total

number of compute units and time awarded and identify any proposals they believe are fundable but for which there are not sufficient resources.

The Resource Allocation Panels can recommend a reduction in units or time awarded if the original request is not fully justified.

Stage four – HPC Triaging Committee: Post-panel meeting

Following the panels at each service there will be a second HPC Triaging Committee where each service will inform EPSRC of the decisions of their panel. The committee will also consider the proposals which were considered fundable at each service, but for which there was not sufficient computational resource, and will move the proposals to another service capable of hosting the work if there is additional capacity.

The services aim to notify applicants of their outcomes within 10 working days of the HPC Triaging Committee post-panel meeting. Successful applicants should then email the service contact detailed in the supporting documentation to confirm the start date of their project.

In the event of this call being substantially oversubscribed as to be unmanageable, EPSRC reserve the right to modify the assessment process.

Assessment criteria

The assessment criteria used by the panel to rank proposals are:

Quality (primary)

The degree to which research excellence is achieved within the proposal itself or enabled through the proposed computational work. In particular:

- the novelty, relationship to the context, timeliness and relevance to identified stakeholders
- the ambition, adventure, transformative aspects or potential outcomes
- the suitability of the proposed methodology and the appropriateness of the approach to achieving impact.

Resource appropriateness and management (secondary)

The appropriateness of the computational resource requested for the proposed work and the plans for its utilisation, including whether:

- the computational work could not be better conducted on another available service, such as local university resources
- the requested computational resources have been fully justified with evidence that the resources will be used efficiently
- the workplan is appropriate and achievable, demonstrating that there is sufficient staff time dedicated to the project
- all the potential risks have been considered and are appropriately mitigated.

Importance (secondary)

The degree to which the research or research enabled through the proposal:

- contributes to or helps maintain: the health of other disciplines, to addressing key UK societal challenges and/or to future UK economic success, and development of emerging industry(s)
- complements other UK research funded in the area, including any relationship to the EPSRC portfolio.

Applicant and partnerships (secondary)

The applicant's ability to deliver the proposed project, with a focus on the computational elements of the work. In particular:

- appropriateness of the track record of the applicant(s)
- balance of skills of the project team, including collaborators.

Feedback

Feedback will not be provided except on the specific request from the panel. In that case, the panel will indicate the points they wish to highlight to the applicant and these will be communicated by either EPSRC (for ARCHER2) or the relevant Tier-2 service.

Contact details

Internal: billy.mcgregor@epsrc.ukri.org; sophie.cummings@epsrc.ukri.org

External: A full list of contact details for each Tier-2 service along with the ARCHER2 Helpdesk is available in the supporting documentation. For any other queries please contact researchinfrastructure@epsrc.ukri.org.

Additional info

Supporting documents

[ARCHER2 technical assessment form \(Word, 90KB\)](#)

[Tier-2 technical assessment form \(Word, 92KB\)](#)

[Application form \(Word, 38KB\)](#)

[Service specification \(PDF, 180KB\)](#)

[Equality impact assessment \(PDF, 185KB\)](#)

Timeline

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- 22 February 2021**
Opening date
 - 2 April 2021 16:00**
Technical assessment deadline
 - 30 April 2021 16:00**
Closing date
 - Approximately 17 May 2021**
HPC triaging committee: pre-panel meeting
 - Week commencing 28 June 2021**
Panel meetings
 - Approximately 6 July 2021**
HPC triaging committee: post-panel meeting
 - From 12 July 2021**
Expected project start dates

NOTE This is the first phase of our new website – let us know if you have [feedback](#) or would like to [help us test new developments](#).