

Quick Reference

Please note that you must read the full Call document for guidance before submitting your proposal

Resource Allocation Panel (RAP): Access to ARCHER

Call type: Invitation for proposals

Closing date for applications to EPSRC: 25 April 2019 at 16:00

Closing date for the ARCHER technical assessment that needs to be attached to your application: 11 April 2019 at 16:00

Funding Available: A total of 150,000 kAUs (kilo-Allocation Units) of ARCHER resource is available through this call. Computing resources on ARCHER are awarded in Allocation Units (kAUs). The number of kAUs requested must be fully justified in the application. The maximum eligible time period that can be requested through this call is six months.

How to apply: A two-stage application process will be used. Stage 1: applicants must submit a Technical Assessment to the ARCHER help desk, along with a short project description. Stage 2: applicants must then submit all relevant documentation via the embedded form on the EPSRC Call page.

Assessment Process: Applications to this call are not subject to postal peer review and will be reviewed and prioritised directly by a Resource Allocation Panel (RAP). Any application deemed to be more appropriate for a [Tier-2](#) facility prior to the RAP assessment will be deemed out of remit and referred to the relevant Tier-2 facility and assessed accordingly.

Key Dates:

Activity	Date
Technical Assessment Deadline	11 April 2019
Closing date for application submissions	25 April 2019
Questions for clarification stage	June 2019
Panel Meetings	June 2019
Project Start Date	June/July 2019

Additional information: Applications to this call can request ARCHER computing resource for a maximum duration of six months only.

Contacts: Ruth McQuitty (email: ARCHERRAP@epsrc.ukri.org)

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Related themes: Research infrastructure

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Summary

This is a call for applications to access ARCHER through the Resource Allocation Panel. Please note that this is a call for projects outside of the remit of the High End Computing Consortia. The total amount of resource for this call is limited to ~ 150,000 kAU (10,000,000 core-hours), subject to the quality of the proposals.

We would encourage applicants to show relevant scaling data for their codes in order to assure the panel that the allocated resource is used efficiently. If no scaling data is available on the system, we would encourage researchers to obtain this information through a preliminary instant access to ARCHER:
<http://www.archer.ac.uk/access/instant-access/>

Resource Allocation Panel calls for ARCHER resources are published approximately every four months.

Background

EPSRC offers access to ARCHER through calls for proposals to the Resource Allocation Panel (RAP). Users can request significant amounts (>1,000 kAUs) of computing resource over a maximum one-year period. The aim of this call is to provide:

Access to our national state-of-the-art high performance computing facility for proposals of high scientific quality within the EPSRC remit that would benefit from ARCHER.

A non-exclusive list of eligible projects includes:

- Short computational projects that do not warrant a full grant application
- UK led collaborative projects with international and/or industry partners
- Joint applications from students (as Co-Is) with proven HPC experience (e.g. a successfully completed instant access project) and their PIs
- Projects that link consecutive standard grant applications or that aid the preparation of a grant or fellowship application
- Extended feasibility studies and trialling application developments at scale (for a short pump priming allocation of maximal six months, please contact the ARCHER service for “instant access”).

Applications to the Resource Allocation Panel should lie within the remit of EPSRC although proposals intersecting with the remits of other councils will be considered. Please note that **EPSRC reserves the right to reject proposals where the majority of research lies outside the remit of EPSRC**. If you are unsure about eligibility, please contact EPSRC before preparing your application.

For more information about EPSRC’s portfolio and strategies, see our website: <https://epsrc.ukri.org/research/ourportfolio/>

Technical Details for ARCHER

System: Cray XC30

Interconnect: Cray Aries (Dragonfly topology)

XC30 Cabinets : 26

Compute Nodes: 4920

Processor: Intel XEON E5-2697v2, 12-core 2.7GHz IvyBridge

Each compute node has two 12-core Intel Ivy Bridge series processors giving a total of 118,080 processing cores.

Standard compute nodes have 64 GB of memory shared between the two processors. There is a subset of large memory nodes (376 nodes) having 128 GB of memory shared between the two processors.

Computing resources on ARCHER are awarded in kilo-Allocation Units (kAUs) with one kAU representing a measure of relative performance of ARCHER based on a range of benchmarks compared to previous national services. On ARCHER, one core hour equates to 0.015 kAU. To calculate the number of kAUs you need, please refer to the ARCHER kAU calculator: <http://www.archer.ac.uk/access/au-calculator/>.

Further technical information on ARCHER is available on the ARCHER website:
<http://www.archer.ac.uk/about-archer/>

For more information about EPSRC's portfolio and strategies, see our website:
<https://epsrc.ukri.org/research/ourportfolio/>

Funding available

Applications to this call can request ARCHER computing resource only for a maximum duration of **6 months**. **Please note that this is a reduction from the standard duration of 12 months**, and this is being applied to ensure projects do not overlap with the introduction of ARCHER 2. Although there is no limit to the number of Allocation Units (KAUs) which can be applied for, **there is a limit to the total amount of KAUs available** against this call. EPSRC aims to allocate around 150,000 KAUs (10,000,000 core-hours) at every Resource Allocation Panel depending on the available resource on the machine. Applicants with large resource requirements are encouraged to get in touch with the named EPSRC contact before submission.

Since this type of computer access is not intended to replace full peer reviewed standard grant access, full economic costs for projects cannot be requested; only ARCHER computing resource is available through this mechanism. Any resource allocated is for immediate use and the **start date of the proposal must be within one month of the panel date** (see Call Schedule).

Please note that we do not generally grant extensions of a RAP project and any KAUs which have not been used by the end of the project will be lost (exceptions to this policy include situations where the an applicant needs to take parental or sick leave and this significantly impacts their ability to use their allocation, such circumstances should be reported to the helpdesk as soon as is feasible). It is therefore imperative that applicants are well prepared and only request an allocation they can realistically use in the allocated period. This should take into account queuing times, potential issues with newly ported codes, scheduled maintenance periods (<http://www.archer.ac.uk/status/maintenance/>) and the time to respond to intermediate results. **Please do not hesitate to contact the helpdesk at an early stage if any computational issues occur.** Exciting high-risk/high-reward research is strongly encouraged, but careful consideration is needed to ensure that the requested allocation is appropriate and can realistically be used within the project duration.

Please note that we would not allocate resource through the RAP where one of the High End Computing consortia (HEC consortia) would allocate projects of this type. As a result, you must justify in the technical assessment document why the resource cannot be allocated by one of these consortia. If your application falls within the remit of a consortium, please contact the respective consortium directly:

- Materials Chemistry Consortium (<http://www.ucl.ac.uk/klmc/mcc/>)
- UK Turbulence Consortium (<https://www.ukturbulence.co.uk/>)
- Biomolecular Simulation Consortium (<http://www.hecbiosim.ac.uk/>)
- Plasma Physics Consortium (<http://www.ccpp.ac.uk/hec/index.html>)
- Mesoscale Engineering Consortium (<http://www.ukcomes.org/>)

- UK Car-Parrinello Consortium (<http://www.ukcp.ac.uk/>)
- UK Turbulent Reacting Flows Consortium (<http://www.ukctrf.com/>)
- UK Atomic, Molecular and Optical Physics R-Matrix Consortium (<http://www.archer.ac.uk/community/consortia/ukamor/>)

Please consider carefully if ARCHER is the appropriate resource for your proposal. If your project would be better placed at a Tier-2 (see below link)

<https://epsrc.ukri.org/research/facilities/hpc/tier2/>

or Tier-3 (university level) resource, please contact the respective Tier-2 centre or local University directly. Any application deemed to be more appropriate for a Tier 2 facility following the RAP assessment will be referred to a clearing panel for Tier 2 facilities and assessed accordingly. The applicant will be informed that this has occurred but will not have the opportunity to revise their application. However, the appropriate panels will consider the application taking account of the fact that it was originally submitted to ARCHER.

Equality, Diversity and Inclusion

The long term strength of the UK research base depends on harnessing all the available talent and the Research Councils have together developed the ambitious UK Research and Innovation Equality, Diversity and Inclusion Action Plan <https://www.ukri.org/files/legacy/skills/action-plan-edi-2016/>

In line with the UK Research and Innovation Diversity Principles, EPSRC expects that equality and diversity is embedded at all levels and in all aspects of research practice. We are committed to supporting the research community in the diverse ways a research career can be built with our investments. This includes career breaks, support for people with caring responsibilities, flexible working and alternative working patterns. With this in mind, we welcomes applications from academics who job share, have a part-time contract, need flexible working arrangements or those currently committed to other longer, large existing grants. Please see our Equality and Diversity webpages at <https://epsrc.ukri.org/funding/equalitydiversity/> for further information.

Equipment

Equipment is not available through this call.

For more information on equipment funding, please see: <https://epsrc.ukri.org/research/facilities/equipment/>

Eligibility

Only individuals eligible to hold a full EPSRC grant can apply to the Resource Allocation Panel. This specifically implies that students wishing to access ARCHER through this route must obtain commitment for support by an eligible PI.

As this call is a targeted funding opportunity provided by EPSRC, higher education institutions, and some research council institutes and independent research organisations are eligible to apply. A list of eligible organisations to apply to EPSRC is provided at: <https://www.ukri.org/funding/how-to-apply/eligibility/>

Resubmissions to the RAP from previously successful applicants who applied to the last call are not allowed. **Unsuccessful applicants may therefore re-apply to the next available RAP Call, although we do not allow more than two consecutive applications to the RAP (as PI or Co-I).**

Only one application per PI or Co-I is permitted in each round.

For information on the eligibility of organisations and individuals to receive EPSRC funding, see the EPSRC Funding Guide:

<https://epsrc.ukri.org/funding/howtoapply/fundingguide/>

How to apply

A two-stage application process will be used.

Stage 1- Applicants must submit a Technical Assessment to the ARCHER help desk, along with a short project description. This TA form will be assessed by the ARCHER team and returned to the applicant. A list of contact details for each centre can be found in annex 3.

Stage 2- Applicants must then submit the following documents via the embedded form on the EPSRC Call page:

- Completed and approved Technical Assessment
- Cover Letter (optional)
- Application Form
- A one-page diagrammatic workplan

1. ARCHER technical assessment

Applicants must submit a completed technical assessment from the ARCHER service provider together with their application in order for it to be considered by the panel. This additional step is important to ensure that the level of resources requested has been appropriately scoped and that all technical requirements have been considered prior to submission. It is recommended that applicants encrypt the email request for a Technical Assessment when it is sent to the ARCHER helpdesk. Applicants will receive comments made by technical reviewers on the Technical Assessment form and can respond to these by amending the technical aspects of their forms before the Technical Assessment is approved.

Applicants are encouraged to show relevant scaling data for their codes to demonstrate that the allocated resource is used efficiently. If no scaling data is available on the system, we would encourage researchers to obtain this information through a preliminary instant access to ARCHER:

<http://www.archer.ac.uk/access/instant-access/>

In order to obtain a technical assessment, applicants should submit a short project description together with an ARCHER technical assessment form

<http://www.archer.ac.uk/access/ta/> to the ARCHER service (support@archer.ac.uk) prior to **11 April 2019 at 16:00.**

Please make sure the subject header of your submission email states that this is an "ARCHER RAP submission".

The completed technical assessment will normally be returned to the applicant promptly, although if the reviewer has concerns about the project, it may take extra time for these to be addressed. **EPSRC and the service provider 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.**

2. Application form and workplan

Applicants should download the application form from the ARCHER website:

<http://www.archer.ac.uk/access/rap/spring2019/ApplicationFormRAPSpring2019.docx> (MS Word format)

When completing your proposal you should take into account the assessment criteria given below (see Assessment Criteria) and consider the broad expertise of the panel (see Assessment Process). **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

Provided the technical assessment endorses the proposal, **applications should be sent together with the completed technical assessment** and a one-page diagrammatic workplan as attachments to the embedded online form at <https://epsrc.ukri.org/funding/calls/archerrapspring2019/> before the call deadline. Please submit all documents as a single PDF file.

Guidance on writing an application

Track Record (max one page): Provide details of the applicant(s) track record in computational science and engineering, porting, developing and using codes, on HPC facilities such as ARCHER. Highlight any previous publications or other scientific outputs arising from HPC work relevant to this application. If you are new to HPC, how do you plan to involve partners / CSE support from the ARCHER Service to ensure the necessary computing expertise is guaranteed? Please include any other information you think is relevant to demonstrate applicant(s) suitability to undertake this work.

If your project involves collaboration with an international or industrial partner please include any information you feel is relevant regarding their expertise and your collaboration with them.

Additional Support (max ½ page): State details of any additional financial and/or technical support for this or other 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 (e.g. staff time) will be made available.

Objectives (max ½ page): Briefly list the main objectives of the proposed research, written for a generalist scientific audience. Explain how ARCHER will help you to meet these objectives.

National Importance (max ½ page): Please justify why this proposal warrants support in terms of the importance to the UK and explain how the proposed research relates to and contributes to EPSRC priority areas (<https://epsrc.ukri.org/research/ourportfolio/>)

Please also state which research area(s) this proposal relates to:

<https://epsrc.ukri.org/research/ourportfolio/researchareas/>

Case for support (max two pages): Describe your proposed research explaining clearly the novelty and timeliness of the work. Explain how it will deliver a high quality scientific output, or lead to results that will ultimately enable high quality scientific research. If the work has particularly novel elements that could be considered high risk - high reward please indicate how the risks will be managed.

Please explain why ARCHER is the most appropriate resource for this work, rather than other national, regional or local (university) resources. If your proposal is within the remit of one of the EPSRC HEC consortia (see links above), please explain why the consortium could not provide access to you in this case. We encourage you to attach a letter from the consortium to strengthen your case.

Pathway to Impact (max ½ page): Please identify any potential applications of the proposed work which are not already covered in the case for support section, especially focussing on economic and societal impacts of your project. How might this work impact the national / international high performance computing landscape (for example generating new code, development of existing code, increased computational efficiency, opening up HPC for new scientific areas and industrial sectors). Will any specific training opportunities arise from this project? Would access to ARCHER impact new or existing industry-partnerships? Explain how you will ensure that impacts are achieved.

Further general guidance on impact can be found here:

<https://www.ukri.org/innovation/excellence-with-impact/pathways-to-impact/>.

Resources Management (max one page): Please state the requested number of kAUs, memory, storage and notional costs; as approved by the technical assessment. Please state how much storage space on the Research Data Facility (RDF) you require. It is important that you ensure a timely start and finish of the project as well as efficient use of the granted kAU allocation over the requested time period. No extensions will be granted and any kAUs which have not been used by the end of the period will be lost.

Explain how you plan to use and manage the allocated resources. Please remember that the total number of AUs allocated through this process is limited. If you are applying for a comparatively large number of kAUs, you need to demonstrate that your code(s) can make optimal use of this resource – e.g. by providing detailed, relevant, benchmarking and scaling data. (Please note, the Resource Allocation Panel can recommend a reduction in kAUs or time awarded if the original request is not fully justified).

List of High Performance Computing related publications (max one page): Please provide a list of your scientific output in terms of publications in the area of High Performance Computing over the last 2 years. Please state the name and type of machine used for the work (Tier-3 = local clusters; Tier-2 =

regional machine; Tier-1 = national machines; e.g. ARCHER; Tier-0: large international supercomputers, e.g. through PRACE or INCITE).

Work plan (max one page): Please attach a diagrammatic work plan for the proposed project to justify the requested amount of time and kAUs.

For advice on writing proposals see:

<https://epsrc.ukri.org/funding/howtoapply/preparing/>

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. If the applicant is applying for a grant which has an interview assessment stage, they should inform EPSRC of any personal circumstances for EPSRC to consider.

This letter will only be seen by EPSRC and will not be sent to Peer Review. For sensitive information 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.

Assessment

Assessment process

Stage 1- Technical Assessment

Technical Assessment forms will be reviewed by technical reviewers e.g. a Research Software Engineer at ARCHER. 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 will receive comments made by technical reviewers on the Technical Assessment form and can respond to these by amending the technical aspects of their forms before the Technical Assessment is approved. It is recommended that applicants encrypt the email request for a Technical Assessment when it is sent to the ARCHER helpdesk.

At the Technical Assessment stage if your application is judged to be more appropriate for access at a Tier-2 Centre, then your Technical Assessment will be passed on to that HPC facility for review and you will be notified and encouraged to submit an application to that centre. 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 a Tier-2 system. Therefore proposals which the technical reviewer deems more suited to a different HPC machine may be awarded HPC time on a Tier-2 machine.

Stage 2- 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 (RAP).

The RAP is selected to comprise a broad cross section of HPC users from disciplines within engineering and the physical sciences. EPSRC aims to engage panel members who cover the expertise of the research areas of the submitted applications. However, EPSRC cannot guarantee an expert for every exact application area. Therefore it is important that the case for support can be understood by a general, scientifically and computationally literate audience.

Once applications have been received by EPSRC they will be directed to the panel members. The panel will review proposals prior to the RAP meeting and request clarification or further information from the applicants where appropriate. This request will be provided to the applicants by EPSRC and applicants will be given five working days to provide their response. It is recommended that the applicants encrypt this response.

At the panel meeting, the RAP will rank the submitted proposals in priority order for allocation. EPSRC will then decide on the total number of kAUs and time awarded. Applications may be moved between ARCHER and Tier-2 Centres prior to the RAP where this is deemed appropriate by the ARCHER team, the Tier-2 Directors and EPSRC. Any application deemed to be more appropriate for a Tier 2 facility prior to the RAP assessment will be referred to the relevant panel for Tier 2 facilities and assessed accordingly.

Applicants will be notified of the outcome of the panel within five working days of the meeting. Brief feedback will be provided to applicants after the panel and the panel can recommend if an applicant can resubmit to this call. **Successful applicants should then contact support@archer.ac.uk to confirm the start date of their project.**

Assessment criteria

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

- **Scientific quality (Primary):**
 - Sufficient evidence of the quality, scientific importance, novelty and timeliness of the proposal in terms of the scientific research proposed.
 - The proposal will deliver a high quality scientific output, or lead to results that will ultimately enable high quality scientific research.
 - The proposed work will explore novel and new ideas that may have a high risk, high reward element.
- **Appropriateness and Technical suitability (Secondary Major):**
 - The technical suitability of the proposed work for the ARCHER facility is clearly explained.
 - The rationale for why ARCHER is the best or only UK system on which this research can be conducted and why this work could not

be performed on other computing facilities at local Universities or regional centres is clear.

- **National Importance (Secondary):**

- A description of importance of this work to the UK is given, explaining how the proposed research relates and contributes to EPSRC priorities and research areas.

- **Applicant(s) (Secondary):**

- The team identified within this proposal are appropriate to undertake the research proposed.
- The applicant(s)' track record in computational science and engineering, porting, developing and using codes, on HPC facilities such as ARCHER is sufficient.
- The applicant(s)' have a strong track record of publishing in this area.
- Appropriate support mechanisms are in place to guarantee efficient use of the allocated resource.

- **Impact (Secondary):**

- Awareness of the potential broader societal and economic impacts of the proposed work with regard to the application domain and/or the HPC landscape, including potential further applications and how they will be facilitated are demonstrated.
- Sufficient training or career development opportunities are provided by this project.
- The potential for future industrial partnerships is clearly described.
- A clear pathway is shown for how the described impacts will be achieved and captured.

- **Resources and Management (Secondary):**

- The level of requested resource (no of kAUs) is justified and appropriate.
- A clear work plan that justifies the requested allocation is evident.
- Sufficient staff time has been allocated to complete the proposed work.
- A clear plan for managing this allocation over the duration of the project is articulated.
- Risks to the project have been identified and there are suitable risk management strategies in place as well as mitigations for dealing with any issues that arise.

Feedback

As the proposals will not be postal peer-reviewed, brief feedback will be given to each applicant after the Resource Allocation Panel.

Moving forward

Submissions to this call will **not** count towards the Repeatedly Unsuccessful Applicants Policy. Further information about the policy can be found at: <https://epsrc.ukri.org/funding/howtoapply/basics/resubpol/rua/>

Applicants will be notified of the outcome of the panel within five working days of the meeting.

Key dates

Activity	Date
Technical Assessment Deadline	11 April 2019
Closing date for application submissions	25 April 2019
Questions for clarification stage	June 2019
Panel Meetings	June 2019
Project Start Date	June/July 2019

*EPSRC aims to adhere to the key dates as published, however there may be exceptions where the sift, prioritisation or interview meeting may have to change due to panel member availability.

Submissions must be accompanied by a completed technical assessment

Contacts

Please contact Ruth McQuitty with any queries at: ARCHERRAP@epsrc.ukri.org

Change log

Name	Date	Version	Change
Ruth McQuitty	03/01/2019	1	N/A
Kieran Jarrett	25/01/2019	2	Used new call template (copied bespoke information into new template). Addressed comments from peer review team.

Name	Date	Version	Change
Ruth McQuitty	05/02/2019	3	Made additional changes on advice from Peer Review and harmonised RAP call documents.
Ruth McQuitty	18/02/2019	4	Made additional changes on advice from Peer Review and harmonised RAP call documents.

Attachments Check List

Attachment Type	Maximum Page length	Mandatory/ Optional	Extra Guidance
Application Form	1 page each for track record, resource management, HPC publications and work plan. ½ page each for additional support, objectives, national importance and pathways to impact. 2 pages for the case for support.	M	Containing track record, additional support, objectives, national importance, case for support, pathways to impact, resource management, list of HPC publications and a work plan.
Proposal Cover Letter	No page limit	Optional	The cover letter can be used to highlight any important information to EPSRC. This attachment type is not seen by reviewers or panel members.
ARCHER Technical assessment	No page limits	M	Approved by ARCHER Helpdesk

Please ensure you adhere to the above attachment requirements when submitting your proposal. Any missing, over length or unnecessary attachments may result in your proposal being rejected.