eCSE Overview

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Overview

- The Embedded CSE (eCSE) programme provides funding for the ARCHER user community to develop software in a sustainable manner for ARCHER, including both the Cray XC30 and XC40 Xeon Phi systems
- Objectives
  - To sustain key codes for the UK computational science community
  - To facilitate efficient use of ARCHER resources through enhanced code performance/functionality
  - To offer a not-for-profit service that provides value for money to the HPC user community and beyond
- Also
  - Develop and sustain codes and communities from new areas
  - Support and encourage early career researchers

Scope - examples

- Implementation of algorithmic improvements within an existing code
- Improving the scalability of software on higher core counts
- Improvements to code which allows new science to be carried out
- Porting and optimising a code to run efficiently on ARCHER
  - For both XC30 and XC40 Xeon Phi systems
- Adding new functionality to existing codes
- Code development to take a code from a Tier-2 (Regional) to Tier-1 (National) level bringing new communities onto ARCHER

- XC40 Xeon Phi proposals can involvement development of a code to prepare for new Tier-2 systems
- Funding cannot be used for scientific research

New Communities

- Funding is available for
  - Established ARCHER communities - proposals from these communities are encouraged.
  - However, proposals from new scientific communities are also encouraged.
- New scientific communities
  - Communities from **scientific** areas not currently exploiting the ARCHER system.
  - Likely to have a scientific need for ARCHER and a need for greater computational power than available at a regional level.
- New codes to ARCHER are not necessarily new scientific communities
  - New codes / users from existing communities can apply as an established community
  - Encouraged to contact / join existing appropriate consortia
- Panel will assess whether a project is from a new community based on the information provided
  - If not a new community, this will automatically be considered as an existing community proposal
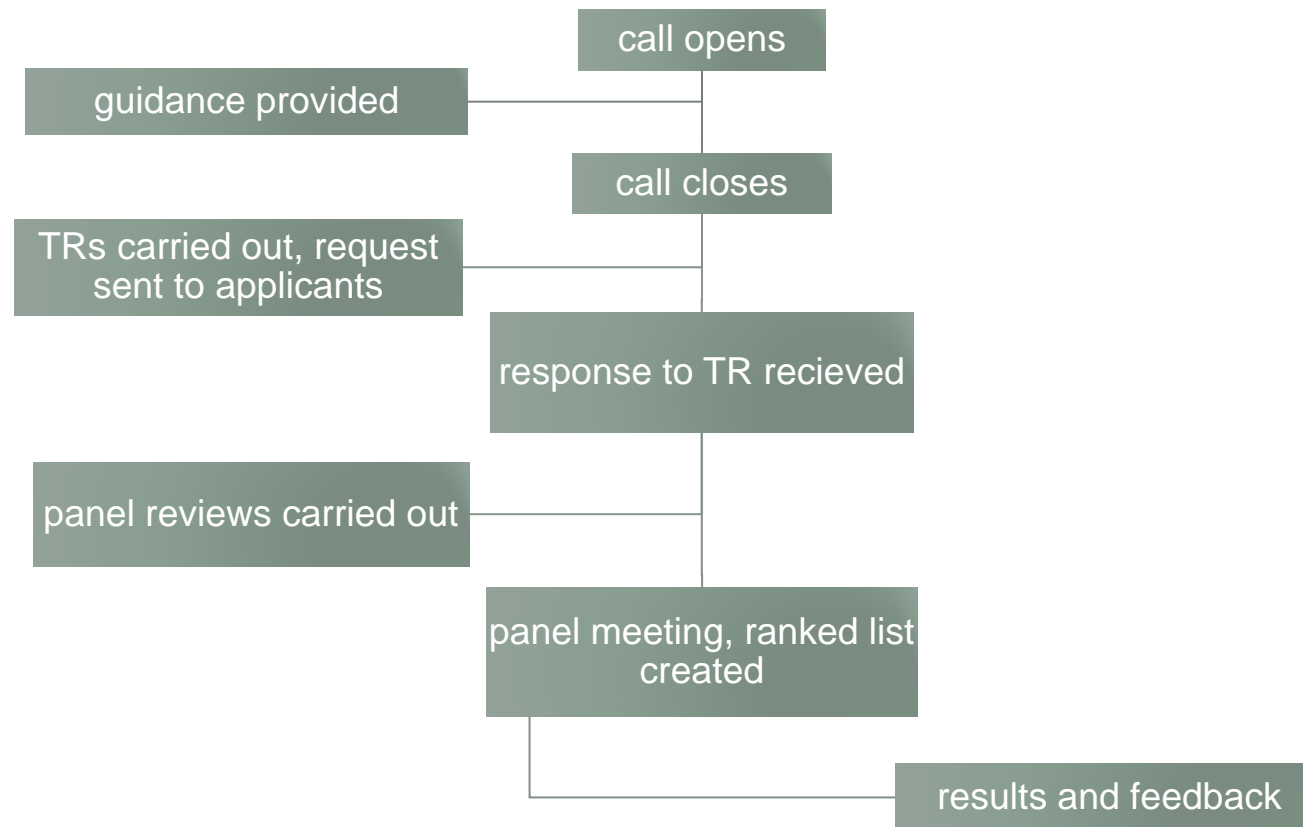
eCSE Calls

- 3 regular calls per year
  - Current (10th) call closes 4pm on 31st Jan 2017
  - Limit of 12 months of funded *effort*
  - Most projects' *duration* between 3 and 12 months, although can be slightly longer
- 2 further calls planned
  - **eCSE11**: opens Tuesday 28th March 2017 and closes at 4pm on Tuesday 9th May 2017
  - **eCSE12**: opens Tuesday 1st August 2017 and closes at 4pm on Tuesday 12th September 2017

eCSE process

call opens

guidance provided

call closes

TRs carried out, request sent to applicants

response to TR recieved

panel reviews carried out

panel meeting, ranked list created

results and feedback

eCSE Applications (1)

- After call opens, proposals should be submitted via SAFE using the *eCSE Funding Calls* pages:
  - https://www.archer.ac.uk/safe/
  - Please first register for a SAFE account if you are not already a registered SAFE user

- Information and guidelines for applying can be found at:
  - https://www.archer.ac.uk/community/eCSE/
- Applicants can request guidance from the centralised CSE team before submission:
  - Please contact the ARCHER Helpdesk: support@archer.ac.uk

eCSE Applications (2)

- Funding can be requested for
  - Staff located at the institution of the PI, third parties, staff from the centralised CSE support team, or a mixture of the above
- Early career researchers and support staff can be PIs
  - PI institution must be UK based, CO-Is may be elsewhere
- Ability of technical staff to complete the work is assessed
  - Considered together with PI/Co-I expertise and staff training plan
- Not-for-profit
  - Committed to average of 14 FTE (Full Time Equivalent) per year. Additional money will be put into further eCSE PMs. Costed at 80% FEC (Full Economic Costing)

eCSE Applications (3)

- Technical effort level
  - Effort should be specified in Person Months (PMs)
- Costs
  - 100% FEC should be provided for each proposed candidate
    - We pay 80% FEC for successful projects
    - No need to specify costs for ARCHER CSE team member (i.e. EPCC staff)
  - Details about any existing funding for the proposed technical candidates should be provided
- CPU time
  - Each project is provided with CPU hours: 50 kAUs/staff month
  - Exceptional requests for more time can be made, but only for time needed to complete the project objectives
  - Additional CPU time will not be provided for scientific studies
  - Other routes exist to request CPU time e.g. the RAP panel

eCSE Applications (4)

- Travel funding can be requested for the technical members of staff
    - Not available for PIs or Co-Is
    - Can fund travel within the UK to meet the objectives of the project – i.e. for meetings between partners or relevant training
    - Does not fund impact related activities such as workshops, conferences, etc.
    - Usually fund 1 trip every 3-4 months
    - Please provide a breakdown of the travel costs – by individual and by trip
- Previous project and proposals
    - Details of previous proposals, previous eCSE projects and related projects are requested

Reviewing eCSE Applications

- Two stage reviews for all eCSE applications
    - Technical Reviews (TRs)
    - Panel Reviews

Technical Review (TR)

- Administrative checks will be applied for all submissions before TRs

- Applications will be reviewed by technical advisors and the ARCHER centralised CSE team
  - Majority carried out by the centralised team
  - If conflicts of interest, proposal reviewed by external advisors

- Look for missing information or detail

TR request for further information

- Any requests for further information will be sent to applicants after the admin check and TRs

- Applicants will be given the opportunity to respond
  - Original proposal will not be updated, only additional response can be submitted via SAFE
  - All information supplied to the panel
  - Can also choose to withdraw and submit to a later panel

Panel Reviews & Panel Meetings

- Each application is independently reviewed by two panel members prior to the panel meeting
  - Based on the Assessment Criteria
- Panel Meeting takes place within around 8 weeks after the call closed
- For each application, Panel can decide to fund, not fund or, if needed, fund in part
- Panel can fund with requirements e.g. propose improvements
- Robust conflict of interest and confidentiality process in place
- A small number of early career researchers may be present as observers
  - Selected from a competitive selection process
  - 2nd call closed Tuesday 17th January 2017

Assessment Criteria

- Applicants
  - Track record of applicants, including all team members, demonstrate project can be completed
- New Communities Justification
  - Enough detail to justify application is from a New Community
- Technical context
  - Sufficient technical information provided
- Benefits
  - Why it is needed? What are the expected benefits?
  - Scientific, computational and to ARCHER community
- Pathway to impact
  - Impact activities to ensure potential benefits are achieved
- Work plan
  - Appropriate plan for management, technical work and resources
- Overall
  - Overall quality and objectives

Points to remember

- Specific Benefit to the ARCHER community
    - Availability of code on ARCHER after the work is complete
    - Who will utilise the improvements and for what activity? Be specific
    - License arrangements – should not create a significant barrier for ARCHER users
    - End result must be to use ARCHER
- Objectives are important
    - Where possible should be measurable and quantifiable
- New Communities
    - If a new code but in an existing area, investigate existing consortium

Points to remember (Cont.)

- Travel
  - Only fund travel for the technical staff members within the UK
  - Do not fund travel to conferences, workshops, etc.
- Technical staffing experience and profile considered by the panel
  - Experience of PIs/Co-Is relevant as is training plan and/or additional support
- Evidence
  - The panel looks for evidence that the work is achievable e.g. scaling evidence
  - Ask for help from the CSE team if you need – but not the day before the deadline!
- Existing funding
  - Looking to ensure the work is not supposed to be carried out under a different project

Final Decisions and Feedback

- Final decisions will be sent to applicants together with feedback from the panel
  - Within around 2 weeks after the panel meeting
- Unsuccessful applications
  - Will be provided with constructive feedback
  - If appropriate, will be encouraged to contact the CSE team for further advice and support in the preparation for resubmission to a future call
  - Any resubmission will be treated in the same way as a new submission

For funded projects

- What happens if your project is accepted?
  - Contracts are set up
  - ARCHER project is set up and CPU-hours awarded
  - Contact point is established
  - Engagement with ARCHER community expected
  - Reporting
    - Final report
    - https://www.archer.ac.uk/community/eCSE/eCSE-reports.php
  - ARCHER webinar presented
  - All projects are showcased on the ARCHER website
    - Subset of projects chosen for case studies

Guidelines for eCSE Applications to KNL (1)

- eCSE applicants can apply to develop on the KNL system
  - New for this current (9th) call
- Existing eCSE Applications Guidance applies
  - The ARCHER system includes the XC30 and XC40 KNL
- A few notes:

- Proposed technical staff
  - Panel will assess the technical expertise of applicants as usual
  - If the proposed technical staff have no/limited experience of KNL, the panel will consider the overall support available – such as the support and experience of the PI/Co-I and any proposed training courses
- Time on the KNL
  - As with all eCSE proposals, all successful projects will be awarded a small AU budget to complete the work
    - This will be commensurate with the level of AUs funded for projects on the ARCHER Cray XC30
  - Other mechanisms exist to gain large amount of AUs

Guidelines for eCSE Applications to KNL (2)

- Technical Information
  - The Panel will assess the technical Information in KNL proposals in exactly the same way as standard ARCHER applications.
  - However, the panel will have guidance to reflect the more speculative nature of the hardware
    - This will acknowledge that KNL applications may have less scaling evidence and/or previous results
    - However the panel will still be looking for evidence that the proposed work is suitable, achievable and likely to provide benefit

- Benefit for the ARCHER community
  - The KNL system is part of the ARCHER system, so availability of software, licensing are relevant
  - The existing ARCHER community may still benefit even if not directly on ARCHER
  - For KNL, the benefit may include benefit to future Tier-2 systems, particularly when it involves closer integration between Tier-1 and Tier-2. community

Guidelines for eCSE Applications to KNL (3)

- Further info:
  - Additional instructions for eCSE applications to KNL have been enclosed in the eCSE Applications Guidance document which should be used together with the main eCSE Application Guidelines
  - https://www.archer.ac.uk/community/eCSE/eCSE_ApplicationGuidance.pdf

eCSE "drop-in" session

- Questions…?
  - Feel free to ask via audio or type into chat…