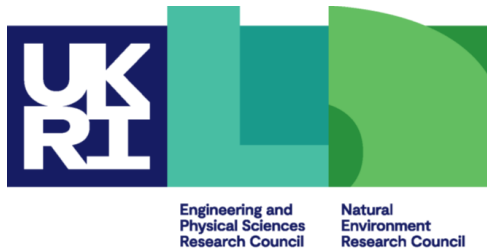


# ARCHER2 Training Courses

---

## General Overview



# Reusing this material



This work is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License.

<https://creativecommons.org/licenses/by-nc-sa/4.0/>

This means you are free to copy and redistribute the material and adapt and build on the material under the following terms: You must give appropriate credit, provide a link to the license and indicate if changes were made. If you adapt or build on the material you must distribute your work under the same license as the original.

Acknowledge EPCC as follows: “© EPCC, The University of Edinburgh, [www.epcc.ed.ac.uk](http://www.epcc.ed.ac.uk)”

Note that this presentation contains images owned by others. Please seek their permission before reusing these images.





- New UK National Supercomputer Service
  - managed by UKRI/EP SRC
  - to be housed, operated and supported by EPCC
  - hardware supplied by Cray
- Training provided by the ARCHER2 Computational Science and Engineering (CSE) support team
  - 60 days per year at various locations
  - free to all academics



# Located at EPCC's Advanced Computing Facility (ACF)





# ARCHER2@ACF



# Cirrus@ACF



# What is EPCC?

- UK national supercomputer centre
  - founded in 1990 (originally Edinburgh Parallel Computing Centre)
  - a self-funding Centre of Excellence at The University of Edinburgh
  - running national parallel systems since Cray T3D in 1994
  - over 100 full-time staff
  - a range of academic research and commercial projects
  - postgraduate teaching and HPC training courses
- Get in contact if you want to collaborate
  - many staff are named RAs on research grants
  - joint research proposals
  - European project consortia





# Edinburgh





# Key ARCHER2 Resources

- Upcoming courses
  - <http://www.archer2.ac.uk/training/>
- Material from past courses
  - <https://www.archer2.ac.uk/training/materials/>
- Virtual tutorials (online)
  - <http://www.archer2.ac.uk/training/>
- Documentation
  - <http://www.archer2.ac.uk/documentation/>

# Who am I?

David Henty [d.henty@epcc.ed.ac.uk](mailto:d.henty@epcc.ed.ac.uk)

- In charge of education and training programme at EPCC
  - MSc
  - PRACE Training Centre
  - courses on the ARCHER2 training programme
  - commercial training
  - ...
- Also do HPC research
  - new parallel programming models, accelerators, performance, ...



# Other Resources

- Please fill in the feedback form!
  - you will be sent a link at the end of the course
- General enquiries about ARCHER2 go to the helpdesk
  - [support@archer2.ac.uk](mailto:support@archer2.ac.uk)
- EPCC runs one-year taught postgraduate masters courses
  - **MSc in HPC** and **MSc in HPC with Data Science**
  - awarded by the University of Edinburgh since 2001
  - scholarships available
  - <http://www.epcc.ed.ac.uk/msc/>



# MSc in HPC / HPC with Data Science



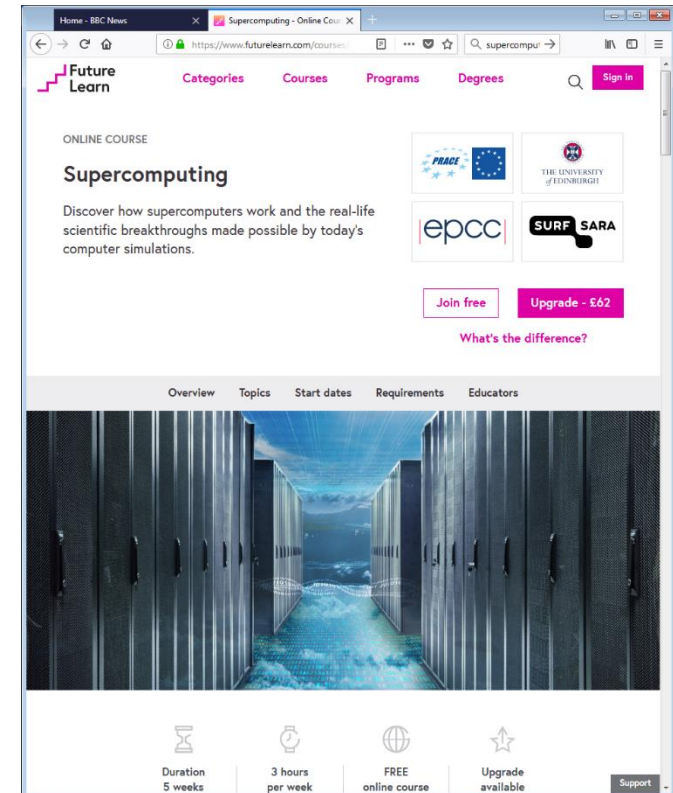
- taught by EPCC staff (plus options in Informatics, Maths, Physics, ...)
- 12 taught courses (8 months); research dissertation (4 months)
- also available fully online for part-time, intermittent study



# Supercomputing MOOC

- [futurelearn.com/courses/supercomputing](https://futurelearn.com/courses/supercomputing)

- 5 weeks
  - free (with paid “upgrade” option)
  - conceptual
  - no computer programming required
- 
- Run five times from 2017 - 2019
    - typically thousands of “joiners”
    - very collaborative
    - lots of support from fellow learners
  - Available now in “self-study” mode
    - no active support from EPCC educators



# Access during course

- Personal accounts for duration of course
  - will allow machine access for up to a month afterwards
- Accounts will be closed two weeks after access ends
  - all files etc. will be deleted
  - take copies of all your work beforehand!
- Course materials (slides, exercises etc) will continue to be available from ARCHER2 website
  - archived on ARCHER2 training pages for future reference

# Security of room

- We cannot guarantee that the training venue is secure!
- We advise that you take your laptops and valuables with you during any breaks, e.g. over lunch time.

# Code of Conduct

<https://www.archer2.ac.uk/about/policies/code-of-conduct.html>

- We expect all course trainers and attendees to:
  - Use welcoming and inclusive language
  - Be respectful of different viewpoints and experiences
  - Gracefully accept constructive criticism
  - Focus on what is best for the community
  - Show courtesy and respect towards other community members
- See web page for full details and incident reporting form





# Funding calls

- Embedded CSE support
  - Through a series of regular calls, Embedded CSE (eCSE) support provides funding to the ARCHER2 user community to develop software in a sustainable manner to improve research on the ARCHER2 service. The funding allows the employment of a Research Software Engineer (RSE) to carry out software development of ARCHER2 software.
- See <https://www.archer2.ac.uk/ecse/> for details

# ARCHER2 hardware / software setup

- 1000 nodes each with 128 AMD CPU-cores
  - made up of 2x64-Core AMD multicore processors
- Batch access via SLURM: sbatch, squeue, ...
- Two file systems – you have two directories:
  - /home/ta033/ta033/username
  - /work/ta0033/ta033/username
- You must run all parallel jobs from /work/
  - I recommend you “cd” straight there every time you log in
- Reserved queues each day for fast turnaround





PARTNERSHIP FOR ADVANCED COMPUTING IN EUROPE

# The Partnership for Advanced Computing in Europe | PRACE

## EPCC's PRACE Training Centre



PARTNERSHIP FOR ADVANCED COMPUTING IN EUROPE

# PRACE | 26 members

(UK represented by EPCC on behalf of UKRI)

## Hosting Members

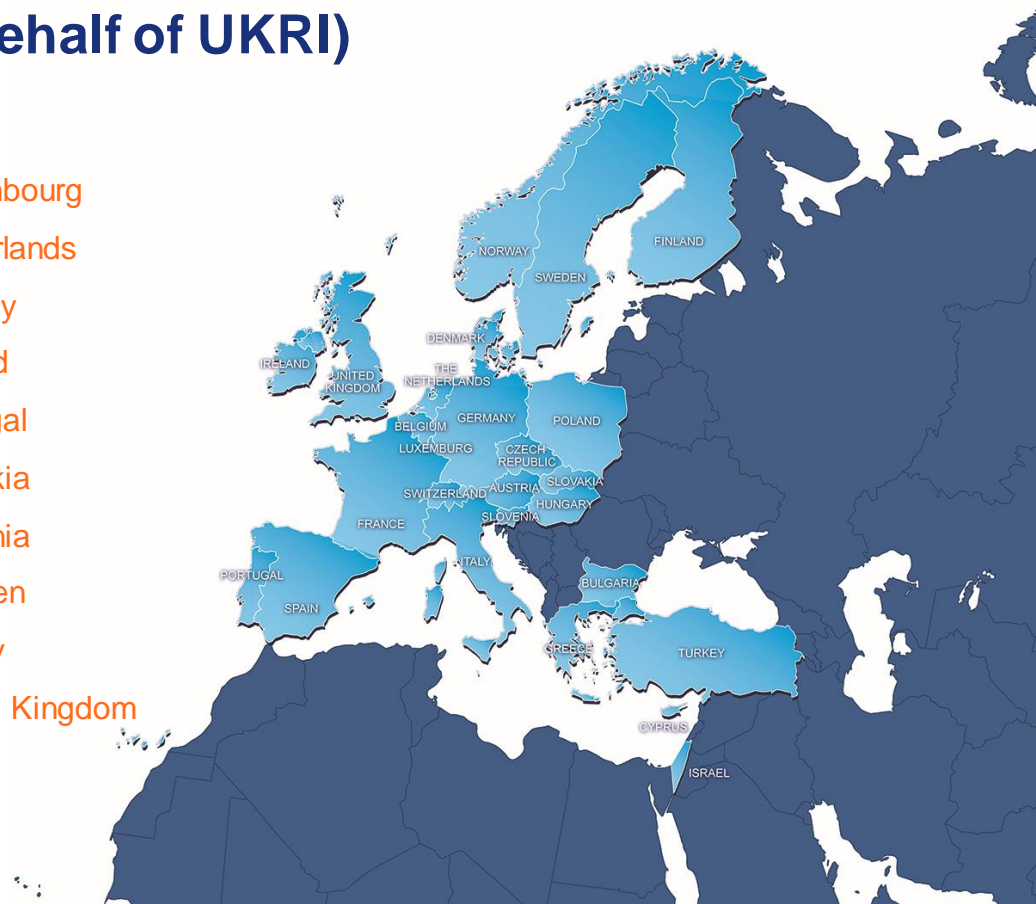
- ▶ France
- ▶ Germany
- ▶ Italy
- ▶ Spain
- ▶ Switzerland

## General Partners (PRACE 2)

- ▶ Austria
- ▶ Belgium
- ▶ Bulgaria
- ▶ Cyprus
- ▶ Czech Republic
- ▶ Denmark
- ▶ Finland
- ▶ Greece
- ▶ Hungary
- ▶ Ireland
- ▶ Israel
- ▶ Luxembourg
- ▶ Netherlands
- ▶ Norway
- ▶ Poland
- ▶ Portugal
- ▶ Slovakia
- ▶ Slovenia
- ▶ Sweden
- ▶ Turkey
- ▶ United Kingdom

## Observers

- ▶ Croatia
- ▶ Romania







PARTNERSHIP FOR ADVANCED COMPUTING IN EUROPE

# PRACE | 10 Training Centres (PTCs)

- ▶ Hubs for world-class HPC training for researchers in Europe: [www.training.prace-ri.eu](http://www.training.prace-ri.eu)
  - ▶ Barcelona Supercomputing Center (Spain)
  - ▶ CINECA - Consorzio Interuniversitario (Italy)
  - ▶ CSC - IT Center for Science Ltd (Finland)
  - ▶ EPCC at the University of Edinburgh (UK)
  - ▶ Gauss Centre for Supercomputing (Germany)
  - ▶ GRNET (Greece)
  - ▶ ICHEC (Ireland)
  - ▶ IT4I (Czech Republic)
  - ▶ Maison de la Simulation (France)
  - ▶ SURFsara (Netherlands)



PARTNERSHIP FOR ADVANCED COMPUTING IN EUROPE

# PRACE | Courses

- ▶ PRACE funds delivery for PTC courses
- ▶ Upcoming courses (at EPCC and throughout Europe)
  - ▶ [www.archer2.ac.uk/training/](http://www.archer2.ac.uk/training/)
  - ▶ [www.training.prace-ri.eu](http://www.training.prace-ri.eu)
- ▶ Please fill in the course feedback form!
  - ▶ linked in from PRACE course page (where you initially registered)
  - ▶ you will also receive reminder emails containing the link

# I hope you enjoy the course



- ... and *please ask questions!*