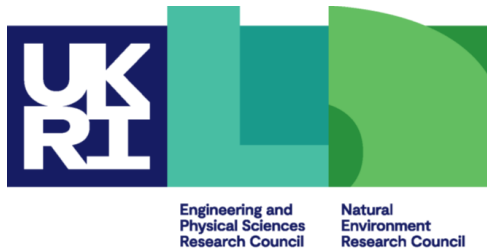


# ARCHER2 Training Courses

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## General Overview



# Reusing this material



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- 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



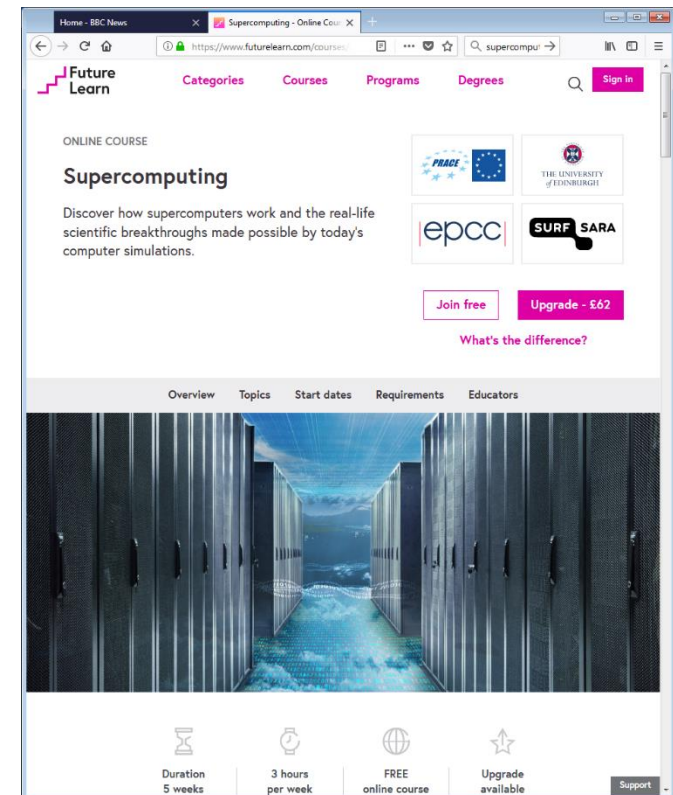
- taught by EPCC staff (plus options in Informatics, Maths, Physics, ...)
- 12 taught courses (8 months); research dissertation (4 months)
- also available fully online for part-time, intermittent study



# 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

- 5,860 nodes each with 128 AMD CPU-cores
  - made up of 2x64-Core AMD multicore processors
  - more than 750,000 CPU-cores!
- Batch access via SLURM: sbatch, squeue, ...
- Two file systems – you have two directories:
  - /home/project/project/username
  - /work/project/project/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

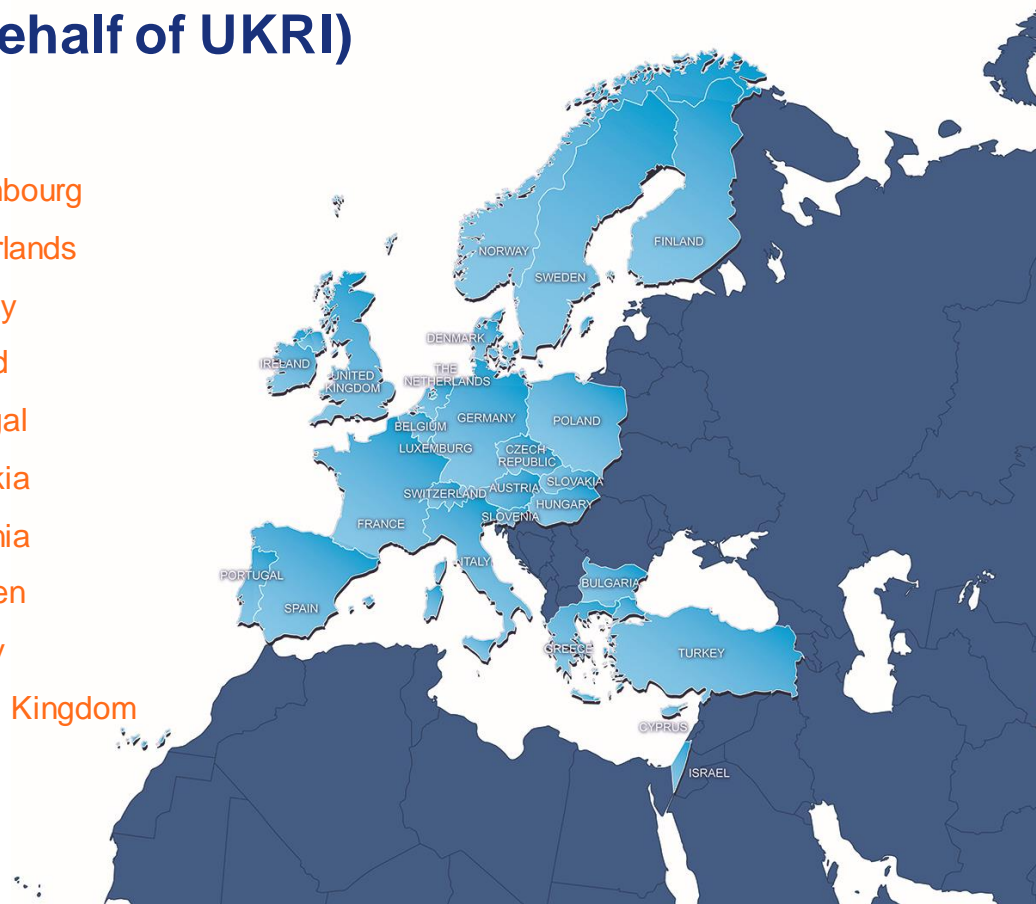
- ▶ France
- ▶ Germany
- ▶ Italy
- ▶ Spain
- ▶ Switzerland

## General Partners (PRACE 2)

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

## 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!*