ARCHER2 Training Courses

General Overview

Reusing this material

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- New UK National Supercomputer Service
  - managed by UKRI/EPSRC
  - 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

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Located at EPCC's Advanced Computing Facility (ACF)

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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

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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?

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- In charge of education and training programme at EPCC
  - MSc
  - 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
- 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

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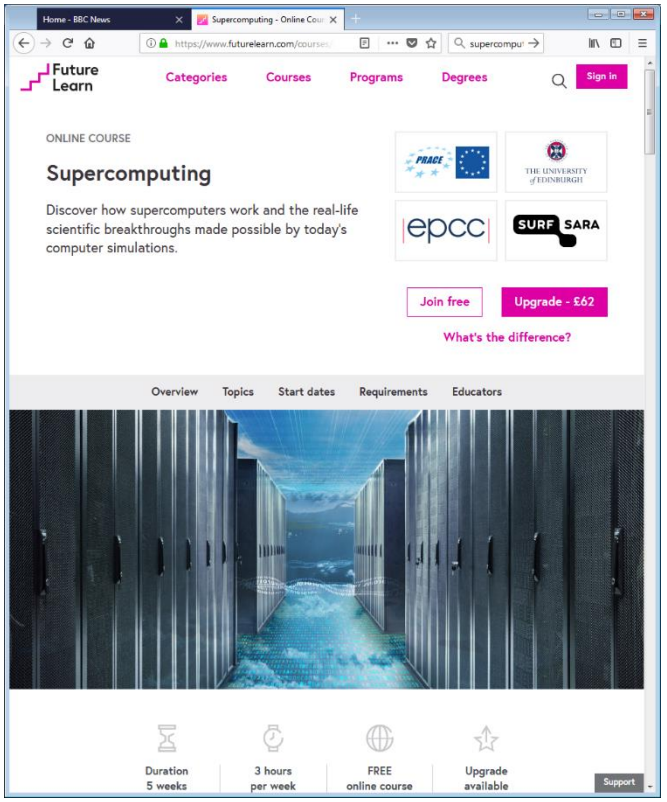
Supercomputing MOOC

- 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

Access longer term

- Various ways to apply for time on ARCHER2
  - https://www.archer2.ac.uk/support-access/access.html
- All require justification of resources
  - Pump Priming has the lowest barrier to entry
  - designed for exploratory work, e.g. in advance of a full application
- Or take the “ARCHER2 Driving Test”
  - https://www.archer2.ac.uk/training/driving-test.html
  - 800 CU for up to 12 months

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

I hope you enjoy the course

- ... and *please ask questions*!