

INTRODUCTION TO THE ARCHER KNIGHTS LANDING CLUSTER

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Intel's IPCC program

- Collaboration between Intel and leading Universities around the world
- “Intel® Parallel Computing Centers are universities, institutions, and labs that are leaders in their field, focusing on modernizing applications to increase parallelism and scalability through optimizations that leverage cores, caches, threads, and vector capabilities of microprocessors and coprocessors.”



Course Parameters

- Pre-requisites
 - Some level of C or Fortran programming knowledge
- Hands-on practicals form an integral part of the course.
 - We will help with these

Aims

- On completion of this course attendees should:
 - Understand the Knights Landing (KNL) processor.
 - Understand how to access and run jobs on the ARCHER KNL cluster
 - Use the different memory available in the nodes.
 - Understand the impact of vectorisation on performance on KNL.
 - Understand how to check how well an application is vectorising and to modify applications to improve vectorisation

Course materials

- Everything online:
 - Slides, exercise notes, code to use

`https://www.archer.ac.uk/training/course-material/2016/11/161101_KNL_EPCC/index.php`

Timetable

- 09.30 Introduction to the KNL and the ARCHER KNL cluster
- 10.15 Hands-on: Running on the ARCHER KNLs
- 10.45 Coffee
- 11.15 Memory modes programming
- 12.00 Hands-on: Investigating Memory modes
- 12.30 Lunch
- 13.30 Hands-on: Investigating Memory modes
- 14.00 Cluster modes
- 14.15 Vectorisation
- 15.00 Hands-on: Vectorisation
- 15.30 Coffee
- 16.00 Hands-on: Continue practicals or bring your own code
- 17.00 Finish

