Cambridge Tier-2 "Peta-5" – Current Status

- **Tier-2 theme:** Data Intensive Computation and Analytics

- **EPSRC PI:** Prof. Paul Alexander

  - **Local Director:** Dr. Paul Calleja

  - **Co-PI:** G. Pullan, L. Drumright, MC. Payne, S. McIntosh-Smith, O. Kenway, M. Giles, C. Schönlieb, SJ. Cox, PD. Haynes, F. Fraternali, M. Wilkinson

  - **Institutions involved:** Cambridge, Oxford, Bristol, KCL, UCL, ICL, Southampton, Leicester

- **RAC:** under definition

- **Total expenditure:** ~£10m (£5m EPSRC funded)

- **Procurement:** concluded before Christmas, contract signed.

- **Deployment:** KNL & GPU - April '17, x86 SkyLake & "co-design I/O" - July '17

- **General Service:** July / August '17

Cambridge Tier-2 "Peta-5" – HW components and Delivery

- **KNL:** 21,888 cores, ~0.5 PFlop/s (+ 4 login nodes)

  - 342 nodes, 7210 (64 cores), 96 GB RAM, 120 GB SSD, OPA 2:1

- **GPU:** 1,080 cores, 360 GPU, ~1.0 PFlop/s (+ 4 login nodes)

  - 90 nodes, 12c E5-2650 v4, 4x GPU P100 16 GB, 96 GB RAM, 120 GB SSD, EDR 2:1

- **SkyLake:** 24,576 cores, ~1.0 PFlop/s (+ 8 login nodes)

  - (low mem) 384 nodes, 2x 16c "6142", 384 GB RAM, 120 GB SSD, OPA 2:1

  - (high mem) 384 nodes, 2x 16c "6142", 192 GB RAM, 120 GB SSD, OPA 2:1

- **Lustre:** 5 PB usable

  - 16 OSS, 2 MDS, 4 MDT, 8 LNET + IEEL support (over OPA)

- **Tape:** housing up to 10 PB tapes

- **Hadoop:** 50 nodes (600 TB) + 12 nodes (288 TB) (+ 2 head nodes)

UNIVERSITY OF CAMBRIDGE

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Cambridge Tier-2 "Peta-5" – Support & RSE

- Pool of 3 FTE RSE available to help porting new applications and exploit community codes on heterogeneous systems

  - Cambridge RSE time handled by RAC, coordinated by Cambridge team

- Main training activities

  - Training on GPU (OpenACC, CUDA FORTRAN, CUDA C)

  - Training on Intel Many-Core (in collaboration with DELL and Intel)

  - Training on Parallel I/O (*under development*)

- Happy to open to other Tier-2 RSE groups for testing purposes

  - Rules of engagement yet to define, limited allocations to be reviewed

- Tier-2 "Champion" / Reference RSE contact: Mr. Filippo Spiga