Baskerville - past and future

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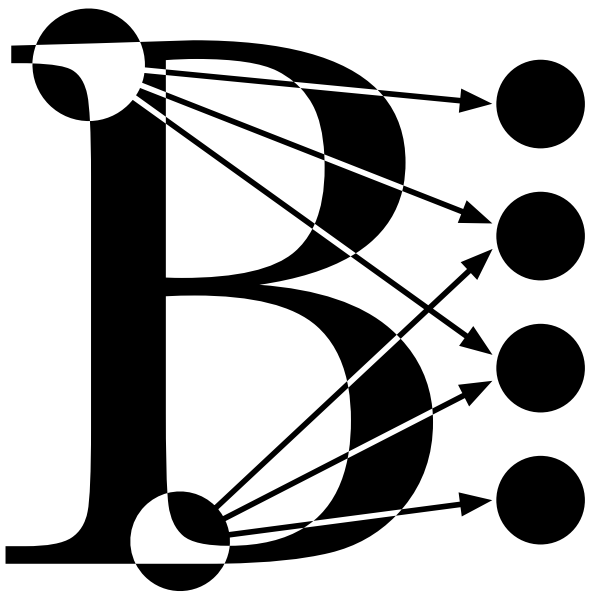
University of Birmingham,
Advanced Research Computing (ARC) Team

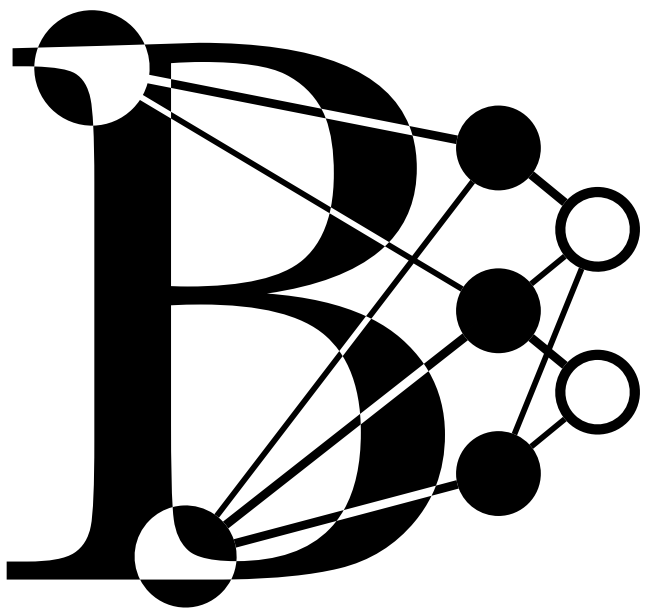
Baskerville

- Baskerville Tier 2 HPC



Baskerville

- Baskerville NCR (National Compute Resource)



Baskerville Tier 2

- Official start 14th September 2021
- End 30th March 2026
- Initial investment of £4 million
- 228 A100 GPUs, IceLake CPUs
  - 46 A100-40 GPU nodes
  - 11 A100-80 GPU nodes
  - *2 H100-80 GPUs Benchmark nodes, AMD EPYC CPUs*
- SLURM scheduler

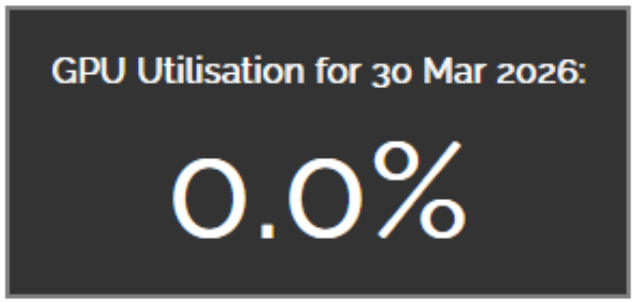
Baskerville Users

Research Partners

Technology Partners

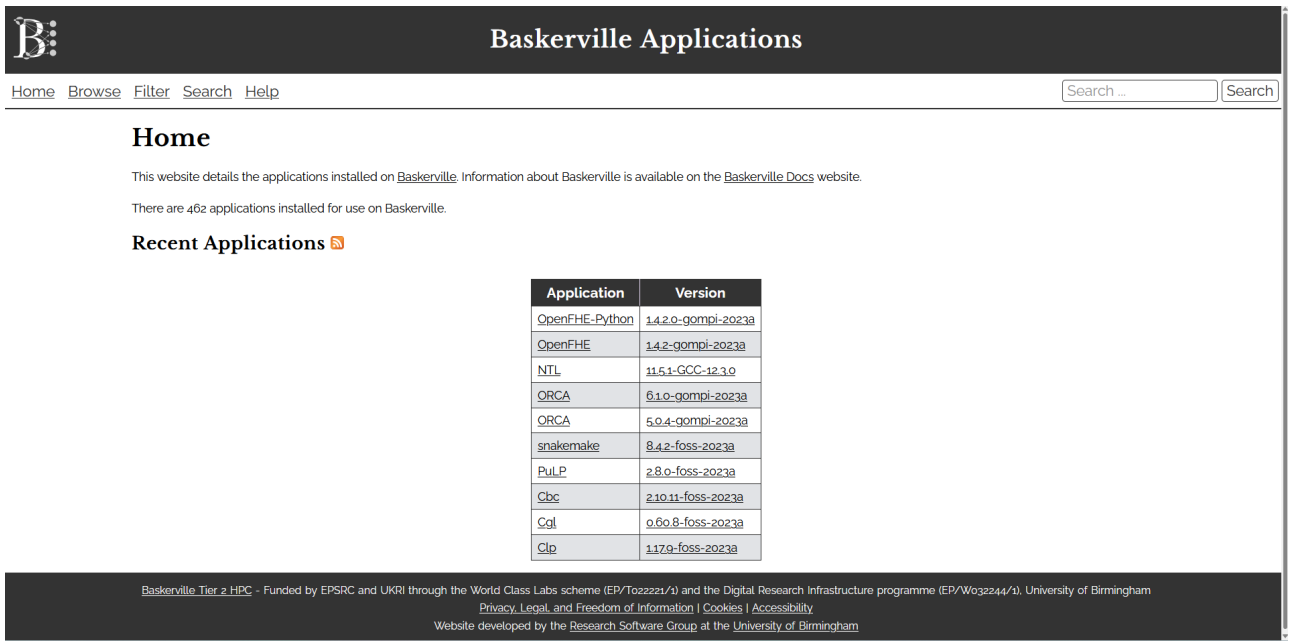
- Over 930 total users over Baskerville lifetime
- 3 ways to access Baskerville:
  1. **University of Birmingham** expected HPC experience
  2. **Consortiuum partners** range of experience we did annual training
  3. **EPSRC** typically very experienced and software requests in application
- Either self-installed (virtual environments or containers)
- Range of packages requested, but we want to maximise GPU usage

Baskerville Job Priority



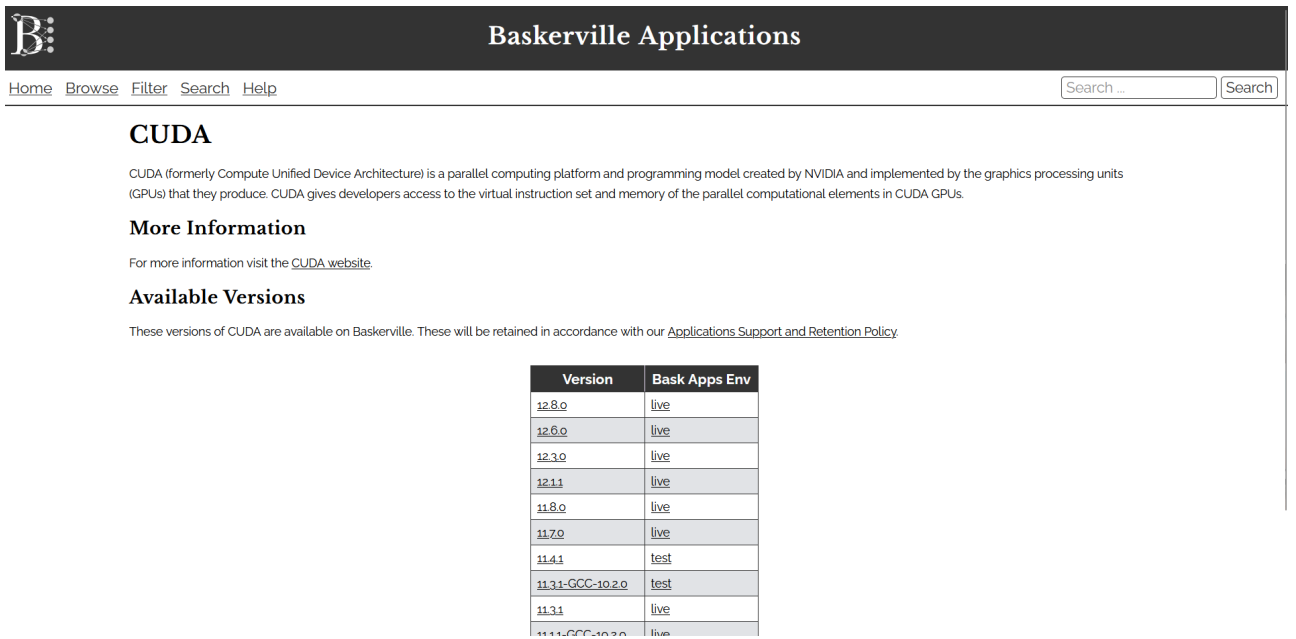
- Aim to maximise usage
- Each site has a set percentage of Baskerville
- Job priority would change based on overall usage
- Projects given a limit of GPU hours
  - Except some consortium partners
  - Soft limit, email sent to project

Baskerville Modules



- Website https://apps.baskerville.ac.uk
- Apps installed via EasyBuild
- 462 applications installed
- Dev install, GitLab PR and then live

Baskerville Modules



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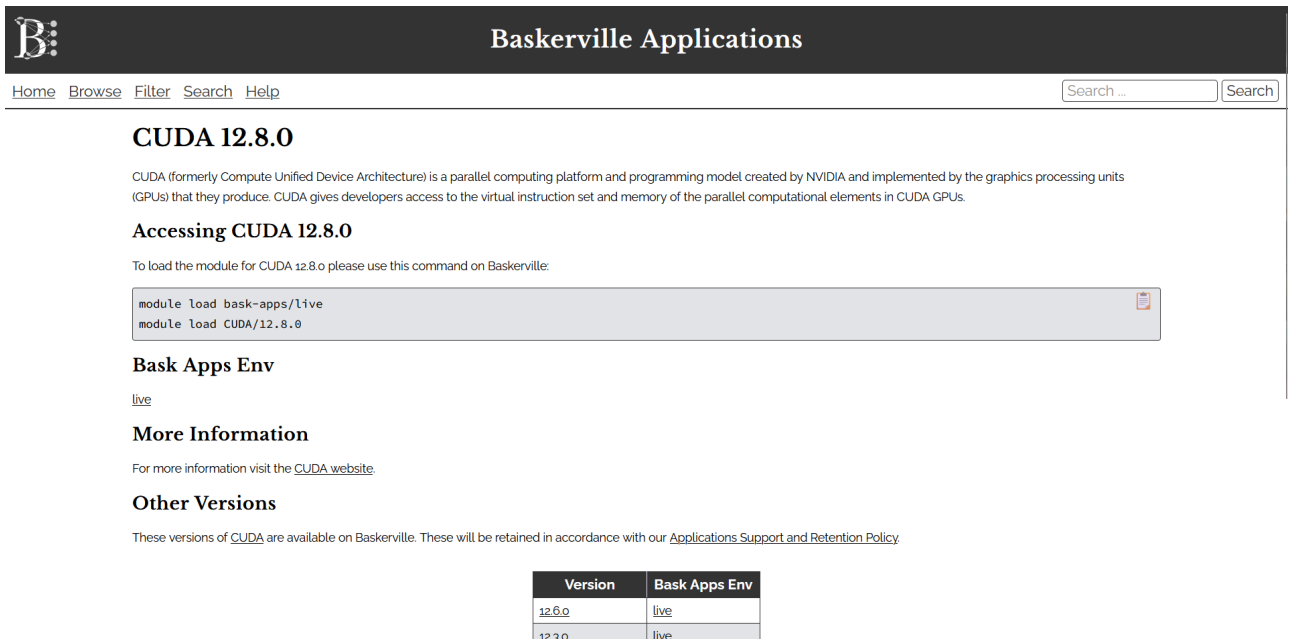


- Website https://apps.baskerville.ac.uk
- Apps installed via EasyBuild
- 462 applications installed
- Dev install, GitLab PR and then live
- 2023a latest toolchain, but newer CUDA versions (12.8.0)
- Apps site provides more information and module load commands

Baskerville Portal

- OnDemand https://www.openondemand.org/
- Useful for non traditional HPC users
- Portal applications:
  - JupyterLab (GPU)
    - Apptainer version of JupyterLab
    - Lmod extension to load modules
    - Can use Conda environments (MiniForge module)
  - TensorboardX (CPU)
  - Linaro-Forge (CPU and GPU)
  - RELION (CPU) & doppio (CPU)
    - Submit jobs in GUI to use GPUs

Baskerville Jobs

Total Jobs	Non-portal	Portal
1,468,024	1,438,348	29,676

Total GPUh	Non-portal	Portal
5,834,309	4,775,601	1,058,708*

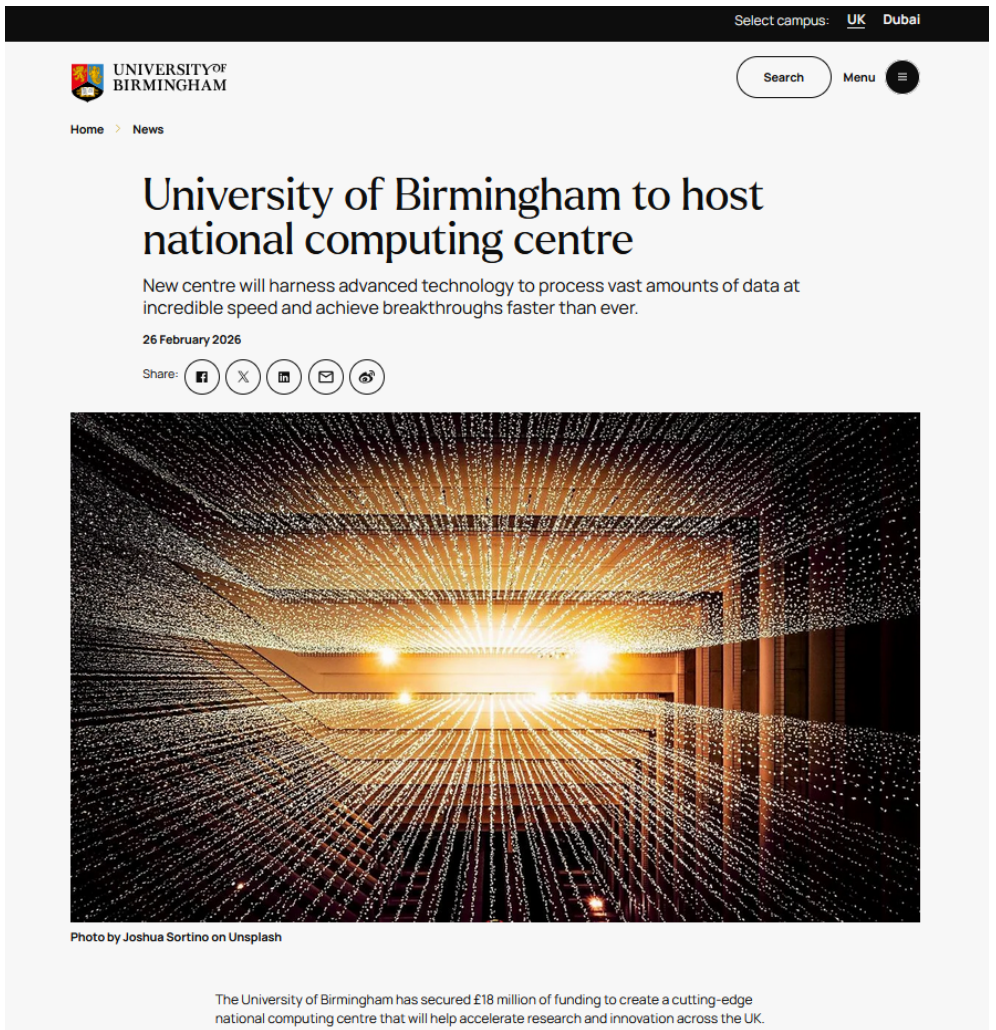
Portal Jobs **2%** of total jobs submitted,
but **18.1%** of total GPU hours
*idle session

Baskerville NCR

Baskerville NCR system

- Early stages
- Inital investment of £18 million
- Blackwell (B200) GPUs with Intel CPUs
- *GPU partitioning*

Baskerville NCR Users



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University of Birmingham to host national computing centre

New centre will harness advanced technology to process vast amounts of data at incredible speed and achieve breakthroughs faster than ever.

26 February 2026

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Photo by Joshua Sortino on Unsplash

The University of Birmingham has secured £18 million of funding to create a cutting-edge national computing centre that will help accelerate research and innovation across the UK.

- Wider range of disciplines
- No consortiuum partners
- Higher level of HPC experience expected

Baskerville NCR Modules

- Early stages
- Built off the strong points of Baskerville
  - Strong emphasis on self-installations
  - Provide up to date toolchains (Python, CUDA, etc)
  - Most likely fewer central installations
  - OnDemand, but also reduced

The BlueBEAR in the room

- A strong influence on what we have done on Baskerville and will do on Baskerville NCR is BlueBEAR
- BlueBEAR is our tier 3 HPC system:
  - More users
  - More software installed (over 2,000)
  - More extensive testing of installed applications (Reframe)

Thank You

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University of Birmingham