Engineering and Physical Sciences Research Council

UK Research and Innovation

Access to High Performance Computing – spring 2025 Service Specification

ARCHER2

Service details

Service Contact Details	support@archer2.ac.uk
Service Webpage	https://www.archer2.ac.uk/

Hardware and Technical specifications

System name	ARCHER2
Compute nodes	5,860 compute nodes, each with dual AMD Rome 64 core CPUs at 2.2GHz, for 748,544 cores in total and 1.57 PBytes of total system memory
Processors	
Interconnect	Cray Slingshot
Storage	14.5 PBytes of Lustre work storage in 4 file systems
Software available	https://www.archer2.ac.uk/about/hardware.html
Additional information on hardware available	https://www.archer2.ac.uk/about/hardware.html
Use cases particularly suited to this Service	Large capacity jobs

Resources available through this call

Unit(s) of Allocation	ARCHER2 allocates its compute resource in ARCHER2 Compute Units (CU). Please note 1 node hour on ARCHER2 costs 1 CU, unless jobs are submitted in low priority queues where a discount applies.
Indicative level of computational resource available through this call	Up to 3.4 MCUs, 10% of EPSRC's ARCHER2 compute
Indicative sizes of previously successful applications (not a restriction)	Access to HPC facilities 2024 Ranged from 12 kCUs – 1.3 MCUs
% compute allocated to EPSRC mechanisms (including but not limited to this call)	~77- 83%, this is the total % of ARCHER2 EPSRC can utilise each year i.e. EPSRC's ARCHER2 compute.
Storage available	Flexible with justification

Requirements on applications for the service

Project length restrictions over and above those in the call	1 year
Maximum and Minimum requests	Users must request more than 4000 CU. Users who want less can use the Pump-priming access route to ARCHER2, see https://www.archer2.ac.uk/support-access/access.html.

Isambard 3

Service details

Service Contact Details	brics-enquiries@bristol.ac.uk
Service Webpage	https://docs.isambard.ac.uk

Hardware and Technical specifications

System name	Isambard 3
Compute nodes	380
Processors	NVIDIA Grace-Grace CPUs, 72 cores per socket, 144 cores per node at 3.1 GHz. 240 GBytes LPDDR5X memory providing ~1 TByte per second of memory bandwidth per node. NVIDIA's Grace CPUs implement the Arm instruction set (aarch64), rather than the x86 instruction set used by Intel and AMD.
Interconnect	HPE Slingshot 11 200 Gbps
Storage	2 PetaBytes HPE ClusterStor Lustre
Software available	Cray Programming Environment (CPE), GNU compilers and libraries, Clang/LLVM compilers and libraries, NVIDIA compilers and libraries. Further software described on service webpage.
Additional information on hardware available	See service webpage for detailed information for "Isambard 3 Grace"
Use cases particularly suited to this Service	General-purpose HPC codes with a focus on memory bandwidth.

Resources available through this call

Unit(s) of Allocation	Node hours (NH)
Indicative level of computational resource available through this call	Up to 60% of Isambard 3's compute resource is available for allocation through this call. For the 12 months of this call, this amounts to about 1.1 million node hours (1.1M NH).
Indicative sizes of previously successful applications (not a restriction)	We anticipate projects will apply for allocations in the range of tens of thousands to low hundreds of thousands of node hours.

% compute allocated to EPSRC mechanisms (including but not limited to this call)	60% for UKRI in total.
Storage available	The 2 PetaByte storage system in total can support projects needing up to tens of TeraBytes each, with appropriate justification. Note that Isambard 3's storage is scratch space only, and project data that needs to be stored safely and securely beyond the project will need to be stored elsewhere, as per the Isambard 3 terms and conditions.

Requirements on applications for the service

Project length restrictions over and above those in the call	12 months
Maximum and Minimum requests	Applications will preferably demonstrate that the codes have already successfully run on an Arm-based platform, such as a previous incarnation of Isambard, or on Fugaku or AWS Graviton etc. If this is not possible, reasonable evidence that the codes are not x86-specific should be provided. Additionally, evidence that the codes have already been shown to scale well to node sizes appropriate for Isambard 3 and Tier 2 more generally should be provided.

Northern Intensive Computing Environment (Bede)

Service details

Service Contact Details	Rebecca Appleby (arc.admin@durham.ac.uk), +44(0) 191 33 4250
Service Webpage	https://n8cir.org.uk/bede/

Hardware and Technical specifications

System name	bede.dur.ac.uk
Compute nodes	32x IBM AC922 with 0.5TB and 4x32GB V100 GPU, 4x IBM IC922 with 256GB and 4xT4 GPU, 6/7*x Grace Hopper (96GB GPU RAM) 480GB LPDDR5X RAM 1/0*x Grace-Grace 480GB LPDDR5X RAM 1 DUAL 2xGrace Hopper (144GB GPU RAM) 480GB LPDDR5X RAM *Grace-Grace node normally configured as login environment, but can be swapped in as a compute node with a Grace-Hopper node configured for login if requested.
Processors	AC922: 2x16core 2.7Ghz Power 9. IC922: 2x20core 2.9Ghz Power 9. Grace Hopper: Grace 72-core aarch64 CPU 3.483Ghz, Hopper H100 96/144GB HBM3e

Interconnect	Mellanox EDR
Storage	2Pb, 10GB/s Lustre filesystem for running jobs.
Software available	https://bede-documentation.readthedocs.io/en/latest/software/index.html
Additional information on hardware available	https://bede-documentation.readthedocs.io/en/latest/hardware/index.html
Use cases particularly suited to this Service	Accelerated computing that requires more than what can be provided by a single accelerator: Extending accelerator memory into CPU (memory coherence); using multiple accelerators per node & using multiple accelerators across nodes. Both simulation and AI/ML workloads.

Resources available through this call

Unit(s) of Allocation	GPU core hours (GPUh)
Indicative level of computational resource available through this call	160,000 GPUh per year. Access to Grace-Hopper seed units for evaluation
Indicative sizes of previously successful applications (not a restriction)	10,000 GPUh over 9 months
% compute allocated to UKRI mechanisms (including but not limited to this call)	38%
Storage available	N/A

Requirements on applications for the service

Project length restrictions over and above those in the call	9 months
Maximum and Minimum requests	40,000 GPUh / year maximum

Change log

Name	Date	Version	Change
Christian Oganbule	10/03/2025	1	Initial version
Christian Oganbule	21/03/2025	2	Updated the service specification for Isambard3
Christian Oganbule	24/03/2025	3	Added the service specification for BEDE