Engineering and Physical Sciences Research Council

Access to High Performance Computing 2024-2

High Performance Computing: EPSRC Service Specification

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.
Additional information on hardware available	Isambard 3 includes a Multi Architecture Comparison System (MACS) which contains a range of different CPUs and GPUs, to enable cross-platform comparisons, CI/CD type workflows, and performance portability development for applications. Hardware includes AMD CPUs (Milan, Genoa, Bergamo), Intel CPUs (Sapphire Rapids, with and without HBM memory), AMD GPUs (Mi100) and NVIDIA GPUs (A100 and H100).
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 2.0 million node hours (2.0M 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.

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.