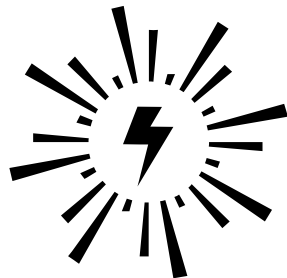


SuperTime

High-Performance Computing (HPC) is the use of large-scale, off-site supercomputers and parallel processing techniques for solving complex computational problems. HPC technology focuses on using parallel processing algorithms and systems. HPC is typically used for solving advanced problems and performing research activities through computer modelling, simulation and analysis. The terms High-Performance Computing and Supercomputing are used interchangeably. SuperTime is Intersect's umbrella name for HPC related products and services.



Why supercompute?

HPC systems are traditionally associated with research projects but are becoming increasingly more mainstream as artificial intelligence, machine learning and big data analysis commoditise. There are many typical uses, including:

- with parallelisable tasks (parallelism can be achieved on a fine or coarse grain level – on a fine level you have a program which is intrinsically parallel while on a coarse grain level you might run many instances of the same program for parameter studies)
- to take advantage of fine/coarse grain parallelism, embarrassingly parallel and parameter studies techniques
- with computing jobs needing more memory (RAM) than available on their local systems (if you run out of memory on your desktop system or can no longer process your data quickly enough)
- needing access to high end software packages offered by the HPC facilities.

Supercomputing is used to solve real-world problems of significant scale or detail across a diverse range of disciplines including physics, biology, chemistry, geosciences, climate sciences, engineering and many others.

HPC jobs typically run in a non-interactive batch mode. They are submitted to a queue, and when the time comes for them to be executed they can run without any user intervention. This means that HPC systems rarely sit idle but utilise the hardware fully. It has the benefit that you can queue your jobs and get on with other things while you wait for them to execute. If you are accustomed to using your program interactively, you will have to learn how to use its batch mode in order to use it for HPC.

Supercomputing Services

Intersect researchers and customers may have access to a range of facilities, subject to subscription and other commercial arrangements:

- The National Computing Infrastructure (NCI) serves researchers nationally and offers a number of machines, principally raijin.nci.org.au a hybrid Fujitsu Primergy and Lenovo NeXtScale high-performance, distributed-memory cluster
- The Pawsey Supercomputing Centre also serves researchers nationally with a range of machines, principally the Cray supercluster magnus.pawsey.org.au,
- Local facilities in your own organisation

Intersect has owned and operated supercomputers for over a decade since our inception in 2008. Today we are the largest aggregator of NCI supercomputing, delivering over 35,000,000 hours of supercomputing to researchers every year, and boast an unparalleled strike rate in ARC LIEF HPC grant success year after year.

Time Dilation

In some Time zones demand exceeds supply because subsidised merit schemes apply. Larger proposals for significant quantities of SuperTime are requested through an annual merit-based formal process. However, new SuperTime travellers are actively sought, especially researchers from smaller institutions, non-traditional HPC disciplines, and research students. Intersect routinely and frequently accepts small-scale “experimental” proposals at any time.

Two merit based resource allocation rounds – ICMAS (Intersect Compute Merit Allocation Scheme) and NCMAS (NCI Compute Merit Allocation Scheme) – run every calendar year. Researchers from member organisations apply for bulk allocations of HPC time. These applications are reviewed for comparative research merit by the ICMAS/NCMAS associated independent committee as well as by resident Intersect HPC experts.

Subject to your organisation’s Intersect subscription, you can also apply for small amounts of compute at any time; just create a ticket by emailing time@intersect.org.au or by visiting help.intersect.org.au.

HPC Training

Intersect offers extensive Learn.intersect.org.au training, including a series of supercomputing courses to meet the needs of all researchers, whether you are a beginner, intermediate or advanced HPC user. There are four current courses directly applicable to SuperTime:

- Intensive Beginner to Intermediate HPC
- Introduction to UNIX for HPC
- Intermediate HPC – From Unix to HPC
- Advanced HPC – Parallel Programming

Attribution Policy

Resource consumption of any SuperTime computing facility requires acknowledgement, in accordance with our [attribution policy](#) We recommend a simple statement, like:

Computational and/or storage resources used in this work were provided by Intersect.org.au.

See also...

LocalTime

LocalTime offers research computing cloud management as a service uniquely combined with discretionary on-premise local hardware investment.

OwnTime

OwnTime Cloud computing offers access to high performance virtual hardware for computer intensive applications.

CloudTime

A range of Openstack based x86 cloud computing services featuring local, private and community deployment choices

SuperTime

Large-scale, off-site supercomputers and parallel processing techniques for solving complex computational problems known as High Performance Computing (HPC).

Want to ask questions about SuperTime or have us contact you?

Talk to one of our [eResearch Analysts](#), reach out by emailing time@intersect.org.au or visit help.intersect.org.au and we'll be pleased to get in touch and help chart the best supercomputing course for you.