MONASH University

MONASH TECHNOLOGY RESEARCH PLATFORMS

MASSIVE

MASSIVE is a quality-accredited, high performance, data processing facility that provides access to data processing capacity at the scale required to make impactful research discoveries. By building strong partnerships with research communities MASSIVE aims to underpin scientists who are capturing ever-increasing amounts of data, including researchers new to high-performance computing, such as experimental and wet-laboratory scientists. MASSIVE provides access to high-performance computing hardware that is designed for data processing, machine learning, analysis and visualisation. This capability is delivered via the M3 computer. The M3 computer is operated using a flexible research-cloud model that allows flexibility for upgrade and scalable growth.

The MASSIVE project is a collaboration between Monash University, ANSTO, and University of Wollongong, and four affiliate partners.

KEY INSTRUMENTATION

The MASSIVE M3 computer is composed of 6,564 CPU cores, 344 GPU co-processors across a range of products suited to parallel processing, visualisation and machine learning, and a 6PB fast parallel Lustre file system. M3 provides a combination of GPU coprocessors, including the NVIDIA K1 (for remote scientific desktops), K80, P100, V100, and the DGX1-V.

EXPERTISE

Our team provides support and programs to onboard new researchers from fields of science that have not traditionally used HPC. We focus on applied data science and applied artificial intelligence, to address the data challenges faced by a broad spectrum of researchers. Our capabilities are used by a range of research disciplines, including biomedical science, materials research, engineering and geosciences.

WORKING WITH US

- Collaborative research
- Fee for service
- Training

SPECIALIST SERVICES

MASSIVE underpins a wide variety of research fields, including neuroscience, clinical science, molecular imaging, genomics, material, chemical and natural science, robotics and engineering, and data science. These fields share a number of characteristics:

- The increased opportunity offered by large volumes of data that require significant processing, analysis and visualisation to gain insight.
- The increased availability of new-generation scientific instruments that produce large volumes of multidimensional or large-cohort data,
- The increased opportunity offered by data and compute-intensive processing techniques, including machine learning techniques, visualization and other capabilities.

MASSIVE undertakes a number of specialised projects and capabilities in partnership with research communities.

MASSIVE has a strong focus on accessibility. To underpin a broad new generation of HPC users, MASSIVE undertakes a number of initiatives, including:

- An instrument integration program, to provide data capture, processing and visualisation from the point of capture, and in specific cases 'in-experiment'
- MASSIVE develops a curated remote desktop environment that is used by hundreds of researchers. The Strudel suite of software we developed to make interactive HPC easy is internationally and as part of the Australian Characterisation Commons at Scale.

Australian Characterisation Commons at Scale

This initiative brings together some of the biggest characterisation facilities around the country and Australia's leading universities, to develop a platform that provides a powerful, standardised set of tools that all researchers can use to manage, analyse and visualise their characterisation data. The ACCS offers a rich ecosystem of software, data repositories, workflow and other services, that can be applied across the entire field of characterisation science, managing the informatics challenges that are common to all scientists working in the area, from medical imaging to geological surveying.

MASSIVE
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