Application Form

PAWSEY CENTRE FOR EXASCALE READINESS

Completed forms should be submitted in PDF format by emailing pacer@pawsey.org.au.

Part 1: Project Leader and Project Title

A. Project Leader

Provide details for the project leader, refer to the Information for Applicants for eligibility requirements.

Name	Institution	Institutional Email

B. Project Title

Provide a title for the proposed project. It should be a sentence long, meaningful to a wide audience, and may be published.

C. Project Acronym

Provide a proposed acronym for the project. Ideally, the acronym should be memorable and distinct in its abbreviated and full form.

Part 2: Project Description

A. Projects Description

Provide a high-level description of the proposed project. It should be at most a paragraph in length, be meaningful to a wide audience, and may be published.

Part 3: Research Classification

A. Field of Research

Provide up to three 6-digit Field of Research (FOR) codes for the research that this project would support together with % weight assigned to each of the FOR.
https://www.arc.gov.au/grants/grant-application/classification-codes-rfcd-seo-and-anzsic-codes

FOR Code	FOR Code Name	Weight

Part 4: Project Team

A. Participants

Provide details of the researchers that will be working with Pawsey staff for this project. All researchers must be aware of the submission of this project proposal. Please provide a brief description of each participant's role.

Name	Institution	Institutional Email	Role

B. Research Record

Relevant significant contributions to the research field. Include project/team management experience. (5000 characters max)

C. Ten Best Publications Over Last Five Years

Include ten most relevant refereed journal articles, conference papers, honours/postgraduate theses, book chapters, patents, or reports. Include only publications published over last five years. Please include a one sentence statement for each explaining why that publication is significant.

Reference	Significance

D. Research Funding Over the Last Five Years

Do not include funding that supports this project as that will go in Collaboration and Co-Investment section.

Team Member	Funding Type (e.g. industry, government, university)	Funding Body	Title	Start Year	End Year	Total Funding (AUD)

E. Technical Supercomputing and Data Science Experience

Supercomputing or Data Science experience. Include project/team management experience. (5000 characters max)

Part 5: Research Proposal

A. Research Significance

Provide a description of research significance of the project. (5000 characters max)

B. Computational Methodology

Describe the computational methodology and approach. Describe computational and/or data processing algorithms. Describe the computational and/or data processing workflows. This should be a description of algorithmic nature of the project (e.g. implementation of Navier-Stokes equations, large scale N-body algorithm, machine learning model) together with detailed description of specific computational/implementation approach (e.g. GPU implementation, highly scalable MPI code, real-time data processing pipeline) (5000 characters max)

C. Technical Challenges and Milestones

Describe major technical, computational or data processing challenges or bottlenecks. Describe major technical milestones, including information about any new development required (e.g. implementation of a new algorithm, optimisation of current computational or data processing model). (5000 characters max)

D. Software, Tools and Libraries

List the relevant software, tools and libraries for this project. Include details about licensing, programming language, parallelisation strategies, GPU readiness and programming model, I/O strategies. Provide links for downloading source, scripts, files, containers.

Name	Licensing	Programm. Language	Parallel. strategies	GPU readiness	GPU model	I/O Strategies	Reference links

E. Reference Computational Model

Provide description of the reference large-scale computational model implemented on previous-generation supercomputers. This model and its profiling will be used to demonstrate performance and scale improvement. Describe the strategy to provide reproducible test cases and unit tests. (5000 characters max)

F. Grand Challenge Problem (GCP)

Provide description of the Grand Challenge Problem that has been previously unattainable: such as, a simulation or data processing challenge on previously unavailable scale that is planned to be executed on the next-generation Pawsey supercomputer. (5000 characters max)

G. Computational Characterisation of the GCP

Provide computational characterization of the Grand Challenge Problem. Quantitative characterization of the computing capability required to solve the Grand Challenge Problem, i.e. the peak memory footprint, the total number of FLOPs, IO footprint and others. (5000 characters max)

H. Quantitative Measures of Scale and Performance

Describe proposed quantitative measures for the increased capability of applications on the next-generation supercomputer. How to measure the scale, performance and implementation improvement?

Part 6: Science and Research Priorities and Programs

A. Alignment with Australian Science and Research Priorities and Programs

Include relevance to national priority areas. Provide the statement of alignment with Australian Science and Research Priorities and Programs. See the Australian Government Science Priorities for guidance: https://www.industry.gov.au/about-us/what-we-do/science-in-our-department (5000 characters max)

Part 7: Collaboration and Co-Investment

A. Declaration of Collaboration

PLEASE EDIT: *I agree / don't agree to collaborate with Pawsey on project reporting and dissemination (workshops, conferences) in relation to that proposal.*
Provide the proposed additional scope of the collaboration. (5000 characters max)

B. Co-Investment

Provide description of the proposed co-funding model for postdoctoral or PhD position. Provide detailed information about any additional proposed co-investment. (5000 characters max)

C. FTE Engagement

Declare the proposed FTE % engagement for each project member.

Name	FTE %

D. Supporting Funding

List funding that is supporting this project.

Team Member	Funding Type (e.g. industry, government, university)	Funding Body	Title	Start Year	End Year	Total Funding (AUD)

E. Joint Publications

PLEASE EDIT: *I agree / don't agree to prepare joint research papers, participate and co-present at key e-research and supercomputing events (national and international) in collaboration with Pawsey Supercomputing Centre in relation to that proposal.*

Part 8: Export Controls and Policies

A. Export Controls

Use of Pawsey Project Infrastructure is conditional on complying with relevant laws and export controls, including:

- *Australian Defence Trade Controls Act https://exportcontrols.govspace.gov.au/*

- *United National Security Council (UNSC) sanctions regimes and the Australian autonomous sanctions regimes http://www.dfat.g*

- *U.S. Export Controls http://www.state.gov/strategictrade/overview/*

If you have any questions or concerns about any of these declarations, please contact help@pawsey.org.au.

PLEASE EDIT: *I understand / don't understand that using the Pawsey Supercomputing Centre Infrastructure is conditional on complying with the Australian Defence Trade Controls Act, UNSC sanctions regimes and the Australian autonomous sanctions regimes.*

PLEASE EDIT: *I understand / don't understand that using the Pawsey Supercomputing Centre Infrastructure is conditional on complying with US Export Controls.*

B. Policies

PLEASE EDIT: *I have read / haven't read and understand Pawsey Supercomputing Centre Policies: https://support.pawsey.org.au/documentation/display/US/Pawsey+Policies*