

Instructions for HPCAP Principals for Submission of FY 2024 DoD Frontier Project Proposal Packages

The Department of Defense (DoD) High Performance Computing Modernization Program (HPCMP) has established DoD Frontier Projects to enable research, development, test and evaluation (RDT&E), and acquisition engineering outcomes that would not be achievable using typically available HPCMP resources. Frontier Projects pursue outcomes aligned with DoD mission priorities and are supported by multi-year commitments of exceptional amounts of high-performance computing (HPC) computational resources.

In FY 2022, the HPCMP made two significant changes to the Frontier Program.

- 1. The HPCMP started executing two types of Frontier Projects: Foundational Research and Engineering Frontier Projects and Applied Acquisition and Sustainment Frontier Projects.**
- 2. The HPCMP implemented a more rigorous review of progress. Projects that are not making adequate progress on initially stated goals may be either reduced in size or terminated.** Additional details are below.

Foundational Research and Engineering Frontier Projects follow the guidelines that have been in place since the program started in FY 2014. They primarily focus on science and technology (budget activities 6.1, 6.2, and early 6.3). These projects cannot easily be achievable using typically available HPCMP resources, and they are expected to use 100s of millions of core-hours and/or 100s of thousands of GPU-hours per year over a 2 to 4 year period.

Applied Acquisition and Sustainment Frontier Projects address DoD design, development, and test and evaluation projects; they focus on programs of record, test and evaluation, and quick response science and technology for urgent operational requirements. This type of project is generally more time-critical, has shorter execution timelines, and is expected to use 10s of millions of core-hours and/or tens of thousands of GPU-hours per year over a 1 to 2 year period. As Frontier Projects these projects will benefit from higher system priority that shortens timelines with enhanced throughput. There is also an option to start Applied Acquisition and Sustainment Frontier Projects outside the proposal cycle. An out-of-cycle project requires a full proposal. The detailed guidelines are posted on the Resource Management website. New Applied Acquisition and Sustainment Frontier Project proposals should be submitted in response to this annual call until this call for proposals expires.

The HPCMP sets aside approximately 25% of the total HPCMP allocated computational resources to support DoD Frontier Projects. The expected increase in capability of HPCMP resources from recent acquisitions, the addition of significant AI/ML capabilities, and completion of four current Frontier Projects will support the selection of additional Frontier Projects to be started in FY 2024 and the continuation of the other twelve ongoing Frontier Projects. The Call for FY 2024 DoD Frontier Project Proposals, included in this package, details the submission and selection process for new Frontier Projects.

The HPCMP Director makes the final selection of new DoD Frontier Projects based on technical evaluations and a mission impact assessment. Technical evaluations are performed by a technical evaluation panel organized and executed by the DoD HPC Modernization Program Office (HPCMPO). This panel is composed of selected DoD and non-DoD technical experts from academia, industry, and other government agencies.

Although the HPCMP is soliciting Frontier Project proposals from the entire DoD science and technology, test and evaluation, and acquisition engineering computational communities in all DoD-relevant computational technology areas <https://www.hpc.mil/technology-areas/computational-tech-areas>, we are specifically interested in receiving proposals from key focus areas that have been identified as being of high interest within DoD: (1) hypersonic systems; (2) autonomous systems/artificial intelligence; (3) future vertical lift; (4) electromagnetic development and design, and (5) directed-energy systems; and (6) microelectronics. It is expected that proposals in these areas will contain strong mission impact statements addressing those impacts to the proposing Service/Agency, OSD, and/or the HPCMP.

For FY 2024, Foundational Research and Engineering Frontier Project proposals may be multi-year projects for up to four years in duration. Applied Acquisition and Sustainment Frontier Project proposals may have up to a two-year duration.

Progress review. New multi-year Frontier Projects, as well as existing projects, will be re-evaluated after each year for progress made compared with project proposal goals. This progress assessment will be made by a technical review panel and HPCMP management at an annual project review. Projects that are not making adequate progress on initially stated goals may be either reduced in size or terminated. It is also particularly important that application codes are either fully developed or ready for use by each proposed project, or specific plans to reach that state of readiness are detailed in the proposal. Detailed justification must be provided for the level of computational resources required.

Each Service is limited to submitting no more than four proposals of each type; participating Agencies are limited to no more than two of each type. Please ensure that proposals have the content and structure indicated in the call for proposals. Consistency of proposal content and format is essential to ensure a fair, equitable, and consistent review. Any proposal that does not conform to the content and structure requirements may be returned

without review. In addition, the HPCMPO will verify that the requirements outlined in each Frontier Project proposal are consistent with the requirements specified in the related project's Requirements Questionnaire. Proposals that are not consistent with the requirements stated in that project's questionnaire may be returned without review. An additional clarification step is included in the technical evaluation process that will allow technical reviewers to ask for limited, specific written clarification of proposals before the technical review is completed. This additional step does not substitute for a complete, well-written proposal upon initial submission.

Send your FY 2024 DoD Frontier Project proposals in Microsoft Word format to the HPCMPO at (frontier@hpc.mil) with a cc: to Larry Davis at larry.p.davis.ctr@mail.mil. If a Word document cannot be submitted, please contact Michal Ausserer or Larry Davis to arrange for an acceptable alternative. Proposals must be received from the Services/Agencies no later than **24 April 2023**. **No extensions will be granted for proposal submission to the HPCMPO.**

The point-of-contact for the Frontier program is Michael Ausserer, Associate Director for Resource Management. He may be contacted at 937-272-0525 or michael.ausserer@us.af.mil