

New HPCMP System at Navy DoD Supercomputing Resource Center to Provide over Eight petaFLOPS of Computing Power to Address Physics, AI, and ML Applications for DoD Users

The Department of Defense (DoD) High Performance Computing Modernization Program (HPCMP) recently completed a portion of its fiscal year 2021 investment in supercomputing capability supporting the DoD Science and Technology (S&T), Test and Evaluation (T&E), and Acquisition Engineering communities. The acquisition consists of a supercomputing system with corresponding hardware and software maintenance services. At 8.5 petaFLOPs, this system replaces three older supercomputers in the DoD HPCMP's ecosystem, and ensures its aggregate supercomputing capability remains above 100 petaFLOPs, with the latest available technology. This system significantly enhances the Program's capability to support the Department of Defense's most demanding computational challenges, and includes a novel, tiered data storage capability with automatic migration of data between solid-state (4 PB) and disk drive-based (22 PB) sub-systems.

The system will be installed at the Navy DoD Supercomputing Resource Center (Navy DSRC) facility operated by the Commander, Naval Meteorology and Oceanography Command (CNMOC) at Stennis Space Center, Mississippi, and will provide high-performance computing capability for users from all of the services and agencies of the Department. The architecture of the system is as follows:

- A Penguin Computing Open Compute Platform system with 176,128 total compute cores comprised of future generation AMD EPYC processors, and 144 NVIDIA Ampere A100 General-Purpose Graphics Processing Units (GPGPUs) interconnected by a 200 gigabit per second Mellanox HDR-200 Infiniband network, and supported by 26 PB of usable Data Direct Networks storage, including over 4 PB of NVMe-based solid-state storage, and 382 TB of system memory.

The system is expected to enter production service early in fiscal year 2022.

About the DoD High Performance Computing Modernization Program (HPCMP)

The HPCMP provides the Department of Defense supercomputing capabilities, high-speed network communications and computational science expertise that enable DoD scientists and engineers to conduct a wide-range of focused research and development, test and evaluation, and acquisition engineering activities. This partnership puts advanced technology in the hands of U.S. forces more quickly, less expensively, and with greater certainty of success. Today, the HPCMP provides a comprehensive advanced computing environment for the DoD that includes unique expertise in software development and system design, powerful high performance computing systems, and a premier wide-area research network. The HPCMP is managed on behalf of the Department of Defense by the U.S. Army Engineer Research and Development Center located in Vicksburg, Mississippi.

For more information, visit our website at: <https://www.hpc.mil>.