

# **New HPCMP System at the AFRL DSRC DoD Supercomputing Resource Center to Provide over Nine 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 its final 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 9 petaFLOPs, this system's addition to the DoD HPCMP's ecosystem raises the aggregate supercomputing capability to 110 petaFLOPs, leveraging 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 implementation of solid-state storage devices local to each compute node, enabling high-performance data analytics and adding to the HPCMP's capability to support DoD artificial intelligence requirements.

The system will be installed at the Air Force Research Laboratory DoD Supercomputing Resource Center (AFRL DSRC) facility at Wright-Patterson Air Force Base, Ohio, 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 189,440 total compute cores, comprised of future generation AMD EPYC processors, and 162 NVIDIA Ampere A100 General-Purpose Graphics Processing Units (GPGPUs), interconnected by a 200 gigabit per second Mellanox HDR-200 Infiniband network and supported by over 20 PB of usable Data Direct Networks storage and 414 TiB 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>.