DOD HPC MODERNIZATION PROGRAM

NEWS RELEASE

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High Performance Computing Modernization Program Makes Four petaFLOPS Upgrade for Department of Defense

The Department of Defense High Performance Computing Modernization Program (DoD HPCMP) has just completed its largest one-time investment in supercomputing capability supporting the science, engineering, test and acquisition communities of the DoD. The total acquisition is valued at $105 million, and includes $80 million for multiple systems along with an additional $25 million in hardware and software maintenance services. This will more than double the DoD HPCMP's current sustained computing capability.

"This latest acquisition will provide significant capability for DoD scientists and engineers to stretch the boundaries of scientific discovery, expand engineering capabilities and accelerate the delivery of new technologies to the defense communities," observed John West, director of the HPCMP.

The purchase includes seven systems that will collectively provide over 225,000 cores, over 520 gigabytes of memory and a total storage capacity of 23 petabytes. Each system is scheduled to be fully accepted and operational by the end of the calendar year. The HPC vendors participating in the system deployments include IBM, SGI and Cray, Inc. The competitive government acquisition was executed through the Government Services Administration (GSA), Federal Acquisition Services, Assisted Acquisition Service Division.

The supercomputers will be installed at five DoD Supercomputing Resource Centers (DSRCs). Although the DSRCs are located within specific organizations, each serves a community of users across the DoD.

- The Air Force Research Laboratory (AFRL) DSRC at Wright-Patterson Air Force Base, Ohio, will receive a SGI Altix ICE system built upon the 2.6 GHz Intel Xeon E5-2600 processor (formerly Sandy Bridge – EP). This system consists of 73,728 compute cores and 1.47 petabytes of memory.

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- The AFRL DSRC at Maui, Hawaii, the Maui High Performance Computing Center (MHPCC), will receive a 1350 IBM iDataPlex HPC system. The requirements associated with this supercomputer were aligned with the MHPCC's Energy-Efficient Computing (E2C) initiative. The system is comprised of technologies yielding efficiencies in operational power consumption. "Data center energy-efficiency is a key thrust in the HPCMP's overall strategy. The MHPCC is demonstrating the use of innovative technologies such as the IBM iDataPlex system, leveraging direct water cooling technology and the deployment of a one mega-watt solar power array to power the system. The HPCMP will use what is learned via this system's installation and operation toward facilitating energy-efficient initiatives for all of its DSRCs," said Dave Morton, director of the MHPCC DSRC. The MHPCC E2C system is an Intel Sandy Bridge-based system with 9,216 cores and 18 terabytes of memory.

- The US Army Engineer Research and Development Center (ERDC) DSRC in Vicksburg, Miss. will receive upgrades from Cray, Inc. They will upgrade three existing Cray XE6 systems within the HPCMP by doubling the processor count and combining the three systems into a single system totaling 162,796 compute cores and 305 petabytes of memory. The system is based upon the 2.6 GHz AMD Interlagos processor.

- The Army Research Laboratory (ARL) DSRC in Aberdeen, Md., will receive two IBM iDataPlex systems built upon Intel's Sandy Bridge processor, with one system having 20,736 compute cores and 41 terabytes of memory and the other having 17,472 compute cores and 34 terabytes of memory.

- The Navy DSRC, Naval Meteorology and Oceanography Command, located at Stennis Space Center, Miss., will receive two IBM iDataPlex systems built upon Intel's Sandy Bridge processor. These two systems are identical; each consisting of 18,816 compute cores and 37 terabytes of memory. The systems are designed as sister-systems to provide continuous service during maintenance outages. There is also a third smaller IBM iDataPlex system for the Navy DSRC that will have 4,032 compute cores and 8 terabytes of memory.

The HPCMP partners with the DoD's research, development, test and evaluation communities to serve as a change agent, promoting to the community the use of physics-based computational tools that require high performance computing assets. The use of HPC in the DoD is quite broad and includes capabilities in fluid dynamics, structural mechanics, materials design, space situational awareness, climate and ocean modeling, and environmental quality.

The HPCMP is also developing tools to support the design and development of next-generation defense systems for the DoD through the Computational Research and Engineering Tools and

Environments (CREATE) program. These tools bring cost-effective physics-based modeling for conceptual design, trade space analysis, and product life cycle management to the DoD. The infusion of computational capability via these newly acquired supercomputers provides the enabling infrastructure for these tools.

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EDITOR'S NOTE: The DoD HPCMP provides the DoD supercomputing capabilities, high-speed network communications and computational science expertise that enable DoD scientists and engineers to conduct a wide-range of focused research, development and test activities. This partnership puts advanced technology in the hands of US forces more quickly, less expensively, and with greater certainty of success. Today, the HPCMP provides a complete 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 DoD by the U.S. Army Engineer Research and Development Center in Vicksburg, Miss.

For more information, please visit the DoD HPCMP Web site at: www.hpc.mil.