



**US Army Corps  
of Engineers®**

Engineer Research and  
Development Center

# DoD Supercomputing Resource Center

## Purpose

The U.S. Army Engineer Research and Development Center (ERDC) DoD Supercomputing Resource Center (DSRC) is committed to enabling Department of Defense (DoD) Science and Technology and Test and Evaluation missions by providing leading-edge computational hardware and world-class computational engineering expertise and leadership to DoD in support of the warfighter. The ERDC DSRC includes the following functional areas:



- System architecture.
- Service Center.
- Data analysis, scientific visualization, and computer animation.
- A computational science and engineering team that specializes in performance assessment and modeling, parallel application design, and porting or optimization of parallel scientific applications.
- Deep partnerships with leading academic specialists in computation and domain sciences through the User Productivity Enhancement and Technology Transfer (PET) program.

## Specifications

The ERDC DSRC computing resources include 115 peak TFLOPS of computing capability: a Cray XT4 with 2,152 quad-core compute nodes (72 TFLOPS), 17 Tbytes aggregate memory, and 379 Tbytes disk storage; a Cray XT3 with 4,096 dual-core compute nodes (43 TFLOPS), 16 Tbytes aggregate memory, and 374 Tbytes disk storage; and 3,000 Tbytes of local archival tape storage. Access to the ERDC DSRC High Performance Computing (HPC) systems is provided through the Defense Research and Engineering Network and the Internet to users around the Nation.

The ERDC DSRC Data Analysis and Assessment Center (DAAC) provides data analysis and infrastructure support for DoD users of HPC systems, especially for large-scale and complex simulations. The DAAC maintains a state-of-the-art Linux cluster and a range of software for pre-processing and post-processing of large data sets, in addition to a multi-tiered knowledge support system, anchored by a Web presence. DAAC scientific visualization experts develop custom solutions for DoD projects and transfer these software techniques to project personnel, while supporting a broad range of small projects through online consultation and training. The DAAC also provides conceptual visualization capabilities to complement the traditional data visualization techniques. These capabilities take advantage of industry-leading animation and modeling software, enabling DoD scientists to communicate all aspects of their research by setting their results in context.

The ERDC DSRC includes a Computational Science and Engineering (CSE) group, specializing in application performance tuning, code parallelization, performance measurement, and parallel application design for DoD applications. This team is internationally recognized, and their accomplishments include pioneering work on multilevel parallelism and contributions to the American National Standards Institute (ANSI). CSE plays a central role in benchmarking systems for DOD acquisition planning and advises other federal agencies on benchmarking methods for HPC system acquisition.

**Benefits**

The ERDC DSRC ensures that DoD scientists and engineers across the Nation have immediate access to the best HPC hardware and expertise the industry has to offer. By utilizing DoD HPC resources, these scientists and engineers significantly cut defense system costs by shortening the design cycle and reducing reliance on expensive and destructive live experiments and prototype demonstrations.

**Success Stories**

The High Performance Computing Modernization Program success stories can be found at <http://www.hpcmo.hpc.mil/Htdocs/SUCCESS/index.html>.

**Point of Contact**

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