



**US Army Corps  
of Engineers®**

Engineer Research and  
Development Center

# DoD High Performance Computing Major Shared Resource Center

## Purpose

The Department of Defense (DoD) High Performance Computing (HPC) Major Shared Resource Center (MSRC) operates multivendor HPC computational systems that address DoD user requirements for hardware, software, and programming environments and training. The ERDC MSRC is committed to an emphasis on large, scalable systems that are in operation around the clock. The ERDC MSRC includes the following functional areas:

- Customer Assistance Center
- Technology transfer with university partners via the Programming Environment and Training (PET) program
- Tools, math libraries, and compilers
- Code migration and optimization
- Scientific visualization

## Specifications

The ERDC MSRC computing capability includes a 512-processor SGI Origin 3800, a 1,904-processor Cray T3E, a 512-processor Compaq SC40, a 512-processor Compaq SC45, and 500+ terabytes of robotic storage. International access to the ERDC MSRC HPC systems is provided through the Defense Research and Engineering Network (DREN) and the Internet.

The PET program at the ERDC MSRC joins leading universities and national high-performance computing research centers with DoD researchers to identify ways to improve DoD HPC applications and computing environments. The purpose of the PET initiative is to enhance the programming environment for ERDC MSRC users through technology transfer from universities and training in new products. The program matches university technology in high-performance computing with DoD needs and transfers critical technology that enhances the capability of ERDC MSRC users. The approach is to combine a strong onsite technical team that is close to DoD users and requirements with a dedicated university team that has developed state-of-the-art capabilities. This combination provides technology that is relevant to the DoD mission.

The ERDC MSRC Scientific Visualization Center (SVC) provides capability to visualize the results of computational complex simulations and models. The SVC offers state-of-the-art techniques for data interpretation to engineers and scientists. Since its inception, the SVC staff has worked cooperatively with a wide variety of engineers and scientists to provide visualization solutions for a diverse set of HPC problems.



**Compaq AlphaServer 45**

**Benefits**

The ERDC MSRC ensures that computational scientists and engineers across the Nation have immediate access to DoD HPC capabilities. By utilizing the 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. With the aid of HPC capabilities, virtual environments have become commonplace to help researchers better visualize and interpret their study results. The ERDC MSRC:

- Delivers HPC leadership, service, education, and technical expertise to achieve research and engineering objectives vital to the Nation.
- Provides the infrastructure for long-distance training.
- Facilitates collaboration with other DoD researchers to develop and apply innovative data interpretation tools and techniques.
- Supports the 21<sup>st</sup> Century warfighter by ensuring technological supremacy in weapon system design and capability to employ advanced technology on land, sea, and air.

**Success Stories**

The High Performance Computing Modernization Program success stories can be found at [hpcmo.hpc.mil/Htdocs/SUCCESS/index.html](http://hpcmo.hpc.mil/Htdocs/SUCCESS/index.html).

**Point of Contact**

Customer Assistance Center

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