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Title: The JPL Supercomputing Project

Category: Poster

Theme: Infrastructure

Complex, high-resolution modeling, data analysis, and visualization tasks often require computing capabilities well beyond what is available from desktop personal computers and engineering workstations.

To meet these needs, the JPL Supercomputing Project provides state-of-the-art supercomputing, storage, and visualization hardware, software, and consulting services to the JPL community.

Two different types of supercomputers (parallel vector processors and massively parallel processors) are available for applications with large computational or memory requirements.

Our parallel-vector-processor system is a Cray SV1 (with 16 processors, 8GB of memory, and 480GB of disk) and is well suited to jobs which run best on a single, high-performance processor.

Our massively-parallel-processor systems consist of three SGI Origin 2000s and an SGI Origin 300.

The largest Origin 2000 has 128 processors, 64GB of memory, 3.2TB of disk, and 6 SGI Infinite Reality graphics engines.

The other two Origin 2000s have 80 processors, 48GB of memory, and 1.6TB of disk each.

The Origin 300 has 8 processors, 8GB of memory and 91GB of disk and is dedicated to NASA's Information Power Grid.

All of our machines have UNIX operating systems; C, C++, and Fortran 90 compilers; various mathematical, message-passing, and visualization software libraries; and a variety of software tools for debugging, optimization, and performance measurement.

Long-term storage of large data sets is provided through a

StorageTek Silo tape storage system, which currently holds 98TB of tapes and is expandable to 360TB.

Visualization facilities include a Powerwall conference room with seven high-resolution video projectors; real-time digital video editing equipment; and Maya, NCAR graphics, and SGI Performer software packages.

Consultants are available to help JPL users write or port code to the supercomputers, utilize the visualization facilities, and incorporate existing or new software libraries into their codes. We also offer system administration support for those groups who have or will be acquiring a cluster computer system.