

The Cray XMT™ supercomputing system is a scalable massively multithreaded platform with globally shared memory architecture for large-scale data analysis and data mining.

The system is purpose-built for parallel applications that are dynamically changing, require random access to shared memory and typically do not run well on conventional systems. Multithreaded technology is ideally suited for tasks such as pattern matching, scenario development, behavioral prediction, anomaly identification and graph analysis.

- Architected for Large-scale Data Analysis
- Exploits the scalable Cray XT™ infrastructure
- Scales from 24 to over 8000 processors providing over one million simultaneous threads and 128 terabytes of shared memory
- UNICOS/lc operating system
- Separately dedicated compute, service and I/O nodes
- Incorporates custom Cray Threadstorm™ multithreaded processor using AMD Torrenza Open Socket technology

Architectural Overview

The Cray XMT system was architected to leverage Cray's MPP system design to create a scalable, reliable and economical multithreaded supercomputing platform. The design is based on a Cray MPP compute blade but utilizes AMD Torrenza Innovation Socket technology to populate the AMD Opteron sockets with custom Cray Threadstorm chips developed for multithreaded processing. A single Cray Threadstorm processor can sustain 128 simultaneous threads and is connected with up to 16 GB of memory that is globally accessible by any other processor in the system.

Each Cray Threadstorm processor is directly connected to a dedicated Cray SeaStar2™ interconnect chip, resulting in a high bandwidth, low latency network characteristic of all Cray systems. This allows the Cray XMT platform to scale from 24 to over 8000 processors providing over one million simultaneous threads and 128 terabytes of shared memory.

As another technology using the Cray XT™ infrastructure, the Cray XMT platform includes separate AMD Opteron™-based service blades can be configured for I/O, login, network or system functions and can also provide scalar processing for applications that are best served by a combination of scalar and multithreading technologies.

The Cray XMT system runs the UNICOS/lc™ operating system which distributes a multithreaded kernel to the compute blades and standard Linux on the service and I/O blades. This allows the compute nodes to focus on the application without being hampered by system administrative functions.



CRAY XMT PLATFORM OVERVIEW



Programming Environment

The Cray XMT programming environment includes advanced program analysis tools for software development and tuning:

- C and C++ compilers
- Automatic parallelization
- STL and common math libraries
- Cross compiler on Linux processors
- gcc/g++ on Linux nodes
- Cray Apprentice2™ for compiler analysis and performance visualization

Strategic Partnerships

The Cray XMT platform will be made available to strategic partners who are interested in developing solutions for commercial markets in sectors such as financial services, business intelligence, healthcare and bioinformatics, digital media, and energy.

For more information, contact Dan'l Pierce at 206-701-2021 or danl@cray.com.