



## Sun™ Customer Ready Scalable Storage Cluster

Fast, scalable data access for HPC



### Highlights

- Outstanding data density — 288 TB<sup>1</sup> of storage in 42 rack units (RU), with expansion units that offer up to 192 TB<sup>1</sup> additional storage in a single rack
- Highly scalable throughput — Delivers approximately 800 MB/sec. throughput in a single Sun Fire™ X4500 data server and demonstrated linear scalability of up to 95 percent across 42 data servers
- Low-risk — Leverages the factory integration and testing of the Sun™ Customer Ready program
- Modular design — Start small and expand easily
- Tiered storage — Provides a full lifecycle management option with the addition of the Sun™ Content Infrastructure System (CIS)

➤ With growing demand for high-performance computing (HPC) solutions in areas such as manufacturing, electronic design, life sciences, public health, academic research, defense, and financial services, there is also an increased demand to store and retrieve large volumes of data. Traditional storage systems were not designed to meet the challenging storage capacity and throughput rates required by today's HPC solutions. As a result, many organizations have moved to parallel file system clusters for their HPC storage needs. The Sun™ Customer Ready Scalable Storage Cluster delivers the capacity, performance, and scalability required for parallel file system architectures, in a preconfigured solution that helps reduce risk and accelerate deployment.

### An end-to-end, easy-to-deploy solution

The Sun Customer Ready program of preconfigured, factory-integrated and -tested systems provides powerful, cost-effective, and energy-efficient computing solutions that help reduce the risk and time to deployment for clusters and grids.

Both the Sun Customer Ready Scalable Storage Cluster and the Sun Customer Ready HPC Cluster can be augmented with the Sun Content Infrastructure System. This combination helps enable you to cost-effectively manage massive amounts of data within a tiered storage environment that migrates data to lower-cost storage tiers when access frequency and data throughput become

less critical. The complete data lifecycle is supported, from initial creation to extensive manipulation and policy-driven archiving.

### Sun Fire x64 servers and Lustre software

Sun Fire x64 (x86, 64-bit) servers, combined with the Lustre parallel file system, provide a unique combination of power, scalability, and flexibility for data access — all in a compact form factor. The Lustre file system is available in public open-source releases, and features production-quality stability and failover. Many large HPC systems worldwide, including some of the world's largest supercomputers, have deployed Lustre software to manage data in production environments.

# Sun Customer Ready Scalable Storage Cluster

## Field-proven, decreased risk

The design and architecture of the Sun Customer Ready Scalable Storage Cluster is based on Sun's experience in building and delivering affordable, high-performance storage solutions for Sun customers. Its proven architecture is combined with factory integration and testing to help minimize implementation risk.

## Key features

### Servers

- The Sun Customer Ready Scalable Storage Cluster is built around the Sun Fire X4500 server, the world's first hybrid data server
- Sun Fire X4200 and Sun Fire X4600 servers supply metadata server and data-mover capabilities, respectively

### Software

- The Lustre scalable cluster file system provides parallel data access, proven to scale up to hundreds of nodes and petabytes of storage
- Separate file system services enable complete parallelization of I/O functions, providing massive scalability

### Capacity

- The expandable design enables scalability from 48 TB<sup>1</sup>, up to multiple petabytes

<sup>1</sup> Data capacity numbers listed (in TB and PB) refer to raw data capacity on disk units, not logical capacity after file system implementation.

### Other components

- Sun StorageTek™ 2540 disk array for meta-data storage
- High-speed interconnect using Voltaire InfiniBand 24-port switches
- Gigabit Ethernet network for management

## Performance targets

Performance requirements for target applications might include:

- Two GBps or greater data throughput
- More than 100 TB<sup>1</sup> of data storage online
- Very high metadata and I/O performance
- Ability to mount a large number of clients in a few seconds
- Fast-access scratch space, typical of that in HPC applications

## Scalability and expansion

Experiments in real-world deployments show that systems with multiple Sun Fire X4500 servers in a Sun Customer Ready Scalable Storage Cluster configuration scale at very close to linear rates compared to a single Sun Fire X4500 server.

## Learn More

To learn more about this solution, go to: [sun.com/scalablestorage](http://sun.com/scalablestorage). And to learn more about Sun Fire X4200, X4500, and X4600 servers, go to: [sun.com/servers](http://sun.com/servers).

## Factory integrated

The Sun Customer Ready Scalable Storage Cluster is offered through the Sun Customer Ready program, with starting configurations (see table) that can be custom tailored to users' specific needs. By leveraging Sun's award-winning factory environment for integration and testing, a solution can be up and running in days, rather than weeks or months. The Sun Customer Ready program can help reduce reliance on field delivery experts and can accelerate benefits by helping users achieve full productivity quickly.

## Service and support

Sun has options available to assist in installation, support, and management of the system.

Configuration	Functionality	Data servers	Metadata and data mover servers
Small	Complete racked system providing a cost-effective, low-power entry point for a scalable parallel file system deployment	Two Sun Fire X4500 servers	Two Sun Fire X4200 servers — metadata/data movers
Large	Ideal starting point for a scalable, flexible data storage system	Six Sun Fire X4500 servers	Two Sun Fire X4200 servers — metadata One Sun Fire X4600 server — data mover
Expansion	Expansion unit enabling multiple racks to be added to the base system	Up to eight Sun Fire X4500 servers	One Sun Fire X4600 server — data mover