SGI IS5600 series for Seismic Processing

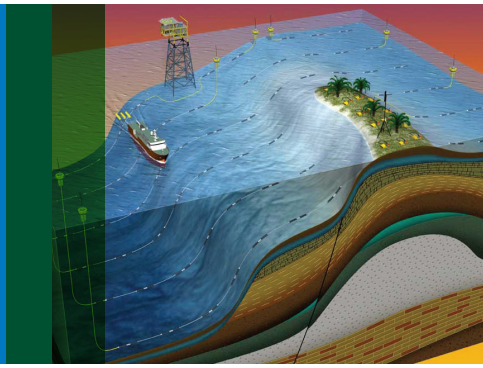
Dramatically improve the speed and efficiency of your seismic processing operations

Key Features

Simplified and reliable storage that grows with you

Optimized for high performance computing environments

Superior data availability Reduce costs of sharing & protecting data



Smart Design

Cost-effective storage platform optimized for the most demanding seismic data processing workloads

Lets You Go Fast and Be Efficient

Increases the pace of exploration, giving you confidence to accelerate business performance

Always On

Highest levels of reliability and availability to increase productivity and reduce risk

Global Demand for Energy Continues to Increase

The oil and gas industry is under considerable pressure to continually locate and access major new sources of oil and gas. As the global population grows, it is imperative to find cost-effective ways to fully develop these resources to increase production. And as oil and gas become harder to find, newer techniques need to be developed to "see" deeper, see under salt, and see more clearly what is happening under the surface of the earth.

Technology has been the driving force behind the industry's ability to deliver increased oil and gas production safely and efficiently. However, the processing of survey data is a time-consuming, computer-intensive exercise. Advances in marine seismic acquisition (3D, 4D, and 4C ocean bottom seismic) have helped to turn recorded seismic reflections into interpretable data used to model the subsurface. In addition, newer seismic acquisition technologies are evolving, including Wide Azimuth, Coil Shooting (or Full Azimuth acquisition), and Time Lapse Data Acquisition.

Successful operations require integrated surface and sub-surface technologies to achieve rapid prospect identification and the ability to properly evaluate the reservoir's potential for production to speed time to results. All of these techniques produce an even greater amount of data, driving the demand for higher-bandwidth access for increased productivity.

Increased Pace of Exploration

The SGI InfiniteStorage™ 5600 series enables organizations to dramatically improve the speed and efficiency of seismic processing operations in order to achieve a competitive advantage. Organizations can accelerate the pace of exploration through:

- Increased team productivity and greater collaboration, with improved data availability and access
- Greater efficiencies and utilization rates as well as reduced administration and overhead.

Smart Design

Designed for specific bandwidth and density requirements

The SGI InfiniteStorage™ 5600 series is designed and optimized for the most demanding seismic data processing workloads. The preconfigured, pretested solution is designed to support the big bandwidth required to capture and share large imaging datasets across multiple applications and sites. By enabling faster data exploitation, organizations have the information needed to accelerate exploration and production operations.

- Big bandwidth support. Delivers 4.4GB/sec bandwidth in only one 4U rack.
- Modular design. Allows growth with minimal components, eliminating the need to overconfigure.
- High density. Supports 1.8PB in each industry-standard 40U rack.
- Cost-effective expansion. Allows scaling of bandwidth and capacity independently within the same container. Start small and expand with 2U or 4U increments as demand changes.

Lets You Go Fast and Be Efficient

Accelerate business performance

Competitive pressures require organizations to identify and implement more effective processes that drive efficiencies across both exploration and production to reduce time to market. The SGI InfiniteStorage™ 5600 series is designed with that specific goal in mind.

- Shorten time to results. Increase high-performance computing capacity without data barriers.
- Eliminate data bottlenecks. Dramatically increase efficiencies with more than 30GB/sec from a single 4U rack.
- Achieve a smaller footprint. Reduce power, cooling, and operational costs with fewer disk drives and less than half the rack space.
- Get efficient scalability. Add capacity as needed, expanding to multiple petabytes in a single data container.

Always On

Increase the pace of exploration

Effective exploration and production require ready access to application and data when and where it is needed. SGI InfiniteStorage™ 5600 series is architected to provide the highest reliability and availability. SGI delivers a tested and proven solution with over 20 years of firmware development. Organizations get maximum uptime with optimized RAS capabilities built into the solution.

- Maximum serviceability and reliability. Standard redundant components provide the utmost availability of critical data.
- Field-proven technology. Delivers the highest levels of availability.
- Dynamic provisioning. Enables data to always be available.
- Backed by global support. Gives you ready access to SGI experts.

SGI InfiniteStorage™ 5600 series

The SGI InfiniteStorage™ 5600 series meets the demanding performance and capacity requirements of HPC environments without sacrificing simplicity and efficiency. The modular design allows you to mix drive types in a single enclosure to address different requirements with the same system. This allows you to create a storage deployment tailored to your seismic processing requirements that will grow with your needs and keep you within your budget.

IS5624—Optimized for performance

The SGI IS5624 delivers both high bandwidth and high IOPS with leading price performance. The IS5624 saves money by consuming 50% less power using up to 24 2.5” SAS drives in a 2U form factor. A fully loaded rack delivers performance of more than 30GB/sec sustained write throughput in 40U.

IS5660—Delivers industry-leading density and performance

The SGI IS5660 optimizes storage density for maximum capacity with excellent performance, supporting up to 60 drives in each 4U enclosure. The IS5660 supports high-capacity near-line SAS disk options that are superior to SATA drives for high capacity and lower cost per MB/sec, and they are an excellent choice for throughput-intensive applications. The 4U enclosure holds 60 disk drives in 5 drawers, delivering up to 3.1GB/sec of write throughput in 4U.

IS5024—Metadata storage

Best practices dictate a dedicated storage system for client access to file metadata (such as name, size, access times, and data locations). SGI offers the IS5024, which is the little brother of the IS5624, a cost-effective SAS-connected disk system that can be attached directly to the metadata server, delivering the maximum performance demanded by HPC applications.

Performance-Tuned File System Support

The SGI IS5600 series gives you a choice of high-performance file systems optimized for large, rich image object sizes.

- Optimizes performance for both SAN and NAS
- Delivers higher-quality content in less time
- Is highly scalable
- Creates a centralized storage repository for collaboration across agencies
- Eliminates time-consuming, hard-to-manage local file copies

CXFS File System

Currently in its fourth generation, CXFS provides no-compromise data sharing, enhanced workflow, and reduced costs in data-intensive environments. As the industry's fastest shared file system for storage area networks (SANs), it eliminates file duplication and the time it takes to move large files over networks. CXFS significantly boosts productivity where large files are shared by multiple processes in a workflow. CXFS, data-intensive projects take less time to complete at less cost and are easier to manage.

How it Works

A Storage Area Network (SAN) provides direct, high-speed physical connections between multiple hosts and disk storage. CXFS provides the software infrastructure to allow simultaneous shared access to that storage—large files are shared, not moved, and all systems have direct access to all data. Bottlenecks caused by slow, congested networks or overloaded file servers are gone, so servers can take advantage of the full bandwidth of the SAN to read and write data directly to and from the disks where it resides.

Benefits for Performance and Scalability

Because it uses a SAN infrastructure, CXFS can deliver much greater I/O performance and bandwidth than any network data-sharing mechanism, such as NFS or CIFS. Based on the industry-leading XFS® file system, CXFS benefits from field proven and feature rich capabilities such as:

- 64-bit scalability that supports file sizes up to 9 million terabytes, file systems to 18 million terabytes
- Instant data sharing without network mounts or data copies among all major operating systems (IRIX®, Sun™ Solaris™, IBM® AIX®, Windows®, 32-bit Linux®, 64-bit Linux®, Mac OS® X, and other Unix®)
- Highly optimized distributed buffering techniques that provide the industry's fastest performance
- High availability with automatic failure detection and recovery
- Centralized, intuitive Java™ language-based management tools
- POSIX® compliance that requires no application change

Continuous Performance and Maximum Resiliency

Dynamic Disk Pools (DDP) are designed for big data sites that demand continuous high performance and maximum resiliency. DDP reduces the performance impact of a drive failure by drastically reducing the rebuild time versus traditional RAID, and provides a significant improvement in data protection over static RAID striping methods. Its flexible disk pool sizing enables DDP to optimize disk drive utilization per enclosure.

DDP distributes data, parity information, and spare capacity across a pool of drives (seven patents pending). DDP is able to utilize every drive in the pool for both normal and rebuild operations, making every enclosure maximally efficient. If a drive failure occurs, every drive in the pool contributes to recreating the lost data blocks. This dynamic rebuild behavior is the key to its exceptional performance under failure conditions and a quick return to optimal condition.

Team with experts

Accelerate your implementation and minimize risk by taking advantage of SGI Professional Services. We will enable successful deployments of the SGI Seismic Processing Solution by designing, deploying, and integrating the solution to meet your specific business needs using industry best practices. You'll achieve the highest levels of efficiency, manageability, and agility, whether your project is large or small, on one site or across multiple locations.

With SGI professionals worldwide and years of field experience, you can be confident that our s work diligently to bring you online with minimal time to production in a cost-effective manner, from the initial discovery and planning phase to solution deployment and acceptance. Our portfolio of professional services includes use-case discovery, proof of concept, production pilot, solution design and implementation, and optimization.

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