SGI® InfiniteStorage™ 5100
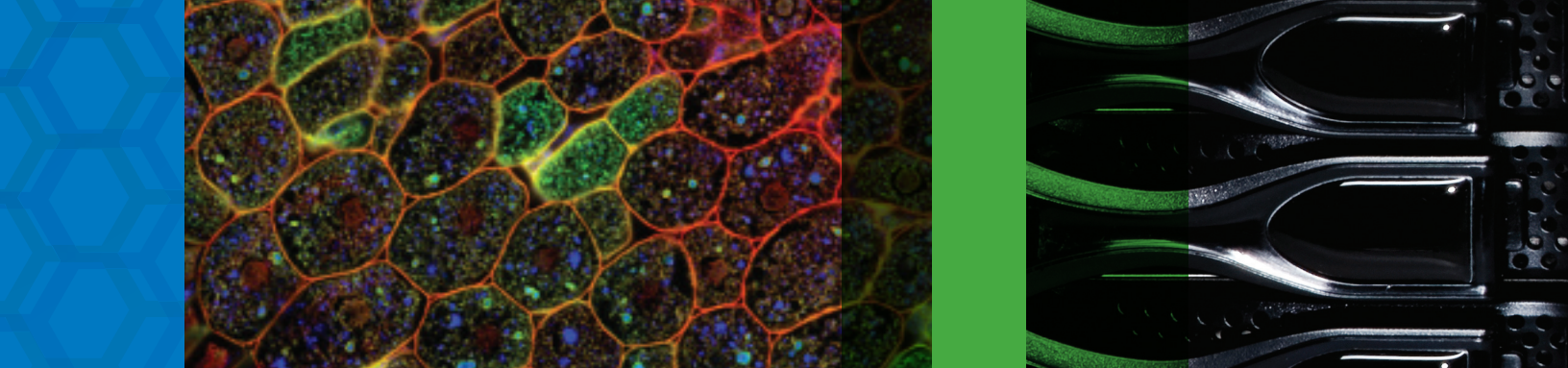
Optimum Performance Efficiency and Density

SGI InfiniteStorage 5100 (IS5100) is a RAID storage system, which combines optimum price/performance and flexibility with industry leading reliability. A choice of host interfaces and drive technologies are available in an affordable external storage platform. IS5100 provides a cost-effective storage platform with next-generation 12 Gb/s SAS back-end technology and ultra-low power consumption. IS5100 delivers performance, flexibility and scalability without sacrificing simplicity and availability and perfectly complements SGI® UV™ server and Rackable® rackmount server environments.

Optimum Performance Efficiency and Density

IS5100 delivers high density storage in a 60 drive 4U standard enclosure with an optimum mix of IOPs and throughput to provide sustainable performance that is a considerable improvement over previous generation technology. With up to 4,000 MB/s sustained I/O Bandwidth and 210,000 IOPs (bursts), IS5100 delivers impressive throughput for bandwidth-intensive and IOPs demanding applications.

Automatic Data Migration with SGI DMF for Storage Tiering

IS5100, with SGI's DMF, is an ideal primary or secondary tier storage solution for tiered virtualization implementations as DMF continuously monitors and moves data automatically among storage devices with different performance and price characteristics. It is also ideal as a front-end for active archive architectures.

SSD Caching

Intelligent cache tiering, which uses the SSD Cache feature, enhances performance by leveraging the superior performance of solid-state drive (SSD) media for the most frequently accessed blocks of data. Customers have nothing to manage when they use the SSD Cache feature because the caching is data driven in real time. Users are not required to set up complicated policies to define the trigger for data movement between tiers. SSD Cache accelerates data access through the caching use of solid-state disks in the drive trays to enhance performance, and it is expandable to up to 5TB per storage system.

Infinite Storage System Manager (ISSM) featuring next generation RAID platform with Dynamic Disk Pools

The ISSM software now supports asynchronous mirroring of thin provisioned volumes as well as on-the-fly expansion, reconfiguration, and maintenance without interrupting storage system I/O. Dynamic Disk Pools (DDPs) enable dynamic rebalancing of drive count changes, whether drives are added or a drive fails. DDPs greatly simplify traditional storage management with no idle spares to manage or reconfigure when drives are added or fail; thus the IS5100 can automatically configure, expand, and scale storage. With the IS5100, maintenance can be scheduled less often.

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Saves Energy on both Power and Cooling

IS5100 drives low overall energy consumption with power supplies that meet multiple efficiency standards. The IS5100 produces exceptional per-drive performance and IOPs per watt provide value by leveraging the fewest drives for optimum performance using the least amount of power.

Proven, Reliable Storage Platform

The installed base of almost three-quarter of a million technology systems deployed is a testament to the reliability of the IS5000-series storage technology. It also offers Data Assurance, or support for the T10-PI protocol, to maintain data integrity during the transmission of data from the server to the storage system as well as within the storage system. The Major Event Log enhancements for proactive logging of error conditions, allow volume reconstruction during Immediate Access Format, improved drive media error handling and detection.

Lower Costs Through a Modular and Scalable Architecture

The modular design of the IS5100 enables easy scalability to increase capacity to support business growth. IS5100 comes with a choice of 3 drive enclosures, which can be mixed to meet storage capacity requirements. The drive enclosures are available in 2U 12 drive, 2U 24 drive or 4U 60 drive capacities. The controller supports drives as large as 4TB and allows for multiple drive types in one system: SSD, SAS, NL-SAS.

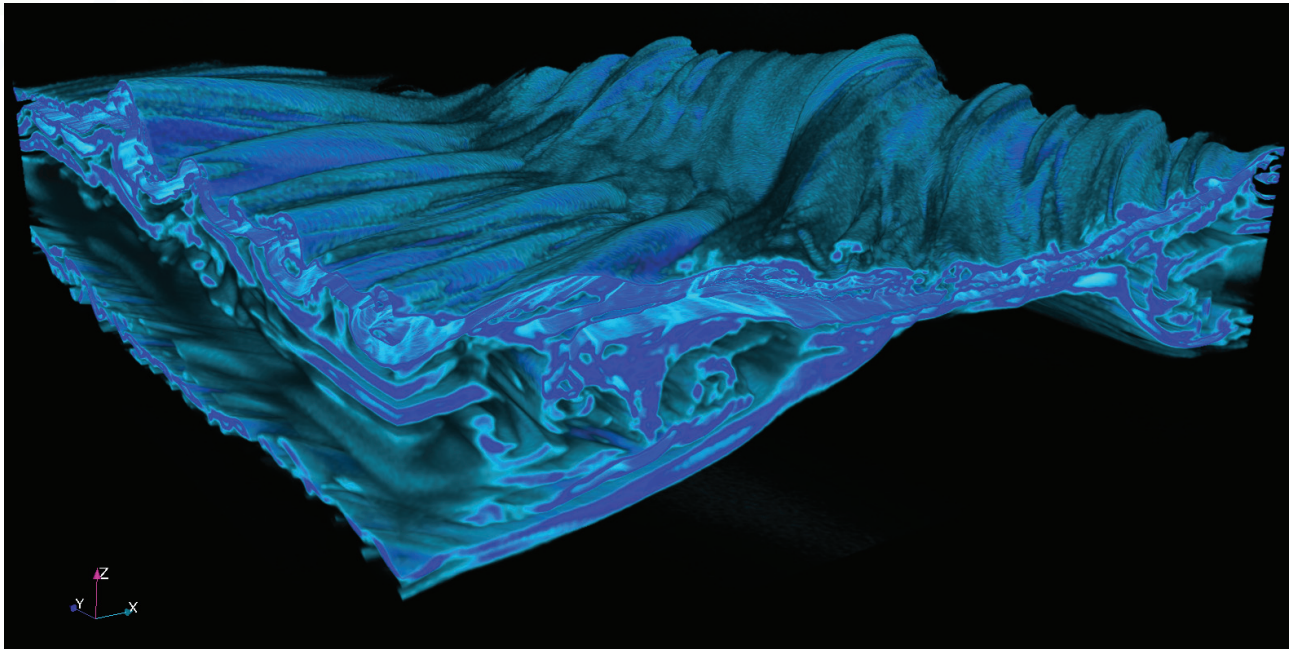## Support and Flexibility for Seamless Integration

The line offers heterogeneous support with the flexibility to tightly integrate with SGI compute environments, as well as integrating with other non-SGI compute environments.

More Interface Options

The IS5100 comes with four native 12 Gb/s SAS host interfaces, the system can now support an additional host interface card (HIC) with four or eight additional 12 Gb/s SAS, four/eight 16 Gb/s FC. The three drive enclosure options supporting up to 192 high performance nearline SAS drives, SAS drives and SSDs.

This flexible, multi-protocol approach allows users to choose the right configuration for their DAS or SAN deployments.

IS5100 cost-effectively satisfies an organization's complete range of data capacity requirements with high performance 12 Gb/s 3.5 and 2.5 inch SAS, NL SAS, self encrypting drives and SSD drives in 2.5-in. form factor — all within a single storage system.

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SGI IS5100 System Specifications

All data in this table applies to dual-controller configurations.

Attribute	IS5160	IS5124	IS5112
Maximum Raw Capacity	240TB w/expansion 768TB	28.8TB w/expansion 700.8TB	48TB w/expansion 768TB
Maximum Disk Drives	180 using only 60 bay enclosures 192 when mixing 12 bay and 24 bay enclosures 75 SSDs	192 with expansion enclosures 120 SSDs	192 with expansion enclosures
Form Factor	4U/60 drives	2U/24 drives	2U/12 drives
System Memory	8/16 GB	8/16 GB	8/16 GB
Base Ports for Host I/O	Quad port 12Gb SAS		
Additional Ports for Host I/O	Quad port 10Gb iSCSI (RJ-45) Quad and Octal port 16Gb FC Quad and Octal port 12Gb SAS (HA-duplex)		
Expansion Disk Shelves Supported: Drive Offerings	4U, 60 drives: 2.5" 10K SAS 1.2TB/900GB/600GB(FDE/non-FDE); 3.5" 7.2K 4/3/2TB(FDE/non-FDE); 200/800GB SSDs 2U, 24 drives: 2.5" 15K SAS 300GB; 2.5" 10K SAS 1.2TB/900GB/600GB; 200/800GB SSDs 2U, 12 drives: 7.2K SAS 4/3/2TB		
OS	Infinite System Storage Manager (ISSM)		
High-Availability Features	• Dual active controller with automated I/O path failover • Supports Dynamic Disk Pools and traditional RAID levels 0, 1, 3, 5, 6, and 10 Redundant, hot-swappable storage controllers, disk drives, power supplies and cooling fans • Automatic rebuild following a drive failure (DDP to spare capacity, traditional RAID to hot spare) • Mirrored data cache with battery backup and de-stage to flash ISSM • Proactive Drive Health monitoring identifies problem drives before they create issues		
Operating Systems Supported	Red Hat® Enterprise Linux®, Novell® SUSE™ Linux® Enterprise Server		
Software Features	**Standard** • Dynamic Disk Pooling • Dynamic Volume Expansion • Dynamic Capacity Expansion • Dynamic RAID Level Migration • Dynamic Segment Size Migration • Persistent Monitor • Proactive Drive Heath Monitoring • Nondestructive Firmware Upgrades • Media Scan with auto parity check and correction **Optional Extended-value software:** • Flash Cache (SSD Cache) • Point in Time Consistency Group • Thin Provisioning • Base to "Hyper" Performance • Advanced software feature to unlock between 121 to 192 slots • SAS "FDE" Disk Drives • SAS SSD Disk Drives • Synchronous Remote Volume Mirroring - 16 • Volume Copy • Checkpoint Asynchronous Mirroring		
Dimensions and Weight	**IS5160 Controller Shelf** **4U/60 Expansion Shelf**	**IS5124 Controller Shelf** **2U/24 Expansion Shelf**	**IS5112 Controller Shelf** **2U/12 Expansion Shelf**
Height	7.0" (17.78 cm)	3.47" (8.81 cm)	3.4" (8.64 cm)
Width	19" (48.26 cm)	19" (48.26 cm)	19" (48.26 cm)
Depth	32.5" (82.55 cm)	19.6" (49.78 cm)	21.75" (55.25 cm)
Weight	232 lb (105.2 kg)	57.32 lb (26 kg)	59.52 lb (27 kg)

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SGI IS5100 System Specifications (Continued)

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All data in this table applies to dual-controller configurations.

Max Power and Cooling	IS5160 system shelf		IS5124 system shelf		IS5112 system shelf	
	Operating	Rated (max)	Operating	Rated (max)	Operating	Rated (max)
KVA	1.03	1.53	0.46	0.91	0.41	0.91
Watts	1024	1512	451	900	406	900
BTU	3495	5162	1539	3073	1329	3073

Max Power and Cooling	4U/60 disk shelf		2U/24 disk shelf		2U/12 disk shelf	
	Operating	Rated (max)	Operating	Rated (max)	Operating	Rated (max)
KVA	0.86	1.53	0.30	0.91	0.25	0.91
Watts	847	1512	292	900	247	900
BTU	2890	5162	996	3073	841	3073

Array Limits	
Drives	192
Partitions	128
Volumes	512
Disk Pools/Array	20
Thin Volumes/Array	512
SSD Cache Pools	1
Volumes/Consistency Group	32
Consistency Group/Array	16

Snapshot Limits	
Point In Time Snapshots (PiTs)/Array	512
Maximum Views per PiT	4
Maximum Views per Storage Array	256
Maximum Consistency Groups /Array	16
Maximum Member Volumes per Consistency Group	32

Mirror Limits	
Maximum Mirror Pairs per Storage Array (dual controller config only) (combined legacy sync plus new async)	32
Mirrors/Volume	1
Mirrors/Async Mirror Group	32
Maximum Mirror Consistency Groups	4

About SGI

SGI, the trusted leader in high performance computing (HPC), is focused on helping customers solve their most demanding business and technology challenges by delivering technical computing, Big Data analytics, cloud computing, and petascale storage solutions that accelerate time to discovery, innovation, and profitability.

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