

# SGI™ Total Performance 9100 Storage Array

## Features

- Web-based management tools
- Fully redundant packaging
- Easy scalability in a small footprint

## Total Performance

The SGI Total Performance 9100 [TP9100] RAID storage array provides the performance and features of a midrange storage product at an entry-level price. This full-fiber solution is highly modular and easily expandable, allowing ample room for growth. Available in desktow tower or rack-mounted configurations, SGI TP9100 meets the broadest range of capacity and performance requirements.

## Maximum Flexibility in Minimum Space

The TP9100 base unit can be configured with one or two RAID controllers and up to 32 storage drives, allowing easy scalability from JBOD to RAID. It supports RAID levels 0, 1, 1+0, 3, and 5, giving mission-critical applications reliable, high data availability.

Very high-density disk drive packaging [12 disks in 4U rack space] enables TP9100 to provide scalable, high-capacity configurations in a small footprint. This unit is designed for maximum modular flexibility in both form and function, which allows for easy customization.

## Enhanced Server Control

In the single controller configuration, the TP9100 is a cost-effective fiber storage solution for IRIX®, Linux®, Windows NT®, and Windows® 2000 OS-based servers. Multiplatform OS support makes the TP9100 an enterprise-class solution in both homogeneous and heterogeneous SAN environments. The TP9100 provides an access control mechanism [LUN masking] that allows system managers to determine which servers are allowed to access which data sets. The TP9100 couples logical disks and servers, preventing one server from encroaching on another server's data.

## Superior Data Availability

In the two-controller configuration, the TP9100 provides dual fiber interfaces to fabric or direct-connect topologies and dual redundant, back-end loops for uninterrupted access to large data pools. If one controller fails, automatic failover to the second controller delivers nonstop application performance and data availability. Cache coherency ensures that even if a server uses an alternate path to access data, the controller will deliver the most current data set. In addition, the TP9100 provides complete redundancy with its hot-pluggable controllers, power supply units, fans, loop resiliency circuits, and data storage devices. Full hot-swappability permits servicing at any time without system downtime.

## Outstanding Storage Management

The TP9100 comes bundled with two RAID management utilities—Web Array Manager [WAM] and Global Array Manager [GAM]—to organize random data coming in through the front-end data stream, provide parity-based error checking and backup, and map the data in the SAN. The applications allow users to remotely configure and monitor the TP9100 RAID subsystems and easily manage online storage.



## SGI TP9100 Storage Array Technical Specifications

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|---|--|---|
| <p><b>RAID Levels 0, 1, 1+0, 3, 5</b></p> <ul style="list-style-type: none"> <li>RAID 0 4 to 8 drives</li> <li>RAID 1</li> <li>RAID 1+0 Mirrored equal strips of 4 to 8 drives</li> <li>RAID 3 4 to 8 drives</li> <li>RAID 5 4 to 8 drives</li> </ul> <p>• Up to 8 LUNs (for release 6.x—32 for release 7.x)<br/>• RAID stripe depth configurable to 16, 32, 64, or 128 sectors per disk<br/>• Global hot spares</p> <p>Note: There is a maximum of 32 drives per controller pair at release 6.x.</p> | <p><b>Capacity</b></p> <ul style="list-style-type: none"> <li>Up to 32 drives per controller pair</li> <li>Up to 12 drives in a chassis, 870GB [73GB drives]</li> <li>Up to 108 drives in a rack, 7.8TB [73GB drives]</li> <li>Up to 9 chassis in a rack</li> </ul>  | <p><b>Power [2 per Enclosure]</b></p> <ul style="list-style-type: none"> <li>Frequency 47 to 63 Hz</li> <li>AC voltage Deskside: 100 to 120 or 200 to 240 VAC<br/>Rack: 200 to 240 VAC</li> <li>AC circuits Single or redundant external AC circuits</li> <li>Rack inlet type NEMA L6-30</li> <li>Drawer inlet type IEC 320 panel-mount plug</li> </ul>   |
| <p><b>Front-End Performance</b></p> <ul style="list-style-type: none"> <li>One Fibre Channel port per controller</li> <li>100MB/sec per controller</li> <li>200MB/sec with dual controllers</li> </ul>  | <p><b>Drives</b></p> <p><b>9.1GB [RAID Only]</b></p> <ul style="list-style-type: none"> <li>Rotational velocity 7,200 RPM</li> <li>Average latency 4.17 msec</li> <li>Sustained data rate 12.7 to 20.2MB/sec</li> <li>Media transfer rate 159 to 244Mb/sec</li> <li>Average seek 7.0 msec</li> <li>Drive connector 40-pin, FC-SCA-2</li> </ul> | <p><b>Operating Environment</b></p> <ul style="list-style-type: none"> <li>Temperature [operating] 10°C to 40°C [50°F to 104°F]</li> <li>Relative humidity 20% to 80% [noncondensing]</li> <li>Altitude 0 to 2133 m [6,996 feet]</li> <li>Operating shock Vertical axis 5 g peak 1/2 sine, 10 msec</li> <li>Operating vibration Random vibration power spectrum available on request</li> </ul> |
| <p><b>Dimensions [Approximate]</b></p> <p><b>Enclosure</b></p> <ul style="list-style-type: none"> <li>6.95" H, 23.0" D, 17.5" W<br/>[17.7 cm H, 58.6 cm D, 44.6 cm W]</li> <li>4 EIA units</li> <li>Standard NEMA 19" rack</li> <li>92.4 lb [42 kg]</li> </ul> <p><b>Rack</b></p> <ul style="list-style-type: none"> <li>5.94 ft H, 2.64 ft D, 1.98 ft W<br/>[180.0 cm H, 80.0 cm D, 60.0 cm W]</li> <li>38 EIA units</li> <li>1265 lb [full] [575 kg]</li> <li>440 lb [empty] [200 kg]</li> </ul>    | <p><b>18.2GB [RAID Only]</b></p> <ul style="list-style-type: none"> <li>Rotational velocity 7,200 RPM</li> <li>Average latency 4.17 msec</li> <li>Sustained data rate 12.7 to 20.2MB/sec</li> <li>Media transfer rate 159 to 244Mb/sec</li> <li>Average seek 7.0 msec</li> <li>Drive connector 40-pin, FC-SCA-2</li> </ul>                     | <p><b>Electromagnetic Emissions</b></p> <p><b>Deskside</b></p> <ul style="list-style-type: none"> <li>FCC Class B</li> <li>CI5PR.22 Class B</li> </ul> <p><b>Rack</b></p> <ul style="list-style-type: none"> <li>FCC Class A</li> <li>CI5PR.22 Class B</li> </ul>   |
| <p><b>Host Interface</b></p> <ul style="list-style-type: none"> <li>One 100MB/sec Fibre Channel connection per controller</li> <li>128MB cache per controller</li> <li>FCI SCSI-3 protocol</li> <li>Command tag queuing up to 256 tags</li> <li>GBIC connector [copper [HSSDC] or optical]</li> </ul>   | <p><b>36.7GB</b></p> <ul style="list-style-type: none"> <li>Rotational velocity 10,000 RPM</li> <li>Average latency 2.99 msec</li> <li>Sustained data rate 26 to 40MB/sec</li> <li>Media transfer rate 280 to 427Mb/sec</li> <li>Average seek 5.7 msec</li> <li>Drive connector 40-pin, FC-SCA-2</li> </ul>                                    | <p><b>Safety</b></p> <ul style="list-style-type: none"> <li>UL listed, cUL, CE Mark</li> </ul>  |
| <p><b>Maximum Cable Length</b></p> <ul style="list-style-type: none"> <li>Copper 12 m, server to enclosure</li> <li>Optical 100 m, server to enclosure</li> <li>Switch 12 m, enclosure to switch</li> </ul>   | <p><b>73.4GB</b></p> <ul style="list-style-type: none"> <li>Rotational velocity 10,000 RPM</li> <li>Average latency 2.99 msec</li> <li>Sustained data rate 26.7 to 40.2MB/sec</li> <li>Media transfer rate 280 to 427Mb/sec</li> <li>Average seek 5.9 msec</li> <li>Drive connector 40-pin, FC-SCA-2</li> </ul>                                | <p><b>Quality Standard</b></p> <ul style="list-style-type: none"> <li>Manufactured under an ISO 9000-registered quality system</li> </ul>   |
| <p><b>Drive Interface</b></p> <ul style="list-style-type: none"> <li>Dual, independent FC-AL interface ports on each drive [100MB/sec]</li> <li>Failover by each controller to both Fibre Channel loops</li> </ul>  | <p><b>18.4GB</b></p> <ul style="list-style-type: none"> <li>Rotational velocity 10,000 RPM</li> <li>Average latency 2.99 msec</li> <li>Sustained data rate 26.7 to 40.2MB/sec</li> <li>Media transfer rate 280 to 427Mb/sec</li> <li>Average seek 5.5 msec</li> <li>Drive connector 40-pin, FC-SCA-2</li> </ul>                                |   |



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