

Silver RAID Series



TULSIENT

Solutions for the Information Age



Silver RAID Series

SW-400
SW-2400
SW-700
SW-8190
SW-8700

Presenting the smarter storage solutions:

Tulsient Silver RAID Series solutions are designed to simplify the storage management process. The conventional Disk Arrays are designed for experienced IT specialists, who spend a lot of time on setup through complicated operating procedures. Silver Raid series came up with an innovative idea: Plug and Play RAID. You can run it by attaching it directly to your host server, using the simple step-by-step built-in setup program - no network downtime, no server reconfiguration and no setup driver.

The Server is extremely low on disk space!

These words never fail to disturb an Administrator, and even if this situation is expected the formidable task of upgrading is tedious for even the most skilled. Extra storage capacity calls for shutting down of the server, resulting a troubling break in work processes, be it customers or employees. And in a world of today, downtime means heavy losses in productivity, and business. Smarter companies of today, anticipate their storage needs by overbuying on equipment "now" to avoid interruptions later. This attitude besides increasing storage appetite of corporate networks and Web servers has led to a boom in the data storage market.

So what's in storage for you?

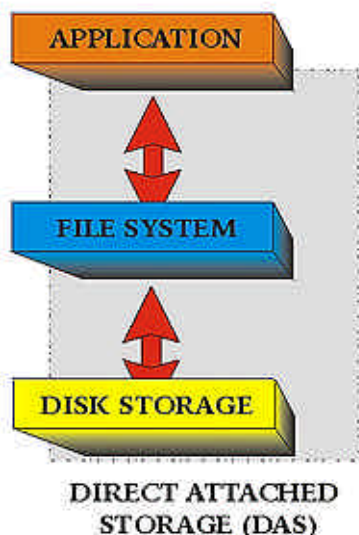
While a chief corporate officer can view storage as an essential repository of the company's precious data, an IT manager can consider it as an enormous burden: a complex maze of network architecture, technologies, and devices to navigate through.

DAS: Storage attached directly to a server.

Today, more than 90% of the computer storage devices like disk drives, disk arrays and Raid systems are directly attached to a client computer through various adapters. These adapters are equipped with standardized protocols such as EIDE, SCSI, FIBER CHANNEL etc. Such type of storage is alternatively called as Sever attached server or Direct attached storage.

Using RAID arrays for data redundancy.

RAID is an acronym for Redundant Array of Independent Disks. This system works by combining a Collection of disks into a single, logical array. Redundant data can be stored across these multiple disks in order to provide fault tolerance by enabling quick recovery from a disk failure.



RAID implies:

Mirroring: Disk mirroring involves the simultaneous writing of the same data over one RAID controller to two separate hard disks.

Duplexing: Similar to mirroring, disk Duplexing is the simultaneous writing of the same data over two RAID controllers to two separate disks.

Striping: This involves breaking data into small pieces and distributing it across multiple disks. Depending on the RAID implementation, data is broken up into bits, bytes, or blocks.

Parity: Parity is logical information about the data you're storing, and it's used to re-create lost data in the event of a disk failure. It is used in combination with striping and usually involves at least three disks.

Auto Rebuild: Silver RAID provides automatic data rebuilding without issuing commands or keying in functions when a replacement disk drive is installed.

Silver RAID Series

Easy Maintenance: The Silver RAID design with "Hot-Swap" parts include Hard Disk Tray, Redundant power supply unit and cooling fan for customers to remove and install the parts without interrupting data access while the RAID is on.

Low Total Cost of Ownership: Silver RAID ensures a low total cost of ownership by eliminating unnecessary hardware, driver license, and administration costs.

OS Independent: Whether it is for networks with stand-alone Windows 95/98, NT, NOVELL, UNIX or Mac based Servers, or for clustered server environments, Silver RAID offers complete operating system independence and transparency.

Hot Spare: In Silver RAID, a hard disk driven can be configured as hot standby disk. When a hard disk drive error occurs in one of the RAID members, this online hot spare disk drive will automatically take over for the failed disk drive.

Added Upgrades: Silver RAID provides automatic data rebuilding without issuing commands or keying in functions when a replacement disk drive installed.

SW 700/SW 8700

- **Up to 6 or 8 nos. of SCSI Drives**
- **RAID Levels: 0, 1, 0+1, 3 or 5**



SW 8700



SW 700 (Tower)

Performance:

Silver RAID's built-in i960RD or i960RN RISC CPU executes the RAID software code and supports data caching to achieve the highest performance.

Capacity Expansion:

Silver RAID comes with 6 or 8 Hard Disk trays which customers can configure into 0, 1, 0+1, 3, 5 RAID levels with required capacity and expand as their storage capacity needs grow.

	SW 700	SW 8700
HDD Bays	6	8
Inbuilt-Controller Processor	Intel i960 RD 64bit RISC	Intel i960 RN 64bit RISC
Cache Memory	32 ~ 256 MB EDO RAM	64 ~ 128 MB SDRAM
RAID Levels	0 , 1 , 0+1 , 3 or 5	0 , 1 , 0+1 , 3 or 5
Data Transfer Rate	Up to 40MB/s	Up to 80MB/s

Silver RAID Series

SCSI ID Assignment	0 ~15	0 ~15
Tagged Command Queuing	Up to 255 Simultaneous Data Requests	Up to 255 Simultaneous Data Requests
Drives	Hot Swappable User Replaceable Up to Six 3.5" Drives (1" height)	Hot Swappable User Replaceable Up to Eight 3.5" Drives (1" height)
Host Channel	Ultra-Wide SCSI	1 Ultra 2 LVD SCSI
Disk Channels	2 Ultra-Wide SCSI	2 Ultra 2 LVD SCSI
Maximum Fault Tolerant Capacity	> 180GB	> 240GB
Host Requirement	Host Independent	Host Independent
Operating Systems	O/S Independent and Transparent	O/S Independent and Transparent
Data Rebuild	Automatic Data Regeneration	Automatic Data Regeneration
Power Supply Capacity	250W x 2 Redundant	300W x 2 Redundant
AC Input Voltage	110 / 220V (+/- 10%) 60/50 Hz	110 / 220V (+/- 10%) 60/50 Hz
Relative Humidity	10% to 85% Non-condensing	10% to 85% Non-condensing
Operating Temperature	5C ~40C	5C ~40C
Non-operating Temperature	-25C ~ 60C	-25C ~ 60C

SW 8190

- **Up to 512MB Cache RAM**
- **Up to 8 nos. of EIDE Drives**
- **RAID Levels: 0, 1, 0+1, 3 or 5**
- **High Performance controller featuring Intel RISC microprocessor.**
- **Ultra 160 to IDE**
- **Special benefits: Extremely user-friendly setup, OS independent and transparent, lowest total cost of ownership, easiest maintenance.**



Inbuilt-Controller	Intel i80303 64-bit RISC microprocessor
Cache Memory	64~512 MB SDRAM
RAID Levels	0, 1, 0+1, 3 or 5
Data Transfer Rate	Up to 160 MB/s

Silver RAID Series

SCSI ID Assignment	0~14
HDD Bays	8
Tagged Command Queuing	Up to 255 Simultaneous Data Requests
Drive	Hot Swappable, User Replaceable Up to Eight 3.5 inch Drives (1" height)
Interface: Host Bus	Ultra 160 LVD SCSI **
Disk Bus	E-IDE with ATA100
Maximum Capacity	> 1 TB
Host Requirement	Host Independent
Operating Systems	O/S Independent and Transparent
Data Rebuild	Automatic Data Regeneration
Power Supply Capacity	300W x 2 Redundant
AC Input Voltage	115 /230V (+/-10%), 60/50 Hz
Environment	Operating Temperature: 5 C ~ 40 C Non-Operating: -25 C ~ 60 C

** Optional Dual SCSI Host Channel.

SW 2600

- **16x ATA-100 disk channels (with over-160GB Big Drive) supporting over 2 TB RAID**
- **Dual Host ports, 2x Ultra 160**
- **3 x 320 Watt redundant Power supply**
- **Web GUI monitoring tool**
- **Advanced environmental - Thermal control**



SW 2600

Drive	Hot swappable up to Sixteen 3.5 inch Drives (1" height) Support BigDrive HDD
Inbuilt-Controller	Intel i80303 64-bit RISC microprocessor
Cache Memory	128~512 MB SDRAM
RAID Levels	0, 1, 0+1, 3 or 5, JBOD
Data Transfer Rate	Up to 160 MB/s
SCSI ID Assignment	0~14

Silver RAID Series

Tagged Command	Up to 255 Simultaneous data requests
Interface:	
Host Bus	Dual Ultra 160 LVD SCSI
Disk Bus	Ultra ATA 100
Maximum Capacity	> 2 TB
Host Requirement	Host Independent and Transparent
Operating Systems	O/S Independent and Transparent
Data Rebuild	Automatic Data Regeneration
Power Supply Capacity	320W x 3 Redundant
AC Input Voltage	115 /230V (+/-10%), 60/50 Hz
Environment	Operating Temperature: 5 C ~ 40 C Non-Operating: -25 C ~ 60 C

* Specifications and product offerings subject to change without notice.

SW 2400

- **Greater capacity: Over one Terabyte capacity by using 12 x IDE drives.**
- **High Performance: Up to 160MB/sec transfer rate and 512MB Cache RAM.**
- **Thermal Improvement: Aluminum cast disk tray and DC-Blower fan for heat dissipation.**
- **On-line expansion: Allow adding additional drives to existing array.**
- **Special benefits: Extremely user-friendly setup, OS independent and transparent, lowest total cost of ownership, easiest maintenance.**



SW 2400

Performance:

Silver RAID's built-in i80303 64-bit RISC microprocessor executes the RAID software code and supports data caching to achieve the highest performance.

Capacity Expansion:

Silver RAID 2400 comes with 12 Hard Disk trays, which customers can configure into 0, 1, 0+1, 3, 5 RAID levels with required capacity and expand as their storage capacity needs grow.

Silver RAID Series

Technical Specs:

Inbuilt-Controller	Intel i80303 64-bit RISC microprocessor
Cache Memory	128~512 MB SDRAM
RAID Levels	0, 1, 0+1, 3 or 5
Data Transfer Rate	Up to 160 MB/s
SCSI ID Assignment	0~14
Drive	Hot Swappable, User Replaceable. Up to Twelve 3.5 inch Drives (1" height)
Interface	
Host Bus	Ultra160 LVD SCSI
Disk Bus	E-IDE with Ultra DMA Support
Maximum Capacity	> 1 TB
Power Supply Capacity	Dual 450W Independent Power Supply
AC Input Voltage	115 /230V (+/-10%), 60/50 Hz
Environment	Operating Temperature: 5 C ~ 40 C Non-Operating: -25 C ~ 60 C

SW 400

- **Up to 512MB Cache RAM**
- **Up to 4 nos. of IDE Drives**
- **RAID Levels: 0, 1, 0+1, 3 or 5**
- **Built-in Support for 160GB Big Drive**
- **High Performance controller featuring Intel RISC microprocessor**
- **Special benefits: extremely user-friendly setup, OS independent and transparent, lowest total cost of ownership, easiest maintenance**



SW 400

Performance:

Silver RAID's built-in i80303 64-bit RISC microprocessor executes the RAID software code and supports data caching to achieve the highest performance.

Silver RAID Series

Capacity Expansion:

Silver RAID 400 comes with 4 Hard Disk trays which customers can configure into 0, 1, 0+1, 3, 5 RAID levels with required capacity and expand as their storage capacity needs grow.

Technical Specs:

Inbuilt-Controller	Intel i80303 64-bit RISC microprocessor
Cache Memory	64~512 MB SDRAM
RAID Levels	0, 1, 0+1, 3 or 5
Data Transfer Rate	Up to 80 MB/s
SCSI ID Assignment	0~14
Drive	Hot Swappable, User Replaceable up to Four 3.5 inch Drives (1" height)
Interface:	
Host Bus	Ultra2 LVD SCSI
Disk Bus	E-IDE with Ultra DMA Support
Maximum Capacity	> 300 GB
Power Supply Capacity	250W Power Supply
AC Input Voltage	115 /230V (+/-10%), 60/50 Hz
Environment	Operating Temperature: 5 C ~ 40 C Non-Operating: -25 C ~ 60 C



www.tulsient.com

info@tulsient.com

Mumbai: 1, Timmy Arcade C.T.S., 778/B, Makwana Road, Marol, Andheri (E).
Mumbai 400059. **Tel.:** 28515955 **Fax:** 28518363

New Delhi: 3rd Floor, Sandhyadeep, 15, Community center, East of Kailash,
New Delhi 110065. **Tel.:** 26236436/37 **Fax:** 26284085

Bangalore: No.44, 19th Main, 8th Cross, 1st Stage, 1st Phase, BTM Layout,
Bangalore 560029. **Tel.:** 26687600/26681655

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