

TA5002

User Manual

Version 1.0

www.RackmountMart.com

Package Contents:

- TA5002 RAID system tower
- Five Serial ATA drive trays
- One external Serial ATA cable
- Utilities CD-ROM with drivers, User Manuals and SATARAID5 software utility
- Quick Setup Guide
- One eSATA controller (with SiI3124 chip)
- Screw driver and screws for hard drive mounting

Health and Safety Precautions

Only qualified persons are authorized to carry out maintenance on this device. Read this User's Manual carefully, and follow the correct procedure when setting up the device. Do not open your TA5002 or attempt to disassemble or modify it. Never insert any metallic object into the unit to avoid any risk of electrical shock, fire, short-circuiting or dangerous emissions. Your TA5002 contains no user-serviceable parts. If it appears to be malfunctioning, contact us technical support representative. Never expose your device to rain, or use it near water, or in damp or wet conditions. Never place objects containing liquids on the TA5002, as they may spill into its openings. Doing so increases the risk of electrical shock, short-circuiting, fire or personal injury. Make sure that the computer and TA5002 are electrically grounded. If the devices are not grounded, there is an increased risk of electrical shock. Power requirements 100-240 V~, 60-50 Hz.

Trademarks

Apple, Mac, Macintosh are registered trademarks of Apple Computer, Inc. Microsoft, Windows NT, Windows 98, Windows 98 SE, Windows 2000, Windows Millennium Edition and Windows XP are registered trademarks of Microsoft Corporation. Other trademarks mentioned in this manual are the property of their respective owners.

IMPORTANT INFORMATION

Any loss, corruption or destruction of data while using a TA5002 device is the sole responsibility of the user, and under no circumstances will TA5002 be held liable for the recovery or restoration of this data. To help prevent the loss of your data, TA5002 highly recommends that you keep two copies of your data; one copy on your external hard drives, for instance, and a second copy either on your internal hard drive, another external hard drive or some other form of removable storage media, such as CD, DVD or Tape.

Table Of Contents

Introduction	3
Setting Up Your TA5002	5
Installing Driver	6
Setting Up RAID	17
Appendix I: About RAID	18
Appendix II: Windows OS RAID	21

Introduction

Congratulations on the purchase of your new TA5002. This external SATA (eSATA) Storage Array RAID Subsystem with built-in Port Multiplier and eSATA host interface, supports both 1.5 Gb/s and 3Gb/s Serial ATA transfer rates. Connected to an eSATA PCI-X/PCI or PCIe card, this subsystem gives your more than 10 times the data transfer speed of an average Network-attached storage (NAS) and massive hard drive space capability. It supports RAID 0, 1, 5, 0+1, JBOD functions, providing a protected, easy to manage, cost effective storage solution.

Key Benefit

Reliable: RAID 0, 1, 0+1 and 5 to protect data and ensure accessibility; Self-healing storage with auto-rebuild and hot spare functions.

Safe: Hard drive temperature monitoring and alarm system; Five hot-swappable SATA hard drive trays with special designed power-off and lock mechanism to take offsite as a safe backup.

Easy: Plug and play; Easy to setup and manage; Host controller included.

Fast: Over 10 times faster average NAS system; Supports High Definition video stream; Sustained data transfer throughput up to 230 Mbytes/sec.

Huge: Supports five SATA/SATA II hard drives (not included); Combined capacity up to 3.75+ TB

Expandable: Hot-swappable drive trays to enable adding hard drive and capacity as needed; Multi-port host adapter to connect and manage multiple external storage arrays

Features

- High Speed SATA II 3Gb/s interface
- Over 10x faster than average NAS system
- Supports High Definition video stream
- Massive storage capacity support of 3.75TB+
- Advance RAID data protection
- Five hot-swappable drive trays for easy expansion

Specifications

Capacity: 3.75GB+

Host Interface: eSATA, 3Gb/s

Sustained Transfer Rates: Up to 230MB/s*

Supported RAID Levels: RAID 0, 1, 5, 0+1, JBOD

Operating Temperature: 0o C to 35o C

Operating Humidity: 20% to 80% non-condensing

Storage Humidity: 10% to 90% non-condensing

Power Consumption: 150W Max (with 5 drives)

Power Connection: 110V to 240V AC, 50/60Hz

Dimensions: 6.75" x 9.5" x 11"

Weight: 15 LB (without drives)

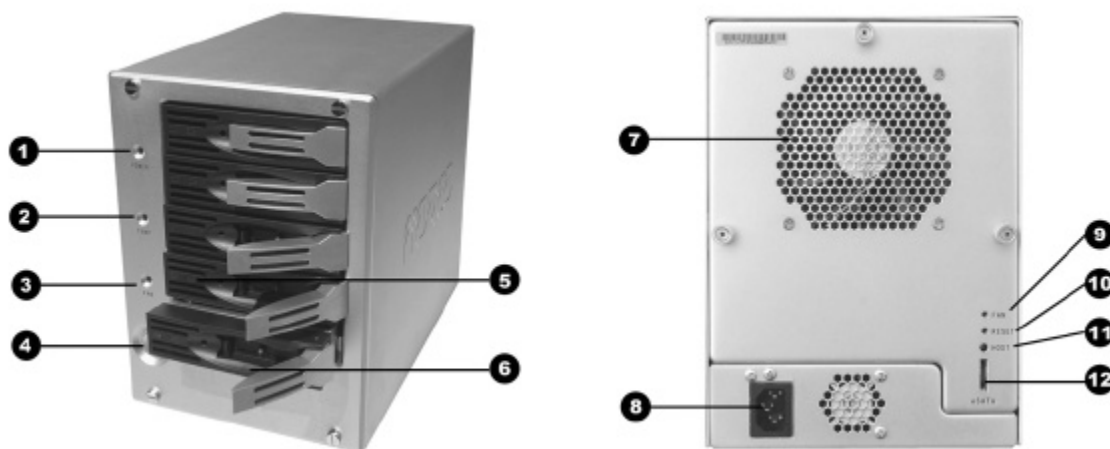
OS Support

- Windows 2000, XP, 2003 (RAID0, 1, 0+1, 5, JBOD)

- Mac OS X 10.4.x or later (JBOD, RAID0), Mac OS X 10.3.9 (RAID 5)
- Fedora Core 4 Linux, SuSE Enterprise 9.0 (RAID0, 1, 0+1, 5, JBOD)
- Red Hat Enterprise Linux 4.0 (RAID0, 1, 0+1, 5, JBOD)

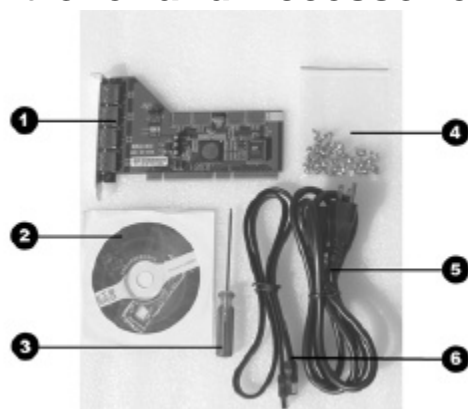
* The peak TA5002 data transfer rate described is based on a five SATA II drive setup in a RAID 0 configuration; Average NAS system data transfer speed is based on 20Mbytes/sec.

Front and Back Views



- 1 - Power LED:** Indicates power on
- 2 - Temperature Alarm LED:** Indicates system operating temperature is over limit
- 3 - Case Fan Alarm LED:** Indicates case fan fail
- 4 - Power Button:** Push to turn/off the system
- 5 - Hard Drive Tray LEDs:** Green indicates drive tray connected, Yellow blinking indicates disk activity
- 6 - Hard Drive Tray:** Each drive tray can hold one-inch high, 3.5" form factor Serial ATA disk drive
- 7 - Case Fan:** 92 x 25 mm
- 8 - Power Supply Connector:** Power requirements 100-240 V~, 60-50 Hz
- 9 - Alarm Reset:** Disable alarm buzzer when the alarm is set off due to the temperature is over limit or case fan fail. It is not recommended to operate when the alarm is set off.
- 10 - System Reset:** Restart the system
- 11 - Host LED:** Indicates connection with the host
- 12 - External SATA II port:** Type "T" eSATA standard

Controller and Accessories



- 1 - Host Controller:** TA5002 -PCI/PCI-X Card
- 2 - Driver CD:** Drivers, manuals, utilities software
- 3 - Screw Driver:** use for unlock the drive tray
- 4 - Screws:** use for mounting hard drives
- 5 - Power Cord**
- 6 - External Serial ATA cable**

Setting Up Your TA5002

Install the eSATA Controller



1. Turn off the host system.
2. Remove the cover of the host system.
3. Remove the inside slot cover of an available PCI or PCI-X slot on the motherboard.
4. Install the TA5002-controller card into the open PCI or PCI-X slot. Secure the bracket to the system's frame.
5. Fasten the controller card bracket to the system case.

Install Serial ATA Hard Drives



1. Use the provided screw driver push slightly into the hole next to the drive tray LEDs to unlock the drive tray.
2. Pull the drive tray out from the TA5002 drive bay.
3. Slide the Serial ATA hard drive into the tray and line up the screw holes on both sides.
4. Fasten the hard drive with the screws provided.
5. Slide the tray with the hard drive back into the TA5002 drive bay.
6. Push the handle until it clicks and the tray is locked in place.
7. Repeat step 1 to 6 to install additional hard drives or add drives later.

Setup the TA5002

1. Attach one end of the external Serial ATA cable to one of the external port on the TA5002 controller card installed in the host computer.
2. Connect the other end of the external Serial ATA cable to the TA5002's eSATA port.
3. Attached the power cable to the TA5002 and the other end to the proper AC receptacle.
4. Turn on the TA5002 and the host computer.

Installing Driver

The procedures in this section assume that the Windows or Mac operating system has already been installed on your PC or Server.

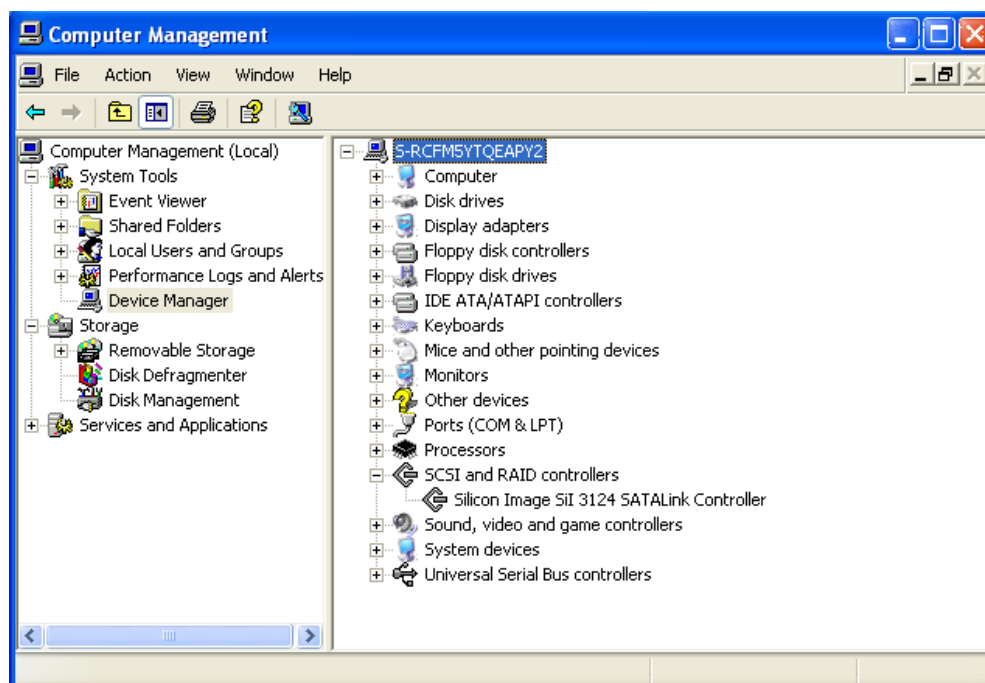
Note: For latest updates of the drivers, please visit www.siliconimage.com/support and search under product "Sil3124" and select the proper operating system.

Microsoft Windows 2003 Server

Windows 2003 Server comes preloaded with the software drivers necessary to run the TA5002 controller card. You do not have to install the driver.

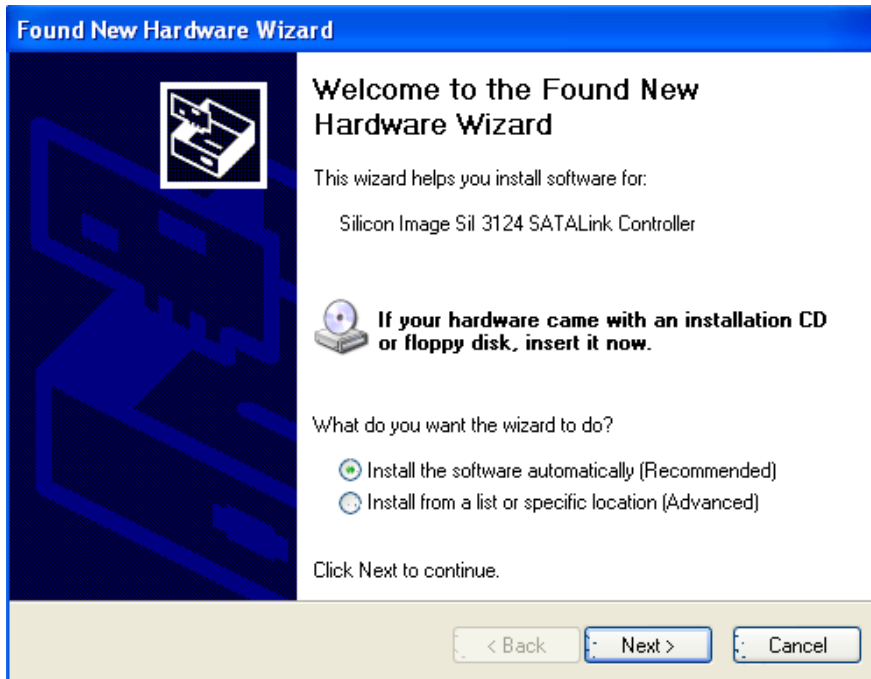
To confirm the driver installation

1. Right-mouse click the **My Computer** icon on your desktop and choose **Manage** from the pop-up menu.
2. Double-click **Device Manager**.
3. Double-click **SCSI and RAID controllers**.
4. Verify that the Silicon Image SiI 3124 SATALink Controller appears, as shown here.



Microsoft Windows XP

After you install the TA5002 controller card and connected the TA5002 , power on your computer, the **Found New Hardware Wizard** opens.

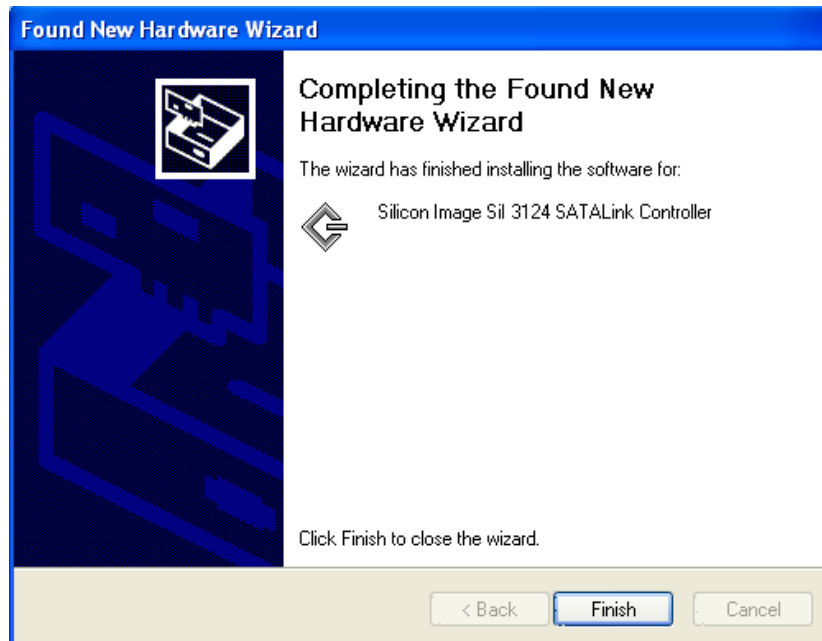


To complete the driver installation

1. Insert the utility CD-ROM.
2. Select **Install the software automatically (Recommended)** and click **Next**.
3. If you get the Hardware Installation notice, click **Continue Anyway**.

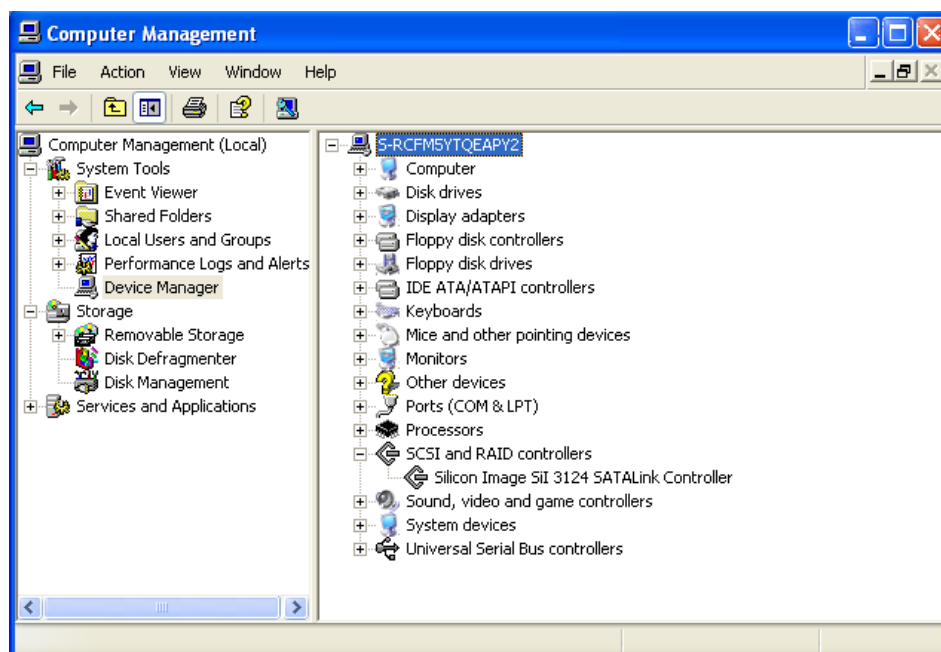


4. When installation is complete, click **Finish**.



To confirm the driver installation

1. Right-mouse click the **My Computer** icon on your desktop and choose **Manage** from the pop-up menu.
2. Double-click **Device Manager**.
3. Double-click **SCSI and RAID controllers**.
4. Verify that the Silicon Image Sil 3124 SATALink Controller appears, as shown here.



Microsoft Windows 2000

After you install the TA5002 controller card and connected the TA5002 , power on your computer, the **Found New Hardware Wizard** opens.

To complete the driver installation

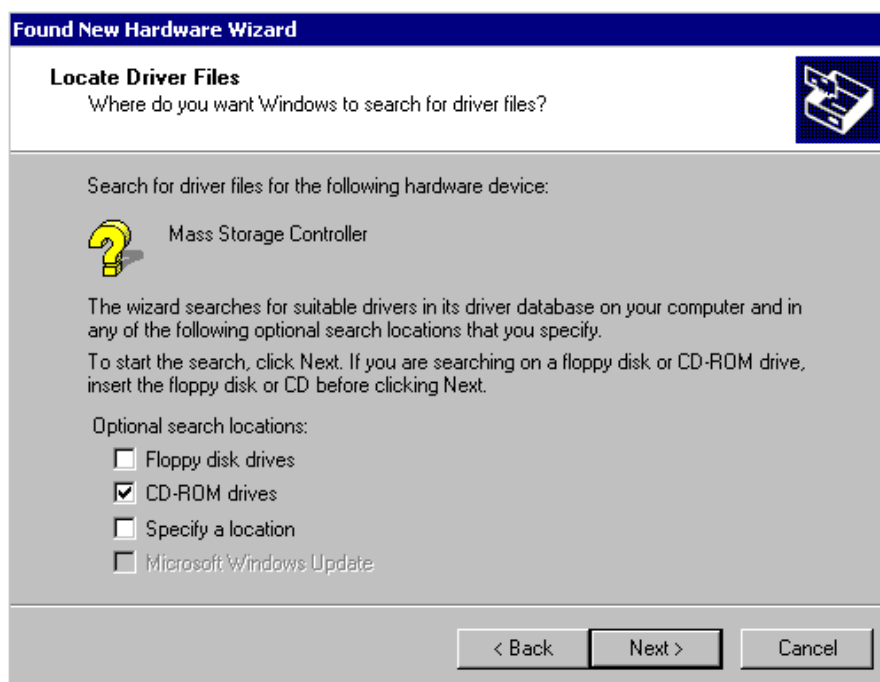
1. Insert the utility CD-ROM and click **Next**.



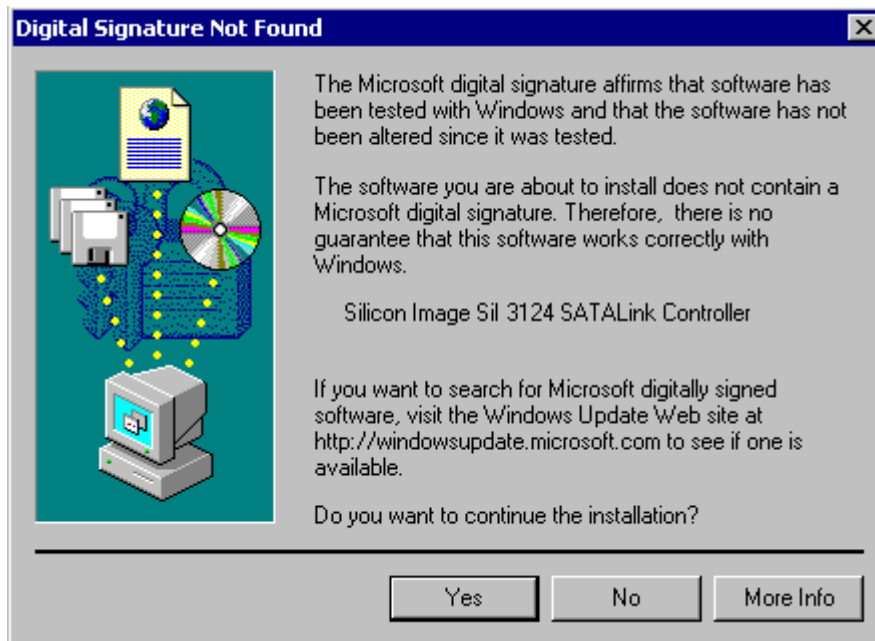
2. Select **Search for a suitable driver for my device (recommended)** and click **Next**.



3. Select **CD-ROM drives** and click **Next**.



4. Click **Next** once if the driver is found.
5. If you get the **Digital Signature Not Found** message, click **Yes** to continue installation.

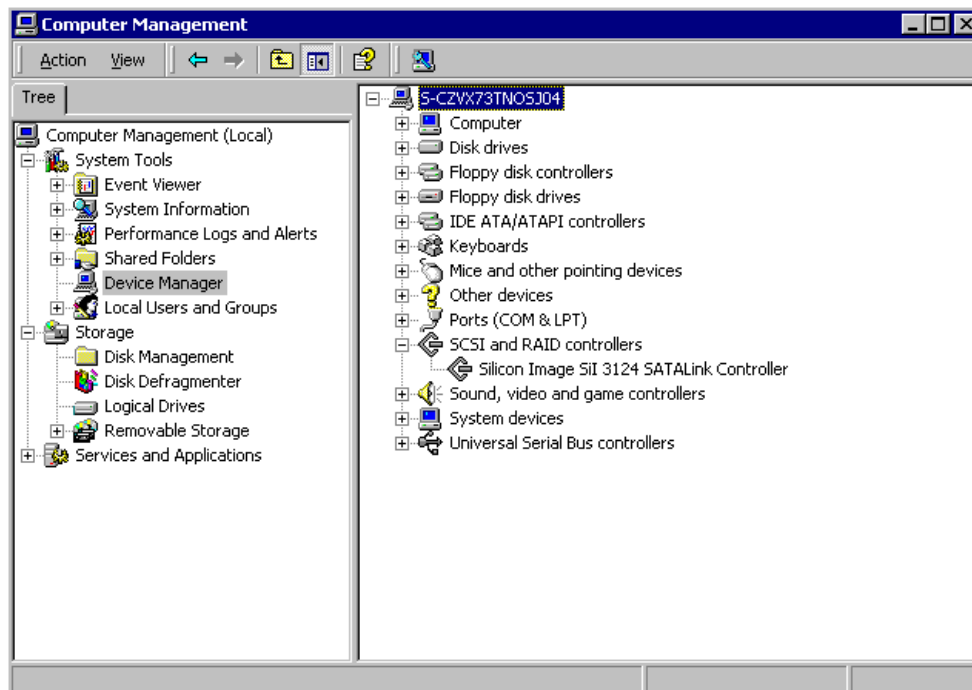


6. When the installation is complete, click **Finish** and reboot the system.



To confirm the driver installation

1. Right-mouse click the **My Computer** icon on your desktop and choose **Manage** from the pop-up menu.
2. Double-click **Device Manager**.
3. Double-click **SCSI and RAID controllers**.
4. Verify that the Silicon Image SiI 3124 SATALink Controller appears, as shown here.



Mac OS X Installation

After you install the TA5002 controller card and connected the TA5002 , power on your computer.

To complete the driver installation

1. Insert the utility CD-ROM.
2. Open the Mac folder and click the **Sil3124.pkg** installer.



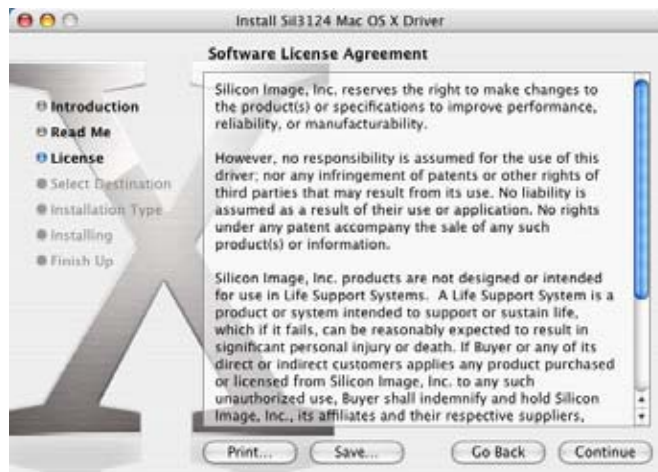
3. Click **Continue**.



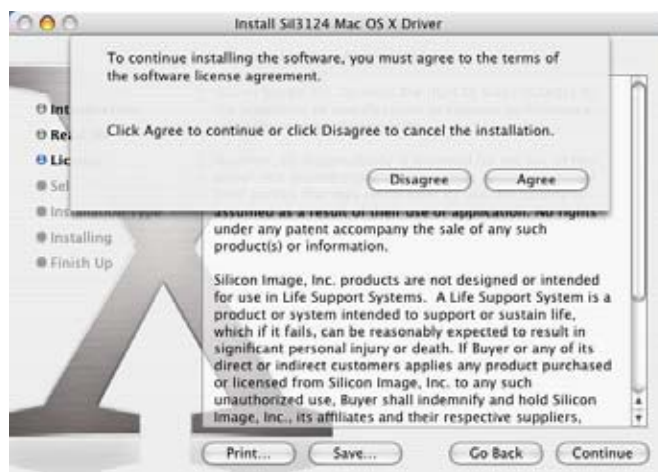
4. Review the provided Read Me. Click **Continue**.



5. Review the License agreement. Click **Continue**.



6. Click **Agree** to accept the terms of the License agreement and proceed with the installation.



7. Select the system hard disk drive.



8. Click **Upgrade** to install the driver.



9. Enter the username and password for the root account. Click **OK**.



10. Click **Continue Installation** to acknowledge the restart warning.



11. Click **Restart** to reboot the computer and complete the installation.



To confirm the driver installation

In case of a driver installation failure, an error message will appear after you reboot the computer. Follow the recommendations in the error message.

Linux OS Installation

Please refer to www.siliconimage.com/support and search under product "SiI3124" for the latest drivers for different variants of Linux. There are some Linux drivers on the utility CD as well.

Setting Up RAID

Setup drives using your OS Disk Management

The TA5002 controller card on-board BIOS by default is flashed as BASE BIOS (filename: [b6318.bin](#)). With the BASE BIOS, the host system will recognize all the hard drives installed in the TA5002 system as individual drives (JBOD). You can also use your OS Disk Management to setup RAID under the default BIOS. You don't have to install all five drives to operate the TA5002. You can add drives later when it is needed. However, if you are setting up a RAID instead of JBOD, the RAID partition will not automatically expand. You will need to redo the partition in order to add a drive to the existing RAID.

For Windows user, you can use the Windows Disk Management to convert all the drives in the TA5002 to dynamic drives and then setup the RAID volume. Please refer to Appendix II for how to setup RAID using Windows Disk Management.

For Mac user or Linux user, please refer to your OS manual for how to setup RAID.

Setup drives using SATARAID5 utility software

If you want to setup RAID with the SATARAID5 utility software provided on the CD, you need to boot from the utility CD on a PC (not on a Mac) and flash the on-board BIOS to RAID BIOS with the BIOS flash tool provided. The RAID BIOS is with filename [r6318.bin](#) under the \BIOS directory of the utility CD. Please refer to [readme.txt](#) file in the same directory for the instructions. You will need to install the SATARAID5 utility software to setup and make the OS recognize the drives after flash to RAID BIOS. The SATARAID5 utility software provides advanced RAID configurations (please refer to Appendix I) including Disk Striping (RAID0), Disk Mirroring (RAID1), Disk Mirroring and Striping (RAID 0+1), Parity RAID (RAID5), Concatenated and JBOD. However, the data transfer performance may be lower than setting RAID using the OS Disk Management.

For Windows user, DO NOT CONFIGURE THE RAID UNDER THE BIOS. Please install and use the SATARAID5 Utility software comes with the CD to setup the RAID. When updating the controller drivers after flashed the BIOS, please make sure the driver versions of the “Si3124 SoftRAID5 Controller” (under SCSI Device) and the “Pseudo Processor Device” (under System Device) in the Device Manager are the same. For more details on setting up RAID under Windows, please refer to [SATARAID5_User_Guide.pdf](#) included on the utility CD.

For Mac user, if you are planning to use TA5002-controller card with RAID BIOS connecting to the TA5002, the current RAID drive and SATARAID5 utility for Mac support OS X version up to version 10.3.9. For more details on setting up RAID under Windows, please refer to [SATARAID5_User_Guide.pdf](#) included on the utility CD.

For LINUX user, if you are planning to use TA5002-controller card with RAID BIOS connecting to the TA5002, please refer to www.siliconimage.com/support and search under product “Si3124” for how to setup the SATARAID5 utility under different variants of Linux. For more details on setting up RAID under Windows, please refer to [SATARAID5_User_Guide.pdf](#) included on the utility CD.

Appendix I: About RAID

Redundant Array of Independent Disks (RAID) technology allows one or more disks to be combined into a logical volume, which provides greater performance and/or protection than standard disk drives. These volumes, known as RAID Groups, appear like regular disk drives to the operating system and can be partitioned, formatted and used just like any other disk. The RAID complexity is hidden within the driver.

Note: RAID is NOT a backup. A virus, OS crashing and corrupting the file system, accidental deletions, etc. can all still destroy all of the data on your RAID. NORCO highly recommends that you keep two copies of your data; one copy on your external hard drives, for instance, and a second copy either on your internal hard drive, another external hard drive or some other form of removable storage.

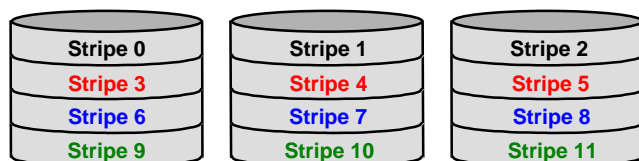
RAID Levels

There are several methods of combining disks, each with its own advantages and disadvantages. Each method is referred to as a RAID “level,” such as RAID 1 or RAID 5. The details of each level are summarized below and detailed in the following sections.

RAID Level	Advantages	Disadvantages
<u>RAID 0</u>	High performance, low cost.	No data protection.
<u>RAID 1</u>	Excellent data protection.	High cost.
<u>RAID 5</u>	Good data protection, good value.	Performance degradation on writes.
<u>RAID 10</u>	High performance, excellent data protection.	High cost.
<u>Concatenated</u>	Good performance, low cost, large volume size.	No data protection.
<u>JBOD</u>	Same as single disk.	Same as single disk.

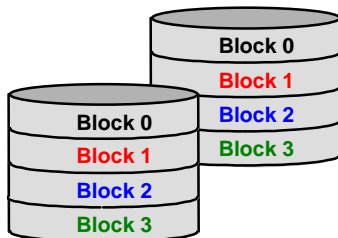
Disk Striping (RAID 0)

Striping is a performance-oriented, non-redundant data mapping technique. While Striping is discussed as a RAID Group type, it does not provide any fault tolerance. With modern SATA and ATA bus mastering technology, multiple I/O operations can be performed in parallel, enhancing data throughput. Striping arrays use multiple disks to form a larger virtual disk. The figure below illustrates a three-disk stripe set. Stripe one is written to disk one, stripe two to disk two, and so forth. RAID 0 sets can include two, three, four or five drives. If the sizes of the disk segments are different, the smallest disk segment will limit the overall size of the RAID Group.



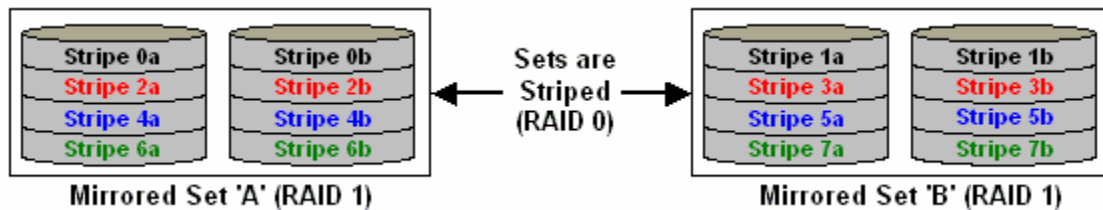
Disk Mirroring (RAID 1)

Disk mirroring creates an identical twin for a selected disk by having the data simultaneously written to two disks. This redundancy provides instantaneous protection from a single disk failure. If a read failure occurs on one drive, the system reads the data from the other drive. RAID 1 sets are typically comprised of two drives, and a third drive can be allocated as a spare in case one of the drives in the set fails. Additional drives can be configured as part of a mirrored set, but without much added benefit. If the sizes of the disk segments are different, the smallest disk segment will limit the overall size of the RAID Group.



Disk Mirroring and Striping (RAID 10)

RAID 10 combines the features of both RAID 0 and RAID 1. Performance is provided through the use of Striping (RAID 0), while adding the fault tolerance of Mirroring (RAID 1). The implementation of RAID 10 requires four drives. The drives are assigned as two sets of mirrored pairs.



The data is written to RAID Group A, which is mirrored (RAID 1) and provides data redundancy. Alternating blocks of data are then striped across another RAID 1 mirrored set, shown as Set B in the figure above. This provides improved speed.

Under certain circumstances, a RAID 10 set can sustain multiple simultaneous drive failures.

Parity RAID (RAID 5)

Parity RAID, or RAID 5, adds fault tolerance to Disk Striping by including parity information with the data. Parity RAID dedicates the equivalent of one disk for storing parity stripes. The data and parity information is arranged on the disk array so that parity is written to different disks. There are at least 3 members to a Parity RAID set. The following example illustrates how the parity is rotated from disk to disk.

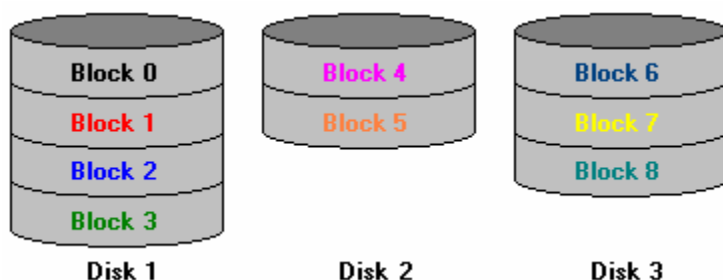


Parity RAID uses less capacity for protection and is the preferred method to reduce the cost per megabyte for larger installations. Mirroring requires 100% increase in capacity to protect the data whereas the above example using three hard drives only requires a 50% increase. The additional required capacity decreases as the number of disks in the group increases (i.e., 33% for four drives or 25% for five drives).

In exchange for low overhead necessary to implement protection, Parity RAID degrades performance for all write operations. The parity calculations for Parity RAID may result in write performance that is somewhat slower than the write performance to a single disk.

Concatenated

The Concatenated mode combines multiple disks or segments of disks into a single large volume. It does not provide any data protection or performance improvement but can be useful for utilizing leftover space on disks. Concatenation allows the segments that make up the volume to be of different sizes.



Just a Bunch of Disks (JBOD)

The JBOD is a virtual disk that can either be an entire disk drive or a segment of a single disk drive. JBOD is the Contiguous configuration option when creating RAID Groups (or sets) in the SATARAID5 Manager utility.

RAID Volume Status

A RAID volume can be in any one of the following statuses.

Status	Meaning
Good	All disks are currently functioning as normal.
Reduced	For RAID levels that provide data protection, one or more disks have failed but the data is still available via the RAID algorithms. The failed disk should be replaced as soon as possible to avoid loss of data.
Rebuilding	A failed disk drive has been replaced and the data is being regenerated on the replacement disk. When complete, the RAID Group will return to Good status.
Resynchronizing	An error has occurred and requires that the RAID algorithms be regenerated on this RAID Group. When complete, the RAID Group will return to Good status.
Failed	One or more disks have failed and RAID algorithms can no longer regenerate the data. The minimum number of failures required to reach this state depends on the RAID level: <ul style="list-style-type: none"> RAID 0, Concatenated, JBOD/Contiguous: Single-disk failure. RAID 1, 5, 10: Two-disk failure.

Appendix II: Windows OS RAID

After install drives in the TA5002, by default, you can use the Windows Disk Management to convert all the drives in the TA5002 to dynamic drives and then setup the RAID volume. Microsoft Windows 2003 Server allows you to setup advance RAID like RAID5. You may also setup a RAID5 under Windows XP following the instructions from this link: http://www.tomshardware.com/2004/11/19/using_windowsxp_to_make_raid_5_happen/.

The following are details on Windows OS RAID setup from Microsoft Knowledge Base:

Dynamic Disks and Volumes

<http://support.microsoft.com/kb/308424/>

Dynamic disk storage supports volume-oriented disks. You create the following volume types only on dynamic disks:

- New simple volumes.
- Volumes that span multiple disks (spanned volumes and striped volumes).
- Volumes that are fault-tolerant (mirrored volumes and RAID-5 volumes).

Volumes on dynamic disks are called dynamic volumes. Dynamic disks can support up to 2,000 dynamic volumes per disk (although the recommended number of volumes is 32 or less per disk).

Local access to dynamic volumes (and to the data that the dynamic volumes contain) is limited to Microsoft Windows 2000 and Microsoft Windows XP Professional-based computers. You cannot create dynamic volumes on (or access dynamic volumes from) a Windows XP Professional-based computer that has one or more of the following operating systems running:

- Microsoft Windows XP Home Edition
- Microsoft Windows NT 4.0 and earlier
- Microsoft Windows Millennium Edition
- Microsoft Windows 98 Second Edition and earlier
- MS-DOS

You can create dynamic disks by using the Convert to Dynamic Disk command in Disk Management to convert a basic disk.

Using Disk Management

<http://support.microsoft.com/kb/308424/>

To start Disk Management:

1. Log on as an administrator or as a member of the Administrators group.
2. Click Start, and then click Control Panel.
3. Click Performance and Maintenance, click Administrative Tools, and then double-click Computer Management. In the console tree, click Disk Management.

NOTE: You can also click Start, point to Run, type diskmgmt.msc, and then click OK.

In Disk Management, the computer's disks and volumes are displayed in a graphical view and in a list view. By default, the local computer's disks are displayed; however, if you have the required permissions, you can perform this process on remote computer.

To customize the view of the disks and the volumes in the upper and the lower panes of the window, click View, point to Top or to Bottom, and then click the view that you want.

NOTE: It is recommended that you perform a full backup of disk contents before you make any changes to disks, volumes, or partitions.

How to Convert a Basic Disk to a Dynamic Disk

<http://support.microsoft.com/kb/314343/en-us>

To convert a basic disk to a dynamic disk:

1. Log on as Administrator or as a member of the Administrators group.
2. Click Start, and then click Control Panel.
3. Click Performance and Maintenance, click Administrative Tools, and then double-click Computer Management.
4. In the left pane, click Disk Management.
5. In the lower-right pane, right-click the basic disk that you want to convert, and then click Convert to Dynamic Disk.

NOTE: You must right-click the gray area that contains the disk title on the left side of the Details pane. For example, right-click Disk 1.

6. Select the check box that is next to the disk that you want to convert (if it is not already selected), and then click OK.
7. Click Details if you want to view the list of volumes in the disk.
8. Click Convert.
9. Click Yes when you are prompted to convert, and then click OK.

How to Create a Simple Volume or a Spanned Volume

<http://support.microsoft.com/kb/308424/>

To create a simple volume or a spanned volume:

1. In Disk Management, perform one of the following steps:
 - To create a simple volume, right-click unallocated space on the dynamic disk on which you want to create the simple volume, and then click New Volume.

-or-

- To create a spanned volume, right-click unallocated space on one of the dynamic disks on which you want to create the spanned volume, and then click New Volume.

2. In the New Volume Wizard, click Next.
3. Click the type of volume you want to create (Simple volume or Spanned volume), and then click Next.
4. Click the disk (or disks) in which you want to create the volume by performing one of the following steps:
 - If you are creating a simple volume, verify that the disks in which you want to create a simple volume are listed in the Selected dynamic disks box.

-or-

- If you are creating a spanned volume, under All available dynamic disks, click to select the disks that you want, and then click Add.

Verify that the disks in which you want to create a spanned volume are listed in the Selected dynamic disks box.

5. In the Size box, specify the size that you want for the volume, and then Next.
6. Assign a drive letter or drive path, and then click Next.
7. Specify the formatting options that you want by performing one of the following steps:
 - If you do not want to format the partition, click Do not format this partition, and then click Next.

-or-

- If you want to format the partition, click Format this partition with the following settings, perform the following steps in the Format dialog box, and then click Next: 1. Type a name for the volume in the Volume label box.

NOTE: This is an optional step.

2. Click the file system that you want in the File system box.

You can also change the disk allocation unit size, specify whether you want to perform a quick format, or enable file and folder compression on NTFS-formatted volumes.

8. Confirm that the options that you selected are correct, and then click Finish.

The volume is created and appears in the appropriate dynamic disk or disks in Disk Management.

How to Extend a Simple or Spanned Volume

<http://support.microsoft.com/kb/308424/>

To increase the size of a simple volume or a spanned volume after you create it, you can extend it by adding unallocated free space on the same (or another) dynamic disk.

To extend a simple volume or a spanned volume:

1. In Disk Management, right-click the simple or spanned volume to be extended, and then click Extend Volume.
2. In the Extend Volume Wizard, click Next.
3. On the Select Disks page, do the following:
 - Click to select the disk (or disks) onto which the volume will be extended, and then click Add.

Verify that the disk or disks onto which you want to extend the volume are listed in the Selected dynamic disks box.

-and-

- In the Size box, specify the amount of unallocated disk space that you want to add, and then Next.

4. Confirm that the options that you selected are correct, and then click Finish.

The volume is extended and appears in the appropriate dynamic disk or disks in the Disk Management window.

NOTE:

- You can only extend NTFS volumes, or volumes that are not yet formatted with a file system.
- A volume can be extended only if there is enough available disk space.
- If you upgraded from Windows 2000 to Windows XP, you can extend simple and spanned volumes only if the volume is created on a dynamic disk in Windows XP. Simple or spanned volumes that result from a basic to dynamic disk conversion in Windows 2000 cannot be extended.
- You cannot extend the system or boot volume.

How to Format a Dynamic Volume

<http://support.microsoft.com/kb/308424/>

To format a dynamic volume, follow these steps:

1. In Disk Management, right-click the dynamic volume that you want to format (or reformat), and then click Format.
2. In the Format dialog box, do the following:
 - Type a name for the volume in the Volume label box.
 - Click the file system that you want to use in the File system box.

If you want, you can also change the disk allocation unit size, specify whether you want to perform a quick format, or enable file and folder compression on NTFS volumes.

Click OK.

3. Click OK when you are prompted to format the volume.

The format process now starts.

How to View the Properties of a Dynamic Volume

<http://support.microsoft.com/kb/308424/>

To view the properties of a dynamic volume, follow these steps:

1. In Disk Management, right-click the dynamic volume that you want, and then click Properties.
2. Click the appropriate tab to view the property that you want.

How to Delete a Dynamic Volume

<http://support.microsoft.com/kb/308424/>

To delete a dynamic volume:

1. In Disk Management, right-click the dynamic volume that you want to delete, and then click Delete Volume.
2. Click Yes when you are prompted to delete the volume.

IMPORTANT NOTE:

- When you delete a volume, all data on the volume is deleted in addition to the volume itself.
- You cannot delete the system volume, boot volume, or any volume that contains the active paging (swap) file.

Troubleshooting

<http://support.microsoft.com/kb/308424/>

Disk Management displays status descriptions in graphical view and under the Status column in list view in the Disk Management snap-in to inform you of the current status of the disk or the volume. Use these status descriptions to help you detect and to troubleshoot disk and volume failures. The following is a partial list of disk and volume status descriptions:

- Online

This is the normal disk status when the disk is accessible and functioning correctly.

- Healthy

This is the normal volume status when the volume is accessible and functioning correctly.

- Online (Errors)

The disk may display this status if input/output (I/O) errors are detected on it. To resolve this issue, right-click the disk, and then click Reactivate Disk to return the disk to the online status.

- Offline or Missing

The disk may display this status if it is inaccessible. This may occur if the disk is corrupted or if it is temporarily unavailable.

To troubleshoot this issue:

1. Repair any disk, controller, or connection problems.
2. Verify that the physical disk is turned on and that it is correctly attached to the computer.
3. Right-click the disk, and then click Reactivate Disk to return the disk to the online status.