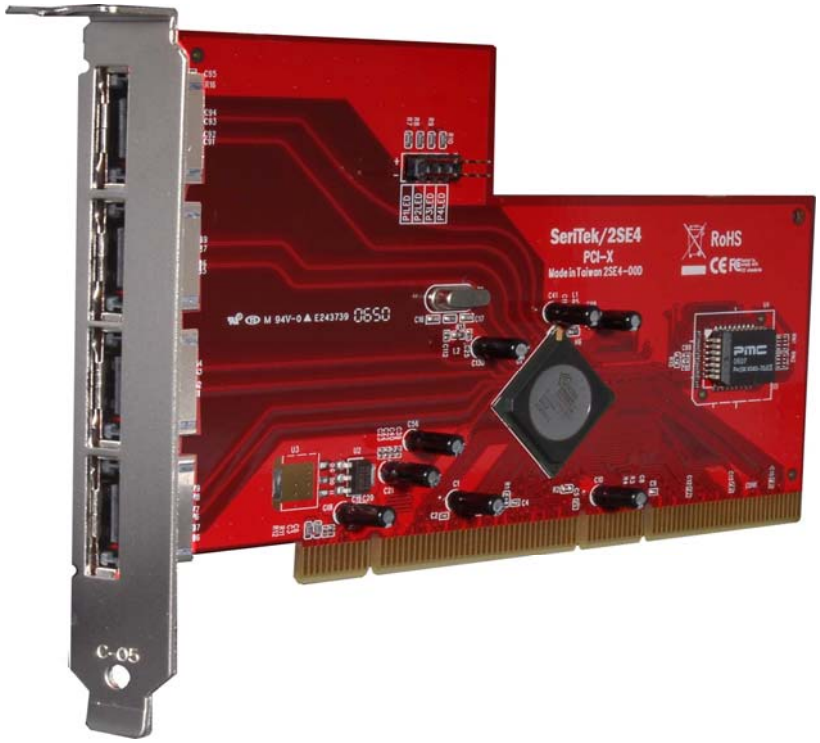
FirmTek



SeriTek™/2SE4

Four External Port Hot-Swap Serial ATA PCI-X Host Adapter
With Port Multiplication

User Manual for Macintosh

FirmTek, LLC
www.firmtek.com

Copyright
Copyright © 1999-2007 FirmTek, LLC. All rights reserved. No part of this manual may be reproduced, translated by any means, photocopied, or transmitted in any form without the prior written permission of FirmTek.

Trademarks
FirmTek, UltraTek, AV-Tek, SeriTek names and logotypes are trademarks of FirmTek, LLC. Apple, Macintosh, Mac OS 10.XX, OS X, and the Mac logo are registered trademarks of Apple Computer, Incorporated. The "Built for OS X" graphic is a registered trademark of Apple Computer, Incorporated, and used under license.
All other manufacturer product names mentioned in this manual are for identification purposes only and are trademarks or registered trademarks of their respective owners.

Changes
FirmTek reserves the right to make any changes to product design, specifications, or details without notice. Actual product photos or screenshots may look different from those provided.

Notice
The material content of this manual is for informational purposes only. It is possible the content of this manual may contain technical inaccuracies, typographical, or other errors. FirmTek assumes no liability for any errors, omissions, or from the use of this manual that may result from such errors, including, but not limited to loss of data or profits.

Before installing the SeriTek/2SE4 or any other hardware or software, you are responsible for backing up data contained on any storage devices. After hardware or software installation, you are responsible for backing up data on any storage devices at frequent intervals. FirmTek, LLC is not liable for any loss of data or damage to equipment resulting from the use of the SeriTek/2SE4 host adapter.

External Shielded Serial ATA Cable
The SeriTek/2SE4 host adapter uses specially shielded external Serial ATA cables to ensure integrity during data transfers. Please use caution and handle the cables carefully. Hold the connector at the ends (not the cable itself) when inserting and removing the cable from the SeriTek/2SE4 and external enclosure. To maintain peak performance keep the number of cable insertions and removals to a minimum.

TABLE OF CONTENTS

I. Introduction……1

II. Installing the SeriTek/2SE4 5

III. Connecting External Enclosure(s) 7

IV. Using SeriTek/2SE4 Hot-Swap Functionality 16

V. Troubleshooting… 19

VI. Product Support… 20

VII. Product Warranty and Disclaimers 21

VIII. Regulatory Compliance Statements 22

I. Introduction

Welcome

Congratulations and thank you for purchasing the SeriTek/2SE4 Serial ATA host adapter. This product is yet another innovative solution from the innovative folks at FirmTek.

About This User Manual

This user manual was written with the assumption you are familiar with your Macintosh computer, and are comfortable with opening its case. For further information, and to get acquainted with your computer, please refer to your Macintosh user manual.

About Serial ATA Technology

An evolutionary replacement for Parallel ATA, Serial ATA (Advanced Technology Architecture) is an interface that allows you to add hard drives and peripherals to your Macintosh. Serial ATA offers insulated cables that are thinner and longer with smaller 7-pin connectors which results in easier installation and improved airflow, compared to wider and shorter Parallel ATA cables. Improved airflow translates into a cooler operating environment for your Macintosh and hard drives.

About the Port Multiplier Specification

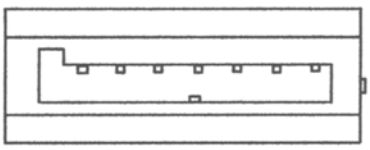
Originally, Serial ATA adapters and enclosures supported a single drive connected to a single port via a single cable. The maximum number of drives supported on a Serial ATA adapter depended on the adapter's port count. The Serial ATA port multiplier specification allows multiple drives to share a single port. The SeriTek/2SE4 Serial ATA adapter features four port multiplier enabled ports and supports up to 5 hard drives on each port for a total of 20 drives.

The SeriTek/2SE4 supports traditional direct-connect drives and enclosures with one drive per port such as the SeriTek/2eEN4, and port multiplier enabled enclosures with up to 5 drives per port such as the SeriTek/5PM. Port multiplier enabled enclosures such as the SeriTek/5PM utilize internal circuitry which allows the connection of multiple drives to a single Serial ATA adapter port.

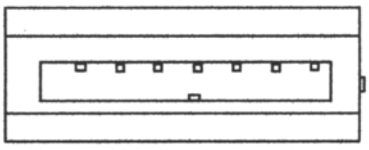
About the SeriTek/2SE4 Serial ATA Host Adapter

The SeriTek/2SE4 host adapter extends Serial ATA's 3.0 Gbit/sec performance to the outside of the Macintosh computer chassis, enabling users with PCI-X compatible Macintosh computers to take advantage of external Serial ATA enclosures.

With four external port multiplier enabled Serial ATA ports and internal PCI-X connectivity, the SeriTek/2SE4 host adapter provides the high bandwidth necessary to meet the needs of performance-hungry applications while offering hot-swap flexibility similar to that of Universal Serial Bus (USB) and FireWire. The SeriTek/2SE4 host adapter provides the latest I-shaped eSATA connectors.



Original L-shaped Serial ATA connector



Newer rectangular eSATA I-shaped connector

SeriTek/2SE4 Package Contents

- SeriTek/2SE4 Serial ATA host adaptor board
- CD-ROM Containing the Macintosh User Manual

SeriTek/2SE4 Key Features and Benefits

- Four external ports with hot-swap capabilities
- Serial ATA port multiplier support; connect up 20 drives using enclosures such as the SeriTek/5PM
- Plug-and-Play ease of use; completely self-contained functionality with no driver installation necessary
- Boosts overall system performance with per-port data transfer rates of up to 300 MBytes/sec or 3.0 Gbits/sec
- Compatible with all PCI-X bus equipped Macintosh computers
- Supports Mac OS X version 10.4.0 or later (Note: 10.4.6 or later is recommended, Max OS X versions 10.4.X and later have enhanced RAID capabilities)
- Provides performance and protection: native and third-party Mac OS X RAID support.
- Ideal for multimedia-intensive applications: audio/video capture and editing, and graphics manipulation/publishing
- User-upgradeable firmware
- 48-bit LBA support for drive sizes larger than 137GB
- Perfect for upgrading and expanding Macintosh computers by leveraging the power of PCI-X Host interface and external SATA connectivity.
- Bus master operation enhances multitasking during disk transfers and increases CPU efficiency: The CPU is free to handle other tasks during data transfers between the PCI-X Bus and system memory
- Data protection: Supports Mac OS X RAID, S.M.A.R.T.
- Reduced setting on storage devices (no master/slave) means easier installation and replacement
- Ideal for a variety of Macintosh applications: Desktop publishing, Audio/Video storage and editing, photo storage and editing, servers, and gaming.
- Fully supports Apple native Mac OS-X SATA implementation without SCSI emulation over SATA

SeriTek/2SE4 Specifications

Hardware Requirements	• PCI-X based Macintosh with available PCI-X expansion slot
Operating Systems Supported	• Mac OS X version 10.4.0 or later (works best with 10.4.6 or later)
Bus Type	• PCI-X
External Connectors	• 4-port external Serial ATA (SATA) interface connectors support up to 4 external hard drives or peripherals (eSATA type connectors)
Drive Types Supported	• Serial ATA hard drive • Backward compatible with Ultra DMA 133/100/66 hard drives*
Data Transfer Rates	• Up to 300 MBytes/second or 3.0 Gbits/second burst data transfer rate
Drive Modes Supported	• Serial ATA • UltraDMA modes 6/5/4/3/2/1/0
Advanced Data Features	• Fully compliant with Serial ATA 1.0a specification • Port multiplier support: Run up to 20 drives via SeriTek/5PM or enclosure supports Port Multiplier • Self-contained Macintosh booting functionality • Bus Mastering off-loads data I/O handling from CPU • Complete 32-bit CRC error checking, for all bits transmitted (command, data, and status), offers enhanced data protection for high-speed Serial ATA drives • Four independent data channels allows for separate device timings • Automatically identifies and configures drive types* • Automatically detects and supports devices utilizing many transfer modes including UltraDMA 6/5/43/2/1/0
Onboard Flash ROM	• Allows easy upgrades to the latest firmware
Cables Supported	• 7-pin shielded SATA cable, up to 2 meter in length
Warranty	• One year limited parts & labor
Physical Dimensions	• 163.1mm(L) x 1.6mm(W) x 98.64mm(H) (not including bracket)
Power Requirements	• 5V ± 5%
Environmental	• Temperature: Operating: +5°C to +55°C Non-Operating: -25°C to +70°C • Relative humidity: Operating: 20% to 80% Non-Operating: 15% to 90%
EMC Compliance	• EN55022/1998, EN55024/1998 (European Community) • FCC Part 15 Class B (US)

** IDE to Serial ATA converter module required for Parallel ATA and Ultra ATA133/100/66 drives*

SeriTek/2SE4 System Requirements

Operating System

- Macintosh OS X version 10.4.0 or later

Hardware Requirements

- PCI-X based Macintosh with available PCI-X expansion slot
- External powered enclosure (with or without port multiplication support) equipped with Serial ATA hard drive(s) or Parallel ATA hard drives (Parallel ATA hard drives require compatible Serial ATA to Parallel ATA converters)

Materials Required

- Standard medium-sized Phillips screwdriver

II. Installing the SeriTek/2SE4

Caution:
Prior to installing the SeriTek/2SE4 host adapter and hard drive(s) or peripheral(s), please make sure your data is backed up.

The SeriTek/2SE4 host adapter and your Macintosh contain sensitive components that can be permanently damaged by Static Electric Discharge. Be sure you're working in an area free of static electricity to prevent them from being damaged. Use a wrist grounding strap if you have one or regularly touch a metal part of the computer chassis such as the power supply case or a port access cover to discharge any built-up static electricity from your body. Make sure to handle the SeriTek/2SE4 host adapter by its bracket or around its edges to avoid damage to the card by static electricity.

Introduction

This section describes the proper method of installing your SeriTek/2SE4.

SeriTek PCI-X Host Adapter Installation:

1. Properly shut down your Macintosh and disconnect the AC power cord.
2. Depending on the model of your Macintosh, open the side panel or top cover. On some models, you may need to open a plastic cover to access the PCI-X slots. Please refer to your Macintosh user manual for more information about gaining access to PCI-X slots.
3. Choose an empty PCI-X expansion slot where you will install the SeriTek/2SE4.
4. Remove the screw and detach the PCI-X expansion port access cover secured to the computer case.
5. Remove the SeriTek/2SE4 from its protective materials. Make sure to hold the card around by its bracket or around its edges to avoid touching components which might be damaged by static electricity.
6. Position the PCI-X card bracket by facing it towards the rear of the computer. Align the gold connectors of the SeriTek/2SE4 over the PCI-X slot and gently press it into the PCI-X slot until the card is firmly seated. If the card is properly seated, the upper ear of the PCI-X card bracket should line up with the screw mounting location.
7. Using the same screw that was removed earlier; secure the card to the Macintosh computer case (see Figure 1).

Caution: The SeriTek/2SE4 host adapter supports external cables that may be plugged in to one of their external receptacles. If the SeriTek/2SE4 is not properly secured when a cable is inserted into one of the receptacles, it may become loose from the PCI-X slot and damage the computer.

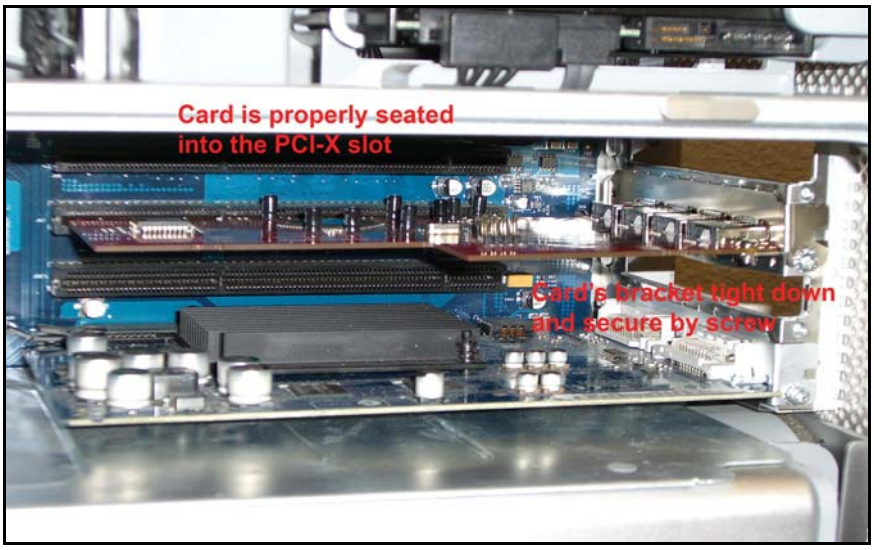


Figure 1: Inserting and securing the SeriTek/2SE4

8. Close your Macintosh computer case and re-attach the AC power cord.

Ready for Use

Your SeriTek/2SE4 host adapter is now installed. The SeriTek/2SE4 host adapter features fully self-contained Macintosh booting functionality and will be recognized by your Macintosh computer when you power it on.

III. Connecting External Enclosure(s)

Introduction

This section describes how to connect external hard drive enclosures and a method of formatting your Serial ATA hard drive(s) using Apple's *Disk Utility*. If you decide to use a third party drive setup utility, please refer to the documentation provided with the utility.

Connecting the SeriTek/2SE4 to an External Enclosure

1. The SeriTek/2SE4 is compatible with a wide range of external enclosures. Enclosures must meet basic requirements which include:
   - Adequate power to support the hard drives (dedicated power supply),
   - 7-pin shielded receptacles compatible with FirmTek's shielded Serial ATA cable.
   - Support for Serial ATA Version 1.0, Serial ATA Version 2.0, eSATA.
   - Serial ATA hard drives or Parallel ATA hard drives with compatible Serial ATA to Parallel ATA converter
2. Install hard drives into the external enclosure according to the instructions included with the enclosure.
3. Attach one end of FirmTek's shielded Serial ATA cable(s) to the Serial ATA receptacle(s) on the SeriTek/2SE4 and connect the other end(s) to the external enclosure.

Note: FirmTek Serial ATA cables were specially designed to work with both PC and Macintosh computers. Please use FirmTek external shielded Serial ATA cables with the SeriTek/2SE4.

- *The original Serial ATA connectors have an L-shaped opening, see Figure 2A.*
- *The newer eSATA connectors have a rectangular I-shaped opening, see Figure 2B*

The SeriTek/2SE4 uses the newer eSATA connectors, also known as I-shaped connectors, yet some drive enclosures require cables that utilize an L-shaped connector. For these types of enclosures, the cable required will have a rectangular I-shaped eSATA connector on one end, and an L-shaped SATA connector on the other end.

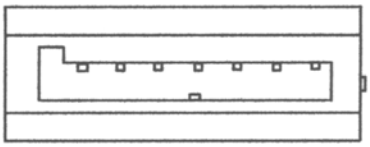


Figure 2A: Original L-shaped SATA connector

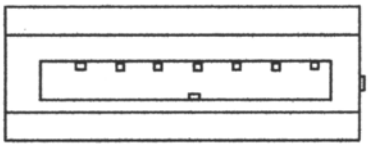


Figure 2B: Newer rectangular eSATA I-shaped connector

Figure 2: Serial ATA ConnectorTypes: Original L-shaped and newer eSATA I-shaped

Note: If you are using your SeriTek/2SE4 with a hard drive enclosure that uses eSATA connectors then you will require eSATA cables that have rectangular I-shaped eSATA connectors on each end, like the two connectors shown below in Figure 3.

Figure 3: Using SeriTek/2SE4 with a drive enclosure that has I-shaped eSATA connectors; both cable connectors will be identical.

Making the eSATA Connection

⚠ **Caution**: Be sure to connect the cable using the proper orientation to your SeriTek/2SE4 host adapter and external enclosure. It should easily snap into place. Please do not force the cable connector onto the host adapter and hard drive or peripheral interface.

Remember the male and female connectors must be of the same type for them to fit: L-shaped female to L-shaped male or eSATA female to eSATA male.

- First check that you are connecting the correct type of connectors to each other
- If your connectors still do not fit, rotate the cable and try again

1. Connect your drive cables, or insert them in an enclosure. If your enclosure is powered on, a configuration screen will appear. If your enclosure is powered off, power it on, and you should see the following configuration screen appear.

Figure 4: Mac OS X *Configuration Changed* screen

Make sure that you make all changes to your storage configuration (inserting/removing drives) before closing this window.

2. After finalizing your new storage configuration click *Done*, or *Show Diagnostic Details*:

   If you click *Done* and if there are any unformatted storage devices connected to your SeriTek/2SE4, a “Disk Insertion” window on your desktop as shown if Figure 6 (step 3) below. If all storage devices connected to your SeriTek/2SE4 have valid system partitions your desktop will be displayed, with icons for each storage device attached to your SeriTek/2SE4.

   If you click *Show Diagnostic Details,* a series of message windows will be displayed sequentially detailing the new storage configuration details. These windows will vary slightly depending on the types of peripherals you have, whether a group of peripherals are directly attached to your FirmTekSeriTek/2SE4, or if you have a port multiplier enabled enclosure connected to your Mac.

   Peripherals compatible with 3Gbit/sec Serail ATA are identified as SATA-II devices in these diagnostic windows, whereas peripherals that are compatible with 1.5Gbit/sec Serial ATA transfer speeds are identified as SATA devices in these diagnostic windows.

   First a window indicating that the SeriTek/2SE4 is attached to your computer will appear (Figure 5).

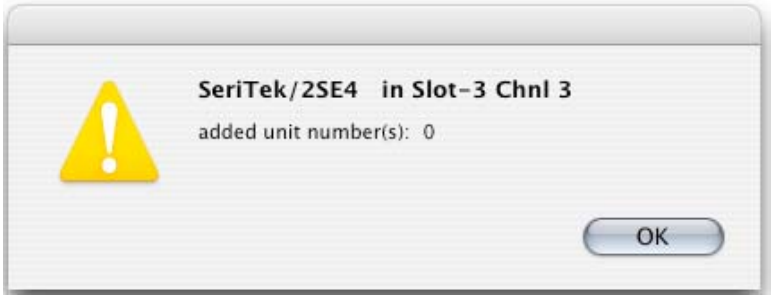


Figure 5: The SeriTek/2SE4 enumerated as Channel 0

After clicking OK a series of windows reviewing details about each device attached to your SeriTek/2SE4 will appear. Each time you click OK a new window will be displayed. If a port multiplier enabled enclosure is attached to your computer, the port multiplier circuitry itself will be identified as a peripheral. For example, Figures 6A through 6E shows a series of windows where a port multiplier enabled enclosure and two hard disks are attached to the 2SE4.

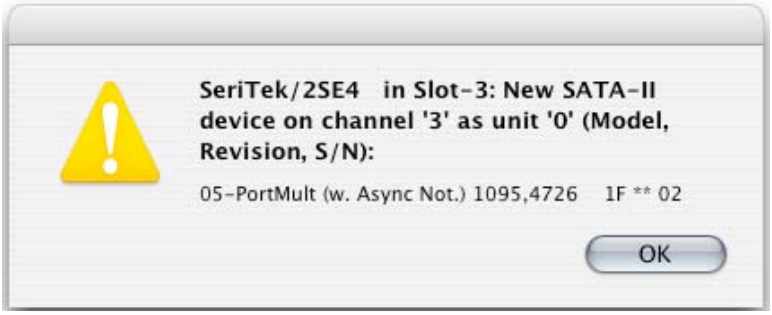


Figure 6A: 3Gbit/sec (SATA-II) port multiplier information is displayed

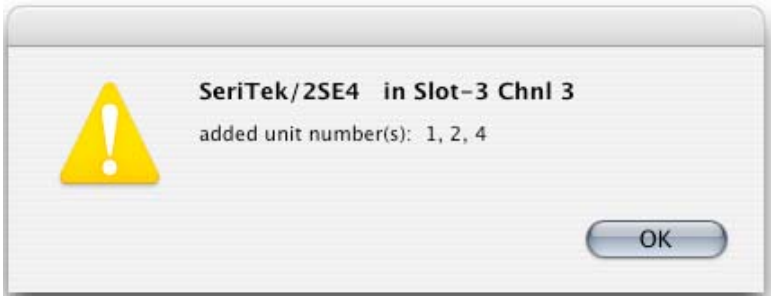


Figure 6B: Three peripherals are attached to the port multiplier

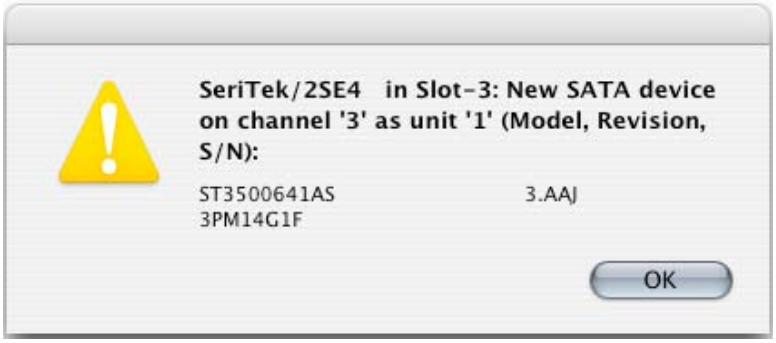


Figure 6C: Channel 3, Unit 1 is a Seagate ST3500641AS configured at 1.5Gbit/sec (SATA)

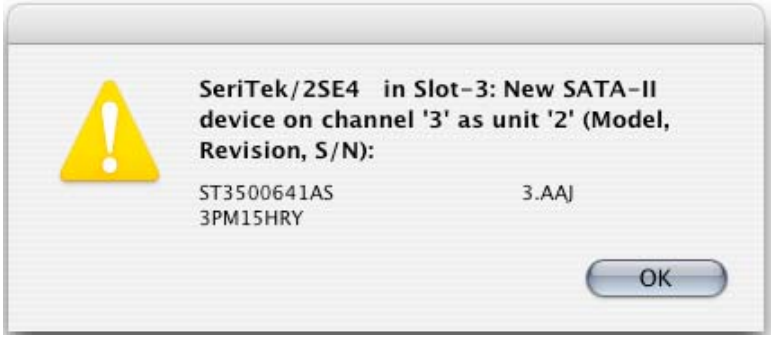


Figure 6D: Channel 3, Unit 2: A Seagate ST3500641AS configured at 3.0 GBs (SATA-II)

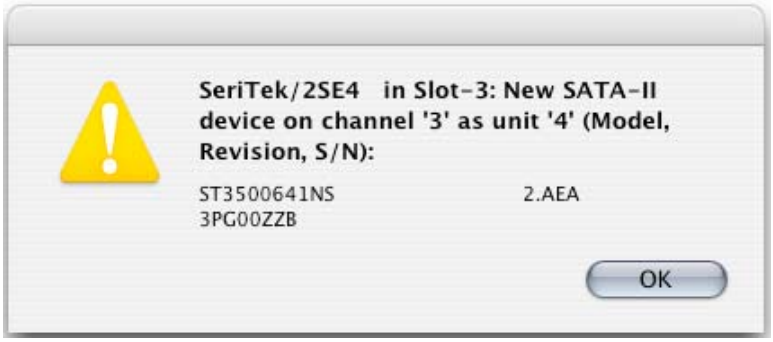


Figure 6E: Channel 3, Unit 4: A Seagate ST3500641AS configured as at 3.0 GBs (SATA-II)

Figure 5B: A Port Multiplier is attached to your 2SE4 and two Peripherals units 3 & 4 attached: IndividualpPeripherals are listed, each sequentially every time you hit OK.

3. If the storage device(s) have not been formatted for use with the Macintosh, *Disk Insertion* messages will appear on your desktop for each unconfigured storage device. Select *Initialize* to configure your storage device, or *Ignore* if you wish to configure these disks later (see Figure 6). Note: Various Mac operating systems with differing RAID configurations may display slightly different messages.

Figure 6: Disk Insertion Window

Formatting Serial ATA Drives Using Macintosh OS X Version 10.4.0 or Later

Turn on your Macintosh computer.

1. Open Apple's *Disk Utility* which is located in the Utilities folder of the Macintosh OS X start-up volume.

   To open this application:

   a) Double click the Mac OS X startup volume
   b) Double click the *Applications* folder
   c) Double click the *Utilities* folder
   d) Double click the *Disk Utility* icon (See Figures 7 and 8 for examples)

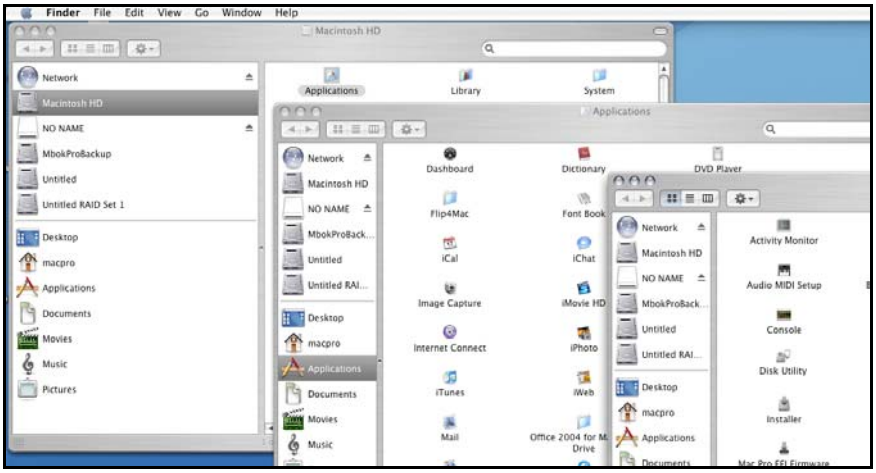


Figure 7: Locating Apple's *Disk Utility*

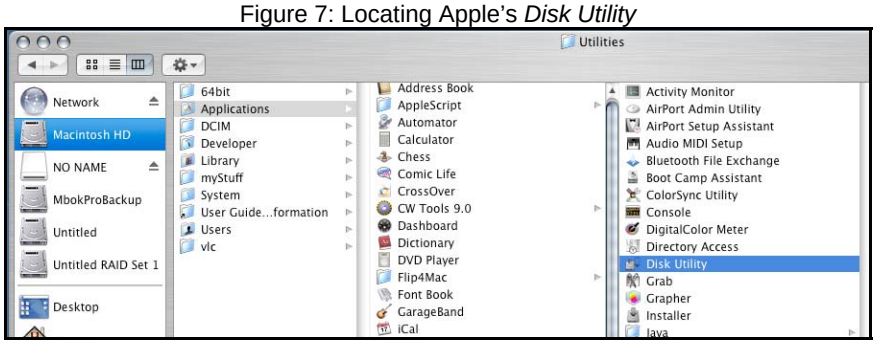


Figure 8: Alternate method for locating Apple's *Disk Utility*

2. Review the list of hard drives show within *Disk Utility* (see Figure 8). Drives currently in use should have a list of volume names below it. New, unformatted drives typically have no volume names listed. Carefully select the drive you wish to format.

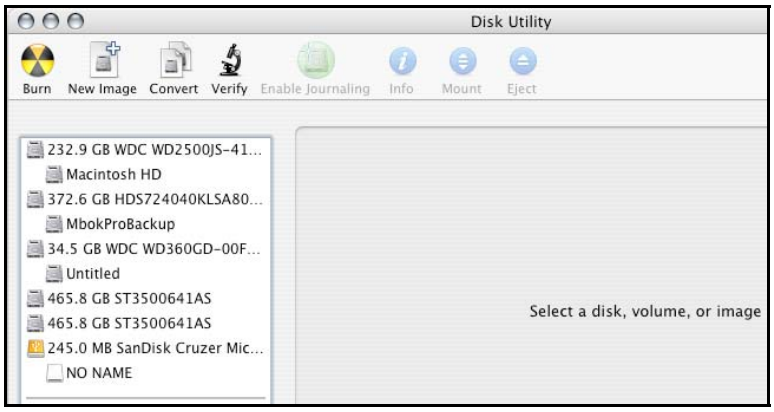


Figure 9: Example hard drive listing

3. After carefully selecting the hard drive you wish to format, select the *Erase* tab in Apple's *Disk Utility* (see Figure 10).

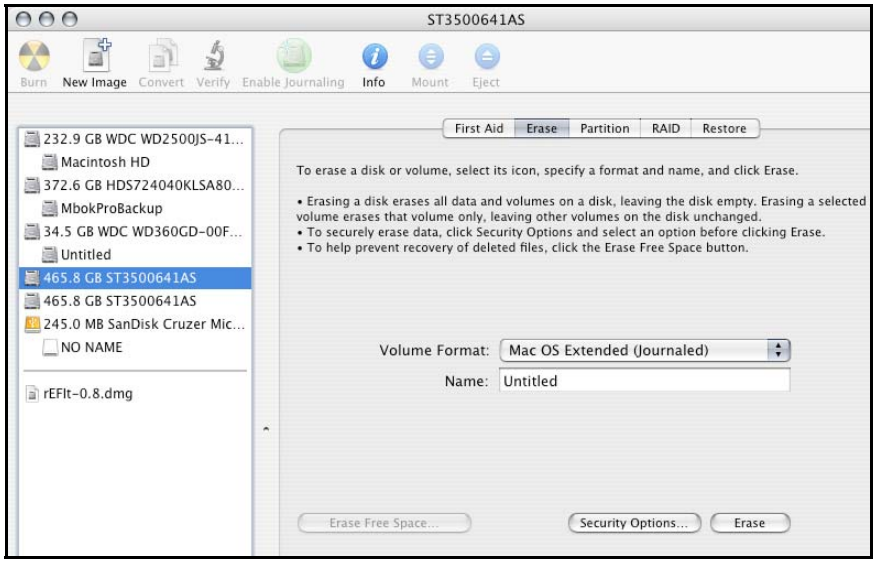


Figure 10: Selecting the *Erase* tab in Apple's *Disk Utility*

4. For *Volume Format,* the most common choice is "Mac OS Extended."

5. In the *Name* field, you may type a name of description for your new hard drive.

6. Be sure to back up any data on the hard drive before clicking the *Erase* button to format the hard drive..

7. Click the *Erase* button to format the hard drive.

8. Once the hard drive is initialized, it will be depicted as an icon on your Mac OS X desktop.

Creating a RAID Volume with Serial ATA Hard Drives Using Macintosh OS X version 10.4.0 or Later are depicted, Mac OS X versions 10.2.0 or Later are supported

The Mac OS X 10.4.0 or later RAID (Redundant Array of Independent Drives) capability allows you to increase volume sizes, provide data redundancy in case of a hard drive failure, or increase performance by allowing you to join multiple drives into a single volume.

Two basic RAID types are supported, Stripe and Mirror. In more advanced mode, Mac OS-X 10.4 will allow to combine these RAID types in separate groups, thus allowing striped and mirrored volumes on the same sub-system. A volume that is striped (also known as RAID 0) has its data broken up and spread across multiple hard drives. Read/write performance, especially for sequential access, is improved when the data is read and written across multiple drives simultaneously. No data integrity is provided with striping however, and since data is spread across multiple drives, if one of the hard drives fails all of the volume's data will be lost.

A volume that is mirrored (also known as RAID 1) has its data duplicated from one hard drive onto another. A mirrored volume offers data integrity and immediate access to data in the event of a single hard drive failure. Because data is mirrored (duplicated) across two hard drives, only half of the combined capacity of the two drives is available.

1. Turn on your computer.

2. Open Apple's *Disk Utility* which is located in the Utilities folder of the Mac OS X start-up volume.

   To open this application:
   a) Double click the Mac OS X startup volume
   b) Double click the Applications folder
   c) Double click the Utilities folder
   d) Double click the *Disk Utility* icon (See Figures 7 and 8 for examples)

3. Review the list of hard drives show within *Disk Utility* (see Figure 9). Drives currently in use should have a list of volume names below it. New, unformatted drives typically have no volume names listed.

4. Select the *RAID* tab in Apple's *Disk Utility* (see Figure 11)

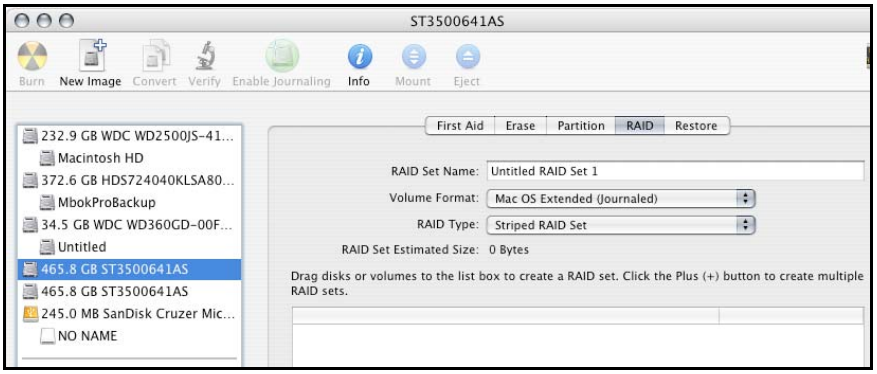


Figure 11: Selecting the RAID tab in Apple's *Disk Utility*

5. Carefully select and drag a hard drive to add as a member of the new RAID volume onto the *Disk* status window (Figure 12).

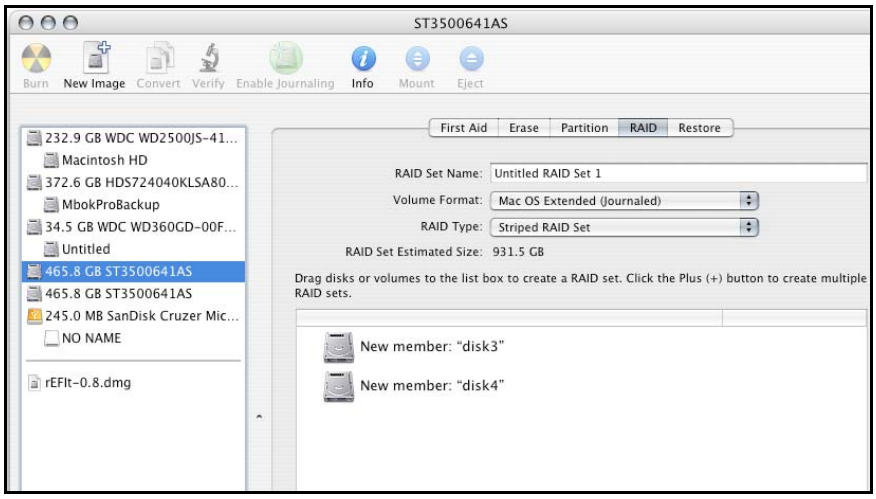


Figure 12: Example drives and options for a RAID volume;
Drag and Drop Drives into the RAID Set Window

6. Repeat step 5 for each member for the RAID volume.

7. Choose a *RAID Scheme:* Stripe or Mirror.

8. Name the new RAID volume.

9. For *Volume Format,* the most common choice is "Mac OS Extended". Note: For Mac OS X 10.4.0 and later you can select the RAID block size, for best performance select a RAID block size of 64K or 128K (Figure 13).

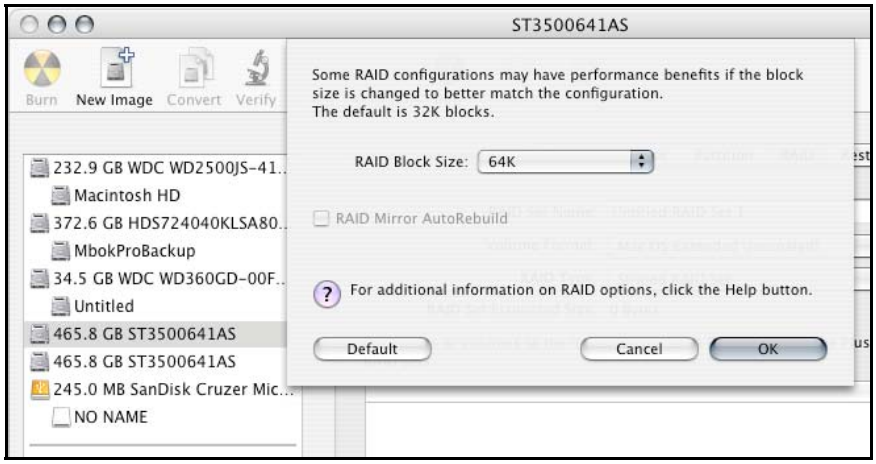


Figure 13: Selecting a RAID Block Size

10. After reviewing the options you selected, click on the *Create* button to initialize the new RAID volume (see Figure 14).

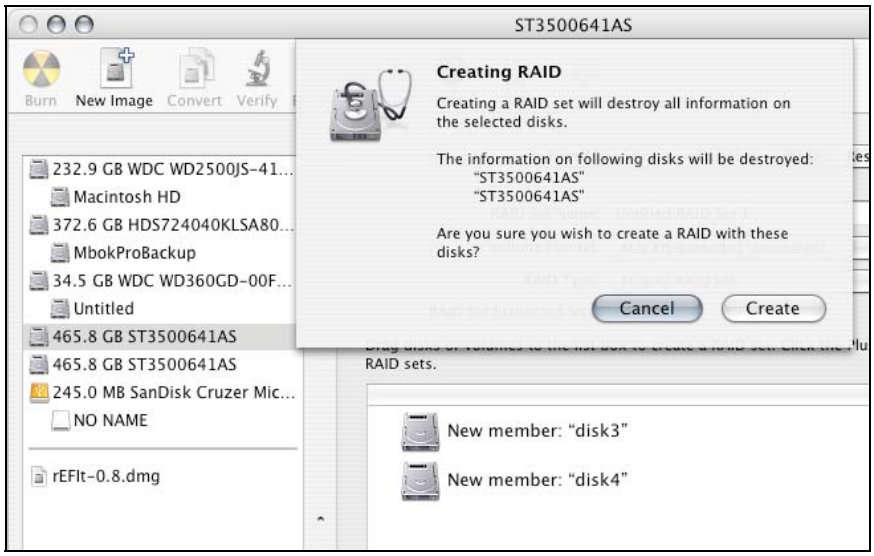


Figure 14: Creating a new RAID volume

11. After the RAID volume is successfully initialized, it should appear on the desktop.

IV. Using SeriTek/2SE4 Hot-Swap Functionality

Introduction

The SeriTek/2SE4 host adapter provides advanced hot-swap functionality which provides flexibility similar to that of Universal Serial Bus (USB) and FireWire by not having the burden of having to power down your system when adding or removing hard drives. Using a unique patent-pending method SeriTek/2SE4 host adapter supports RAID hot-swap disks under Mac OS X.

Hot-Swap Guidelines

- Do not disconnect or remove hard drives while transferring data.
- Save your work and close associated applications before removing the external hard drive (applications need to be closed since they may keep temporary working files open on the external hard drive).
- Always unmount the volumes (eject or drag the volumes to trash) associated with an external hard drive before removing it.
- Remove or power down every drive associated with a particular RAID volume before reintroducing them to the system. For example, do not remove just two drives of a four drive RAID volume and reinsert them. All four drives must be removed and then reinserted.
- As a general rule, power down the external hard drives after powering down the Macintosh computer. Power on the external enclosure before powering on the Macintosh computer.

Hot-Swap Procedure

Connecting External Hard Drive(s)

If your Macintosh computer is not yet powered on, power on the external enclosure then power on the computer. If the Macintosh computer is already powered on, you may connect the external hard drive(s). When you connect the first hard drive, you will see a "SATA Configuration Changed" window (See Figure 15). If this is the only hard drive you connect, you may select "OK" in the dialog box. If you have an additional hard drive to connect, connect it and then select "OK" in the dialog box.

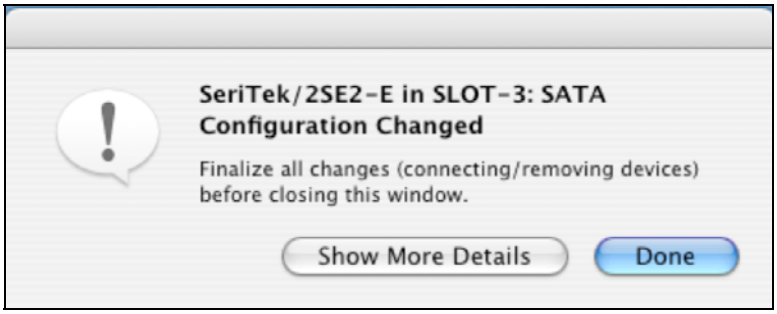


Figure 15: Connecting External Hard Drive(s)

Verifying Hard Drive Connections by clicking on "Show More Details"

One or more dialog boxes will appear verifying which drive was attached to which channel (See Figure 16). There are Four Serial ATA channels on the SeriTek/2SE4: 0, 1, 2, & 3.

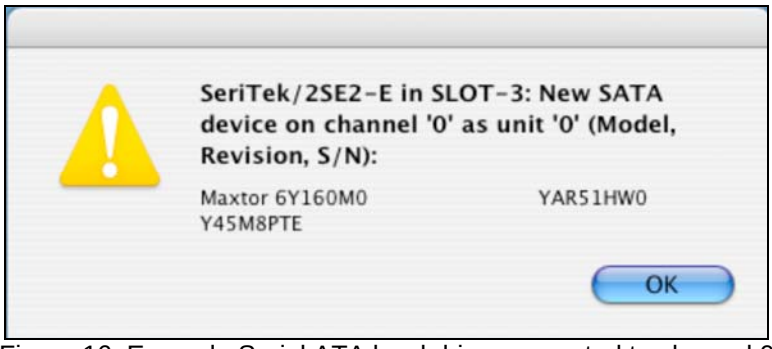


Figure 16: Example Serial ATA hard drive connected to channel 0

Removing External Hard Drive(s)

Caution: To prevent loss of data, save your work and close associated applications before removing the external hard drive (applications need to be closed since they may keep temporary working files open on the external hard drive). Always unmount the volumes (eject or drag the volumes to trash) associated with an external hard drive before removing it.

Eject or drag all of the volumes associated with the hard drive(s) before disconnecting or removing them. When removing a hard drive you will see a "SATA Configuration Changed" window (See Figure 15). If this is the only hard drive you remove, you may select "OK" in the dialog box. If you have an additional hard drive to remove, remove it and then select "OK" in the dialog box.

Improperly Removing External Hard Drive(s)

Caution: To prevent loss of data, save your work and close associated applications before removing the external hard drive (applications need to be closed since they may keep temporary working files open on the external hard drive). Always unmount the volumes (eject or drag the volumes to trash) associated with an external hard drive before removing it.

If you do not properly unmount volumes before removing the associated hard drive(s), a "Device Removal" dialog box will appear (See Figure 17). This dialog box shows up as a reminder to unmount volumes properly before disconnecting or removing external hard drives. Failure to properly unmount volumes before disconnecting external hard drives may result in lost data.

Figure 17: Improperly removing External Hard Drive(s)

Connecting and Immediately Removing External Hard Drive(s)

If you connect an external hard drive, then remove it without acknowledging it has been added to the system, a dialog box will appear that explains no new hard drive(s) were detected (See Figure 18).

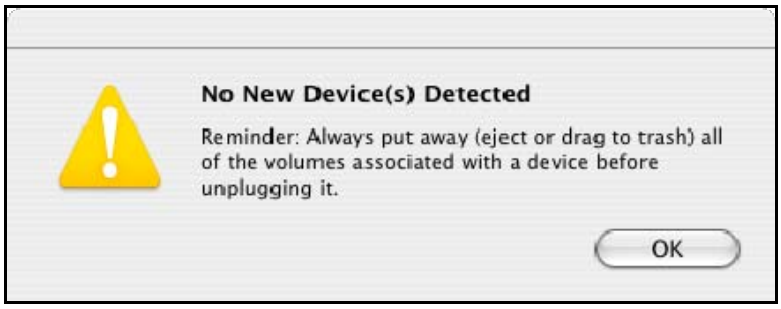


Figure 18: Connecting External Hard Drive(s)

V. Troubleshooting

- **The SeriTek/2SE4 host adapter does not seem to be recognized**
  Check the SeriTek/2SE4 adapter by ensuring it is properly seated in the PCI-X slot on the Macintosh motherboard.

- **My hard drive or peripheral won't work**
  Check cables and connections. Ensure the 7-pin Serial ATA cable is properly oriented to the connectors on the SeriTek/2SE4 host adapter and the external enclosure. Ensure the hard drives in the enclosure are properly powered.

  Apple System Profiler under Mac OS X

  1. Open the *Apple System Profiler* by clicking opening the *Finder*, opening *Applications*, opening the *Utilities* folder, and double clicking on *Apple System Profiler.*
  2. Open *Hardware* and select *PCI Cards* (Figure 19).

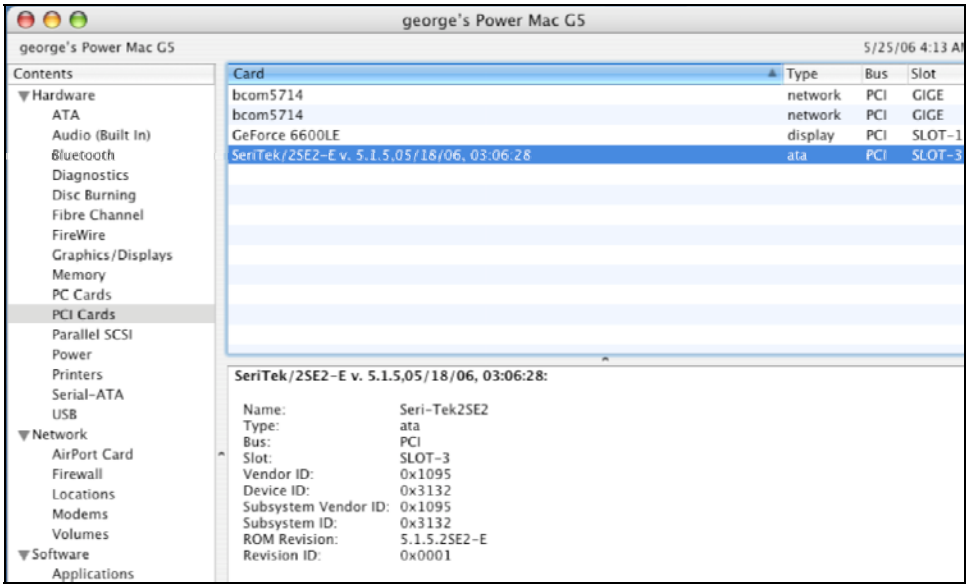


Figure 19: SeriTek/2SE4 Listed Under *PCI Cards*

  3. Under *PCI Cards* section, SeriTek/2SE4 should show up as an "ata" card type.

  4. If SeriTek/2SE4 is not listed, shut down your computer and try re-seating it in the PCI-X slot by removing and reinserting it. Repeat steps 1 through 3. If the SeriTek/2SE4 still doesn't show up in the *Apple System Profiler*, try moving it to another PCI-X slot.

- **The transfer rate on my Macintosh seems less than the Serial ATA specified maximum of 300 Mbytes/sec.**
  The 300 Megabyte/Sec speed is the theoretical limit which is higher than the speed limit of a single-lane PCI-X card.

- **Does the SeriTek/2SE4 work with all Macintosh computers?**
  No, SeriTek/2SE4 only works with Macintosh computers with at least one PCI-X slot available. If your system lacks PCI-X slots you cannot use the SeriTek/2SE4.

- **My older Parallel ATA hard drives and peripherals have jumper settings. However I can't find jumper settings on my new Serial ATA hard drive or**

peripheral. How can I set it to Master or Slave; is there any way to set the SCSI ID?

Serial ATA hard drives and peripherals are internally configured as Master drives. Only one drive can be attached to each Serial ATA bus/connector. There is no need to change settings on either the drive or the controller.

- **I have an old Parallel ATA drive which I am trying to use with a Parallel ATA to Serial ATA converter, but it doesn't seem to work.**

  Some older Parallel ATA drives do not comply with current ATA standards. Parallel ATA to Serial ATA converters cannot recognize such drives.

VI. Product Support

Technical Support

For additional information on how to use SeriTek/2SE4, download the latest firmware updates, or for technical assistance, please visit us at **www.firmtek.com**, or email us at **support@firmtek.com**.

Please provide the following information when contacting us:

- Product model and serial number
- Firmware version (You may use the Apple System Profiler as described in the troubleshooting section to determine the firmware version. Look for ROM # and Revision #)
- Macintosh model
- Macintosh OS type and version (example: Mac OS X, version 10.4.6)
- Hardware and software installed on your system
- Contact information including daytime telephone number and email address
- A detailed description of the question or problem

Return Merchandise Authorization

If FirmTek technical support determines the product needs to be repaired or replaced, a Return Merchandise Authorization (RMA) number and shipping address will be provided. Please pack in the original shipping container all of the original packaging - including the static bag, all hardware, software, cables, and other accessories that came with the original product. You are responsible for shipping and insurance costs, and any damage incurred due to improper packaging or transport.

FirmTek reserves the right to determine whether the product is to be repaired or replaced with new or refurbished parts, or with a new or refurbished product. Standard United States return shipping charges will be paid by FirmTek. Foreign and other shipping methods such as express shipping are available for an additional charge.

Write down the RMA number on the outside of the shipping container, and include the following information with the shipment:

- A description of the problem
- A copy of the original purchase invoice
- Return shipping address
- Contact information including daytime telephone number and email address

FirmTek, LLC reserves the right to refuse shipments missing a valid RMA number.

VII. Product Warranty and Disclaimers

FirmTek warrants to the original buyer only that this product shall be free from defects in material and workmanship for a period of 2 years from the original date of purchase. This warranty is valid only when the original purchase invoice is provided. This warranty shall not apply to any defects resulting from improper handling, misuse, misapplication, abuse, or unauthorized modification(s) which are performed by end user.

FirmTek, LLC reserves the right to make changes to any products described in this manual at any time without notice. FirmTek, LLC assumes no responsibility for the use or reliability of hardware or software that is not supplied by FirmTek, LLC or its affiliated companies. FirmTek, LLC does not assume any responsibility or liability arising out of the application or use of any product described in this document, except as expressly agreed to in writing by FirmTek, LLC; nor does the purchase or use of a product from FirmTek, LLC convey a license under any patent rights, copyrights, trademark rights, or any other intellectual property rights of FirmTek, LLC or third parties.

VIII. Regulatory Compliance Statements

Federal Communications Commission Radio Frequency Interference Statement

WARNING: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. However, if this equipment does cause interference to radio or television equipment reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help.
- Use a shielded and properly grounded I/O cable and power cable to ensure compliance of this unit to the specified limits of the rules.

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation.

CE European Union Compliance Statement

EMC compliance:

Emissions:	EN55022: 1998, Class B
Immunity:	EN55024: 1998
	EN61000-4-2: 1995+A1: 1998
	EN61000-4-3: 1995+A1: 1998
	EN61000-4-4: 1995
	EN61000-4-6: 1996
	EN61000-4-8: 1993