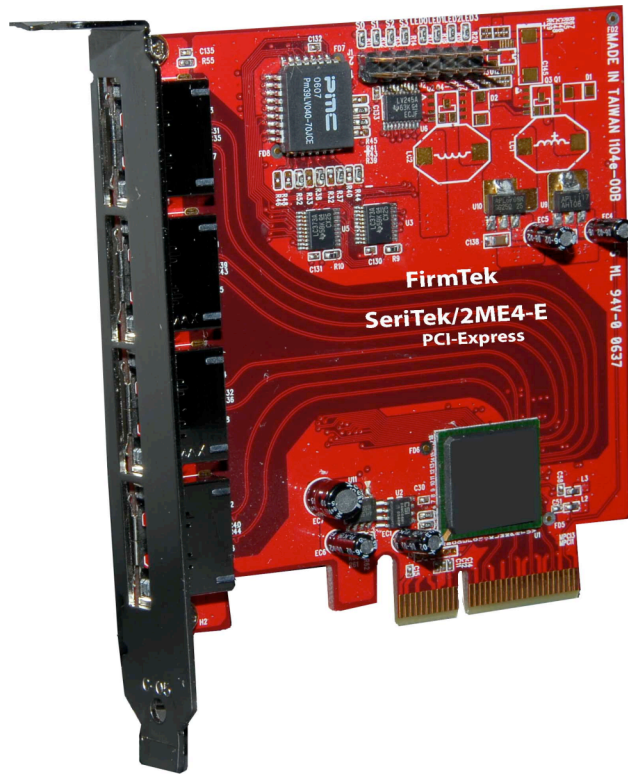


FirmTek



SeriTek™ /2ME4-E

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

Macintosh User Manual

FirmTek, LLC
www.firmtek.com

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Before installing the SeriTek/2ME4-E 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/2ME4-E host adapter.

External Shielded Serial ATA Cable

The SeriTek/2ME4-E 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/2ME4-E and the external enclosure. To maintain peak performance keep the number of cable insertions and removals to a minimum.

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I. Introduction

Welcome

Congratulations and thank you for purchasing the SeriTek/2ME4-E Serial ATA host adapter. This product is another innovative solution made possible by the creative engineers at FirmTek.

About This Manual

This user manual was written with the assumption you are familiar with the 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) provides an interface that allows computer users to connect additional hard disks and peripherals. 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 the Macintosh and hard disks.

About the Port Multiplier Specification

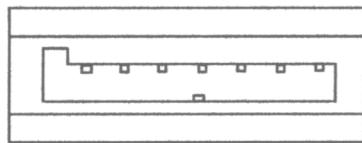
Originally, Serial ATA adapters and enclosures supported a single drive connected to a single port via a single cable. The maximum number of hard disks supported on a Serial ATA adapter depended on the adapter's port count. The Serial ATA port multiplier specification allows multiple hard disks to share a single port. The SeriTek/2ME4-E Serial ATA adapter features 4 port multiplier enabled ports and supports up to 5 hard disks on each port for a total of 20 hard disks.

The SeriTek/2ME4-E supports traditional direct-connect 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 include additional internal circuitry, which allows the connection of multiple hard disks to a single SeriTek/2ME4-E port.

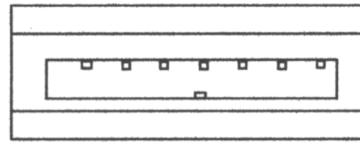
About the SeriTek/2ME4-E Serial ATA Host Adapter

The SeriTek/2ME4-E host adapter extends Serial ATA's 3.0 Gbit/sec performance to the outside of the Macintosh computer chassis, enabling users with PCI-Express compatible Macintosh computers to take advantage of external Serial ATA enclosures.

With four external port multiplier enabled Serial ATA ports and internal PCI-Express connectivity, the SeriTek/2ME4-E 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/2ME4-E host adapter provides the latest I-shaped eSATA connectors.



Original L-shaped
Serial ATA connector



Newer rectangular
eSATA I-shaped
connector

SeriTek/2ME4-E Package Contents

- SeriTek/2ME4-E Serial ATA host adaptor
- CD-ROM Containing the Macintosh User Manual

SeriTek/2ME4-E Key Features and Benefits

- Four external ports with hot-swap capabilities
- Serial ATA port multiplier support with FIS-Based Switching; connect up 20 drives using 5-bay port multiplier enclosures such as the SeriTek/5PM
- Boosts overall system performance with per-port data transfer rates of up to 300 MBytes/sec or 3.0 Gbits/sec
- Compatible with all Apple Mac Pro and PowerMac G5 PCI-Express bus equipped Macintosh computers
- High performance x4 PCI-Express interface
- Native SATA II hard disk support: Backward compatible with SATA I, 1.5 Gbps hard disks
- Supports Mac OS X version 10.4.x or later
- User-upgradeable firmware
- 48-bit LBA support for drive sizes larger than 137GB
- Includes 32 and 64-bit Snow Leopard support for Intel-based Mac Pro models
- Provides performance and protection: native and third-party Mac OS X RAID support
- Perfect for upgrading and expanding Macintosh computers by leveraging the power of PCI-Express 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-Express Bus and system memory
- Data protection: Supports Mac OS X RAID, S.M.A.R.T.
- Ideal for multimedia-intensive applications: audio/video capture and editing, and graphics manipulation/publishing
- 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/2ME4-E Specifications

Hardware Requirements	<ul style="list-style-type: none"> • PCI-Express based Macintosh with available PCI-Express expansion slot
Operating Systems Supported	<ul style="list-style-type: none"> • Mac OS X version 10.4.x or later
Bus Type	<ul style="list-style-type: none"> • PCI-Express x4 - Compatible with x8 and x16 slots
External Connectors	<ul style="list-style-type: none"> • 4-port external Serial ATA (SATA II) interface supports up to 4 external hard disk enclosures with eSATA type connectors
Drive Types Supported	<ul style="list-style-type: none"> • SATA II hard disks, backward compatible with SATA I, 1.5 Gbps hard disks
Data Transfer Rates	<ul style="list-style-type: none"> • Up to 300 MBytes/second or 3.0 Gbits/second burst data transfer rate
Drive Modes Supported	<ul style="list-style-type: none"> • SATA II with or without Native Command Queuing
Advanced Data Features	<ul style="list-style-type: none"> • Fully compliant with SATA II Phase 2.0 specification • Port multiplier support: Run up to 20 drives with SeriTek/5PM Port Multiplier enclosures • Performs FIS-Based Switching with Port Multiplier • Spread Spectrum Clocking (SSC) • SATA II Device Hot Swap compliant • Bus Mastering off-loads data I/O handling from CPU • 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
Onboard Flash ROM	<ul style="list-style-type: none"> • Allows easy upgrades to the latest firmware
Cables Supported	<ul style="list-style-type: none"> • 7-pin shielded SATA cable, up to 2 meter in length
Warranty	<ul style="list-style-type: none"> • One year limited parts & labor
Physical Dimensions	<ul style="list-style-type: none"> • 3.6" (L) x .3" (W) x 4.1" (H) (not including bracket)
Power Requirements	<ul style="list-style-type: none"> • 5V ± 5%
Environmental	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • EN55022/1998, EN55024/1998 (European Community) • FCC Part 15 Class B (US)

SeriTek/2ME4-E System Requirements

Operating System

- Macintosh OS X version 10.4.x or later

Hardware Requirements

- PCI-Express based Macintosh with available PCI-Express expansion slot
- External powered enclosure (with or without port multiplication support) equipped with Serial ATA hard disk(s)

Materials Required

- Standard medium-sized Phillips screwdriver may be required if computer does not have a PCI bracket with captive screws.

II. Installing the SeriTek/2ME4-E



Caution:

Prior to installing the SeriTek/2ME4-E host adapter and hard drive(s) or peripheral(s), please make sure your data is backed up.

The SeriTek/2ME4-E 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/2ME4-E 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 the SeriTek/2ME4-E.

SeriTek PCI-Express Host Adapter Installation:

1. Properly shut down your Macintosh and disconnect the AC power cord.
2. Open the side panel. On some models, the user may need to unscrew the captive screws in the PCI bracket to access the PCI-Express slots. Please refer to your Macintosh user manual for more information about gaining access to PCI-Express slots.
3. Choose an empty PCI-Express expansion slot where you will install the SeriTek/2ME4-E.
4. Remove the PCI slot screw or the PCI Bracket.
5. Remove the SeriTek/2ME4-E from its protective materials. Make sure to hold the card by its bracket or around its edges to avoid touching components on the board that might be damaged by static electricity.
6. Position the PCI-Express card bracket by facing it towards the rear of the computer. Align the gold connectors of the SeriTek/2ME4-E over the PCI-Express slot and gently press it into the PCI-Express slot until the card is firmly seated. If the card is properly seated, the upper ear of the PCI-Express card bracket should line up with the top of the PCI bracket mounting location.
7. Secure the card with the PCI screw or the PCI bracket (See Figure 1).



Caution: The SeriTek/2ME4-E host adapter supports external cables that may be plugged in to one of their external receptacles. If the SeriTek/2ME4-E is not properly secured when a cable is inserted into one of the receptacles, it may become loose from the PCI-Express slot and damage the computer.

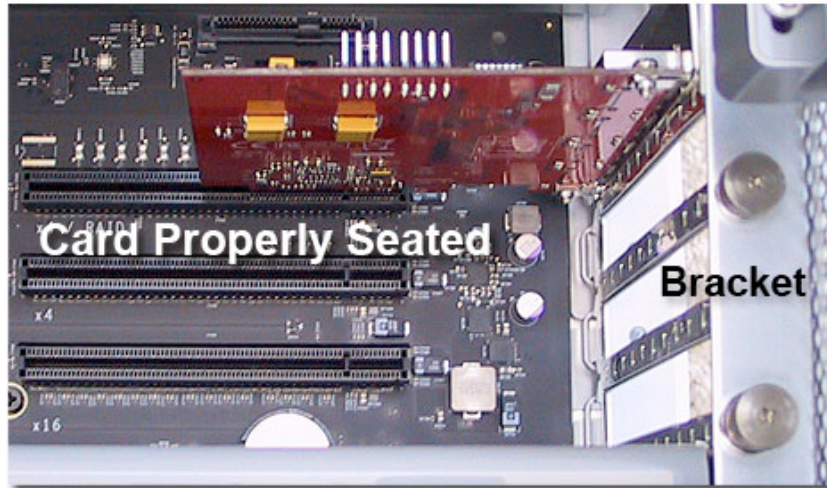


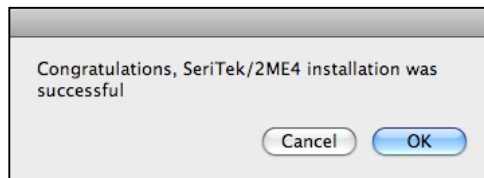
Figure 1: Inserting and securing the SeriTek/2ME4-E

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

Driver Install

The SeriTek/2ME4-E host adapter is now installed. Once the FirmTek driver is installed and the computer is restarted, the SeriTek/2ME4-E will be recognized by Mac OS X. To install the SeriTek/2ME4-E driver please follow these steps.

1. Double click on the SeriTek2ME4 installer
2. Insert the admin password
3. Click "OK"
4. Restart the Macintosh computer



III. Connecting External Enclosure(s)

Introduction

This section describes how to connect external hard drive enclosures and provides instructions for formatting the 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/2ME4-E to an External Enclosure

1. The SeriTek/2ME4-E is compatible with a wide range of external enclosures. However, the enclosure must meet the following basic requirements:
 - 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 and Serial ATA Version 2.0
 - Enclosure must be able to support and mount the Serial ATA hard disks
2. Install hard disks 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/2ME4-E and connect the other end(s) to the external enclosure. (eSATA cables are not included with SeriTek/2ME4-E)

Note: FirmTek Serial ATA cables are specially designed to work with both PC and Macintosh computers. Please use FirmTek external shielded Serial ATA cables with the SeriTek/2ME4-E.

- *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/2ME4-E uses the newer eSATA connectors, also known as I-shaped connectors. Some hard disk enclosures require SATA 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.

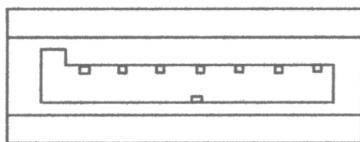


Figure 2A: Original L-shaped SATA connector

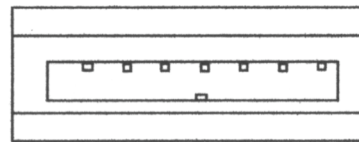


Figure 2B: Newer rectangular eSATA I-shaped connector

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

Note: If the SeriTek/2ME4-E is being used with a hard disk enclosure that uses eSATA connectors, eSATA cables with have rectangular I-shaped eSATA connectors on each end will be required, like the two connectors shown below in Figure 3.



Figure 3: Using SeriTek/2ME4-E 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/2ME4-E host adapter and external enclosure. It should easily snap into place. Please do not force the cable connector onto the host adapter or the SATA interface of the enclosure.

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

Cable connection problems?

- First verify 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. Install the hard disk(s) in an enclosure. If your enclosure is powered on and the Macintosh is running the hard disk(s) should appear in Disk Utility.
 2. If all storage devices connected to the SeriTek/2ME4-E have valid system partitions the hard disk volume(s) will be mounted on the desktop. An icon will be displayed on the desktop for each valid Mac OS X partition attached to the SeriTek/2ME4-E.
 3. If the storage device(s) have not been formatted for use with the Macintosh, a *Disk Insertion* messages will appear on the 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 4). Note: Various Mac operating systems with differing RAID configurations may display slightly different messages.



Figure 4: Disk Insertion Window

Formatting Serial ATA Drives Using Macintosh OS X Version 10.5.x 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 5 and 6 for examples)

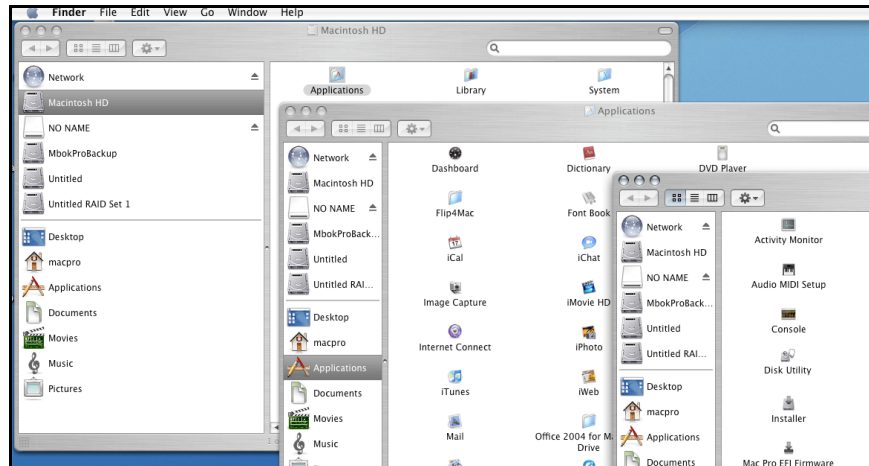


Figure 5: Locating Apple's *Disk Utility*

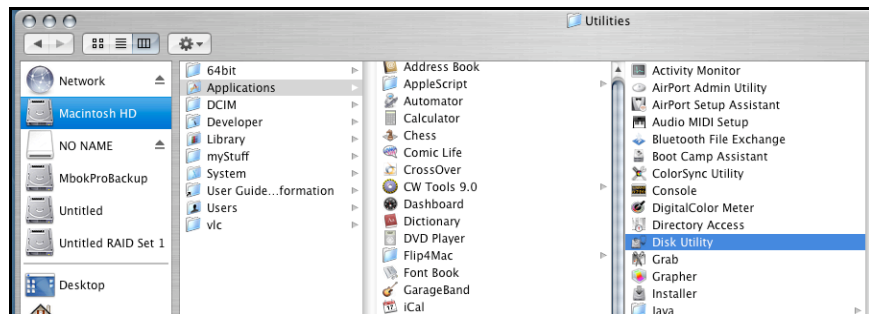


Figure 6: Alternate method for locating Apple's *Disk Utility*

2. Review the list of hard disks shown in *Disk Utility* (see Figure 7). Hard disks currently in use should have a volume name below their listing. New, unformatted disks typically have no volume name. Carefully select the hard disk you wish to format.

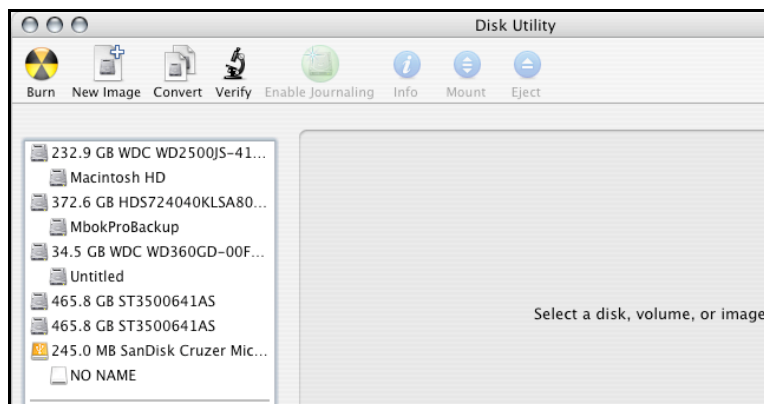


Figure 7: Example hard drive listing

3. After carefully selecting the hard drive you wish to format, select the *Erase* tab in Apple's *Disk Utility* (see Figure 8).

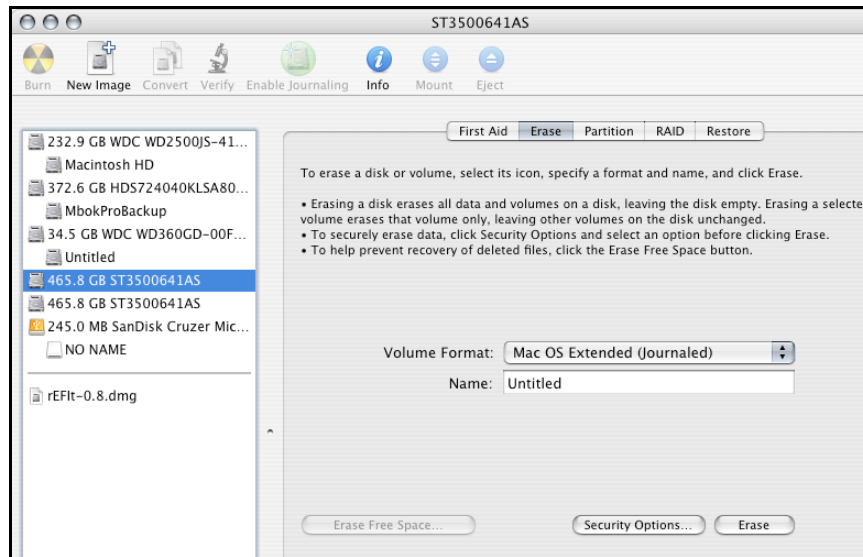


Figure 8: Selecting the *Erase* tab in Apple's *Disk Utility*

4. For *Volume Format*, the default choice is "Mac OS Extended (Journaled)."
5. In the *Name* field, users can type a name for the new hard disk.
6. Be sure to back up any data on the hard disk 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 displayed as an icon on the Mac OS X desktop.

Creating a RAID Volume

(Macintosh OS X version 10.5.x or Later)

Mac OS X 10.5.x or later Disk Utility RAID (Redundant Array of Independent Drives) options allow the user to display several hard disks as a single volume (SPAN - concatenated), provide data redundancy in case of a hard disk failure (RAID 1 - mirror), or increase performance and volume size by striping multiple disks into a single volume (RAID 0 – striped). Each method is described below.

Concatenated Disk Set - Apple Disk Utility can be used to create a concatenated disk set. A Concatenated Disk Set also known as SPAN is not one of the numbered RAID levels. This option simply combines two or more physical disks into a single virtual disk. No redundancy is provided. A backup copy should be maintained of any important data on the Concatenated Disk Set. As the name implies the disks are simply grouped together. Data is written to the first disk in the group until it is full and then it is written to the second disk, third disk and so on. If a hard disk fails only the data on that particular hard disk is lost. No additional performance is gained with the use of a Concatenated Disk Set. Concatenation is typically used to create a single large volume from several odd sized hard disks. Unlike RAID 0 or RAID 1, a Concatenated Disk Set does not require that the member hard disks be the same size to optimize the volume size of the virtual disk.

Mirrored RAID Set - Apple Disk Utility can be used to create a mirror. This is also known as a RAID 1 configuration. The hard disks should be the same size and model for optimal performance. Data written to a mirror volume is archived onto two separate duplicate hard disks. The mirror configuration provides redundancy that will usually protect data should a single hard disk fail. A mirror cannot protect against the user accidentally trashing an important file. In addition, if the mirror hard disk directory becomes corrupted the corruption will be copied to all hard disks in the mirror configuration. As a result, a backup copy should be maintained of any important data on the mirror. RAID 1 mirror performance equals the performance of the slowest hard disk in the mirror set. The RAID 1 mirror volume size equals the size of the smallest member disk. All data on hard disks used to create a new Disk Utility based mirror will be destroyed when the mirror is created.

Striped RAID Set - Apple Disk Utility can also be used to create a striped RAID set. This is also known as a RAID 0 configuration. The hard disks should be the same size and model for optimal performance. Data is spread (striped) equally across multiple hard disks for increased performance. A striped RAID set provides no data redundancy. As a result, should one hard disk fail all data stored on the RAID 0 volume is lost. While a striped RAID set provides excellent performance, a back up is required to protect important data. RAID 0 direct connect performance usually equals the performance of the slowest hard disk in the RAID 0 x the number of hard disks used. The RAID 0 volume size equals the size of the smallest member disk x the number of disks in the RAID 0. All data on all hard disks used to create a striped RAID set will be destroyed when the RAID 0 is created with Disk Utility.

Step by step instructions

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 5 and 6 for examples)

- Review the list of hard disks show within *Disk Utility* (see Figure 7). Hard drives currently in use should have a list of volume names below them. New, unformatted drives typically have no volume names listed.
- Select the *RAID* tab in Apple's *Disk Utility* (see Figure 9)

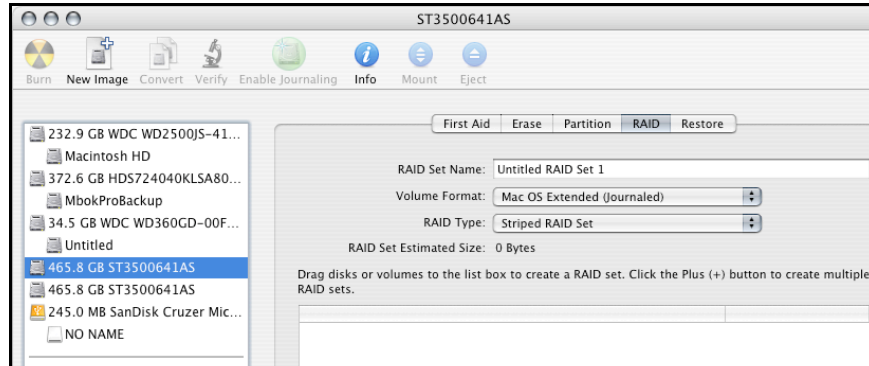


Figure 9: Selecting the RAID tab in Apple's *Disk Utility*

- Carefully select and drag a hard drive to add it as a member of the new RAID volume in the *Disk Utility* status window (Figure 10).

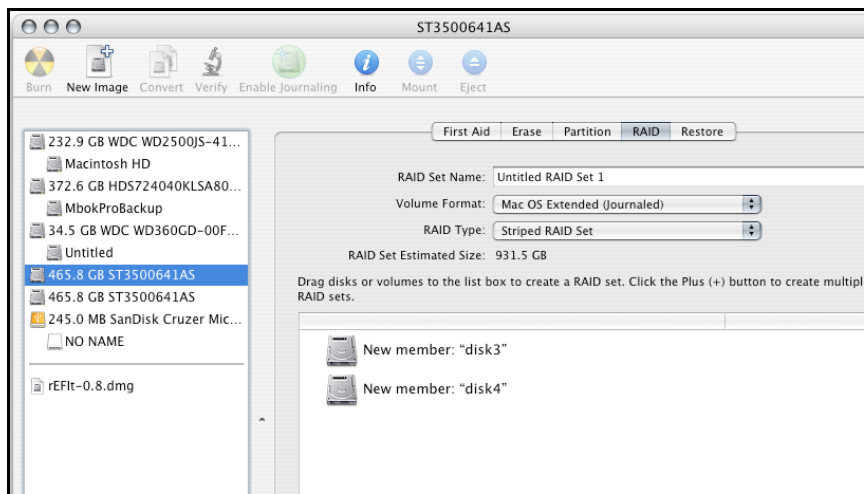


Figure 10: Example drives and options for a RAID volume;
Drag and Drop Drives into the RAID Set Window

- Repeat step 5 for each member for the RAID volume.
- Choose a *RAID Scheme*: Stripe or Mirror.
- Name the new RAID volume.
- For *Volume Format*, the default choice is "Mac OS Extended (Journaled)". Note: For Mac OS X 10.5.x and later users can select the RAID block size. For best performance push the option button and select a RAID block size of 64K or 128K (Figure 11).

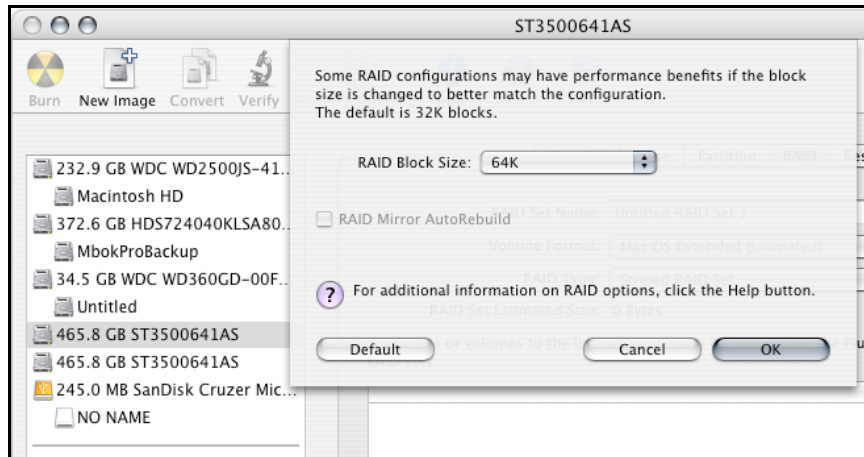


Figure 11: Selecting a RAID Block Size

10. After reviewing the options selected, click on the *Create* button to initialize the new RAID volume (see Figure 12).

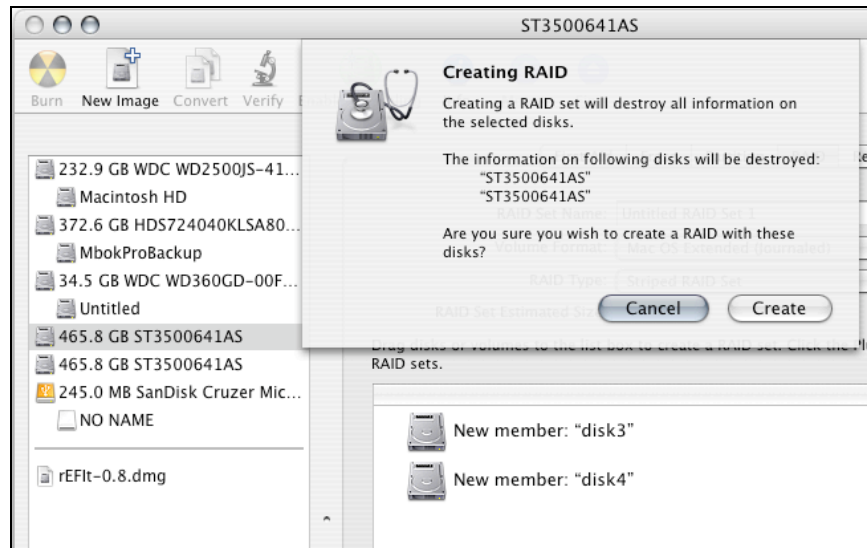


Figure 12: Creating a new RAID volume

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

IV. Using SeriTek/2ME4-E Hot-Swap Functionality

Introduction

The SeriTek/2ME4-E host adapter provides advanced hot-swap functionality that includes flexibility similar to that of Universal Serial Bus (USB) and FireWire. The user simply dismounts the hard disk from the desktop and then removes the hard disk from the FirmTek SeriTek/5PM, SeriTek/2eEN4 or SeriTek/2EN2 enclosure. To mount a hard disk, simply insert the hard disk into the FirmTek enclosure. The easy to use, hot swap tray system provided with FirmTek enclosures provides the optimal compatibility with the SeriTek/2ME4-E.

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.
- If a hard disk attached to the SeriTek/2ME4-E is used as a boot disk for a PowerMac G5 PCI-Express model, hot swap is not available. The Apple System Preferences: Startup Disk setting is used to select a PPC boot disk. To reactivate the hot swap feature, please boot from an internal hard disk. The SeriTek/2ME4-E cannot be used to boot an Intel based Apple Mac Pro 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, users can connect the external hard drive(s) without powering down the computer first.

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.

Improperly Removing External Hard Drive(s)

If you do not properly unmount volumes before removing the associated hard drive(s), a "Device Removal" dialog box will appear (See Figure 13). 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 13: Improperly removing External Hard Drive(s)

V. Troubleshooting

- **The SeriTek/2ME4-E host adapter does not seem to be recognized**
Check the SeriTek/2ME4-E adapter by ensuring it is properly seated in the PCI-Express slot on the Macintosh motherboard. Verify that the SeriTek/2SM2-E driver is installed.
- **My hard disk won't work**
Check cables and connections. Ensure the 7-pin Serial ATA cable is properly oriented to the connectors on the SeriTek/2ME4-E 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. Select *PCI Cards* (Figure 14).

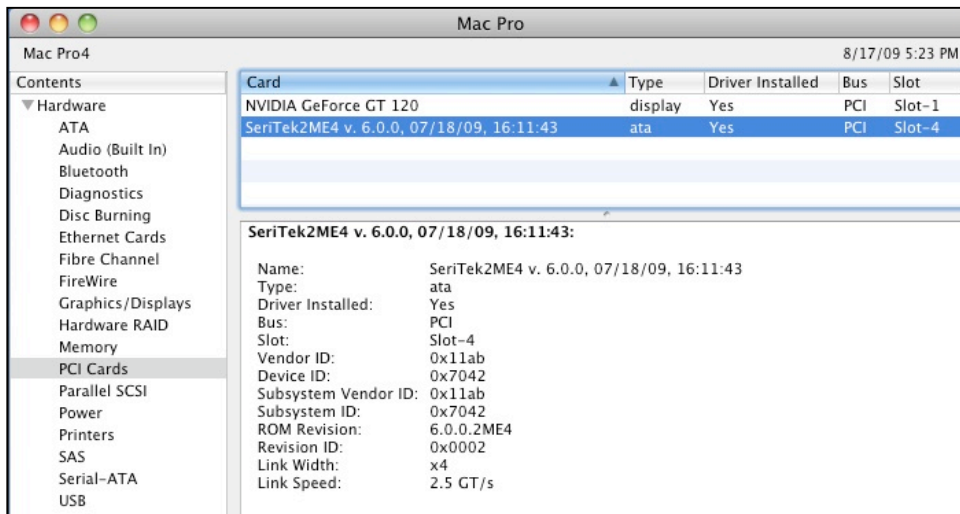


Figure 14: SeriTek/2ME4-E Listed Under *PCI Cards*

3. Under *PCI Cards* section, SeriTek/2ME4-E should show up as an "ata" card type.
 4. If SeriTek/2ME4-E is not listed, shut down the computer and try re-seating the card in the PCI-Express slot by removing and reinserting it. Repeat steps 1 through 3. If the SeriTek/2ME4-E still doesn't show up in the *Apple System Profiler*, try moving it to another PCI-Express slot.
 5. If the SeriTek/2ME4-E is listed, but the Apple System Profiler indicates that no driver is installed, please install the SeriTek/2ME4-E driver found on the FirmTek CD or www.firmtek.com.
- **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 that is higher than the speed limit of a single 3.5" SATA hard disk.

- **Does the SeriTek/2ME4-E work with all Macintosh computers?**
No, SeriTek/2ME4-E only works with Macintosh computers with at least one PCI-Express slot available. If your system lacks PCI-Express slots you cannot use the SeriTek/2ME4-E.
- **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. 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/2ME4-E, 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 10.5.8)
- 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 the SeriTek/2ME4-E in the original shipping container along with 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 will 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 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 one year 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