TEMPO™-X eSATA 4+4

8-Port Serial ATA PCI-X Host Controller

Quick Start Guide for Tempo-X eSATA 4+4

You Should Have

The following items should be included in your product package:

• One Tempo-X eSATA 4+4 card
• Two internal Serial ATA data cables
• Eight screws (for mounting hard drives)
• Two legacy to Serial ATA power cable adapters

The following items may be required for installation:

• Medium Phillips screwdriver
• Internal drive mounting hardware (sold separately)
• One or more external drive enclosures (sold separately)
• One or more additional internal Serial ATA data cables (sold separately)
• One or more external Serial ATA data cables (sold separately, *eSATA connector required for end connecting to the Tempo-X card*)
• One or more legacy (4-pin) power cable Y-adapters (sold separately)
• One or more legacy to Serial ATA (4-pin to 15-pin) power cable adapters (sold separately)
• One or more Ultra ATA to Serial ATA adapters (sold separately, only used to support parallel ATA drives)
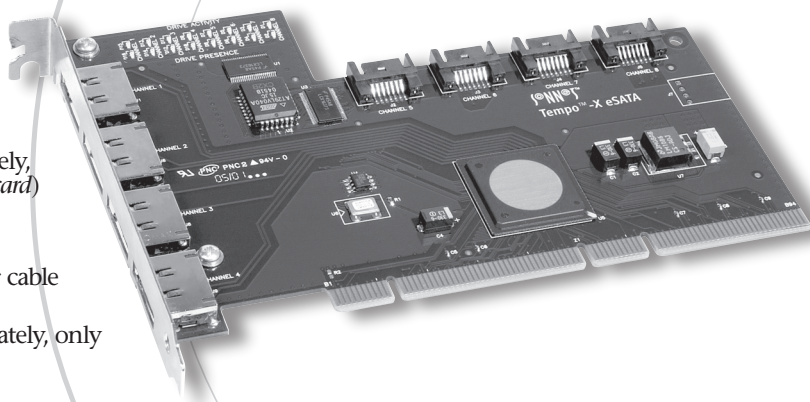
System Requirements

The Tempo-X eSATA 4+4 requires the following in order to operate in your system:

• One available PCI-X or PCI slot
• Mac OS® X Version 10.2.x or later, or Windows® XP

> **Support Notes:** We recommend that you make a backup of important information on your system's current hard drive prior to installing new hardware or software.
>
> When handling computer products, you must take care to prevent components from being damaged by static electricity. Before opening your computer or removing parts from their packages, always ground yourself first by touching a metal part of the computer, such as a port access cover, and work in an area free of static electricity; avoid carpeted areas. Handle all electronic components only by their edges, and avoid touching connector traces and component pins. Also, avoid touching the logic board and any of its components.

> ⚠ **WARNING FOR MAC USERS:** This product is not compatible with the HighPoint RocketRAID product or the kernel extension installed by its supporting software. If you have the HighPoint product installed in your system, **be sure to remove the HPTRAIDController.kext file before you install the Tempo-X eSATA 4+4 into your system**. Refer to the RocketRAID documentation for detailed instructions.

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Support Note: Technical knowledge may be required to gain access to the drive expansion bays in certain computers. We recommend you first consult your computer's user manual. If you feel you are unable to install the computer hardware, contact a qualified technician.

Installation Preparation

Prior to installing the Tempo-X eSATA 4+4 into your system and connecting any hard drives, you should familiarize yourself with the parts to be installed. We also strongly recommend that you read the sections in your computer's user manual that address hard drive and PCI card installation.

1. The Tempo-X eSATA 4+4 card uses both internal and external Serial ATA (SATA) data cable connectors, which require different cables. The internal connectors (SATA I) have an L-shaped "key" in the center; the external connectors (eSATA) have a straight, bar-shaped "key" in the center. **Figure 1** shows both eSATA and SATA I data cable connectors.
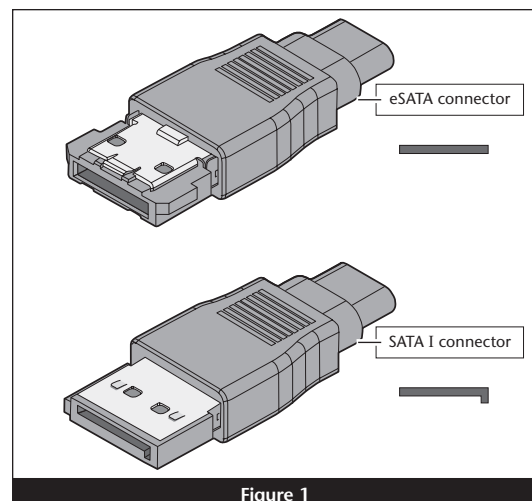
2. **Figure 2** illustrates one of the internal Serial ATA (SATA I) data cables included with the Tempo-X card; plug the straight connector into the Tempo card.

Support Note for External Drive Enclosure Users: Depending on the drive enclosure(s) used, you will either need to use data cables with eSATA connectors on both ends, or cables with an eSATA connector on one end and SATA I connector on the other end (all enclosures and cables sold separately). Note: SATA I connectors are used on SATA hard drives.
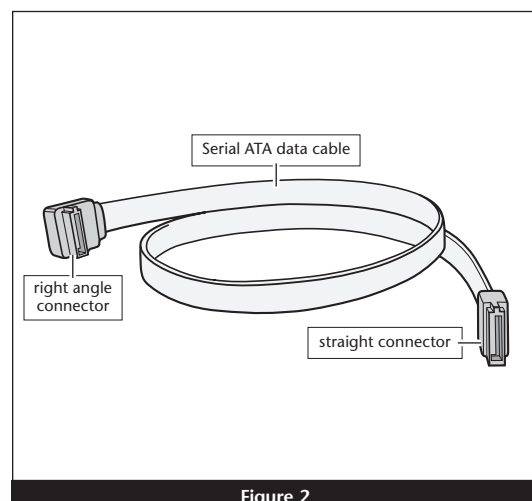

eSATA connector

SATA I connector

Figure 1

Serial ATA data cable

right angle connector

straight connector

Figure 2

3. Locate the connector block on your drive. Many Serial ATA drives are equipped with both a legacy 4-pin power connector and a Serial ATA 15-pin power connector **(Figure 3)**. Depending on your computer, you may need to use 4-pin to 15-pin power adapter cables (sold separately).

Hardware Installation Steps

This section covers the installation of the Tempo-X eSATA 4+4 into your system and connection of one or more hard drives.

1. Shut down the computer.

2. Open your computer to access its expansion card area (PCI slots) and drive bay(s); refer to your computer's user manual for specific information.

3. If you are installing any hard drives inside your computer, do so now; otherwise, skip to step 6 on page 3. (Depending on your computer model, drive mounting hardware may be required to secure your hard drives. Refer to your computer's user manual.)

4. Plug the internal SATA data cables' right angle connector into your drives; **verify the connectors are plugged in securely**. (If you are connecting three or more drives, you will need one or two additional internal SATA data cables.)
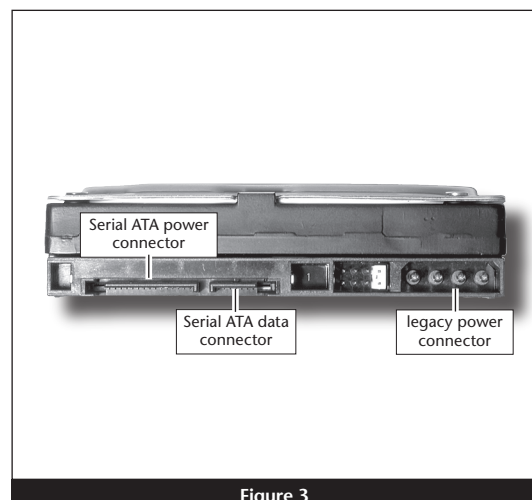

Serial ATA power connector

Serial ATA data connector

legacy power connector

Figure 3

5. Locate the power connector plugged into your computer's existing hard drive. You should find at least one extra power connector near the existing drive; if you have installed only one new drive, plug the extra power connector into it. **Connect only one power connector to the drive**. If you have installed more than one new drive, or there are no additional power connectors, you may need to use power cable Y-adapters (sold separately) or other adapters (sold separately) which will provide power to the connected hard drives. **Verify the connectors are plugged in securely**.

6. Locate an available PCI-X or PCI slot inside your computer and remove its access cover, if present, from the rear of the computer.

Support Note for Power Mac G5 Users: Most faster Power Mac G5 computers feature PCI-X slots (two 100MHz, one 133MHz, check your computer's user manual for specific information). The Tempo-X card may be installed in any of the slots and perform equally well under most circumstances. Users should be aware that when certain standard 33MHz PCI adapter cards are installed along with the Tempo-X card in the 100MHz slots (slots 2 and 3), the Tempo-X card's performance may be adversely affected.

7. Remove the Tempo-X card from its packaging, and install it into the slot; make sure the card is firmly seated.

8. Route the internal Serial ATA data cable(s) to the Tempo-X card; avoid heat sinks and make sure the cables will not get crushed or pinched by any part of the case when the computer is reassembled.

9. Plug in the internal Serial ATA data cable(s) to the Tempo-X card.

10. Check the cable connections; **make sure all cables are connected securely to the Tempo-X card and the hard drives**.

11. Secure the Tempo-X card firmly in place with the previously removed mounting screw if necessary, and then close the computer; be very careful not to pinch the cables.

12. If you are using any external drives, connect the external Serial ATA data cable(s) between the Tempo-X card and the drives or drive enclosures; **make sure all cables are connected securely to the Tempo-X card and the drives and drive enclosures**.

Support Note: Sonnet strongly recommends you use high quality external SATA cables to connect your drive enclosures to Tempo-X eSATA 4+4. Low quality cables do not offer the proper shielding and durability high quality cables afford, and may allow data to be corrupted.

13. If you are a Mac user, skip to page 5. If you are a Windows user, go to the next page.

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Windows XP Driver Installation

This section describes the installation of drivers to support the Tempo-X eSATA 4+4 in systems running Windows XP.

1. Turn on your computer; during Windows startup, two *New Hardware Found* pop-ups will briefly appear, with IDE Controller and Standard Dual Channel PCI IDE Controller listed as the new hardware types.

2. Log on to the Internet and point your web browser to: www.sonnettech.com/downloads/adapter_sw.html#tsata-xwin

3. Find the icon that matches the version of Windows XP you are using, and then click the Download button beneath it, and save the file to your desktop.

4. Click Start > Control Panel. When the *Control Panel* window appears, double-click the *System* icon.

5. When the *System Properties* window appears, click the Hardware tab, and then click Device Manager.

6. When the *Device Manager* window appears, click on the + next to IDE ATA/ATAPI controllers to expand the list. Right-click on Standard PCI IDE Controller and select Update Driver.

7. When the Hardware Update Wizard window appears, select "No, not this time", and then click Next.

8. When the next window appears, select "Install from a list or specific location (Advanced)" and then click Next.

9. When the next window appears, select "Don't search. I will choose the driver to install" and then click Next.

10. When the next window appears requesting you to select the device driver, select Standard Dual Channel PCI IDE Controller from the list, and then click Have Disk…

11. When the *Install From Disk* window appears, click Browse.

12. Navigate to and open the Tempo-X Windows XP or Tempo-X Windows XP x64 folder, select "mvsata", and then click Open.

13. When the *Hardware Update Wizard* window appears again, click Next.

14. When the *Hardware Installation* window appears, the Tempo-X eSATA card will be identified as "Marvel Serial ATA PCI-X Adapter"; click Continue Anyway and the driver will be installed.

15. When the next window appears, click Finish.

16. Click Start > Turn Off Computer, and then click Restart; you may now format drives attached to the Tempo-X card.

Windows Drive Formatting

If you intend to format drives connected to the Tempo-X eSATA 4+4 using Windows drive formatting tools, you may locate the information by using "format volume" as the search item in Windows Help.

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Drive Formatting—Individual Drives (Not in a RAID Array)

This section describes the process of formatting (initializing) individual hard drives connected to the Tempo-X eSATA 4+4 using Disk Utility under Mac OS X Version 10.3; the process under Versions 10.4 and 10.2 are very similar. If you intend to create a RAID array with the drives attached to the Tempo-X card, skip to "Drive Formatting—RAID Arrays" on the next page.

1. Turn on your computer. During startup, your computer may display a message(s) referring to unreadable volumes; click Initialize… to launch Disk Utility **(Figure 4)**.
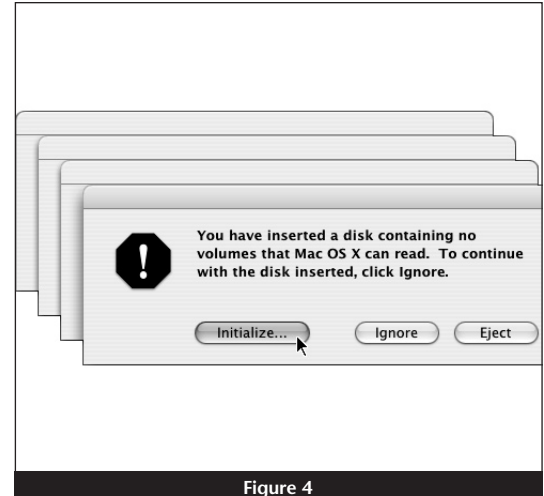
Figure 4

2. If it is not already open, launch Disk Utility **(Figure 5)**. Note that all attached drives appear in the information window, regardless of being formatted or not.
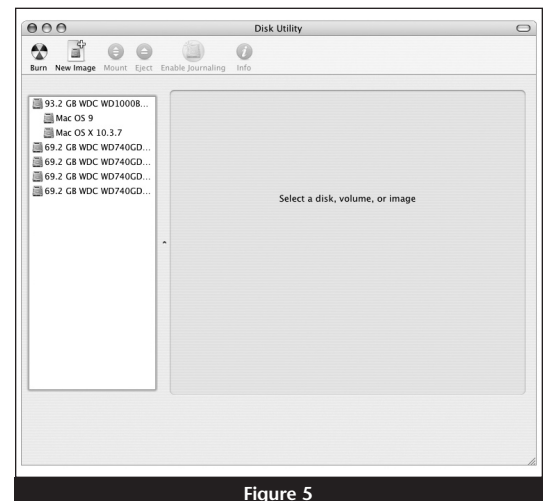
Figure 5

Support Note: All hard drives connected to the Tempo-X card will be described by Disk Utility as having an internal connection **(Figure 6)**.

3. Select the drive you want to format by single clicking the drive symbol or the "name" of the drive **(Figure 6)**. At the bottom of the window, drive capacity and connection type are listed.

4. Click on the Partition button **(Figure 6)**. Click on the drop down menu beneath "Volume Scheme:" and select a number of partitions for the volume; you may optionally choose to partition each drive to create two or more smaller "virtual" drives.

5. Click to highlight a partition, and then type a name in the Name field; repeat for each partition **(Figure 6)**. After formatting, each will appear in the Finder window as a drive. If you need to access a drive or partition from Mac OS 9, be sure to click the Install Mac OS 9 Drivers checkbox.
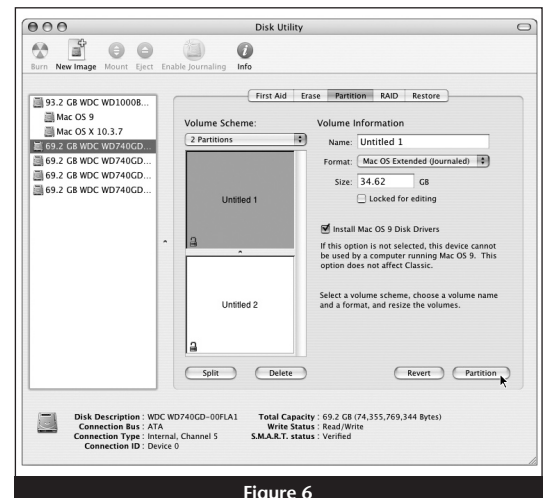
6. Click Partition **(Figure 6)**.

Figure 6

Drive Formatting—Individual Drives (continued)

7. When the *Partition Disk* window appears, click the Partition button **(Figure 7)**. If necessary, repeat steps 3–6 to partition any other drives connected to the Tempo-X card. When partitioning and formatting are complete, close the Disk Utility application; you can now use your drive(s).

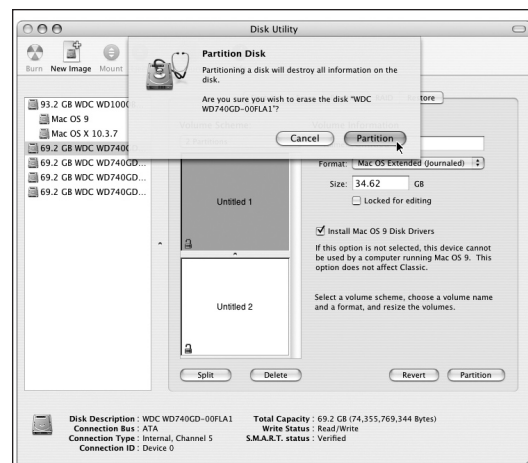> 📞 **Support Note:** See page 8 for port identification and information on Tempo-X eSATA 4+4's status LEDs.

Figure 7

Drive Formatting—RAID Arrays

This section describes the process of formatting (initializing) multiple hard drives connected to the Tempo-X eSATA 4+4 to create a RAID 0 (striped) array using Disk Utility under Mac OS X Version 10.3; the process under Versions 10.4 and 10.2 are similar. If you choose to do so, you may format your drives using SoftRAID 3.1 or later; refer to that product's documentation for instructions.

1. Turn on your computer. During startup, your computer may display a message(s) referring to unreadable volumes; click Initialize… to launch Disk Utility **(Figure 8)**.
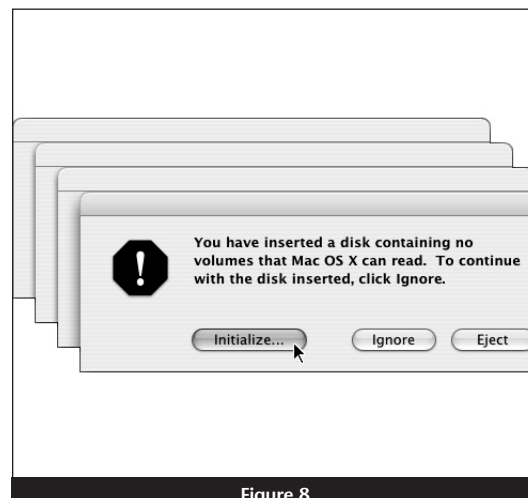
Figure 8

2. If it is not already open, launch Disk Utility **(Figure 9)**. Note that all attached drives appear in the information window, regardless of being formatted or not.
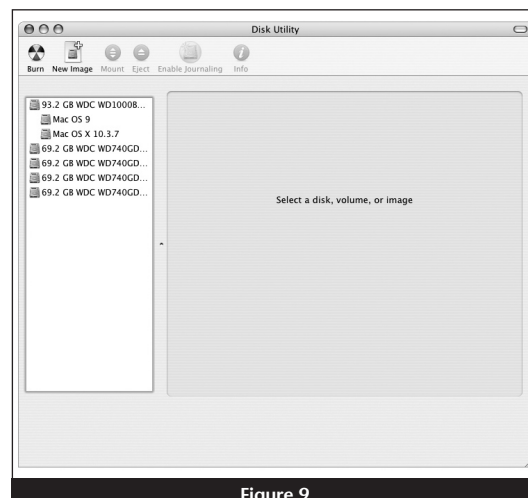
Figure 9

Drive Formatting—RAID Arrays (continued)

Support Note: The remaining steps in this section describe the creation of a RAID 0 (striped) array. If you intend to create a RAID 1 (mirrored) array, the procedure is similar to the remaining steps. Please refer to Disk Utility help for further information.

Figure 10

3. Select one of the drives you want to format in a RAID array by single-clicking the drive symbol or the "name" of the drive **(Figure 10)**. At the bottom of the window, drive capacity and connection type are listed.

Support Note: All hard drives connected to the Tempo-X card will be described by Disk Utility as having an internal connection.

4. Click the RAID tab in the *Disk Utility* window, select all the drives you will use to create your RAID 0 (Stripe) array, and drag them into the disk field **(Figure 10)**. **Be careful NOT to accidentally drag in a drive you don't want included in the RAID**.

5. From the drop-down menus, select the RAID scheme (stripe) and the volume format, and then type in the name for your RAID volume **(Figure 10)**.

Figure 11

6. When the *Creating RAID* window appears, click the Create button; all of the selected drives will be formatted and the RAID volume created **(Figure 11)**. Close Disk Utility; your drives are now ready to use and your installation is complete.

Support Note: See page 8 for port identification and information on Tempo-X eSATA 4+4's status LEDs.
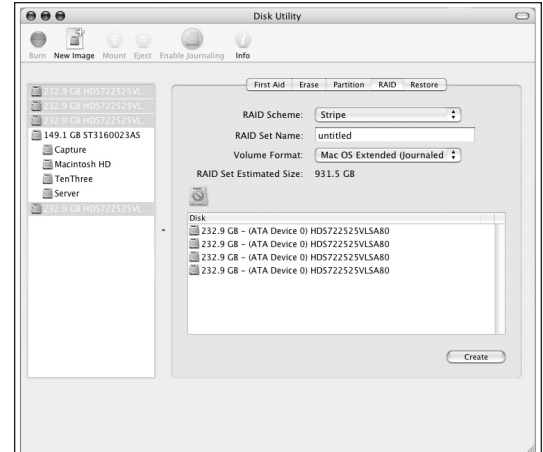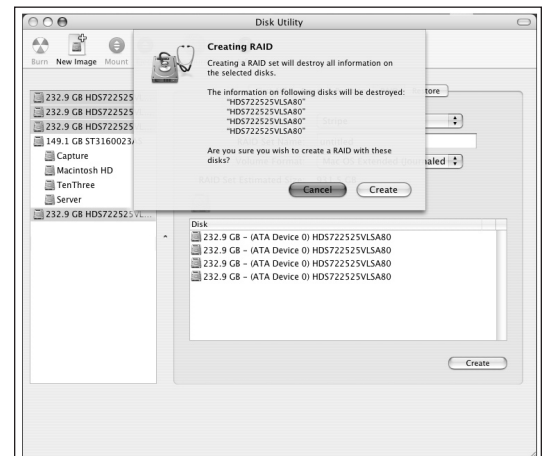
Quick Start Guide for Tempo-X eSATA 4+4

About Tempo-X eSATA 4+4's Ports and LEDs

1. Each port on the Tempo-X card is assigned a channel number that may be helpful if you need to diagnose any issues **(Figure 12)**.
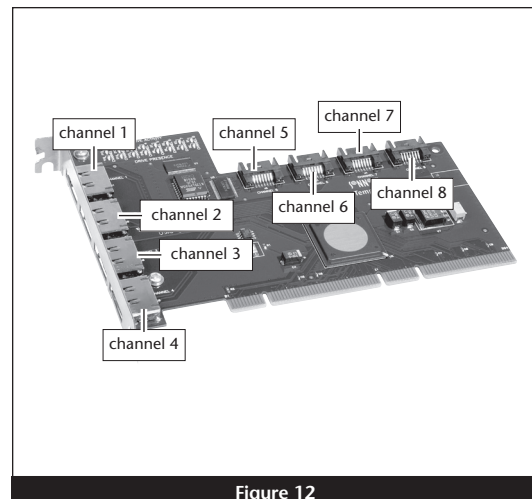

Figure 12

2. When drives connected to the Tempo-X card are powered and active, the status LEDs on the card will light **(Figure 13)**:
• Green LED ON: Drive is present and ready.
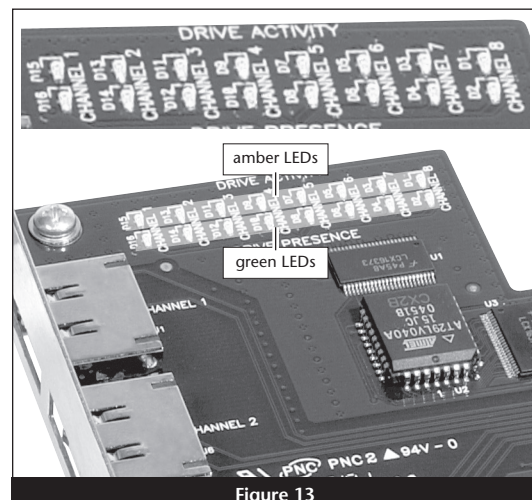• Amber LED ON/Flashing: Drive is reading/writing data.

Figure 13