

## SATA150 RAID 2 Port PCI Host

### Important Message to RAID User:

1. Before the installation of controller card, please to study the PDF file of SATA Raid manual at enclosed CD folder \ SATA Raid 2Port \ S13x12 \ Win98\_me\_2000\_xp\_nt4.0 \ Gui first. This Raid manual has more information on Raid architecture, Raid features, Raid installation, Raid setting and Management software for Raid GUI (Graphical User Interface).
2. After driver installation, if you like, you can install SATA RAID GUI for Raid management. Before SATA RAID GUI installation, you must remove all the existing SATA RAID GUI (or Java SATA RAID GUI) to ensure your new SATA RAID GUI can work properly.  
i.e. : ( \ Start \ Control Panel \ Add or Remove Programs \ Select all SATA RAID \ Remove)
3. For the creating and management of Raid sets, you can either use BIOS utility setting before Windows operation or use GUI setting under Windows.

### 1. Introduction

The SATA RAID 2 Port PCI Host Adapter is a PCI to dual Serial ATA host controller board. It provides a 32bit, 33/66 MHz PCI interface on the host side and dual, fully compliant Serial ATA ports on the device side to access SATA storage devices.

The board can be used to upgrade your desktop computer to have dual Serial ATA Channels and support RAID 0 and RAID 1 features.

The board supports Serial ATA Generation 1 transfer rate of 1.5 Gb/s (150 MB/s). It comes completely with drivers for Windows Vista, 2003, NT 4.0, 2000 and XP.

RAID, Redundant Array of Independent Disks, greatly enhances two main areas of data storage: performance and data integrity. By using RAID 0, also known as Striping, performance of sustained data transfer rates is greatly enhanced by simultaneously writing data to 2 drives. The second benefit of RAID is data redundancy. RAID 1, Mirroring, writes identical data on two

drives or sets of drives, thus protecting the data from a disk failure. If, for any reason, one drive were to fail, your data is secure and available from the mirrored second drive.

## 1.1. Features

### 1.1.1. PCI Interface

- Compliant with PCI Specification, revision 2.2.
- Integrated PCI DMA engines.
- 32 bit, 33/66MHz fully compliant PCI host interface.

### 1.1.2. High Speed Serial ATA Interface

- Dual high speed Serial ATA ports, each supporting 1st generation Serial ATA data rates (1.5Gb/s).
- Provides RAID 0 (Striping) to greatly increase the performance of data transfer by simultaneously writing data to 2 drives.
- Provides RAID 1 (Mirroring) to protect the data from a disk failure by writing identical data on 2 drives.
- Fully compliant with Serial ATA 1.0 specifications.
- Supports Spread Spectrum in receiver.
- Independent 256-byte FIFOs (32 bit \* 64 deep) per Serial ATA channel for host reads and writes.

## 1.2. Package Contents

- SATA RAID 2 Port PCI Host Adapter
- Users Manual
- Driver CD

## 2. What Is RAID

### RAID - Redundant Array of Independent Disks

RAID technology manages multiple disk drives to enhance I/O performance and provide redundancy in order to withstand the failure of any individual member, without loss of data. This card provides two RAID Set types, Striped (RAID 0) and Mirrored (RAID 1).

### Disk Striping (RAID 0)

Striping is a performance-oriented, non-redundant data mapping technique. While Striping is discussed as a RAID Set type, it is actually does not provide fault tolerance. With modern SATA bus mastering technology, multiple I/O operations can be done in parallel, enhancing performance. Striping arrays use multiple disks to form a larger virtual disk.

### Disk Mirroring (RAID 1)

Disk mirroring creates an identical twin for a selected disk by having the data simultaneously written to two disks. This redundancy provides instantaneous protection from a single disk failure. If a read failure occurs on one drive, the system reads the data from the other drive.

## 3. BIOS Installation (RAID Setting)

Creating and deleting RAID sets is a function found in the BIOS. During boot up, the RAID setting message will appear and pause for a few moments to allow the user to choose what to do. This board will act as normal NON-RAID card when BIOS not configured for RAID. Just proceed to Software Installation section directly. If you use traditional parallel ATA HDD, make sure your hard drives be set up as master mode before the RAID setting.

### 3.1. Creating Striped Sets (RAID 0)

1. As the BIOS boots, Press CTRL+S or F4 to enter the raid bios utility.
2. Select **Create RAID set**. Press **Enter**.
3. Select **Stripe** then press **Enter**.
4. Select **Auto configuration**. Press **Enter**.
5. Press **Y** to save your settings.
6. Press **CTRL+E** and then press **Y** to exit the setup.
7. Continue with conventional Fdisk and Format steps as if you are installing a conventional hard drive.
8. Your RAID configuration is complete. Please proceed to software installation section.

### 3.2. Creating Mirrored Sets (RAID 1)

1. As the BIOS boots, Press CTRL+S or F4 to enter the raid bios utility.
2. Select **Create RAID set**. Press **Enter**.

3. Select **Mirrored** then press **Enter**.
4. Select **Auto configuration**. Press **Enter**.
5. Press **Y** to save your settings.
6. Press **CTRL+E** and then press **Y** to exit the setup.
7. Continue with conventional Fisk and Format steps as if you are installing a conventional hard drive.
8. Your RAID configuration is complete. Please proceed to software installation section.

### 3.3. Deleting RAID Sets

1. As the BIOS boots, Press **CTRL+S** or **F4** to enter the raid bios utility.
2. Select **Delete RAID set**. Press **Enter**.
3. Answer **Y** to remove the RAID set. If the RAID set being deleted is a Striped set, then all of the data will be lost. If the set being deleted is a Mirrored set, then the data will remain intact and accessible on both drives.

### 3.4. Rebuilding Mirrored Sets

1. After replacing the failed hard drives boot the BIOS, Press **CTRL+S** or **F4** to enter the raid bios utility.
2. Select **rebuilding Mirrored set**. Press **Enter**.
3. Select **Online rebuild** or **Offline rebuild**.
4. Answer **Y** to rebuild the Mirrored set of hard drive.

### 3.5. Resolving Conflict

When a RAID set is created, the metadata written to the disk includes drive connection information (Primary and Secondary). If, after a disk failure, the replacement disk was previously part of a RAID set (or used in another system), it may have conflicting metadata, specifically in reference to the drive connection information. If so, this will prohibit the RAID set from being either created or rebuilt. In order for the RAID set to function properly, this old metadata must be first overwritten with the new metadata. To resolve this, select **Resolve Conflicts**, and the correct metadata, including the correct drive connection information, will be written to the replacement disk.

## 4. Software Installation

### 4.1. Windows 98/98SE Driver Installation

#### For New Windows 98/98 SE Systems (Fresh Installation)

1. After the **SATA RAID PCI Host Adapter** and attached drives are configured, follow Microsoft procedures to install Windows accordingly.
2. Once Windows has been installed, double click **My Computer/Control Panel/System**, then click **Device Manager**.
3. Double click **Other Devices** then **PCI RAID Controller**.
4. Click **Driver** tab, then **Update Driver**.
5. Insert the Driver diskette and click **Next**.
6. Select **Search for a better driver than the one ...** option and click **Next**.
7. Check **Specify a location**, uncheck the other boxes, type in **E:\ (if your CD-ROM/DVD is E:\)** and click **Browse**.
8. Points specify a location, example **E:\SATA Raid\_2Port\SI13x12\Win98\_me\_2000\_xp\_nt4.0 \ Driver**, click **OK** and then **Next**.
9. Click **Next** and then **Finish**.
10. Remove the Driver CD and click **Yes** to restart Windows to complete driver installation.

#### For Existing Windows 98/98 SE Systems

1. After the **SATA RAID PCI Host Adapter** and attached drives are configured, boot up Windows.
2. At the **Add New Hardware Wizard**, click **Next**.
3. Select **Search for the best driver for your device** option and then click **Next**.
4. Insert the Driver CD, check **Specify a location**, uncheck the other boxes, and click **Browse**.
5. Points specify a location, example **E:\SATA Raid\_2Port\SI13x12\Win98\_me\_2000\_xp\_nt4.0 \ Driver**, click **OK** and then **Next**. (If your CD-ROM/DVD is E:\)
6. Click **Next** and then **Finish** respectively.

### 4.2. Windows ME Driver Installation

#### For New Windows ME Systems (Fresh Installation)

1. After the **SATA RAID PCI Host Adapter** and attached drives are configured, follow Microsoft procedures to install Windows accordingly.
2. Once Windows has been installed, click **My Computer**, then click **Properties**, click **Device Manager** tab.
3. Double click **Other Devices** then **PCI RAID Controller**.
4. Click **Driver** tab, then **Update Driver**.

5. Insert the Driver CD, check **Specify the location of the driver (Advanced)** and click **Next**.
6. Select **Search for the better driver option**, check **Specify a location**, uncheck **Removable Media**, type in E:\ (If your CD-ROM/DVD is E:\), and click **Browse**.
7. Points specify a location, example E:\SATA Raid\_2Port\Sil3x12\Win98\_me\_2000\_xp\_nt4.0 \ Driver, click **OK** and then **Next**.
8. Click **Next** and then **Finish**.
9. Remove the Driver diskette and click **Yes** to restart Windows to complete driver installation.

#### For Existing Windows ME Systems

1. After the *SATA RAID PCI Host Adapter* and attached drives are configured, boot up Windows.
2. At the **Add New Hardware Wizard**, check **Specify the location of the driver (advanced)**, and click **Next**.
3. Insert the Driver CD, check **Specify a location**, uncheck the other boxes, and click **Browse**.
4. Points specify a location, example E:\SATA Raid\_2Port\Sil3x12\Win98\_me\_2000\_xp\_nt4.0 \ Driver, click **OK** and then **Next**. (If your CD-ROM/DVD is E:\)
5. Click **Next** and then **Finish**.

#### Verification of the Proper Installation for Windows 98/98SE/ME

1. Double click **My Computer/Control Panel/System**. Click **Device Manager** tab.
2. Double click **SCSI Controllers**, **Silicon Image Sil-3x12 SATA Raid Controller** should be listed.
3. Highlight **Silicon Image Sil-3x12 SATA Raid Controller** and click **Properties**. A message *This device is working properly* is displayed in the dialog box, the driver has been correctly installed. If any error message is displayed, remove **Silicon Image Sil-3x12 SATA Raid Controller** and restart your system.

#### 4.3. Windows NT 4.0 Driver Installation

##### For New Windows NT 4.0 System (Fresh Installation)

1. Before installation, copy all the files under directory E:\SATA Raid\_2Port\Sil3x12\Win98\_me\_2000\_xp\_nt4.0\driver\\*.\* to a blank floppy disk.
2. After the *SATA RAID PCI Host Adapter* and attached drives are configured,

follow Microsoft procedures to install Windows accordingly.

3. At the **Windows Set-up** screen, press **F6** to specify and add the driver.
4. Press **S**, select **Other**, then press **Enter**.
5. Insert the Driver diskette and press **Enter**.
6. Select **Silicon Image Sil-3x12 SATA Raid Controller Driver** and press **Enter**.
7. Press **Enter** to continue and follow on-screen instructions to complete Windows NT 4.0 installation.

##### Add Windows NT 4.0 Driver on Original Booting Device

1. After the *SATA RAID PCI Host Adapter* and attached drives are configured, boot up Windows. Double click **My Computer/Control Panel/SCSI Adapters**, then click the **Drivers** tab.
2. Click **Add...** then **Have Disk...**
3. Insert the Driver CD in your CD-ROM/DVD drive and type in E:\ (If your CD-ROM/DVD is E:\), then click **Browse**.
4. Points specify a location, example E:\SATA Raid\_2Port\Sil3x12\Win98\_me\_2000\_xp\_nt4.0 \ Driver, click **Open** then **OK**.
5. Highlight **Silicon Image Sil-3x12 SATA Raid Controller** and click **OK**.

#### Verification of the Proper Installation for Windows NT 4.0

1. Double click **My Computer/Control Panel/SCSI Adapters**.
2. Highlight **Silicon Image Sil-3x12 SATA Raid Controller** and click **Properties**. *This device is working properly* is displayed in the dialog box, the driver has been correctly installed.

#### 4.4. Windows 2000 Driver Installation

##### For New Windows 2000 Systems (Fresh Installation)

1. Before installation, copy all the files under directory E:\SATA Raid\_2Port\Sil3x12\Win98\_me\_2000\_xp\_nt4.0\driver\\*.\* to a blank floppy disk.
2. After the *SATA RAID PCI Host Adapter* and attached drives are configured, follow Microsoft procedures to install Windows accordingly.
3. At the **Windows Set-up** screen, press **F6** to specify and add the driver.
4. Insert the Driver diskette. Press **S**, then press **Enter**.
5. Select **Silicon Image Sil-3x12 SATA Raid Controller Driver** and press **Enter**.
6. Press **Enter** to continue and follow on-screen instructions to complete installation.



#### Add Windows 2000 Driver on Original Booting Device

1. After the **SATA RAID PCI Host Adapter** and attached drives are configured, boot up Windows.
2. At the **Found New Hardware Wizard**, click **Next**.
3. Select **Search for a suitable driver for my device (recommended)** and click **Next**.
4. Insert the Driver CD in your CD-ROM/DVD drive, check **Specify a location**, uncheck the other boxes, click **Next**, type in E:\ (If your CD-ROM/DVD is E:\). Click **Browse**.
5. Points specify a location, example E:\SATA Raid\_2Port\Sil3x12\Win98\_me\_2000\_xp\_nt4.0 \ Driver, click **Open** then **OK**.
6. If the **Digital Signature Not Found** message appears, click **Yes**. (Note If prompted for Windows 2000 CD-ROM, insert the CD and click **OK**. Type in E:\I386, click **OK** and **Finish**. (assuming E: is your CD-ROM drive))
7. Click **Finish**.

#### 4.5. Windows Vista/XP Driver Installation

##### For New Windows Vista/XP Systems (Fresh Installation)

1. Before installation, copy all the files under directory E:\SATA Raid\_2Port\Sil3x12\Win98\_me\_2000\_xp\_nt4.0\driver\\*.\* to a blank floppy disk.
2. After the **SATA RAID PCI Host Adapter** and attached drives are configured, follow Microsoft procedures to install Windows accordingly.
3. At the **Windows Set-up** screen, press **F6** in order to specify and add the driver.
4. Insert the Driver diskette. Press **S**, then press **Enter**.
5. Select **Silicon Image Sil-3x12 SATA Raid Controller Driver** and press **Enter**.
6. Press **Enter** to continue and follow on-screen instructions to complete Windows XP installation. **Note:** When the **Software Installation** warning pops up, click **Yes**. And when the **Hardware Installation** warning pops up, click **Yes** again.

##### Add Windows Vista/XP Driver on Original Booting Device

1. After the **SATA RAID PCI Host Adapter** and attached drives are configured, boot up Windows.
2. At the **Found New Hardware Wizard**, check **Install from a list or specific location (advanced)**, then click **Next**.
3. Insert the Driver CD. Check **Include this location in the search**, uncheck the other box, type in E:\, and click **Browse**.
4. Points specify a location, example E:\SATA Raid\_2Port\Sil3x12\

Win98\_me\_2000\_xp\_nt4.0 \ Driver, click **OK** then **Next**.

5. When a warning message pops up, click **Continue Anyway**, then click **Finish**.

#### Verification of the Proper Installation for Windows Vista/2000/XP

1. Double click **My Computer/Control Panel/System**.
2. Click **Hardware** then click **Device Manager**.
3. Double click **SCSI and RAID Controllers**, then double click **Silicon Image Sil-3x12 SATA Raid Controller** to display driver properties.
4. A message **This device is working properly** is displayed in the dialog box, the driver has been correctly installed.

#### 5. Spec of Optional Mini DIN 1.5A5V & 2A12V

##### Power Source for External Device

6PIN MINI DIN Connector

