PCIe SATA II 300 2-Channel RAID Card

User Manual

Ver. 2.00

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Features and Benefits

- Compliant with PCI Express Base Specification 1.0a
- Compliant with Serial ATA 1.0 specification with support for full complement of SATA II optional features
- Installs in any available PCI Express slot and supports data transfer rates up to 3.0Gbps
- Supports Native Command Queuing (NCQ), Non-zero offsets NCQ, and Out-of-order data delivery NCQ
- Supports RAID 0(striping) and RAID 1(mirroring) for speed and data protection respectively

Bus Inerface

- PCI-Express x 1

Connectors

- 2 x internal SATA connectors
- 2 x external eSATA connectors

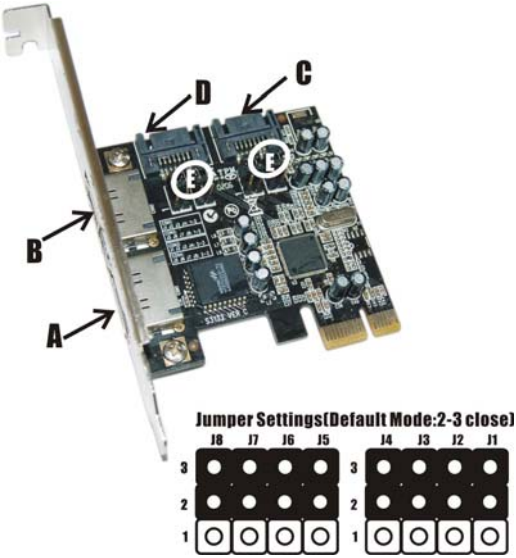
System Requirements

- PCI Express-enabled system with one available PCI Express slot
- Windows® 2000/XP/Server 2003/Vista

Package Contents

- 1 x PCIe SATA II 300 2-Channel RAID Card
- 1 x Driver CD
- 1 x SATA Data Cable
- 1 x Manual

Hardware Description



E (Jumper Settings)		
JP	**Description**	**Active Port**
J1-J4	**1-2 close**	**Enable SATA Port A**
	2-3 close	**Enable SATA Port C**
J5-J8	**1-2 close**	**Enable SATA Port B**
	2-3 close	**Enable SATA Port D**

Note: There are four SATA ports in PCIe SATA II 300 2-Channel RAID Card. We named these ports A to D. Ports A & B are external SATA ports and C & D are internal SATA ports. By changing the jumper setting on Encore SATA2 RAID PCIe Card that allows you to select between external and internal ports to use. By default, Port C and D are working.

Hardware Installation

1. Turn Off the power to your computer and any other connected peripheral devices.
2. Unplug the power cord from the back of the computer.
3. Remove your computer's cover.
4. Remove the slot bracket from an available PCI Express slot.
5. To install the card, carefully align the card's bus connector with

the selected PCI Express slot on the motherboard. Push the board down firmly, but gently, until it is well seated.

6. Replace the slot bracket's holding screw to secure the card.

Device Connection

Serial ATA hard drives should come with their own accessories. In most cases, you just need to power up the device and connect them to the ports. The PCIe SATA II 300 2-Channel RAID Card is two channel Serial ATA controller that supports two Serial ATA hard disk drives. It is recommended to use identical drives for all RAID configurations. However, it's possible to combine hard drives of different sizes and makes.

RAID Arrays

RAID Arrays are setup in the PCIe SATA II 300 2-Channel RAID Card's BIOS.

RAID 0 (Striping)

This RAID array to be used on **New/Blank** hard drives. Striping will destroy existing data on the hard drive. **Auto Configuration** is recommended. For applications that require custom chunk size,

Manual Configuration is offered.

Auto configuration (recommended)

The default chunk size is **64k** when selecting **Auto configuration**.

1. As the BIOS boots press **Ctrl+S** or **F4** when prompted to enter the RAID BIOS.
2. At the next screen select **Create RAID Set**, then press **Enter**.
3. Select **RAID0**, then press **Enter**.
4. Select **Auto configuration**, then press **Enter**.
5. Input the RAID size, press **Enter**.
6. When asked **Are You Sure (Y/N)?**, press **Y** to accept.
7. Press **Ctrl+E** to exit the BIOS.
8. When asked **Are you sure to exit (Y/N)?**, press **Y** to exit and reboot.
9. Continue with FDISK and FORMAT steps as if you were installing a conventional hard drive.

Manual configuration

1. As the BIOS boots press **Ctrl+S** or **F4** when prompted to enter the RAID BIOS.
2. At the next screen select **Create RAID Set**, then press **Enter**.
3. Select **RAID0**, then press **Enter**.

4. Select **Manual configuration** then press **Enter**.
5. Select chunk size from **8k**, **16k**, **32k**, **64k** or **128k**, then press **Enter**.
6. Select the **first drive**, press **Enter**.
7. Select the **second drive**, press **Enter**.
8. Input the RAID size, press **Enter.**
9. When asked **Are You Sure(Y/N)?**, press **Y** to accept.
10. Press **Ctrl+E** to exit the BIOS.
11. When asked **Are you sure to exit(Y/N)?**, press **Y** to exit and reboot.
12. Continue with FDISK and FORMAT steps as if you were installing a conventional hard drive.

RAID 1 (Mirror)
For New/Blank Hard Drives

1. As the BIOS boots press **Ctrl+S** or **F4** when prompted to enter the RAID BIOS.
2. At the next screen select **Create RAID Set**, then press **Enter**.
3. At the next screen select **RAID1** then press **Enter**.
4. Select **Auto configuration**, then press **Enter**.
5. Input the RAID size, press **Enter**.

6. When asked **Are You Sure(Y/N)?**, press **Y** to accept.
7. Press **Ctrl+E** to exit the BIOS.
8. When asked **Are you sure to exit(Y/N)?**, press **Y** to exit and reboot.
9. Continue with FDISK and FORMAT steps as if you were installing a conventional hard drive.

For Existing Hard Drives with Data

1. As the BIOS boots press **Ctrl+S** or **F4** when prompted to enter the RAID BIOS.
2. At the next screen select **Create RAID Set**, then press **Enter**.
3. At the next screen select **RAID1** then press **Enter**.
4. Select **Manual configuration**, then press **Enter**.
5. Select the **Source** drive, press **Enter**.
6. Select the **Target** drive, press **Enter**.
7. Select **Create with data copy**, then press **Enter**.
8. Select **online copy**, then press **Enter**.

Note: Selcting **Online Copy** builds the mirror while in Windows. Selecting **Offline Copy** builds the mirror before exiting the RAID BIOS.

9. Input the RAID size, press **Enter**.

10. Press **Ctrl+E** to exit the BIOS.
11. When asked **Are you sure to exit(Y/N)?**, press **Y** to exit and reboot.

CONCATENATION (JBOD)

This RAID array allows you to use one or two hard drives to a JBOD(Just a Bunch Of Disks) array. Although JBOD doesn't offer other RAID functionality, it makes the hard disks appear to be a single one by combining the drives into one larger logical one without any capacity loss.

Rebuilding a Failed Mirror Set

When a failure to one member occurs, you will be notified by the RAID BIOS during boot. The steps below will guide you in rebuilding a failed mirror set.

1. Replace he failed drive(s) with one of equal or greater capacity, then start the computer.
2. During boot press **Ctrl+S** or **F4** to enter the RAID BIOS.
3. Select **Create RAID Set** press **Enter**.
4. Select **SPARE DRIVE**, then press **Enter**.
5. Select the single hard drive then press **Enter**.

6. Input RAID size, press **Enter**. When asked **Are You Sure(Y/N)?**, Press **Y** to confirm.
7. Select **Rebuild Raid 1 Set**, press **Enter**.
8. When asked **Are you sure(Y/N)?**, press **Y** confirm. The mirror will begin rebuilding. Do not interface with process.
9. When rebuilding is finished, press **Ctrl+E**.
10. When asked **Are you sure to exit(Y/N)?**, press **Y** to exit and reboot.

Deleting RAID Arrays

1. As the BIOS boots press **Ctrl+S** or **F4** when prompted to enter the RAID BIOS.
2. Select **Delete RAID Set**, then press **Enter**.
3. Select the RAID set then press **Enter**.
4. When asked **Are You Sure(Y/N)?**, press **Y** to confirm.

Resolving Conflicts

When a RAID set is created, then metadata written to the disk includes drive connection information. 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. 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, from the main BIOS window select **Resolve Conflicts**, then press **Enter**, the correct metadata, including the correct drive connection information, will be written to the replacement disk.

Low Level Format

Low Level Format is build into the RAID BIOS to make it more convenient to erase the entire contents of a hard disk drive, including data, drive and partition information. The Low Level Format utility works on single hard drive only, before the RAID set is configured.

Logical Drive Info

This menu item allows the display of the assignment of physical drives within a logical set(RAID0, RAID1, etc.). This is display only function.

BIOS Configuration

The PCIe SATA II 300 2-Channel RAID Card BIOS will appear every time your system starts up. If the BIOS doesn’t show, please try your

controller in another PCI Express slot. During this (POST) process, the BIOS will show up and indicate the devices attached to it.

Driver Installation

For Windows® 2000

For A New Installation

*A new installation requires a floppy disk for the driver installation. To make this floppy disk, copy the contents of the "***PCI_IO\SiI3132\Driver\RAID\FLOPPY***" folder, found on the driver CD, onto a blank floppy disk then follow the directions below.*

1. Setup the RAID Array prior to Windows installation.
2. Follow Windows® 2000 installation procedure.
3. Restart the computer when prompted by the installation.
4. At the Windows® 2000 Setup screen, press **F6** to install the RAID driver.
5. When prompted, press **S** to specify the location of the driver.
6. Insert the floppy disk, then press **Enter**.
7. Select **Silicon Image SiI 3132 SoftRAID 5 Controller for Windows 2000**, then press **Enter**.
8. Press **Enter** again to finish driver installation, then follow the on-screen instructions to complete the Windows installation.

For An Existing Installation

1. Setup the RAID Array prior to driver installation and boot up to Windows.
2. At **Found New Hardware Wizard**, click **Next**.
3. Select **Search for a suitable driver for my device (recommended)** then click **Next**.
4. Insert the CD driver bound with PCIe SATA II 300 2-Channel RAID Card into your CD-ROM Drive, check **CD-ROM drives**, uncheck the other boxes, click **Next**, then click **Next** again.
5. If the **Digital Signature Not Found** message appears, click **Yes**. Our driver has been thoroughly tested for stability and compatibility.
6. Click **Next**, then **Finish**.
7. Repeat steps **2-6**.
8. Click **Yes** to restart to complete the installation.

For Windows® XP/Server 2003

For New Installation

*A new installation requires a floppy disk for the driver installation. To make this floppy disk, copy the contents of the "***PCI_IO\SiI3132\Driver\RAID\FLOPPY***" folder, found on the*

driver CD, onto a blank floppy disk then follow the directions below.

1. Setup the RAID Array prior to Windows installation.
2. Follow Microsoft's Windows installation procedure.
3. Restart the computer when prompted by Windows' installation.
4. At the Windows Setup screen, press **F6** to install the RAID driver.
5. When prompted, press **S** to specify the location of the driver.
6. Insert the floppy disk, then press **Enter**.
7. Select **Silicon Image SiI 3132 SoftRAID 5 Controller for Windows XP/Server 2003**, then press **Enter**.
8. Press **Enter** to finish driver installation, then follow the on-screen instructions to complete the Windows installation.

Note: If the **Security Alert** warning pops up, click **Yes**. Our driver has passed Microsoft compatibility testing, this message appears during new installation.

For An Existing Installation

1. Setup the RAID Array prior to driver installation and boot up to Windows.
2. At the **Found New Hardware Wizard:**

   XP(w/SP1 or earlier)/Server 2003: continue to step #3

   XP(w/SP2 or later)/Server 2003(w/SP1 or later): select **No, not**

this time, then click **Next**.

3. Insert the CD driver bound with PCIe SATA II 300 2-Channel RAID Card into your CD-ROM Drive, select **Install the software automatically (Recommended)**, and click **Next**.
4. Accept the default entry, then click **Next**.
5. Click **Finish**.
6. Repeat steps **2-5**.
7. Click **Yes** to restart to complete the installation.

For Windows® XP-x64/Server 2003-x64

<u>For New Installation</u>

*A new installation requires a floppy disk for the driver installation. To make this floppy disk, copy the contents of the "***PCI_IO\SiI3132\Driver\64-bit Windows\RAID***" folder, found on the driver CD, onto a blank floppy disk then follow the directions below.*

1. Setup the RAID Array prior to Windows installation.
2. Follow Microsoft's Windows installation procedure.
3. Restart the computer when prompted by Windows' installation.
4. At the Windows Setup screen, press **F6** to install the RAID driver.
5. When prompted, press **S** to specify the location of the driver.

6. Insert the floppy disk, then press **Enter**.
7. Select **Silicon Image SiI 3132 SoftRAID 5 Controller (64-bit Extended)**, then press **Enter**.
8. Press **Enter** to finish driver installation, then follow the on-screen instructions to complete the Windows installation.

Note: If the **Security Alert** warning pops up, click **Yes**. Our driver has passed Microsoft compatibility testing, this message appears during new installation.

For An Existing Installation

1. Setup the RAID Array prior to driver installation and boot up to Windows.
2. At the **Found New Hardware Wizard**, select **No, not this time**, then click **Next**.
3. Insert the CD driver bound with PCIe SATA II 300 2-Channel RAID Card into your CD-ROM Drive, select **Install the software automatically (Recommended)**, and click **Next**.
4. Accept the default entry, then click **Next**.
5. Click **Finish**.
6. Repeat steps **2-5**.
7. Click **Yes** to restart to complete the installation.

For Windows® Vista

For New Installation

A new installation requires a floppy disk for the driver installation. To make this floppy disk, copy the contents of the **PCI_IO\SiI3132\Driver\RAID\FLOPPY***" folder, found on the driver CD, onto a blank floppy disk then follow the directions below.*

1. Setup the RAID Array prior to Windows installation.
2. Follow Microsoft's Windows installation procedure.
3. Restart the computer when prompted by Windows' installation.
4. At the Windows Setup screen, press **Load Driver** to install the RAID driver.
5. Insert the floppy disk, please select **Silicon Image SiI 3132 SoftRaid 5 Controller (A:\si3132r5.inf)**, then press **Next**. (Change **A:** to match your floppy drive letter)
6. Follow the on-screen instructions to complete the Windows installation.

For An Existing Installation

1. Setup the RAID Array prior to driver installation and boot up to Windows.
2. At **Found New Hardware Wizard**, select **Locate and install**

driver software (recommended).

3. Please insert the CD driver bound with Encore SATA2 RAID PCIe Card into your CD-ROM Drive, click **Next**.
4. If the system prompts the user informing the drivers are not signed, select the option **Install this driver software anyway**.
5. Click **Close** to complete the installation.

For Windows® Vista-x64

<u>For New Installation</u>

*A new installation requires a floppy disk for the driver installation. To make this floppy disk, copy the contents of the "***PCI_IO\SiI3132\Driver\64-bit Windows\RAID***" folder, found on the driver CD, onto a blank floppy disk then follow the directions below.*

1. Setup the RAID Array prior to Windows installation.
2. Follow Microsoft's Windows installation procedure.
3. Restart the computer when prompted by Windows' installation.
4. At the Windows Setup screen, press **Load Driver** to install the RAID driver.
5. Insert the floppy disk, please select **Silicon Image SiI 3132 SoftRaid 5 Controller (A:\si3132r5.inf)**, then press **Next**.

(Change **A:** to match your floppy drive letter)

6. Follow the on-screen instructions to complete the Windows installation.

<u>For An Existing Installation</u>

1. Setup the RAID Array prior to driver installation and boot up to Windows.
2. At **Found New Hardware Wizard**, select **Locate and install driver software (recommended)**.
3. Please insert the CD driver bound with PCIe SATA II 300 2-Channel RAID Card into your CD-ROM Drive, click **Next**.
4. If the system prompts the user informing the drivers are not signed, select the option **Install this driver software anyway**.
5. Click **Close** to complete the installation.

To Verify Windows® Installation

1. Right click **My Computer** and click **Manage**.
2. Select **Device Manager**.
3. Double click **SCSI and RAID Controller**, then double click **Silicon Image SiI 3132 SoftRaid 5 Controller** to display driver properties. A message this device is working properly is displayed

in the dialog box, the driver has been correctly installed.

SATARAID5 Management Software Installation

For Windows® 2000/XP/Server 2003/Vista

1. Please insert the CD driver bound with PCIe SATA II 300 2-Channel RAID Card into your CD-ROM Drive.
2. At the Windows desktop click **Start**, then **Run**.
3. Type **D:\ PCI_IO\SiI3132\Driver\RAID\32-bit Windows SATARAID5 Management Utility\3132-W-I32-Sm_15141.msi**, then click **OK**. (Change **D:** to match your CD-ROM drive letter)
4. Follow the on-screen instructions to complete the installation.

For Windows® XP-x64//Server 2003-x64/Vista-x64

1. Please insert the CD driver bound with PCIe SATA II 300 2-Channel RAID Card into your CD-ROM Drive.
2. At the Windows desktop click **Start**, then **Run**.
3. Type **D:\PCI_IO\SiI3132\Driver\64-bit Windows\64-bit Windows SATARAID5 Management Utility\ 3132-W-A64-Sm_15141.msi**, then click **OK**. (Change **D:** to match your CD-ROM drive letter)
4. Follow the on-screen instructions to complete the installation.