



**PCI SATA RAID 2 CH.
(2 External/ 2 Internal) CARD**

User Manual

Model P-DSA150-PCI-RF

Ver. 1.0

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Features and Benefits

- Connect a maximum of 2 SATA hard drives to any of the 4 connectors (Either 2 internal or 2 external) via jumpers to your desktop computer
- Supports data transfer rate of 150MBps
- Supports Native Command Queuing (NCQ) and SATA TCQ commands
- Compliant with PCI Specification, Rev. 2.3
- Compliant with Serial ATA 1.0 Specification
- Support SATA hard disk hot-plugging
- Independent command fetch, scatter/gather, and command execution
- Supports RAID0(striping) and RAID1(mirroring) for speed and data protection respectively.

Connectors

- 2 x internal SATA connectors
- 2 x external eSATA connectors (Selectable by jumpers)

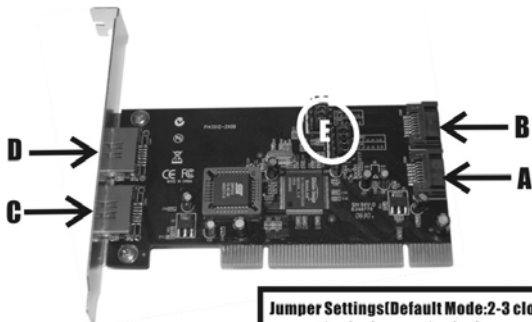
System Requirements

- One available PCI slot
- Windows® 2000, XP, Server 2003 and Vista

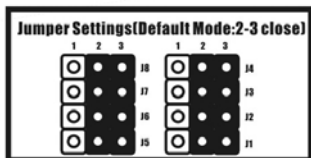
Package Contents

- 1 x PCI SATA Card
- 1 x Driver CD
- 1 x Data Cable
- 1 x Power Cable
- 1 x Manual

Hardware Description



- A. SATA Connector 1 (Internal)**
- B. SATA Connector 2 (Internal)**
- C. SATA Connector 3 (External)**
- D. SATA Connector 4 (External)**
- E. Jumpers**



Jumper	Jumper Settings	Active Port
J8		Internal SATA Port B Enabled (Con2)
J7		
J6		
J5		

J8 J7 J6 J5		External SATA Port D Enabled (Con4)
J4 J3 J2 J1		Internal SATA Port A Enabled (Con1)
J4 J3 J2 J1		External SATA Port C Enabled (Con3)



**There are four SATA ports on the card.
However only two of the four ports may be
enabled at any time.**

NOTE

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 slot.
5. To install the card, carefully align the card's bus connector with the selected PCI 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

The SATA PCI RAID Card is a two channel Serial ATA controller that supports up to two Serial ATA hard disk drives. It is recommended to use identical hard drives for all RAID configurations.

1. Install your hard disk drive(s) in chassis.
2. Connect the Serial ATA hard disk drive to the system power supply using the included Serial ATA power cable.
3. Connect one end of the Serial ATA cable to the hard disk drive.
4. Attach the other end of the Serial ATA cable to the Serial ATA port on the SATA 150 PCI Raid Card 2-Channel

5. Follow the same instructions to connect up to two hard drives.
Device connection is now complete.
6. Replace the computer cover and reconnect the power cord.

RAID Arrays

RAID Arrays are setup in the card's on-board BIOS. Refer to the following steps for proper configuration of RAID Arrays.

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 **Auto configuration** is selected.

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 **Striped**, then press **Enter**.
4. Select **Auto configuration**, then press **Enter**.

5. When asked **Are You Sure (Y/N)?**, press **Y** to accept.
6. Press **Ctrl+E** to exit the BIOS.
7. When asked **Are you sure to exit (Y/N)?**, press **Y** to exit and reboot.
8. Continue with steps outlined in Appendix A for formatting your hard disk 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 **Striped**, then press **Enter**.
4. Select **Manual configuration** then press **Enter**
5. Select the **first drive**, press **Enter**.
6. Select the **second drive**, press **Enter**.
7. Select chunk size from **4k, 8k, 16k, 32k, 64k** or **128k**, then press **Enter**.
8. When asked **Are You Sure(Y/N)?**, press **Y** to accept.
9. Press **Ctrl+E** to exit the BIOS.
10. When asked **Are you sure to exit(Y/N)?**, press **Y** to exit and reboot.

11. Continue with steps outlined in Appendix A for formatting your hard disk 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 **Mirrored** then press **Enter**.
4. Select **Auto configuration**, then press **Enter**.
5. When asked **Are You Sure(Y/N)?**, press **Y** to accept.
6. Press **Ctrl+E** to exit the BIOS.
7. When asked **Are you sure to exit(Y/N)?**, press **Y** to exit and reboot.
8. Continue with steps outlined in Appendix A for formatting your hard disk 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 **Mirrored** 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. Enable **Disk Copy**, select **Yes**, then press **Enter**.

Note: Enable Disk Copy – Copy current content of source driver to mirror drive; Disable Disk Copy – RAID 1 set formed must be repartitioned and reformatted to guarantee the consistency in their contents.

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

Note: If during boot the RAID BIOS reports an **RAID1 set is in Rebuild status, The rebuild will continue after boot sequence is complete**, disregard the message, continue booting, and let the Mirror rebuild.

Rebuilding a Failed Mirror Set

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

1. Replace the failed drive 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 **Rebuild Mirrored Set** then press **Enter**.
4. Select the desired set and then press **Enter**.
5. Select **online rebuild** if you wish to rebuild the mirror in the background when you boot into Windows. Select **offline rebuild** if you wish to rebuild the mirror now. This might take some time.
6. When asked **Are You Sure(Y/N)?**, press **Y** to confirm.
7. The set will be rebuilt.

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. If **Resolve Conflicts** does not solve the problem, the RAID metadata on the replacement disk must be manually deleted using the following steps:

1. Power off the computer and disconnect all drives from the SATA card, leaving only the replacement drive connected.
2. Power on the computer and follow the section “Deleting RAID Arrays” to delete the RAID metadata on the replacement drive.
3. Power off the computer. Re-connect the primary mirror and

follow the section “Rebuilding a Failed Mirror Set” to rebuild the mirror.

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.

BIOS Configuration

The Serial ATA 2-Channel RAID adapter BIOS will appear every time your system starts up. If the BIOS doesn't show, please try your controller in another PCI 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\Sata\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 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 3x12 SATARAID Controller for Windows NT 4.0 and 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 (recommend)** then click **Next**.
4. Insert the driver CD, 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 **Finish**.

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\Sata\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 3x12 SATARaid 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 driver CD, select **Install the software automatically (Recommended)**, and click **Next**.
4. Click **Finish**.

For Windows®XP-x64/Server 2003-x64

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\Sata\64-bit Windows RAID Driver” 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. Inset the floppy disk, then press **Enter**.
7. Select **Silicon Image SiI 3x12 SATAraid Controller (64-bit Extended)** or **Silicon Image SiI 3x12 SATAraid Controller (Itanium)**, 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 driver CD, select **Install the software automatically (Recommended)**, and click **Next**.
4. Click **Finish**.

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\Sata\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 3512 SATAraid Controller (A:\si3112r.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 SATA 150 PCI 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.

For Windows® Vista-x64

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\Sata\64-bit Windows RAID Driver” 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 3512 SATAraid Controller (A:\si3112r.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 SATA 150 PCI 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 **Storage controllers**, then double click **Silicon**

Image SiI 3512 SATAraid Controller to display driver properties. A message this device is working properly is displayed in the dialog box, the driver has been correctly installed.

JAVA 2 Runtime Environment Installation

The Java 2 Runtime Environment is required for the SATARAID Management Software.

1. Please insert the CD driver bound with SATA 150 PCI RAID card into your CD-ROM Drive.
2. At the Windows desktop click **Start**, then **Run**.
3. Type
D:\PCI_IO\Sata\Medley\jre-1_5_0_05-windows-i586-p.exe, then click **OK**. (Change **D:** to match your CD-ROM drive letter)
4. Follow the on-screen instructions to complete the installation.

SATARAID Management Software Installation

1. Please insert the CD driver bound with SATA 150 PCI RAID card into your CD-ROM Drive.
2. At the Windows desktop click **Start**, then **Run**.
3. Type
D:\PCI_IO\Sata\Medley\InstallSATARAid.exe, then click **OK**.

(Change **D:** to match your CD-ROM drive letter)

4. Follow the on-screen instructions to complete the installation.
5. Start the SATARaid program (Start -> All Programs -> JAVA SATARaid). Refer to the SATARaid online help to learn more about SATARaid administration.

Appendix A

Refer to Windows documentation to partition and format the hard drive as if you were installing a conventional hard drive. In Windows XP use the Disk Administrator tool (Start -> Control Panel -> Performance and Maintenance -> Administrative tool -> Disk Administrator). In Windows 2000, use the Disk Management tool (Start -> Programs -> Administrative Tools -> Computer Management -> Storage -> Disk Management)

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