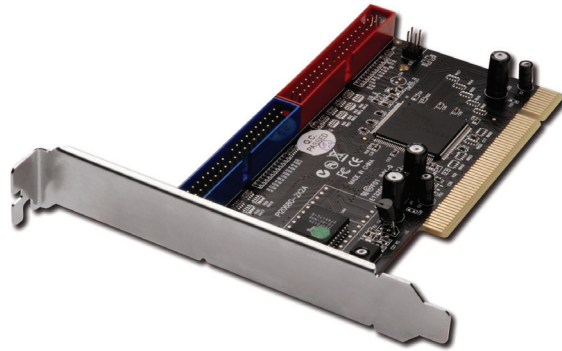**DIGITUS** ®

**PCI ATA 133 RAID
Controller Card**

User Manual

Features and Benefits

- Silicon Image SiI 0680
- Compliant with UltraDMA6 ATA/133 specifications
- Compliant with PCI v2.2 Plug-n-Play
- Provides two independent Ultra ATA channels
- Full ACPI power management support
- Supports Ultra DMA 0-6 and Multi-word DMA 0-2
- Supports hard drives larger than 137GB
- Supports RAID 0(Striping), RAID1(Mirroring) and RAID 0+1 (Mirror+Striping)
- CRC(Cyclical Redundancy Check) error-checking provides data verification and achieves flawless data transfer
- Achieves burst data transfer rates up to 133MB/sec
- Works with various brand of Ultra ATA 133/100/66/33 hard disk drives
- Supports Windows® 7, Vista, XP
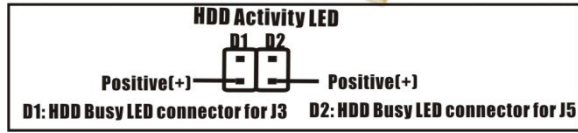
Bus Interface

- PCI Bus 32bit

System Requirements
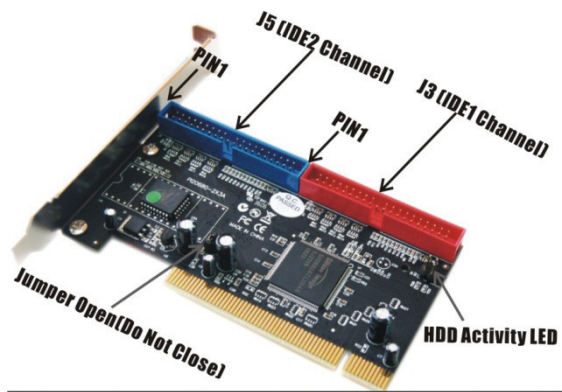
- Pentium-class computer with an available PCI slot
- Windows® 7, Vista, XP

Optional Accessories

- Ultra ATA cable

Hardware Installation

Note: For proper operation of the UltraATA 133 PCI RAID card, the jumper must remain on.

PIN1
J5 (IDE2 Channel)
PIN1
J3 (IDE1 Channel)
Jumper Open(Do Not Close)
HDD Activity LED

HDD Activity LED
D1 D2
Positive(+)   Positive(+)
D1: HDD Busy LED connector for J3   D2: HDD Busy LED connector for J5

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 UltraATA 133 PCI RAID Card is a dual channel Ultra ATA/133 controller that support up to for IDE hard disk drives. To achieve maximum performance and compatibility we suggest using identical hard drives in building your RAID sets.

In any given RAID set, it's best to install the hard drives on separate channels, either Master to Master or Slave to Slave. For example, if you are setting up a RAID set with two hard drives, install the first drive on **IDE1** as Master and the second on **IDE2** as Master. Use the same concept for multiple hard drives.

Note: Only the 40-pin/80-wire UltraATA cable can achieve hard disk UDMA 133 performance. When attaching only two hard drives it is recommended that they be connected on separate IDE channels.

In order to achieve high-speed data transfer, a 40-pin/80-wire Ultra ATA ribbon cable is recommended. Also, do not mix Ultra ATA/133 hard disk with slow IDE or ATAPI devices on the same channel.

1. If you plan to install two hard disk drives on the **IDE1** channel, make sure to configure one drive as Master and the drive as Slave. Follow the hard drive manufacturer's instructions for the correct jumper setting. The same rule must be followed for connecting hard disk drives to the **IDE2** channel.

2. Attach on end of the Ultra ATA cable to the **IDE1** connector on the board. Make sure pin 1 on the cable(indicated by the stripe) matches pin 1 on the IDE1 connector.

3. Install the hard disk drive to your computer. Attach the end connector of the Ultra ATA cable to the end connector on the hard disk drive. Make certain that pin 1 on the cable(indicated by the stripe) matches pin 1 on the hard disk drive's connector to IDE2.

Note: The ribbon cable has two connectors. If you have one hard disk

drive, connect it to the end connector of cable. If you have a second hard disk drive, connect it to the middle connector of cable.

4. Reconnect the system power and other peripherals to your computer.

RAID Arrays

RAID Arrays are setup in the UltraATA 1333 RAID PCI Card's BIOS. Find your RAID set and follow the steps in the order in which they appear.

RAID 0 (Striping)

This RAID array to be used on **New/Blank** hard drives. Striping will destroy existing data on the hard drive.

For Manual Setup

1. As the BIOS boots press **F3** when prompted to enter the RAID BIOS.
2. At the next screen press **F2** to form a RAID set.
3. Press **F1** to create RAID 0.
4. Choose the chunk size to be used in the RAID set(64 is

recommended).

5. Choose the number of hard drives in your stripe set.

6. Assign the hard drives to be used. For optimal performance, alternate hard drives from separate IDE channels.

7. After all hard drives are entered, press **Y** to create the RAID set.

8. Press **ESC** to exit the **RAID** BIOS and boot your computer.

9. Continue with FDISK and FORMAT steps as if you are installing a conventional hard drive.

For Auto Setup

1. As the BIOS boots press **F3** when prompted to enter the RAID BIOS.

2. At the next screen press **F2** to form a RAID set.

3. Press **F1** to create RAID 0.

4. Press **A** for Auto Setup.

5. Enter the number of hard drives in the stripe set.

6. Press **Y** to accept the configuration.

7. Configure another RAID set or press **ESC** to reboot.

8. Continue with FDISK and FORMAT steps as if you are installing a conventional hard drive.

RAID 1 (Mirror)
For Manual Setup
For New/Blank Hard Drives

1. As the BIOS boots press **F3** when prompted to enter the RAID BIOS.

2. At the next screen press **F2** to from a RAID set.

3. Press **F2** to create RAID 1. In a Mirror set the source drive needs to be equal to or smaller than the destination drive. For optimal performance the source drive and destination drive should be on separate IDE channels.

4. Answer **N** to Auto Setup.

5. Assign **Source** drive, then assign **Destination** drive.

6. Assign **N** when asked to Copy from Source to Destination.

7. Answer **Y** to Enable Auto-Rebuild.

8. When asked **Are you Sure?**, press **Y** to accept.

9. Press **ESC** to exit the RAID BIOS and boot the computer.

For Existing Hard Drives with Data

1. As the BIOS boots press **F3** when prompted to enter the RAID BIOS.
2. Press **F2** to enter the RAID setup screen.
3. Press **F2** to from RAID set 1.
4. Answer **N** to Automatic setup.
5. Assign **Source** drive, then assign **Destination** drive.
6. Press **Y** to copy from Source to Destination drive.
7. Press **N** to Offline copy.
8. Answer **Y** to enable Auto-Rebuild.
9. When asked **Are You Sure?**, press **Y** to accept.
10. Press **ESC** to exit the RAID BIOS.

For Auto Setup

Use this setup on **New/Blank** hard drives only.

1. As the BIOS boots press **F3** when prompted to enter the RAID BIOS.
2. Press **F2** to create a RAID Set.
3. Press **F2** to create Mirror Set.

4. Press **Y** to use Auto Setup.
5. Press **Y** to accept the configuration.
6. Configure another RAID set or press **ESC** to reboot.
7. Continue with FDISK and FORMAT steps as if you were installing a conventional hard drive.

Creating a SPARE Drive

When a hard drive failure occurs in a mirror set, the auto-rebuild feature enables a drive designated as **SPARE** to become the new member of the mirror set.

1. As the BIOS boots press **F3** when prompted to enter the RAID BIOS.
2. Press **F3** to create a spare drive.
3. Enter the drive number of the hard drive.
4. Press **Y** to confirm your choice. The spare drive will be created and listed as the last set.
5. Press **ESC** to exit the RAID BIOS.

The **SPARE** drive will not be seen by Windows, however, it remains in the background waiting to rebuild the mirror in the event of a hard drive failure.

Rebuilding a Failed Mirror Set

If a SPARE drive was not configured, the steps below will guide you in rebuilding a failed mirror set.

1. As the BIOS boots press **F3** when prompted to enter the RAID BIOS.

2. Press **F1** to dissolve an Array.

3. Press the number of the Mirrored array to be dissolved.

4. Press **Y** to confirm. Be sure you delete the correct Array.

5. Press **ESC** to exit the RAID BIOS, then immediately turn off the computer.

6. Replace the bad drive with a new hard drive of equal or greater size, then restart the computer.

7. During boot press **F3** to enter the RAID BIOS.

8. Press **F2** to create an Array.

9. Press **F2** to create a Mirrored Array.

10. Answer **N** for automatic setup.

11. Enter the number of the **Source (good)** drive.

12. Enter the number of the **Destination (new)** drive.

13. Answer **Y** to copy from Source to Destination drive.

14. Answer **N** to decline Offline Copy.
15. Answer **Y** to enable Auto-rebuild.
16. When asked **Are You Sure?**, Press **Y** to accept.
17. Press **ESC** to exit the RAID BIOS and reboot the computer.

RAID 0+1 (Mirror+Striping)

This RAID array to be used on **New/Blank** hard drives only, striping destroys existing data on the hard drive. RAID 0+1 requires four hard drives.

For Manual Setup

1. As the BIOS boots press **F3** when prompted to enter the RAID BIOS.
2. At the next screen press **F2** to from a RAID set.
3. Press **F3** to create RAID 0+1.
4. Choose the chunk size by pressing the appropriate number key(64 is recommended).
5. Enter the first Source drive, then enter the second source drive.

Note: To optimize performance, configure both source drives to be from different channels and configure both destination drives to be from different channels.

6. Enter the first destination drive, then enter the second destination drive.

7. Enter **Y** to accept the RAID configuration.

8. On the following screen press **ESC** to exit the RAID configuration utility and reboot the computer.

9. Continue with FDISK and FORMAT steps as if you were installing a conventional hard drive.

For Auto Setup

1. As the BIOS boots press **F3** when prompted to enter the RAID BIOS.

2. Press **F2** to create a RAID set.

3. Press **F3** to create a Mirrored-Striped set.

4. Press **A** to Auto configure.

5. Press **Y** to accept the configuration.

6. Press **ESC** to reboot.

7. Continue with FDISK and FORMAT steps as if you were installing a conventional hard drive.

Rebuilding a Failed RAID 0+1 Set

The steps below will guide you in rebuilding a failed Mirror-Stripe set.

1. Replace the failed drive with one of identical size or of large capacity.

Note: It is recommended to replace the bad drive with an identical drive, or with a drive of the same make. In all cases, the replacement drive must be of equal or larger capacity then the bad drive.

2. Start the computer and during boot press **F3**, when prompted, to enter the RAID BIOS.

3. Press **F3** to assign a **Spare** drive.

4. Press the number corresponding to the new drive.

5. When asked **Are You Sure?**, Press **Y** to accept.

6. Press **ESC** to exit the RAID BIOS and reboot the computer.

7. Continue with FDISK and FORMAT steps as if you were installing a conventional hard drive.

Deleting RAID Arrays

1. As the BIOS boots press **F3** when prompted to enter the RAID BIOS.

2. Press **F1** to dissolve a RAID set.

3. Enter the number of the RAID set to be deleted.

4. Answer **Y** to remove the RAID set.

5. Press **ESC** when finished to reboot.

Resolving Conflicts

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, press **F4**, the correct metadata, including the correct drive connection information, will be written to the replacement disk.

Driver Installation

For Windows® 2000

For New Windows® 2000 Installation

A new installation requires a floppy disk for the driver installation. To make this floppy disk, copy the contents of

the "**DS-33104\2K_XP_2003_Vista**" *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. Install the board and follow Microsoft procedures to install Windows ®2000 accordingly.

3. Restart your system when prompted during Windows' installation.

4. At the **Windows 2000** screen, press **F6** to install the driver.

5. Insert the driver diskette. Press **S**, then press **Enter**.

6. Select **Silicon Image SiI 0680 ultra-133 Medley ATA Raid Controller** and press **Enter**.

7. Press **Enter** to continue and follow on-screen instructions to complete installation.

For Existing Windows® 2000 Installation

1. Setup the RAID Array prior to driver installation.

2. Install the board and boot up Windows® 2000.

3. Insert the driver CD into CD ROM Drive, and they type D:\DS-33104\2K_XP_2003_Vista **(Note: "D:\"** represents the drive letter assigned to the CD-ROM drive you are using. If **D** is not letter of your CD-ROM drive, substitute **D** with the correct

drive letter), then click **OK**

4. At the **Found New Hardware Wizard**, click **Next**.

5. Select **Search for a suitable driver for my device (recommended)** and click **Next**.

6. Check the option **Specify a location** and then click **Next** to continue.

7. Click **Next** again, then **Finish**.

8. Restart Windows to complete driver installation

For Windows® XP/Server 2003

For New Windows® XP/Server 2003 Installation

*A new installation requires a floppy disk for the driver installation. To make this floppy disk, copy the contents of the "**DS-33104\2K_XP_2003_Vista**" 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. Install the board and follow Microsoft procedures to install Windows ®XP/Server 2003 accordingly.

3. Restart your system when prompted during Windows' installation.

4. At the **Windows XP/Server 2003** screen, press **F6** to install the

driver.

5.   Insert the driver diskette. Press **S**, then press **Enter**.

6.   Select **Silicon Image SiI 0680 ultra-133 Medley ATA Raid Controller** and press **Enter**.

7.   Press **Enter** to continue and follow on-screen instructions to complete installation.

8.   When the **Software Installation** warning pops up. Click **Yes**. And when the **Hardware Installation** warning pops up, click **Yes** again.

__For Existing Windows® XP/Server 2003 Installation__

1.   Setup the RAID Array prior to driver installation.

2.   Install the board and boot up Windows.

3.   At the **Found New Hardware Wizard**, click **Next**.

4.   Choose **Install from a list or specific location (Advanced)**, and then click **Next** to continue.

5.   Choose **Search for the best driver in these location** and check the option **Include this location in the search**.

6.   Insert the driver CD into CD ROM Drive, and they type D:\DS-33104\2K_XP_2003_Vista **(Note: "D:\"** represents the drive letter assigned to the CD-ROM drive you are using. If **D** is

not letter of your CD-ROM drive, substitute **D** with the correct drive letter), then click **OK**.

7. The **Hardware Installation** window pops up, click **Continue Anyway**, the **Finish**.

8. Click **Next** again, then **Finish**.

9. Restart Windows to complete driver installation.

For Windows® Vista

For New Windows® Vista Installation

A new installation requires a floppy disk for the driver installation. To make this floppy disk, copy the contents of the "DS-33104\2K_XP_2003_Vista" folder, found on the driver CD, onto a blank floppy disk then follow the directions below.

1. Setup 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 driver.

5. Insert the floppy disk, please select **Silicon Image SiI 0680 ultra-133 Medley ATA Raid Controller (A:\sii680r.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 Existing Windows® Vista Installation*</u>

1. At **Found New Hardware Wizard**, select **Locate and install driver software (recommended)**.

2. Insert the driver CD, click **Next**.

3. If the system prompts the user informing the drivers are not signed, select the option **Install this driver software anyway**.

4. Click **Close** to complete the installation.

To Verify Driver Installation

1. Right click **My Computer** and click **Manage**.

2. Select **Device Manager**.

3. Look for the following:

   <u>**Windows® 2000/XP/2003:**</u> Double click **SCSI and RAID Controller:**

   -Silicon Image SiI 0680 ultra-133 Medley ATA Raid Controller should be displayed

Windows® Vista: Double click **Storage controllers:**

-Silicon Image SiI 0680 ultra-133 Medley ATA Raid Controller

should be displayed

Medley GUI Software Installation

The Medley GUI provides significant functionality including the ability to create and dissolve RAID sets; Remove a member of a Mirrored or Mirrored-Striped RAID set, Rebuild a Mirrored RAID set; save, copy, or send, via e-mail, the current configuration.

Installing Medley GUI

1. Please insert the driver CD into your CD-ROM Drive.
2. At the Windows desktop click **Start**, then **Run**.
3. Type **D:\DS-33104\InstallSiICfg.exe**, then click **OK**. (Change **D:** to match your CD-ROM drive letter)
4. Follow the on-screen instructions to complete the installation.