Serial-ATA IDE Card

Version 1.2

User Manual

Contents

Introduction

The PCI Serial-ATA IDE Controller Card provides an inexpensive way for users to increase the speed or fault-tolerance of their PC. It can upgrade your desktop computer to have dual Serial ATA channels. It is fully compliant Serial ATA ports on the device side to access Serial ATA storage media such as hard disk drives, floppy disk drives, CD-ROM drives, CD-RW and DVD-ROM drives!

1.0 Features

The IO-PSA150 is a true 32-bit PCI-Bus IDE card. It supports the following I/O features:

- PCI "Plug and Play" compatibility
- Serial ATA Specifications 1.0 compatible
- Provides dual Serial ATA channels (up to 2 drives)
- Co-resides with motherboard IDE devices
- 1.5GB/second maximum burst rate
- Integrated PCI DMA engines
- Supports Spread Spectrum in receiver

2.0 System Requirements

- Available PCI slot.
- Serial ATA drive.
- Serial ATA cables.
- Driver support Windows 98/ME, Windows NT4.0, Windows 2000 and Windows XP.

3.0 Driver Installation

◆ **Windows NT 4.0 and Windows 2000/XP Fresh Installation**

Follow the instructions in this section if you are performing a new installation of Windows NT 4.0 or Windows 2000/XP, and you wish to boot from a device attached to the IO-PSA150.

1. Power off the system. Insert the IO-PSA150 card into an available PCI slot. Connect serial ATA cable(s) between the IO-PSA150 card and the serial ATA device(s). Power up the system.

2. Copy all files from "Serial-ATA\IO-PSA150\" directory into the diskette.

3. Put your Windows NT/2000/XP CD into the CD-ROM/DVD drive, or the NT/2000 boot diskette #1 in the floppy drive if your system cannot boot from the CD.

4. Press F6 for third party SCSI or driver installation at the beginning of text mode installation. Press 's' when setup asks if you want to specify an additional device, and insert the diskette which you had copied. Press 'Enter' and select 'Silicon Image SiI 3112 SATALink Serial ATA Controller'.

5. Press 'Enter' again when prompted to continue on with text mode setup.

6. Follow the setup instructions to select your choice for partition and file system.

7. After setup examines your disks, it will copy files from the CD to the hard drive selected above and restart the system. After restart the setup process will resume to finish the installation.

8. Once the operating system installation has completed you can follow the instructions in section 4 to verify controller was installed correctly.

◆ **Adding the IO-PSA150 to an existing Windows NT installation**

Follow the instructions in this section to install the IO-PSA150 driver on a system already running Windows NT 4.0.

1. Power off the system. Insert the IO-PSA150 card into an available PCI slot. Connect serial ATA cable(s) between the IO-PSA150 card and the serial ATA device(s). Power up the system.

2. Copy all files from "\IO-PSA150" directory into the diskette.

3. After OS boots up, Click 'Start'

4. Under 'Settings', click 'Control Panel'.

5. Select 'SCSI Adapters' from the Control Panel.

6. Select the 'Drivers' tab and click 'Add'.

7. Click 'Have Disk'.

8. Insert the diskette which you had copied into A: and press 'Enter'.

9. Choose 'Silicon Image SiI 3112 SATALink Serial ATA Controller' and click 'OK'.

10. After the driver installation has completed you can follow the instructions in section 4 to verify controller was installed correctly.

◆ **Adding the IO-PSA150 card to an existing Windows 2000/XP installation**

Follow the instructions in this section to install the IO-PSA150 on a system already running Windows 2000 or Windows XP.

1. Power off the system. Insert the IO-PSA150 card into an available PCI slot. Connect serial ATA cable(s) between the IO-PSA150 card and the serial ATA device(s). Power up the system.

2. Copy all files from "Serial-ATA\IO-PSA150\" directory into the diskette.

3. During OS boot up, Windows will display the 'Found New Hardware Wizard'. Click 'Next'.

4. Select 'Search for a suitable driver for my device (Recommended)' and Click 'Next'.

5. Under 'Optional search locations' insure that 'Floppy disk drives' is checked.

6. Insert the diskette into A: and click 'Next'.

7. When the wizard indicates that it found a driver for the device click 'Next'.

8. If the 'Digital Signature Not Found' dialog appears, click 'Yes' to continue installing the driver.

9. The wizard will now copy the required files to the system and start the driver. After starting the driver the wizard will display a completion dialog, click 'Finish' to exit the wizard.

◆ **Verifying card installation under Windows NT, 2000 and XP**

Follow the instructions in this section to verify that the controller was installed correctly.

For Windows 2000/XP

1. Right click on 'My Computer' icon, select 'Properties', left click on 'Hardware' tab, and then on 'Device Manager' button.

2. Double click on 'SCSI and RAID Controllers', If there is no yellow '! ' or ' ? ' in front of 'Silicon Image SiI 3112 Serial ATA Controller', the driver has started correctly.

3. To view information about the devices attached to the controller, right click the 'Silicon Image SiI 3112 Serial ATA Controller' and select Properties from the context menu, then select the tab labeled 'Device Info'.

For Windows NT 4.0

1. Double click on 'My Computer' icon, select 'Control Panel', click on the 'SCSI Adapters' icon, 'Silicon Image SiI 3112 Serial ATA Controller' should displayed correctly under 'Device' and 'Driver' tab.

2. To view information about the devices attached to the controller, double click on the 'Silicon Image ATA Controllers' control panel applet. Select a controller from the list at the top of the dialog. Then select a device from the 'Device Location' drop down list to view its information.

◆ **Update IO-PSA150 driver on Windows 2000/XP**

With the IO-PSA150 card already plugged in and the driver already installed. Follow the instructions below to update IO-PSA150 driver.

1. Right click on 'My Computer' and select 'Properties'. Under the 'System Properties' section, click on 'Hardware' tab, and then on 'Device Manager'click 'SCSI and RAID Controllers' and right click 'Silicon Image SiI 3112 Serial ATA Controller' then select 'Properties' from the context menu.

2. Click 'Update Driver' button on the 'Driver' tab and select 'Search for a suitable driver for my device [Recommended]'. Insert the Driver CD into the CD-ROM drive. Click 'Next' and complete the driver installation.

3. System will go through the enumeration process and install the driver. At the end of the process, click 'Yes' to reboot your system when necessary.

4. See instructions in section 4 to verify controller was installed correctly.

◆ **Windows 98SE and Windows ME Fresh Installation Instructions**

Follow the instructions in this section if you are performing a new installation of Windows 98SE/ME and you wish to boot from a device attached to the IO-PSA150 card.

You may start up the Windows 98SE/ME installation from CD. If either your Windows 98SE/ME CD or CD-ROM drive is not bootable, your can start up with floppy diskettes.

1. Power off the system. Insert the IO-PSA150 card into an available PCI slot. Connect serial ATA cable(s) between the IO-PSA150 card and the serial ATA device(s). Power up the system.

2. Copy all files from "IO-PSA150" directory into the diskette.

3. Put your Windows 98SE/ME CD into the CD-ROM/DVD drive, and the Windows 98SE/ME boot diskette in the floppy drive if your system cannot boot from the CD.

4. Follow the normal Windows 98SE/ME setup instructions to select your choice for partition and file system.

5. Wait until Windows 98SE/ME finishes installing devices, regional settings, networking settings, components, and final set of tasks, reboot the system.

6. After the system reboots, right click on 'My Computer' and select 'Properties'. From 'System Properties', select 'Device Manager', right click on the '?PCI Mass Storage controller' and select 'Properties' from the context menu.

7. Click 'Driver' ,'Update Driver' and select 'Automatic search for a better driver[Recommended]'. Insert the diskette into floppy drive. Click 'Next' and complete the driver installation.

8. System will go through the enumeration process and install the driver. At the end of the process, click 'Yes' to reboot your system.

◆ **Adding the IO-PSA150 card to an existing Windows 98SE/ME installation**

1. Power off the system. Insert the IO-PSA150 card into an available PCI slot. Connect serial ATA cable(s) between the IO-PSA150 card and the serial ATA device(s). Power up the system.

2. Copy all files from "\IO-PSA150" directory into the diskette.

3. During the system boot up, the Hardware Wizard will display that it found a 'PCI Mass Storage Controller', click 'Next'. Select 'Search for the best driver for your device [Recommended]' and click 'Next'.

4. Make sure the 'Floppy disk drives' checkbox is checked and insert the diskette into the floppy drive. Click 'Next'.

5. System will go through the enumeration process and install the driver. At the end of the process, Click 'Finish' to complete the installation. Reboot the system if your Windows 98SE/ME drive is connected on the IO-PSA150 card.

◆ **Update IO-PSA150 driver on Windows 98SE/ME**

With the IO-PSA150 card already plugged in and the driver already installed. Follow the instructions below to update it's driver.

1. Right click on 'My Computer' and select 'Properties'. Under 'System Properties', click 'SCSI and RAID Controllers' then right click 'Silicon Image SiI 3112 Serial ATA Controller' and select 'Properties' from the context menu.

2. Click 'Driver' ,'Update Driver' and select 'Automatic search for a better driver [Recommended]'. Insert the Driver CD into the CD-ROM drive. Click 'Next' and complete the driver installation.

3. System will go through the enumeration process and install the driver. At the end of the process, click 'Yes' to reboot your system.

◆ **Verifying controller installation under Windows 98/SE/ME**

Follow the instructions in this section to verify that the controller was installed correctly on Win98SE and Windows ME.

1. Right click on 'My Computer' icon, select 'Properties'. Click on 'Device Manager' tab.

2. Double click on 'SCSI and RAID Controllers', If there is no yellow '!' or '?' in front of 'Silicon Image Sil 3112 Serial ATA Controller', the driver has started correctly.

3. To view information about the devices attached to the controller, double click on the 'Silicon Image ATA Controllers' control panel applet under 'Control Panel'. Select a controller from the list at the top of the dialog. Then select a device from the 'Device Location' drop down list to view its information.

4.0 GUI Installation

1. Click \Serial-ATA\GUI\InstallSATARaid.exe file to install.
2. After install step, [Start]→[Program] will add "**SATARaid**" program. Click it.
3. Your task bar will add "**SATALink"** icon. Click it will display follow screen.
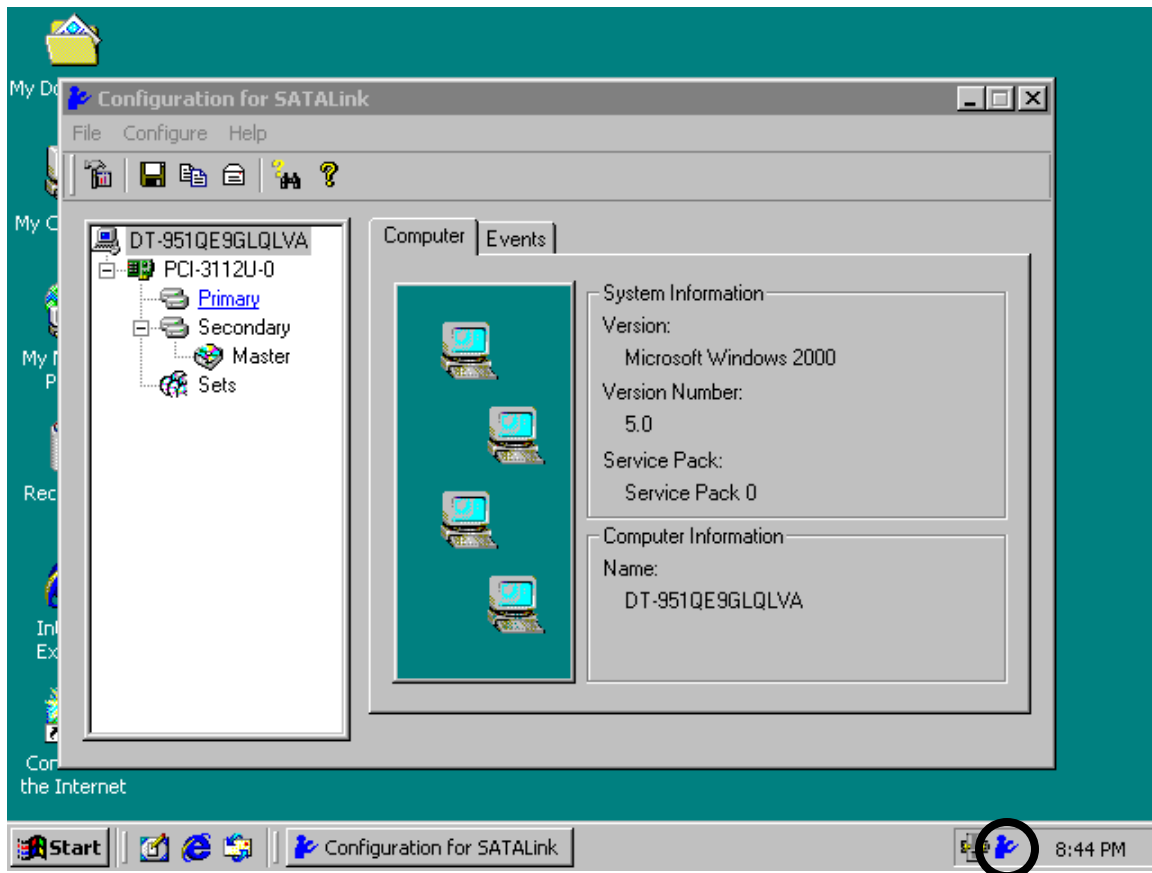
4. You can see the information through this program.

5.0 RAID Explained
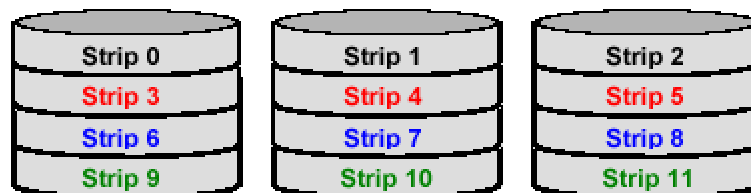
◆ **RAID - Redundant Array of Independent Disks**

RAID technology manages multiple disk drives to enhance I/O performance and provide redundncy in order to withstand the failure of any individual member, without loss of data.

IO-PSA150 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 ATA 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.

This figure shows a stripe set using three disks with stripe one written to disk one, stripe two to disk two, and so forth.

Strip 0	Strip 1	Strip 2
Strip 3	Strip 4	Strip 5
Strip 6	Strip 7	Strip 8
Strip 9	Strip 10	Strip 11

◆ **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.

| Block 0 |
| Block 1 |
| Block 2 |
| Block 3 |

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