

# **PCIe SATA 6G + PATA RAID Card**

## **User Manual**

**Ver. 1.00**

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respective owners.**

## ***Features and Benefits***

- Compliant with PCI-Express Specification v2.0 and backward compatible with PCI-Express 1.x
- Compliant with Serial ATA Specification 3.0
- Supports communication speeds of 6.0Gbps, 3.0Gbps, and 1.5Gbps
- Hot plug and Hot Swap
- Supports Native Command Queuing (NCQ)
- Supports Port Multiplier FIS based switching or command based switching
- Supports ATA and ATAPI commands
- Compatible with SATA 6G, 3G and 1.5G Hard Drives
- Support RAID0 function: RAID 0, RAID 1 (only for SATA hard drives)
- Supports Windows® XP/Server 2003/Vista/7 (32/64 bit)

## ***Bus Interface***

- PCI-Express x1

## ***Connectors***

- 2 x SATA connectors
- 2 x eSATA connectors
- 1 x PATA connector

## ***System Requirements***

- PCI Express-enabled system with one available PCI Express slot
- Windows® XP/Server 2003/Vista/7 (32/64 bit)

## ***Package Contents***

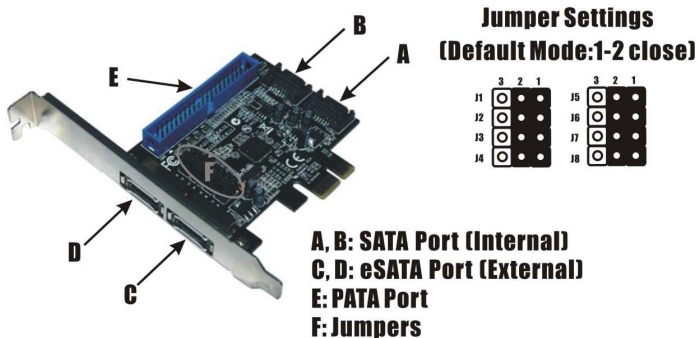
- 1 x PCIe SATA 6G + PATA RAID Card
- 1 x Driver CD
- 1 x User Manual
- 1 x PATA Cable (optional)
- 1 x SATA Data Cable (optional)

Note: Contents may vary depending on country/market.

## ***Hardware Description***

**Note:** There are four SATA ports in PCIe SATA 6G + PATA Raid Card. We name these ports character A through D. Ports A & B are internal

SATA ports and C & D are external eSATA ports. By changing the jumper setting on PCIe SATA 6G + PATA RAID Card that allows you to select between external and internal ports to use. By default, port A and B are working.



## *Jumper Settings*

JP	Description	Active Port
J1-J4	1-2 close	Enable SATA Port B
	2-3 close	Enable eSATA Port D
J5-J8	1-2 close	Enable SATA Port A
	2-3 close	Enable eSATA Port C

## ***Hardware Installation***

1. Turn off the power to your computer.
2. Unplug the power cord and remove your computer's cover.
3. Remove the slot bracket from an available PCIe slot.
4. To install the board, carefully align the card's bus connector with the selected PCIe slot on the motherboard. Push the board down firmly.
5. Attach your internal devices to the PCIe SATA 6G + PATA RAID Card.
6. Replace the slot bracket's holding screw to secure the card.
7. Replace the computer cover and reconnect the power cord.

## ***Creating and Managing Virtual Disks***

### ***Creating Virtual Disks***

This section describes the procedure for creating virtual disks using the **BIOS Configuration Wizard**.

#### **To create a virtual disk**

1. In the **Topology** pane, scroll to **HBA0: Marvell 0** and press Enter to select. A menu pops-up, as shown in Figure 1.  
Select **Configuration Wizard** and press **Enter** to begin creating

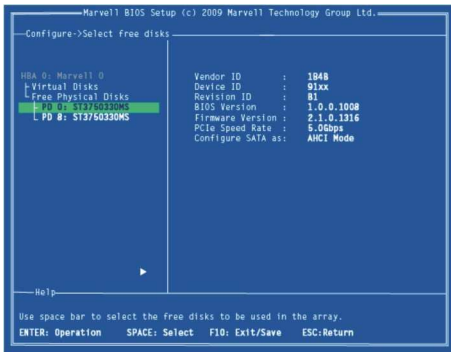
the virtual disk.

## Figure 1 Configuration Wizard



2. Press **Space** to select/unselect a disk a disk, as shown in Figure 2. Use the arrow keys to scroll the list of free disks.

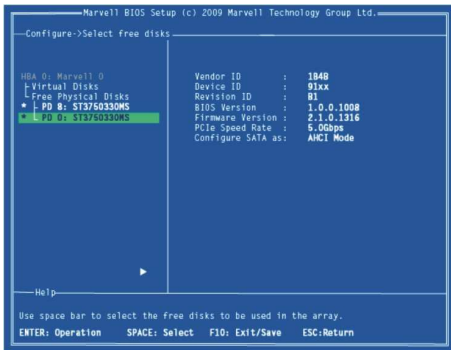
## Figure 2 Select Free Disks



**Note:** The PCIe SATA 6G + PATA RAID Card supports the creation of RAID 0 and RAID 1 virtual disks comprising of exactly two SATA physical disks. PATA physical disks cannot be used to create RAID virtual disks.

3. After selecting the required disks, press **Enter** to continue, as shown in Figure 3.

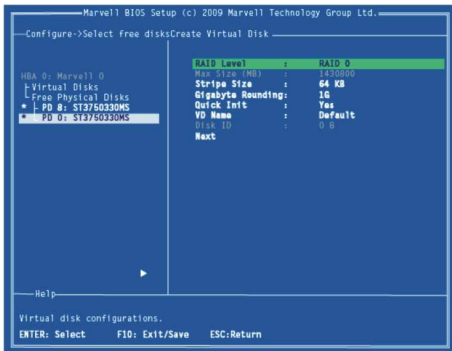
### Figure 3 Confirm Disk Selection



4. **Create Virtual Disk** by configuring its setting in the **Information** pane, as shown in Figure 4.

The controls for making selection are listed in the **Help** pane when an available setting is highlighted.

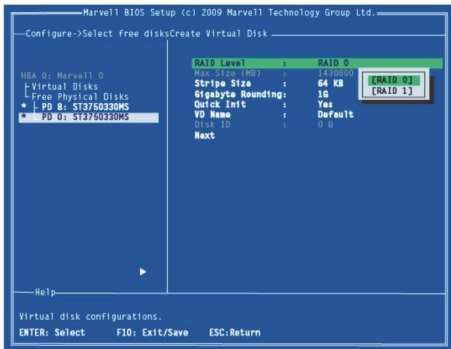
**Figure 4 Configure Virtual Disk**



**Note:** Max size (MB) and Disk ID are properties of the virtual disk that cannot be edited. Max size (MB) in the size of the RAID virtual disk as determined by the selected RAID Level. Disk ID lists the IDs of the physical disks comprising the virtual disk.

5. **RAID Level**, as shown in Figure 4, is highlighted when the **Create Virtual Disk** screen is presented. Press **Enter** to select a **RAID Level**. A menu pops-up, as shown in Figure 5, and list lists available RAID levels.
6. Scroll the list, as shown in Figure 5, and press **Enter** to select a **RAID Level** (RAID 0, RAID 1).

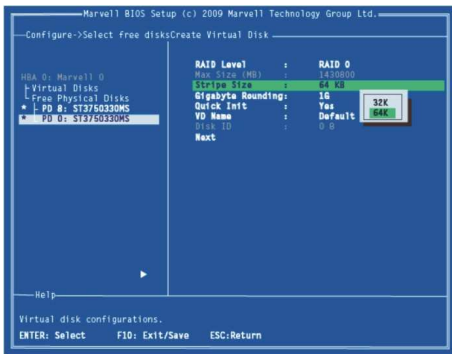
### Figure 5 RAID Level



**Note:** The default Level is RAID 0.

7. Scroll to **Stripe Size** and press **Enter** to select. A menu pops-up, as shown in Figure 6, and lists available stripe sizes for the selected RAID level.
8. Scroll the list, as shown in Figure 6, and press **Enter** to select **Stripe Size** (32K, 64K)

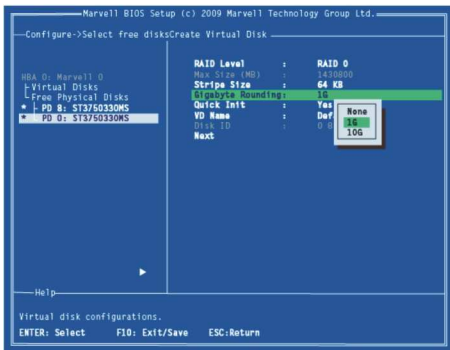
**Figure 6 Stripe Size**



**Note:** The default size is 64 KB.

9. Scroll to **Gigabyte Rounding** and press **Enter** to select. A menu pops-up, as shown in Figure 7, and lists available stripe sizes for the selected RAID level.
10. Scroll the list, as shown in Figure 7, and press **Enter** to select **Gigabyte Rounding** (None, 1G, 10G)

### Figure 7 Gigabyte Rounding



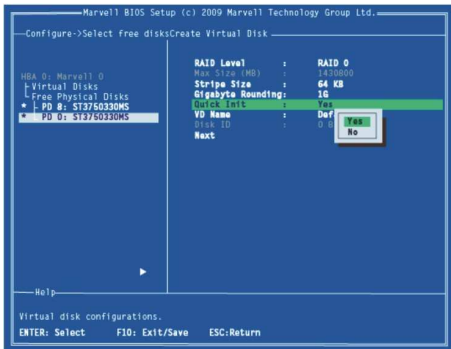
**Note:** The default setting for Gigabyte Rounding is 1G.

11. Scroll to **Quick Init** and press **Enter** to enable to disable quick initialization of the virtual disk.

A menu pops-up, as shown in Figure 8, and lists available options for quick initialization of the virtual disk.

12. Scroll the list, as shown in Figure 8, and press **Enter** to select **Quick Init (Yes, No)**.

### Figure 8 Quick Init

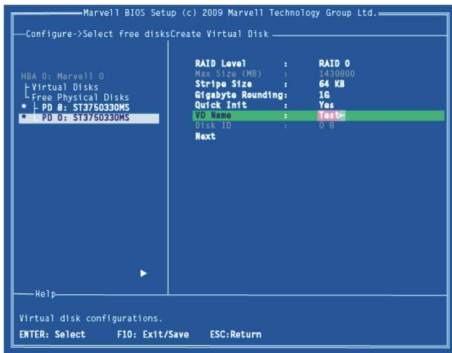


**Note:** The default setting for Quick Init is Yes.

13. Scroll to **VD Name** and the Default name is cleared for a new name, as shown in Figure 9.

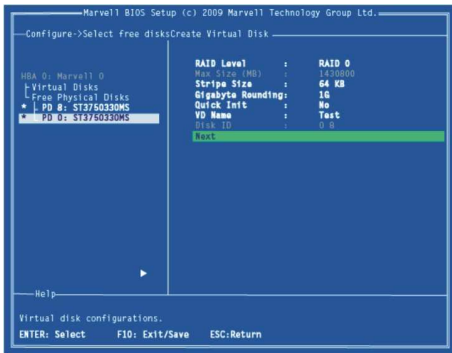
Type a new name and press **Enter** to confirm the selection.

### Figure 9 VD Name



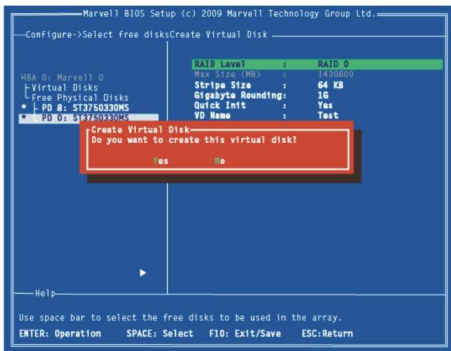
14. After configuring the virtual disk, scroll to **Next**, as shown in Figure 10.
- Press **Enter** to create the virtual disk.

### Figure 10 Create Virtual Disk



15. Please **Y** to select **Yes**, as shown in Figure 11, to confirm the creation of the virtual disk. The virtual disk is now listed in the **Topology** pane, as shown in Figure 12.

### **Figure 11 Create Virtual Disk Confirmation**



**Figure 12 Virtual Disk in Topology Pane**



## ***Managing Virtual Disks***

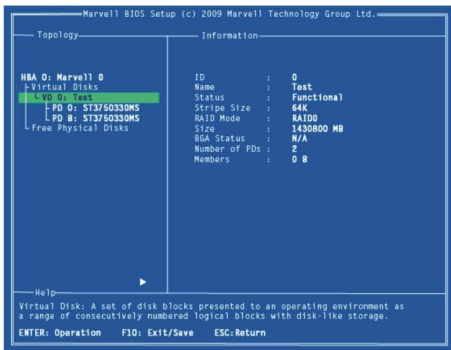
This section contains the following topics:

- Viewing Properties of Virtual Disk
- Erasing RAID Configuration Data
- Rebuilding Virtual Disk
- Deleting Virtual Disk

### **Viewing Properties of Virtual Disk**

To view the properties of a virtual disk, scroll to the **Virtual Disk (VD 0: Default** in Figure 13) in the **Topology** pane. The properties of the virtual disk are displayed in the **Information** pane when **VD 0: Default** is highlighted, as shown in Figure 13.

#### **Figure 13 Virtual Disk Properties: Functional VD**

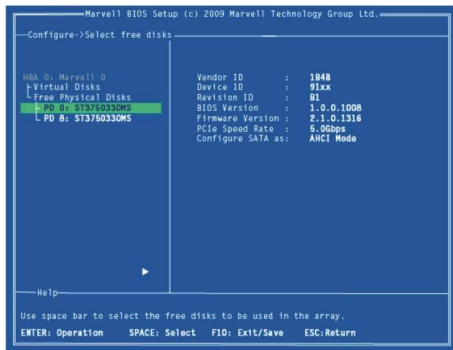


## Erasing RAID Configuration Data

**Note:** The RAID controller stores RAID configuration data on all physical disks that are part of a virtual disk. RAID configuration data must be erased on the physical disk before it can be used with another virtual disk.

1. In the **Topology** pane, select **Physical Disk (VD 0: Default > PD 0: ST3750330MS** in Figure 14) and press **Enter**.  
A menu pops-up, as shown Figure 14.
2. Select **Delete** to delete the virtual disk, as shown in Figure 14.
3. Select **Yes** when prompted to confirm the erase operation.

## Figure 14 Erase RAID Configuration Data



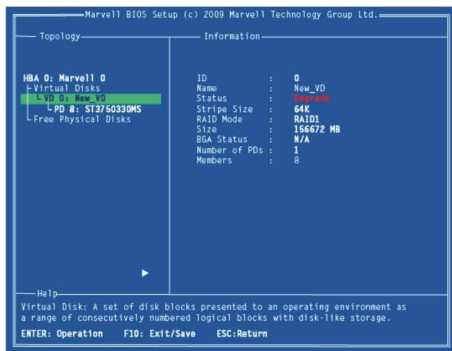
## Rebuilding Virtual Disk

**Note:** The PCIe SATA 6G + PATA RAID Card BIOS supports manual rebuilding of RAID 1 virtual disks. The rebuild process is both initiated and complete in the BIOS. The Marvell RAID Utility (MRU), which runs in an OS environment, cannot be used to either initiate, resume, or complete the rebuild process. Spare physical disks are not supported.

### To manually rebuild a RAID 1 virtual disk

1. When a virtual disk is degraded, the **Status** of a virtual disk is changed from **Functional** to **Degrade**, as shown in Figure 15.

**Figure 15 Virtual Disk Properties: Degrade VD**

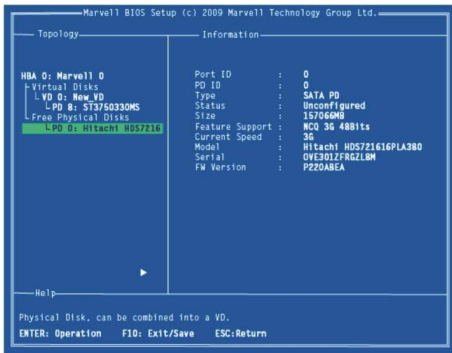


2. Replace the faulty physical disk with an identical physical disk.

Note: If an identical disk is unavailable, use a replacement physical disk or larger size or one with a slightly smaller size as determined the Gigabyte Rounding setting for the virtual disk.

The PCIe SATA 6G + PATA RAID Card detects the new physical disk and lists the device under Free Physical Disks in the Topology pane, as shown in Figure 16.

**Figure 16 Replace Physical Disk**

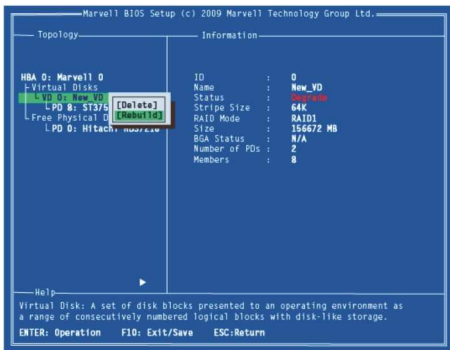


3. In the **Topology** pane, scroll to **Virtual Disks (VD 0: New\_VD** in Figure 17), and press **Enter** to select.

A menu pops-up, as shown in Figure 17

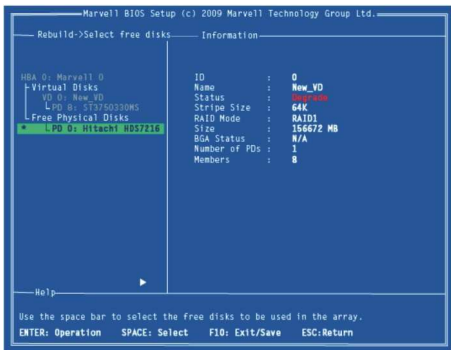
Scroll to **Rebuild** and press **Enter** to configure the rebuild process.

### **Figure 17 Rebuild Virtual Disk**



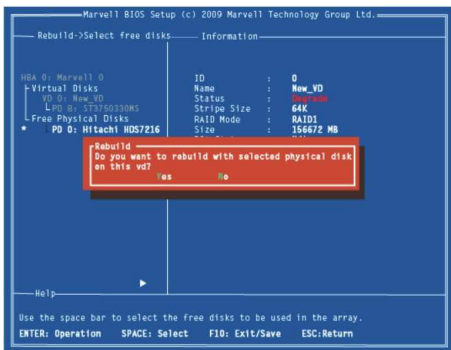
4. Scroll through the list of free disk, as shown Figure 18, and press **Space** to select or unselect a replacement physical disk. Press **Enter** to continue.

### Figure 18 Select Replacement Disk



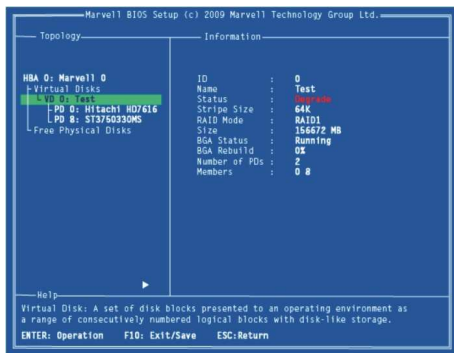
5. Press **Y** to select **Yes**, as shown in Figure 19, when prompted to confirm the rebuild process.

**Figure 19 Confirm Rebuild Virtual Disk**



- The status of the Rebuild process is reflected in the properties of the virtual disk, as shown in Figure 20.

**Figure 20 Rebuild Status**



### To pause the rebuild process

- In the **Topology** pane, scroll to the partially rebuild **Virtual Disk**.
- Press **Enter** to view available operation on **Virtual Disk**.
- Scroll to **Pause** and press **Enter** to pause the rebuild process.

Note: Incomplete rebuild procedures are paused upon exiting the BIOS. The rebuild procedure(s) can be resumed manually upon re-entering the BIOS.

## To pause the rebuild process

1. In the **Topology** pane, scroll to the partially rebuild **Virtual Disk**.
2. Press **Enter** to view available operation on **Virtual Disk**.
3. Scroll to **Resume** and press **Enter** to resume the rebuild process.

Note: The rebuild process is both initiated and completed in the BIOS. The Marvell RAID Utility (MRU), which runs in an OS environment, cannot be used to either initiate, pause, resume, or complete the rebuild process.

## Deleting Virtual Disk

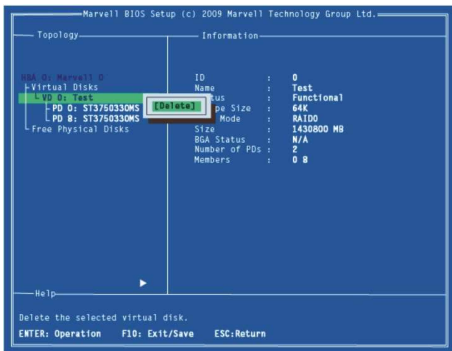
### To delete a virtual disk

1. In the **Topology** pane, select **Virtual Disk (VD 0: Default** in Figure 21) and press **Enter**.

A menu pops-up, as shown Figure 21.

2. Select **Delete** to delete the virtual disk, as shown in Figure 21.
3. Press **Y** to select **Yes** when prompted **Do you want to delete this virtual disk?**
4. Press **Y** to select **Yes** when prompted **Do you want to delete MBR from this virtual disk?**

### Figure 21 Delete Virtual Disk



## ***Driver Installation***

### ***For Windows® XP/Server 2003***

#### ***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 “PCIe\mv91xx\Floppy32” folder, found on the driver CD, onto a blank floppy disk then follow the directions below.*

1. Follow Microsoft’s Windows installation procedure.
2. At the Windows Setup screen, press **F6** to install the driver.
3. When prompted, press **S** to specify the location of the driver.

4. Insert the floppy disk, then press **Enter**.
5. Scroll to **Marvell shared library (install first)** using the arrow keys and press **Enter** to select.
6. Press **S** again to select the second device.
7. Scroll to **Marvell 91xx SATA Controller 32bit Driver** and press **Enter** to select.
8. Press **Enter** to complete the installation of drivers.
9. Continue with the Windows OS installation.
10. And there is an additional device **Marvell 91xx Config SCSI Processor Device** is detected when Windows starts for the first time.
11. Please insert the CD driver bound with PCIe SATA 6G + PATA RAID Card into your CD-ROM Drive.
12. At the Windows desktop, click **Start**, then **Run**.
13. Type **D:\PCIe\mv91xx\Setup.exe**, click **OK**. (Change **D:\** to match your CD-ROM drive letter)
14. Follow the on-screen instructions to complete the installation.
15. After successful installation, the device is listed in the **Device Manager** as **Marvell 91xx Config Device** (under **System Device**)

### **For An Existing Installation**

1. Please insert the CD driver bound with PCIe SATA 6G + PATA RAID Card into your CD-ROM Drive.
2. At the Windows desktop, click **Start**, then **Run**.
3. Type **D:\PCIe\mv91xx\Setup.exe**, click **OK**. (Change **D:\** to match your CD-ROM drive letter)
4. Follow the on-screen instructions to complete the installation.
5. Restart Windows to complete the installation.

### ***For Windows® XP-x64/Server 2003-x64***

#### **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 “PCIe\mv91xx\Floppy64” folder, found on the driver CD, onto a blank floppy disk then follow the directions below.*

1. Follow Microsoft’s Windows installation procedure.
2. At the Windows Setup screen, press **F6** to install the driver.
3. When prompted, press **S** to specify the location of the driver.
4. Insert the floppy disk, then press **Enter**.
5. Scroll to **Marvell shared library (install first)** using the arrow

- keys and press **Enter** to select.
6. Press **S** again to select the second device.
  7. Scroll to **Marvell 91xx SATA Controller 64bit Driver** and press **Enter** to select.
  8. Press **Enter** to complete the installation of drivers.
  9. Continue with Windows OS installation.
  10. And there is an additional device **Marvell 91xx Config SCSI Processor Device** is detected when Windows starts for the first time.
  11. Please insert the CD driver bound with PCIe SATA 6G + PATA RAID Card into your CD-ROM Drive.
  12. At the Windows desktop, click **Start**, then **Run**.
  13. Type **D:\PCIe\mv91xx\Setup.exe**, click **OK**. (Change **D:\** to match your CD-ROM drive letter)
  14. Follow the on-screen instructions to complete the installation.
  15. After successful installation, the device is listed in the **Device Manager** as **Marvell 91xx Config Device** (under **System Device**)

### **For An Existing Installation**

1. Please insert the CD driver bound with PCIe SATA 6G + PATA RAID Card into your CD-ROM Drive.
2. At the Windows desktop, click **Start**, then **Run**.
3. Type **D:\PCIe\mv91xx\Setup.exe**, click **OK**. (Change **D:\** to match your CD-ROM drive letter)
4. Follow the on-screen instructions to complete the installation.
5. Restart Windows to complete the installation.

### ***For Windows® Vista/7***

#### **For A New Installation**

1. Follow Microsoft's Windows installation procedure.
2. At the Windows Setup screen, press **Load Driver** to install the driver.
3. Insert the CD driver bound with PCIe SATA 6G + PATA RAID Card into your CD-ROM Drive, please select **Marvell 91xx SATA 6G Controller (D:\PCIe\mv91xx\Floppy32\mv91xx.inf)**, then press **Next**. (Change **D:\** to match your CD-ROM drive letter)
4. Continue with Windows OS installation.

5. And there is an additional device **Marvell 91xx Config SCSI Processor Device** is detected when Windows starts for the first time.
6. Please insert the CD driver bound with PCIe SATA 6G + PATA RAID Card into your CD-ROM Drive.
7. At the Windows desktop, click **Start**, then **Run**.
8. Type **D:\PCIe\mv91xx\Setup.exe**, click **OK**. (Change **D:\** to match your CD-ROM drive letter)
9. Follow the on-screen instructions to complete the installation.
10. After successful installation, the device is listed in the **Device Manager** as **Marvell 91xx Config Device** (under **System Device**)

#### **For An Existing Installation**

1. Please insert the CD driver bound with PCIe SATA 6G + PATA RAID Card into your CD-ROM Drive.
2. At the Windows desktop, click **Start**, then **Run**.
3. Type **D:\PCIe\mv91xx\Setup.exe**, click **OK**. (Change **D:\** to match your CD-ROM drive letter)
4. Follow the on-screen instructions to complete the installation.
5. Restart Windows to complete the installation.

## ***For Windows® Vista-x64/7-x64***

### **For A New Installation**

1. Follow Microsoft's Windows installation procedure.
2. At the Windows Setup screen, press **Load Driver** to install the RAID driver.
3. Insert the CD driver bound with PCIe SATA 6G + PATA RAID Card into your CD-ROM Drive, please select **Marvell 91xx SATA 6G Controller (D:\PCIe\mv91xx\Floppy64\mv91xx.inf)**, then press **Next**. (Change **D:\** to match your CD-ROM drive letter)
4. Continue with Windows OS installation.
5. And there is an additional device **Marvell 91xx Config SCSI Processor Device** is detected when Windows starts for the first time.
6. Please insert the CD driver bound with PCIe SATA 6G + PATA RAID Card into your CD-ROM Drive.
7. At the Windows desktop, click **Start**, then **Run**.
8. Type **D:\PCIe\mv91xx\Setup.exe**, click **OK**. (Change **D:\** to match your CD-ROM drive letter)
9. Follow the on-screen instructions to complete the installation.

10. After successful installation, the device is listed in the **Device Manager** as **Marvell 91xx Config Device** (under **System Device**)

### **For An Existing Installation**

1. Please insert the CD driver bound with PCIe SATA 6G + PATA RAID Card into your CD-ROM Drive.
2. At the Windows desktop, click **Start**, then **Run**.
3. Type **D:\PCIe\mv91xx\Setup.exe**, click **OK**. (Change **D:\** to match your CD-ROM drive letter)
4. Follow the on-screen instructions to complete the installation.
5. Restart Windows 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:

**Windows® XP/2003:** Double click **SCSI and RAID**

**Controller:**

-**Marvell 91xx SATA 6G Controller** should be displayed

**Windows® Vista/7:** Double click **Storage controllers:**

- **Marvell 91xx SATA 6G Controller** should be displayed

### ***Marvell RAID Utility (MRU)***

The MRU System Tray application is available on Windows OS and appears as an icon in the system tray. Clicking this icon launches the MRU in your default browser.

