G50197588SE900

PCIe SATA 6G Card

User Manual Ver. 1.00

Product Introduction

This board is a single-chip, PCI Express to four SATA Gen III 6Gb/s channels host controller that brings server-class features to the desktop This board enables the use of the industry's newest and fastest hard drives at 6Gb/s while providing backward compatibility to legacy SATA 1.5Gb/s or 3Gb/s drives. It uses the same cable and connectors as previous SATA generations to ease integration. Besides, PCI Express 2.0 double the bandwidth of the existing PCI Express bus for faster data throughput. It will enhance system performance for every type of computer user. Each PCI-Express 2.0 lane provides up to 500MB/s of throughput. It also backward compatible with previous generation of PCI Express 1.0 technology. Using the onboard RAID firmware, the SATA drives attached to this controller can be easily configured as 4 ***individual ports with no RAID or with RAID 0, RAID 1, RAID 10, HyperDuo***

Features

- Compliant with PCI-Experss Specification v2.0 and backward compatible with PCI-Express 1.x
- Compliant with Serial ATA Specification 3.0
- PCI Express x2 interface, and compatible with PCI Express x4, x8 and x16 slots.
- Supports communication speeds of 6.0 Gbps, 3.0 Gbps, and 1.5 Gbps
- Hot plug and Hot Swap.
- Supports Native Command Queue (NCQ)
- Supports Port Multiplier FIS based switching or command based switching.
- Compatible with SATA 6G, 3G and 1.5G Hard Drives.
- Support RAID function: RAID 0, RAID 1, RAID10,and HyperDuo.

Note: Not Supported RAID on PM

Package Contents

- 1 x SATA III (6Gbps) 4-port PCI-Express Controller Card
- 1 x User Manual
- 2 x SATA Cable
- 1 x Driver CD
- 1 x Low Profile Bracket

System Requirements

- Supports Windows® XP/Vista/7/8/Server 2003/2008 R2/8, Linux 2.6. x and above

Hardware Installation

1. Turn off the power to your computer
2. Unplug the power cord and remove your computer's cover

3. Locate to an empty PCI Express x4, x8, or x16 slot on the motherboard.
4. To install the board, carefully align the card's bus connector with the selected PCI-E slot on the motherboard. Push the board down firmly
5. Attach your internal devices to the SATA III (6Gbps) PCI-E Controller Card
6. Replace the slot bracket's holding screw to secure the card
7. Replace the computer cover and reconnect the power cord

Marvell BIOS Utility (MBU) For RAID/HyperDuo Setup

***Warning*: *All the data on the hard disks connected to the controller card will be permanently erased in the following actions*.**

To create a RAID/HyperDuo virtual disk:

1. Power up your computer, Skip this section if you are not going to create a RAID /HyperDuo virtual disk.
2. Press the **[Ctrl]+[M]** key on the keyboard at the same time to enter the Marvell Bios Utility(MBU)
3. Once the MBU is entered, scroll to **HBA0**: **Marvell 0** in the **Topology** pane by the up and arrow key on the keyboard and please **Enter**.
4. Choose **Configuration Wizard** and press **Enter** to start creating the RAID/HyperDuo virtual disk.
5. Select the free physical disk available by using the arrow keys to scroll though the disks and press **Space Bar**. After selecting all the disks needed, press **Enter** to continue.
6. Choose the RAID option:

   RAID Level : RAID 0-Striping
   RAID 1-Disk Mirroring
   RAID 10-Stripe of mirrors

   Stripe Size: 32K, 64K

It defines the size of the single data block on the virtual disk. the larger the stripe Size, the onger it takes to read and write data blocks on the physical disks A large size is recommended for applications requiring large data transfers, e. g. audio, video and graphics A smaller size is suitable for applications with smaller size files, e. g. . emails and documents.

Name : any value for the users to input
Input a user defined identifier for the virtual disk

7. Choose the HyperDuo option:

   HyperDuo Mode: Safe- Mirrored protection
   Capacity- Cost - Optimized

   Keep original data: Yes, No (Only available in Safe mode)
   Preserve the data currently on your HDD or erase all data.

   Threshold(%): 10-100 for the users to input
   The number defines the percentage of your SSD the MBU users to optimize performance. Default is 90.

8. Choose **Next** and press **[Y]** key to start creating the virtual disk.
9. Press **F10** and **[Y]** key to exit the MBU.

Note*: *A HyperDuo virtual disk must at least contain one SSD and one HDD

To rebuild a virtual disk:

1. When a hard disk in a RAID 1 virtual disk or a SSD in a HyperDuo Safe mode virtual disk is defective or the data inside are corrupted, the Marvell BIOS Utility (MBU) will mark the virtual disk as Degrade.
2. Replace the defective hard disk/SSD with an identical hard disk/SSD or a hard disk/SSD which has a smaller size within the allowable value set for the virtual disk.
3. Press the **[Ctrl]+[M]** key on the keyboard at the same time to enter the MBU.
4. In the **Topology** pane, scroll to the virtual Disks ID, press **Enter** and select the Rebuild option.
5. Select the available replacement hard disk/SSD to be rebuilt to by pressing **Space Bar** and then **Enter.**
6. Press **[Y]** key to start. The utility will show the rebuild status and the completed percentage. This will take a long time to finish the whole process and it depends on the size to be rebuilt.

Note*: *HyperDuo virtual disk created in safe mode can be partially rebuilt if the SSD fails, but not if the HDD fails.

Marvell Storage Utility (MSU) for RAID/HyperDuo Setup

The Marvell Storage Utility (MSU) is a browser-based management utility for Marvell 88SE92xx controllers. It creates and manages a RAID or HyperDuo virtual disk using storage devices connected to the 88SE92xx controller.

1. Start Windows and insert the driver CD into the CD-ROM driver, assume driver A.
2. Brows to the following folder on the driver CD:
   A:\Marvell\92XX\MSU
3. Run **MSUSetup. exe** to start utility installation.
4. Follow the on-screen instructions to install the MSU.
5. Double click the desktop shortcut for the MSU. When opening the MSU in some versions of windows, Internet Explorer may detect a problem with the security certificate for the MSU web. page. select **Continue to this website (not recommended)** to continue opening the MSU
6. Opening the MSU will take you to a login page. If you have no password, leave this field blank, and then click **Login**.
7. After entering the MSU user interface select **Adapter**, which contains four physical disks, assume four physical disks are connected to the controller card.
8. Roll over the Operation tab and you will see **Create HyperDuo**, **Create RAID** and **Quick Create Wizard**.
9. To create a HyperDuo virtual disk you should have at least one HDD and one/multiple SSD.
10. Select Create **HyperDuo**, and then select **Safe** mode or **Capacity** mode.
11. Check **Keep Original Data** to preserve the data currently on you HDD or uncheck it to erase all data. This option is only available in Safe mode.
12. Enter a number between 10 and 100 in the **Threshold(%)** filed, the **Threshold(%)** number defines the percentage of your SSD the MSU user to optimize performance. The default is 90.
13. Press **Submit**. The MSU displays the **Property** tab for the HyperDuo virtual disk and begins

initialization. It takes up to some minutes to complete. System performance may slow during this period.

14. If you want to quickly create a HyperDuo virtual disk, select **Quick Create Wizard**.
15. Select **Safe** mode or **Capacity** mode and then press **Submit**. The MSU will help you create the HyperDuo virtual disk automatically.
16. To create a RAID virtual disk, select **Create RAID**. Then select RAID level: **RAID0,RAID1 or RAID10**.
17. Choose enough available physical disks (RAID 0 needs at least two physical disks, RAID 1 just needs two physical disks, and RAID 10 needs four physical disks), and press **Next**.
18. Enter the name for the virtual disk, or you can use the default name.
19. Select the **Initialization** method for the virtual disk
20. Select the **Stripe Size** 32K or 64K for the virtual disk.
21. Press Submit. The MSU creates the virtual disk and displays the **Property** tab for the new virtual disk.
22. Restart your computer to use the virtual disk.

Driver installation

Installing Driver for supported Windows Vista, Server 2008, Windows7, 8, Server 2008 R2 operating system:

1. Start windows and insert the driver CD into the CD-ROM drive, assume drive A.
2. Windows will automatically detect the SATA card, Right-click **Marvell Console ATA Device** with yellow mark in the **Other Devices** and select **Update Driver Software**.
3. Select "**Browse my computer for driver software**".
4. Browse to the following folder on the driver CD according to your operating system:
   >Windo>ws vista, server2008, windows 7, 8 32-bit:
   A:\2010A2\Marvell\92XX\Windows Vista_2008_7_8\i386
   >Windows vista, server2008, windows 7, 8 64-bit and server 2008 R2:
   A:\2010A2\Marvell\92XX\Windows Vista_2008_7_8\amd64
5. Follow the on-screen instruction to install the driver.
6. After successful installation, The device is listed in the **Device Manage** as **Marvell Unify Configuration** (under **System devices**)

Installing driver for supported Windows XP, Server 2003 operating system:

1. Start windows and insert the driver CD into the CD-ROM drive, assume drive A
2. Windows will automatically detect the SATA card, elect "**No, not this time**" and click the Next button to continue.
3. Select "**Install from a list or specific location (Advance)**" and click on the **Next** button.
4. Browse to the following folder on the driver CD according to your operating system:
   >Windows XP 32-bit and Server 2003 32-bit:
   A:\2010A2\Marvell\92XX\Widows 2003_XP\i386
   >Windows XP 64-bit and Server 2003 64-bit:
   A:\2010A2\Marvell\92XX\Widows 2003_XP\amd64

Follow the on-screen instruction to install the driver.

After successful installation, The SATA controller is listed in the **Device Manager** as **Marvell 92xx SATA 6G Controller** (under **SCSI and RAID controllers**).

For this controller an additional device **Marvell Console SCSI Processor Device** is detected, select "**No, not this time**" and click the **Next** button to continue.

Select "**Install from a list or specific location (Advanced)**" and click on the **Next** button.

Browse to the following folder on the driver CD according to your operating system:

> **Windows XP 32-bit and Server 2003 32-bit**:
A:\2010A2\Marvell\92XX\Widows 2003_XP\i386

> **Windows XP 64-bit and Server 2003 64-bit**:
A:\2010A2\Marvell\92XX\Widows 2003_XP\amd64

. Follow the on-screen instruction to install the driver.

. After successful installation, the device is listed in the **Device Manager** as **Marvell Unify Configuration** (under **System devices**).

. Once driver installation is completed, you can now connect your external devices to the SATA card. To install the driver for the external devices, please refer to the external device user's manuals.

r Linux OS

ux distributions contain Inbox drivers for AHCI devices.The drivers are installed automatically during e Linux OS installation.