DP SATA 6Gb/s 4-Port Hybrid PCIe

Quick Installation Guide

Introduction

The *DP SATA 6Gb/s 4-Port Hybrid PCIe* is a high performance SATA host adapter designed to add four internal Serial ATA 6Gb/s channels and two eSATA external connectors to your PCIe-equipped computer.

Features and Benefits

- Compliant with Serial ATA specification, Revision 3.0
- Hybrid (HyperDuo) enables 80% of SSD performance at one-third the cost
- Hardware RAID to offload the host CPU for maximum performance
- Supports RAID 0, 1 & 10
- Supports Port Multiplier FIS-based and Native Command Queuing (NCQ)
- Supports TRIM to extend the life of SSDs for maximum durability

System Requirements

- Desktop PC with an available 4-lane (or more) PCIe slot
- Windows® 8 (32-/64-bit) / 7 (32-/64-bit) / Vista (32-/64-bit) / XP (32-/64-bit) /Server 2003 & 2008 (32/64-bit) / Server 2008 R2

Package Contents

- *DP SATA 6Gb/s 4-Port Hybrid PCIe*
- Spare low profile bracket
- SATA data cable (2)
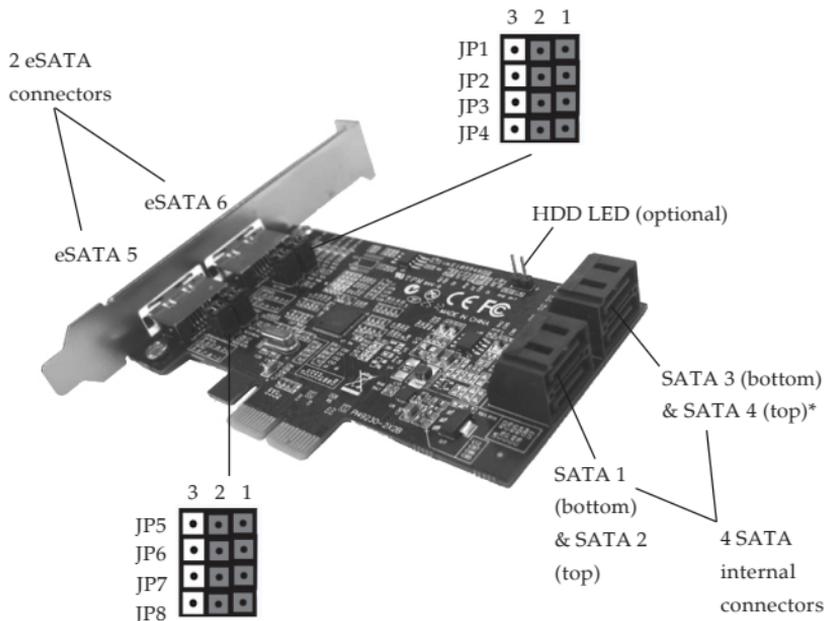- Driver CD
- Quick installation guide

Layout

Figure 1: Layout

*Note: The internal SATA 3 and SATA 4 connectors are dedicated channels, they can not be disabled.

Jumper Settings

Refer to **Figure 1** for the positions of each connectors. **SATA 1, 2** and **eSATA 5, 6** are interchangeable. Follow the instructions in **Table 1** to configure the jumper.

Output type	Output connectors	Description	
4 internal output (default setting)	SATA 1, SATA 2, SATA 3, SATA 4	JP1-JP8 1-2 short	
2 internal + 2 external output	SATA 3, SATA 4, eSATA 5, eSATA 6	JP1-JP8 2-3 short	
3 internal + 1 external output	SATA 2, SATA 3, SATA 4, eSATA 5	JP1-JP4 1-2 short JP5-JP8 2-3 short	
	SATA 1, SATA 3, SATA 4, eSATA 6	JP1-JP4 2-3 short JP5-JP8 1-2 short	

Table 1: Jumper Settings

Hardware Installation

For Low profile systems, install the spare low profile bracket now.

General instructions for installing the card are provided below. Since the design of computer cases and motherboards vary, refer to your computer's reference manual for further information, if needed.

Static Electricity Discharge may permanently damage your system. Discharge any static electricity build up in your body by touching your computer case for a few seconds. Avoid any contact with internal parts and handle cards only by their external edges.

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 cover.
4. Remove the slot bracket cover from an available PCI Express slot.

5. Carefully align the card's bus connector with the selected PCI Express slot on the motherboard. Push the board down firmly, but gently, until it is well seated.

6. Replace the slot bracket holding screw to secure the card.

Device Connection

The *DP SATA 6Gb/s 4-Port Hybrid PCIe* supports up to four Serial ATA hard disk drives. You will need to purchase additional SATA data cable(s) if a third or forth channel is going to be used.

1. Install your hard disk drive(s) in the chassis.

2. Connect the Serial ATA hard disk drive to the system power supply.

> **Note**: For hard drives with both SATA power connector and legacy 4-pin connector, use either the SATA power connector or the legacy 4-pin power connector. Using both power connectors may damage the hard drive.

3.   Connect one end of the *Serial ATA cable* to
       the hard disk drive.

Serial ATA

Power

Figure 2: SATA hard disk drive connections

4.   Attach the other end of the *Serial ATA data
       cable* to the Serial ATA connector on the *DP
       SATA 6Gb/s 4-Port Hybrid PCIe*.

5.   Follow the same instructions to connect the
       second hard drive, if needed. Device
       connection is now complete.

RAID Arrays

This controller can be configure for hardware
RAID 0, 1 and 10, if needed. If you don't need
RAID 0, 1 or 10, please proceed to **Driver
Installation** on page 13. RAID Arrays are setup
in the *DP SATA 6Gb/s 4-Port Hybrid PCIe* BIOS.

RAID 0 (Striping)

This RAID array to be used on **New/Blank** hard drives. Striping will destroy data on the hard drive. A minimum of 2 drives are needed to configure this array.

1. As the BIOS boots, press **Ctrl+M** when prompted to enter the **RAID** BIOS.

2. At the next screen select **HBA 0: Marvell 0**, press **Enter**. Select **Configuration Wizard,** then press **Enter**.

3. Use the **Up** or **Down** arrow key to choose a hard drive. Press the **Spacebar** to select the hard drive. Perform the same procedure with the other hard drive(s), you want to add to the array. When you are finished selecting the hard drives, press **Enter**.

4. Select **RAID Level** or **HyperDuo**, press **Enter**. Select **RAID 0**, then press **Enter**.

   Note: You can rename the VD Name. This is optional.

5. Select **Next**, press **Enter**. When asked **Do you want to create this virtual disk?** press **Y** to select **Yes**.

6. Press **F10** to exit the BIOS. When asked **Do you want to exit from Marvell BIOS Setup?** press **Y** to exit and reboot.

RAID 1 (Mirror)

Two drives are needed to make a Mirror.

1. As the BIOS boots, press **Ctrl+M** when prompted to enter the **RAID** BIOS.

2. At the next screen select **HBA 0: Marvell 0**, press **Enter**. Select **Configuration Wizard,** then press **Enter.**

3. Use **Up** or **Down** arrow key to choose a hard drive. Press **Spacebar** to select the hard drive. Perform the same procedure with the other hard drive. Once both hard drives are selected press **Enter**.

4. Select **RAID Level** or **HyperDuo**, press **Enter**. Select **RAID1**, then press **Enter**.

    Note: You can rename the VD Name. This is optional.

5. Select **Next**, press **Enter**. When asked **Do you want to create this virtual disk?** press **Y** to select **Yes.**

6. Press **F10** to exit the BIOS. When asked **Do you want to exit from Marvell BIOS Setup?** press **Y** to exit and reboot.

RAID 10 (Mirror+Striping)

Four drives are needed to make a RAID10.

1. As the BIOS boots, press **Ctrl+M** when prompted to enter the **RAID** BIOS.

2. At the next screen select **HBA 0: Marvell 0**, press **Enter**. Select **Configuration Wizard,** then press **Enter.**

3. Use **Up** or **Down** arrow key to choose hard drive. Press **Spacebar** to select the hard drive. Perform the same procedure with the other hard drives. Once all hard drives are selected press **Enter**.

4. Select **RAID Level** or **HyperDuo**, press **Enter**. Select **RAID10**, then press **Enter**.

    Note: You can rename the VD Name. This is optional.

5. Select **Next,** press **Enter**. When asked **Do you want to create this virtual disk?** press **Y** to select **Yes.**

6. Press **F10** to exit the BIOS. When asked **Do you want to exit from Marvell BIOS Setup?** press **Y** to exit and reboot.

Rebuilding a Failed Mirror Set

When a failure to one member occurs, you will be notified by the **RAID BIOS** during boot up. 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 boot the computer.
2. As the BIOS boots press **Ctrl+M** when prompted to enter the **RAID** BIOS.
3. Select **New_VD**, press Enter. Select **Rebuild** then press **Enter**.
4. Select the new hard drive under **Free Physical Disks**.
5. Press **Spacebar** to select hard drive, then press **Enter**.
6. When asked **Do you want to rebuild with selected physical disk on this vd?**, press **Y** to select **Yes**. The mirror will begin rebuilding. Do not interfere with the process until completion.

7.   Press **F10** to exit the BIOS. When asked **Do you want to exit from Marvell BIOS setup?** press **Y** to exit and reboot.

Deleting RAID Arrays

Deleting a RAID array will destroy data on the hard drives. Please backup all data on your hard drive before deleting any RAID array.

1.   As the BIOS boots press **Ctrl+M** when prompted to enter the **RAID** BIOS.

2.   Select **New_VD** press **Enter**. Select **Delete** then press **Enter**.

3.   When asked **Do you want to delete this virtual disk?** press **Y** to select **Yes**.

4.   When asked **Do you want to delete MBR from this virtual disk?**, press **Y** to select **Yes**.

5.   Press **F10** to exit the BIOS. When asked **Do you want to exit from Marvell BIOS setup?** press **Y** to exit and reboot.

Driver Installation

This section provides information on how to install the drivers.

Windows 8 (32-/64-bit) / Windows 7 (32-/64-bit) / Server 2008 R2

For New Installation

1. Setup the RAID array prior to Windows installation. If RAID is not required, go directly to step 2.
2. Follow Windows installation procedure.
3. At the Windows desktop:
    For Windows 8 / 7: Right click **Computer**, click **Manage**, click **Device Manager**.
    For Server 2008 R2: Click **Computer**, click **Manage**. Double click **Diagnostics**, click **Device Manager.**
4. Right click **Marvell Console** or **Marvell Console ATA Device** under **Other devices**, click **Update Driver Software**.
5. Click **Browse my computer for driver software**, insert the driver CD. Close the CD autoplay window if prompted.

6. *For 32-bit*: Type **D:\Drivers\storport\i386**, click **Next**. (Change **D:** to match your CD-/DVD-ROM drive letter)

   For 64-bit: Type **D:\Drivers\storport\amd64**, click **Next**. (Change **D:** to match your CD-/DVD-ROM drive letter)

7. Click **Close**, then restart the computer.

For Existing Installation

1. Setup the RAID array prior to driver installation and boot up to Windows. If RAID is not required, simply boot up Windows and go directly to step 2.

2. *For Windows 8 / 7:* Right click **Computer**, click **Manage**, click **Device Manager**.

   For Server 2008 R2: Click **Computer**, click **Manage**. Double click **Diagnostics**, click **Device Manager.**

3. Right click **Marvell Console** or **Marvell Console ATA Device** under **Other devices**, click **Update Driver Software**.

4. Click **Browse my computer for driver software**, insert the driver CD. Close the CD autoplay window if prompted.

5.   *For 32-bit*: Type **D:\Drivers\storport\i386**, click **Next**. (Change **D:** to match your CD-/DVD-ROM drive letter)

     For 64-bit: Type **D:\Drivers\storport\ amd64**, click **Next**. (Change **D:** to match your CD-/DVD-ROM drive letter)

6.   Click **Close**, then restart the computer.

Windows Vista (32-/64-bit) / Server 2008 (32-/64-bit)

For A New Installation

1.   Setup the RAID array prior to Windows installation. If RAID is not required, go directly to step 2.

2.   Follow Windows installation procedure.

3.   After booting up the Windows, click **Cancel** at the **Found New Hardware** window.

4.   *For Windows Vista*: Right click **Computer**, click **Manage**, click **Continue**, click **Device Manager.**

     For Server 2008: Right click **Computer**, click **Manage**. Double click **Diagnostics**, click **Device Manager.**

5. Right click **Marvell Console ATA Device** under **Other devices**, click **Update Driver Software**.

6. Click **Browse my computer for driver software**.

7. Insert the driver CD. Close the CD autoplay window if prompted.

8. *For 32-bit*: Type **D:\Drivers\storport\i386**, click **Next**. (Change **D:** to match your CD-/DVD-ROM drive letter)

   For 64-bit: Type **D:\Drivers\storport\amd64**, click **Next**. (Change **D:** to match your CD-/DVD-ROM drive letter)

9. Click **Close**, then restart the computer.

For Existing Installation

1. Setup the RAID array prior to driver installation and boot up to Windows. If RAID is not required, simply boot up Windows and go directly to step 2.

2. At the **Found New Hardware** window, click **Cancel**.

3. *For Windows Vista*: Click **Computer**, click **Manage**, click **Continue**, click **Device Manager.**

   For Server 2008: Click **Computer**, click **Manage**. Double click **Diagnostics**, click **Device Manager.**

4. Right click **Marvell Console ATA Device** under **Other devices**, click **Update Driver Software**.

5. Insert the driver CD. Close the CD autoplay window if prompted.

6. Click **Browse my computer for driver software**.

7. *For 32-bit*: Type **D:\Drivers\storport\i386**, click **Next**. (Change **D:** to match your CD-/DVD-ROM drive letter)

   For 64-bit: Type **D:\Drivers\storport\amd64**, click **Next**. (Change **D:** to match your CD-/DVD-ROM drive letter)

8. Click **Close**, then restart the computer.

Windows XP (32-/64-bit) / Server 2003 (32-/64-bit)

Important: New Installation is not supported by Windows XP and Windows Server 2003.

For Existing Installation

1.   Setup the RAID array prior to driver installation and boot up Windows. If RAID is not required, simply boot up Windows and go directly to step 2.

2.   At the **Found New Hardware** window, click **No, not this time**, click **Next**. Skip this step if not prompted.

3.   Click **Install from a specific location (advanced)**, click **Next**.

4.   Check **Include this location in the search**, uncheck the other box.

5.   Insert driver CD.
     For 32-bit: Type **D:\Drivers\miniport\i386**, click **Next**. (Change **D:** to match your CD-/DVD-ROM drive letter)
     For 64-bit: Type **D:\Drivers\miniport\ amd64**, click **Next**. (Change **D:** to match your CD-/DVD-ROM drive letter)

6.   Click **Finish**.

7.   Repeat steps 2-6.

8.   Restart the computer.

To Verify Windows Installation

1.   Use Device Manager to verify installation.
     For Windows 8 / 7 / XP / Server 2003: Right click **Computer** or **My Computer**, click **Manage**, click **Device Manager**.
     For Windows Vista: Right click **Computer**, click **Manage**, click **Continue**. Click **Device Manager**.
     For Windows Server 2008 / 2008 R2: Right click **Computer**, click **Manage**. Double click **Diagnostics**, click **Device Manager**.

2.   Double click **System devices**, **Marvell Unify Configuration** should be displayed.

Marvell Storage Utility

Follow the instuctions below to install the **Marvell Storage Utility** GUI.

1. Double click **MSUSetup** in the GUI folder on your software CD.
2. At the User Account Control, click **Yes** or **Continue**. Skip this step if not prompted.
3. At Welcome to the Marvell MSU V4 Setup Wizard, click **Next**.
4. At License Agreement, select **I accept the terms of the License Agreement**, click **Next**.
5. Click **Next** again.
6. Change the Destination folder if you want to change it; otherwise, click **Install**.
7. Click **Allow access** at the Windows Security Alert. Skip this step if not prompted.
8. At the Completing the Marvell MSU V4 Setup Wizard, click **Finish**.
9. After successful installation, the MSU GUI is ready for use. Enable the software by double click on it.

10. Type in the Username and Password to log in. Username and Password are your Windows user name and password. If you have a user name but no password, please leave the password field blank.

Figure 3

11. After log in, you can access to the MSU user interface for further VD management. See **Figure 4** in the next page.

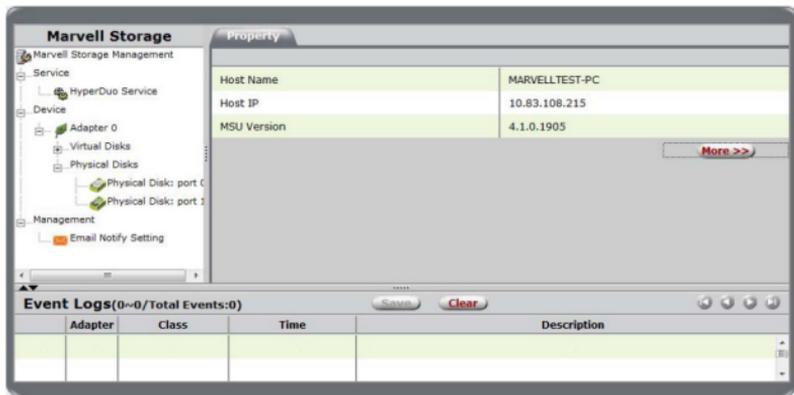Refer to your UserGuide on the software CD for more details.

Figure 4

Technical Support and Warranty

QUESTIONS? SIIG's **Online Support** has answers! Simply visit our web site at *www.siig.com* and click **Support**. Our online support database is updated daily with new drivers and solutions. Answers to your questions could be just a few clicks away. You can also submit questions online and a technical support analyst will promptly respond.

SIIG offers a 5-year manufacturer warranty with this product. This warranty covers the original purchaser and guarantees the product to be free of any defects in materials or workmanship for five (5) years from the date of purchase of the product.

SIIG will, at our discretion, repair or replace (with an identical product or product having similar features and functionality) the product if defective in materials or workmanship. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Please see our web site for more warranty details.

If you encounter any problems with this product, please follow the procedures below.

A) If it is within the store's return policy period, please return the product to the store where you purchased from.

B) If your purchase has passed the store's return policy period, please follow the steps below to have the product repaired or replaced.

> **Step 1:** Submit your RMA request.
>
> Go to **www.siig.com**, click **Support**, then **REQUEST A PRODUCT REPLACEMENT** to submit a request to SIIG RMA or fax a request to 510-657-5962. Your RMA request will be processed, if the product is determined to be defective, an RMA number will be issued.

> **Step 2:** After obtaining an RMA number, ship the product.
> - Properly pack the product for shipping. All accessories that came with the original package must be included.
> - Clearly write your RMA number on the top of the returned package. SIIG will refuse to accept any shipping package, and will not be responsible for a product returned without an RMA number posted on the outside of the shipping carton.
> - You are responsible for the cost of shipping to SIIG. Ship the product to the following address:
>
>   **SIIG, Inc.**
>   **6078 Stewart Avenue**
>   **Fremont, CA 94538-3152, USA**
>   **RMA #:** _____
>
> - SIIG will ship the repaired or replaced product via Ground in the U.S. and International Economy outside of the U.S. at no cost to the customer.

About SIIG, Inc.

Founded in 1985, SIIG, Inc. is a leading manufacturer of IT connectivity solutions (including Serial ATA and Ultra ATA Controllers, FireWire, USB, and legacy I/O adapters) that bridge the connection between Desktop/Notebook systems and external peripherals. SIIG continues to grow by adding A/V and Digital Signage connectivity solutions to our extensive portfolio. SIIG products offer comprehensive user manuals, many user-friendly features, and are backed by an extensive manufacturer warranty. High quality control standards are evident by the overall ease of installation and compatibility of our products, as well as one of the lowest defective return rates in the industry. SIIG products can be found in computer retail stores, mail order catalogs, through major distributors, system integrators, and VARs in the Americas and the UK, and through e-commerce sites.