eSATA II ExpressCard RAID Quick Installation Guide

Introducing the *eSATA ExpressCard RAID*

The *eSATA II Express Card RAID* is an ultra high-speed two channel Serial ATA Generation II RAID controller for use in ExpressCard enabled systems.

Features and Benefits

- Adds two eSATA (external Serial ATA) ports
- Supports RAID 0 (stripe) and RAID 1 (mirror)
- Supports data transfer speeds up to 3.0Gbps (300MBps)
- Compliant with ExpressCard standards
- Compliant with Serial ATA 2.5 specification with support for a complement of SATA II optional features
- Supports Native Command Queuing (NCQ), Non-zero offsets NCQ, and Out-of-order data delivery NCQ
- Independent command fetch, scatter/gather, and command execution
- Supports hard disk hot-plugging

System Requirements

- ExpressCard-enabled system with an available ExpressCard slot
- Windows 2000/XP/Server 2003

Package Contents

- *eSATA II ExpressCard RAID*
- Driver CD
- This quick installation guide
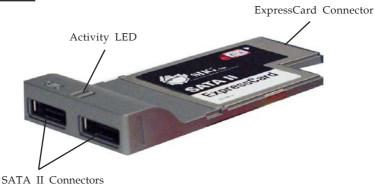
Layout

Figure 1. eSATA II ExpressCard RAID

Hardware Installation

General instructions for installing the card are provided below. Since the design of systems may vary, refer to your system's reference manual for further information, if needed.

Insert the Card into the ExpressCard slot of your system. Make sure it is inserted all the way in for a solid connection.

External Device Connection

External Serial ATA hard disk drives should come with their own accessories. In most cases, you just need to power up the external device and connect them to the external ports.

Software Installation

This section provides information on how to install the *eSATA II ExpressCard RAID* drivers.

Windows 2000

1. Install the ExpressCard then boot up Windows.
2. At **Found New Hardware Wizard**, click **Next**.
3. Select **Search for a suitable driver for my device (recommended),** then click **Next**.
4. Insert the driver CD, check **CD-ROM drives**, uncheck the other boxes, click **Next,** then click **Next** again.
5. Click **Finish**.
6. Repeat steps **2-5**.
7. Restart Windows to complete the installation.

When Windows resumes, go to **SATARaid5 GUI** on page 4 and install the RAID utility.

Windows XP/Server 2003

1. Install the ExpressCard then boot up Windows.
2. At the **Found New Hardware Wizard**:

    XP (w/SP1 or earlier)/Server 2003: continue to step **2**.

    XP (w/SP2 or later)/Server 2003 (w/ SP1 or later): select **No, not at this time**, then click **Next**.
3. Insert the driver CD, select **Install the software automatically (Recommended)**, and click **Next**.
4. Accept the default entry, then click **Next**.
5. Click **Finish**.
6. Repeat steps **2-5**.
7. Restart Windows to complete the installation.

When Windows resumes, go to **SATARaid5 GUI** on page 4 and install the RAID utility.

To Verify Windows 2000/XP/2003 Installation

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

2. Select **Device Manager**.

3. Double click **SCSI and RAID controllers**, then double click **Silicon Image Sil 3132 SoftRaid 5 Controller** to display driver properties. A message *This device is working properly* is displayed in the dialog box, the driver has been correctly installed.
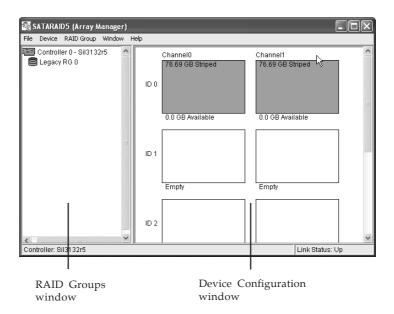
SATARaid5 GUI

The SATARaid5 GUI provides the user an easy way to configure and monitor your RAID set.

Installing SATARaid5 GUI

1. Place the driver CD into the CD-ROM drive.

2. At the Windows desktop click **Start**, then **Run**.

3. Type **D:\Setup.exe**, then click **OK**. (Change **D:** to match your CD-ROM drive letter)

4. Click **Next**, then click **Next** again.

5. At the **Select Components** box, uncheck **RAID5 Driver**, then click **Next**.

6. Follow the on-screen instructions to complete the installation.

SATARaid5 GUI Overview

The installation program configures the SATARaid5 GUI to automatically start when Windows is started. If the GUI does not automatically start or is closed by the user, choose the SATARaid5 program from the start menu to launch the program. Upon launching the GUI, the main window should appear similar to the following.

RAID Groups window

Device Configuration window

RAID Groups window

This window identifies SATA host adapters and configured RAID groups. Selecting each RAID group in the RAID Groups window, members consisting of the RAID group will be highlighted in the Device Configuration window.

Right clicking on each node in the RAID Groups window, a popup menu will be displayed to let the user select an action to be performed for the selected controller or RAID group.

Device Configuration window

This window identifies all physical drives and their partitions. A physical drive can be partitioned into several portions and each portion can be a RAID group member.

Creating RAID Array

The *SATA II ExpressCard RAID* is a two channel Serial ATA controller that supports two Serial ATA hard disk drives. It is recommended to use identical hard drives for all RAID configurations, however, it's possible to combine hard drives of different sizes and makes. This section will guide you in setting up a RAID Array.

RAID 0 (Striping)

Striping will erase any existing data on the hard drive. Make sure you back up your data before striping.

1. Double click the the **SATARAID5** icon on the desktop to display the **SATARAID5 Array Manager**. Before proceeding confirm that both hard drives display as **Available**.

2. In the menu bar click **RAID Group**, click **Create RAID Group** then click **Yes**.

3. In **Configuration** box, select **Striped**.

4. In **Capacity** box, select the desired stripe size. Select **MAX** for the maximum capacity.

5. Select **Chunk** size as determined by your application. The default of **8** is used in most cases.

6. In **Path ID**, select both hard disk drives, then click **Create**.

7. Click **Close**, then restart Windows.

When Windows resumes, go to **Disk Management** on page **8** to format the RAID Array.

RAID 1 (Mirror)

1. Double click the the **SATARAID5** icon on the desktop to display the **SATARAID5 Array Manager**. Before proceeding confirm that both hard drives display as **Available**.

2. In the menu bar click **RAID Group**, click **Create RAID Group** then click **Yes**.

3. In **Configuration** box, select **Mirrored**.

4. In **Capacity** box, select the desired mirror size. Select **MAX** for the maximum capacity.

5. In **Path ID**, select both hard disk drives, then click **Create**.

6. Click **Close**, then restart Windows.

When Windows resumes, go to **Disk Management** on page **8** to format the RAID Array. Formating will erase all exixting data from the hard drive.

JBOD (Concatenated)

JBOD will add the full capacity of each hard drive to make one single drive. In this configuration, data is not saved on the second drive until the first drive is full.

1. Double click the the **SATARAID5** icon on the desktop to display the **SATARAID5 Array Manager**. Before proceeding confirm that both hard drives display as **Available**.

2. In the menu bar click **RAID Group**, click **Create RAID Group** then click **Yes**.

3. In **Configuration** box, select **Concatenated**.

4. Select each hard drive, then click **Next**.

5. Enter the capacity of each hard drive, then click **Create**.

6.   Click **Close**, then restart Windows.

When Windows resumes, go to **Disk Management** on page **8** to format the RAID Array. Formating will erase all exixting data from the hard drive.

Single Drive Setup (non-RAID)

The eSATA II ExpressCard RAID has the flexibility to work in RAID or non-RAID mode. Please use these steps if RAID is not needed.

1.   Double click the the **SATARAID5** icon on the desktop to display the **SATARAID5 Array Manager**. Before proceeding confirm that the hard drive(s) display as **Available**.

2.   In the menu bar click **RAID Group**, click **Create RAID Group** then click **Yes**.

3.   In **Configuration** box, select **Contiguous**.

4.   Select a hard drive, then click **Next**.

5.   Enter the capacity of the hard drive, then click **Create**.

6.   Click **Close**, then restart Windows.

When Windows resumes, go to **Disk Management** to format the hard drive. Formating will erase all exixting data from the hard drive.

Disk Management

With Windows' Disk Management utility you can easily create, delete and format partitions while in Windows.

1.   Right click My Computer, click Manage then click Disk Management.

2.   Right click the box marked **Unknown Disk**, then click **Initialize Disk**.

3. Select the disk, then click **OK**.

4. Right click **Unallocated**, then click **New Partition**.

5. At the **New Partition Wizard**, click **Next**.

6. Select a partition type, then click **Next**.

7. Select **Partition Size**, then click **Next**. *The default is the maximum capacity of the RAID Array*.

8. Accept the default driver letter, then click **Next**.

9. At the **Format Partition** window, select **File System**, **Allocation Unit Size** and **Volume label**, then click **Next**. *It is recommended to accept the default values.*

> **Note**: Due to a limitation in Windows' **Disk Management** utility, the partition size for the FAT32 file system is limited to 30GB or less.

10. Click **Finish** to begin the format. Do not turn off the computer while formating. Depending on the size of your RAID Array, formatting could take up to 2 hours or more to complete.

SATARAID 5 Configuration Menu

SATARAID5 configuration menu includes customization of the settings for Log File, Popup and Advanced Options. By clicking on File, then Configuration, the user may customize the settings for Log File, Popup and Advanced Options tabs.

Log File

The log file is used to store event information received from all the RAID drivers. The log file can be viewed with any text viewer (such as Notepad) or with the Event Log window of SATARAID5 GUI. Use the Log File tab to enable/disable the log file, set where the log file should be stored and the name of the file as well.

Popup

The popup window is a visual notification that an event has occurred. The popup window can be disabled or set to popup for only certain event levels.

The different levels are:

Informational - The popup window will be displayed for the following events:

- Informational
- Warnings
- Errors

Warning - The popup window will be displayed for the following events:

- Warnings
- Errors

Errors - The popup window will be displayed for the following events:

- Errors

Disabled - No popup will occur

Advanced Options

The advanced options tab is used to control advanced features of the RAID driver. By default, all advanced options are disabled.

Legacy (Bootable) Support: When this feature is selected, Legacy Support menu will be available in the menu bar. The Legacy Support menu includes a list of menu items to support RAID functions for legacy RAID groups.

Delete Member Support: When this feature is selected, Delete Member menu item will be available under the Device menu. The Delete Member menu item allows the user to delete a member from RAID 1 group.

Advanced RAID Features: When this feature is selected and the user selects to create RAID group, if the RAID group to be created is fault tolerant group (RAID1), the user will be able to select Improper Shutdown Policy in the Create RAID Group dialog box. The Advanced RAID Features are not supported for Legacy RAID groups.

Resources Info Support: When this feature is selected, Resources menu item will be available under the Window menu. This feature is for debugging purpose only.

Device Menu Commands

Create Spare and Delete Spare

This command displays a dialog box to let the user create or delete a spare drive. This feature is not used with the *SATA II PCIe RAID*.

Delete Member

This command displays a dialog box to let the user choose RAID groups' members to delete. Since RAID 0 is not fault-tolerant, RAID 0 members will not be shown in the list.

Delete Orphan

An orphan device segment is part of a RAID group that cannot access another device segment within the same RAID group. When a member of a RAID group fails (such as a loss of power or a complete hard disk failure), it becomes an orphan. This command displays the Delete Orphan Segment window to show all orphan segments and allows the user to delete selected orphan segments.

Device Summary

This command displays the Segment Summary window to show all physical devices' segments.

RAID Group Menu Commands

Create RAID Group

This command displays a dialog box to let user create a RAID group, the user needs to specify the following parameters:

RAID Group Label: Provides a name for the RAID group.

RAID Group: Select a group ID from the available ID list.

Configuration:

Striped: for RAID 0; *Mirrored*: for RAID 1

Capacity: Select from a list of RAID group sizes. Selecting MAX will create the largest RAID set possible with the drives selected.

Chunk Size: Select one size from the available list. This setting is for RAID 0 (Stripe) set only.

Rebuild Priority: Select from the available list. RAID 0 and virtual disk do not require this. 10 is the highest level of rebuild priority which means that rebuild times will be faster but will take more CPU resources to rebuild.

Devices: Select RAID member devices from the available device segment list.

Rebuild RAID Group

This command displays a dialog box to let the user choose a replacement segment to rebuild a non-fault tolerant RAID group.

Delete RAID Group

This command displays a dialog box to let the user choose RAID groups to delete.

RAID Group Summary

This command displays a dialog box to show all RAID groups' group ID, configuration and status. The RAID Group Summary window has it's own menu bar. All options available via the menu bar are shown below.

Sorting: This command displays a dialog box to let the user choose up to 3 items to sort RAID group items in the RAID Group Summary window.

Fields: This command displays a dialog box to let the user choose which fields will be shown in the RAID Group Summary window.

Window Menu Commands

Task Manager

This command displays the Task Manager window. The Task Manager window list all RAID and disk management tasks that have been started and/or done. This window provides the user with the ability to schedule any RAID and disk management operations including RAID group creation, rebuild and test. The Task Manager window has it's own menu bar. All options available via the menu bar are shown below.

Open, Save and Print: These options will be available in future revisions.

Sorting: This command displays a dialog box to let the user choose up to 3 items to sort task items in the task list.

Fields: This command displays a dialog box to let the user choose which fields will be shown in the task list.

Modify: This command allows the user to modify parameters of the selected task items.

Suspend: This command allows the user to suspend the selected task items.

Resume: This command allows the user to resume the suspended task items.

Cancel: This command allows the user to cancel the selected task items.

Delete: This command displays a dialog box to let the user delete the selected task items.

Event Log

This command displays the Event Log window. The Event Log window displays SATA device-related events that occur while SATARAID5 GUI is running. The Event Log window has it's own menu bar. All options available via the menu bar are shown below.

Sorting: This command displays a dialog box to the the user choose up to 3 items to sort event items in the event log.

Fields: This command displays a dialog box to let the user choose which fields will be shown in the event log.

Resources

This command displays the Resources Information window. This feature is for debugging purpose only.

Legacy Support Menu Commands

Legacy (bootable) RAID Groups are not supported by the *eSATA II ExpressCard RAID*. This is presented for informational purposes only.

Create Legacy RAID Group

This command displays a dialog box to let the user create legacy (bootable) RAID groups. This item is disabled if new RAID groups exist. The parameters are discussed below.

RAID Group: Selects a group ID from the available list.

Configuration:

Striped: for RAID 0; *Mirrored*: for RAID 1

Capacity: Select from a list of RAID group sizes.

Chunk Size: Select one value from the available list.

Rebuild Priority: Select from the available list. RAID 0 and virtual disk do not require this. 10 is the highest level of rebuild priority which means that rebuild times will be faster but will take more CPU resources to rebuild.

Devices: Select RAID member devices from the available device segment list.

Rebuild Legacy RAID Group

This command displays a dialog box to let the user choose a replacement segment to rebuild a non-fault tolerant legacy RAID group.

Delete Legacy RAID Group

This command displays a dialog box to let the user choose legacy RAID groups to delete. This item is disabled if no legacy RAID group exists.

Convert Legacy RAID Group

This command displays a dialog box to let the user choose legacy RAID groups to convert to new RAID groups of the same RAID type. This item is disabled if no legacy RAID group exists.

Create/Delete/Convert Legacy Spare

These commands display a dialog box to let the user configure a legacy spare. These features are not used with the *eSATA II ExpressCard RAID*.

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Technical Support and Warranty

QUESTIONS? SIIG's **Online Support** has answers! Simply visit our website at *www.siig.com* and click on **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 one of our technical support analysts will promptly respond.

A lifetime manufacturer warranty supplied with this product is offered by SIIG, Inc. Please see SIIG website for more warranty details. If you should happen to encounter any problems with this product, please follow the procedures below.

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

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

   Step 1: Submit your RMA request.

   Go to **www.siig.com**, click **Support**, then **RMA** to submit a request to <u>SIIG RMA</u>. If the product is determined to be defective, an RMA number will be issued. SIIG RMA department can also be reached at (510)413-5333.

   Step 2: After obtaining an RMA number, ship the product.

- Properly pack the product for shipping. All software, cable(s) and any other 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 the product to SIIG at the following address:

   SIIG, Inc.
   6078 Stewart Avenue
   Fremont, CA 94538
   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.

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About SIIG, Inc.

Founded in 1985, SIIG, Inc. is a leading computer upgrade manufacturer of I/O connectivity products, including PCI & ISA serial and parallel ports, USB, Serial ATA & Ultra ATA controllers, FireWire (1394a/b), Networking, Sound Cards, and other accessories. SIIG is the premier one-stop source of upgrades.

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, and e-commerce sites in the Americas and the UK, as well as through major distributors, system integrators, and VARs.