



Galaxy SATA-FC RAID Quick Installation Guide

Introduction

This *Quick Installation Guide* (QIG) briefly describes how to install the Galaxy RAID Dual and the Galaxy RAID Single subsystems.

This QIG does not describe the Galaxy RAID subsystem or list any specifications. For more detailed information please refer to the *Installation and Hardware Reference Manual* that is found on the CD that came with the subsystem.

IMPORTANT NOTE:

- 1. CHECK THE MODEL NUMBER TO MAKE SURE IT IS THE CORRECT ITEM.**
- 2. FOLLOW ALL SAFETY PRECAUTIONS OUTLINED IN THE INSTALLATION AND HARDWARE REFERENCE MANUAL THAT IS FOUND ON THE CD THAT CAME WITH THE SUBSYSTEM.**

Safety Considerations and Prerequisites

When installing the Galaxy RAID subsystem, the safety guidelines stipulated below should be strictly adhered to:

- **Anti-static Environment** – The Galaxy subsystem must be installed in a static-free environment to minimize the possibility of electrostatic discharge (ESD) damage.
- **Correct Installation** – Prior to powering on the subsystem, ensure that all the components are correctly installed. If they have not been correctly installed, the normalized cooling airflow will be disrupted and thermal damage may occur.
- **Handle Components Carefully** – Handle the subsystem components with care. Rough or improper handling of the subsystem components may lead to permanent component damage that may inhibit the performance of the subsystem.
- **Qualified Engineers** – Qualified engineers who are familiar with the Galaxy RAID subsystem should be the only ones who make component replacements.
- **Unpacking List** – Prior to installation, verify that all the required components were delivered by comparing the package contents against the *Unpacking List*.
- **Hard Drive Preparation** – Prior to installing the subsystem, make sure sixteen (16) serial ATA (SATA) or parallel ATA (PATA) drives have been purchased and are readily available for installation.
- **MUX Kit Preparation** – If PATA drives are being used, make sure sixteen (16) SATA-to-PATA MUX kits have been purchased and are readily available for installation.

Pre-installed Items

1. Cooling modules
2. Power supply unit (PSU) modules
3. Battery backup unit (BBU) modules
4. SATA-to-SATA MUX kits

Items to be Installed

1. Controller modules
2. SATA-to-PATA MUX kits (if PATA drives are used)
3. Hard drives (HDDs)
4. Drive trays
5. Power cables
6. Ethernet cord
7. RS-232C audio jack cables

Installation Procedure

Step 1. Controller Module Installation

Step 2. SATA or PATA Drive Installation

Step 3. Drive Tray Installation

Step 4. Cable Connections

Step 5. Set DIP Switch Settings

Step 6. Power On

Controller Module Installation

NOTE: Before installing the controller module, please ensure that both the BBU and the SDRAM DIMM modules have been installed.

To install the controller module, please follow these steps:

Step 1: Pull the ejector handles outward and orient them to an angle of approximately 15 degrees relative to the controller rear panel. Carefully orient them so that the notches on the handle can lock onto the protruded edge of enclosure rail on the side. This is crucial for the positive insertion of the controller unit.

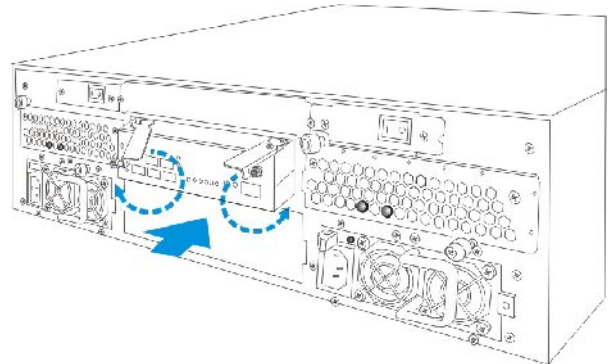


Figure 1: Inserting the Controller Module

Step 2: Hold the RAID controller module by its edges and insert it into the controller bay. Push the unit in until it reaches the end of the controller bay. The guide rails on the sides of the controller bay should make the plug-in process an effortless task. You should be able to feel the contact resistance of the docking connector when pushing the controller inwards. (See *Figure 1*)

Step 3: Secure the controller module to the enclosure by fastening the two hand screws on the eject handles at the rear of the controller module. Securing these screws will affix the eject handles to the controller module.

SATA Drive Installation

NOTE: The Galaxy subsystem can support both SATA and PATA drives. The drive trays all come with pre-installed SATA-to-SATA MUX kits so that SATA drives can be installed di

To install a SATA drive, please follow these instructions:

Step 1: Correctly orient the hard drive. Prior to installing the hard drive into the drive tray, make sure that the connector at the back of the drive is facing the back of the drive tray. This connector is connected to the MUX kit.

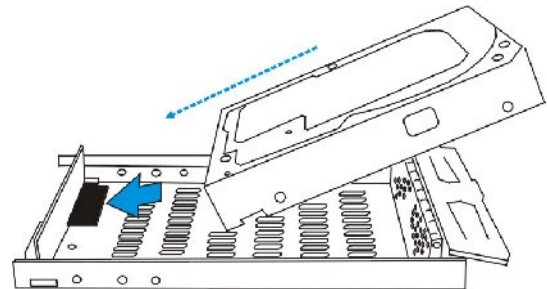


Figure 2: Insert the SATA Drive.

Step 2: Insert the hard drive. Hold the drive at an angle and place it into the drive tray. (See *Figure 2*)

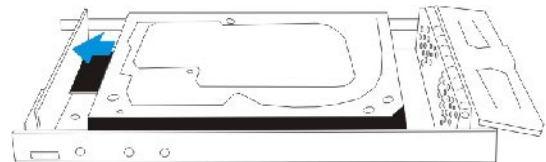


Figure 3: Slide the SATA drive to the Rear of the Subsystem.

Step 3: Connect the drive to the MUX kit. Once the drive is laying flat in the drive tray, slide it towards the rear of the drive tray until a solid connection between the drive connector and the MUX kit connector has been made. (See *Figure 3*)

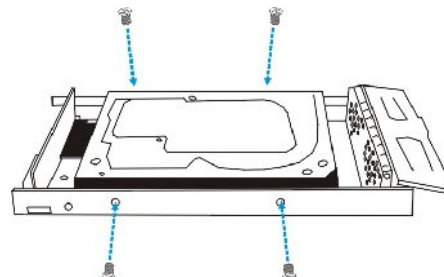


Figure 4: Insert Retention Screws

PATA Drive Installation

NOTE: The Galaxy RAID subsystem can support both SATA and PATA drives. The drive trays all come with pre-installed SATA-to-SATA MUX kits. To install a PATA drive, a SATA-to-PATA MUX kit must be installed.

To install a PATA drive, please follow these instructions:

Step 1: Remove the SATA-to-SATA MUX kit. All the drive trays are shipped with a pre-installed SATA-to-SATA MUX kit. To remove it, turn the drive tray upside down and remove the two retention screws that secure it to the drive tray. (See *Figure 5*)

Step 2: The SATA-to-PATA MUX kit is shown in *Figure 6*. It is mounted on a metal base that has three pre-drilled holes reserved for retention screws. Three corresponding pre-drilled screw holes can be found at the back of the drive tray shown in *Figure 7*.

Step 3: Place the MUX kit at the back of the drive tray. Hold the MUX kit in place and turn the drive tray over. **Align the holes** in the base of the drive tray with the holes in the MUX kit base tray. (See *Figure 7*)

Step 4: Insert the three available retention screws from the bottom of the drive tray. These screws will firmly secure the MUX kit to the drive tray and facilitate the installation of the appropriate drive. The MUX kit should be mounted as shown in *Figure 8*.

Step 5: For PATA drives, connect the ATA and power cables from the MUX kit to the hard drive. (See *Figure 9*) Make sure that these connections are secure and will not come loose.

Step 6: Once the connectors from the MUX kit have been firmly attached to the hard drive, **place the hard drive into the drive tray** as shown in *Figure 10*.

Step 7: Adjust the drive's location until the mounting holes in the drive canister are aligned with those on the hard drive. Secure the drive with 4 supplied 6/32 flat-head screws. (See in *Figure 10*)

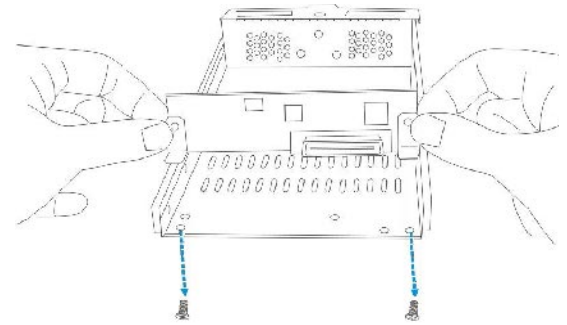


Figure 5: Remove the SATA-to-SATA MUX Kit.

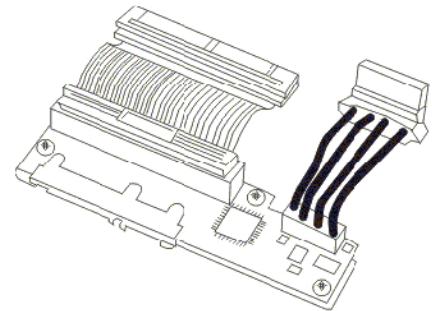


Figure 6: SATA-to-PATA MUX Kit

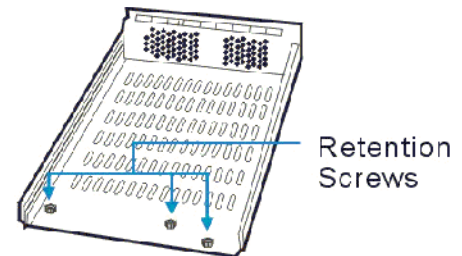


Figure 7: Retention Screw Locations in Empty Drive Tray

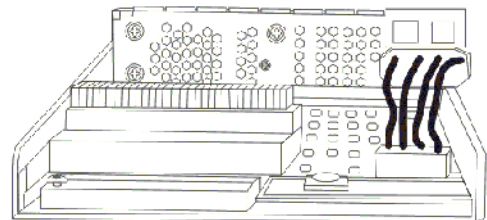


Figure 8: Place the MUX Kit at the Rear of the Drive Tray.

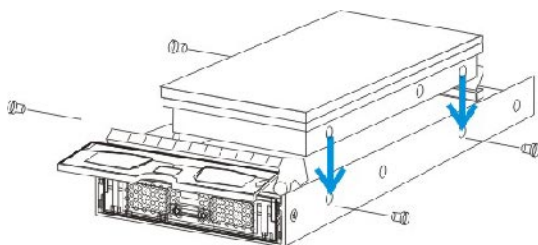


Figure 10: Inserting the PATA Drive

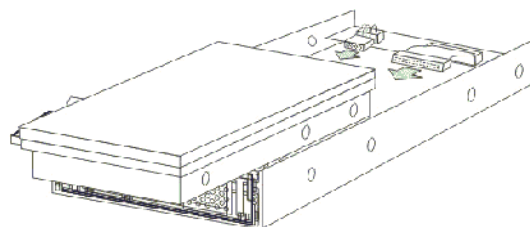


Figure 9: PATA Hard Drive Connectors

Drive Tray Installation

NOTE: After the hard drives have been installed into the drive trays, the trays themselves must be inserted into the Galaxy RAID subsystem.

To install the drive trays into the subsystem, please follow these instructions:

Step 1: Make sure the key-lock is in the unlocked position. The key-lock is unlocked if the groove on its face is in a horizontal orientation. If the groove is in a vertical position, as shown in *Figure 11*, then the key-lock is locked and the front flap on the drive tray cannot be opened.

Step 2: Open the front flap on the drive tray. (See *Figure 12*) To open the flap, push the clip (shown in *Figure 11*) on the front of the drive tray in an upward direction. The clip is easy to access and lift.

Step 3: Line the drive tray up with the slot in which you wish to insert it. Make sure that it is resting on the rails inside the enclosure. Once the drive tray is lined up with the slot, gently slide it in. This should be done smoothly and gently.

Step 4: Close the front flap on the drive tray. Make sure the front flap is closed properly. Closing the front flap ensures that the SCA connector at the back of the drive tray is firmly connected to the corresponding connector on the mid-plane board. If the front flap is not closed properly, then the connection between the HDD and the subsystem will not be secure. To lock the flap into place turn the key-lock until the groove on its face is in a vertical orientation. (See *Figure 13*)

Cable Connections

NOTE: Once all the hardware components have been installed, the following items must be connected:

Power Cords: The two power cords that came with the Galaxy RAID must be plugged into the PSU module sockets at the rear of the Galaxy RAID and connected directly to the main power source. The PSU socket can be seen in *Figure 14*.

Host Ports: The FC-to-SATA controller modules come with five SFP connectors at the rear of the controller module and can be seen in *Figure 15*. (Details on FC cables and SFP connectors can be found in the *Hardware Manual*) Four are used as external interfaces for the two FC-2G host channels that are routed through a hub and one is used as an expansion port to connect to an external JBOD.

RS-232C Audio Jack: Each controller module comes with two RS-232C audio jack serial ports. One port is reserved for terminal emulation the other port is used for UPS support. Audio jack-to-DB9 cables are provided to facilitate the connection of the COM1 serial ports. (See *Figure 15*)

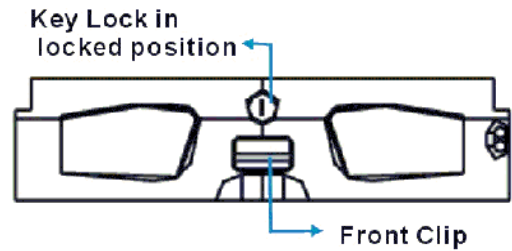


Figure 11: Drive Tray Front View

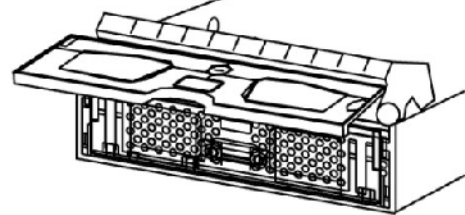


Figure 12: Drive Tray with Open Front Flap

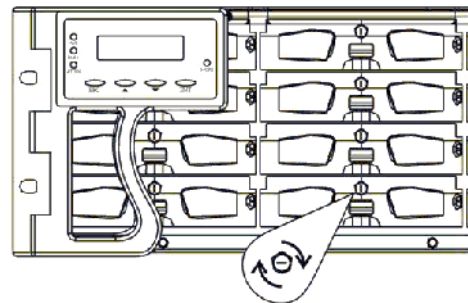


Figure 13: Drive Tray Key-lock Rotation

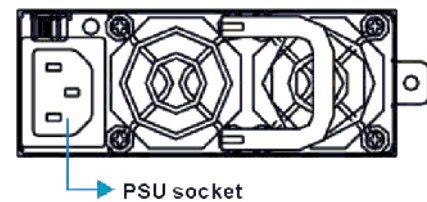


Figure 14: PSU Rear View

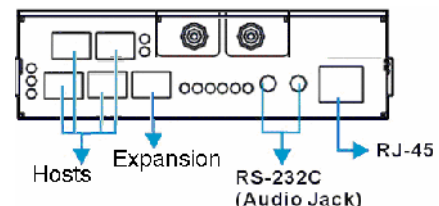


Figure 15: Galaxy RAID Controller Rear View

RJ-45 Ethernet Port: Shielded Ethernet cables must be used to connect the RJ-45 Ethernet port to a hub on a network. This enables you to manage your subsystem via the web. (See *Figure 15*)

Expansion: The Galaxy RAID comes with a fifth SFP connector (see *Figure 15*) for subsystem expansion. This SFP connector can be connected to an external JBOD to help increase the overall capacity of the storage network.

DIP Switch Settings: Prior to inserting the subsystem into a storage environment, the DIP switch settings must be made. The DIP switch is shown in *Figure 16*.

- ◆ **Enabling the HUB** - The controller board has an onboard HUB through which the host channels are routed to two SFP connectors each. If the FC-CH0/FC-CH1 (OUT) SFP connectors (see *Figure 16*) are going to be connected to an external device (another subsystem), the fourth switch from the left must be enabled. The default setting of “1” must be retained. If these SFP ports will not be connected the HUB must be disabled. To do this make the setting “0”.
- ◆ **Host Channel Speed** – For FC speed auto-detection, retain the default setting of the fifth switch from the left i.e. “0”. To set the host channel speed to 1Gbps, set the switch to “1”.

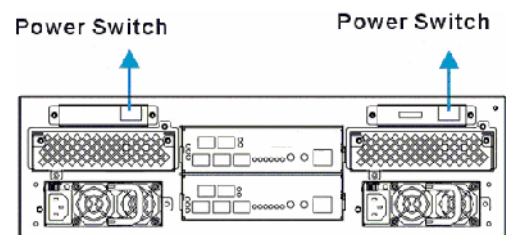
0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1
Reserved	Reserved	Reserved	HUBDisable/Enable	Host Auto/1G Fix	Reserved	Reserved	Reserved

Figure 16: DIP Switch Settings

Power On

To power on the subsystem, follow the procedure shown below:

1. Install all the hardware components.
2. Make all the connections described above
3. Power on any external connection devices (e.g. hubs and switches)
4. Power on external JBODs that are connected to the expansion port.
5. Power On the subsystem by turning on the switches shown in *Figure 17*.
6. Power on the Host Computers.



For more details on the power on procedure, please refer to the Hardware Manual that came with your subsystem.