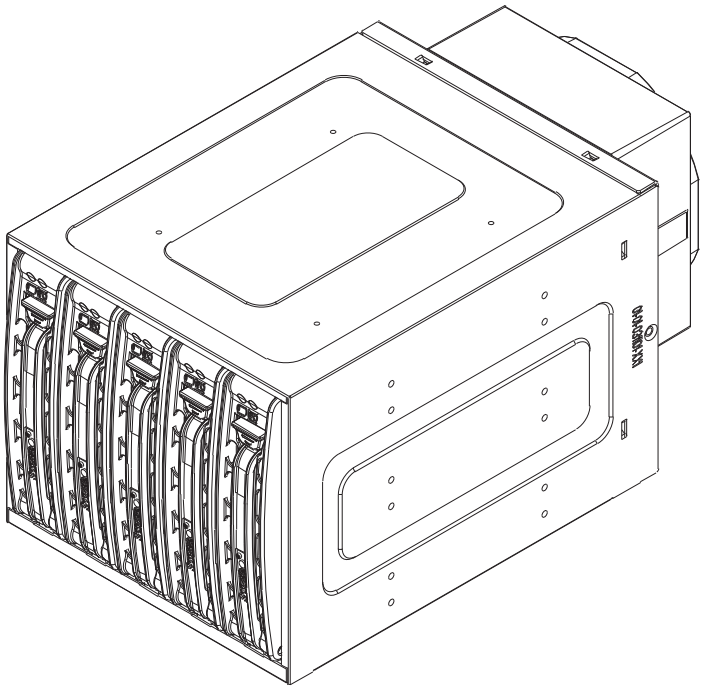
SUPER®



M35TQ

Mobile Rack

USER'S GUIDE

Rev. 1.0c

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WARNING: Handling of lead solder materials used in this product may expose you to lead, a chemical known to the State of California to cause birth defects and other reproductive harm.

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Table of Contents

Chapter 1

Introduction

1-1 Overview

This manual is written for system integrators, PC technicians and knowledgeable PC users who intend to integrate Supermicro's intelligent, highly expandable and cost-effective mobile rack solutions into their systems. It provides the user with detailed information for the installation and use of the M35TQ mobile rack.

The Supermicro M35TQ mobile rack supports SAS or SATA hard drives, and can accomodate up to five 3.5" hard drives or three 5.25" hard drives. The M35TQ showcases today's most advanced technological innovations in modular connectivity and data transferability, laying the foundation for reliable, effective and scalable solutions for tomorrow's data communications industry.

1-2 Product Features

The M35TQ mobile rack includes the following features:

- Supports SAS or SATA
- Supports five 3.5" hot-swappable HDDs or three 5.25" HDDs

Operating Systems Supported

For the most up-to-date information visit the Supermicro Web site at www.supermicro.com

- Windows 2000, Windows XP, and Windows 2003
- Linux: Red Hat and SuSE

System Monitoring

- Fan failure LED
- Overheat LED indicatior
- Drive activity indicatior

1-3 An Important Note to the User

The pictures or graphics shown in this User's Guide were based upon the latest PCB revision available at the time of the publishing of this manual. The M35TQ mobile rack you've received may or may not look exactly the same as the graphics shown in this manual.

1-4 Contacting Supermicro

Headquarters

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Web Site: www.supermicro.com.tw
Technical Support:
Email: support@supermicro.com.tw
Tel: 886-2-8226-1900

1-5 Returning Merchandise for Service

A receipt or copy of your invoice marked with the date of purchase is required before any warranty service will be rendered. You can obtain service by calling your vendor for a Returned Merchandise Authorization (RMA) number. When returning to the manufacturer, the RMA number should be prominently displayed on the outside of the shipping carton, and mailed prepaid or hand-carried. Shipping and handling charges will be applied for all orders that must be mailed when service is complete.

For faster service, RMA authorizations may be requested online (http://www.supermicro.com/support/rma/).

Whenever possible, repack the mobile rack in the original Supermicro carton, using the original packaging material. If these are no longer available, be sure to pack the mobile rack securely, using packaging material to surround the mobile rack so that it does not shift within the carton and become damaged during shipping.

This warranty only covers normal consumer use and does not cover damages incurred in shipping or from failure due to the alteration, misuse, abuse or improper maintenance of products.

During the warranty period, contact your distributor first for any product problems.

Chapter 2

SAS-M35TQ Backplane Specifications

To avoid personal injury and property damage, carefully follow all the safety steps listed below when accessing your system or handling the components.

2-1 ESD Safety Guidelines

Electrostatic Discharge (ESD) can damage electronic components. To prevent damage to your system, it is important to handle it very carefully. The following measures are generally sufficient to protect your equipment from ESD.

- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing a component from the antistatic bag.
- Handle the backplane by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.
- When handling chips or modules, avoid touching their pins.
- Put the backplane and peripherals back into their antistatic bags when not in use.

2-2 General Safety Guidelines

- Always disconnect power cables before installing or removing any components from the computer, including the mobile rack.
- Disconnect the power cable before installing or removing any cables from the mobile rack.
- Make sure that the mobile rack is securely and properly installed on the motherboard to prevent damage to the system due to power shortage.

2-3 Introduction to the SAS-M35TQ Backplane

The M35TQ mobile rack contains a SAS-M35TQ backplane. The SAS-M35TQ backplane has been designed to utilize the most up-to-date technology available, providing your system with reliable, high-quality performance.

This manual reflects SAS-M35T Revision 1.01, the most current release available at the time of publication. Always refer to the Supermicro Web site at www.supermicro.com for the latest updates, compatible parts and supported configurations.

Chapter 3

Backplane Connectors, Jumpers and LEDs

3-1 Front Connectors and Jumpers

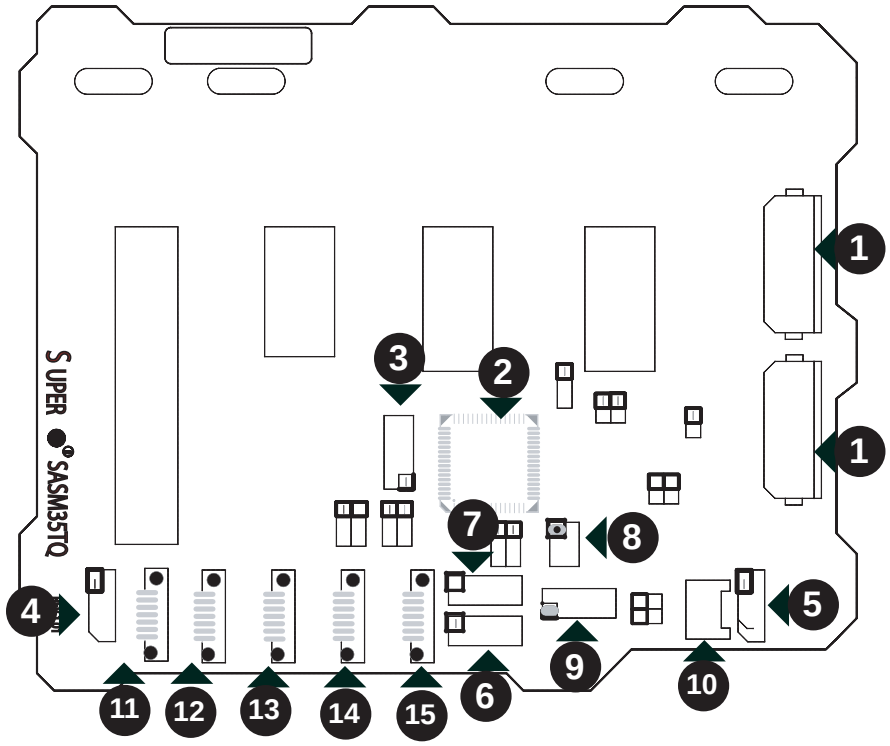


Figure 3-1: Front Connectors

Front Connectors

1. 4-pin Power Connectors: JP10 and JP13
2. MG9072 Chip
3. JTAG Connector: JP47
4. I^2C Connector #1: JP44
5. I^2C Connector #2: JP45
6. Sideband Connector #1: JP51
7. Sideband Connector #2: JP52
8. Upgrade: JP46
9. ACT IN: JP26
10. Fan Connector: JP22
11. SAS Port #0: J5
12. SAS Port #1: J6
13. SAS Port #2: J7
14. SAS Port #3: J8
15. SAS Port #4: J10

3-2 Front Connectors and Pin Definitions

1. Mobile Rack Main Power Connectors

The 4-pin power connectors, designated JP10 and JP13, provide power to the mobile rack. See the table on the right for pin definitions.

Mobile rack Main Power 4-Pin Connector

Pin#	Definition
1	+12V
2 and 3	Ground
4	+5V

2. MG9072 Chip

The MG9072 is an enclosure management chip that supports the SES-2 controller and SES-2 protocols.

3. JTAG Connector

The JTAG connector, designated JP47, is used for diagnostic purposes only.

4. and 5. I²C Connectors

The I²C connectors, designated JP44 and JP45, are used to monitor the HDD activity and status. See the table on the right for pin definitions.

I²C Connector Pin Definitions

Pin#	Definition
1	Data
2	Ground
3	Clock
4	No Connection

6. and 7. Sideband Headers

The sideband headers are designated JP51 and JP52. For SES-2 to work properly, an 8-pin sideband cable must be connected. See the table to the right for pin definitions.

Sideband Headers

Pin #	Definition	Pin #	Definition
2	Mobile rack Addressing (SB5)	1	Controller ID (SB6)
4	Reset (SB4)	3	GND (SB2)
6	GND (SB3)	5	SDA (SB1)
8	Mobile rack ID (SB7)	7	SCL (SB0)
10	No Connection	9	No Connection

8. Upgrade Connector

The upgrade connector, designated JP46, is used for diagnostic purposes only. This connector should only be used by a certified and experienced technician.

9. Activity LED Header

The activity LED header, designated JP26, is used to indicate the activity status of each SAS drive. For the activity LED header to work properly, connect a 10-pin LED cable.

SAS Activity LED Header Pin Definitions

Pin #	Definition	Pin #	Definition
1	ACT IN#0	6	ACT IN#4
2	ACT IN#1	7	ACT IN#5
3	ACT IN#2	8	ACT IN#6
4	ACT IN#3	9	ACT IN#7
5	Ground	10	Empty

10. Fan Connector

The 3-pin connectors, designated JP22, provides power to the mobile rack fan. See the table on the right for pin definitions.

Fan Connectors

Pin#	Definition
1	Ground
2	+12V
3	Tachometer

11 - 15. SAS/SATA Ports

The SAS/SATA ports are used to connect the SAS/SATA cables from the ports to the hard drives. The five ports are designated #0 - #4.

3-3 Front Jumper Locations and Pin Definitions

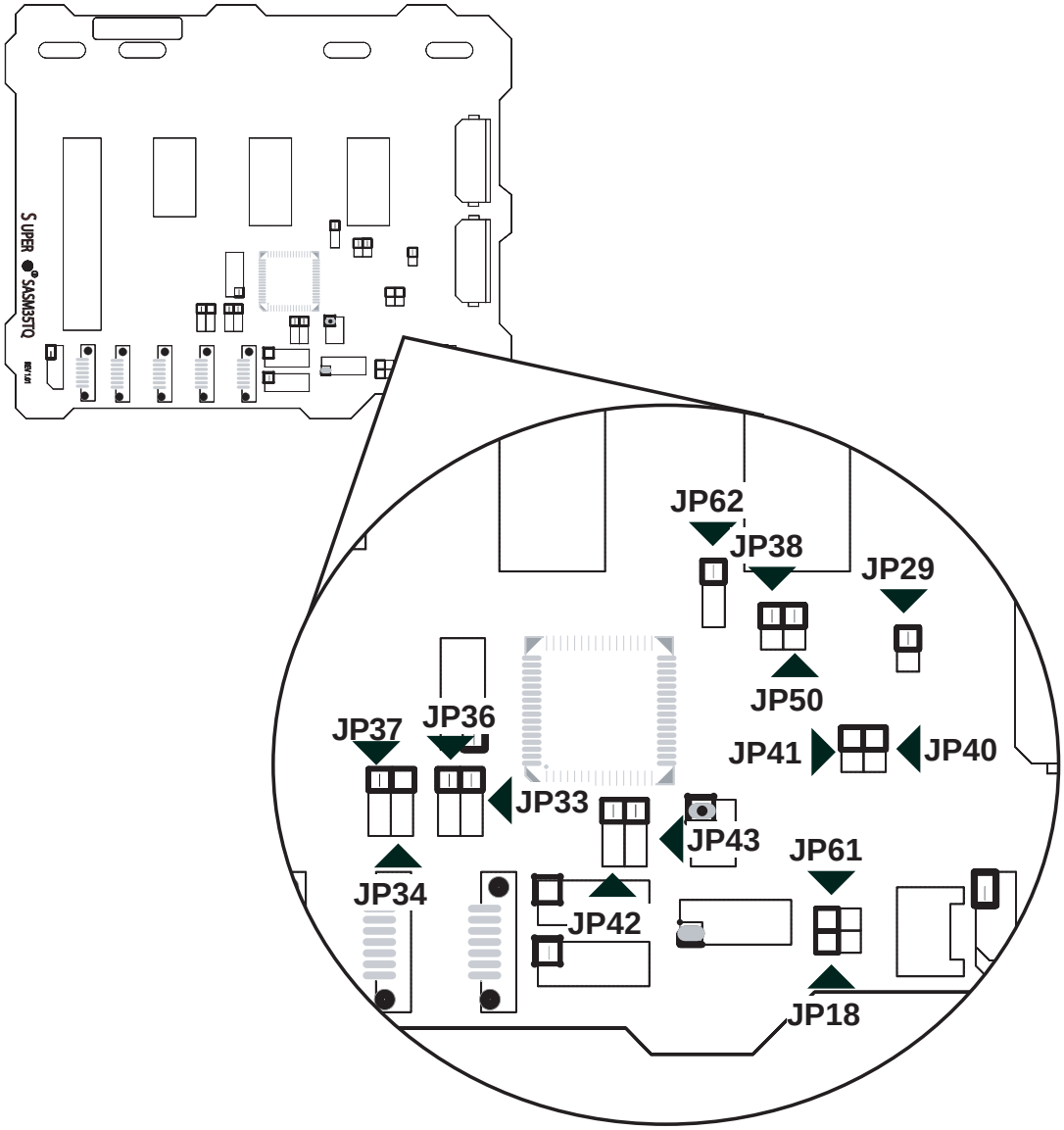
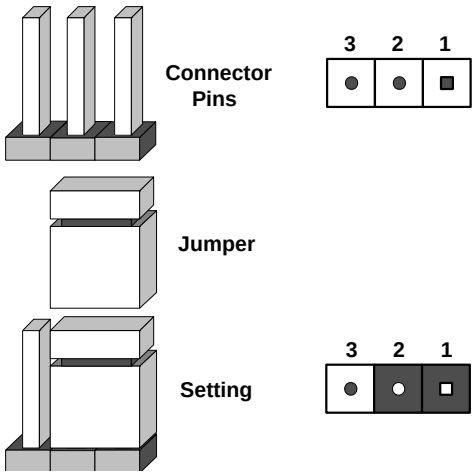


Figure 3-2: Front Jumpers

Explanation of Jumpers

To modify the operation of the mobile rack, jumpers can be used to choose between optional settings. Jumpers create shorts between two pins to change the function of the connector. Pin 1 is identified with a square solder pad on the printed circuit board. Note: On two pin jumpers, "Closed" means the jumper is on and "Open" means the jumper is off the pins.



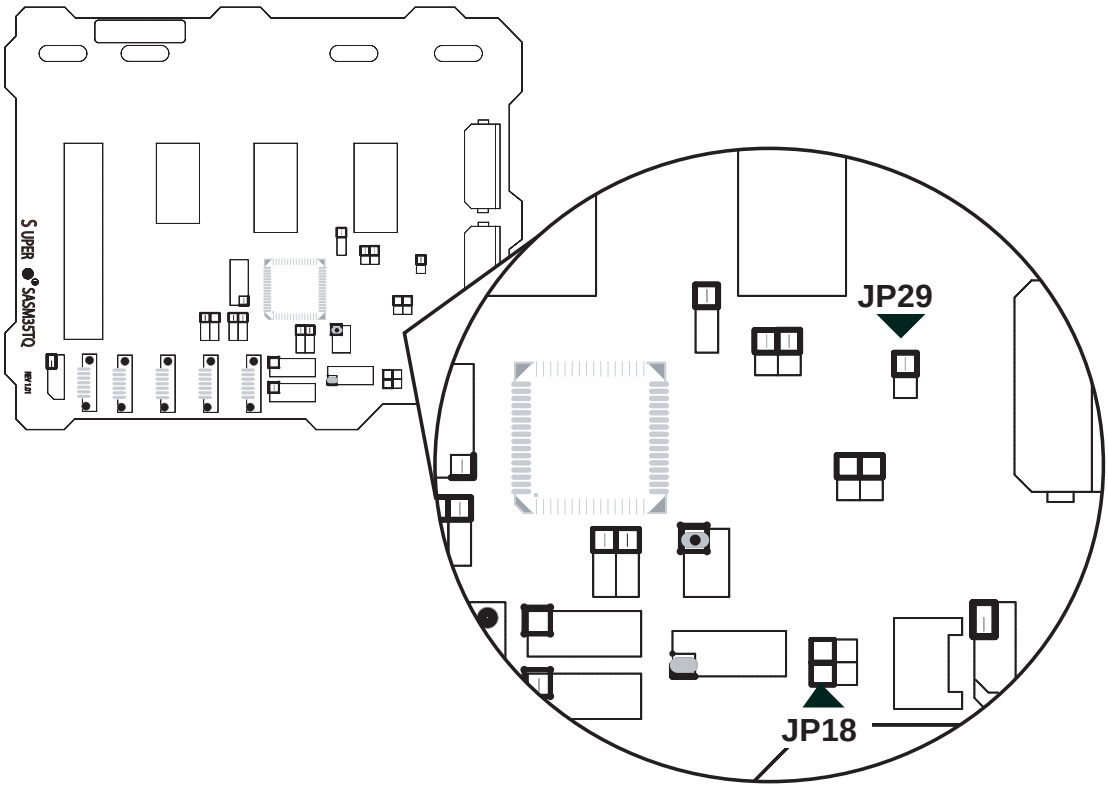


Figure 3-3: Buzzer and Chip Reset Jumpers

Buzzer and Chip Reset Jumper Settings

Jumper Settings		
Jumper	**Jumper Settings**	**Note**
JP18	Open: Enabled Closed: Disabled	Buzzer Reset*
JP29	Open: Default Closed: Reset	MG9072 Chip Reset

*The buzzer sound indicates that a condition requiring immediate attention has occurred.

The buzzer alarm is triggered by the following conditions:

1. Hard drive failure
2. Fan failure
3. System temperature over 45º Celsius.

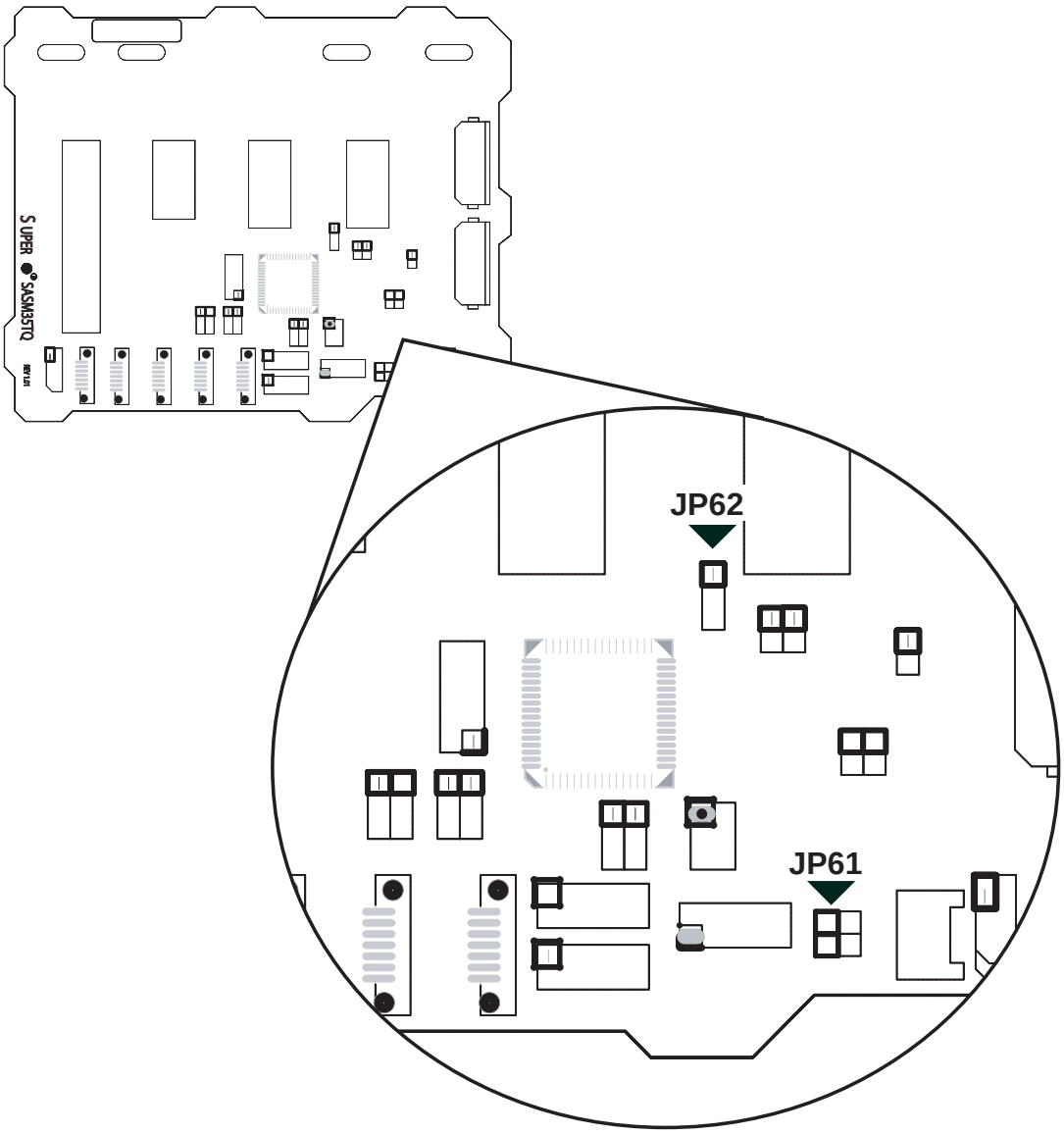


Figure 3-4: Fan Jumpers

Fan Jumper Settings

This mobile rack can utilize up to four fans. To use each fan, you must configure both jumpers as instructed below.

Fan Jumper Settings		
Jumper	**Jumper Settings**	**Note**
JP61	Closed: With Fan Open: No Fan	FAN#1
JP62	1-2:With Fan 2-3:No Fan	FAN#1

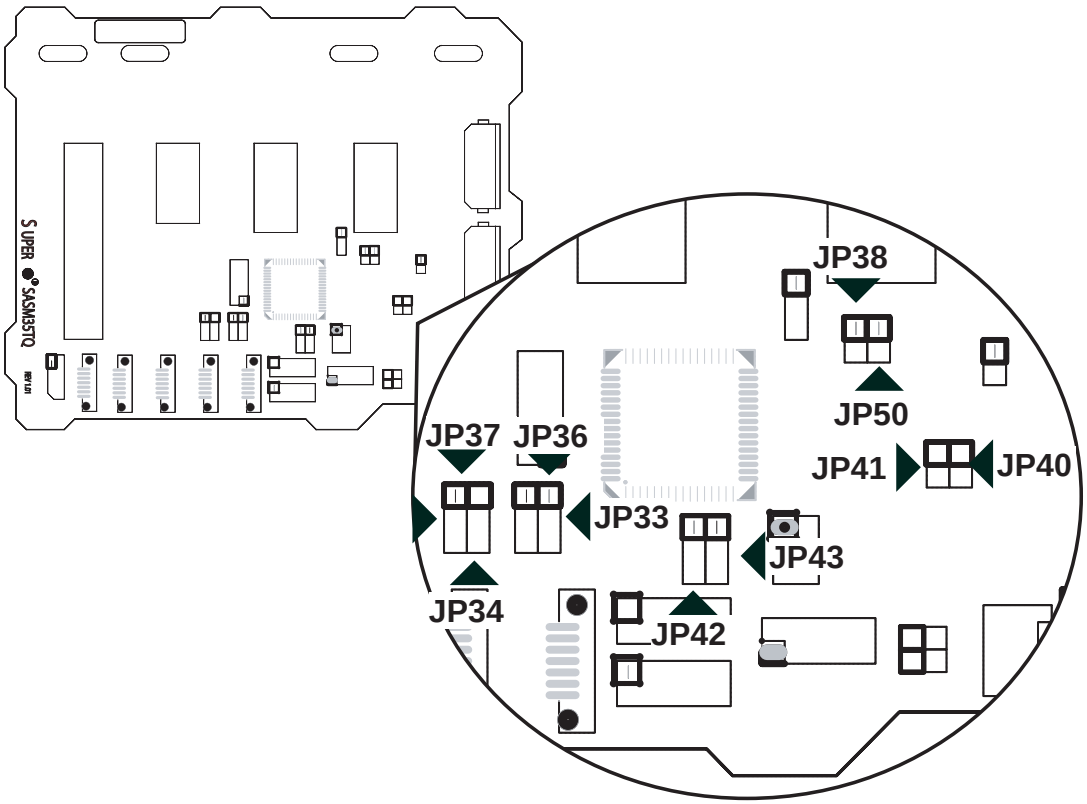


Figure 3-5: I²C and SGPIO Jumpers

I²C and SGPIO Modes and Jumper Settings

This mobile rack can utilize I²C or SGPIO. I²C is the default mode and can be used without making changes to your jumpers. The following information details which jumpers must be configured to use SGPIO mode or restore your mobile rack to I²C mode.

I²C/SGPIO Settings			
Jumper	**I²C Setting (Default)**	**SGPIO Setting**	**Description**
JP33	2-3	1-2	Controller ID #1
JP34	1-2:ID#0	1-2:ID#0	Backplane ID #1
JP36	2-3	1-2	Controller ID #2
JP37	2-3:ID#1	1-2:ID#0	Backplane ID #2
JP38	Closed	Open	I²C reset #2
JP40	Open	Closed	I²C reset SDOUT #1
JP41	Open	Closed	I²C reset SDOUT #2
JP42	2-3	1-2	Backplane ID SDIN #1
JP43	2-3	1-2	Backplane ID SDIN #2
JP50	Closed	Open	I²C reset #1

3-4 Rear Connectors and LED Indicators

The rear of the mobile rack backplane has SAS/SATA connectors and LEDs which display activity or failure status for each of the drives, as well as overheat and drive failure status.

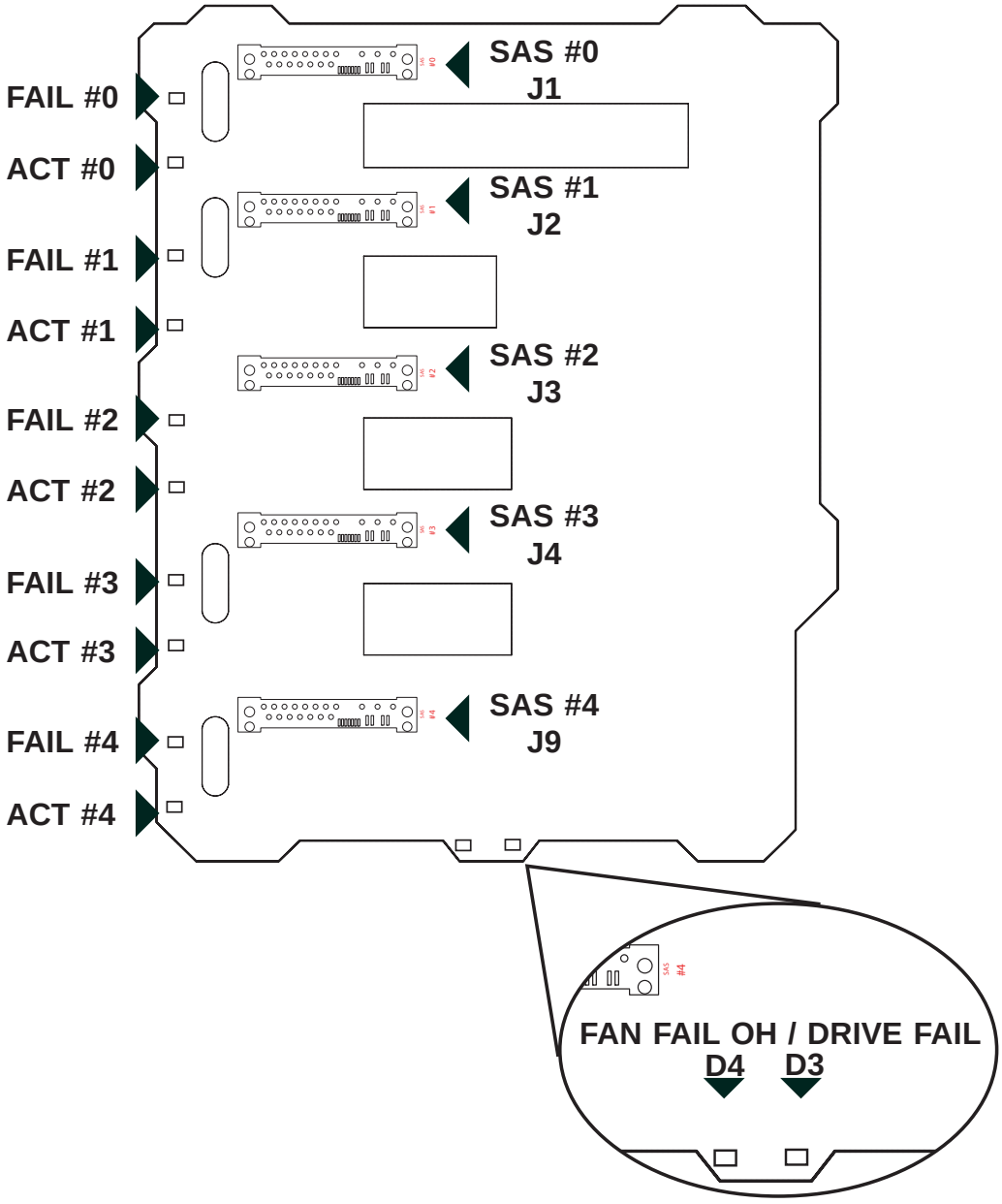


Figure 3-6: Rear Connectors and LED Indicators

Rear SAS/SATA Connectors	
Rear Connector	**SAS/SATA Drive Number**
SAS #0	SAS/SATA HHD #0
SAS #1	SAS/SATA HHD #1
SAS #2	SAS/SATA HHD #2
SAS #3	SAS/SATA HHD #3
SAS #4	SAS/SATA HHD #4

Rear LED Indicators		
Rear LED	**Hard Drive Activity**	**Failure LED**
SAS #0	D12	D5
SAS #1	D13	D6
SAS #2	D14	D7
SAS #3	D15	D8
SAS #4	D18	D19

Mobile Rack Backplane LEDs		
LED	**Hard Drive Activity**	**Failure LED**
D3	ON	Drive failure LED indicator (Red light flashing, buzzer on)
D4	ON	Fan failure overheat LED indicator (Red light flashing, buzzer on)

Notes

Chapter 4

Mobile Rack Installation Procedures

4-1 Tools Required

The following tools are required to install the mobile rack into the chassis:

- Phillips head screwdriver
- Antistatic strap (recommended)

4-2 Important Safety Guidelines

This product should be assembled and/or serviced by qualified and experienced technicians. To avoid personal injury and property damage, carefully follow the guidelines listed below.

Safety Guidelines

1. Turn off all peripheral devices and the power supply connected to the chassis.
2. Disconnect the chassis from any power source.
3. When disconnecting cables, label them for easy identification.
4. Use a grounded wrist strap designed to prevent static discharge when handling components.
5. Save all the screws and fasteners for later use and label them for easy identification.)
6. Follow the installation procedures in the following section of this manual to remove and install the hard drives, cooling fan, and the back panel of the mobile rack.

4-3 Installation Procedures

Use the following installation procedures to set up the mobile rack.

WARNING!
SAS IDs are assigned automatically by the backplane. Do not set ID's manually on the drives.

SAS termination is enabled by default on the SAS backplane.

Installing Hard Drives into the Mobile Rack

The hard drives of the M35TQ mobile rack are mounted in drive carriers to simplify their installation and removal from the chassis. These carriers also help to promote proper airflow within the mobile rack drive bays.

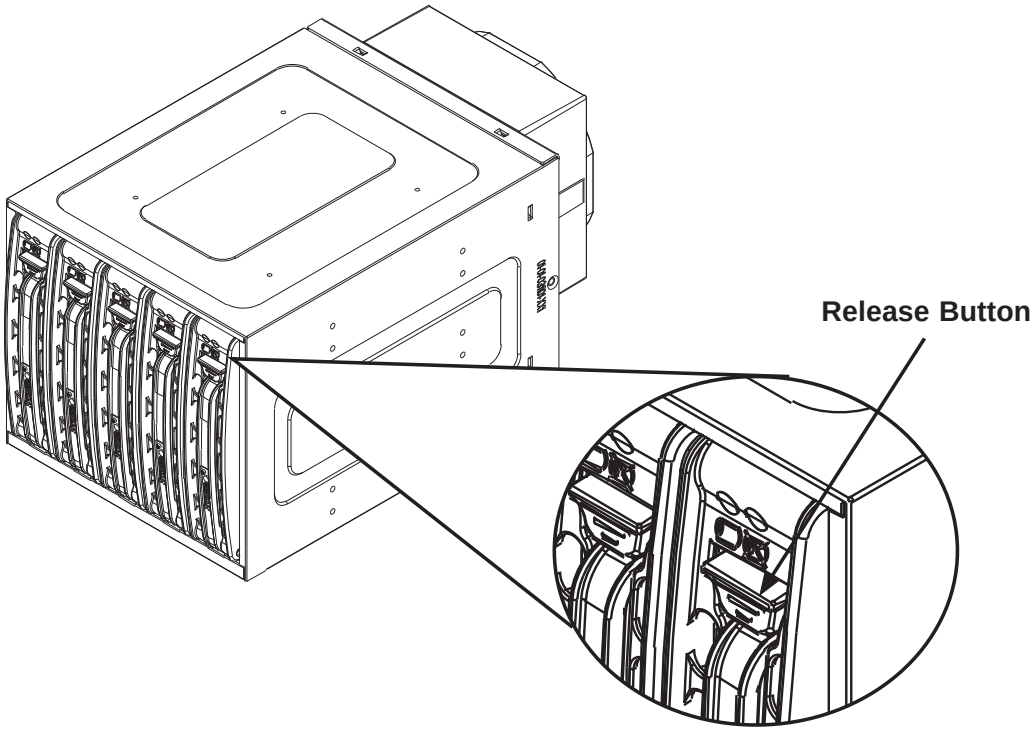


Figure 4-1: Hard Drive Release Button

Removing Hard Drives from the Mobile Rack

1. Push the release button on the hard drive, which will extend the drive handle
2. Use the drive handle to carefully pull the drive from the mobile rack.

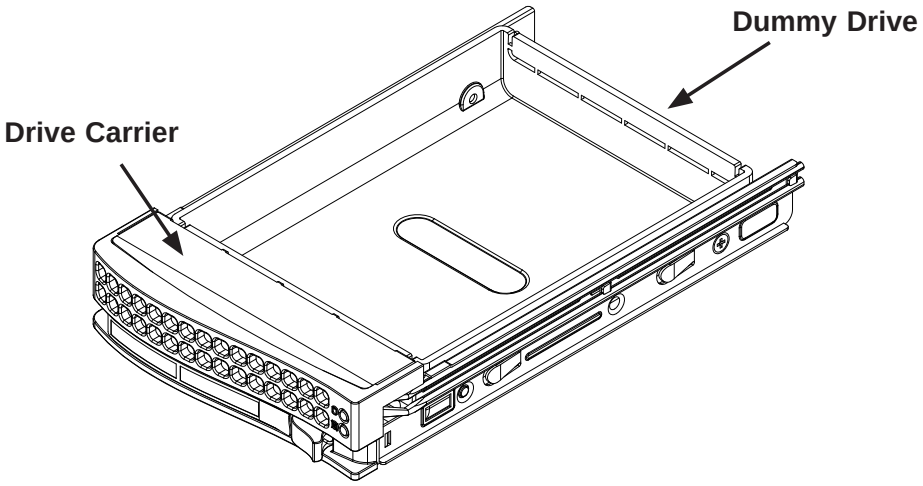


Figure 4-2: Chassis Drive Carrier

Warning: Except for short periods of time while swapping hard drives, do not operate the server with the mobile rack hard drive bays empty. The hard drive carrier must have a hard drive or dummy drive installed.

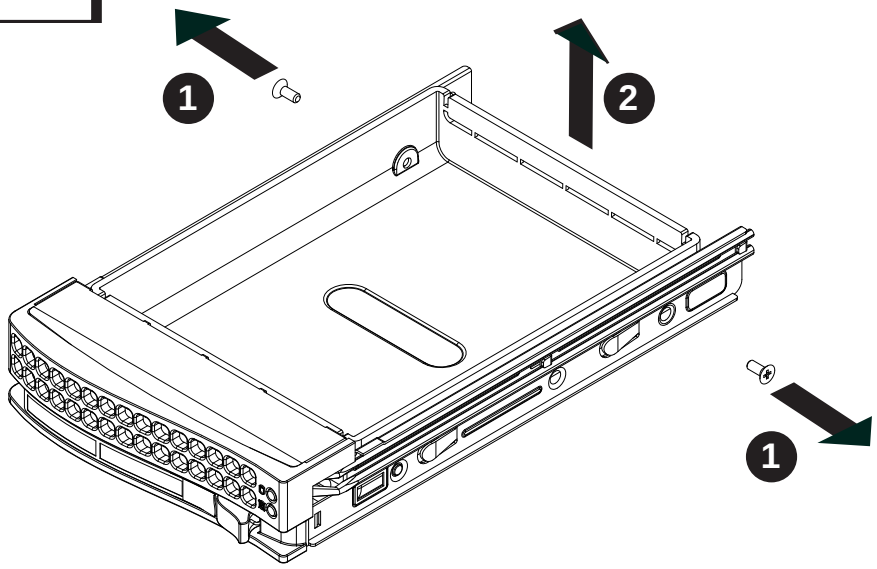


Figure 4-3: Removing Dummy Drive from Carrier

Installing a Hard Drive into the Hard Drive Carrier

1. Remove the two screws holding securing the dummy drive to the carrier.
2. Remove the dummy drive from the carrier.

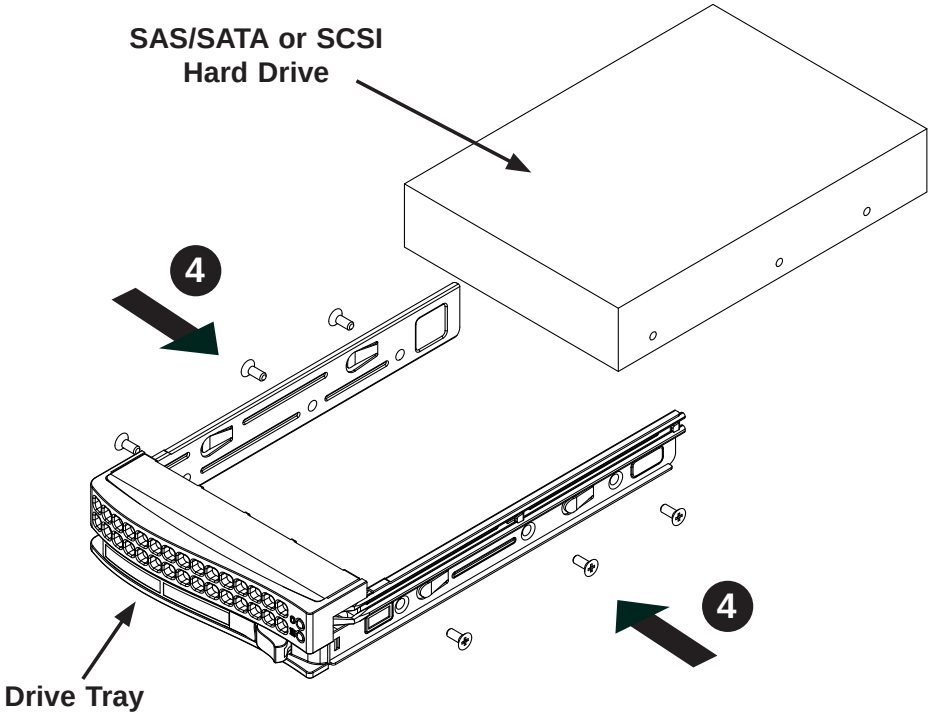


Figure 4-4: Installing a Hard Drive

3. Install a new drive into the carrier with the printed circuit board side facing downward so that the mounting holes in the drive align with those in the carrier.

4. Secure the hard drive to the carrier with the six screws provided.

5. Return the drive carrier to the mobile rack. Make sure that the drive carrier handle is returned to the closed and locked position. Repeat these steps for each hard drive you want to install.

Warning! Enterprise level hard disk drives are recommended for use in Supermicro chassis and servers. For information on recommended HDDs, visit the Supermicro Web site at http://www.supermicro.com/products/nfo/storage.cfm

Connecting Cables to the Mobile Rack

Before connecting cables the mobile rack, the exhaust fan must be removed. In some circumstances, the backplane may need to be removed.

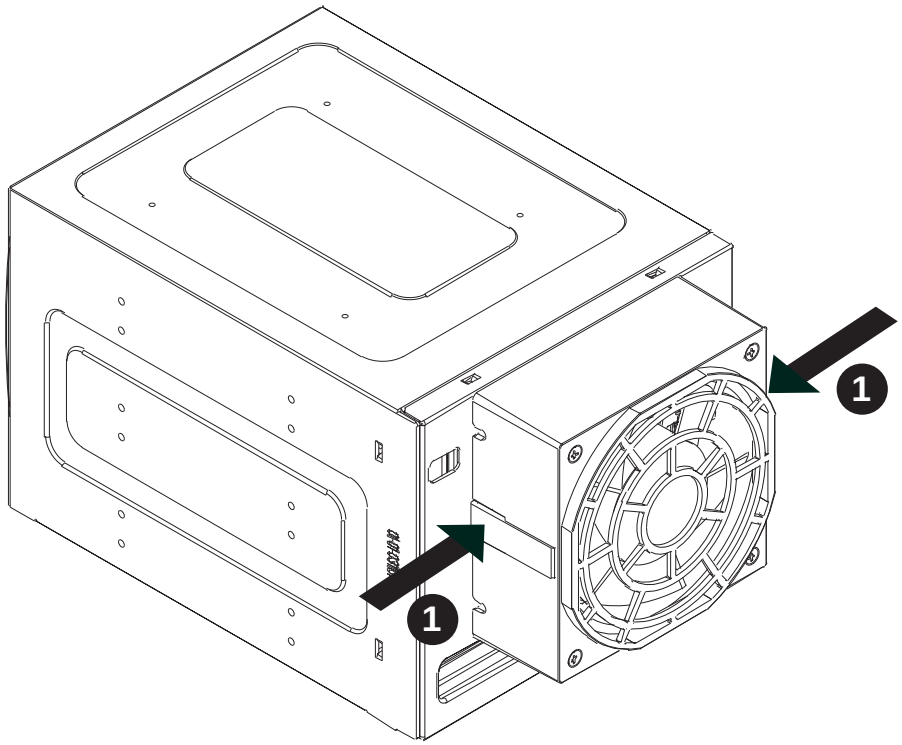


Figure 4-5: Removing Mobile Rack Fan

Removing the Exhaust Fan and Connecting SAS/SATA Cables

1. Simultaneously press inward on the tabs on each side of the fan housing.

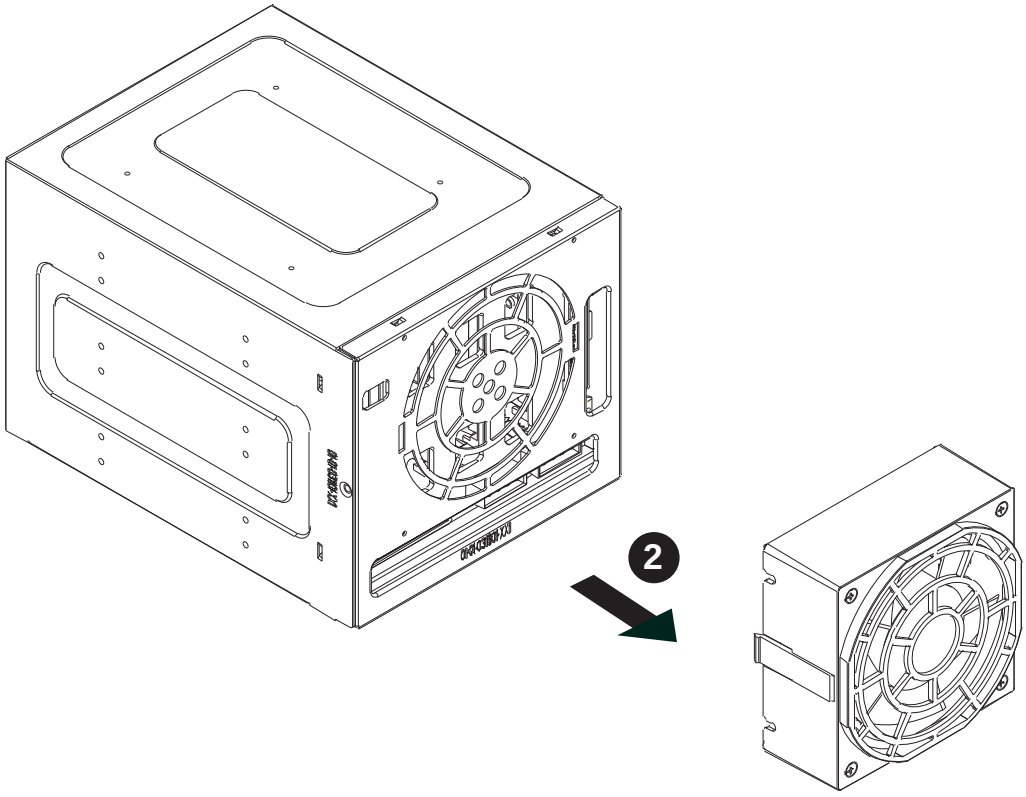


Figure 4-6: Removing Mobile Rack Fan

2. Pull the exhaust fan off the rear of the mobile rack.

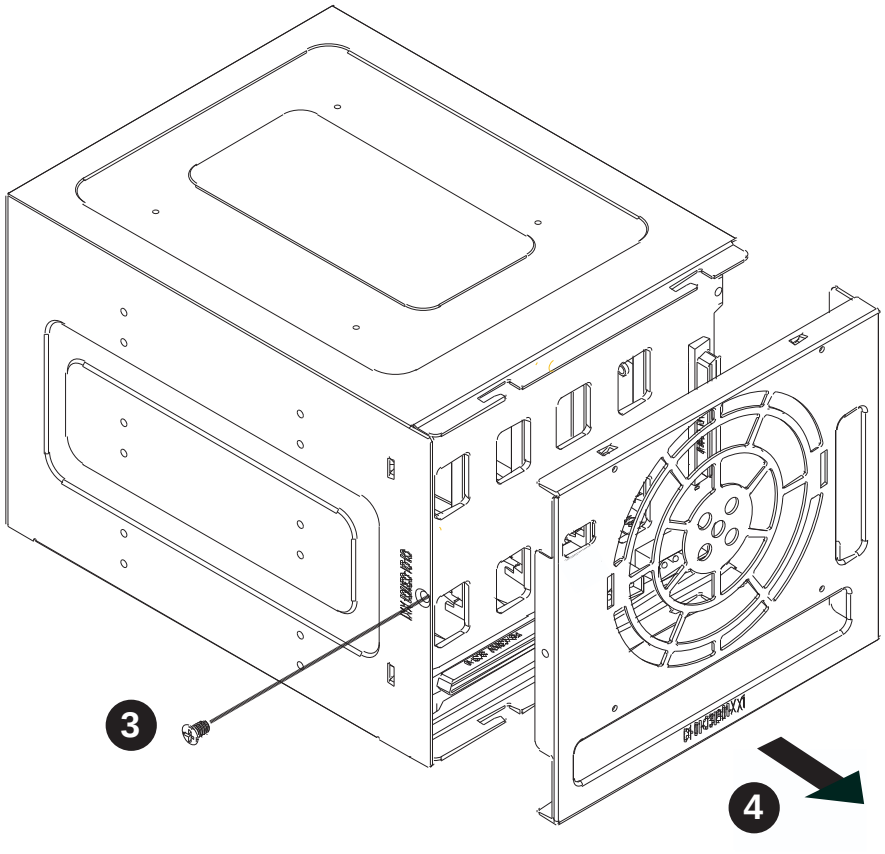


Figure 4-7: Removing Mobile Rack Fan

3. Remove the bracket screw from the side of the mobile rack.

4. Pull the bracket from the rear of the mobile rack.

5. Connect the SAS/SATA cables and power cables to the backplane of the mobile rack.

6. Replace the bracket, bracket screw, and fan on the mobile rack and reconnect power to the chassis.

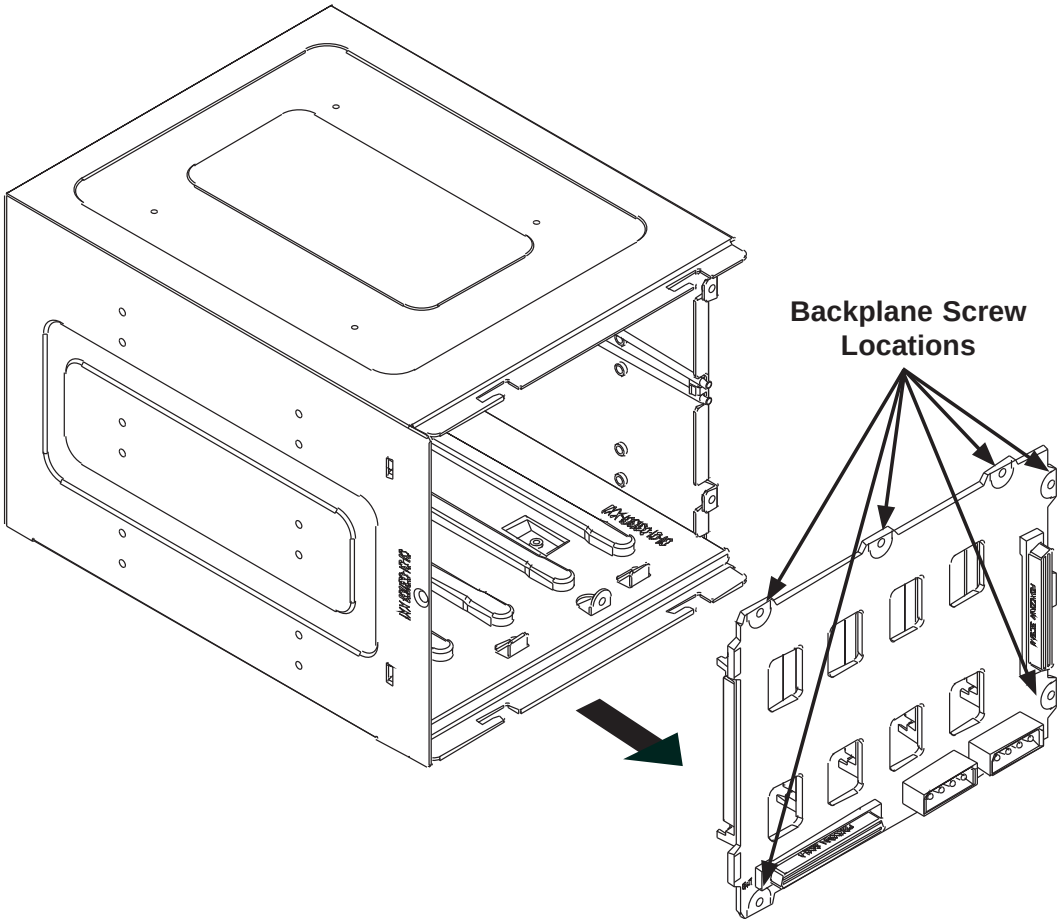


Figure 4-8: Removing Mobile Rack Backplane (Optional)

Additional Optional Installation Information

If necessary, before reassembling the mobile rack, the backplane may be removed. To remove the mobile rack backplane, remove the six screws securing the backplane, and carefully pull the backplane from the rear of the mobile rack.

Notes

Disclaimer (cont.)

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