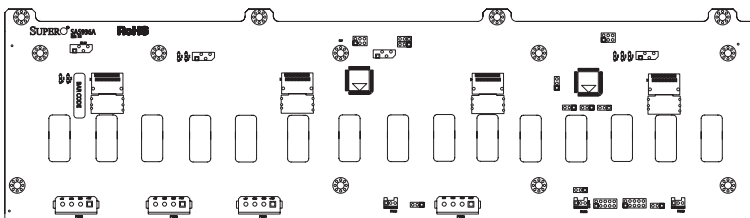# SUPER®



# SAS-936A BACKPLANE

## USER'S GUIDE

Rev. 1.0

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# Chapter 1

# Safety Guidelines

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

## 1-1   ESD Safety Guidelines

Electric Static 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 RAID card 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 card and peripherals back into their antistatic bags when not in use.

## 1-2   General Safety Guidelines

- Always disconnect power cables before installing or removing any components from the computer, including the backplane.

- Disconnect the power cable before installing or removing any cables from the backplane.

- Make sure that the backplane is securely and properly installed on the motherboard to prevent damage to the system due to power shortage.
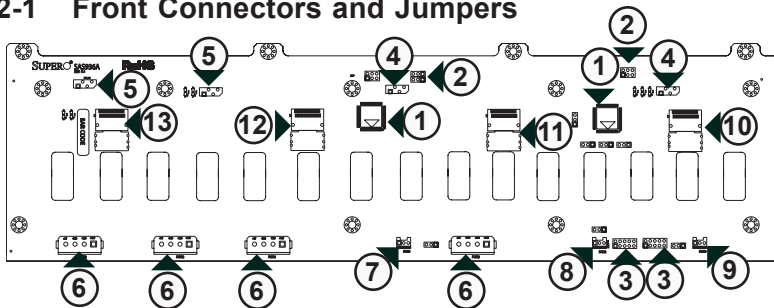
## 1-3   A Note to Users

- All images and layouts shown in this user's guide are based upon the latest PCB Revision available at the time of publishing. The card you have received may or may not look exactly the same as the graphics shown in this manual.

# Chapter 2

# Jumper Settings and Pin Definitions

## 2-1    Front Connectors and Jumpers



### Front Connectors

1. Chip: MG9072
2. Upgrade Connectors: JP69 and JP78
3. ACT_IN: JP26 and JP47
4. I²C Connector #1 (JP37) and #2 (JP95)
5. I²C Connector #3 (JP52) and #4 (JP96)
6. Power Connectors (4-pin): JP10, JP13, JP46 and JP48.

7. Fan Connector, Fan#1 JP54
8. Fan Connector, Fan#2 JP56
9. Fan Connector, Fan#3 JP58
10. SAS IN#1 JSM1
11. SAS IN#2 JSM2
12. SAS IN#3 JSM3
13. SAS IN#4 JSM4

## 2-2    Front Connector and Pin Definitions

### 1. MG9072 Chip

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

### 2. Upgrade Connectors

The upgrade connectors are designated JP69, and JP78 are used for manufacturer's diagnostic purposes only.

### 3. ACT_IN:

The activity LED connectors, designated JP26, and JP47 are used to indicate the activity status of each SAS drive. The Activity LED connector is located on the front panel. For the Activity LED connector to work properly, connect using a 10-pin LED cable. This is only used when the Activity LED is not supported by the hard drive.

| SAS Activity LED Header Pin Definitions (JP26) | | | |
|---|---|---|---|
| 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 |

| SAS Activity LED Header Pin Definitions (JP47) | | | |
|---|---|---|---|
| Pin # | Definition | Pin # | Definition |
| 1 | ACT IN#8 | 6 | ACT IN#12 |
| 2 | ACT IN#9 | 7 | ACT IN#13 |
| 3 | ACT IN#10 | 8 | ACT IN#14 |
| 4 | ACT IN#11 | 9 | ACT IN#15 |
| 5 | Ground | 10 | Empty |

### 4. and 5. I²C Connectors

The I²C Connectors, designated JP37, JP95, JP52, and JP96 are used to monitor HDD activity and status. See the table on the right for pin definitions.

| I²C Connector Pin Definitions (JP37, JP95, JP52 and JP96) | |
|---|---|
| Pin# | Definition |
| 1 | Data |
| 2 | Ground |
| 3 | Clock |
| 4 | No Connection |

## 6. Backplane Main Power Connectors

The 4-pin connectors, designated JP10, JP13, JP46 and JP48, provide power to the backplane. See the table on the right for pin definitions.

| Backplane Main Power 4-Pin Connector (JP10, JP13, JP46, and JP48) | |
|---|---|
| Pin# Definition | |
| 1 | +12V |
| 2 and 3 | Ground |
| 4 | +5V |

## 7., 8. and 9. Fan Connectors

The 3-pin or 4-pin connectors, designated JP54, JP56, and JP58 provide power to the fans. See the table on the right for pin definitions.

| Fan Connectors (JP54, JP56 and JP58) | |
|---|---|
| Pin# Definition | |
| 1 | Ground |
| 2 | +12V |
| 3 | Tachometer |
| 4 | No Connection |

## 10. - 13. SAS IN Ports (Sideband included)

The SAS ports are used to connect the SAS drive cables. The four SAS IN ports are designated #JSM1 - #JSM4. Each port is also compatible with SATA drives.

**Note:** SGPIO is the default setting for this backplane

| Sideband Definitions (JSM1 - JSM4) | | | |
|---|---|---|---|
| Pin # Definition | | Pin # Definition | |
| A11 | **SGPIO:** SDIN $I^2C:$ Backplane Addressing (SB5) | B11 | Controller ID (SB6) |
| A12 | **SGPIO:** SDOUT $I^2C:$ Reset (SB4) | B10 | GND (SB2) |
| A9 | GND (SB3) | B9 | **SGPIO:** SLOAD $I^2C:$SDA (SB1) |
| A8 | Backplane ID (SB7) | B8 | **SGPIO:** SCLOCK $I^2C:$SCL (SB0) |

## 2-3   Front Jumper Locations and Pin Definitions
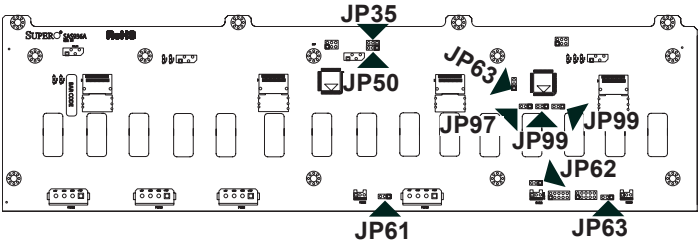


### Explanation of Jumpers

To modify the operation of the backplane, 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.
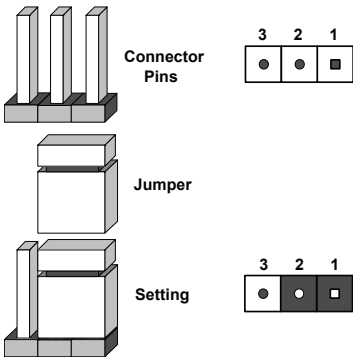
| Jumper Settings | | |
|---|---|---|
| Jumper | Jumper Settings | Note |
| JP35 | 1-2: Reset<br>2-3: Default | MG9072 Chip Reset #1 |
| JP50 | 1-2: Reset<br>2-3: Default | MG9072 Chip Reset #2 |

## Fan Jumper Settings

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

| Fan Jumper Settings | | |
|---|---|---|
| Jumper | Jumper Settings | Note |
| JP61 | 1-2:With Fan (Default)<br>2-3:No Fan | FAN#1 |
| JP97 | 1-2:With Fan (Default)<br>2-3:No Fan | FAN#1 |
| JP62 | 1-2:With Fan (Default)<br>2-3:No Fan | FAN#2 |
| JP98 | 1-2:With Fan (Default)<br>2-3:No Fan | FAN#2 |
| JP63 | 1-2:With Fan (Default)<br>2-3:No Fan | FAN#3 |
| JP99 | 1-2:With Fan (Default)<br>2-3:No Fan | FAN#3 |

## I²C and SGPIO Modes and Jumper Settings

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

| SGPIO Setting (Default) | | |
|---|---|---|
| Jumper | Jumper Setting | Note |
| JP84 | 1-2 | SGPIO Mode Setting |

| I²C Setting | | |
|---|---|---|
| Jumper | Jumper Setting | Note |
| JP84 | 2-3 | I²C Setting |

## Front LED Indicators
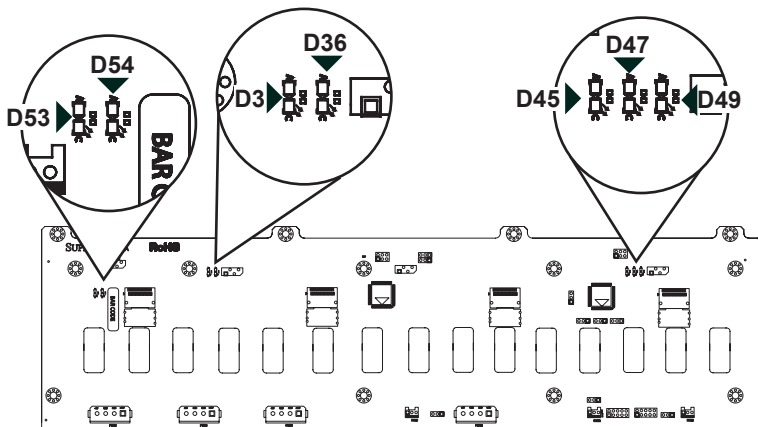


| Front Panel LEDs | | |
|---|---|---|
| **LED** | **STATE** | **SPECIFICATION** |
| D45 | ON | Failure in Fan #1. |
| D47 | ON | Failure in Fan #2. |
| D49 | ON | Failure in Fan #3. |
| D3 | ON | Alarm #1: Overheat/Drive Failure/Fan Failure in Channels 0-7. |
| D36 | ON | Alarm #2: Overheat/Drive Failure in Channels 8-15. |
| D53 | OFF | +5V : Backplane power failure. Light is on during normal operation. |
| D54 | OFF | +12V : Backplane power failure. Light is on during normal operation. |

## C-4   Rear Connectors and LED Indicators

SAS #0
SAS #1
SAS #2
SAS #3
SAS #4
SAS #5
SAS #6
SAS #7
SAS #8
SAS #9
SAS #10
SAS #11
SAS #12
SAS #13
SAS #14
SAS #15
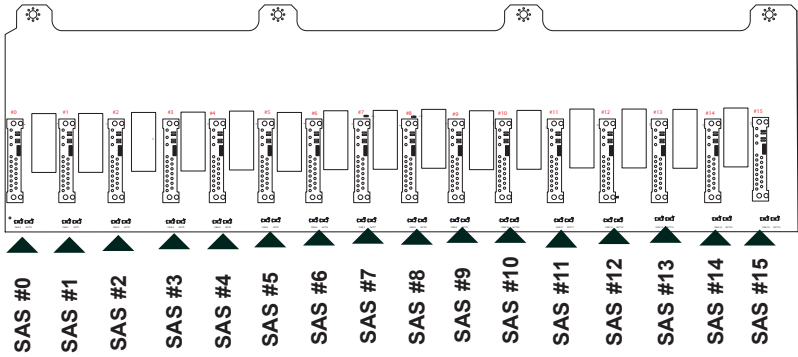
| Rear SAS/SATA Connectors | | | |
|---|---|---|---|
| Rear Connector | SAS Drive Number | Rear Connector | SAS Drive Number |
| SAS #0 | SAS/SATA HDD #0 | SAS #12 | SAS/SATA HDD #12 |
| SAS #1 | SAS/SATA HDD #1 | SAS #13 | SAS/SATA HDD #13 |
| SAS #2 | SAS/SATA HDD #2 | SAS #14 | SAS/SATA HDD #14 |
| SAS #3 | SAS/SATA HDD #3 | SAS #15 | SAS/SATA HDD #15 |
| SAS #4 | SAS/SATA HDD #4 | SAS #16 | SAS/SATA HDD #16 |
| SAS #5 | SAS/SATA HDD #5 | SAS #17 | SAS/SATA HDD #17 |
| SAS #6 | SAS/SATA HDD #6 | SAS #18 | SAS/SATA HDD #18 |
| SAS #7 | SAS/SATA HDD #7 | SAS #19 | SAS/SATA HDD #19 |
| SAS #8 | SAS/SATA HDD #8 | SAS #20 | SAS/SATA HDD #20 |
| SAS #9 | SAS/SATA HDD #9 | SAS #21 | SAS/SATA HDD #21 |
| SAS #10 | SAS/SATA HDD #10 | SAS #22 | SAS/SATA HDD #22 |
| SAS #11 | SAS/SATA HDD #11 | SAS #23 | SAS/SATA HDD #23 |

| 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 |
| SAS #5 | D21 | D20 |
| SAS #6 | D22 | D23 |
| SAS #7 | D24 | D29 |
| SAS #8 | D25 | D30 |
| SAS #9 | D26 | D31 |
| SAS #10 | D27 | D32 |
| SAS #11 | D28 | D33 |
| SAS #12 | D40 | D37 |
| SAS #13 | D41 | D38 |
| SAS #14 | D42 | D39 |
| SAS #15 | D87 | D88 |