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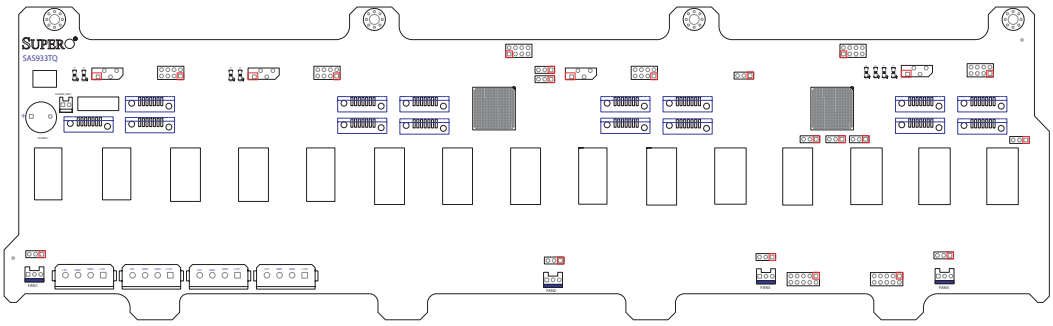

SAS 933TQ BACKPLANE

USER'S GUIDE

Rev. 1.0a

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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.

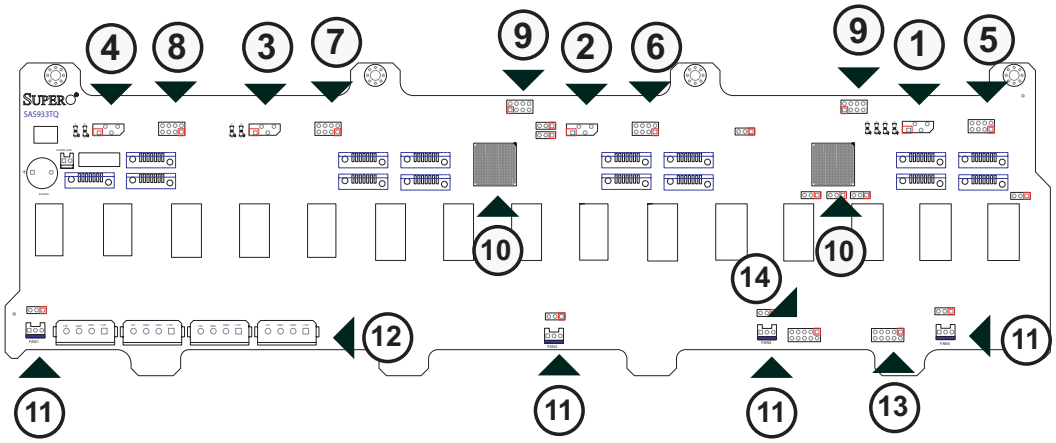
1-3 An Important Note to Users

- 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.

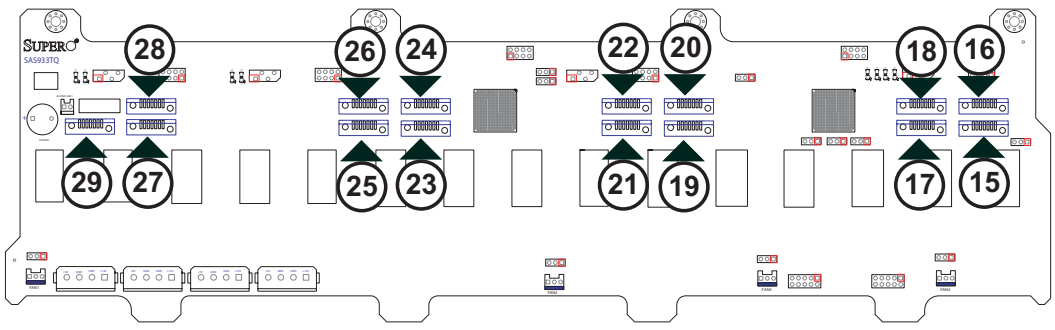
Chapter 2

Jumper Settings and Pin Definitions

2-1 Front Connectors and Jumpers



1. I²C Connector#1 JP37
2. I²C Connector#2 JP95
3. I²C Connector#3 JP52
4. I²C Connector#4 JP96
5. SideBand Connector#1 JP66
6. SideBand Connector#2 JP68
7. SideBand Connector#3 JP75
8. SideBand Connector#4 JP77
9. Upgrade Connectors: JP69 and JP78
10. Chip: MG9072 (x2)
11. Fan Connectors: JP54, JP58, JP60 and JP56
12. Power Connectors (4-pin): JP10, JP13, JP46, and JP48
13. ACT_IN# 0 - 7
14. ACT_IN# 8 - 15
15. SAS Port #0 J5
16. SAS Port #1 J6
17. SAS Port #2 J7
18. SAS Port #3 J8
19. SAS Port #4 J10
20. SAS Port #5 J12
21. SAS Port #6 J14
22. SAS Port #7 J16
23. SAS Port #8 J22
24. SAS Port #9 J23
25. SAS Port #10 J24
26. SAS Port #11 J25
27. SAS Port #12 J26
28. SAS Port #13 J29
29. SAS Port #14 J30



2-2 Front Connector and Pin Definitions

#1. Activity LED Header

The activity LED header, designated JP26 and JP47, is used to indicate the activity status of each SAS drive. The Activity LED Header is located on the front panel. For the Activity LED Header to work properly, connect using a 10-pin LED cable.

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

#2. MG9072 Chip

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

#3 Fan Connectors

The 3-pin connectors, designated JP54, JP58, JP60 and JP56, provide power to the fans. See the table on the right for pin definitions.

Fan Connectors (JP54, JP58, JP60, and JP63)

Pin#	Definition
1	Ground
2	+12V
3	Tachometer

#4 I²C Connectors

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

I²C Connector Pin Definitions (JP37, JP52, JP95, and JP96)

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

#5 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

#6 Sideband Headers

The sideband headers are designated JP66, JP68, JP75 and JP77. For SES-2 to work properly, you must connect an 8-pin sideband cable. See the table to the right for pin definitions.

Sideband Headers (JP66, JP68, JP75 and JP77)			
Pin #	Definition	Pin #	Definition
2	Backplane Addressing (SB5)	1	Controller ID (SB6)
4	Reset (SB4)	3	GND (SB2)
6	GND (SB3)	5	SDA (SB1)
8	Backplane ID (SB7)	7	SCL (SB0)
10	No Connection	9	No Connection

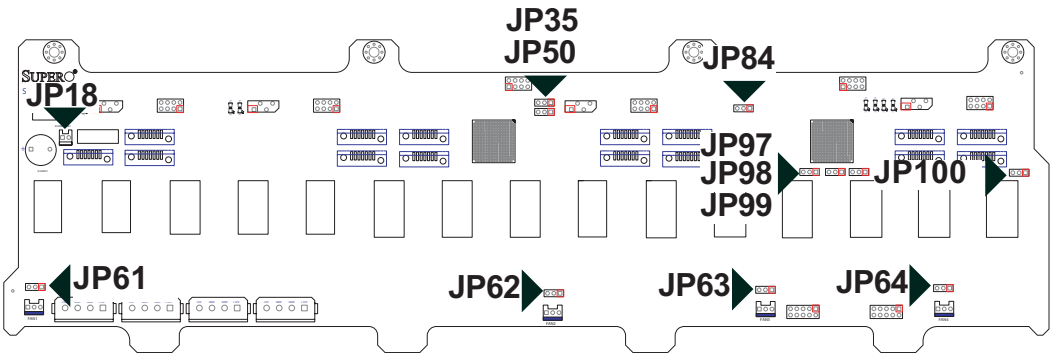
#7 Upgrade Connectors

The upgrade connectors are designated JP69 and JP78.

#8 SAS Ports

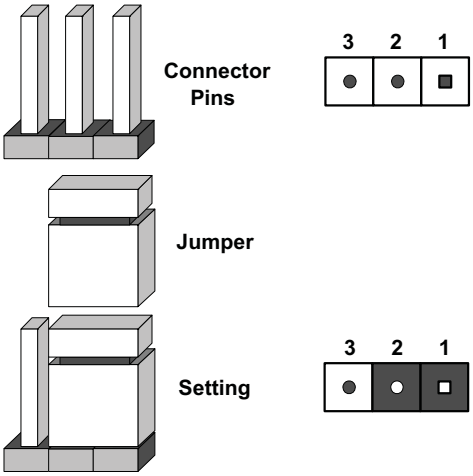
The SAS ports are used to connect the SAS drive cables. The 15 ports are designated #0 - #14. Each port is also compatible with SATA drives.

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**
JP18	Open: Enabled Closed: Disabled	Buzzer Reset
JP35, JP50	Open: Default Closed: Reset	MG9072 Chip Reset

Fan Jumper Settings

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

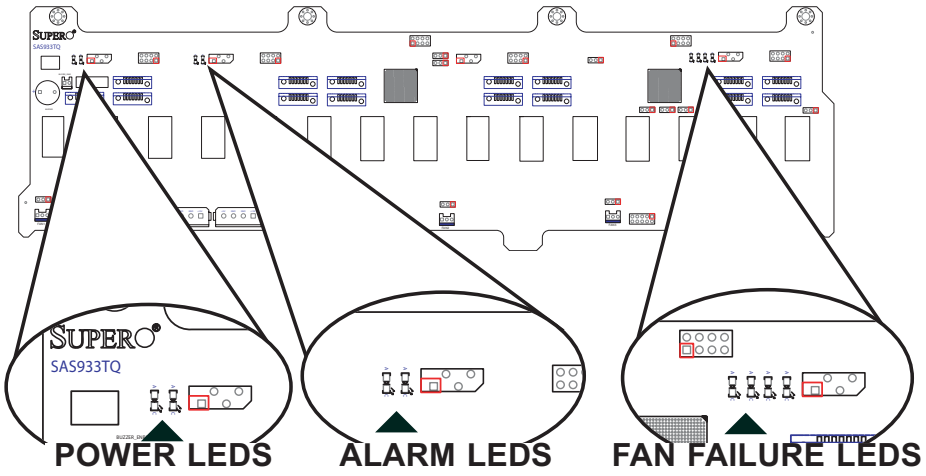
Fan Jumper Settings		
Jumper	**Jumper Settings**	**Note**
JP61	1-2:With Fan 2-3:No Fan	FAN#1
JP97	1-2:With Fan 2-3:No Fan	FAN#1
JP62	1-2:With Fan 2-3:No Fan	FAN#2
JP98	1-2:With Fan 2-3:No Fan	FAN#2
JP63	1-2:With Fan 2-3:No Fan	FAN#3
JP99	1-2:With Fan 2-3:No Fan	FAN#3
JP64	1-2:With Fan 2-3:No Fan	FAN#4
JP100	1-2:With Fan 2-3:No Fan	FAN#4

SAS Port Connections in I²C and SGPIO Settings

Use the following chart when connecting this backplane. If you connect the SAS ports out of order, you will not able to easily identify drives using the LED function.

SAS Port Connections in I²C and SGPIO Settings		
Port #	**I²C**	**SGPIO**
# 0 - 3	I²C #1	Sideband #1
# 4 - 7	I²C #2	Sideband #2
# 8 - 11	I²C #3	Sideband #3
# 12 - 14	I²C #4	Sideband #4

Front LED Indicators



Front Panel LEDs		
LED	**STATE**	**SPECIFICATION**
Fan #1 Fail	ON	Failure in Fan #1
Fan #2 Fail	ON	Failure in Fan #2
Fan #3 Fail	ON	Failure in Fan #3
Fan #4 Fail	ON	Failure in Fan #4
Alarm #1	ON	Overheat in Channel 1
Alarm #2	ON	Overheat in Channel 2
+5V	OFF	Backplane power failure. Light is on during normal operation.
+12V	OFF	Backplane power failure. Light is on during normal operation.

FRONT LED INDICATORS

Backplane LED		
LED	**STATE**	**SPECIFICATION**
D3	ON	Overheat/Drive Failure/Fan Failure LED Indicator (Red light: flashing, Buzzer: On)
D36	ON	Overheat/Drive Failure/Fan Failure LED Indicator (Red light: flashing, Buzzer: On)

2-4 Rear Connectors and LED Indicators

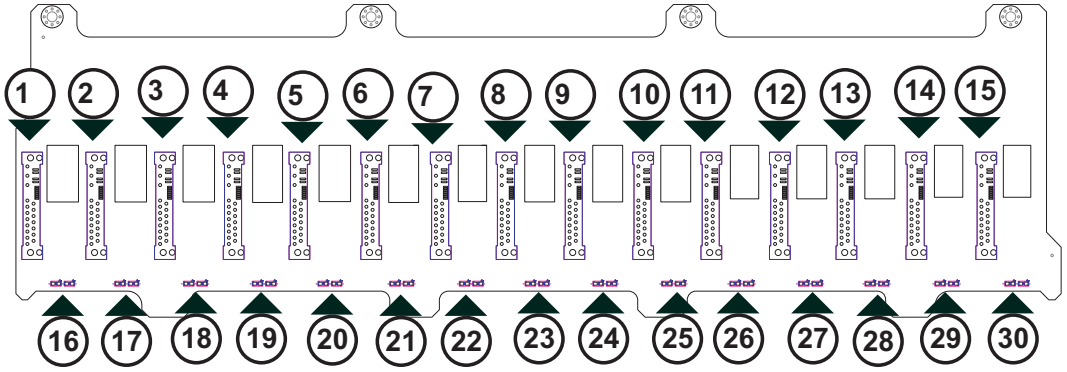
Rear Connectors

Rear SAS/SATA Connectors			
Rear Connector	**SAS Drive Number**	**Rear Connector**	**SAS Drive Number**
SAS #0	SAS/SATA HHD #0	SAS #8	SAS/SATA HHD #8
SAS #1	SAS/SATA HHD #1	SAS #9	SAS/SATA HHD #9
SAS #2	SAS/SATA HHD #2	SAS #10	SAS/SATA HHD #10
SAS #3	SAS/SATA HHD #3	SAS #11	SAS/SATA HHD #11
SAS #4	SAS/SATA HHD #4	SAS #12	SAS/SATA HHD #12
SAS #5	SAS/SATA HHD #5	SAS #13	SAS/SATA HHD #13
SAS #6	SAS/SATA HHD #6	SAS #14	SAS/SATA HHD #14
SAS #7	SAS/SATA HHD #7		

Rear LEDs

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

Locations of Rear Connectors and LEDs



Locations of Rear Connectors and LEDs	
Rear Connector	**Failure/Activity LED**
1. SAS #0	16. D5/D12
2. SAS #1	17. D6/D13
3. SAS #2	18. D7/D14
4. SAS #3	19. D8/D15
5. SAS #4	20. D19/D18
6. SAS #5	21. D20/D21
7. SAS #6	22. D23/D22
8. SAS #7	23. D29/D24
9. SAS #8	24. D30/D25
10. SAS #9	25. D31/D26
11. SAS #10	26. D32/D27
12. SAS #11	27. D33/D28
13. SAS #12	28. D37/D40
14. SAS #13	29. D38/D41
15. SAS #14	30. D39/D42

Notes