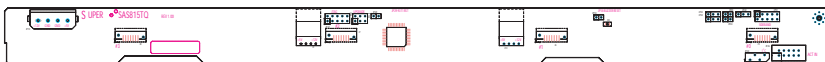




BPN-SAS3-815TQ BACKPLANE



USER'S GUIDE

1.0

The information in this User's Manual has been carefully reviewed and is believed to be accurate. The vendor assumes no responsibility for any inaccuracies that may be contained in this document, makes no commitment to update or to keep current the information in this manual, or to notify any person or organization of the updates. **Please Note: For the most up-to-date version of this manual, please see our web site at www.supermicro.com.**

Super Micro Computer, Inc. ("Supermicro") reserves the right to make changes to the product described in this manual at any time and without notice. This product, including software, if any, and documentation may not, in whole or in part, be copied, photocopied, reproduced, translated or reduced to any medium or machine without prior written consent.

IN NO EVENT WILL SUPERMICRO BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL, SPECULATIVE OR CONSEQUENTIAL DAMAGES ARISING FROM THE USE OR INABILITY TO USE THIS PRODUCT OR DOCUMENTATION, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. IN PARTICULAR, SUPERMICRO SHALL NOT HAVE LIABILITY FOR ANY HARDWARE, SOFTWARE, OR DATA STORED OR USED WITH THE PRODUCT, INCLUDING THE COSTS OF REPAIRING, REPLACING, INTEGRATING, INSTALLING OR RECOVERING SUCH HARDWARE, SOFTWARE, OR DATA.

Any disputes arising between manufacturer and customer shall be governed by the laws of Santa Clara County in the State of California, USA. The State of California, County of Santa Clara shall be the exclusive venue for the resolution of any such disputes. Super Micro's total liability for all claims will not exceed the price paid for the hardware product.

FCC Statement: This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the manufacturer's instruction manual, may cause harmful interference with radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case you will be required to correct the interference at your own expense.

California Best Management Practices Regulations for Perchlorate Materials: This Perchlorate warning applies only to products containing CR (Manganese Dioxide) Lithium coin cells. "Perchlorate Material-special handling may apply. See www.dtsc.ca.gov/hazardouswaste/perchlorate"

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.

Manual Revision 1.0

Release Date: July 14, 2015

mk

Unless you request and receive written permission from Super Micro Computer, Inc., you may not copy any part of this document.

Information in this document is subject to change without notice. Other products and companies referred to herein are trademarks or registered trademarks of their respective companies or mark holders.

Copyright © 2015 by Super Micro Computer, Inc.
All rights reserved.

Printed in the United States of America

Contents

Contacting Supermicro.....	iv
Returning Merchandise for Service.....	v
Chapter 1 Guidelines	
1-1 ESD Safety Guidelines	1-1
1-2 General Safety Guidelines	1-1
1-3 Version Information	1-2
Chapter 2 Connectors, Jumpers and LEDs	
2-1 Rear Connector Locations	2-1
2-2 Rear Connector Definitions	2-2
2-3 Rear Jumpers and Pin Definitions	2-4
Explanation of Jumpers	2-4
I ² C and SGPIO Modes and Jumper Settings	2-5
2-4 Rear LED Indicators	2-6
2-5 Front Connectors and LED Indicators	2-7

Contacting Supermicro

Headquarters

Address: Super Micro Computer, Inc.
980 Rock Ave.
San Jose, CA 95131 U.S.A.

Tel: +1 (408) 503-8000

Fax: +1 (408) 503-8008

Email: marketing@supermicro.com (General Information)
support@supermicro.com (Technical Support)

Web Site: www.supermicro.com

Europe

Address: Super Micro Computer B.V.
Het Sterrenbeeld 28, 5215 ML
's-Hertogenbosch, The Netherlands

Tel: +31 (0) 73-6400390

Fax: +31 (0) 73-6416525

Email: sales@supermicro.nl (General Information)
support@supermicro.nl (Technical Support)
rma@supermicro.nl (Customer Support)

Web Site: www.supermicro.nl

Asia-Pacific

Address: Super Micro Computer, Inc.
3F, No. 150, Jian 1st Rd.
Zhonghe Dist., New Taipei City 235
Taiwan (R.O.C)

Tel: +886-(2) 8226-3990

Fax: +886-(2) 8226-3992

Email: support@supermicro.com.tw

Web Site: www.supermicro.com.tw

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 backplane in the original Supermicro box, using the original packaging materials. If these are no longer available, be sure to pack the backplane in an anti-static bag and inside the box. Make sure that there is enough packaging material surrounding the backplane so that it does not 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.

Notes

Chapter 1

Guidelines

This chapter offers guidelines for personal and equipment safety, and notes about the BPN-SAS3-815TQ version documented in this manual.

1-1 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 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 Version Information

The BPN-SAS3-815TQ backplane has been designed to utilize the most up-to-date technology available, providing your system with reliable, high-quality performance.

This manual reflects BPN-SAS3-815TQ, Revision 1.00, the most current release available at the time of publication. Refer to the Supermicro Web site at www.supermicro.com for the latest updates, compatible parts and supported configurations.

Chapter 2

Connectors, Jumpers and LEDs

This manual covers BPN-SAS3-815TQ enabling SAS3 drives with 12Gbps speeds.

2-1 Rear Connector Locations

The following connectors are on the side of the backplane that faces the rear of the chassis. They are marked by silkscreen labels.

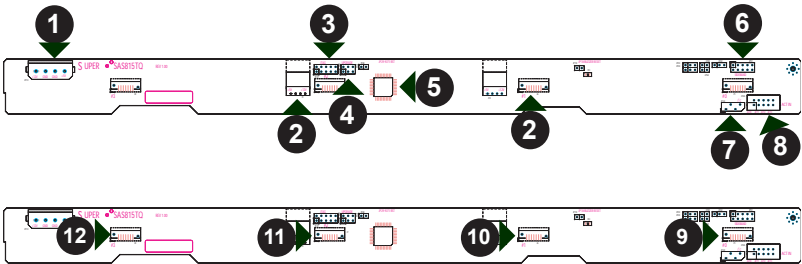


Figure 2-1. Rear Connectors

- | | |
|-----------------------------------------|-------------------------------|
| 1. Main Power: JP10 (4 pin) | 7. I2C Connector JP44 (4 pin) |
| 2. Peripheral power: J9 and J10 (4 pin) | 8. ACT_IN JP26 (10 pin) |
| 3. JTAG JP47 (10 pin) | 9. SAS Port #0 J5 |
| 4. Upgrade: JP46 (6 pin) | 10. SAS Port #1 J6 |
| 5. MG9071 Chip | 11. SAS Port #2 J7 |
| 6. Sideband JP51 (10 pin) | 12. SAS Port #3 J8 |

2-2 Rear Connector Definitions

1. Backplane Main Power Connectors

The 4-pin connectors, designated JP10 provide power to the backplane.

Main Power (JP10)	
Pin#	Definition
1	+12V
2 and 3	Ground
4	+5V

2. Peripheral Drive 4-Pin Connectors

The 4-pin connectors, designated J9 and J10, provide power to DVD or other peripheral drives.

Peripheral Drive Power (J9 and J10)	
Pin#	Definition
1	+5V
2 and 3	Ground
4	+12V

3, 4. JTAG Connector and Upgrade Connector

The JTAG connector, designated JP47, and the upgrade connector, designated JP46, are for diagnostic purposes. These connectors should be used by a certified and experienced technician.

5. MG9071 Chip

The MG9071 is an enclosure management chip that supports the SES-2 controller and SES-2 protocols.

6. Sideband Headers

The sideband header is designated JP51. For SES-2 to work properly, you must connect an 8-pin sideband cable.

Sideband Header (JP51)			
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. I²C Connectors

The I²C Connectors, designated JP44, are used to monitor HDD activity and status.

I ² C Connector (JP44)	
Pin#	Definition
1	Data
2	Ground
3	Clock
4	No Connection

8. Activity LED Header

The Activity LED header, designated JP26, is used to indicate the activity status of each SAS drive. To enable, connect using a 10-pin LED cable.

SAS Activity LED Header (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

9-12. SAS Ports

The SAS ports are used to connect cables to SAS3 drives, enabling 12Gbps speeds. The four ports are designated #0 - #4. Each port is also compatible with SATA drives.

2-3 Rear Jumpers and Pin Definitions

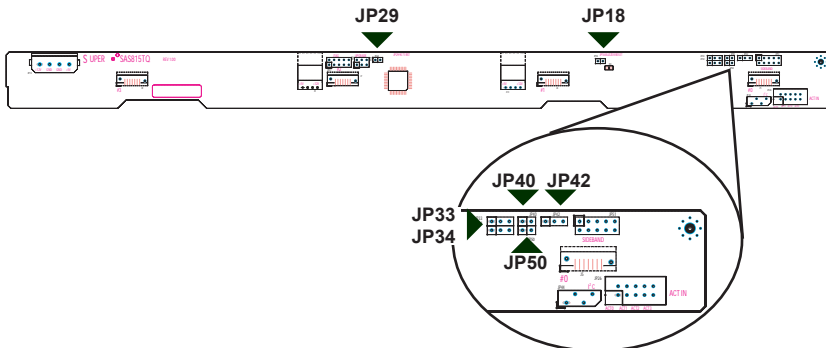
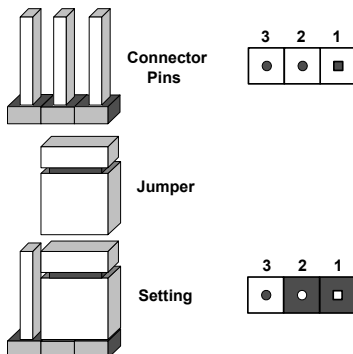


Figure 2-2. Rear Jumpers

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.



General Jumpers		
Jumper	Settings	Description
JP18	Open: Enabled Closed: Disabled	Buzzer Reset
JP29	Open: Default Closed: Reset	MG 9071 Chip Reset

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 jumpers. Use the following settings for I²C mode.

SGPIO Jumpers (Default)		
Jumper	Setting	Description
JP33	1-2	Controller ID
JP34	1-2:ID#0	Backplane ID
JP40	Closed	I ² C Reset SD OUT
JP42	1-2	Backplane ID SDIN
JP50	Open	I ² C Reset

I ² C Jumpers		
Jumper	Setting	Description
JP33	2-3	Controller ID
JP34	1-2:ID#0	Backplane ID
JP40	Open	I ² C Reset SD OUT
JP42	2-3	Backplane ID SDIN
JP50	Closed	I ² C Reset

2-4 Rear LED Indicators

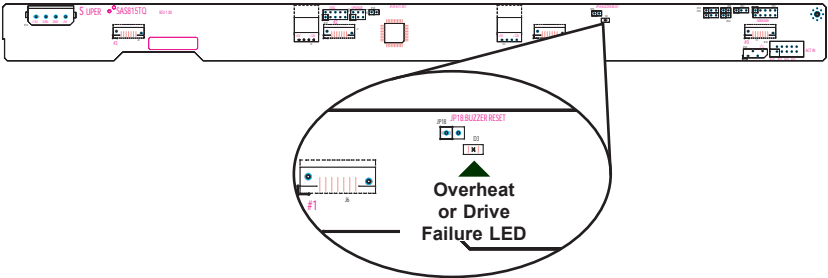


Figure 2-3. Rear LEDs

Rear LEDs		
LED	State	Specification
D3	On	Overheat or Drive Failure

2-5 Front Connectors and LED Indicators

The front of the backplane has four sockets to connect disk drives, along with LEDs indicators.

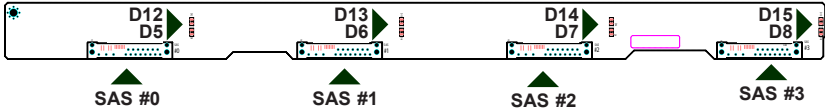


Figure 2-4. Front Connectors

Front SAS/SATA Connectors and LED Indicators			
Drive Number	Label	HDD Activity LED (blue)	Failure LED (red)
SAS #0	J1	D12	D5
SAS #1	J2	D13	D6
SAS #2	J3	D14	D7
SAS #3	J4	D15	D8

Disclaimer (cont.)

The products sold by Supermicro are not intended for and will not be used in life support systems, medical equipment, nuclear facilities or systems, aircraft, aircraft devices, aircraft/emergency communication devices or other critical systems whose failure to perform be reasonably expected to result in significant injury or loss of life or catastrophic property damage. Accordingly, Supermicro disclaims any and all liability, and should buyer use or sell such products for use in such ultra-hazardous applications, it does so entirely at its own risk. Furthermore, buyer agrees to fully indemnify, defend and hold Supermicro harmless for and against any and all claims, demands, actions, litigation, and proceedings of any kind arising out of or related to such ultra-hazardous use or sale.