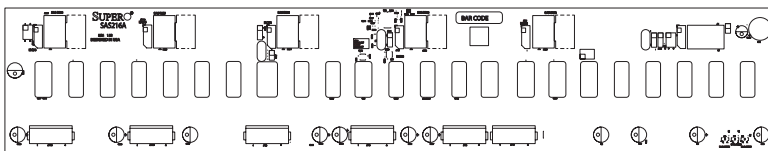# SUPER®

SAS-216A BACKPLANE

USER'S GUIDE

Rev. 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 22, 2008

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.

Table of Contents

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)

Asia-Pacific

Address:	Super Micro Computer, Inc.
	4F, No. 232-1, Liancheng Rd.
	Chung-Ho 235, Taipei County
	Taiwan, R.O.C.
Tel:	+886-(2) 8226-3990
Fax:	+886-(2) 8226-3991
Web Site:	www.supermicro.com.tw
Technical Support:	
Email:	support@supermicro.com.tw
Tel:	886-2-8226-1900

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.

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 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 mother-board to prevent damage to the system due to power shortage.
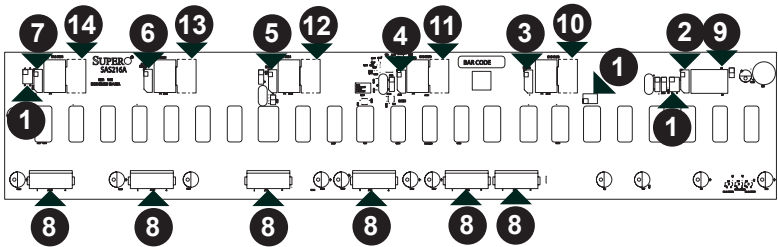
1-3   A Note to Users

- 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. Upgrade Connectors: JP69, JP78 and JP115
2. I²C Connector #1 (JP37)
3. I²C Connector #2 (JP95)
4. I²C Connector #3 (JP52)
5. I²C Connector #4 (JP96)
6. I²C Connector #5 (JP116)
7. I²C Connector #6 (JP117)

8. Power Connectors (4-pin): JP10, JP13, JP46, JP48 JP109, JP110
9. SAS IN#1 JSM1
10. SAS IN#2 JSM2
11. SAS IN#3 JSM3
12. SAS IN#4 JSM4
13. SAS IN#5 JSM5
14. SAS IN#6 JSM6

2-2   Front Connector and Pin Definitions

1. Upgrade Connectors

The upgrade connectors are designated JP69, JP78 and JP115 are used for manufacturer's diagnostic purposes only.

2. - 7. I²C Connectors

The I²C Connectors, designated JP37, JP95, JP52, JP96, JP115 and JP116 are used to monitor HDD activity and status. See the table on the right for pin definitions.

I²C Connector Pin Definitions (JP37, JP95, JP52, JP96, JP115 and JP116)	
Pin#	Definition
1	Data
2	Ground
3	Clock
4	No Connection

8. Backplane Main Power Connectors

The 4-pin connectors, designated JP10, JP13, JP46, JP48, JP109 and JP110 provide power to the backplane. See the table on the right for pin definitions.

Backplane Main Power 4-Pin Connector (JP10, JP13, JP46, JP48, JP109 and JP110)	
Pin#	Definition
1	+12V
2 and 3	Ground
4	+5V

9. - 14. SAS IN Ports (Sideband included)

The SAS ports are used to connect the SAS drive cables. The six SAS IN ports are designated #JSM1 - #JSM6. Each port is also compatible with SATA drives.

| Sideband Definitions (JSM1 - JSM6)			
Pin #	Definition	Pin #	Definition
A11	**SGPIO:** SDIN **I²C:** Backplane Addressing (SB5)	B11	Controller ID (SB6)
A12	**SGPIO:** SDOUT **I²C:** Reset (SB4)	B10	GND (SB2)
A9	GND (SB3)	B9	**SGPIO:** SLOAD **I²C:**SDA (SB1)
A8	Backplane ID (SB7)	B8	**SGPIO:** SCLOCK **I²C:**SCL (SB0)

2-3   Front Jumper Locations and Pin Definitions
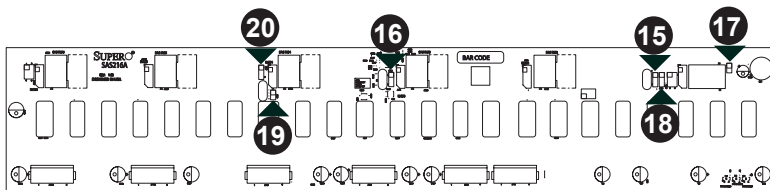
15. Chip Reset JP36 1-2 Reset, 2-3 No Reset (Not populated)
16. Chip Reset JP35 1-2 Reset, 2-3 No Reset (Not populated)
17. Buzzer Reset JP18
18. JP84 1-2 SGPIO, 2-3 I^{2}C
19. JP80 I^{2}C Addr - On C0, Off C2 (Not populated)
20. JP50 Chip Reset 1-2 Reset, 2-3 No Reset (Not populated)

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.

Connector Pins

Jumper

Setting

3 2 1

3 2 1
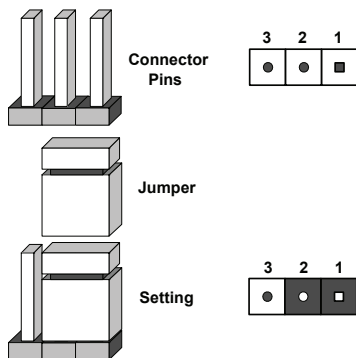
I²C and SGPIO Modes and Jumper Settings

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
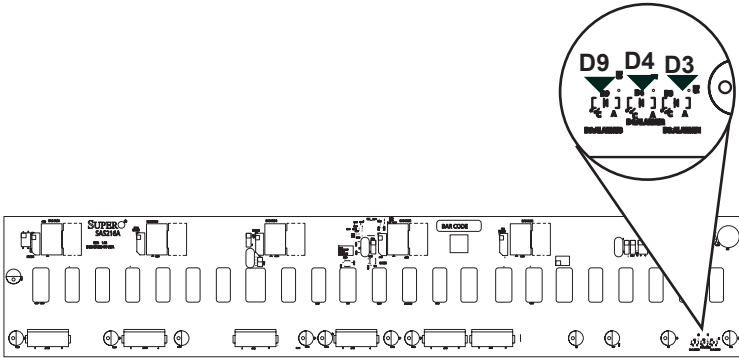
Front Panel LEDs		
LED	**STATE**	**SPECIFICATION**
D3	On	Alarm #1
D4	On	Alarm #2
D9	On	Alarm #3

4-4   Rear Components, Connectors and LED Indicators
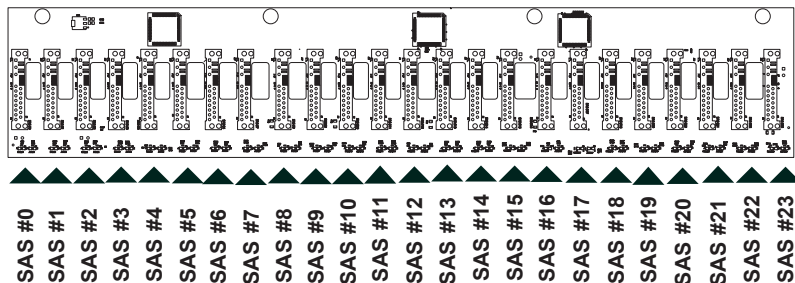
Rear SAS/SATA Connectors			
Rear Connector	SAS Drive Number	Rear Connector	SAS Drive Number
SAS #0	SAS/SATA HDD #0	SAS #12	SAS/SATA HDD #12
SAS #1	SAS/SATA HDD #1	SAS #13	SAS/SATA HDD #13
SAS #2	SAS/SATA HDD #2	SAS #14	SAS/SATA HDD #14
SAS #3	SAS/SATA HDD #3	SAS #15	SAS/SATA HDD #15
SAS #4	SAS/SATA HDD #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	D22	D23
SAS #2	D40	D37
SAS #3	D102	D107
SAS #4	D13	D6
SAS #5	D24	D29
SAS #6	D41	D38
SAS #7	D104	D108
SAS #8	D14	D7
SAS #9	D25	D30
SAS #10	D42	D39
SAS #11	D106	D109
SAS #12	D15	D8
SAS #13	D26	D31
SAS #14	D87	D88
SAS #15	D111	D110
SAS #16	D18	D19
SAS #17	D27	D32
SAS #18	D100	D103
SAS #19	D118	D119
SAS #20	D21	D20
SAS #21	D28	D33
SAS #22	D101	D105
SAS #23	D120	D121

Disclaimer (cont.)
The products sold by Supermicro are not intended for and will not be used in life sup-
port systems, medical equipment, nuclear facilities or systems, aircraft, aircraft devices,
aircraft/emergency communication devices or other critical systems whose failure to per-
form 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.