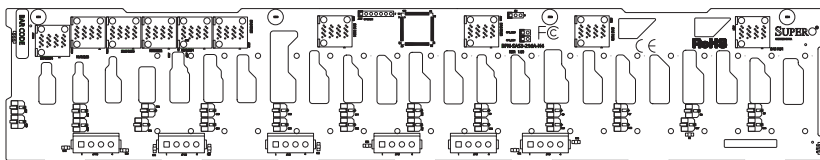




BPN-SAS3-216A-N4 BACKPLANE



USER'S GUIDE

1.0

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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.

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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-SAS3-216A-N4 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 mounting frame in the chassis to prevent damage to the system due to power shortage.

1-3 Version Information

The BPN-SAS3-216A-N4 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-SAS3-216A-N4, 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-SAS3-216A-N4 with NVMe capabilities.

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.

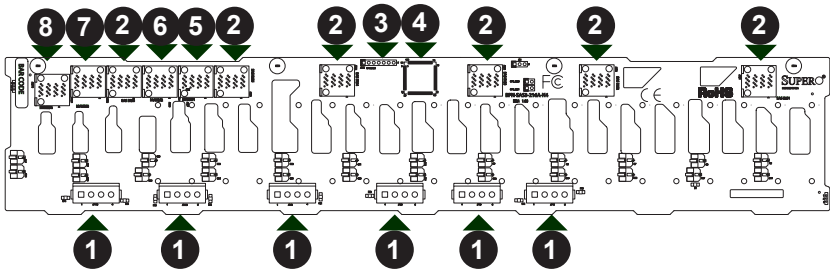


Figure 2-1. Rear Connector Locations

- | | |
|--|-----------------------------|
| 1. Power Connectors: JP10, JP13, JP46, JP 48, JP109, JP110 (4-pin) | 5. NVMe #1 Connector: JSM7 |
| 2. SAS3 Connectors: JSM1-6 | 6. NVMe #2 Connector: JSM8 |
| 3. CPLD programming port: JP70 (7-pin) | 7. NVMe #3 Connector: JSM9 |
| 4. CPLD | 8. NVMe #4 Connector: JSM10 |

2-2 Rear Connector Definitions

1. Backplane Main Power Connectors

The 4-pin connectors, designated JP10, JP13, JP46, JP 48, JP109, and JP110, provide power to the backplane. See the table on the right for pin definitions.

Main Power 4-Pin Connector	
Pin#	Definition
1	+12V
2 and 3	Ground
4	+5V

2. SAS3 Connectors

JSM1 through JSM6 provide connections for the SAS drive cables. Pins are defined according the SAS standard.

3. CPLD Upgrade Port

The JP70 connector is used only by manufacturing to upgrade firmware.

5-8. NVMe Connectors

Four NVMe connectors are used to connect the NVMe drive cables. Each connector controls one NVMe SSD. Pins are defined according to the NVMe standard.

2-3 Rear Jumpers

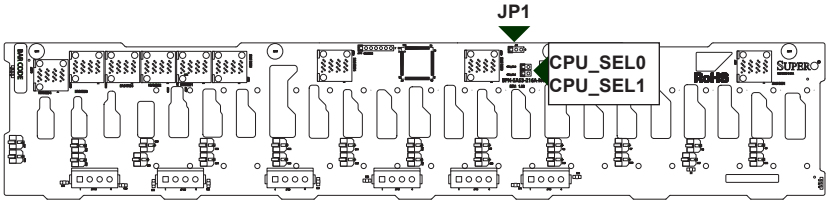


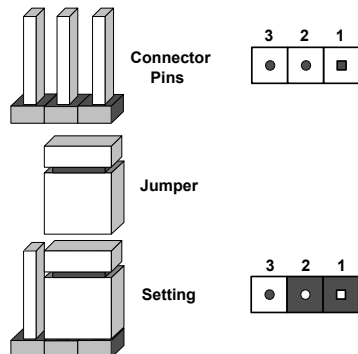
Figure 2-2. Rear Jumpers

Jumper Settings		
Jumper	Settings	Note
JP1	Pins 1-2 (default)	Used only by manufacturing
CPU_SEL0 CPU_SEL1	see table below (default: all open)	NVMe mapping to CPU

Jumpers		NVMe to CPU Connection	NVMe Cables	
CPU_SEL0	CPU_SEL1	NVMe Drive Slots	VPP from CPU1	VPP from CPU2
Open	Open	Slot 1-4 connected to CPU 1	NVME #1	NVME #1
Open	Closed	Slot 1-3 connected to CPU 1 Slot 4 connected to CPU 2	NVME #1	NVME #4
Closed	Open	Slot 1-2 connected to CPU 1 Slot 3-4 connected to CPU 2	NVME #1	NVME #3
Closed	Closed	Slot 1 connected to CPU 1 Slot 2-4 connected to CPU 2	NVME #1	NVME #2

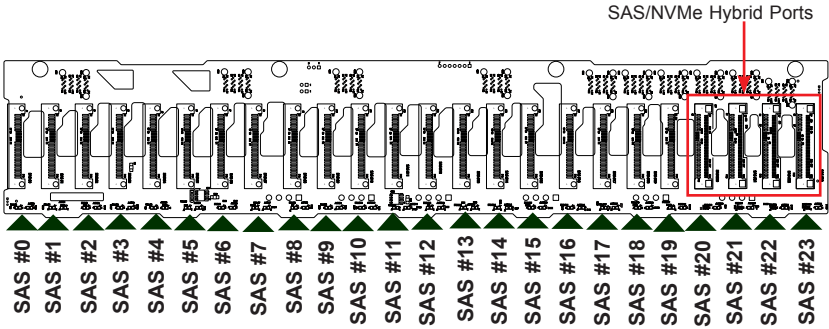
Explanation of Jumpers

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.



2-4 Front Connectors and LED Indicators

Connectors for SAS drive numbers #0 through #19 are SAS3. SAS #20 through #23 are hybrid ports that support SAS3 or NVMe.



48 LEDs, two per receptacle, indicate activity and failure.
(along the bottom of the backplane)

Figure 2-3. Front Connectors and LEDs

(table on following page)

Front Drive Connectors and LED Indicators			
Drive Number	Label	HDD Activity LED (blue)	Failure LED (red)
SAS #0	J1	ACT#0	FAIL#0
SAS #1	J2	ACT#1	FAIL#1
SAS #2	J3	ACT#2	FAIL#2
SAS #3	J4	ACT#3	FAIL#3
SAS #4	J5	ACT#4	FAIL#4
SAS #5	J6	ACT#5	FAIL#5
SAS #6	J7	ACT#6	FAIL#6
SAS #7	J8	ACT#7	FAIL#7
SAS #8	J9	ACT#8	FAIL#8
SAS #9	J10	ACT#9	FAIL#9
SAS #10	J11	ACT#10	FAIL#10
SAS #11	J12	ACT#11	FAIL#11
SAS #12	J13	ACT#12	FAIL#12
SAS #13	J14	ACT#13	FAIL#13
SAS #14	J15	ACT#14	FAIL#14
SAS #15	J16	ACT#15	FAIL#15
SAS #16	J17	ACT#16	FAIL#16
SAS #17	J18	ACT#17	FAIL#17
SAS #18	J19	ACT#18	FAIL#18
SAS #19	J20	ACT#19	FAIL#19
SAS #20/NVMe #1*	J21	ACT#20	FAIL#20**
SAS #21/NVMe #2*	J22	ACT#21	FAIL#21**
SAS #22/NVMe #3*	J23	ACT#22	FAIL#22**
SAS #23/NVMe #4*	J24	ACT#23	FAIL#23**

*Hybrid ports; NVMe or SAS

**This failure LED is multi-color, as described in the table below.

Color and State	Indication
Red, solid	Failure
Red, blinking at 1Hz	Rebuild
Red, blinking at 4Hz	Identify
Amber, blinking	Attention! Do not remove NVMe device
Green	NVMe device ready be removed

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