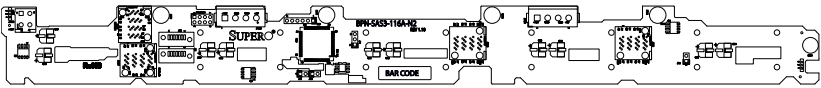




## BPN-SAS3-116A-N2 BACKPLANE



## USER'S GUIDE

1.0

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**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-SAS3-116A-N2 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-SAS3-116A-N2 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-SAS3-116A-N2, Revision 1.10, the most current release available at the time of publication. Refer to the Supermicro Web site at [www.supermicro.com](http://www.supermicro.com) for the latest updates, compatible parts and supported configurations.



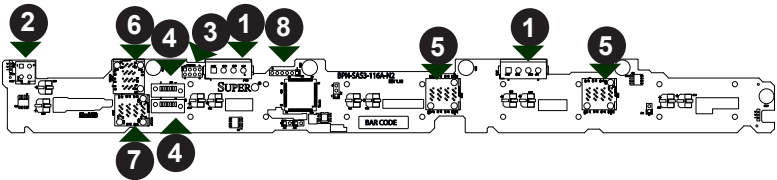
## Chapter 2

### Connectors, Jumpers and LEDs

This manual covers BPN-SAS3-116A-N2 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: JPW1, JPW2<br>(4-pin) | 6. NVMe Connectors: JSM4                 |
| 2. Power Connector: JPW3 (2x2 pin)         | 7. NVMe Connectors: JSM3                 |
| 3. Sideband Connector: T-SGPIO1<br>(6-pin) | 8. CPLD programming port: J23<br>(6-pin) |
| 4. SAS2 Connectors: JS1 and JS2            |  |
| 5. SAS3 Connectors: JSM1, JSM2             |  |

## 2-2 Rear Connector Definitions

### 1. Backplane Main Power Connectors

The 4-pin connectors, designated JPW1 and JPW2, 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. DC Power Input

This connector is the +12V DC power input connector for the NVMe solid state drive, which requires more power than typical SAS/SATA drives.

4-Pin Power Connector (JPW3)	
Pin#	Definition
1, 2	Ground
3, 4	+12V

### 3. Sideband Connector

This is the sideband connector for SAS2 and is designated T-SGPIO1.

Sideband Connector (T-SGPIO1)			
Pin	Definition	Pin	Definition
2	SDataIn (SGPIO Data In)	1	N/C
4	SDataOut (SGPIO Data Out)	3	GND
6	GND	5	SLoad (SGPIO Load)
8	N/C	7	SClock (SGPIO Clock)

### 4. SAS2 Connectors

The SAS2 connectors are designated JS1 (SAS2 in #1) and JS2 (SAS2 in #2).

### 5. SAS3 Connectors

JSM1 and JSM2 provide connections for the SAS drive cables. Pins are defined according the SAS standard.

### 6-7. NVMe Connectors

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

### 8. CPLD Upgrade Port

The JP23 connector is used only by manufacturing to upgrade firmware.

## 2-3 Rear Jumpers

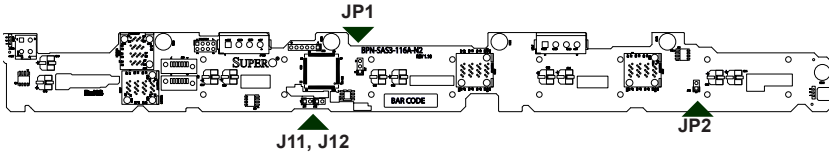
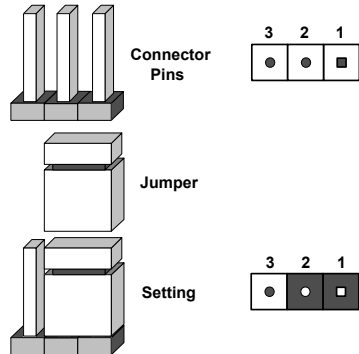


Figure 2-2. Rear Jumpers

Jumper Settings		
Jumper	Settings	Note
JP1	Pins 1-2 (default)	Used only by manufacturing
JP2	<b>Closed:</b> Connects NVMe#0 to CPU1, and NVMe#1 to CPU2	NVMe mapping to CPU
	<b>Open:</b> NVMe#0 and #1 to CPU1	
J11, J12	Open	Reserved for future

### 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 #7 are SAS3. SAS #8 and #9 are hybrid ports that support SAS2 or NVMe.

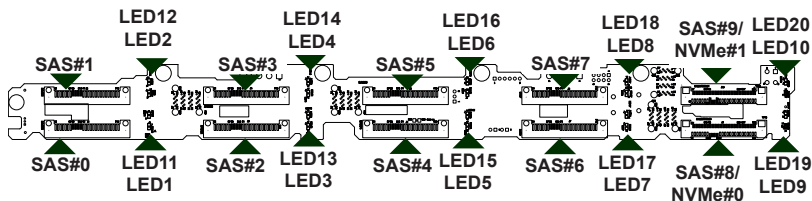


Figure 2-3. Front Connectors and LEDs

Front SAS/SATA Connectors and LED Indicators			
Drive Number	Label	HDD Activity LED (blue)	Failure LED (red)
SAS #0	J1	LED11	LED1
SAS #1	J2	LED12	LED2
SAS #2	J3	LED13	LED3
SAS #3	J4	LED14	LED4
SAS #4	J5	LED15	LED5
SAS #5	J6	LED16	LED6
SAS #6	J7	LED17	LED7
SAS #7	J8	LED18	LED8
SAS #8/NVMe #0*	J9	LED19	LED9**
SAS #9/NVMe #1*	J10	LED20	LED10**

\*Hybrid ports; NVMe or SAS

\*\*The failure LED is bi-color. Red indicates Failure/Rebuild; green indicates NVMe SSD ready to remove.

## Notes

Disclaimer (cont.)

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