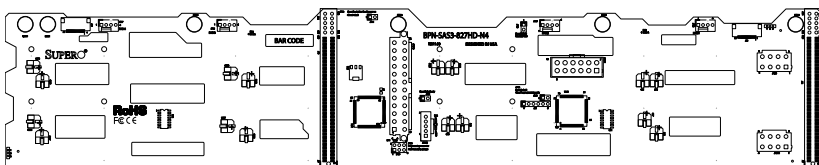




BPN-SAS3-827HD-N4 BACKPLANE



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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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-SAS3-827HD-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 motherboard to prevent damage to the system due to power shortage.

1-3 Version Information

The BPN-SAS3-827HD-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-SAS3-827HD-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 section documents BPN-SAS3-827HD-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 identified by silkscreen labels.

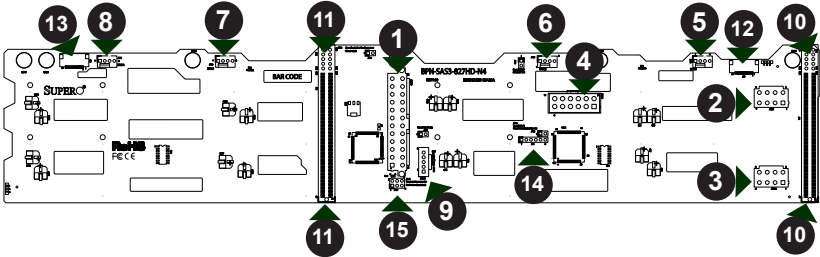


Figure 2-1. Rear Connectors

- | | |
|---|---|
| 1. Main Power Connector: JPW12 (24-pin) | 8. Chassis Fan Connector Fan4 JP57 (4-pin) |
| 2. Secondary Power Connector: JPW9 (2x4 pin) | 9. Power Supply SM Bus Connector: JPI2C1 (5-pin) |
| 3. Secondary Power Connector: JPW10 (2x4 pin) | 10. Node A connector: J12 |
| 4. Secondary Power Connector: JPW11 (2x6 pin) | 11. Node B connector: J13 |
| 5. Chassis Fan Connector: Fan1 JP54 (4-pin) | 12. Backplane to front panel connector for node A: JF5 (20-pin) |
| 6. Chassis Fan Connector: Fan2 JP55 (4-pin) | 13. Backplane to front panel connector for node B: JF6 (20-pin) |
| 7. Chassis Fan Connector: Fan3 JP56 (4-pin) | 14. CPLD JTAG port: J30 (6-pin) |
| | 15. MCU firmware upgrade port JP69 (6-pin) |

2-2 Rear Connector Definitions

1-4. Power Supply Connectors

These connectors, designated JPW1, JPW2, JPW3, and JPW4 supply power to the two motherboard nodes and to the drives.

5-8. Chassis Fan Connectors

These connectors, designated JP54, JP55, JP56 and JP57 supply power to the cooling fans.

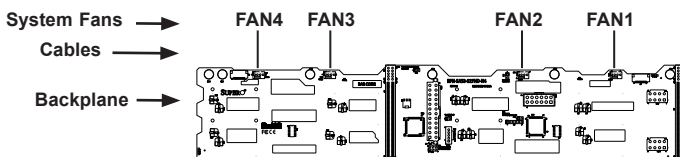


Figure 2-2. Default Configuration--Fans Connected Directly to the Backplane

9. Power Supply SM Bus Connector

The 5-pin connector, designated JPI2C1, connects the power supply SMBus to the MCU.

10-11. Motherboard to Backplane Connectors

J12 connects motherboard A to the backplane on the chassis. J13 connects motherboard B to the backplane.

12-13. Backplane to Front Panel Headers

These headers connect by cables to the chassis front control panels. JF5 connects to the panel on the right side of the chassis, JF6 connects to the panel on the left side.

14. CPLD JTAG port:

The J30 connector is for manufacturer use.

15. MCU Upgrade Port

JP69 is a port to upgrade the MCU firmware.

2-3 Rear Jumpers and Pin Definitions

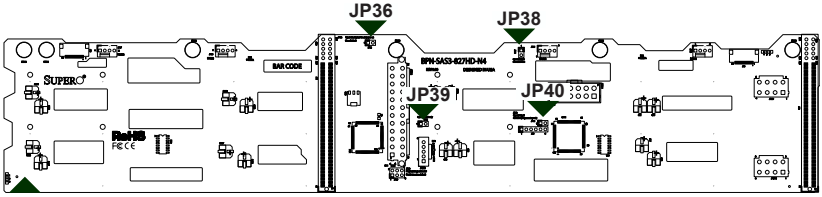
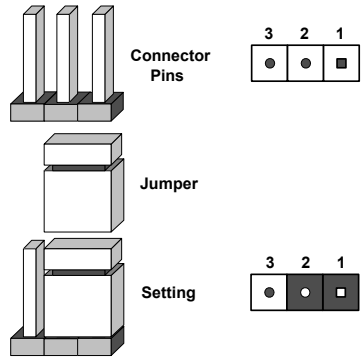


Figure 2-3. Rear Jumpers

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.



Jumper Settings	
Jumper	Jumper Settings
JP36	Open: Default Closed: Any one button for power on
JP38	Open: Default; Close for LED testing only
JP39	Open: Default; for testing puposes
JP40	Open: Default; Close for programming only

2-3 Rear LED Indicators

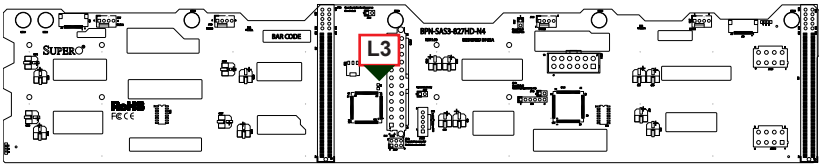


Figure 2-4. Rear LEDs

Rear LEDs		
LED	State	Specification
L3	Blinking	MCU Heartbeat

2-4 Front Connectors and LED Indicators

SAS/SATA/NVMe

The front of the backplane has 12 sockets to connect hard disk drives, along with LEDs indicators. The BPN-SAS3-827HD-N4 is designed to work with two separate computing nodes, each with an independent motherboard. The backplane supports six drives for each node. The drive ports designated SAS(NVMe)#0 through 5 are managed by node A, The drive ports designated SAS(NVMe)#6 through 11 are managed by node B.

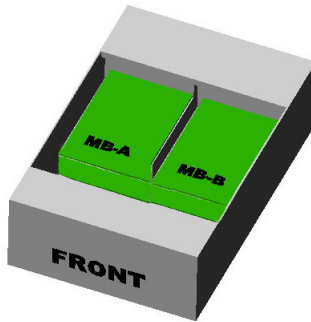


Figure 2-5. Motherboard Locations In the Chassis

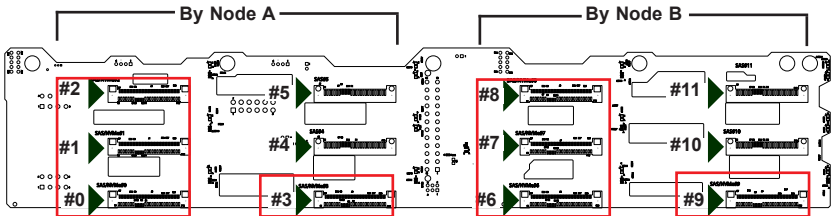


Figure 2-6. Front Connectors

(SAS3/SATA3/NVMe Hybrid Ports in red boxes)

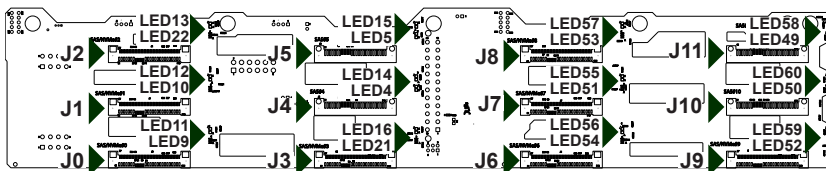


Figure 2-7. Front Connectors and LEDs

Drive Connectors and LED Indicators			
Drive Number	Label	HDD Activity LED (blue)	Failure LED (red)
SAS/NVMe #0*	J0	ACT#0	FAIL#0**
SAS/NVMe #1*	J1	ACT#1	FAIL#1**
SAS/NVMe #2*	J2	ACT#2	FAIL#2**
SAS/NVMe #3*	J3	ACT#3	FAIL#3**
SAS #4	J4	ACT#4	FAIL#4
SAS #5	J5	ACT#5	FAIL#5
SAS/NVMe #6*	J6	ACT#6	FAIL#6**
SAS/NVMe #7*	J7	ACT#7	FAIL#7**
SAS/NVMe #8*	J8	ACT#8	FAIL#8**
SAS/NVMe #9*	J9	ACT#9	FAIL#9**
SAS #10	J10	ACT#10	FAIL#10
SAS #11	J11	ACT#11	FAIL#11

*Hybrid ports; NVMe or SAS

**For hybrid ports, this failure LED is bi-color, as described below.

Failure LED States	
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

** For NVMe only

Notes

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