

## BPN-SAS3-747TQ-N4 Backplane

### USER'S GUIDE

Rev. 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.

# 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

*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 An Important 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.

## **1-4 Introduction to the BPN-SAS3-747TQ-N4 Backplane**

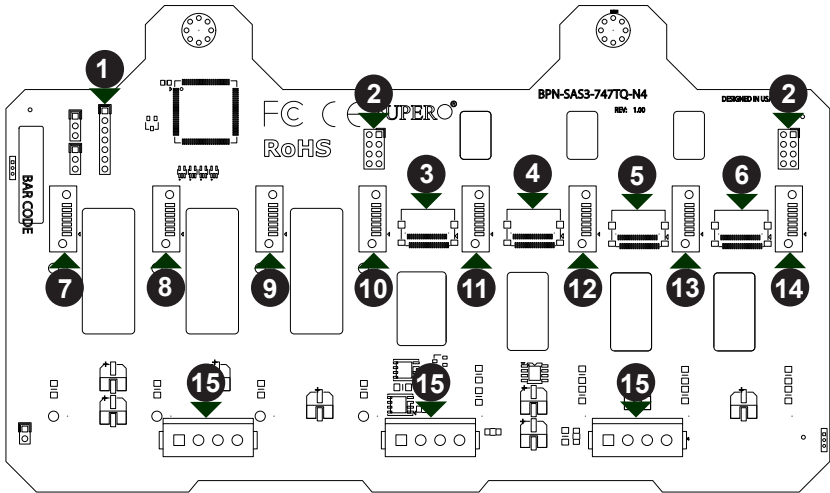
The BPN-SAS3-747TQ-N4 backplane has been designed to utilize the most up-to-date technology available, providing your system with reliable, high-quality performance.

Always 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 and Pin Definitions

#### 2-1 Front Connectors



**Figure 2-1. Front Connectors**

- |  |  |
|--|--|
| 1. JTAG Connector (7-pin): J16,<br>CPLD Upgrade Port | 8. SAS Port #6: JS6                                    |
| 2. Sideband Connectors: J28 and<br>J29               | 9. SAS Port #5: JS5                                    |
| 3. NVMe Connector #3: CN3                            | 10. SAS Port #4: JS4                                   |
| 4. NVMe Connector #2: CN2                            | 11. SAS Port #3: JS3                                   |
| 5. NVMe Connector #1: CN1                            | 12. SAS Port #2: JS2                                   |
| 6. NVMe Connector #0: CN0                            | 13. SAS Port #1: JS1                                   |
| 7. SAS Port #7: JS7                                  | 14. SAS Port #0: JS0                                   |
|  | 15. Power Connectors: (4-pin):<br>JPW1, JPW2, and JPW3 |



## 2-2 Front Connector Pin Definitions

### #1. CPLD Upgrade Port

The JTAG connector, designated J16, is used only by the manufacturer to upgrade the CPLD.

### #2. Sideband Headers

The sideband headers are designated J28, for SAS #0-#3, and J29, for SAS #4-#7. For SAS or SATA to work properly, you must connect an 8-pin sideband cable. See the table to the right for pin definitions.

Sideband Headers			
Pin #	Definition	Pin #	Definition
2	SDIN	1	Controller ID (SB6)
4	SDOUT	3	GND (SB2)
6	GND (SB3)	5	SLOAD
8	Backplane ID (SB7)	7	SCLOCK

NOTE: SGPIO is the default setting for this backplane.

### #3. - 6. NVMe Connectors

The NVMe ports are used to connect the NVMe drive cables. OCUlink cables CBL-SAST-0819 should be used to connect these ports to a quad port NVMe add-on card in PCIe slot 9 of motherboard X11DPG-QT.

### #7. - 14. SAS Connectors

The SAS ports are used to connect the SAS or SATA drive cables. The 8 ports are designated #0 - #7. Each port is also compatible with SATA drives. However, mixing SAS and SATA drives in the same enclosure is not recommended. Cables CBL-0188L-02 can be used to connect SATA drives #0-#3 to port I-SATA0-3 and SATA drives #4-#7 to port I-SATA4-7 on motherboard X11DPG-QT. Cables CBL-SAST-0699 can be used to connect SAS drives #0-#3 and #4-#7 to a dual port HBA or RAID controller plugged into any PCIe slot on motherboard X11DPG-QT.

**#15. Backplane Main Power Connectors**

The 4-pin connectors, designated JPW1, JPW2, and JPW3, provide power to the backplane. See the tables on the right for pin definitions.

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

## 2-3 Front Jumper Locations and Pin Definitions

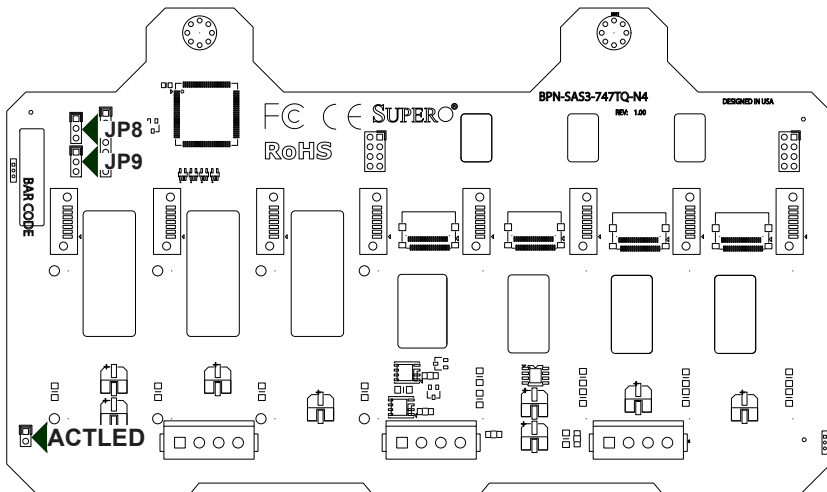
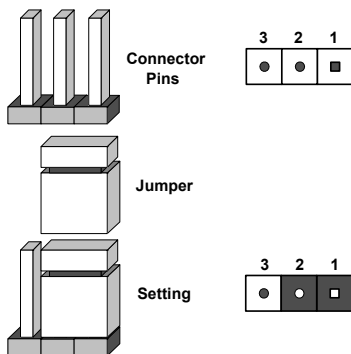


Figure 2-2. Front Jumpers

### 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		
JP8	JP9	Description
2-3	2-3	4 drives (NVMe #0, 1, 2, and 3) connected to CPU1. (default)
1-2	2-3	3 drives connected to CPU1, 1 drive connected to CPU2.
2-3	1-2	2 drives connected to CPU1, 2 drives connected to CPU2.
1-2	1-2	1 drive connected to CPU1, 3 drives connected to CPU2.

LED Test	
ACTLED	Description
Open	For internal use only. (default)

## 2-4 Rear Connectors and LED Indicators

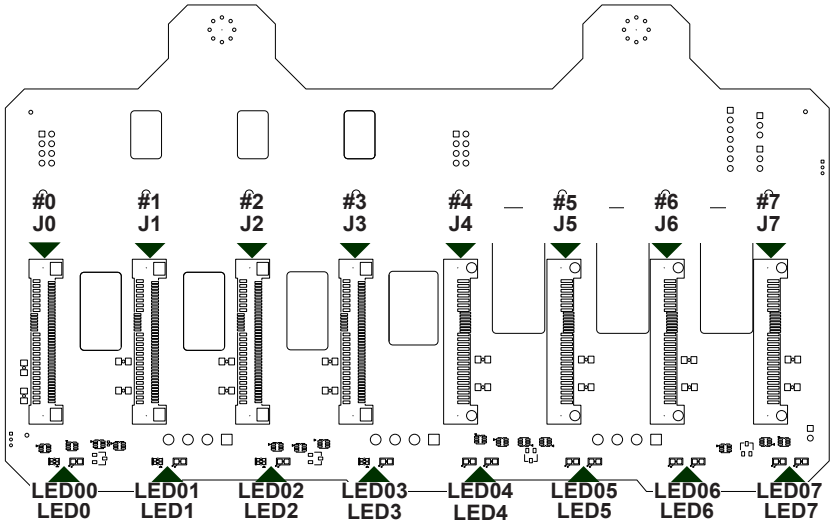


Figure 2-3. Rear SAS/SATA Connectors and LED Indicators

SAS/SATA/NVMe Connectors and LED Indicators			
Rear Connector	SAS Drive Number	Failure LED	Activity LED
#0	SAS/SATA/NVMe HDD #0	LED00	LED0
#1	SAS/SATA/NVMe HDD #1	LED01	LED1
#2	SAS/SATA/NVMe HDD #2	LED02	LED2
#3	SAS/SATA/NVMe HDD #3	LED03	LED3
#4	SAS/SATA HDD #4	LED04	LED4
#5	SAS/SATA HDD #5	LED05	LED5
#6	SAS/SATA HDD #6	LED06	LED6
#7	SAS/SATA HDD #7	LED07	LED7

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