BPN-SAS3-F418-B6N4 Backplane

USER'S GUIDE

Rev. 1.0
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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-F418-B6N4 Backplane

The BPN-SAS3-F418-B6N4 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 for the latest updates, compatible parts, and supported configurations.
2-1 Front Connectors

1. Power Connector (4-pin) #1: JPW0
2. Power Connector (4-pin) #2: JPW1
3. SAS Mini HD Connector #0-#3: JSM0
4. SAS Mini HD Connector #4-#5: JSM1
5. NVMe Connector #0: CN2
6. NVMe Connector #1: CN3
7. NVMe Connector #2: CN4
8. NVMe Connector #3: CN5
9. Chip: CPLD
10. JTAG Connector (7-pin): J16, CPLD Upgrade Port
#1. - 2. Backplane Main Power Connectors

The 4-pin connectors, designated JPW0 and JPW1, provide power to the backplane. See the tables on the right for pin definitions.

<table>
<thead>
<tr>
<th>Backplane Main Power 4-Pin Connector JPW0</th>
<th>Pin#</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 and 2</td>
<td>Ground</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>+5V</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>+12V</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Backplane Main Power 4-Pin Connector JPW1</th>
<th>Pin#</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 and 2</td>
<td>Ground</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>+5V</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>+12V</td>
</tr>
</tbody>
</table>

#3. - 4. SAS Mini HD Connectors

The SAS ports are used to connect the SAS3 drive cables. The 2 ports are designated JSM0, for drives at SAS #0-#3, and JSM1, for drives at SAS #4-#5 (see section 2-4 for SAS drive locations). Each port is also compatible with SATA drives. However, mixing SAS3 and SATA drives in the same enclosure is not recommended.

#5. - 8. NVMe Connectors

The NVMe ports are used to connect the NVMe drive cables. OCuLink cables should be used to connect these ports to the corresponding ports on motherboard X11DPFRSN. The motherboard should have its ports JNVME1, JNVME2, JNVME3, and JNVME4 connected to the backplane’s ports CN2, CN3, CN4, and CN5, respectively.

#9. CPLD Chip

The CPLD is an enclosure management chip that supports the SGPIO and LED management.

#10. CPLD Upgrade Port

The JTAG connector, designated JP16, is used only by the manufacturer to upgrade the CPLD.
Chapter 2: Connectors and Pin Definitions

2-3  Front Jumper Locations and Pin Definitions

**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.

<table>
<thead>
<tr>
<th>Connector</th>
<th>Pins</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACTLED J8</td>
<td>J9</td>
<td>Closed</td>
</tr>
</tbody>
</table>

**NVMe Port Mapping**

<table>
<thead>
<tr>
<th>JP10</th>
<th>JP9</th>
<th>JP8</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open</td>
<td>Open</td>
<td>Closed</td>
<td>To connect 4 drives (NVMe #C, D, E, and F) to CPU 2. (default)</td>
</tr>
</tbody>
</table>

**LED Test**

<table>
<thead>
<tr>
<th>ACTLED</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open</td>
<td>For internal use only. (default)</td>
</tr>
</tbody>
</table>
2-4 Rear Connectors and LED Indicators

![Diagram of Rear SAS/SATA Connectors and LED Indicators]

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

<table>
<thead>
<tr>
<th>Connector Number and HDD Number</th>
<th>Label</th>
<th>HDD Activity LED (Blue)</th>
<th>Failure LED</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAS #0</td>
<td>J0</td>
<td>LED0</td>
<td>LED00**</td>
</tr>
<tr>
<td>SAS #1</td>
<td>J1</td>
<td>LED1</td>
<td>LED01**</td>
</tr>
<tr>
<td>SAS #2/NVMe #C*</td>
<td>J2</td>
<td>LED2</td>
<td>LED02**</td>
</tr>
<tr>
<td>SAS #3/NVMe #D*</td>
<td>J3</td>
<td>LED3</td>
<td>LED03**</td>
</tr>
<tr>
<td>SAS #4/NVMe #E*</td>
<td>J4</td>
<td>LED4</td>
<td>LED04**</td>
</tr>
<tr>
<td>SAS #5/NVMe #F*</td>
<td>J5</td>
<td>LED5</td>
<td>LED05**</td>
</tr>
</tbody>
</table>

* Hybrid port for SAS and NVMe.

** The failure LED is bi-color. Red indicates Fail/Rebuild; green indicates NVMe SSD is ready to be removed.
Disclaimer (cont.)
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