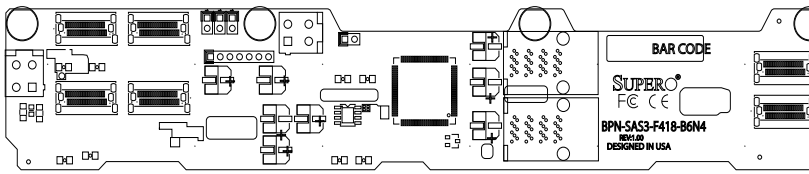


BPN-SAS3-F418-B6N4 Backplane

USER'S GUIDE

Rev. 1.0

The information in this User's Manual has been carefully reviewed and is believed to be accurate. The vendor assumes no responsibility for any inaccuracies that may be contained in this document, makes no commitment to update or to keep current the information in this manual, or to notify any person or organization of the updates. **Please Note: For the most up-to-date version of this manual, please see our web site at www.supermicro.com.**

Super Micro Computer, Inc. ("Supermicro") reserves the right to make changes to the product described in this manual at any time and without notice. This product, including software, if any, and documentation may not, in whole or in part, be copied, photocopied, reproduced, translated or reduced to any medium or machine without prior written consent.

IN NO EVENT WILL SUPERMICRO BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL, SPECULATIVE OR CONSEQUENTIAL DAMAGES ARISING FROM THE USE OR INABILITY TO USE THIS PRODUCT OR DOCUMENTATION, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. IN PARTICULAR, SUPERMICRO SHALL NOT HAVE LIABILITY FOR ANY HARDWARE, SOFTWARE, OR DATA STORED OR USED WITH THE PRODUCT, INCLUDING THE COSTS OF REPAIRING, REPLACING, INTEGRATING, INSTALLING OR RECOVERING SUCH HARDWARE, SOFTWARE, OR DATA.

Any disputes arising between manufacturer and customer shall be governed by the laws of Santa Clara County in the State of California, USA. The State of California, County of Santa Clara shall be the exclusive venue for the resolution of any such disputes. Super Micro's total liability for all claims will not exceed the price paid for the hardware product.

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.

Manual Revision 1.0
Release Date: October 10, 2017

Unless you request and receive written permission from Super Micro Computer, Inc., you may not copy any part of this document.

Information in this document is subject to change without notice. Other products and companies referred to herein are trademarks or registered trademarks of their respective companies or mark holders.

Copyright © 2017 by Super Micro Computer, Inc.
All rights reserved.
Printed in the United States of America

Table of Contents

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)

Asia-Pacific

Address:	Super Micro Computer, Inc. 4F, No. 232-1, Liancheng Rd. Chung-Ho 235, Taipei County Taiwan, R.O.C.
Tel:	+886-(2) 8226-3990
Fax:	+886-(2) 8226-3991
Web Site:	www.supermicro.com.tw

Technical Support:

Email:	support@supermicro.com.tw
Tel:	886-2-8226-1900

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.

Chapter 2

Connectors and Pin Definitions

2-1 Front Connectors

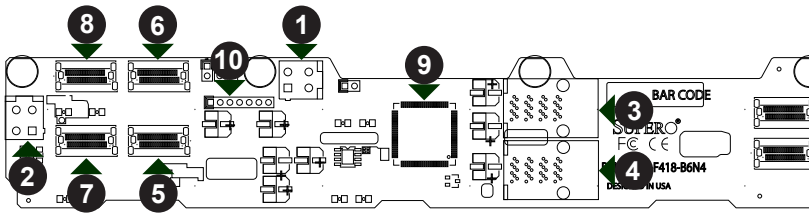


Figure 2-1. Front Connectors

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

2-2 Front Connector Pin Definitions

#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.

Backplane Main Power 4-Pin Connector JPW0	
Pin#	Definition
1 and 2	Ground
3	+5V
4	+12V

Backplane Main Power 4-Pin Connector JPW1	
Pin#	Definition
1 and 2	Ground
3	+5V
4	+12V

#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 X11DPFR-SN. 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.

2-3 Front Jumper Locations and Pin Definitions

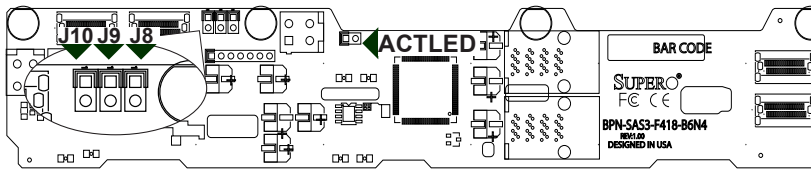
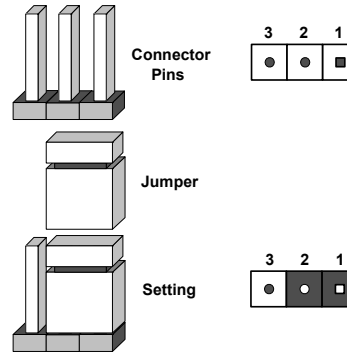


Figure 2-2. Front Jumpers

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.



NVMe Port Mapping			
JP10	**JP9**	**JP8**	**Description**
Open	Open	Closed	To connect 4 drives (NVMe #C, D, E, and F) to CPU 2. (default)

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

2-4 Rear Connectors and LED Indicators

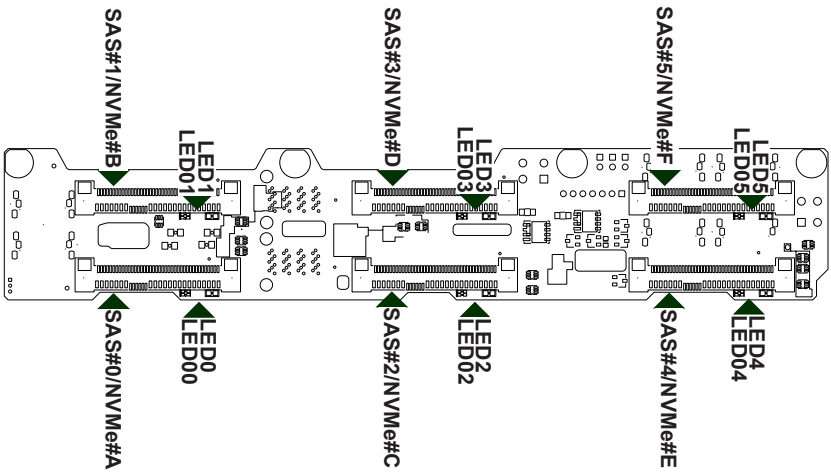


Figure 2-3. Rear SAS/SATA Connectors and LED Indicators

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

* 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.

Notes

Disclaimer (cont.)

The products sold by Supermicro are not intended for and will not be used in life support systems, medical equipment, nuclear facilities or systems, aircraft, aircraft devices, aircraft/emergency communication devices, or other critical systems whose failure to perform would be reasonably expected to result in significant injury or loss of life or catastrophic property damage. Accordingly, Supermicro disclaims any and all liability, and should buyer use or sell such products for use in such ultra-hazardous applications, it does so entirely at its own risk. Furthermore, buyer agrees to fully indemnify, defend, and hold Supermicro harmless for and against any and all claims, demands, actions, litigation, and proceedings of any kind arising out of or related to such ultra-hazardous use or sale.