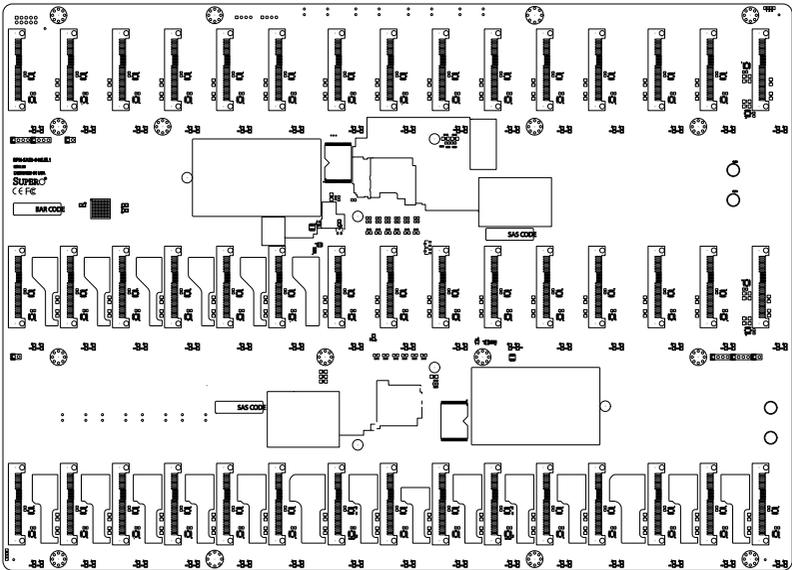




BPN-SAS3-946LEL1 Backplane



USER'S GUIDE

Revision 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.

Notes

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 BPN-SAS3-946LEL1 series backplane.
- Make sure that the backplane is properly and securely on the motherboard to prevent damage to the system due to power outages.

1-3 An Important Note to Users

All images and layouts shown in this user's guide are based upon the latest backplane 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-SAS3-946LEL1 Backplane

The BPN-SAS3-946LEL1 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 website at www.supermicro.com for the latest updates, compatible parts and supported configurations.

Chapter 2

Connectors and LEDs

2-1 Connector Side Components

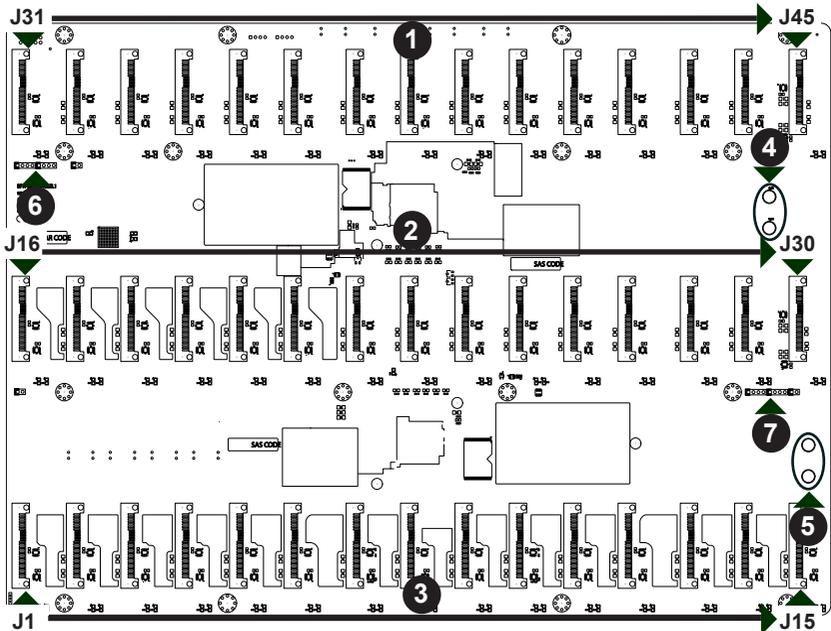


Figure 2-1. BPN-SAS3-946LEL1 Connector Side Components

1. HDD Connectors: J31 - J45.
2. HDD Connectors: J16 - J30.
3. HDD Connectors: J1 - J15.
4. 12V Power Cable Input: NI_TP1 and NI_TP2.
5. Ground Cable Input: NI_TP3 and NI_TP4.
6. SDB and UART Connector for the Secondary Expander: J53 and J54.
7. SDB and UART Connector for the Primary Expander: J50 and J51.

2-2 Connector Side Component Definitions

1. - 3. HDD Connectors

The HDD connectors are designated J1 through J45. These are for SAS3, SATA3, and SAS2 drives.

4. 12V Power Connector

The power connectors, designated NI_TP1 and NI_TP2, provide power to the backplane.

5. Ground Cable Input Connector

The ground cable input connectors are designated NI_TP3 and NI_TP4.

6. - 7. SDB and UART Connectors

The Serial Debug (SDB) and UART connectors for the primary and secondary expanders are designated J50, J51, J53, and J54. The debug connectors are for the manufacturer's diagnostic purposes only.

2-3 Connector Side LED Indicators and SAS Connectors

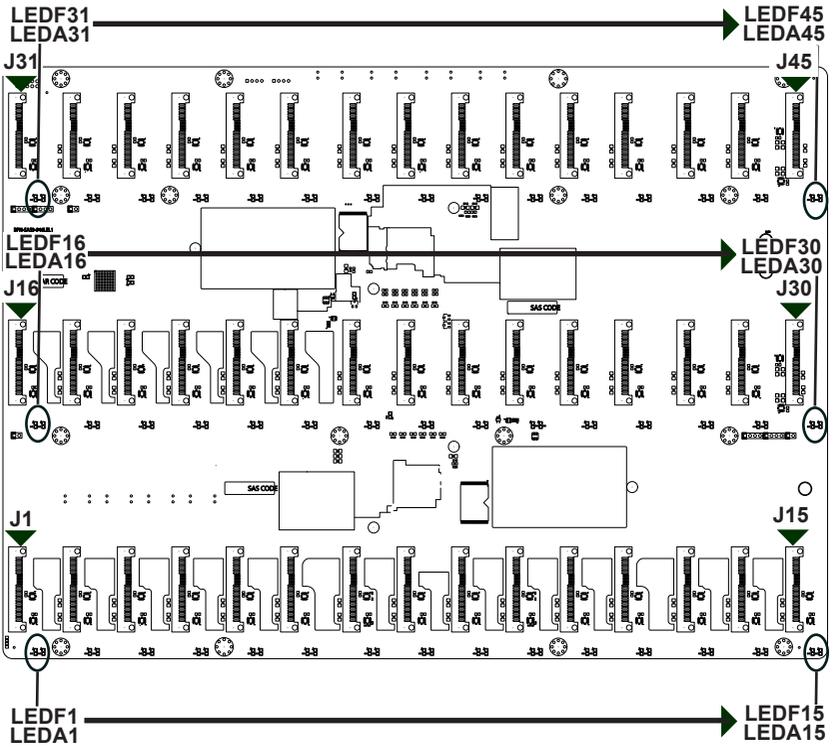


Figure 2-2. BPN-SAS3-946LEL1 Connector Side LEDs

Connector Side SAS Connectors					
SAS Connector	SAS Drive Number	SAS Connector	SAS Drive Number	SAS Connector	SAS Drive Number
J1	SAS HDD #0	J16	SAS HDD #15	J31	SAS HDD #30
J2	SAS HDD #1	J17	SAS HDD #16	J32	SAS HDD #31
J3	SAS HDD #2	J18	SAS HDD #17	J33	SAS HDD #32
J4	SAS HDD #3	J19	SAS HDD #18	J34	SAS HDD #33
J5	SAS HDD #4	J20	SAS HDD #19	J35	SAS HDD #34
J6	SAS HDD #5	J21	SAS HDD #20	J36	SAS HDD #35
J7	SAS HDD #6	J22	SAS HDD #21	J37	SAS HDD #36
J8	SAS HDD #7	J23	SAS HDD #22	J38	SAS HDD #37
J9	SAS HDD #8	J24	SAS HDD #23	J39	SAS HDD #38
J10	SAS HDD #9	J25	SAS HDD #24	J40	SAS HDD #39
J11	SAS HDD #10	J26	SAS HDD #25	J41	SAS HDD #40
J12	SAS HDD #11	J27	SAS HDD #26	J42	SAS HDD #41
J13	SAS HDD #12	J28	SAS HDD #27	J43	SAS HDD #42
J14	SAS HDD #13	J29	SAS HDD #28	J44	SAS HDD #43
J15	SAS HDD #14	J30	SAS HDD #29	J45	SAS HDD #44

Connector Side LED Indicators					
SAS Connector	Hard Drive Activity LED	Failure LED	SAS Connector	Hard Drive Activity LED	Failure LED
J1	LEDA1	LEDF1	J24	LEDA24	LEDF24
J2	LEDA2	LEDF2	J25	LEDA25	LEDF25
J3	LEDA3	LEDF3	J26	LEDA26	LEDF26
J4	LEDA4	LEDF4	J27	LEDA27	LEDF27
J5	LEDA5	LEDF5	J28	LEDA28	LEDF28
J6	LEDA6	LEDF6	J29	LEDA29	LEDF29
J7	LEDA7	LEDF7	J30	LEDA30	LEDF30
J8	LEDA8	LEDF8	J31	LEDA31	LEDF31
J9	LEDA9	LEDF9	J32	LEDA32	LEDF32
J10	LEDA10	LEDF10	J33	LEDA33	LEDF33
J11	LEDA11	LEDF11	J34	LEDA34	LEDF34
J12	LEDA12	LEDF12	J35	LEDA35	LEDF35
J13	LEDA13	LEDF13	J36	LEDA36	LEDF36
J14	LEDA14	LEDF14	J37	LEDA37	LEDF37
J15	LEDA15	LEDF15	J38	LEDA38	LEDF38
J16	LEDA16	LEDF16	J39	LEDA39	LEDF39
J17	LEDA17	LEDF17	J40	LEDA40	LEDF40
J18	LEDA18	LEDF18	J41	LEDA41	LEDF41
J19	LEDA19	LEDF19	J42	LEDA42	LEDF42
J20	LEDA20	LEDF20	J43	LEDA43	LEDF43
J21	LEDA21	LEDF21	J44	LEDA44	LEDF44
J22	LEDA22	LEDF22	J45	LEDA45	LEDF45
J23	LEDA23	LEDF23			

2-4 Expander Chip Side Components

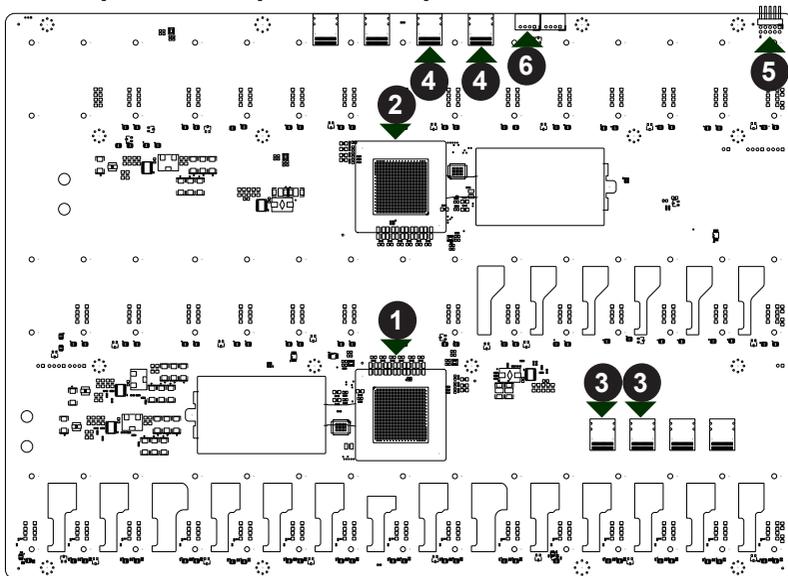


Figure 2-3. BPN-SAS3-946LEL1 Expander Chip Side Components

1. Primary Expander Chip.
2. Secondary Expander Chip.
3. Primary SAS Slim Line Connectors: CN1 and CN2.
4. Secondary SAS Slim Line Connectors: CN3 and CN4.
5. Primary UART Connector: J52.
6. I²C Connector: J48.

2-5 Expander Chip Side Component Definitions

1. - 2. Primary and Secondary Expander Chips

These chips allow connectivity to the primary and secondary components on the backplane.

3. Primary SAS Slim Line Connectors

These primary SAS slim line connectors are designated CN1 and CN2.

4. Secondary SAS Slim Line Connectors

These secondary SAS slim line connectors are designated CN3 and CN4.

5. Primary UART Connector

The primary UART connector is designated J52 and is used for the manufacturer's diagnostic purposes only.

6. I²C Connector

The I²C connector is designated J48. This connector is used to monitor hard drive activity and status through LEDs. See the table on the right for pin definitions. J48 is for the manufacturer's use only.

I ² C Connector Pin Definitions	
Pin#	Definition
1	Data
2	Ground
3	Clock
4	No Connection

Notes

Chapter 3

Cascading Configurations

3-1 Cascading Backplanes with SAS RAID and HBA Controllers

The BPN-SAS3-946LEL1 can be cascaded to a second BPN-SAS3-946LEL1 backplane and an AOM-S3108M-H8L-P SAS RAID, AOC-S3108L-H8IR SAS RAID, AOC-S3008L-L8E HBA, or AOM-S3008-L8-SB HBA controller using the primary and secondary expander components of the backplane. Note that the connectors are located on the undersides of the boards in the following illustrations.

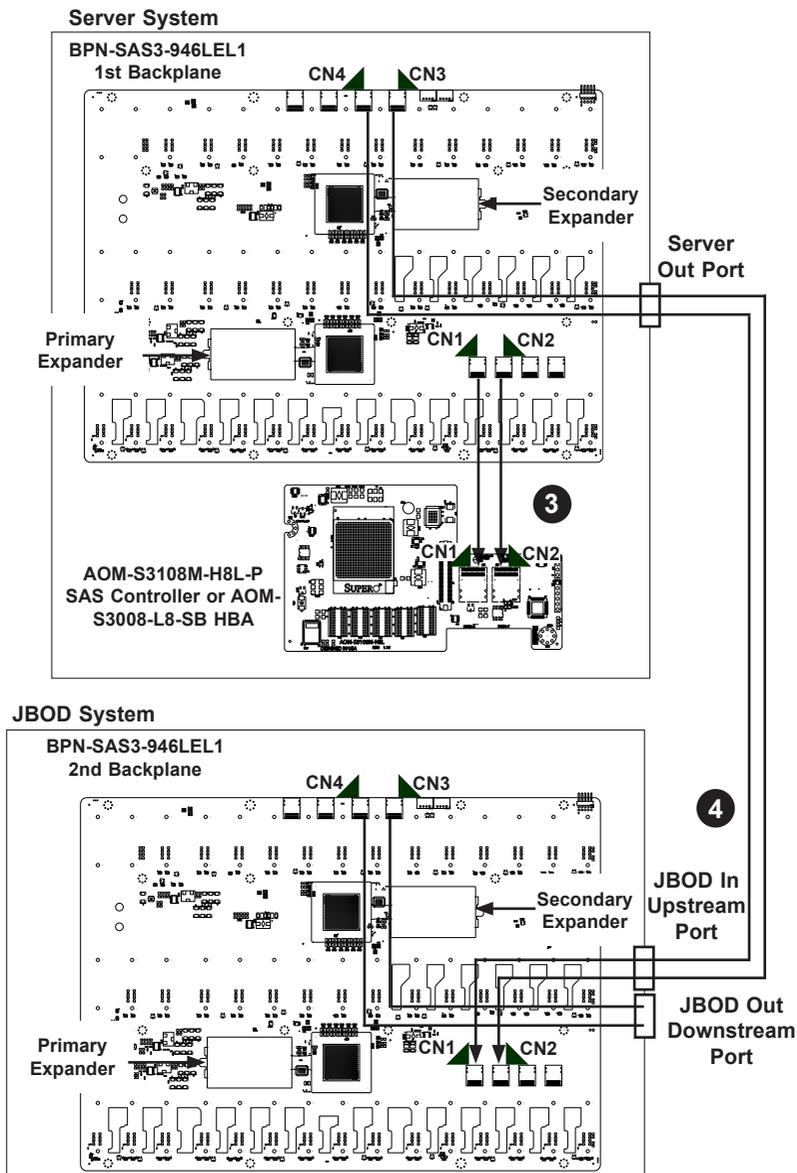


Figure 3-1. Backplane Cascading Configuration

Cascading Configuration, Backplanes to Internal Controller

Connecting Backplane in a Server to Internal Controller and to Backplane in a JBOD

1. Power down the system and remove the power cords from the rear of the power supplies. Open the chassis cover and access the backplanes as described in your system manual.
2. Locate connectors CN1 and CN2 on the underside of the 1st backplane.
3. Plug the cables into the 1st backplane connectors CN1 and CN2, then route them to connectors CN1 and CN2 on the underside of the AOM-S3108M-H8L-P SAS controller or AOM-S3008-L8-SB HBA in the same server as the 1st backplane, as illustrated in Figure 3-1.
4. To connect the 1st backplane connectors CN3 and CN4 to the 2nd backplane connectors CN1 and CN2, plug the External MiniSAS HD to External MiniSAS HD 1m cables (CBL-SAST-0573) into the server out port and into the JBOD in upstream port of the JBOD where the 2nd backplane is located, as illustrated in Figure 3-1.
5. A 3rd backplane can be added using a connection from CN3 and CN4 of the 2nd backplane through its JBOD out downstream port.
6. Close the chassis cover, plug the power cords into the rear of the power supplies, and power up the system.

Cascading Configuration, Backplanes to External Controller

Connecting Backplanes in JBODs to External Controller

1. Power down the system and remove the power cords from the rear of the power supplies. Open the chassis cover and access the backplanes as described in your system manual.
2. To connect the 1st backplane connectors CN1 and CN2 to the controller located in a server, plug the External MiniSAS HD to External MiniSAS HD 1m cables (CBL-SAST-0573) into the JBOD in upstream port of the JBOD where the 1st backplane is located and into connectors CN1 and CN2 on the underside of the AOM-S3108M-H8L-P SAS controller or AOM-S3008-L8-SB HBA, as illustrated in Figure 3-2.
3. To connect 1st backplane connectors CN3 and CN4 to 2nd backplane connectors CN1 and CN2, plug the External MiniSAS HD to External MiniSAS HD cables (CBL-SAST-0573) into the JBOD out downstream port of the JBOD where the 1st backplane is located and into the JBOD in upstream port of the JBOD where the 2nd backplane is located, as illustrated in Figure 3-2.
4. A 3rd backplane can be added using a connection from CN3 and CN4 of the 2nd backplane through its JBOD out downstream port.
5. Close the chassis cover, plug the power cords into the rear of the power supplies, and power up the system.

Server System

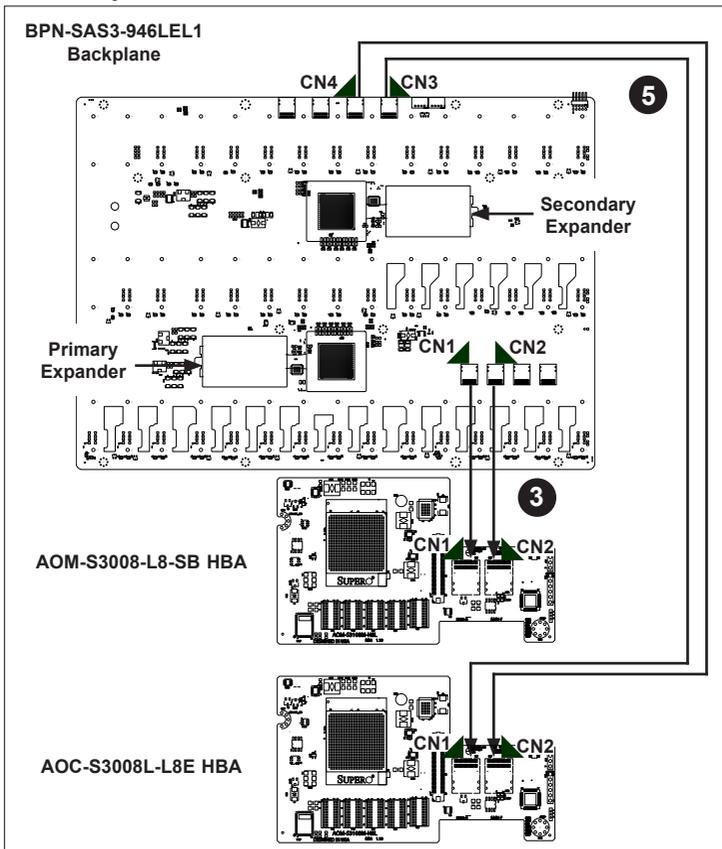


Figure 3-3. Backplane Cascading Configuration

Cascading Configuration, Backplane to Internal HBA Controllers

A server configures two internal HBA cards for MPIO maximum performance.

Connecting Backplane in a Server to Internal HBAs

1. Power down the system and remove the power cords from the rear of the power supplies. Open the chassis cover and access the backplane as described in your system manual.
2. Locate connectors CN1 and CN2 on the underside of the backplane in a server.
3. Plug the cables into connectors CN1 and CN2, then route them to connectors CN1 and CN2 on the underside of the AOM-S3008-L8-SB HBA located within the same server as the backplane, as illustrated in Figure 3-3.
4. Locate connectors CN3 and CN4 on the underside of the backplane.
5. Connect the cables to CN3 and CN4, then route them to CN1 and CN2 on the underside of the AOC-S3008L-L8E HBA in the same server, as illustrated in Figure 3-3.
6. Close the chassis cover, plug the power cords into the rear of the power supplies, and power up the system.

Server System

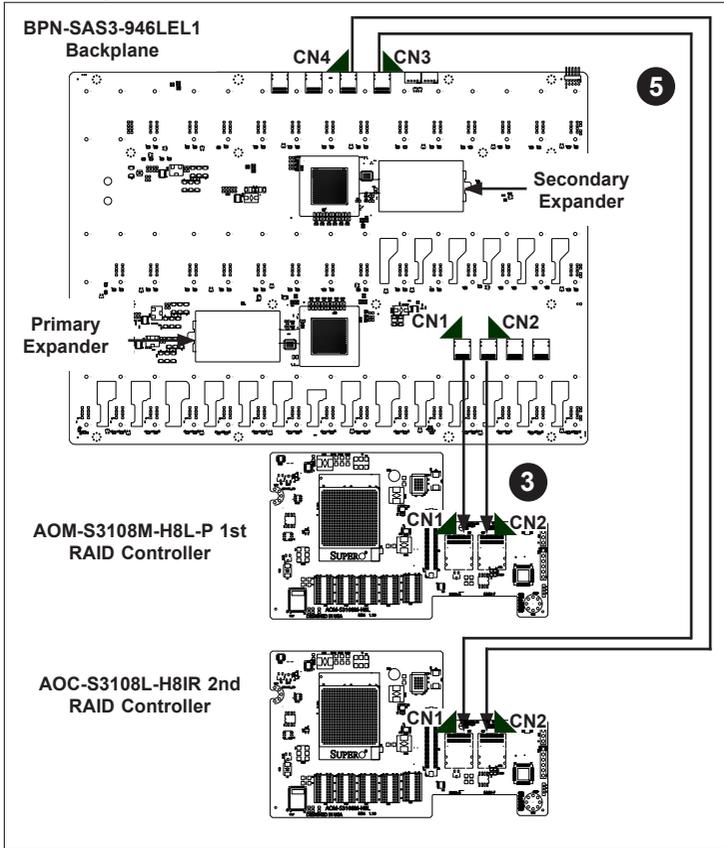


Figure 3-4. Backplane Cascading Configuration

Cascading Configuration, Backplane to Internal SAS Controllers

A server configures two internal RAID controller cards with zoning utility enabled (Flexible Zoning). The 1st RAID controller card can be assigned to the first X number of drives. The 2nd RAID controller card can be assigned to the rest of the drives (45 - X).

Connecting Backplane in a Server to Internal RAID Controller Cards

1. Power down the system and remove the power cords from the rear of the power supplies. Open the chassis cover and access the backplane as described in your system manual.
2. Locate connectors CN1 and CN2 on the underside of the backplane in a server.
3. Plug the cables into connectors CN1 and CN2, then route them to connectors CN1 and CN2 on the underside of the AOM-S3108M-H8L-P RAID controller card located within the same server as the backplane, as illustrated in Figure 3-4.
4. Locate connectors CN3 and CN4 on the underside of the backplane.
5. Connect the cables to CN3 and CN4, then route them to CN1 and CN2 on the underside of the AOC-S3108L-H8IR RAID controller card in the same server, as illustrated in Figure 3-4.
6. Close the chassis cover, plug the power cords into the rear of the power supplies, and power up the system.

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