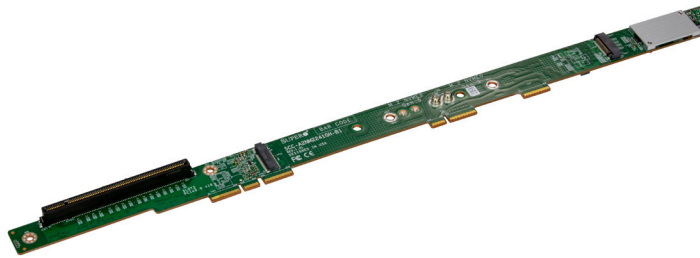
SCC-A2NM2241GH-B1



User's Guide

Revision 1.0

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Manual Revision 1.0

Release Date: October 10, 2024

Preface

About this User's Guide

This user's guide is written for system integrators, IT technicians, and knowledgeable end users. It provides information for the installation and use of the SCC-A2NM2241GH-B1 expansion card.

About this Expansion Card

The SCC-A2NM2241GH-B1 is an M.2 SSD carrier card that connects up to two M.2 solid state drives (SSDs), and is built for use in BigTwin™ systems. It supports NVMe and two form factors: 22x80mm on the top or bottom side, or 110mm on the bottom side with OEM SKU support. It can be pre-installed on a server, or can be ordered and added separately. M.2 solid-state technology is an optimized, high-performance scalable storage solution, effectively streamlined for enterprise and client systems that leverage the cutting-edge capabilities of PCI Express.

An Important Note to the User

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 user's guide.

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 the SCC-A2NM2241GH-B1 card to the manufacturer, the RMA number should be prominently displayed on the outside of the shipping carton, and the shipping package is 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, you can also request a RMA authorization online http://www.supermicro.com/RmaForm/.

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.

Conventions Used in the User's Guide

Pay special attention to the following symbols for proper system installation and for safety instructions to prevent damage to the system or injury to yourself.

Note: Additional information given for proper system setup.

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)
Website:	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)
Website:	www.supermicro.nl

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Tel:	+886-(2) 8226-3990
Fax:	+886-(2) 8226-3992
Email:	support@supermicro.com.tw
Website:	www.supermicro.com.tw

Table of Contents

Chapter 1

Overview

1-1 Overview

Congratulations on purchasing your expansion card from an acknowledged leader in the industry. Supermicro products are designed with the utmost attention to detail to provide you with the highest standards in quality and performance. For product support and updates, please refer to our website at http://www.supermicro.com.

1-2 Technical Specifications

General

NVMe RAID Controller M.2 carrier riser card for X14 BigTwin

Supports four M.2 M-key connectors for the following lengths: 80 mm, 110 mm (There is limited support for M.2 22x80mm options. Please contact your Supermicro Sales representative for more information.)

Two NVMe M.2 SSD links support PCIe Gen 5

Two NVMe M.2 SSD links support PCIe Gen 3

Supports RAID 0, 1

Supports activity/fail/rebuild LED onboard for each M.2 SSD

Gen 5 x16 PCIe slot riser card function

OS Support

The following operating systems and their later versions are supported:

Windows

Linux

VMware

Contact Supermicro tech support at www.supermicro.com for assistance with any hardware limitations associated with your motherboard. (Note: For proper system configuration and setup, please refer to the product page at www.supermicro.com for any limitations associated with your motherboard.)

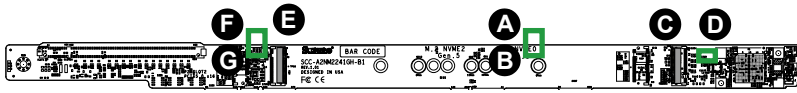
Physical Dimensions

Card PCB dimensions: 1.24" x 18.05" (H x L)

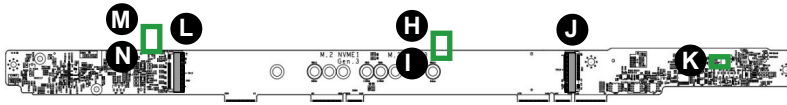
Chapter 2

Hardware Components

2-1 Expansion Card Layout and Components



The SCC-A2NM2241GH-B1 Top LEDs



The SCC-A2NM2241GH-B1 Bottom Layout

2-2 Major Components

The following major components are on the SCC-A2NM2241GH-B1:

A. M.2 Slot 1 Activity LED

B. M.2 Slot 1 Fault LED

C. M.2 Slot 1

D. 1.8V Indicator LED

E. M.2 Slot 2

F. M.2 Slot 2 Activity LED

G. M.2 Slot 2 Fault LED

H. M.2 Slot 3 Activity LED

I. M.2 Slot 3 Fault LED

J. M.2 Slot 3

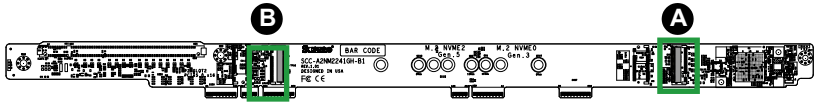
K. 1.8V Indicator LED

L. M.2 Slot 4

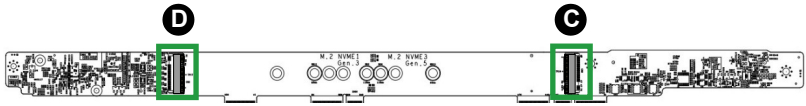
M. M.2 Slot 4 Activity LED

N. M.2 Slot 4 Fault LED

2-3 Connectors and LEDs



The SCC-A2NM2241GH-B1 Top NVMe Connector



The SCC-A2NM2241GH-B1 Bottom NVMe Connector

A. M.2 Socket 1, designated CN1

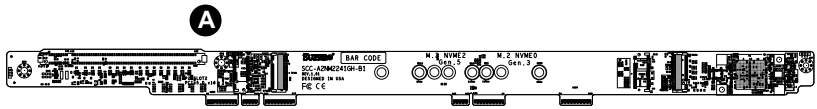
B. M.2 Socket 2, designated CN6

C. M.2 Socket 3, designated CN5

D. M.2 Socket 4, designated CN2

M.2 Sockets

There are four M.2 sockets on the expansion card, designated CN1, CN2, CN5 and CN6.

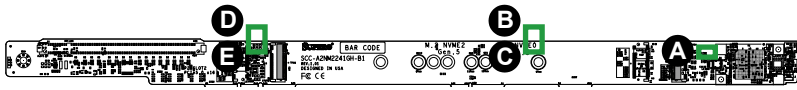


The SCC-A2NM2241GH-B1 PCIe 5.0 x16 Slot

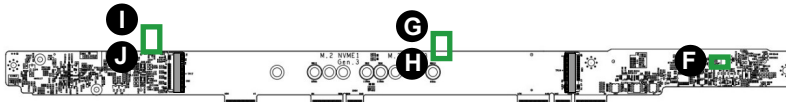
A. Slot2, PCIe 5.0 x16 Slot

PCIe 5.0 x16 Slot

There is a PCIe 5.0 x16 slot on the top of the expansion card.



The SCC-A2NM2241GH-B1 Top LEDs



The SCC-A2NM2241GH-B1 Bottom LEDs

A. 1.8V Indicator LED, designated LED9

B. Activity LED, designated LED1

C. Fault LED, designated LED5

D. Activity LED, designated LED2

E. Fault LED, designated LED6

F. 1.8V Indicator LED, designated LED10

G. Activity LED, designated LED3

H. Fault LED, designated LED7

I. Activity LED, designated LED4

J. Fault LED, designated LED8

Activity and Fail LEDs

There are four Activity LEDs on the SCC-A2NM2241GH-B1, designated LED1, LED2, LED3, and LED4, and four Fault LEDs, designated LED5, LED6, LED7, and LED8. See the table below for information.

Activity & Fault LED Status		
LED	**Color**	**Status**
LED1	Green	Blinks whenever there is read or write activity on M.2 Socket 1
LED2	Green	Blinks whenever there is read or write activity on M.2 Socket 2
LED3	Green	Blinks whenever there is read or write activity on M.2 Socket 3
LED4	Green	Blinks whenever there is read or write activity on M.2 Socket 4
LED5	Red	Turns on whenever there is a drive failure on M.2 Socket 1
LED6	Red	Turns on whenever there is a drive failure on M.2 Socket 2
LED7	Red	Turns on whenever there is a drive failure on M.2 Socket 3
LED8	Red	Turns on whenever there is a drive failure on M.2 Socket 4

1.8V Indicator LED

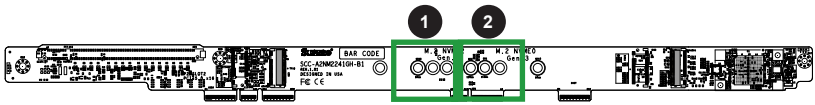
There are two 1.8V Indicator LED on the SCC-A2NM2241GH-B1, designated LED9 and LED10. See the table below for information.

1.8V Indicator LED Status		
LED	**Color**	**Status**
LED9	Green	Turns on whenever 1.8V power is ready
LED10	Green	Turns on whenever 1.8V power is ready

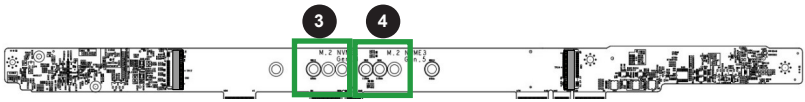
2-4 Standoffs

The SCC-A2NM2241GH-B1 standoffs support M.2 SSDs of 22x110 mm length on the top and bottom side. There is also limited support for M.2 22x80 mm options. Please contact your Supermicro Sales representative for more information. Place the standoffs as indicated below:

M.2 Standoff Options	
M.2 Length	**Standoff Positions**
22 mm x 110 mm	1
22 mm x 110 mm	2
22 mm x 110 mm	3
22 mm x 110 mm	4



The SCC-A2NM2241GH-B1 Top Standoff Positions



The SCC-A2NM2241GH-B1 Bottom Standoff Positions

Chapter 3

Installation

3-1 Static-Sensitive Devices

Electrostatic Discharge (ESD) can damage electronic components. To avoid damaging your expansion card, it is important to handle it very carefully. The following measures are generally sufficient to protect your equipment from ESD.

Precautions

- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing the expansion card from the antistatic bag.
- Handle the expansion card by its edges only; do not touch its components or peripheral chips.
- Put the expansion card back into the antistatic bags when not in use.
- For grounding purposes, make sure that your system chassis provides excellent conductivity between the power supply, the case, the mounting fasteners and the expansion card.

Unpacking

The expansion card is shipped in antistatic packaging to avoid static damage. When unpacking your component, make sure you are static protected.

Note: To avoid damaging your components and to ensure proper installation, be sure to always connect the power cord last, and always remove it before adding, removing, or changing any hardware components.

3-2 Installing Expansion Cards

The SCC-A2NM2241GH-B1 supports up to four M.2 SSDs of 110 mm length. Visit the Supermicro website for a current list of supported M.2 SSDs.

Installing Expansion Cards

1. Power down the system and remove the power cord from the rear of the power supply.

2. Use industry-standard anti-static equipment (such as gloves or wrist strap) and follow the precautions on page 3-1 to avoid damage caused by ESD.

3. For the first SSD, unscrew the metal standoff from the 110 mm hole on the top side of the carrier card.

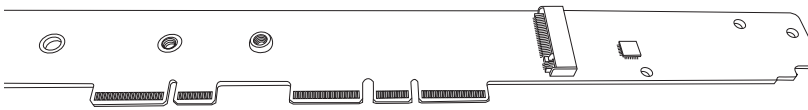


Figure 1. Selecting the Standoff Hole

4. Insert the SSD into the slot on the top side of the carrier card.

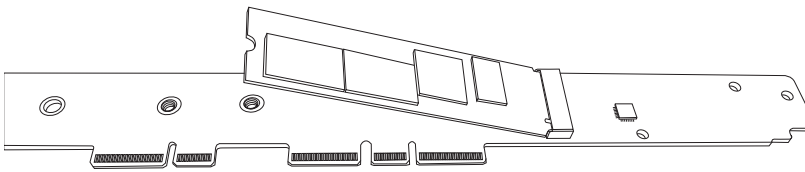


Figure 2. Inserting the First SSD

5. Flatten the SSD against the base of the metal standoff.

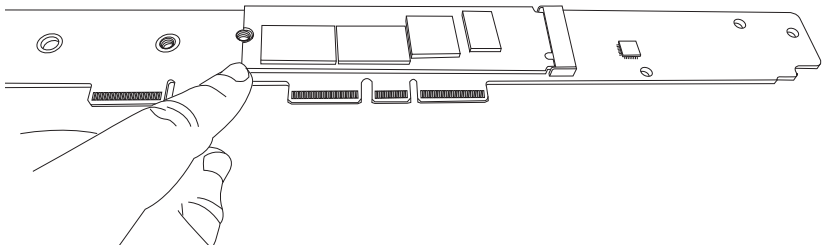


Figure 3. Inserting the Standoff

6. Secure the SSD in place by screwing in the metal standoff.

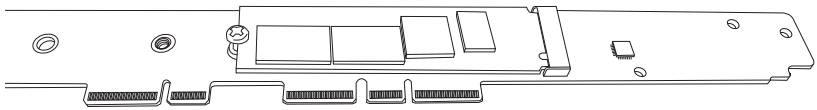


Figure 4. Inserting the Second SSD

7. If installing a second SSD, repeat steps 3-6 on the bottom side of the carrier card using either the 80 mm or 110 mm hole and the bottom side M.2 slot.

8. Power down the node and remove it from the chassis.

9. Remove the expansion card screw and set it aside. Remove the PCI slot shield.

10. Attach brackets onto the M.2 carrier-and-riser card, if necessary.

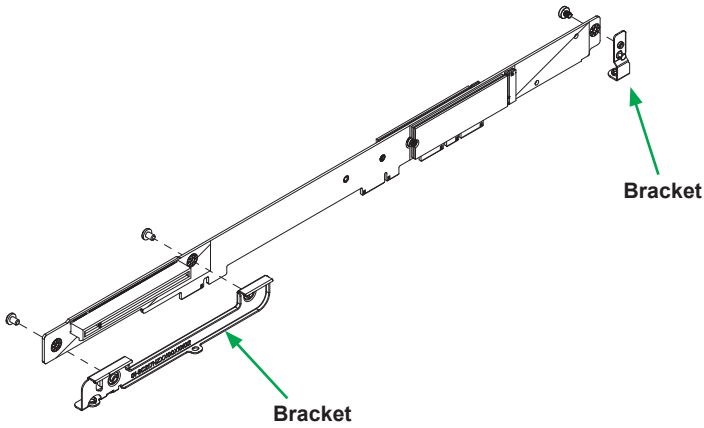


Figure 5. Installing Brackets

11. Insert an expansion card into the riser slot of the M.2 carrier-and-riser card to create an assembly (not shown).

12. Install the M.2 SSD, if necessary.

13. Align the assembly with SLOT2 on the motherboard and the PCI slot shield at the node rear and insert the assembly into the motherboard.

14. Reinstall the expansion card screw, reinsert the node into the chassis, and power up the system.

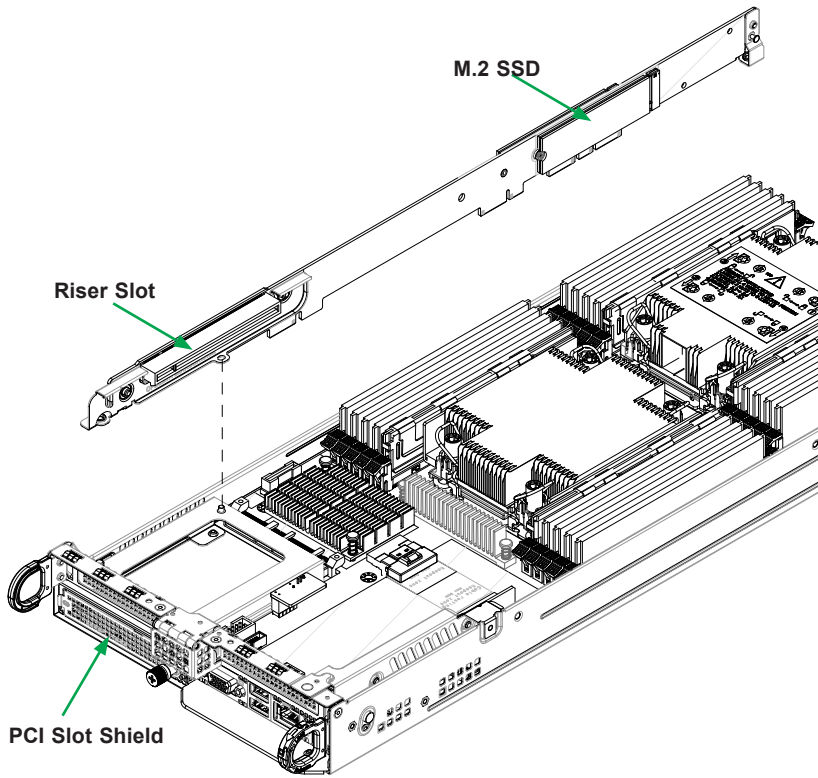


Figure 6. Installing Expansion Card onto M.2 Carrier-and-Riser Card

Removing the M.2 Carrier Card

If an M.2 carrier card is installed in your server, remove it to add M.2 solid state devices (SSDs).

To Remove the M.2 Carrier Card

1. Power down the node and remove it from the chassis.

2. Remove any DIMMs obstructing access to the carrier card.

3. Remove the two screws from the left side (viewed from the chassis front) of the node chassis that secure the carrier card to the node chassis. (See Figure 7.)

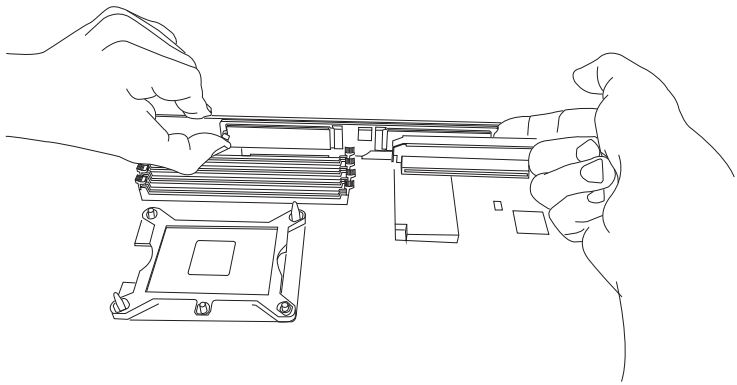


Figure 7. Removing the Carrier Card

4. Pull the card out of the socket by both notched edges (front and back) of the card. Be careful not to exert any force on any M.2 SSDs already installed on the card.

5. If you want to remove an installed SSD, remove the plug from the standoff and allow the M.2 SSD to lift up at an angle before removing it from the M.2 slot.

3-3 Additional Settings

Depending on the system, motherboard, and BIOS version, the following BIOS settings may be necessary for the proper operation of M.2 NVMe drives:

- Having the CPU IOU settings set to x4x4x4x4 PCIe bifurcation. This option may be found under **BIOS Setup -> Advanced -> Chipset Configuration -> North Bridge -> IIO Configuration -> CPU Configuration -> IOU Setting -> x4x4x4x4**.

- Having the NVMe Firmware Source set to AMI Native Support. This option may be found under **BIOS Setup -> Advanced -> PCIe/PCI/PnP Configuration -> NVMe Firmware Source -> AMI Native Support**.

Refer to the applicable system or motherboard User Manual.

Chapter 4

RAID Configuration

This chapter provides instructions on how to configure RAID.

4-1 RAID Minimum Drive Requirements

The SCC-P2NM2G5-B1 carrier card supports up to four M.2 SSDs with RAID 0 and RAID 1.

RAID	Minimum Hard Drives
RAID 0	2
RAID 1	2

4-2 RAID Configuration Using VROC

See the following link to configure RAID using VROC.

https://www.supermicro.com/en/products/accessories/addon/AOC-VROCxxxMOD.php4.

4-3 RAID Configuration in Redfish API

To view the Marvell controller, drive, and volume details:

URI: /BMCIP/redfish/v1/Systems/1/Storage/MRVL.HA-RAID

Method: GET

Response: 200

To create a virtual drive for Marvell:

URI: /BMCIP/redfish/v1/Systems/1/Storage/MRVL.HA-RAID/Actions/Oem/Storage.CreateVD

Method: POST

Body: {

"PD":["MRVL.HA-RAID.0.StorageModule/Drives/Disk.Bay.0","MRVL.HA-RAID.0.StorageModule/Drives/Disk.Bay.1"],

"RaidLevel":"RAID1",

"StripeBlock":"128K",

"VDName":"VD_0",

“Namespace”:1

}

Response: 200

To delete a virtual drive for Marvell:

URI: /BMCIP/redfish/v1/Systems/1/Storage/MRVL.HA-RAID/Volumes/Controller.0.Volume.0/Actions/Oem/Volume.DeleteVD

Method: POST

Body: {}

Response: 200