Using HighPoint NVMe RAID AICs with the Supermicro H12SSL-i

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1. Supermicro H12SSL-i introduction

This document provides guidelines and procedures for installing HighPoint NVMe AICs into the Supermicro H12SSL-i. The guide examines the performance capabilities of each PCIe slot, and provides recommended hardware configurations that can be used to optimize NVMe storage configurations for maximum throughput and capacity.

1.1 Chassis

Supermicro H12SSL-i Chassis list:

Chassis	Model
1U	SC813MFTQC-350CB2[2]
	SC813MFTQC-R407CB[2]
2U	SC213BAC8-R1K23LPB[2]
	SC216BE1C4-R1K23LPB[2]
	SC825MBTQC-R802LPB[2]
	SC825TQC-R802LPB[2]
	SC826BE1C4-R1K23LPB[2]
	SCLA26AC12-R920LP1[1]
3U	SC835TQC-R802B[2]
	SC836BE1C-R1K23B[2]
Mid-Tower	SC732i-903B[1]
4U	SC745BAC-R1K23B[2]
	SC846BE1C-R1K23B[2]

Notes:

1= Optimized SuperServer Chassis

2= Compatible Chassis

1.2 Servers

Supermicro H12SSL-i Servers list:

Server	Model
2U	AS-2014S-TR
Mid-Tower	AS-3014TS-i

1.3 Chipset

Supermicro H12SSL-i Chipset: System on Chip

1.4 Processor Type

Supermicro H12SSL-i processor type: Single AMD EPYC™ 7002/7003 Series Processor in a Socket SP

1.5 Memory

Memory slot: 8 DIMM slots
Memory Capacity: Supports up to 2TB Registered ECC DDR4 3200MHz SDRAM
8-channel memory bus
Memory type: 2 DDR4 3200 MHz Registered ECC, 288-pin gold-plated DIMMs
DIMM Sizes: 8GB, 16GB, 32GB, 64GB, 128GB, 256GB
Memory Voltage: 1.2V
Error Detection: Corrects single-bit errors
Detects double-bit errors (using ECC memory)

1.6 PCIe slots

Supermicro H12SSL-i PCIe Expansion Slot Configuration:

Slot	Height	Length	Width	Link width	Slot width
1	Full Height	Full Length	Single Width	X16	X16
2	Full Height	Full Length	Single Width	X8	X8
3	Full Height	Full Length	Single Width	X16	X16
4	Full Height	Full Length	Single Width	X8	X8
5	Full Height	Full Length	Single Width	x16	X16
6	Full Height	Full Length	Single Width	x16	x16
7	Full Height	Full Length	Single Width	x16	x16

Notes:

1U chassis has only one Full-height slot and needs to be used with a Riser card.
Supermicro 2U chassis or servers are only available in Half Height.

1.7 GPU

Supermicro H12SSL-i Graphics controller: ASPEED 2500 BMC (BaseBoard Management Controller).

Note: *ASPEED 2500 BMC is an integrated graphics card and will not take up a PCIe slot.*

1.8 Other PCIe devices

The Supermicro H12SSL-i is available with optional PCIe devices.

The following table provides a list of PCIe device accessories available for the Supermicro H12SSL-i and which slot they are typically associated with.

PCIe devices type	Slot priority
LSI SAS 3008 controller	2, 4
BCM5720L	2, 4

Note: *Supermicro platforms are typically shipped with an array of pre-installed PCIe devices. Please note, one or more PCIe slots may be unavailable for use with HighPoint NVMe AICs.*

2. HighPoint NVMe RAID AIC compatibility with the Supermicro H12SSL-i

HighPoint NVMe RAID AICs	Slot1 PCIe4.0 x16	Slot2 PCIe4.0 x8	Slot3 PCIe4.0 x16	Slot4 PCIe4.0 x8	Slot5 PCIe4.0 x16	Slot6 PCIe4.0 x16	Slot7 PCIe4.0 x16
Gen3 AICs							
SSD6202	√	√[1]	√	√[1]	√	√	√
SSD6202A	√	√[1]	√	√[1]	√	√	√
SSD6204A	√[2]	√[1, 2]	√[2]	√[1, 2]	√[2]	√[2]	√[2]
SSD7101A-1	√[2]	X	√[2]	X	√[2]	√[2]	√[2]
SSD7104	√[2]	X	√[2]	X	√[2]	√[2]	√[2]
SSD7105	√[2]	X	√[2]	X	√[2]	√[2]	√[2]
SSD7140A	√[2]	X	√[2]	X	√[2]	√[2]	√[2]
SSD7202	√	√[1]	√	√[1]	√	√	√
SSD7204	√[2]	√[1, 2]	√[2]	√[1, 2]	√[2]	√[2]	√[2]
RocketAIC 7105HW	√[2]	X	√[2]	X	√[2]	√[2]	√[2]
RocketAIC 7140AW	√[2]	X	√[2]	X	√[2]	√[2]	√[2]
Gen4 AICs							
SSD7502	√[2]	X	√[2]	X	√[2]	√[2]	√[2]
SSD7505	√[2]	X	√[2]	X	√[2]	√[2]	√[2]
SSD7540	√[2]	X	√[2]	X	√[2]	√[2]	√[2]
RocketAIC 7502HW	√[2]	X	√[2]	X	√[2]	√[2]	√[2]
RocketAIC 7505HW	√[2]	X	√[2]	X	√[2]	√[2]	√[2]
RocketAIC 7540HW	√[2]	X	√[2]	X	√[2]	√[2]	√[2]

Notes:

√ means that the HighPoint NVMe RAID AIC can be used normally in this slot.

√[1] means that the HighPoint NVMe RAID AIC can be used normally in this slot if you do not have other PCIe devices installed in this slot.

√[2] means that the HighPoint NVMe RAID AIC can be used normally in this slot if you use the Full Height chassis or server.

X means that the HighPoint NVMe RAID AIC is not compatible with this slot.

3. Installing HighPoint NVMe RAID AICs into the Supermicro H12SSL-i

3.1 Install hardware

3.1.1 Recommended tools

a. Screwdriver (system cover require a screwdriver to open)
b. Wired ESD wrist strap (to prevent electrostatic accidents)

3.1.2 Installing the Hardware into 1U Chassis: SC813MFTQC-350CB2/ SC813MFTQC-R407CB

For PCIe slot recommendations, please refer to this table.

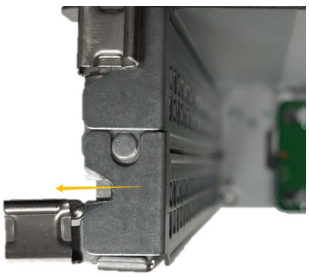
The following installation procedure applies to these chassis:

Chassis	Model
1U	SC813MFTQC-350CB2
	SC813MFTQC-R407CB

a. Use a wired ESD wrist strap that is properly grounded.
b. Shut down the system.
c. Press both release tabs simultaneously to release the cover from the locked position.

d. Lift the cover up and off the chassis.
e. Confirm that you have the correct riser card for your chassis model.
f. Remove the screw securing the riser card.
g. Remove the riser card from the system.

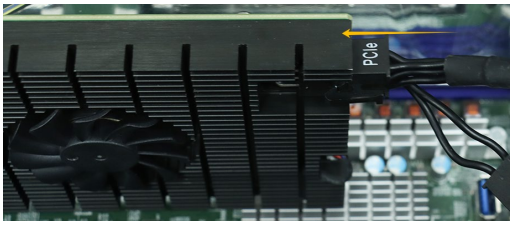
h. Open the PCI slot lever.

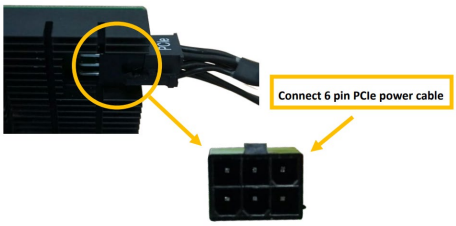


i. Remove the PCI slot bracket pre-installed in the inside of the chassis.

j. Holding the edge of the HighPoint NVMe RAID AIC, align the HighPoint NVMe RAID AIC connector with the riser card slot and insert it downward.

k. If you are using the SSD7140A, SSD7540, RocketAIC 7140AW, or RocketAIC 7540HW, you will need to connect the power cable to the 6-pin power connector on the side of the HighPoint NVMe RAID AICs.





Note: *If you are not using SSD7140A, SSD7540, RocketAIC 7140AW, or RocketAIC 7540HW, you can safely move to the next step.*

l. Close the PCI slot lever securing the HighPoint NVMe RAID AIC bracket.

m. Install the expansion card riser into the system connector.

n. Install the screw securing the riser card.

o. Align the cover with the chassis in the locked position.

3.1.3 Installing the Hardware into 2U and 4U Chassis: SC213BAC8-R1K23LPB/ SC216BE1C4-R1K23LPB/ SC846BE1C-R1K23B

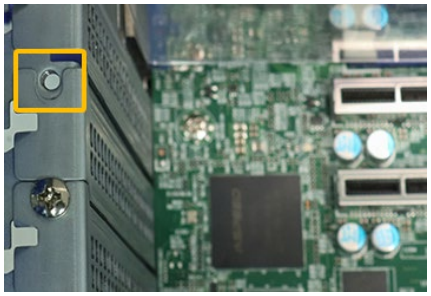
For PCIe slot recommendations, please refer to this table.

The following installation procedure applies to these chassis:

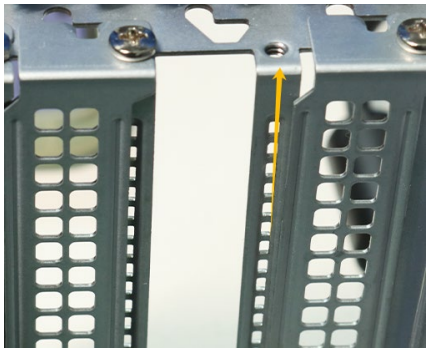
Chassis	Model
2U	SC213BAC8-R1K23LPB
	SC216BE1C4-R1K23LPB
4U	SC846BE1C-R1K23B

a. Use a wired ESD wrist strap that is properly grounded.
b. Shut down the system.
c. Press both release tabs simultaneously to release the cover from the locked position.

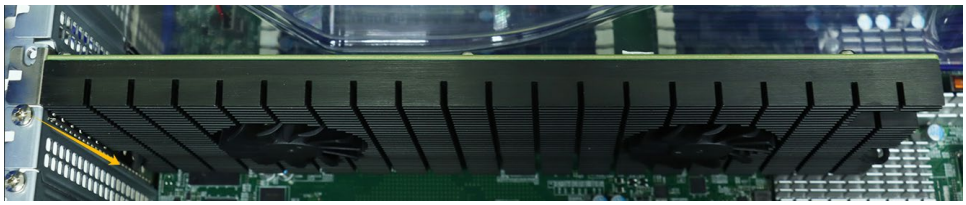
d. Lift the cover up and off the chassis.
e. Remove the screw securing the PCI slot shield.



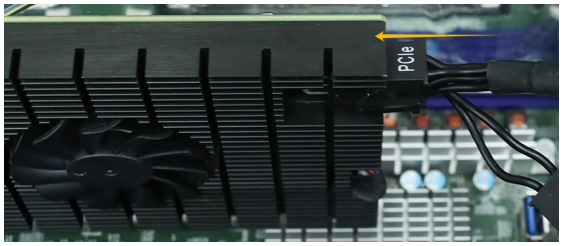
f. Remove the PCI slot shield pre-installed in the expansion slot.

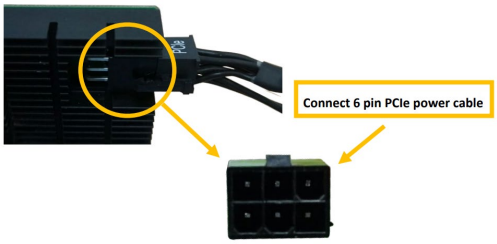


g. Holding the edge of the HighPoint NVMe RAID AIC, align the HighPoint NVMe RAID AIC connector with the expansion slot and insert it downward.



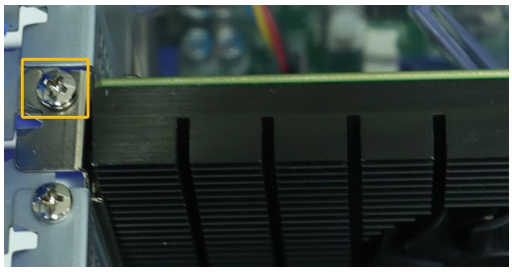
h. If you are using the SSD7140A, SSD7540, RocketAIC 7140AW, or RocketAIC 7540HW, you will need to connect the power cable to the 6-pin power connector on the side of the HighPoint NVMe RAID AICs.





Note: *If you are not using SSD7140A, SSD7540, RocketAIC 7140AW, or RocketAIC 7540HW, you can safely move to the next step.*

i. Install the screw securing the riser card bracket.



j. Align the cover with the chassis.

3.1.4 Installing the Hardware into 2U and 3U Chassis: SC825MBTQC-R802LPB/ SC825TQC-R802LPB/ SC826BE1C4-R1K23LPB/ SCLA26AC12-R920LP1/ SC835TQC-R802B/ SC836BE1C-R1K23B

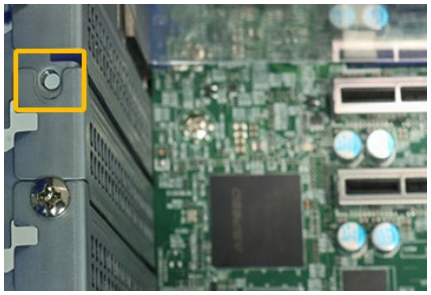
For PCIe slot recommendations, please refer to this table.

The following installation procedure applies to these chassis:

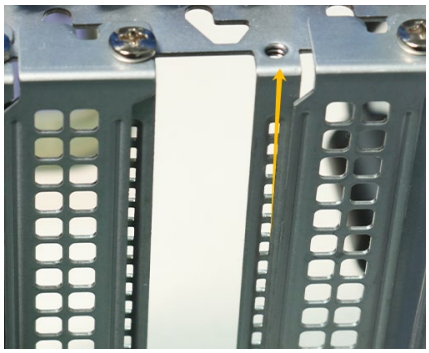
Chassis	Model
2U	SC825MBTQC-R802LPB
	SC825TQC-R802LPB
	SC826BE1C4-R1K23LPB
	SCLA26AC12-R920LP1
3U	SC835TQC-R802B
	SC836BE1C-R1K23B

a. Use a wired ESD wrist strap that is properly grounded.
b. Shut down the system.
c. Insert a screwdriver to remove the screws at the rear of the chassis and on the sides of the cover.
d. Press the release tab to release the cover from the locked position.

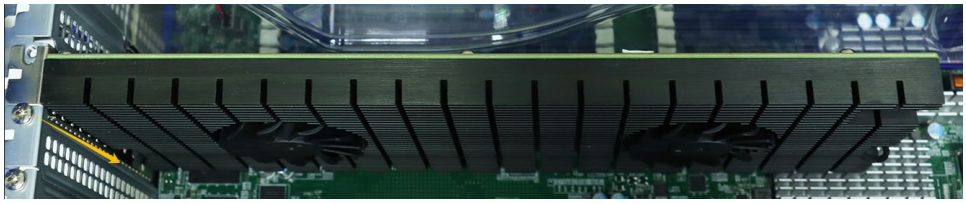
e. Lift the cover up and off the chassis.
f. Remove the screw securing the PCI slot shield.



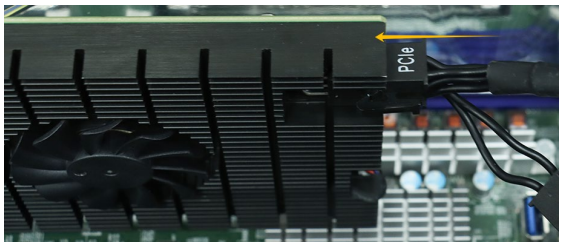
g. Remove the PCI slot shield pre-installed in the expansion slot.

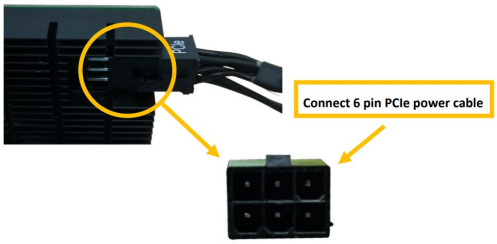


h. Holding the edge of the HighPoint NVMe RAID AIC, align the HighPoint NVMe RAID AIC connector with the expansion slot and insert it downward.



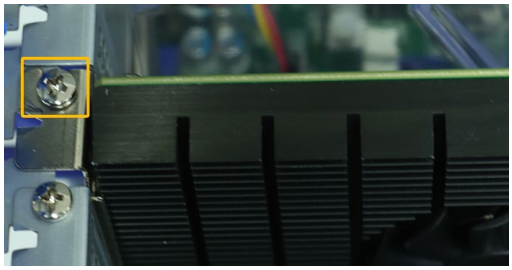
i. If you are using the SSD7140A, SSD7540, RocketAIC 7140AW, or RocketAIC 7540HW, you will need to connect the power cable to the 6-pin power connector on the side of the HighPoint NVMe RAID AICs.





Note: *If you are not using SSD7140A, SSD7540, RocketAIC 7140AW, or RocketAIC 7540HW, you can safely move to the next step.*

j. Install the screw securing the riser card bracket.



k. Align the cover with the chassis.

l. Insert a screwdriver and install the screws removed in step c to secure the chassis and cover.

3.1.5 Installing the Hardware into Mid-Tower and 4U Chassis: SC732i-903B/ SC745BAC-R1K23B

For PCIe slot recommendations, please refer to this table.

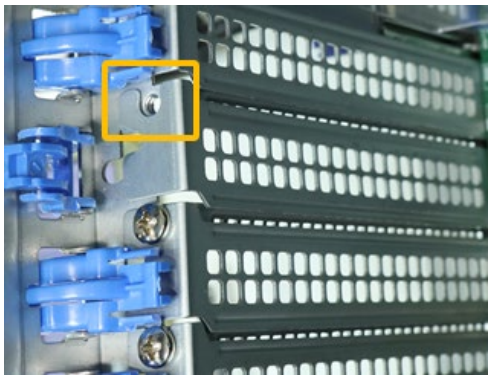
The following installation procedure applies to these chassis:

Chassis	Model
Mid-Tower	SC732i-903B
4U	SC745BAC-R1K23B

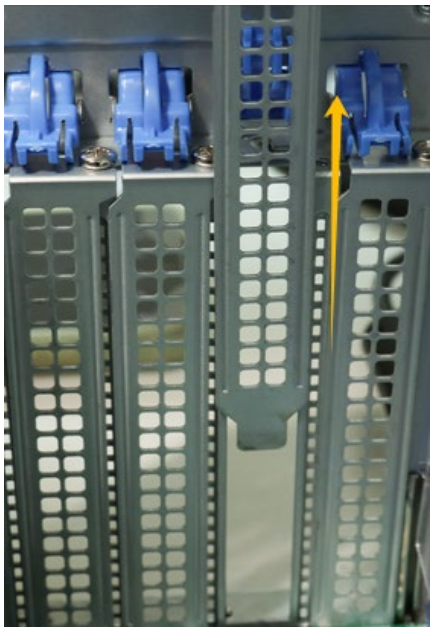
a. Use a wired ESD wrist strap that is properly grounded.
b. Shut down the system.
c. Locate the latch on the cover, press the latch and lift the latch to release the cover.

d. In the rear of the chassis, push on the PCI shield lock, then lift up on the lock.

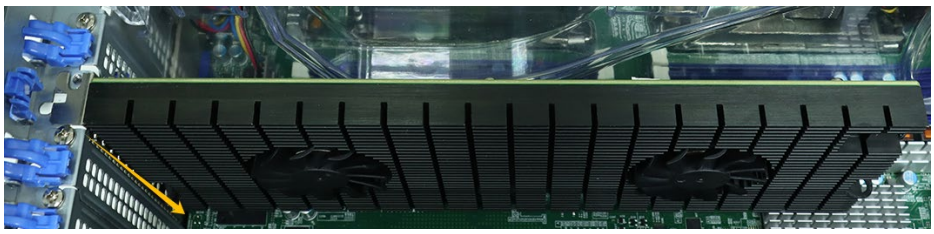
e. Remove the screw securing the PCI shield.



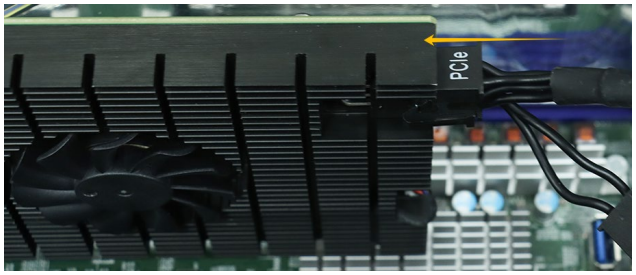
f. Remove the PCI shield.

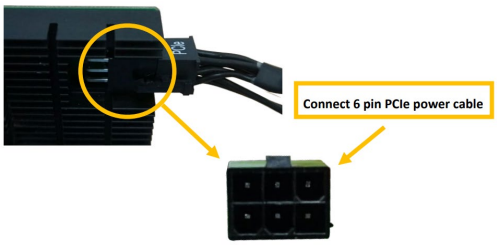


g. Holding the edge of the HighPoint NVMe RAID AIC, align the HighPoint NVMe RAID AIC connector with the expansion slot and insert it downward.



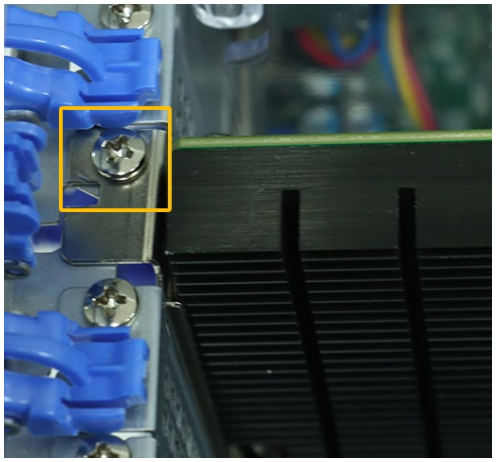
h. If you are using the SSD7140A, SSD7540, RocketAIC 7140AW, or RocketAIC 7540HW, you will need to connect the power cable to the 6-pin power connector on the side of the HighPoint NVMe RAID AICs.





Note: *If you are not using SSD7140A, SSD7540, RocketAIC 7140AW, or RocketAIC 7540HW, you can safely move to the next step.*

i. Install the screw securing the HighPoint NVMe RAID AIC bracket.



j. Secure the HighPoint NVMe RAID AIC bracket onto the rear of the chassis with the PCI shield lock.

k. Align the cover with the chassis in the locked position.

3.2 System BIOS Setting

The following is a list of Supermicro H12SSL-i system BIOS settings required for each NVMe RAID AIC.
Please refer to the following sections for system BIOS settings setup procedures.
3.2.1 Disable Secure boot
3.2.2 Boot mode to UEFI

HighPoint NVMe RAID AICs	System BIOS Settings (Boot RAID configurations)	
	Secure Boot	Boot mode
SSD6202	√	√
SSD6202A	√	√
SSD6204A	√	√
SSD7105	√[1]	√
SSD7202	√[1]	√
SSD7502	√[1]	√
SSD7505	√[1]	√
SSD7540	√[1]	√
RocketAIC 7105HW	√[1]	√
RocketAIC 7502HW	√[1]	√
RocketAIC 7505HW	√[1]	√
RocketAIC 7540HW	√[1]	√

HighPoint NVMe RAID AICs	System BIOS Settings (Data RAID configurations)
	Secure Boot
SSD6202	√
SSD6202A	√
SSD6204A	√
SSD7101A-1	√[1]
SSD7104	√[1]
SSD7105	√[1]
SSD7140A	√[1]
SSD7202	√[1]
SSD7204	√[1]
SSD7502	√[1]
SSD7505	√[1]
SSD7540	√[1]
RocketAIC 7105HW	√[1]
RocketAIC 7140AW	√[1]
RocketAIC 7502HW	√[1]

RocketAIC 7505HW	√[1]
RocketAIC 7540HW	√[1]

Notes:

√ means that the HighPoint NVMe RAID AIC support this BIOS setting.

√[1] means that the HighPoint NVMe RAID AIC support this BIOS setting if you are not using the Linux or the unsigned UEFI utility.

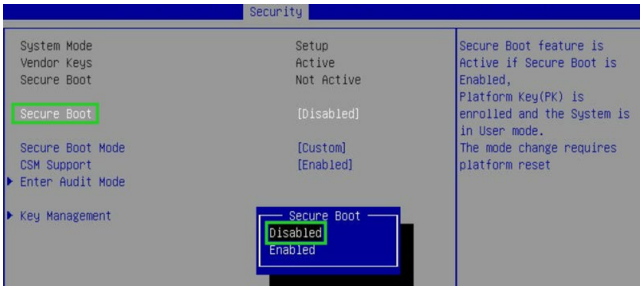
3.2.1 Disable Secure boot

***Note**: If you are using the SSD7000/7500 series NVMe RAID AICs or RocketAICs in Linux or the unsigned UEFI utility, Secure Boot must be disabled. If you are using the SSD6200 series NVMe RAID AICs, Secure Boot can be enabled.*

a. Power up the system.

b. Press **<Delete>** to enter BIOS.

c. Find **Security→Secure Boot**, select **Disabled**.



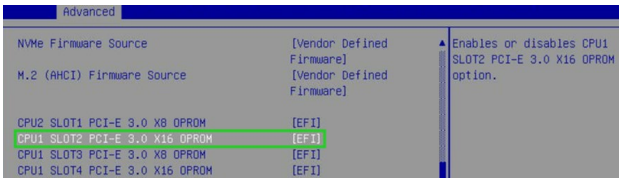
d. Save configuration and restart system.

3.2.2 Boot mode to UEFI

a. Power up the system.

b. Press **<Delete>** to enter BIOS.

c. Find **Advanced→PCIe/PCI/PnP Configuration→CPU SLOT PCI-E OPROM,** select **EFI**.



d. Save configuration and restart system.

3.3 Install software

3.3.1 Installing HighPoint NVMe RAID AICs into the Supermicro H12SSL-i (Data RAID configurations)

The following section discusses HighPoint NVMe RAID AIC driver installation for a non-bootable NVMe configuration.

3.3.1.1 Installing the Windows Driver & Management Software

Please refer to the Data RAID Installation Guide (Windows) to install the Windows Device Driver and Management Software.

3.3.1.2 Installing the Linux Driver & Management Software

Please refer to the Data RAID Installation Guide (Linux) to install the Linux Device Driver and Management Software.

3.3.2 Installing HighPoint NVMe RAID AICs into the Supermicro H12SSL-i (Boot RAID configurations)

The following section discusses HighPoint NVMe RAID AIC driver installation for a bootable NVMe configuration.

3.3.2.1 Installing a Windows OS to a bootable RAID configuration

Windows BootRAID:
Please refer to HighPoint Windows Boot RAID Windows installation Guide.

3.3.2.2 Installing Linux to a bootable RAID configuration

Debian BootRAID:
Please refer to Linux Debian On HighPoint NVMe RAID Controller Installation Guide.

RHEL BootRAID:
Please refer to Linux RHEL On HighPoint NVMe RAID Controller Installation Guide.

Ubuntu BootRAID:
Please refer to Linux Ubuntu On HighPoint NVMe RAID Controller Installation Guide.

Rocky Linux BootRAID:
Please refer to Linux Rocky Linux On HighPoint NVMe RAID Controller Installation Guide

4. Benchmarking HighPoint NVMe RAID AICs

4.1 Performance Testing

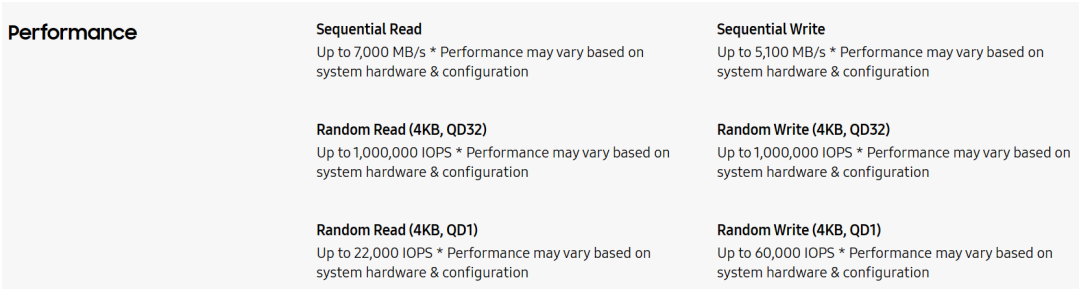
4.1.1 Recommended Hardware Configuration

- **Supermicro H12SSL-i:**
  CPU: AMD EPYC 7282 16-Core Processor
  Memory: 80 GB
  PCIe Slot: CPU SLOT2 PCI-E 4.0 X8/ CPU SLOT1 PCI-E 4.0 X16

- **HighPoint NVMe RAID AICs:**

Gen3 HighPoint NVMe RAID AICs	SSD6202 SSD6202A SSD6204A SSD7101A-1 SSD7104 SSD7105 SSD7140A SSD7202 SSD7204
Gen4 HighPoint NVMe RAID AICs	SSD7502 SSD7505 SSD7540

- **Disk:**
  Samsung 980 Pro 2TB
  Note: *Samsung 980 Pro 2TB Disk spec.*



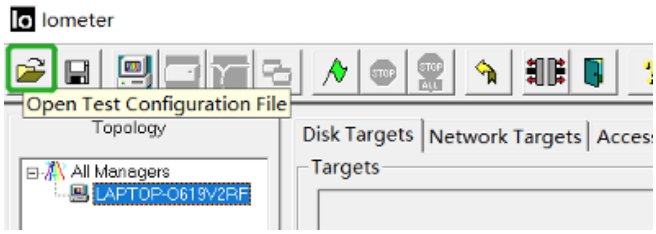
4.1.2 Test tool

Benchmark Tool: Iometer/ CrystalDiskMark

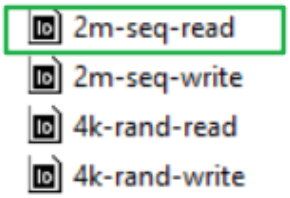
- **Iometer script setting:**
  The Iometer script can be downloaded here.
  Note: *If you use the SSD6200 series NVMe RAID AICs, you will need to download another iometer script.*

  - The "**2m-seq-read.icf**" script tests the Sequential read performance of 2M large data blocks.
  - The "**2m-seq-write.icf**" script tests the Sequential write performance of 2M large data blocks.
  - The "**4k-rand-read.icf**" script tests the Random read performance of 4k small data blocks.
  - The "**4k-rand-write.icf**" script tests the Random write performance of 4k small data blocks.

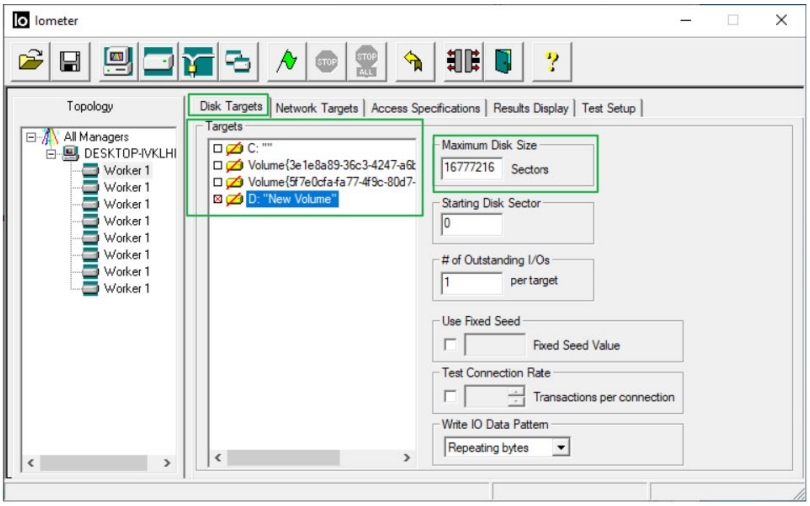
a. Open Iometer with administrator rights.
b. Click the folder icon to open the script, then select the script to be configured.



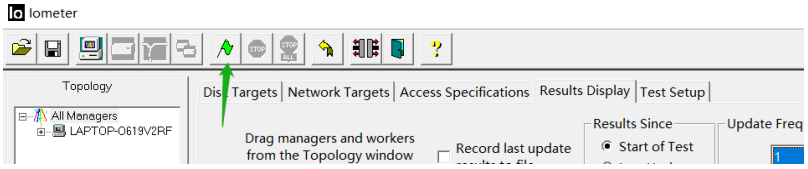
c. Select **2M-seq-read**.



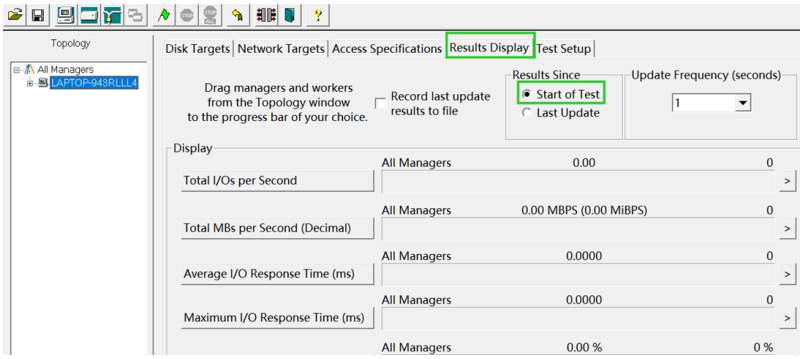
d. The **Disk Targets** page will change, the **Target** should be the test disk (the RAID array). The **Maximum Disk Size** should be set to **16777216** Sectors.



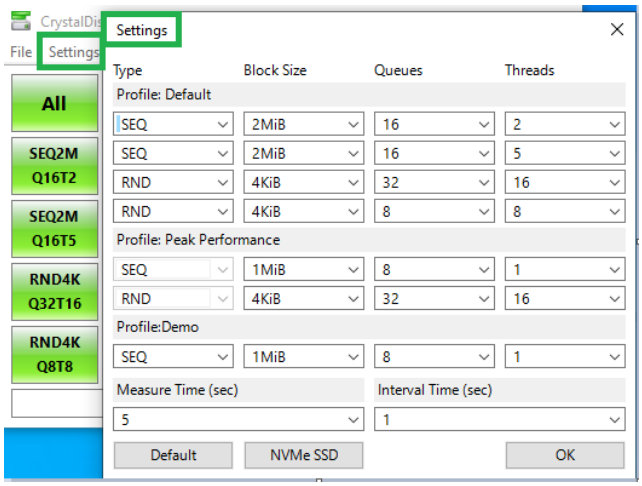
e. After confirming the settings, click the green mark to start the performance test.



f. **Result Display** will be automatically configured as **Start of Test.**

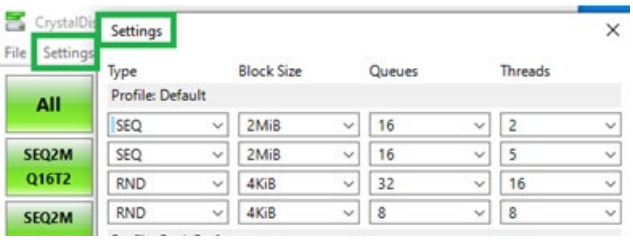


- **CrystalDiskMark script setting:**

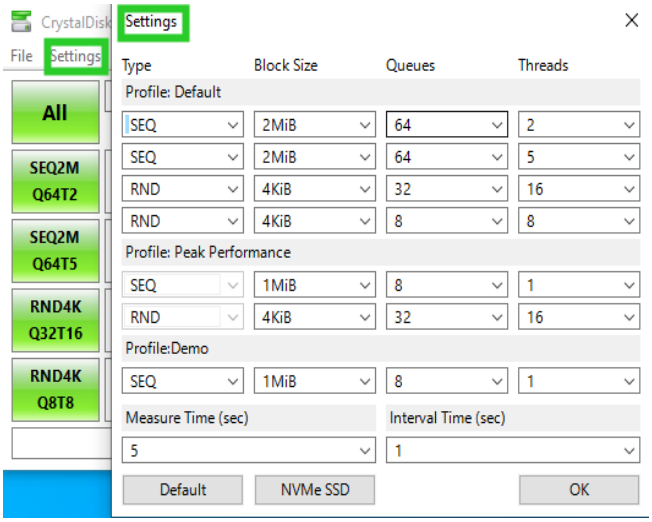


a. Open CrystalDiskMark with administrator rights.

b. Click **Settings.**

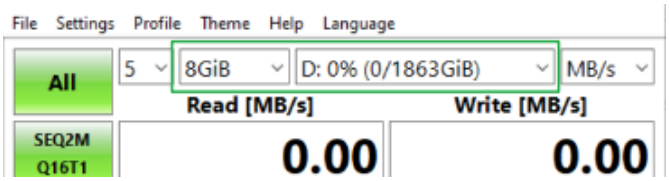


***Note1:** Please refer to the following Screenshot for recommended settings.*

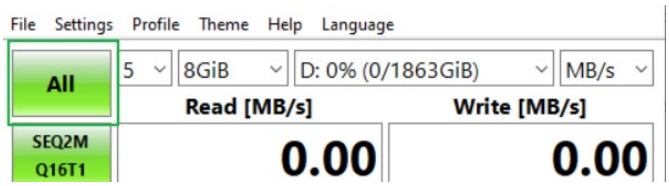


***Note2:** The above recommended setting will meet the needs of most NVMe RAID AICs and achieve optimal performance in testing. In testing, you can also choose to adjust the settings in the script yourself for optimal performance.*

c. **Test Size:** set to 8GiB; Test **Drive:** set to the RAID Volume.



d. After confirming the settings, click **ALL** to start the performance test.

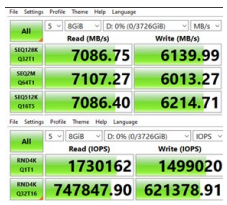
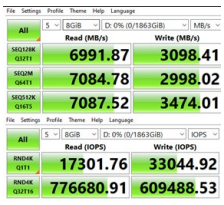
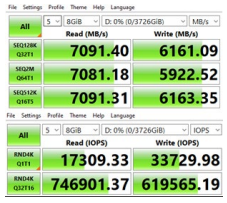
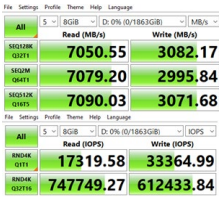
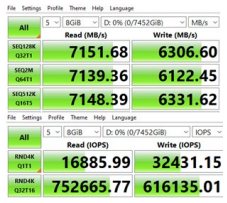
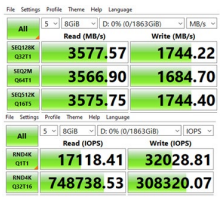
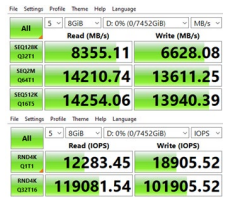
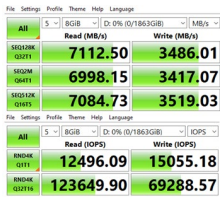
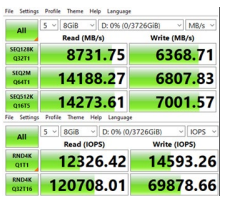
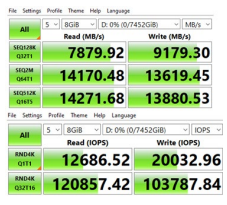
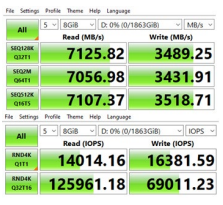
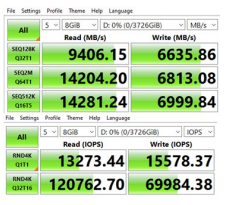
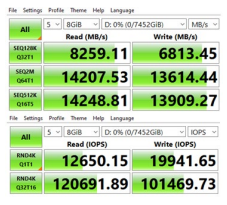
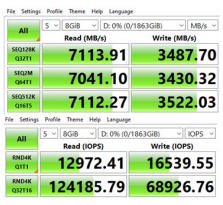
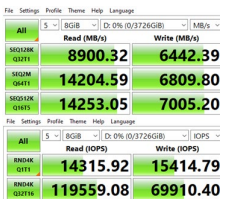
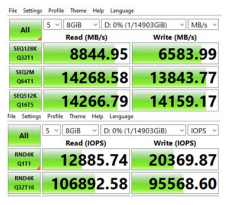
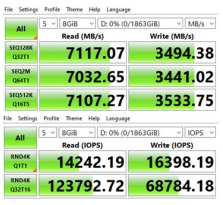
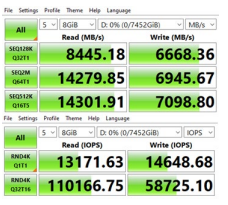
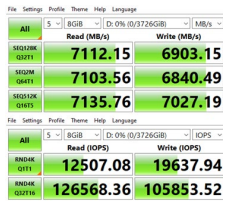
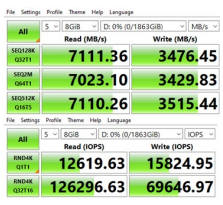


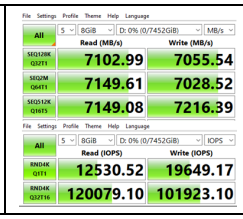
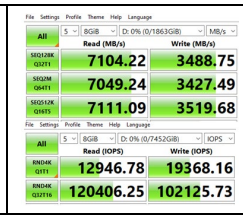
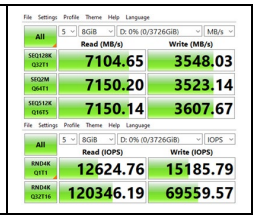
4.1.3 Gen3 HighPoint NVMe RAID AIC test results

- **Iometer**

(script setting)	Gen3 RAID AIC	Legacy	RAID0	RAID1	RAID10
2m-Seq-Read (MiB/s)	SSD6202	3,551	6,964	6,951	/
	SSD6202A	3,512	6,915	6,756	/
	SSD6204A	1,739	6,982	3,504	/
	SSD7101A-1	3,580	14,203	7,019	14,163
	SSD7104	3,580	14,170	7,106	14,194
	SSD7105	3,580	14,184	7,022	14,194
	SSD7140A	3,510	14,304	7,117	14,208
	SSD7202	3,580	7,086	7,015	/
	SSD7204	3,515	7,152	7,025	7,154
2m-Seq-Write (MiB/s)	SSD6202	3,496	6,041	3,501	/
	SSD6202A	3,527	5,981	3,023	/
	SSD6204A	1,721	6,210	1,714	/
	SSD7101A-1	3,524	12,734	3,524	7,024
	SSD7104	3,561	12,411	3,521	7,023
	SSD7105	3,519	12,199	3,550	7,012
	SSD7140A	3,558	12,052	3,502	7,088
	SSD7202	3,520	7,031	3,521	/
	SSD7204	3,573	7,234	3,519	3,614
4k-Rand-Read (IOPS)	SSD6202	723,665	843,538	864,847	/
	SSD6202A	731,608	838,686	846,727	/
	SSD6204A	388,769	805,035	834,397	/
	SSD7101A-1	822,911	110,582	114,517	113,636
	SSD7104	739,633	109,380	117,593	113,199
	SSD7105	838,912	110,447	115,414	113,866
	SSD7140A	803,314	105,105	119,870	107,650
	SSD7202	830,828	113,921	114,256	/
	SSD7204	744,802	110,659	112,966	113,089
4k-Rand-Write (IOPS)	SSD6202	666,126	662,318	652,270	/
	SSD6202A	655,870	658,590	652,414	/
	SSD6204A	401,480	622,020	311,284	/
	SSD7101A-1	663,333	101,594	69,541	72,163
	SSD7104	597,533	68,061	61,720	69,869
	SSD7105	656,201	100,978	69,112	69,596
	SSD7140A	651,210	109,457	66,061	69,392
	SSD7202	682,030	105,431	69,299	/
	SSD7204	609,638	58,013	68,974	71,707

- **CrystalDiskMark**

(script setting)	Gen3 RAID AIC	RAID0	RAID1	RAID10
2m-Seq (MB/s)	SSD6202			/
	SSD6202A			/
	SSD6204A			
	SSD7101A-1			
	SSD7104			
	SSD7105			
	SSD7140A			
	SSD7202			

	SSD7204			

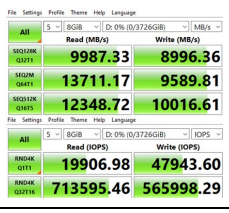
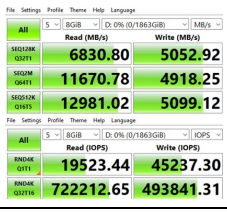
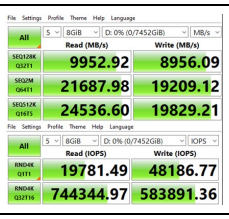
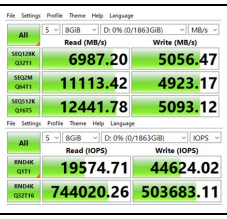
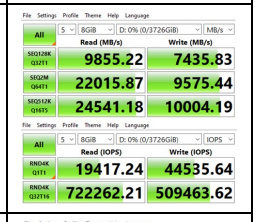
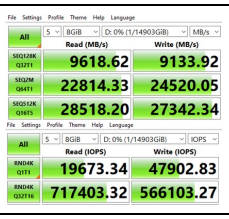
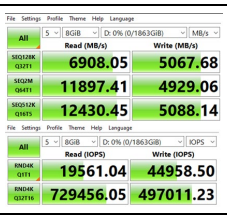
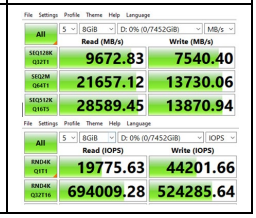
Note: */ means that this AIC does not support the creation of RAID10.*

4.1.4 Gen4 HighPoint NVMe RAID AIC test results

- **Iometer**

(script setting)	Gen4 RAID AIC	Legacy	RAID0	RAID1	RAID10
2m-Seq-Read (MiB/s)	SSD7502	6,738	13,184	12,201	/
	SSD7505	6,771	23,511	12,522	23,246
	SSD7540	6,817	28,608	12,152	28,363
2m-Seq-Write (MiB/s)	SSD7502	5,035	9,898	5,052	/
	SSD7505	4,995	18,690	5,045	9,817
	SSD7540	4,993	17,438	5,042	11,612
4k-Rand-Read (IOPS)	SSD7502	674,224	736,836	739,020	/
	SSD7505	670,754	651,453	657,416	687,855
	SSD7540	669,456	686,865	746,628	661,758
4k-Rand-Write (IOPS)	SSD7502	568,188	578,452	479,506	/
	SSD7505	567,258	528,623	453,041	477,119
	SSD7540	574,120	561,817	485,299	486,435

- **CrystalDiskMark**

(script setting)	Gen4 RAID AIC	RAID0	RAID1	RAID10
2m-Seq (MB/s)	SSD7502			/
	SSD7505			
	SSD7540			

Note: */ means that this AIC does not support the creation of RAID10.*

5. Uninstalling HighPoint NVMe RAID AICs from the Supermicro H12SSL-i

5.1 Uninstall hardware

5.1.1 Recommended tools

a. Screwdriver (system cover require a screwdriver to open)
b. Wired ESD wrist strap (to prevent electrostatic accidents)

5.1.2 Uninstalling the Hardware from 1U Chassis: SC813MFTQC-350CB2/ SC813MFTQC-R407CB

The following installation procedure applies to these chassis:

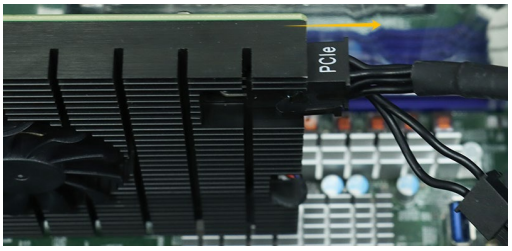
Chassis	Model
1U	SC813MFTQC-350CB2
	SC813MFTQC-R407CB

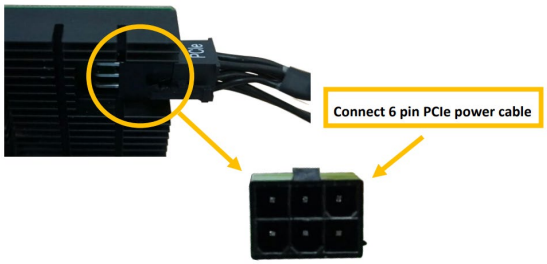
a. Use a wired ESD wrist strap that is properly grounded.
b. Shut down the system.
c. Press both release tabs simultaneously to release the cover from the locked position.

d. Lift the cover up and off the chassis.
e. Confirm that you have the correct riser card for your chassis model.
f. Remove the screw securing the riser card.
g. Remove the riser card from the system.

h. Open the PCI slot lever.

i. If you are using the SSD7140A, SSD7540, RocketAIC 7140AW, or RocketAIC 7540HW, you will need to disconnect the power cable to the 6-pin power connector on the HighPoint NVMe RAID AICs.



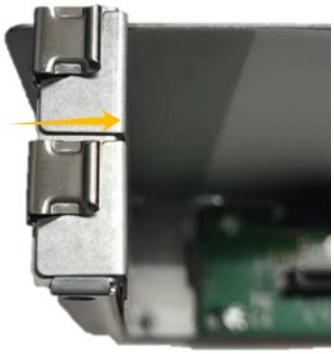


Note: *If you are not using SSD7140A, SSD7540, RocketAIC 7140AW, or RocketAIC 7540HW, you can safely move to the next step.*

j. Holding the edge of the HighPoint NVMe RAID AIC, lift up to remove the HighPoint NVMe RAID AIC connector from the riser card slot.

k. Install the PCI slot bracket in the inside of the chassis.

l. Close the PCI slot lever securing the PCI slot bracket.



m. Install the expansion card riser into the system connector.
n. Align the cover with the chassis in the locked position.

5.1.3 Uninstalling the Hardware from 2U and 4U Chassis: SC213BAC8-R1K23LPB/ SC216BE1C4-R1K23LPB/ SC846BE1C-R1K23B

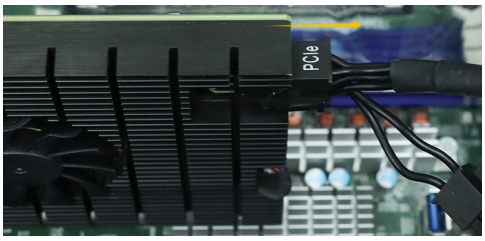
The following installation procedure applies to these chassis:

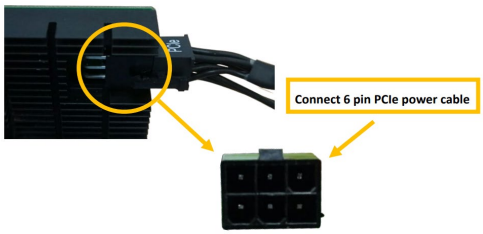
Chassis	Model
2U	SC213BAC8-R1K23LPB
	SC216BE1C4-R1K23LPB
4U	SC846BE1C-R1K23B

a. Use a wired ESD wrist strap that is properly grounded.
b. Shut down the system.
c. Press both release tabs simultaneously to release the cover from the locked position.

d. Lift the cover up and off the chassis.
e. Remove the screw securing the HighPoint NVMe RAID AIC bracket.

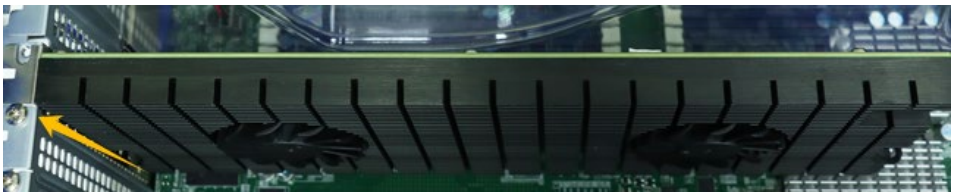
f. If you are using the SSD7140A, SSD7540, RocketAIC 7140AW, or RocketAIC 7540HW, you will need to disconnect the power cable to the 6-pin power connector on the HighPoint NVMe RAID AICs.



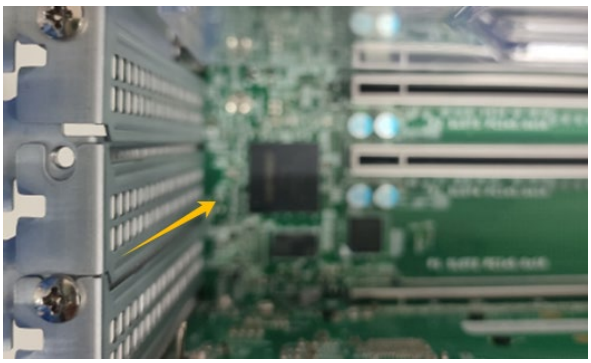


Note: *If you are not using SSD7140A, SSD7540, RocketAIC 7140AW, or RocketAIC 7540HW, you can safely move to the next step.*

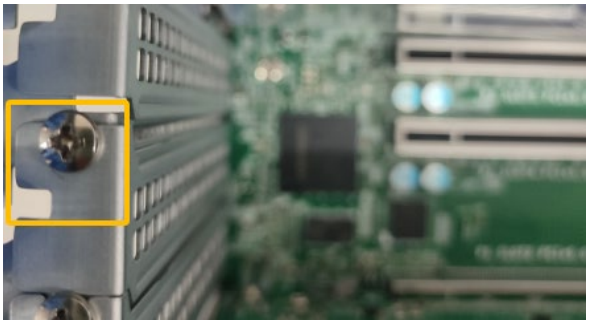
g. Holding the edge of the HighPoint NVMe RAID AIC, lift up to remove the HighPoint NVMe RAID AIC connector from the expansion slot.



h. Install the PCI shield into the expansion slot.



i. Install the screw securing the PCI shield.



j. Align the cover with the chassis.

5.1.4 Uninstalling the Hardware from 2U and 3U Chassis: SC825MBTQC-R802LPB/ SC825TQC-R802LPB/ SC826BE1C4-R1K23LPB/ SCLA26AC12-R920LP1/ SC835TQC-R802B/ SC836BE1C-R1K23B

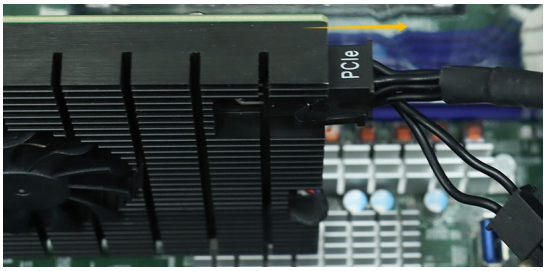
The following installation procedure applies to these chassis:

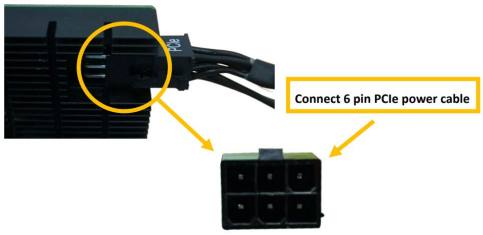
Chassis	Model
2U	SC825MBTQC-R802LPB
	SC825TQC-R802LPB
	SC826BE1C4-R1K23LPB
	SCLA26AC12-R920LP1
3U	SC835TQC-R802B
	SC836BE1C-R1K23B

a. Use a wired ESD wrist strap that is properly grounded.
b. Shut down the system.
c. Insert a screwdriver to remove the screws at the rear of the chassis and on the sides of the cover.
d. Press both release tabs simultaneously to release the cover from the locked position.

e. Lift the cover up and off the chassis.
f. Remove the screw securing the HighPoint NVMe RAID AIC bracket.

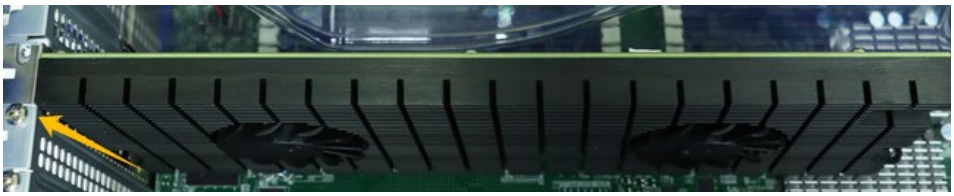
g. If you are using the SSD7140A, SSD7540, RocketAIC 7140AW, or RocketAIC 7540HW, you will need to disconnect the power cable to the 6-pin power connector on the HighPoint NVMe RAID AICs.



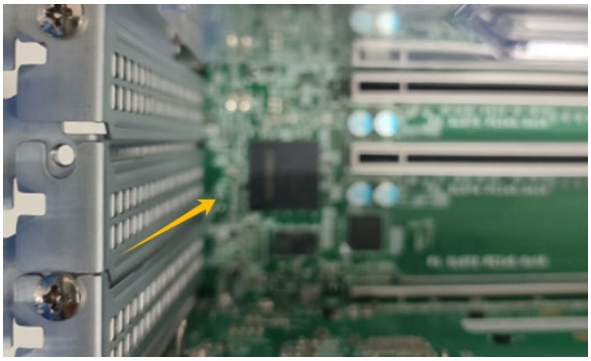


Note: *If you are not using SSD7140A, SSD7540, RocketAIC 7140AW, or RocketAIC 7540HW, you can safely move to the next step.*

h. Holding the edge of the HighPoint NVMe RAID AIC, lift up to remove the HighPoint NVMe RAID AIC connector from the expansion slot.



i. Install the PCI shield into the expansion slot.



j. Install the screw securing the PCI shield.

k. Align the cover with the chassis.

l. Insert a screwdriver and install the screws removed in step c to secure the chassis and cover.

5.1.5 Uninstalling the Hardware from Mid-Tower and 4U Chassis: SC732i-903B/ SC745BAC-R1K23B

The following installation procedure applies to these chassis:

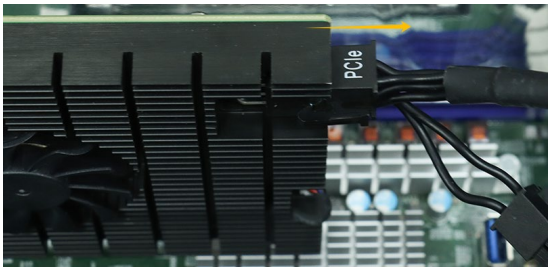
Chassis	Model
Mid-Tower	SC732i-903B
4U	SC745BAC-R1K23B

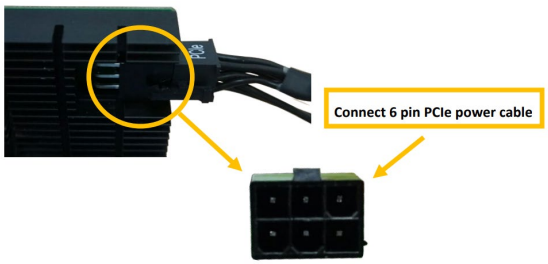
a. Use a wired ESD wrist strap that is properly grounded.
b. Shut down the system.
c. Locate the latch on the cover, press where it says "Push" and lift the latch to release the cover.

d. In the rear of the chassis, push on the PCI shield lock, then lift up on the lock.

e. Remove the screw securing the HighPoint NVMe RAID AIC bracket.

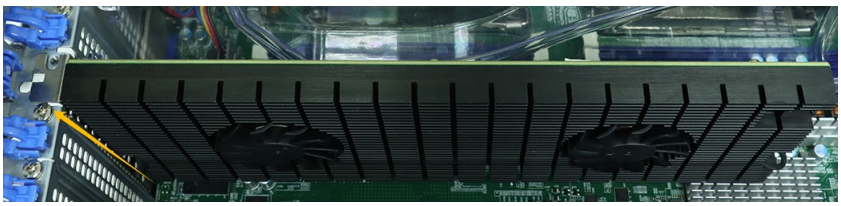
f. If you are using the SSD7140A, SSD7540, RocketAIC 7140AW, or RocketAIC 7540HW, you will need to disconnect the power cable to the 6-pin power connector on the HighPoint NVMe RAID AICs.





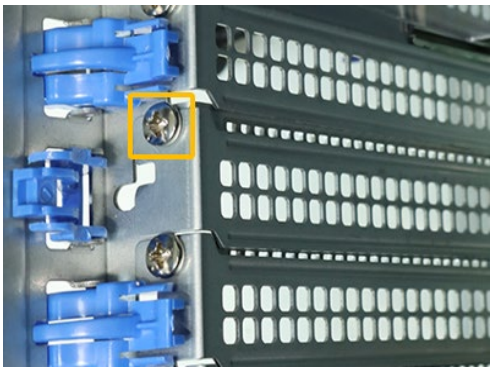
Note: *If you are not using SSD7140A, SSD7540, RocketAIC 7140AW, or RocketAIC 7540HW, you can safely move to the next step.*

g. Holding the edge of the HighPoint NVMe RAID AIC, lift up to remove the HighPoint NVMe RAID AIC connector from the expansion slot.

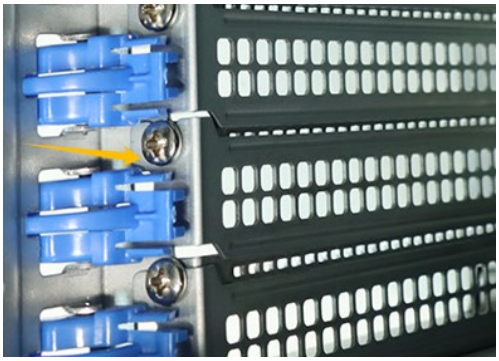


h. Install the PCI shield into the expansion slot.

i. Install the screw securing the PCI shield.



j. Secure the PCI shield onto the rear of the chassis with the PCI shield lock.



k. Align the cover with the chassis in the locked position.

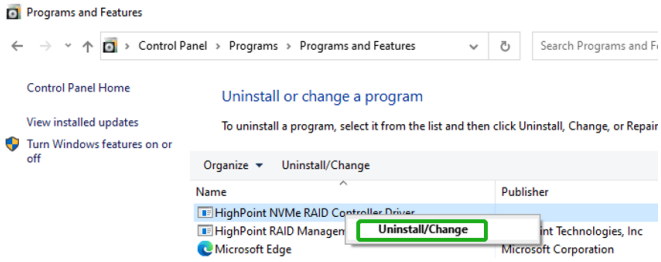
5.2 Uninstalling the HighPoint Software

5.2.1 Uninstall the HighPoint NVMe RAID AIC for Windows

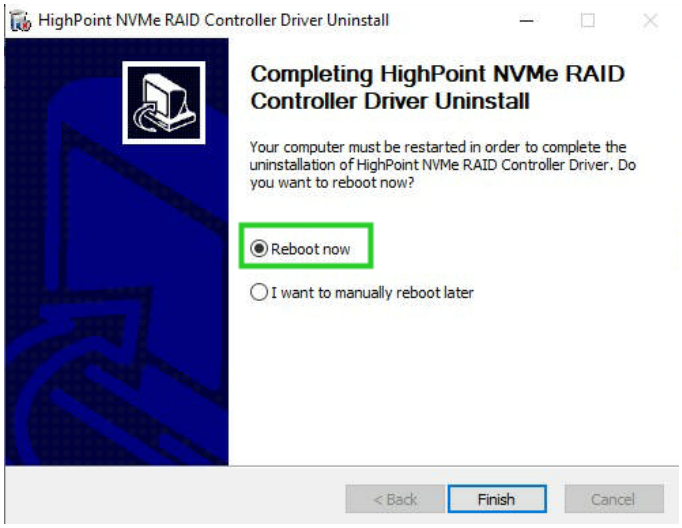
5.2.1.1 Uninstall the driver

a. Power down the system and remove the HighPoint NVMe RAID AIC from the system.
Note1: *Failing to remove the HighPoint NVMe RAID AIC from the system during the uninstall process may result in data loss.*
Note2: *Whenever the driver is uninstalled, Windows will attempt to install the default NVMe support, which may corrupt the RAID configurations and any data stored on SSDs hosted by the HighPoint NVMe RAID AIC.*

b. Power on the system and boot Windows.
c. Access **Control Panel** and select **Programs→ Programs and Features,** and click on the **HighPoint NVMe RAID Controller Driver** entry**.**
d. Click **Uninstall/Change.**



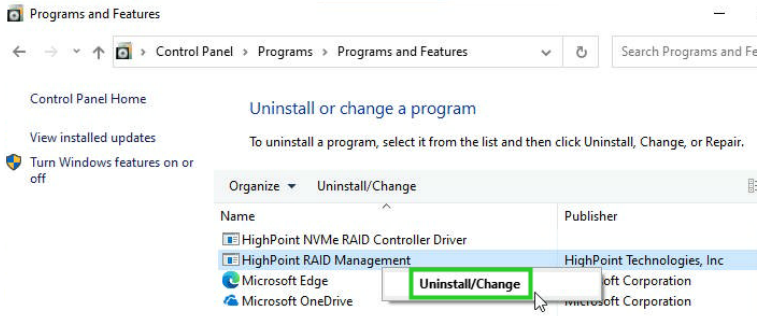
e. After uninstalling the driver, click Finish.



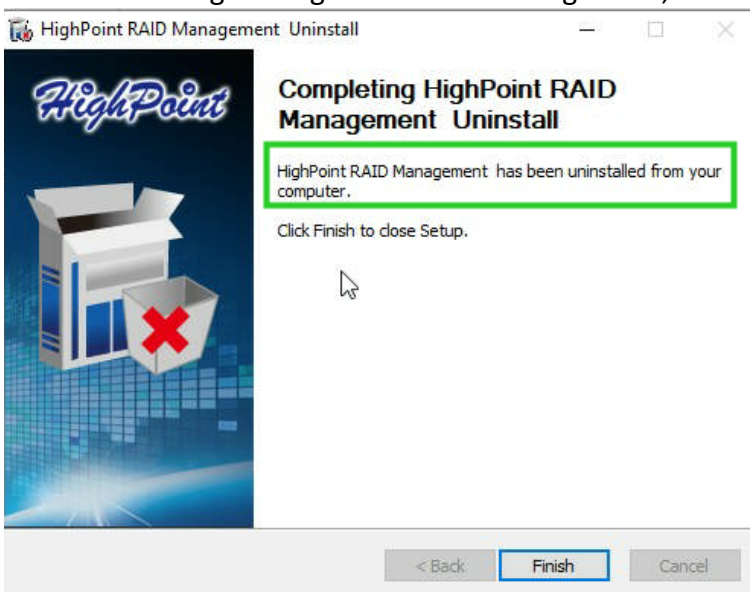
f. Reboot Windows to complete the uninstall procedure.

5.2.1.2 Uninstall the RAID Management Software

a. Access **Control Panel and select Programs→ Programs and Features**.
b. Click on the **HighPoint RAID Management** entry.
c. Click **Uninstall/Change**.



d. After uninstalling the HighPoint RAID Management, click Finish.



5.2.2 Uninstall the HighPoint NVMe RAID AIC for Linux

5.2.2.1 Uninstall Driver

a. Open the system terminal with root privileges.
b. Enter the following commands to uninstall the driver: **hptuninhptnvme.**
c. Press **'Y'** to confirm.

```
[root@localhost Downloads]# hptuninhptnvme
Are you sure to uninstall the driver hptnvme from system? (Y/n): y
Removed symlink /etc/systemd/system/default.target.wants/hptdrv-monitor.service.
Removed symlink /etc/systemd/system/sysinit.target.wants/systemd-hptdrv.service.
All files installed have been deleted from the system.
[root@localhost Downloads]#
```

d. After uninstalling the driver, manually reboot the system.
e. After the system has rebooted, open the system terminal with root privileges. And enter the following command to check the driver status: **lsmod |grep hptnvme**

Before uninstalling:

```
[root@localhost test]# lsmod | grep hptnvme
hptnvme               235401  0
```

After uninstalling:

```
[root@localhost test]# lsmod | grep hptnvme
[root@localhost test]#
```

f. If the system does not display information about "hptnvme", the driver has been successfully uninstalled.

5.2.2.2 Uninstall the RAID Management Software

a. Open the system terminal with root privileges.
b. Enter the following commands to uninstall the RAID Management.
dpkg -r hptsvr (or rpm -e hptsvr-https)

```
root@testlu-Super-Server:/home/testlu/Desktop# dpkg -r hptsvr
(Reading database ... 183888 files and directories currently installed.)
Removing hptsvr (3.1.12) ...
```

c. Enter the following command to check if the RAID Management has been removed successfully.
#hptraidconf
After uninstall:

```
root@testlu-Super-Server:/home/testlu/Desktop# hptraidconf
bash: /usr/bin/hptraidconf: No such file or directory
```