Using HighPoint NVMe RAID AICs with the Supermicro X12DPi-N6

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1. Supermicro X12DPi-N6 Introduction

This document provides guidelines and procedures for installing HighPoint NVMe AICs into the Supermicro X12DPi-N6. 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 X12DPi-N6 Chassis list:

Chassis	Model
2U	SuperChassis LA26E1C4-R609LP (OEM)[2]
	SuperChassis LA25TQC-R609LP (OEM)[2]
	SuperChassis 825BTQC-R1K23LPB[1]
	SuperChassis 213BAC8-R1K23LPB[1]
	SuperChassis 826BAC12-R1K23LPB[1]
	SuperChassis 829HAC12-R1K62LPB[1]
4U	SuperChassis 745BAC-R1K23B[1]
	SuperChassis 846BE1C8-R1K23B4[1]
	SuperChassis 847BE1C12-R1K68LPB4[1]

Notes:

1= Optimized SuperServer Chassis

2= Compatible Chassis

1.2 Servers

Supermicro X12DPi-N6 Servers list:

Server	Model
2U	Mainstream SuperServer SYS-220P-C9R
	Mainstream SuperServer SYS-620P-TR
4U	Mainstream SuperServer SYS-740P-TR

1.3 Chipset

Supermicro X12DPi-N6 Chipset: Intel PCH C621A

1.4 Processor Types

Supermicro X12DPi-N6 processor type: Supports dual 3rd Gen Intel Xeon Scalable Processors (in Socket P+ LGA 4189) with up to 40 cores and a thermal design power (TDP) of up to 270W

1.5 Memory

Memory Capacity: 18 DIMM slots
Up to 4TB Intel® Optane™ Persistent Memory 200 Series, DDR4-3200MHz
Up to 4TB 3DS ECC LRDIMM, DDR4-3200MHz; Up to 4TB 3DS ECC RDIMM, DDR4-3200MHz
P1-DIMMB2 and P2-DIMMB2 are reserved for Intel Optane Persistent Memory 200 Series only.
Memory type: 3200/2933/2666 MT/s ECC DDR4 LRDIMM (3DS), RDIMM (3DS)
DIMM Sizes: LRDIMM: 256GB/ RDIMM: 256GB
Memory Voltage: 1.2V

1.6 PCIe slots

Supermicro X12DPi-N6 PCIe Expansion Slot Configuration:

Slot	CPU	Height	Length	Width	Link width	Slot width
1	1	Full Height	Half Length	Single Width	x8	x8
2	1	Full Height	Full Length	Single Width	x16	x16
3	1	Full Height	Full Length	Single Width	x16	x16
4	2	Full Height	Full Length	Single Width	x16	x16
5	2	Full Height	Full Length	Single Width	x16	x16
6	2	Full Height	Half Length	Single Width	x8	x8

Note: *Supermicro 2U chassis or servers are only available in Half Height.*

1.7 GPU

Supermicro X12DPi-N6 Graphics controllers:

GPU Type	Slot priority
ASPEED AST2600 BMC	N/A
Graphics Controller	1, 6

Notes:

ASPEED AST2600 BMC is an integrated graphics card and will not take up a PCIe slot.

Depending on the type of GPU installed into the Supermicro X12DPi-N6 platform, one or more PCIe slots may be unavailable for use with HighPoint NVMe AICs.

1.8 Other PCIe devices

The Supermicro X12DPi-N6 is available with optional PCIe devices.

The following table provides a list of PCIe device accessories available for the Supermicro X12DPi-N6 and which slot they are typically associated with.

PCIe devices type	Slot priority
Intel X550 on LAN Controller	1, 6
Intel i350 on LAN Controller	1, 6

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 X12DPi-N6

HighPoint NVMe RAID AICs	Slot1 PCIe 4.0 x8	Slot2 PCIe 4.0 x16	Slot3 PCIe 4.0 x16	Slot4 PCIe 4.0 x16	Slot5 PCIe 4.0 x16	Slot6 PCIe 4.0 x8
Gen3 AICs						
SSD6202A	√[1]	√[1]	√[1]	√[1]	√[1]	√[1]
SSD6204A	√[1, 2]	√[1, 2]	√[1, 2]	√[1, 2]	√[1, 2]	√[1, 2]
SSD7101A-1	X	√[1, 2]	√[1, 2]	√[1, 2]	√[1, 2]	X
SSD7104	X	√[1, 2]	√[1, 2]	√[1, 2]	√[1, 2]	X
SSD7105	X	√[1, 2]	√[1, 2]	√[1, 2]	√[1, 2]	X
SSD7140A	X	√[1, 2]	√[1, 2]	√[1, 2]	√[1, 2]	X
SSD7202	√[1]	√[1]	√[1]	√[1]	√[1]	√[1]
SSD7204	√[1, 2]	√[1, 2]	√[1, 2]	√[1, 2]	√[1, 2]	√[1, 2]
RocketAIC 7105HW	X	√[1, 2]	√[1, 2]	√[1, 2]	√[1, 2]	X
RocketAIC 7140AW	X	√[1, 2]	√[1, 2]	√[1, 2]	√[1, 2]	X
Gen4 AICs						
SSD7502	X	√[1]	√[1]	√[1]	√[1]	X
SSD7505	X	√[1, 2]	√[1, 2]	√[1, 2]	√[1, 2]	X
SSD7540	X	√[1, 2]	√[1, 2]	√[1, 2]	√[1, 2]	X
RocketAIC 7502HW	X	√[1]	√[1]	√[1]	√[1]	X
RocketAIC 7505HW	X	√[1, 2]	√[1, 2]	√[1, 2]	√[1, 2]	X
RocketAIC 7540HW	X	√[1, 2]	√[1, 2]	√[1, 2]	√[1, 2]	X

Notes:

√[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 X12DPi-N6

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 2U Chassis: SuperChassis LA26E1C4-R609LP (OEM)/ SuperChassis LA25TQC-R609LP (OEM)/ SuperChassis 213BAC8-R1K23LPB

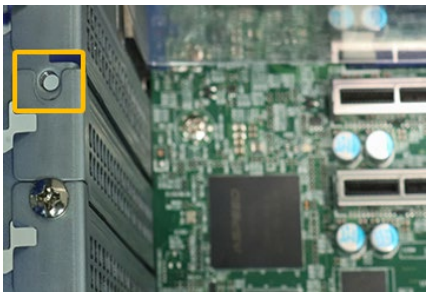
For PCIe slot recommendations, please refer to this table.
The following installation procedure applies to these chassis:

Chassis	Model
2U	SuperChassis LA26E1C4-R609LP (OEM)
	SuperChassis LA25TQC-R609LP (OEM)
	SuperChassis 213BAC8-R1K23LPB

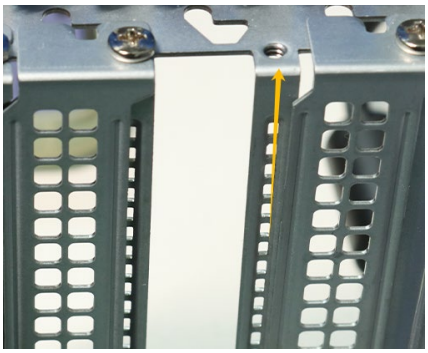
a. Use a wired ESD wrist strap that is properly grounded.
b. Shut down the system.
c. Press both release tabs simultaneously to release the cover from the locked position.

d. Lift the cover up and off the chassis.

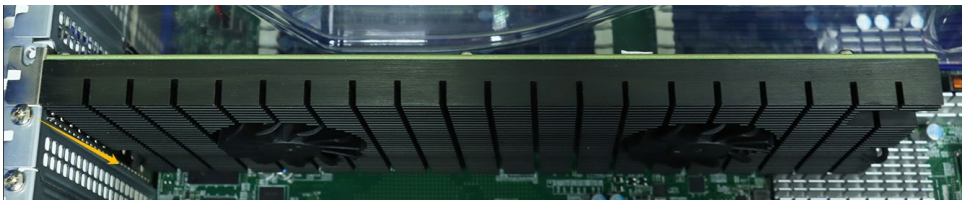
e. Remove the screw securing the PCI shield.



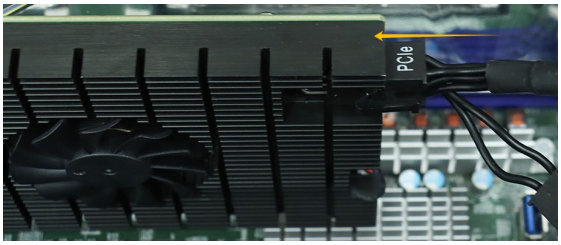
f. Remove the PCI shield pre-installed in the expansion slot.

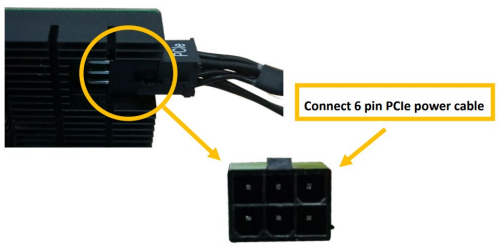


g. Holding the edge of the HighPoint NVMe RAID AIC, align the HighPoint NVMe RAID AIC connector with the expansion slot and insert it downward.



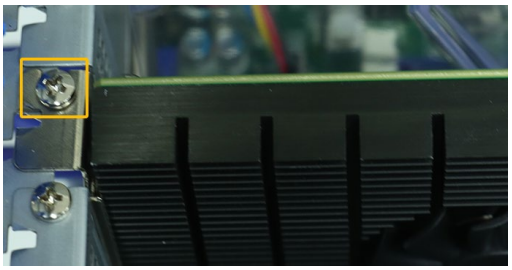
h. If you are using the SSD7140A, SSD7540, RocketAIC 7140AW, or RocketAIC 7540HW, you will need to connect the power cable to the 6-pin power connector on the side of the HighPoint NVMe RAID AICs.





Note: *If you are not using the 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. Align the cover with the chassis in the locked position.

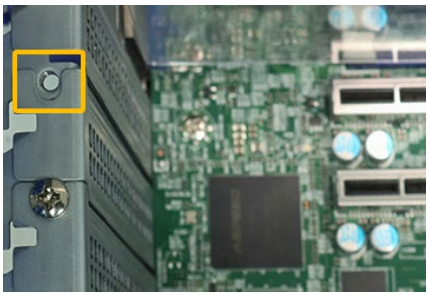
3.1.3 Installing the Hardware into 2U and 4U Chassis: SuperChassis 825BTQC-R1K23LPB/ SuperChassis 826BAC12-R1K23LPB/ SuperChassis 829HAC12-R1K62LPB/ SuperChassis 846BE1C8-R1K23B4/ SuperChassis 847BE1C12-R1K68LPB4

For PCIe slot recommendations, please refer to this table.
The following installation procedure applies to these chassis:

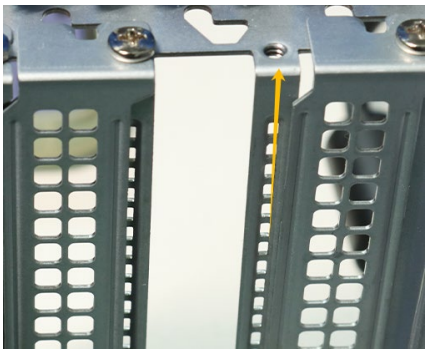
Chassis	Model
2U	SuperChassis 825BTQC-R1K23LPB
	SuperChassis 826BAC12-R1K23LPB
	SuperChassis 829HAC12-R1K62LPB
4U	SuperChassis 846BE1C8-R1K23B4
	SuperChassis 847BE1C12-R1K68LPB4

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

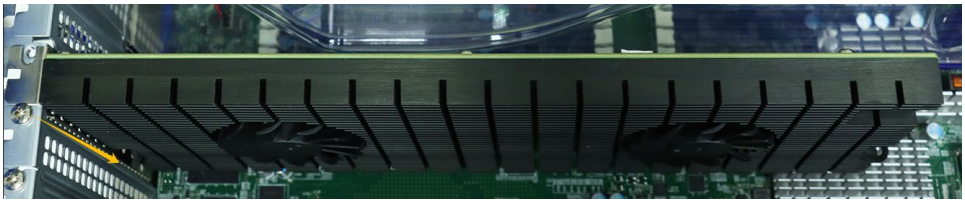
e. Lift the cover up and off the chassis.
f. Remove the screw securing the PCI shield.



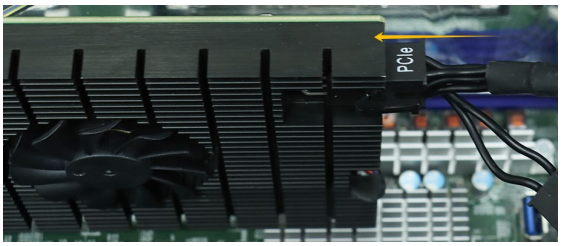
g. Remove the PCI shield pre-installed in the expansion slot.

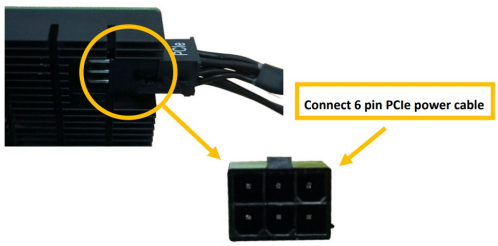


h. Holding the edge of the HighPoint NVMe RAID AIC, align the HighPoint NVMe RAID AIC connector with the expansion slot and insert it downward.



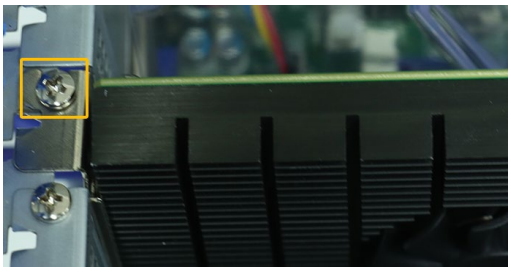
i. If you are using the SSD7140A, SSD7540, RocketAIC 7140AW, or RocketAIC 7540HW, you will need to connect the power cable to the 6-pin power connector on the side of the HighPoint NVMe RAID AICs.





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

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



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

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

3.1.4 Installing the Hardware into the SuperChassis 745BAC-R1K23B

For PCIe slot recommendations, please refer to this table.

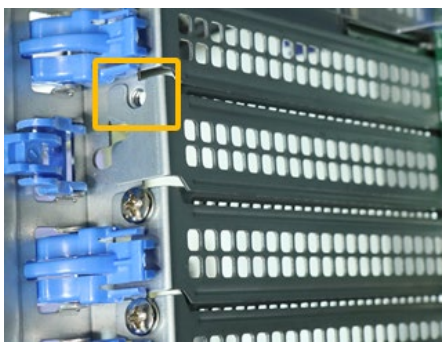
The following installation procedure applies to these chassis:

Chassis	Model
4U	SuperChassis 745BAC-R1K23B

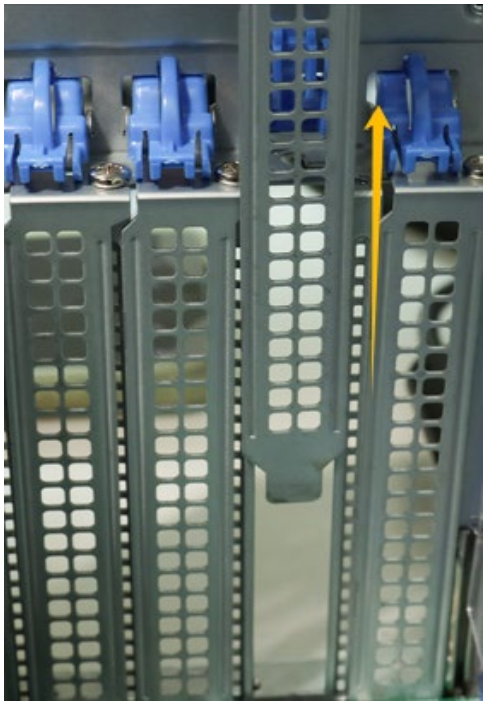
a. Use a wired ESD wrist strap that is properly grounded.
b. Shut down the system.
c. Locate the latch on the cover, press where it says "Push" and lift the latch to release the cover.

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

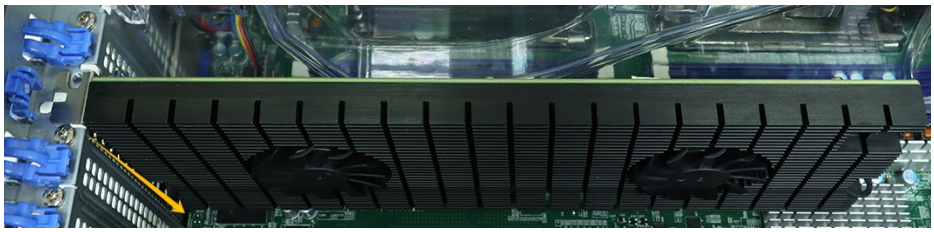
e. Remove the screw securing the PCI shield.



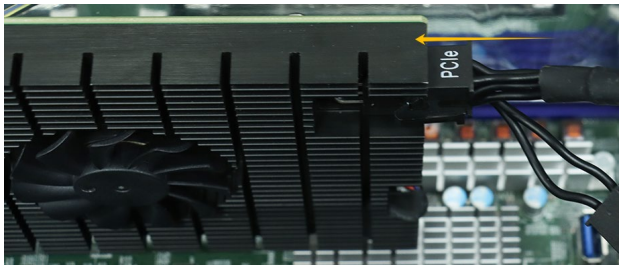
f. Remove the PCI shield.

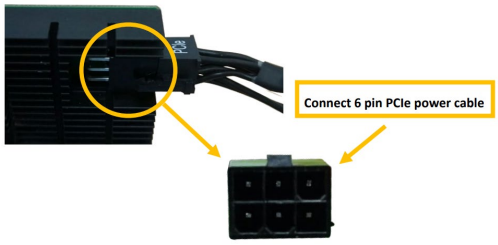


g. Holding the edge of the HighPoint NVMe RAID AIC, align the HighPoint NVMe RAID AIC connector with the expansion slot and insert it downward.



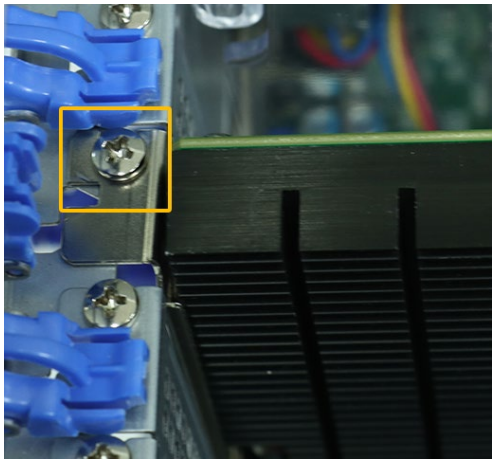
h. If you are using the SSD7140A, SSD7540, RocketAIC 7140AW, or RocketAIC 7540HW, you will need to connect the power cable to the 6-pin power connector on the side of the HighPoint NVMe RAID AICs.





Note: *If you are not using the 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 X12DPi-N6 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
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
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.

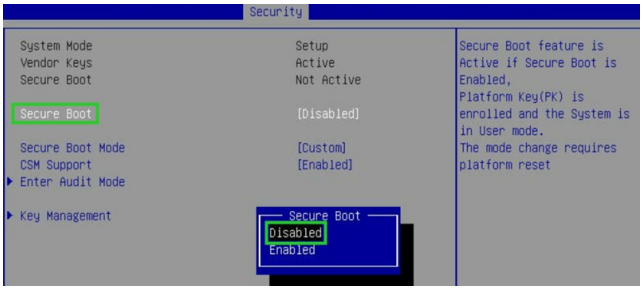
3.2.1 Disable Secure boot

***Note**: If you are using the SSD7000/7500 series NVMe RAID AICs or RocketAIC series NVMe Drives in Linux, 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**.



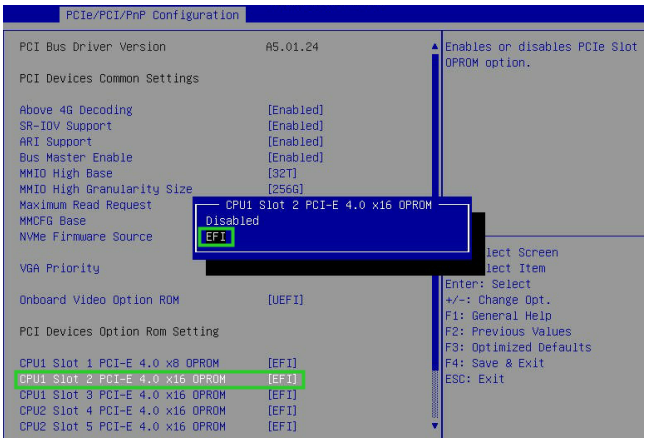
d. Save configuration and restart system.

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 X12DPi-N6 (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 X12DPi-N6 (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

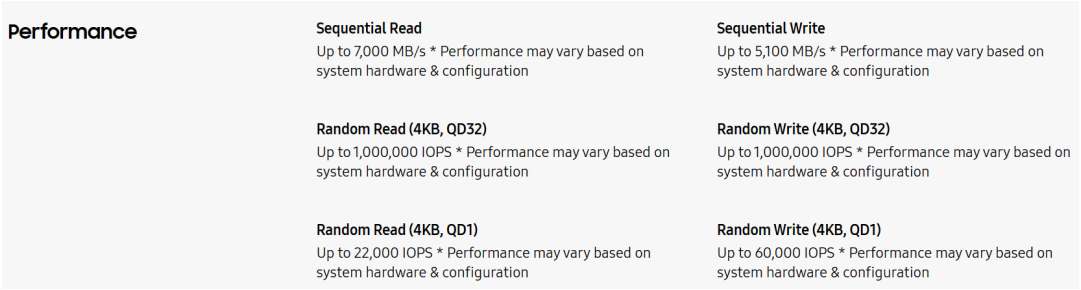
4.1.1 Recommended Hardware Configuration

- **Supermicro X12DPi-N6:**
  CPU: Intel(R) Xeon(R) Silver 4314 CPU @ 2.40GHz
  Memory: 131072 MB
  PCIe Slot: CPU1 SLOT1 PCI-E 4.0 X8/ CPU1 SLOT2 PCI-E 4.0 X16

- **HighPoint NVMe RAID AICs:**

Gen3 HighPoint NVMe RAID AICs	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.*



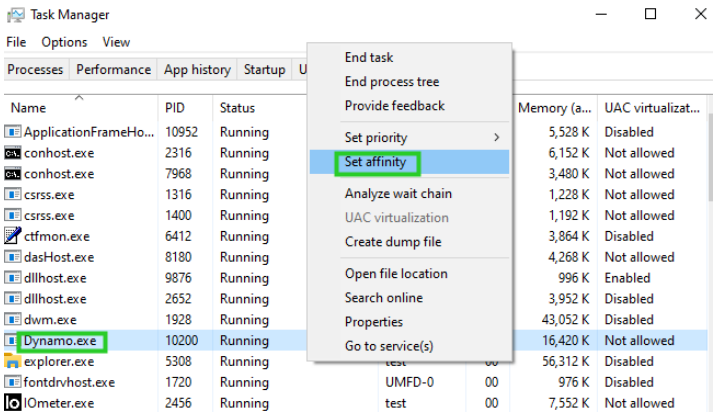
4.1.2 Test tool

Benchmark Tool: Iometer/ CrystalDiskMark

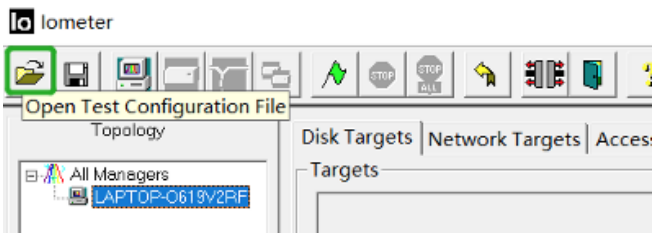
- **Iometer script setting:**
  The Iometer script can be downloaded here.
  Note: *If you use the SSD6200 series NVMe RAID AICs, you will need to download another iometer script.*

  - 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.

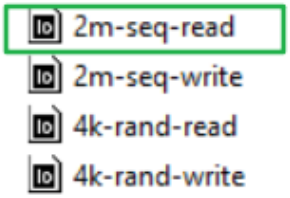
a. Open Iometer with administrator rights.
b. The system has two CPUs, so you need to specify the CPU node for performance testing.
   a) open **Task Manager** and find **Dynamo.exe** in Details.
   b) Right-click and select **Set affinity** to specify the CPU node (the CPU corresponding to the SLOT inserted in the HighPoint NVMe RAID AICs).



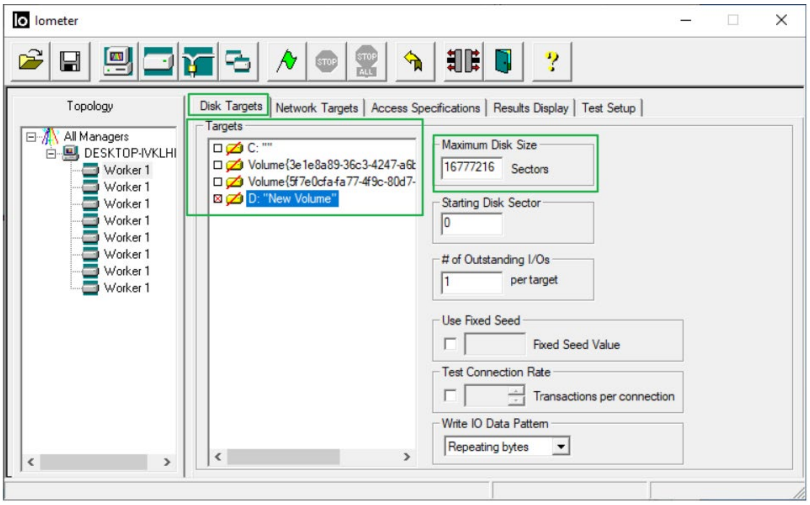
c. Click the folder icon to open the script, then select the script to be configured.



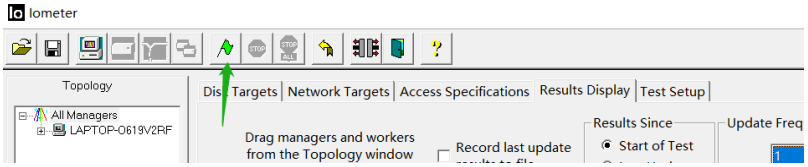
d. Select **2M-seq-read**.



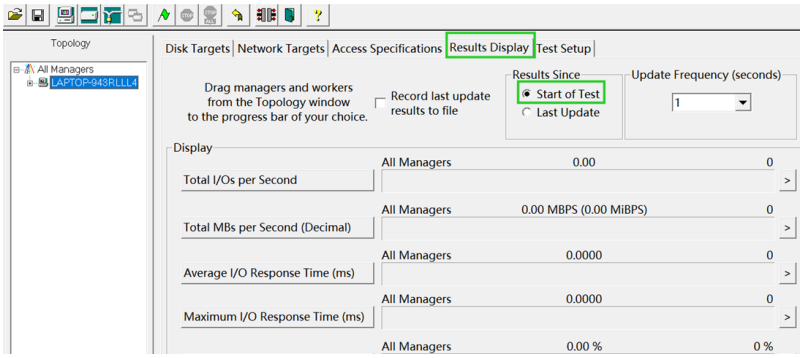
e. The **Disk Targets** page will change, the **Target** should be the test disk (the RAID array). The **Maximum Disk Size** should be set to **16777216** Sectors.



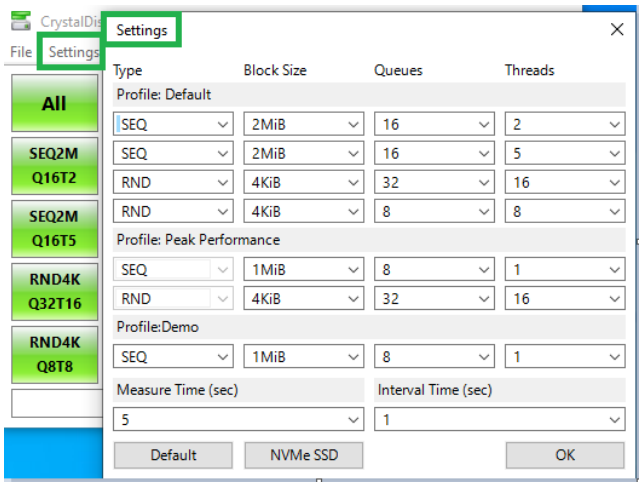
f. After confirming the settings, click the green mark to start the performance test.



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

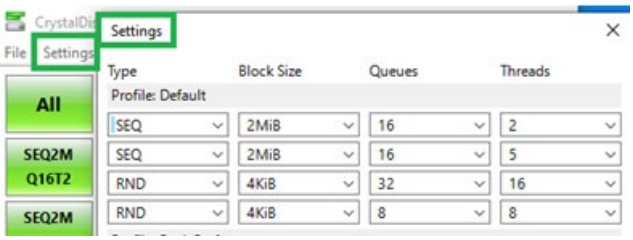


- **CrystalDiskMark script setting:**

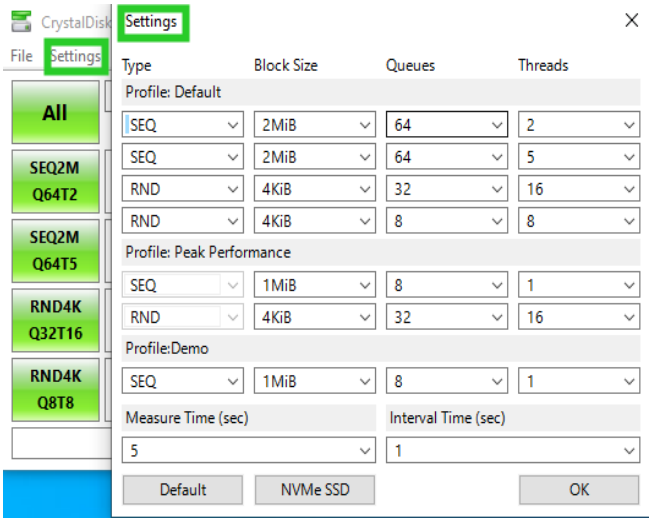


a. Open CrystalDiskMark with administrator rights.

b. Click **Settings.**

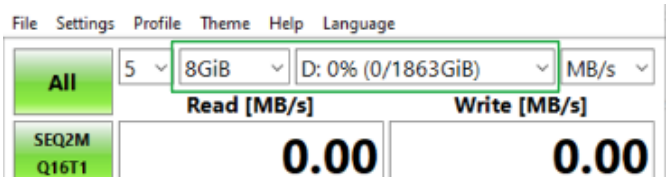


***Note1:** Please refer to the following Screenshot for recommended settings.*

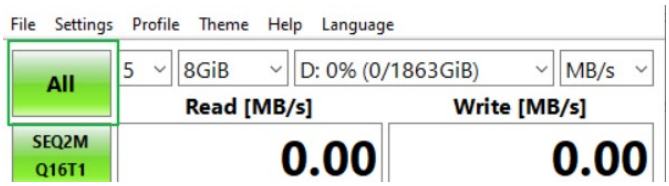


***Note2:** The above recommended setting will meet the needs of most NVMe RAID AICs and achieve optimal performance in testing. In testing, you can also choose to adjust the settings in the script yourself for optimal performance.*

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.

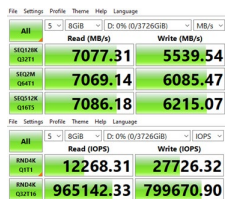
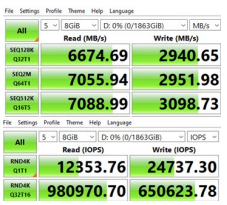
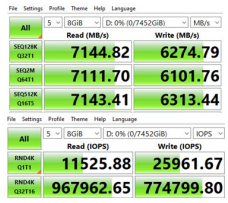
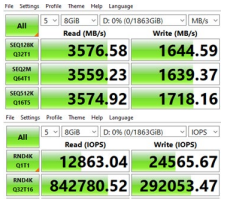
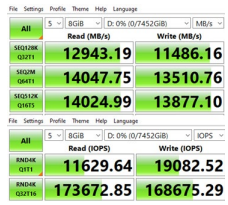
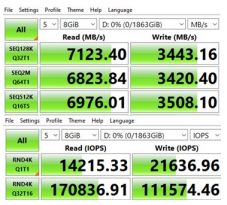
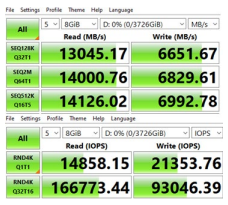
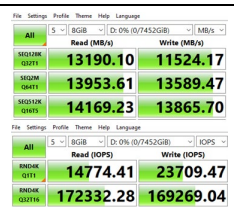
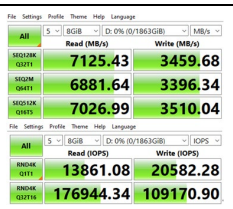
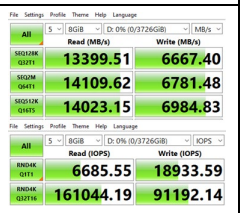
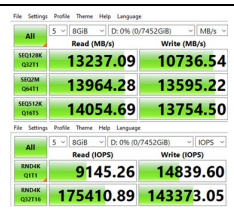
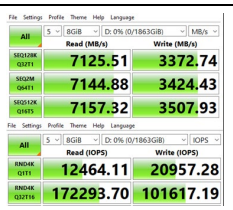
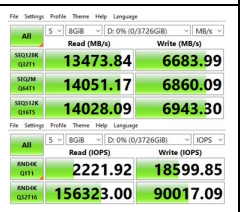
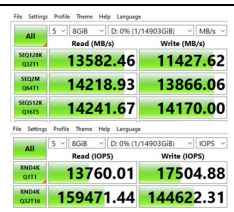
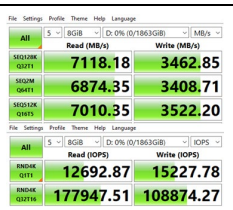
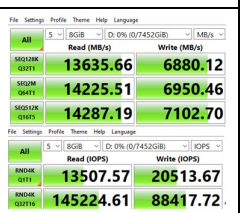
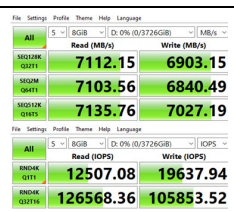
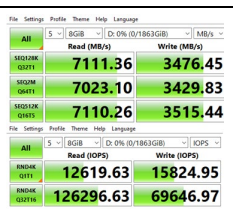
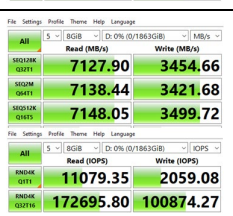
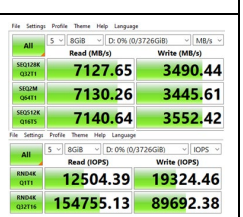


4.1.3 Gen3 HighPoint NVMe RAID AIC test results

- **Iometer**

(script setting)	Gen3 RAID AIC	Legacy	RAID0	RAID1	RAID10
2m-Seq-Read (MiB/s)	SSD6202A	3,482	6,994	7,005	/
	SSD6204A	1,755	6,995	3,503	/
	SSD7101A-1	3,580	13,995	6,883	14,055
	SSD7104	3,580	14,003	6,876	13,988
	SSD7105	3,579	14,033	7,160	14,046
	SSD7140A	3,527	14,276	6,805	14,309
	SSD7202	3,578	7,026	7,046	/
	SSD7204	3,602	7,151	7,156	7,154
2m-Seq-Write (MiB/s)	SSD6202A	3,471	6,005	3,026	/
	SSD6204A	1,724	6,146	1,700	/
	SSD7101A-1	3,525	13,560	3,521	6,767
	SSD7104	3,518	13,544	3,519	6,788
	SSD7105	3,524	13,271	3,513	6,679
	SSD7140A	3,513	13,668	3,531	6,742
	SSD7202	3,516	7,001	3,515	/
	SSD7204	3,523	7,119	3,495	3,556
4k-Rand-Read (IOPS)	SSD6202A	724,915	1,215,943	1,200,989	/
	SSD6204A	387,870	1,174,944	839,252	
	SSD7101A-1	851,140	168,765	166,126	168,635
	SSD7104	843,034	168,394	165,702	162,773
	SSD7105	846,629	171,722	163,821	149,633
	SSD7140A	837,259	159,130	173,400	138,244
	SSD7202	849,373	163,919	163,846	/
	SSD7204	854,443	170,671	161,044	159,144
4k-Rand-Write (IOPS)	SSD6202A	758,130	909,994	647,210	/
	SSD6204A	400,999	874,780	292,857	/
	SSD7101A-1	827,696	162,678	107,718	85,147
	SSD7104	836,103	141,569	105,278	88,797
	SSD7105	829,326	139,825	92,713	82,851
	SSD7140A	830,024	139,462	104,938	87,304
	SSD7202	810,523	127,690	114,057	/
	SSD7204	829,904	143,712	95,506	84,410

- **CrystalDiskMark**

(script setting)	Gen3 RAID AIC	RAID0	RAID1	RAID10
2m-Seq (MB/s)	SSD6202A			/
	SSD6204A			/
	SSD7101A-1			
	SSD7104			
	SSD7105			
	SSD7140A			
	SSD7202			/
	SSD7204			

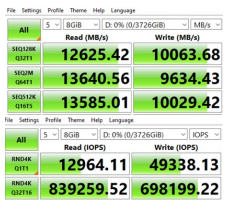
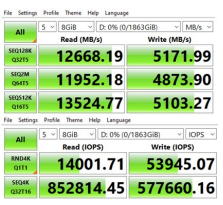
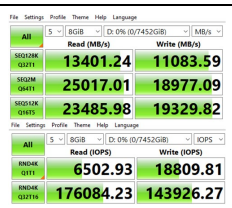
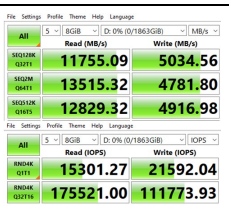
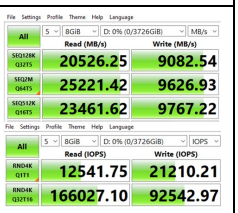
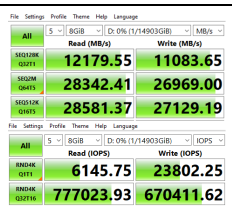
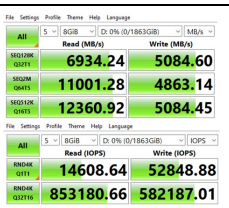
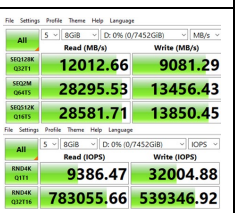
Note: */ means that this AIC does not support the creation of RAID10.*

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	6,574	13,136	12,305	/
	SSD7505	6,477	23,980	11,980	24,131
	SSD7540	6,438	28,683	11,163	28,517
2m-Seq-Write (MiB/s)	SSD7502	4,939	9,568	5,028	/
	SSD7505	5,005	17,034	5,030	9,987
	SSD7540	6,436	23,722	5,037	12,344
4k-Rand-Read (IOPS)	SSD7502	905,012	983,250	971,845	/
	SSD7505	907,814	964,106	900,608	966,553
	SSD7540	895,347	865,398	972,638	897,784
4k-Rand-Write (IOPS)	SSD7502	805,797	764,111	586,708	/
	SSD7505	736,564	786,607	581,603	600,161
	SSD7540	732,091	750,337	590,254	573,522

- **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 X12DPi-N6

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 2U Chassis: SuperChassis LA26E1C4-R609LP (OEM)/ SuperChassis LA25TQC-R609LP (OEM)/ SuperChassis 213BAC8-R1K23LPB

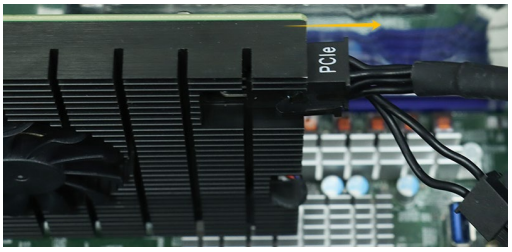
The following installation procedure applies to these chassis:

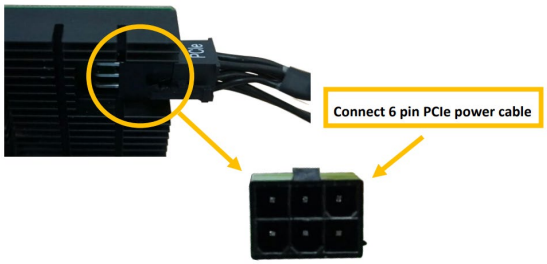
Chassis	Model
2U	SuperChassis LA26E1C4-R609LP (OEM)
	SuperChassis LA25TQC-R609LP (OEM)
	SuperChassis 213BAC8-R1K23LPB

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.

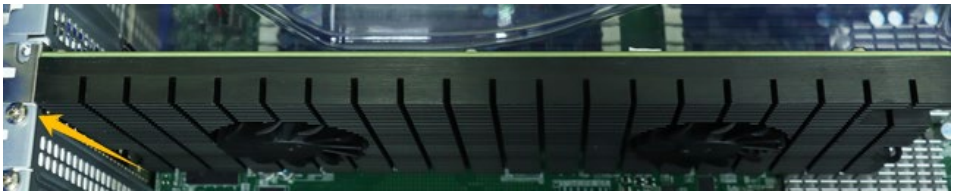
f. If you are using the SSD7140A, SSD7540, RocketAIC 7140AW, or RocketAIC 7540HW, you will need to disconnect the power cable to the 6-pin power connector on the HighPoint NVMe RAID AICs.



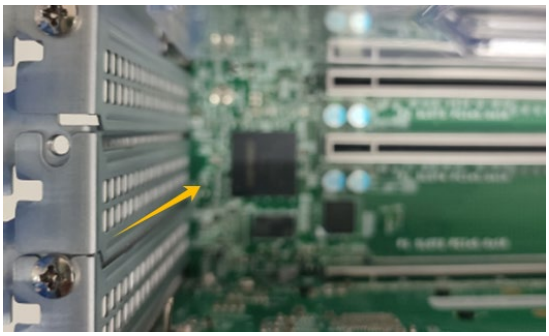


Note: *If you are not using the SSD7140A, SSD7540, RocketAIC 7140AW, or RocketAIC 7540HW, you can safely move to the next step.*

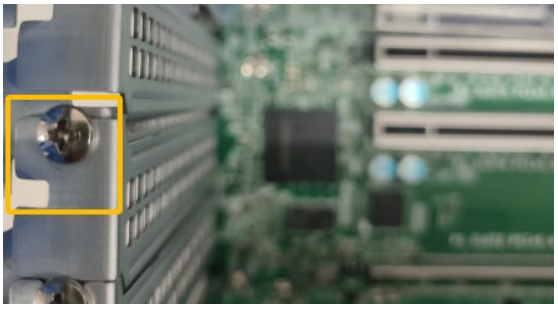
g. Holding the edge of the HighPoint NVMe RAID AIC, lift up to remove the HighPoint NVMe RAID AIC connector from the expansion slot.



h. Install the PCI shield into the expansion slot.



i. Install the screw securing the PCI shield.



j. Align the cover with the chassis.

5.1.3 Uninstalling the Hardware from 2U and 4U Chassis: SuperChassis 825BTQC-R1K23LPB/ SuperChassis 826BAC12-R1K23LPB/ SuperChassis 829HAC12-R1K62LPB/ SuperChassis 846BE1C8-R1K23B4/ SuperChassis 847BE1C12-R1K68LPB4

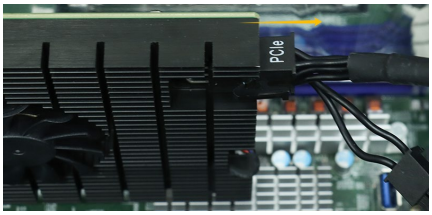
For PCIe slot recommendations, please refer to this table.
The following installation procedure applies to these chassis:

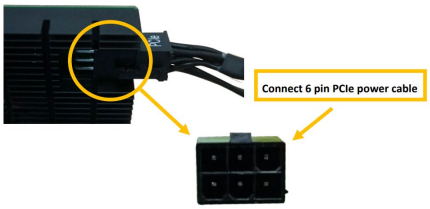
Chassis	Model
2U	SuperChassis 825BTQC-R1K23LPB
	SuperChassis 826BAC12-R1K23LPB
	SuperChassis 829HAC12-R1K62LPB
4U	SuperChassis 846BE1C8-R1K23B4
	SuperChassis 847BE1C12-R1K68LPB4

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. Lift the cover up and off the chassis.

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

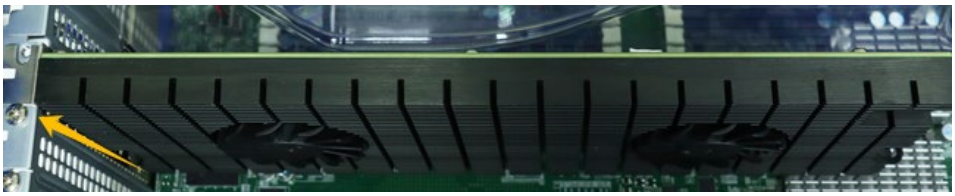
f. If you are using the SSD7140A, SSD7540, RocketAIC 7140AW, or RocketAIC 7540HW, you will need to disconnect the power cable to the 6-pin power connector on the HighPoint NVMe RAID AICs.



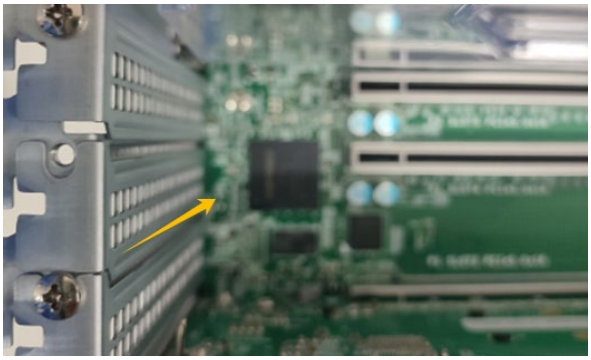


Note: *If you are not using the SSD7140A, SSD7540, RocketAIC 7140AW, or RocketAIC 7540HW, you can safely move to the next step.*

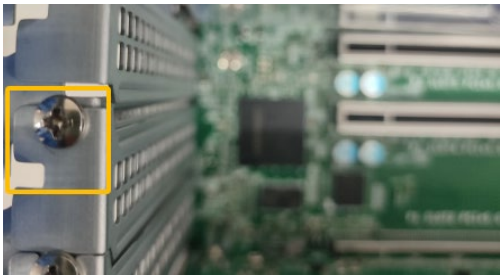
g. Holding the edge of the HighPoint NVMe RAID AIC, lift up to remove the HighPoint NVMe RAID AIC connector from the expansion slot.



h. Install the PCI slot cover into the expansion slot.



i. Install the screw securing the PCI slot cover.



j. Align the cover with the chassis.

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

5.1.4 Uninstalling the Hardware from the SuperChassis 745BAC-R1K23B

For PCIe slot recommendations, please refer to this table.

The following installation procedure applies to these chassis:

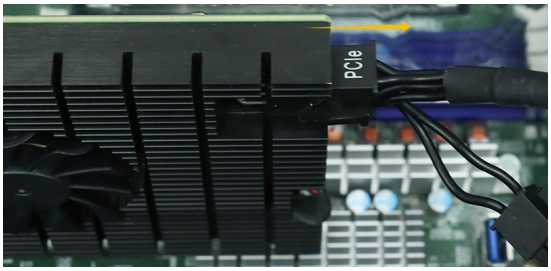
Chassis	Model
4U	SuperChassis 745BAC-R1K23B

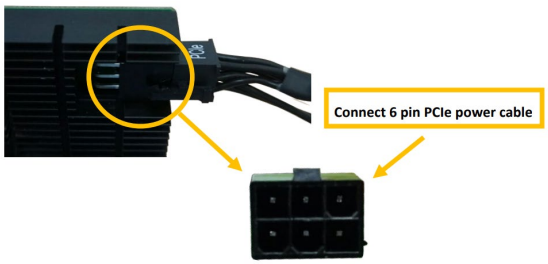
a. Use a wired ESD wrist strap that is properly grounded.
b. Shut down the system.
c. Locate the latch on the cover, press where it says "Push" and lift the latch to release the cover.

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.

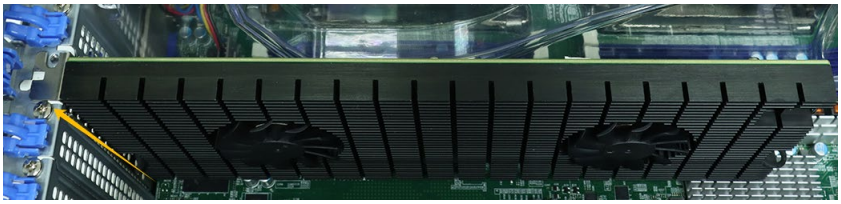
f. If you are using the SSD7140A, SSD7540, RocketAIC 7140AW, or RocketAIC 7540HW, you will need to disconnect the power cable to the 6-pin power connector on the HighPoint NVMe RAID AICs.





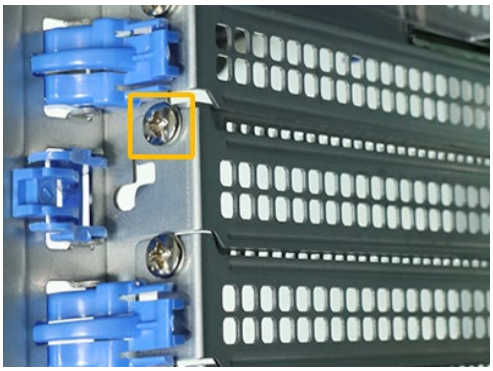
Note: *If you are not using the SSD7140A, SSD7540, RocketAIC 7140AW, or RocketAIC 7540HW, you can safely move to the next step.*

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

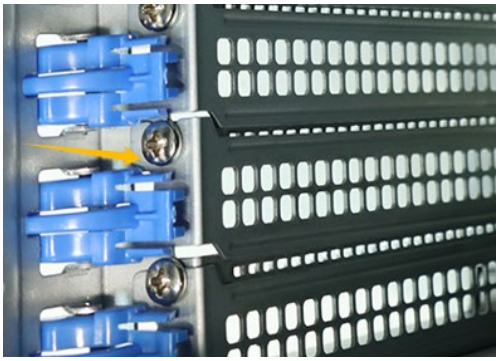


h. Install the PCI shield into the expansion slot.

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.

Notes:

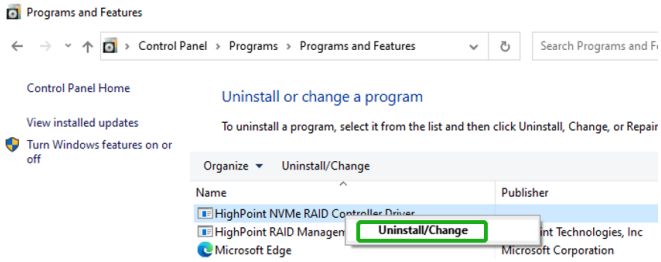
Failing to remove the HighPoint NVMe RAID AIC from the system during the uninstall process may result in data loss.

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.

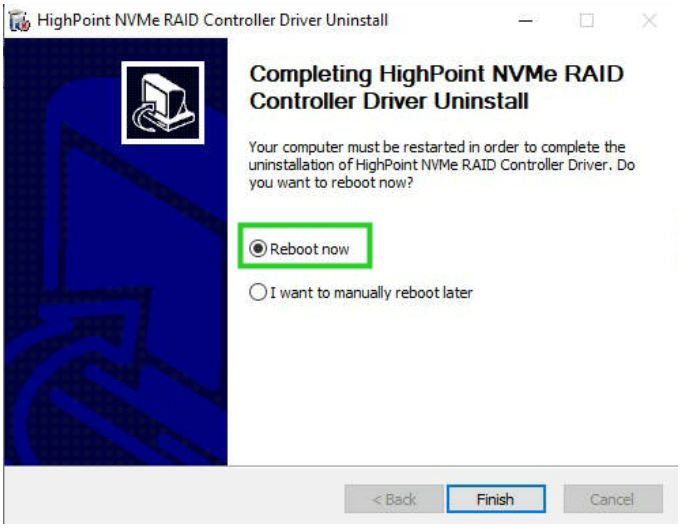
b. Power on the system and boot Windows.

c. Access **Control Panel** and select **Programs→ Programs and Features,** and click on the **HighPoint NVMe RAID Controller Driver** entry**.**

d. Click **Uninstall/Change.**



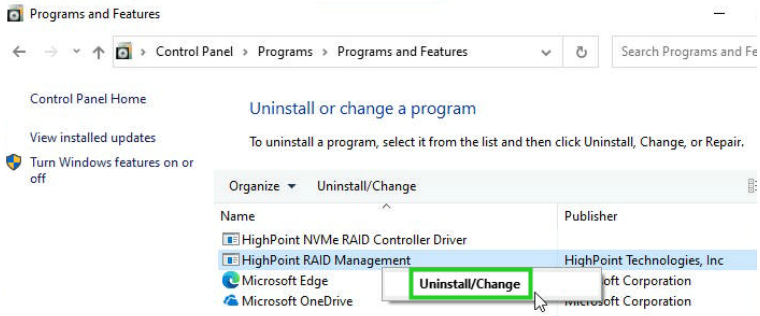
e. After uninstalling the driver, click Finish.



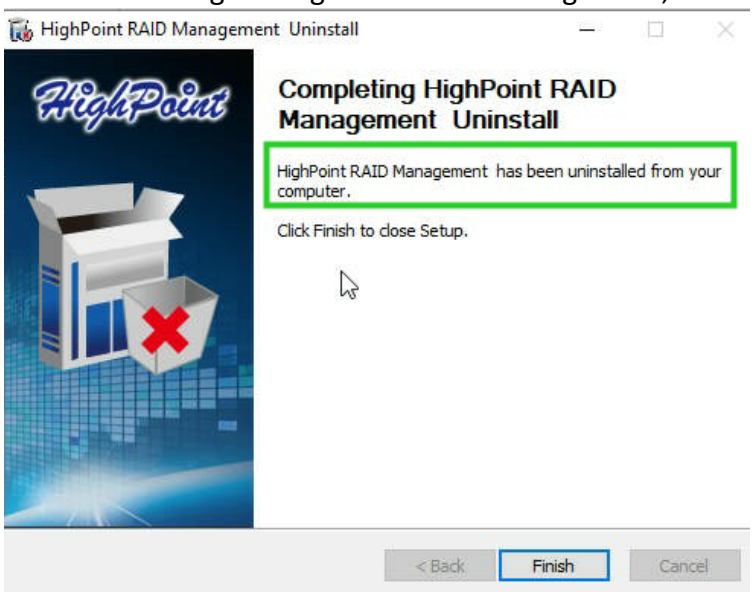
f. Reboot Windows to complete the uninstall procedure.

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
```