



SSD7101A-1

4x M.2 Port to PCIe 3.0 x16 NVMe RAID Controller

User Guide

V1.00

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SSD7101A-1 Overview

The SSD7101A-1 is the industry's fastest NVMe M.2 RAID Controller. Designed for high-end desktop & workstation platforms, it is capable of delivering transfer performance over 8x faster than onboard NVMe solutions, and over 40x faster than conventional SATA SSD's. The SSD7101A-1 RAID Controller's unique hardware architecture provides dedicated PCIe 3.0 x4 (32Gb/s) bus bandwidth for each M.2 SSD, and unlocks the true performance potential of NVMe based storage configurations.

Key Features

- Dedicated PCIe 3.0 x16 bus bandwidth
- Dedicated PCIe 3.0 x4 bandwidth for each NVMe M.2 SSD
- Over 8X faster than NVMe storage locked behind Intel DMI 3.0
- Independent, Stand-Alone NVMe SSD Solution
- Scale Performance across Multiple SSD7101A-1 NVMe RAID Controllers
- Supports Windows & Linux Systems

Kit Contents

- 1x SSD7101A-1 Controller Card
- 1x Quick Installation Guide

System Requirements

PC Requirements

- Windows 10 or later
- Linux Kernel 3.19 or later

For motherboard and SSD compatibility list, please refer to the below link:
[SSD7101A-1 Compatibility list](#)

SSD7101A-1 Hardware

Front View



NVMe Drive Installation:

Step 1. On the rear of the SSD7101A-1, remove the six screws that secure the unit's front panel to the PCB.



After removing the screws, carefully remove the front panel from the SSD7101A-1.

Step 2. These 4 screws are used to install the NVMe SSD's.



Step 3. The SSDs should be installed from top to bottom. To begin, remove the top screw.



Step 4. Gently insert the SSD into the slot.



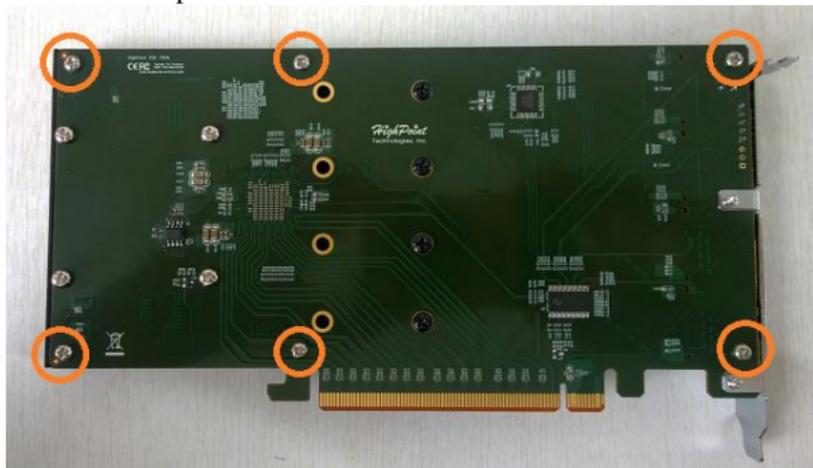
Step 5. Refasten the screw to secure the SSD.



Repeat Steps 3 to 5 to install the remaining SSDs.

Step 6. Replace the front panel after installing all SSDs

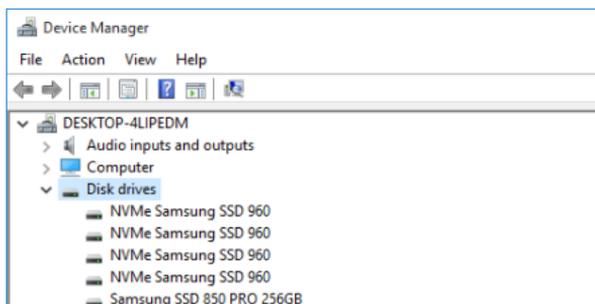
Step 7. On the rear of the SSD7101A-1, refasten the 6 screws that were removed in step 1.



Setting up the SSD7101A-1 for a Windows operating system

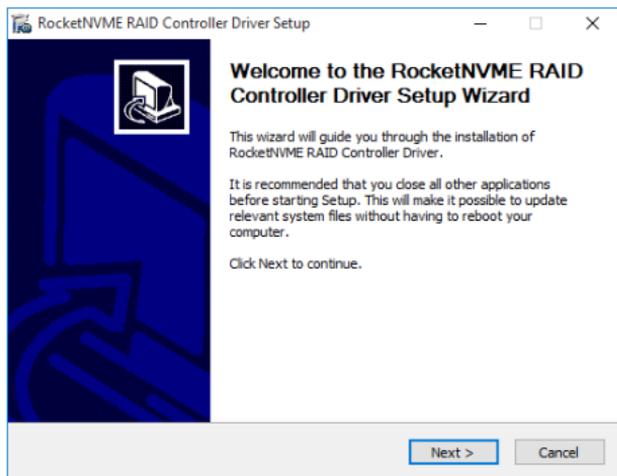
1. Verifying Installation

After booting Windows, open **Device Manager**, and expand **Disk drives**. The installed NVMe Samsung SSD 960 should be displayed:

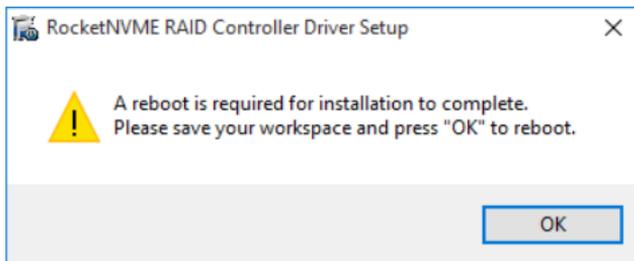


2. Driver Installation

- 1) Download the Windows driver package from the HighPoint website:
http://highpoint-tech.com/USA_new/series-ssd7101a-1-download.htm
- 2) Once downloaded, locate the folder you downloaded the driver to. Extract the driver package and double click the **setup.exe** file to start the Driver Setup Wizard.



- 3) Follow the wizard and reboot system to complete the driver installation.



- 4) Rebooting. A **RocketNVMe RAID Controller** entry should be displayed under **Storage Controllers**:

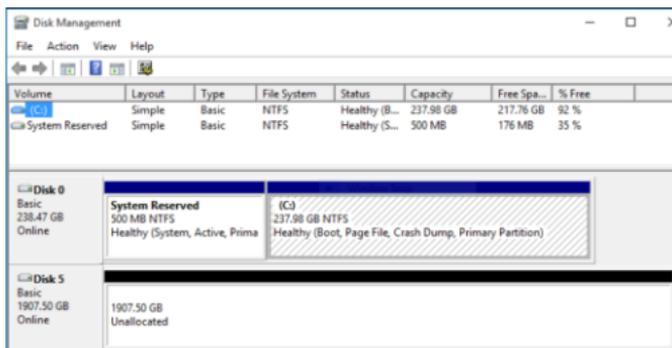


3. Installing the HighPoint NVMe Manager software

The HighPoint NVMe Manager is used to configure and monitor the SSD7101A-1. Download the HighPoint NVMe Manager Software package from the HighPoint website:

http://highpoint-tech.com/USA_new/series-ssd7101a-1-download.htm

- 1) Extract the package and double-click the setup.exe program to install the software.
- 2) The HighPoint NVMe RAID Manager will configure the SSD7101A-1 NVMe drive automatically after installation is complete.
- 3) Open Windows Disk Management and check to make sure the SSD drive is configured.



- 4) Create and format the partition using Disk Management to start using the SSD7101A-1 drive.

Setting up the SSD7101A-1 for a Linux Distribution

Please download the Linux Software Package from the HighPoint Website:

http://highpoint-tech.com/USA_new/series-ssd7101a-1-download.htm

Please follow the Linux Installation guide included with the software package to install and setup the SSD7101A-1 drive.

Using the HighPoint NVMe Manager

1. Starting the HighPoint NVMe Manager

Double click the Desktop ICON to start the Web browser. It will automatically log-in to the HighPoint NVMe Manager using the default password.

The password can be set after the first log-in. To change the password, select **Setting>Security** from the menu bar (see page 15 for more information).



2. Verify the SSD7101A-1 Status

The **Manage** Tab will display the status of the installed SSD7101A-1. The Virtual Disk is listed under **Logic Device Information**. The individual M.2 SSDs are listed under **Physical Device Information**.

Controller(1): RocketNVMe ▾

HighPoint
Technologies, Inc.

Manage Setting Event SHI Logout Help

Create Array
Logical Device

Logical Device Information

Name	Type	Capacity	BlockSize	SectorSize	OS Name	Status
 RAID_NVME	RAID 0	999.92 GB	512k	512B	HPT DISK 0_0	Normal Maintenance

Physical Device Information

Location	Model	Capacity	Max Free
 1/1	NVMe Samsung SSD 960	249.98 GB	0.00 GB
 1/2	NVMe Samsung SSD 960	249.98 GB	0.00 GB
 1/3	NVMe Samsung SSD 960	249.98 GB	0.00 GB
 1/4	NVMe Samsung SSD 960	249.98 GB	0.00 GB

3. Manage the RAID disk

The SSD7101A-1 only supports one RAID disk, and NVMe Manager will automatically configure this RAID disk after the software has been installed. If you need to add another M.2 SSD, you must first delete the existing RAID disk, and then re-create a new RAID disk using all of the M.2 SSDs.

To delete an existing RAID disk:

Under Logical Device Information, click the **Maintenance** link located to the right of the Status column. Click the **Delete** button from the pop-up **Array Information** Window:

The screenshot shows the 'Logical Device Information' window. At the top, there is a table with columns: Name, Type, Capacity, BlockSize, SectorSize, OS Name, and Status. The first row is 'RAID_NVME' with Type 'RAID 0', Capacity '999.92 GB', BlockSize '512k', SectorSize '512B', OS Name 'HPT DISK 0_0', and Status 'Normal'. A 'Maintenance' link is highlighted in a red box to the right of the Status column. Below this, an 'Array Information' pop-up window is shown, listing four devices: Device_1_1, Device_1_2, Device_1_3, and Device_1_4. A 'Delete' button is highlighted in a red box next to Device_1_2. Other buttons like 'Rename' and 'Close' are also visible.

Name	Type	Capacity	BlockSize	SectorSize	OS Name	Status	
RAID_NVME	RAID 0	999.92 GB	512k	512B	HPT DISK 0_0	Normal	Maintenance

Location	Model	Capacity	Max Free
1/1	NVMe Samsung S	9.98 GB	0.00 GB
1/2	NVMe Samsung S	9.98 GB	0.00 GB
1/3	NVMe Samsung S	9.98 GB	0.00 GB
1/4	NVMe Samsung S	9.98 GB	0.00 GB

Warning:

Deleting the RAID disk will destroy all data on the existing RAID array. Please make sure to back up important data before proceeding.

Rename a RAID disk:

The NVMe Manager will automatically name a RAID disk as **RAID_NVME**. It will display the disk name under the system device list. You may rename the RAID disk at any time, by clicking Maintenance and accessing the Array Information window.

To create a new RAID disk:

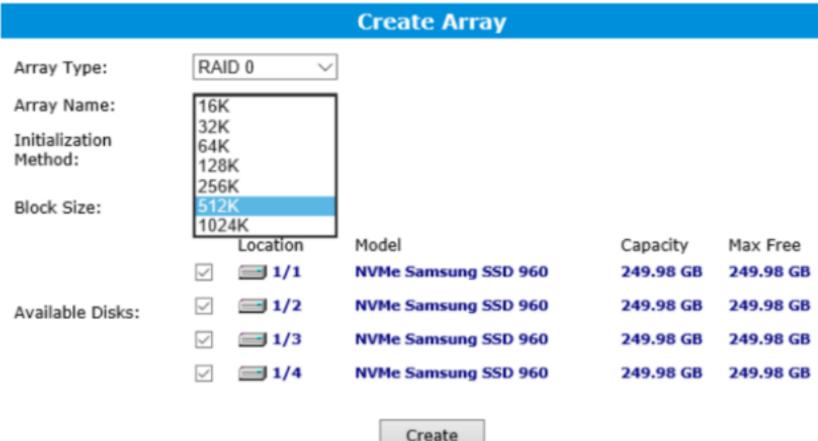
- 1) Click the Create Array link from the Manage page:



The screenshot shows a navigation bar with 'Manage', 'Setting', 'Event', 'SHI', 'Logout', and 'Help'. Below it, a sidebar contains 'Create Array' (highlighted with a red box) and 'Logical Device'. The main content area is titled 'Logical Device Information' and 'Physical Device Information'. The physical device information table is as follows:

Location	Model	Capacity	Max Free
1/1	NVMe Samsung SSD 960	249.98 GB	249.98 GB
1/2	NVMe Samsung SSD 960	249.98 GB	249.98 GB
1/3	NVMe Samsung SSD 960	249.98 GB	249.98 GB
1/4	NVMe Samsung SSD 960	249.98 GB	249.98 GB

- 2) Review the array settings and confirm RAID creation.
The SSD7101A-1 supports variable RAID Block Sizes from 16K to 1024K. You may adjust the RAID Block size from the Create Array page. Click the Create Button to create the RAID disk.



The 'Create Array' page shows the following configuration:

- Array Type: RAID 0
- Array Name: [Empty]
- Initialization Method: [Empty]
- Block Size: 512K (highlighted)

Location	Model	Capacity	Max Free
<input checked="" type="checkbox"/> 1/1	NVMe Samsung SSD 960	249.98 GB	249.98 GB
<input checked="" type="checkbox"/> 1/2	NVMe Samsung SSD 960	249.98 GB	249.98 GB
<input checked="" type="checkbox"/> 1/3	NVMe Samsung SSD 960	249.98 GB	249.98 GB
<input checked="" type="checkbox"/> 1/4	NVMe Samsung SSD 960	249.98 GB	249.98 GB

Available Disks: [List of disks with checkboxes]

Create

4. Product Information and Settings

The **Setting** page includes **Product Information**, **Email notification** and **Security** settings.

Manage	Setting	Event	SHI	Logout	Help
Product	Product Info				
Email Notification	Product Name: SSD7101A-1				
Security	PCI Bus Number: 2				
	PCI Device Number: 0				
	PCI Func Number: 0				
	Link Width: x16				
	Link Speed: Gen 3				
	Serial Number: 1712B1R100001				

Product Information:

This section reports the SSD7101A-1's PCI Bus information and PCIe Link status.

Email Notification:

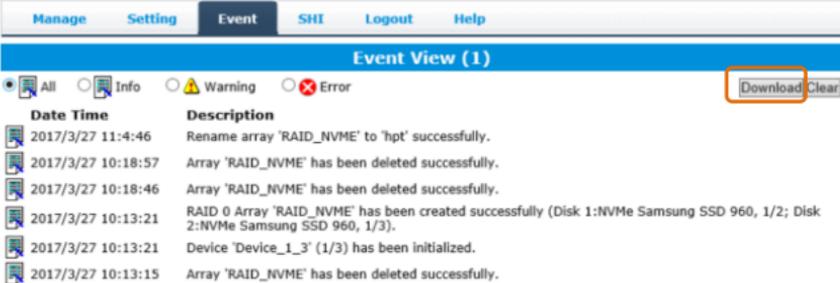
This feature allows you to configure email notification. You can instruct NVMe Manager to send all, or specific Event Log notifications to an Email address of your choice.

Security:

This option allows you to set the NVMe Manager's Log-in port number and Password.

5. Event log

All NVMe Manager operations and disk status updates will be recorded to the Event log. The Event log can be downloaded and saved to a file by clicking the Download button.



Date Time	Description
2017/3/27 11:4:46	Rename array 'RAID_NVME' to 'hpt' successfully.
2017/3/27 10:18:57	Array 'RAID_NVME' has been deleted successfully.
2017/3/27 10:18:46	Array 'RAID_NVME' has been deleted successfully.
2017/3/27 10:13:21	RAID 0 Array 'RAID_NVME' has been created successfully (Disk 1:NVMe Samsung SSD 960, 1/2; Disk 2:NVMe Samsung SSD 960, 1/3).
2017/3/27 10:13:21	Device 'Device_1_3' (1/3) has been initialized.
2017/3/27 10:13:15	Array 'RAID_NVME' has been deleted successfully.

The **Clear** button can be used to delete all entries and reset the event log.

Warning:

We recommend downloading and saving a copy of the current Event Log before using the Clear option.

6. SHI (Storage Health Inspector)

The **SHI** page will display S.M.A.R.T. data for each individual M.2 SSD. Click the **Detail** link to the right of each SSD to view the corresponding S.M.A.R.T. attributes. The SSD's TBW (Total Bytes Written) information may help you review and track the SSD's life cycle.

Manage	Setting	Event	SHI	Logout	Help
Storage Health Inspector(SHI)					
Port#	Device Serial Number	RAID	Temperature	Total Bytes Written	S.M.A.R.T
1	S3ESNX0J108927R	RAID_NVME	Normal	28.97 TB	Detail
2	S3ESNX0J108901R	RAID_NVME	Normal	31.39 TB	Detail
3	S3ESNX0J108493B	RAID_NVME	Normal	31.17 TB	Detail
4	S3ESNX0J108922W	RAID_NVME	Normal	31.07 TB	Detail
Device Name	Device_1_1				
Model Number	NVMe Samsung SSD 960				
Temperature Celsius	22				
NVME S.M.A.R.T Attributes					
Name	Value				
Critical Warning	0x0				
Composite Temperature (C)	22				
Available Spare	100%				
Available Spare Threshold	10%				
Percentage Used	11%				
Data Units Read	0x3fb452d				
Data Units Written	0x3b5735d				
Host Read Commands	0x108c6260				
Host Write Commands	0xfb7c00e				
Controller Busy Time	0x733				
Power Cycles	0x90				
Power On Hours	0x35				
Unsafe Shutdowns	0x36				
Media and Data Integrity Errors	0x0				
Number of Error Information Log Entries	0x184				
Warning Temperature Time	0x0				
Critical Composite Temperature Time	0x0				
Temperature Sensor 1 (C)	22				
Temperature Sensor 2 (C)	27				

Customer Support

If you encounter any problems while utilizing the SSD7101A-1 drive, or have any questions about this or any other HighPoint Technologies, Inc. product, feel free to contact our Customer Support Department.

Web Support: <http://www.highpoint-tech.com/websupport/>

HighPoint Technologies, Inc. websites:

<http://www.highpoint-tech.com>

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