SSD6202 Windows 10 Installation Guide

Version 1.00

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1 Overview

This guide explains how to install Windows 10 to an NVMe SSD or array hosted by the SSD6202 controller.

For Windows 10

Mirror link: https://support.microsoft.com/en-us/windows

2 Installing Windows 10 to the SSD6202 controller

Step 1 Prepare Your Hardware for Installation

After installing the NVMe SSDs into the SSD6202 controller, you can configure the SSD's as a RAID array, or use them as separate, single disks.

Before installation, you must temporarily remove all the NVMe SSD, which are not physically attached to SSD6202 controller, from your system. These can be reinstalled after Windows 10 is up and running.

Note: Windows 10 requires UEFI Boot support when used with the SSD6202. If you have other SCSI-class adapters installed, you must make sure the SSD6202 controller UEFI support is loaded first; otherwise the system may be unable to boot. If the SSD6202 is not loading first, try moving it to another PCIe slot.

Step 2 Create an Array

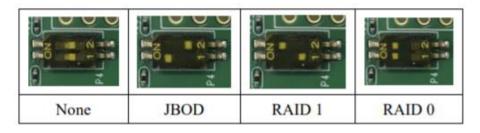
If you would like to configure a RAID array using NVMe SSD's hosted by the SSD6202, please select 1 of the following 5 Methods.

Method 1: Create a RAID array via RAID Switch settings

1. Connect two NVMe SSD's to the SSD6202.

Note: make sure that there is no RAID or residual partitions in the two NVMe SSD's.

2. Create RAID arrays via RAID Switch settings.



Note: If you don't want to use RAID Switch to create RAID, please make sure the switch setting is None.

Method 2: Create a RAID array using the Motherboard BIOS

Using the SuperMicro H11DSi motherboard as an example:

1. Set 'Boot mode select' to 'UEFI'.

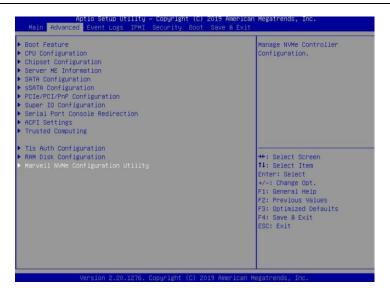
Aptio Setup Utilit Main Advanced IPMI Event Log	y – Copyright (C) 2019 American s Security Boot Save & Exit	Megatrends, Inc.
Boot Configuration		Select boot mode Legacy/UEFI
Boot Mode Select LEGACY to EFI Support	(UEFI) [Disabled]	
FIXED BOOT ORDER Priorities Boot Option #1 Boot Option #2 Boot Option #3	[UEFI Hard Disk] [UEFI AP:UEFI: Built-in EFI Shell] [UEFI CD/VO]	
Boot Option #4 Boot Option #5	Boot Mode Select [k] Legacy UEFI Dual	
Boot Option #6 Boot Option #7 Boot Option #8 Boot Option #9	(UEFI USB Lan) [UEFI Network:(B97/D0/FO) UEFI: FXE IPV4	++: Select Screen 14: Select Item Enter: Select
	Intel(R) I350 Gigabit Network Connection(MAC:3cecef 40a1dc)]	 +/-: Change Opt. F1: General Heip F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

2. Next, under "Advanced->PCIe/PCI/PnP Configuration, change "CPU Slot x PCI-E OPROM" to "EFI". "x" refers to the slot number (slot 2 was used when the screenshot was taken). Please consult the motherboard manual for more information.

°CI Bus Driver Version	A5.01.19	Enables or Disables 64bit capable Devices to be
PCI Devices Common Settings:		Decoded in Above 4G Addres
Above 4G Decoding		Space (Only if System
SR-IOV Support	[Disabled]	Supports 64 bit PCI
3ME DMA Mitigation	[Disabled]	Decoding).
CIe ARI Support	[Auto]	Contraction of the second
CIe Spread Spectrum	[Disabled]	
/GA Priority	(Onboard)	
VMe Firmware Source	[Vendor Defined	
	Firmware]	
1.2(AHCI) Firmware Source	[Vendor Defined	
	Firmware]	
CPU2 SLOT1 PCI-E 3.0 X8 OPROM	[EFI]	
CPU1 SLOT2 PCI-E 3.0 X16 OPROM	[EFI]	
CPU1 SLOT3 PCI-E 3.0 X8 OPROM	[EFI]	
CPU1 SLOT4 PCI-E 3.0 X16 OPROM	[EFI]	++: Select Screen
CPU1 SLOTS PCI-E 3.0 X8 OPROM	[EFI]	11: Select Item
1.2 PCIe x2 OPROM	[EFI]	Enter: Select
Onboard LAN1 Option ROM	[EFI]	+/-: Change Opt.
Onboard LAN1 Option ROM	[EFI]	F1: General Help
2_NVMe0 OPROM	[EFI]	F2: Previous Values
P2_NVMe1 OPROM	[EF I]	F3: Optimized Defaults
Onboard Video Option ROM	[EFI]	▼ F4: Save & Exit

3. Creating the RAID array:

a. Select "Advanced→Marvell NVMe Configuration Utility";

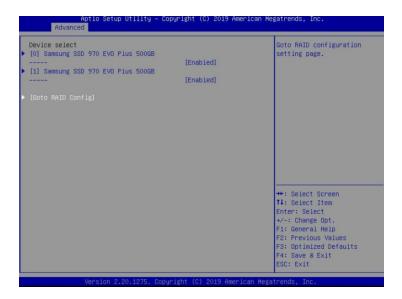


Note: If you cannot find "**Marvell NVMe Configuration Utility**" in the motherboard BIOS under "**advanced**" interface, you will need to create the array using one of the other four methods.

b. Next, select "Create RAID Configuration". Press "Enter" to open the Configuration Utility.

Aptio Setup Utility — Copyright (C) 2019 Ame Marvell NVMe Configuration Utility	rican Megatrends, Inc.
Configuration Utility (Physical Device Information) (Virtual Device Information) (Namespace Information) (Decate RATD Configuration) (Rebuild RATD Configuration) (Controller Information) (Controller Information)	Create a RAID configuration. ++: Select Screen 14: Select Item Enter: Select Item Enter: Select +/-: Change Dpt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.20.1276. Copyright (C) 2019 Ameri	can Magataanda. Tae

c. Set "RAID Configuration Menu" to "Enabled", and then select "Goto RAID Config".



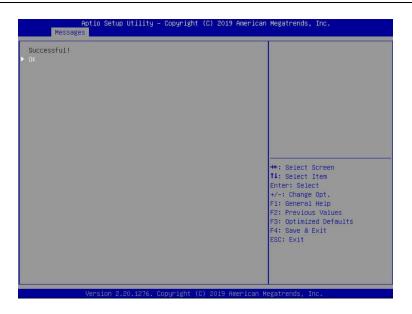
d. For "Would you like to create this virtual disk?" select "Yes", then select "Goto Namespace Configuration".

RAID Configuration	
RAID Level	[RAIDO]
Stripe Size	[128K]
Quick Initialization	[Quick]
Name	
Would you like to create this virtual disk?	[Yes]

e. For "Would you like to create those namespace on the virtual disk? " select "Yes", then select "Accept" to create the RAID0 array.

Aptio Setup Utility - Advanced	Copyright (C) 2019
Namespace Configuration	
Namespace Count	1
Maximum VD Size	931GB
Utilized Size	OMB
Remainding Size	931GB
Namespace_1 Size	0
Would you like to create those namespace on the virtual disk?	[Yes]
[Accept]	

f. When the page displays "Successful!" select OK, to exit the menu;

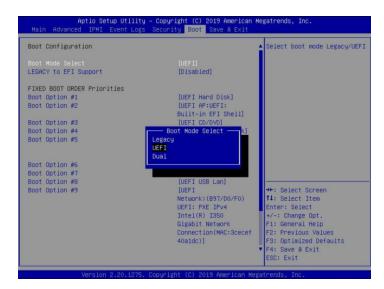


Method 3: Create RAID in UEFI

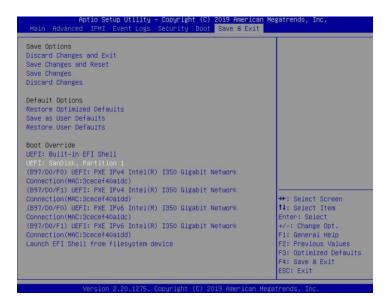
1. First, prepare the UEFI Tool. This file should be copied to the root of a bootable USB flash drive.

Using the SuperMicro H11DSi motherboard as an example:

2. Set 'Boot mode select' to 'UEFI';



3. Choose to boot from the USB flash drive (shown as "UEFI: SanDisk, Partition 1" for the example below):



4. After entering the UEFI Shell, select "FS0:" to access the USB flash drive:.

Note: "FS0" is the name of the USB flash drive used for this example



5. Next, locate the "mnv_cli.efi" program and run it:



Note: if the CLI reports that "No NVMe Controller is found", please see Appendix – Troubleshooting.

6. To create a RAID0 array using two NVMe SSD's, enter the following command:

```
create -r 0 -d 0,1
```



For more CLI commands, please download the CLI manual from the product page of the official website.

Method 4: Create the RAID array using a Windows operating System, and the WebGUI

management software:

- 1. This method assumes you have access to a Windows Server 2019 system and have installed the WebGUI software.
- Open the WebGUI, select the Logical tab. Click "Create Array", and configure the array as desired using the drop-down menus and selection boxes. Once configured, click the "Create"button to create the array (the example below shows 2 NVMe SSD's configured as a RAID 0 array).

Create Array			Cr	eate Array		
Logical Device Rescan	Array Type: Array Name: Initialization Method: Cache Policy:	RAID 0 Default Quick Init	>			
	Block Size: Available Disks:	128K Select All	 Location 1/1 1/2 	Model Samsung SSD 970 EVO Plus 500GB Samsung SSD 970 EVO	Capacity 500.10 GB	Max Free 500.10 GB
	Capacity: (According to the max free space on the selected disks)	Maximum	(MB)	Plus 500GB		

3. Once the array has been created, it will be displayed under **Logical Device Information**.

Global View	Physical	Logical	Setting	Event	SHI		
Create Array			Logic	al Devic	e Information		
Logical Device	Name Typ	e Capacit	y BlockSize	SectorSize	OS Name	Status	
Rescan	VD_0 RA	ID 0 1.00 T	B 128k	512B	HighPoint SSD620	2 Normal	Maintenance
			Physi	cal Devic	e Information		
						Capacity	Max Free
	Location	Model				Capacity	Plax Fiee
	Location		SSD 970 EV	O Plus 500	GB	500.10 GB	0.00 GB

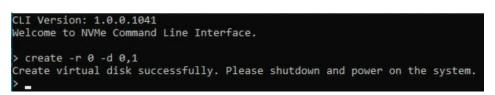
Method 5: Create a RAID array using Windows 10 via the CLI

- 1. This method assumes that you have already prepared a Windows 10 system.
- 2. Boot the system, and enter password to start Windows 10.
- 3. Double click "mnv_cli" to start the CLI tool:

Name	Date modified	Туре	Size
🕞 mnv_cli	6/17/2020 3:50 PM	Application	387 KB

4. To create a RAID0 array using two NVMe SSD's, enter the following command.

create -r 0 -d 0,1



Note: For more CLI commands, please download the CLI manual from the product page of the official website.

Step 3 Adjust the Motherboard BIOS Settings

Using the Super Micro H11DSi motherboard as an example:

1. In the system BIOS SETUP menu, change 'Boot mode select' to 'UEFI;

	ty – Copyright (C) 2019 American gs Security <mark>Boot</mark> Save & Exit	Megatrends, Inc.
Boot Configuration		Select boot mode Legacy/UEFI
Boot Mode Select LEGACY to EFI Support	[UEFI] [Disabled]	
FIXED BOOT ORDER Priorities Boot Option #1 Boot Option #2 Boot Option #3 Boot Option #4 Boot Option #5 Boot Option #7 Boot Option #7 Boot Option #8 Boot Option #9	[UEFI Hard Disk] [UEFI AP:UEFI: Built-in EFI Shell] [UEFI CD/OVD] Boot Mode Select [1] UEFI Dual (UEFI USB Lan] [UEFI Network:(B97/D0/F0) UEFI: PX4 IPv4 Intel(R) 1350 Gigabit Network Connection(MAC:3cecef 40aidc)]	++: Select Screen 11: Select Item Enter: Select +/-: Change Out. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2,20,127	5. Copyright (C) 2019 American Me	gatrends. Inc.

 Under "Advanced→PCIe/PCI/PnP Configuration, change the setting for "CPU Slot x PCI-E OPROM" to "EFI". "x" refers to the slot number (slot 4 was used when the screenshot was taken). Please consult the motherboard manual for more information.

PCI Bus Driver Version	A5.01.19	Enables or Disables 64bit capable Devices to be
PCI Devices Common Settings:		Decoded in Above 4G Addres
Above 4G Decoding		Space (Only if System
SR-IOV Support	[Disabled]	Supports 64 bit PCI
BME DMA Mitigation	[Disabled]	Decoding).
PCIe ARI Support	[Auto]	
PCIe Spread Spectrum	[Disabled]	
VGA Priority	[Onboard]	
NVMe Firmware Source	[Vendor Defined	
	Firmware]	
M.2(AHCI) Firmware Source	[Vendor Defined	
	Firmware]	
CPU2 SLOT1 PCI-E 3.0 X8 OPROM	[EFI]	
CPU1 SLOT2 PCI-E 3.0 X16 OPROM	(EFI)	
CPU1 SLOT3 PCI-E 3.0 X8 OPROM	[EFI]	
CPU1 SLOT4 PCI-E 3.0 X16 OPROM	[EFI]	++: Select Screen
CPU1 SLOTS PCI-E 3.0 X8 OPROM	[EFI]	11: Select Item
M.2 PCIe x2 OPROM	[EFI]	Enter: Select
Onboard LAN1 Option ROM	(EFI)	+/-: Change Opt.
Onboard LAN1 Option ROM	[EFI]	F1: General Help
P2_NVMe0 OPROM	(EFI)	F2: Previous Values
P2_NVMe1 OPROM	[EFI]	F3: Optimized Defaults
Onboard Video Option ROM	[EFI]	▼ F4: Save & Exit

3. Set "Secure Boot " to "Disabled".

Aptio Setup Ut:	ility – Copyright (C) 2019 American Secure Boot
System Mode	Setup
Secure Boot	[Disabled] Not Active
Secure Boot Mode CSM Support ▶ Restore Factory Keys ▶ Reset To Setup Mode	[Custom] [Enabled]
▶ Key Management	

Step 4 Install Windows 10 to the SSD6202

- 1. Boot from the installation DVD (UEFI mode).
- 2. When the Installation screen appears, make your selections from the drop-down menus and press "**Next**" to start installation:



3. Click "Install now" to proceed:

	- Windows	
	Install now	
<u>R</u> epair your computer		

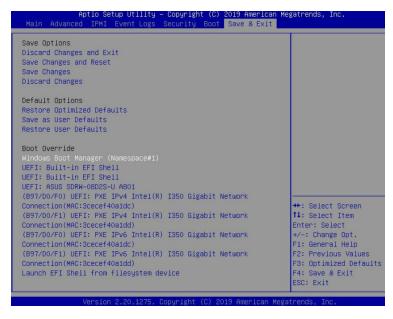
4. Select the version of Windows 10 you want to install, then click "Next" to continue

elect the operating system you want to insta			
Operating system	Architecture	Date modified	^
Windows 10 Education	x64	12/4/2020	
Windows 10 Education N	x64	12/4/2020	
Windows 10 Enterprise	x64	12/4/2020	
Windows 10 Enterprise N	x64	12/4/2020	
Windows 10 Pro	x64	12/3/2020	
Windows 10 Pro N	x64	12/3/2020	
Windows 10 Pro Education	x64	12/4/2020	
escription: /indows 10 Enterprise	0	10/4/2020	
A			

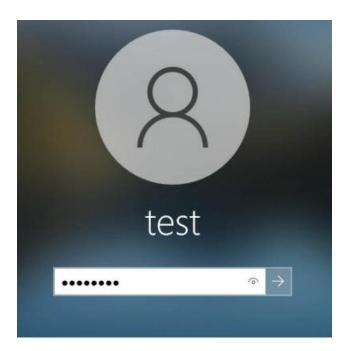
During installation, you will be asked to select the target disk. Select the RAID array you created previously as the target disk to install the Windows 10. You can then proceed normally - follow the onscreen prompts to install Windows 10 to the array.

Name		Total size	Free space	Туре
🚙 Drive 0 Una	llocated Space	1862.8 GB	1862.8 GB	
♣ <u>R</u> efresh ● Load driver	Delete	Eormat	<mark>∦</mark> N <u>e</u> w	

6. After installation is complete, select the appropriate startup item to boot the system:



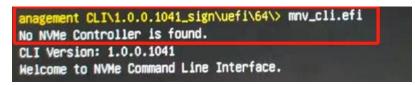
7. Enter the username and password to log into Windows 10.



Appendix

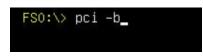
Troubleshooting

- 1. The CLI reports that "No NVMe Controller is found"
- 1) After starting "**mnv-cli.efi**", the utility reports "**No NVME Controller is found**" (as shown below):

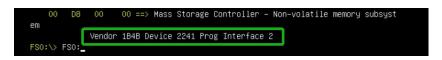


2) You will need check and make sure the system recognizes the SSD6202. First, enter the following command using the UEFI tool:

pci -b



3) If the interface reports "Vendor 1B4B Device 2241 Prog Interface 2", the SSD6202 is recognized by the motherboard, but cannot support the UEFI tool. In this case, you will need to create the array using one of the other methods described in this manual (BIOS, CLI or WebGUI).



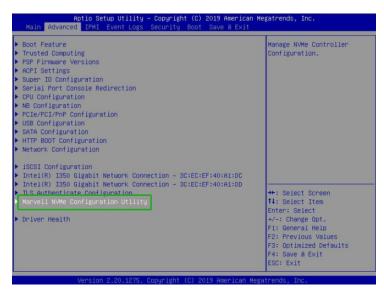
- 4) If the interface does not display "**Vendor 1B4B Device 2241 Prog Interface 2**", then the motherboard does not recognize the SSD6202.
 - a. Power down the system, and make sure the SSD6202 is securely installed into the PCIe slot
 - b. Boot the system and enter the motherboard BIOS utility. Make sure the required BIOS settings are still enabled (refer to page 1)

2. Check the RAID create via RAID Switch settings is created or not

Method 1: Check in BIOS Utility

- 1) Set the Slot Storage OPROM of SSD6202 in the motherboard BIOS to UEFI.
- 2) Set 'Boot mode select' to 'UEFI'.

3) From the motherboard BIOS menu, select "Marvell NVME Configuration Utility":



4) Select the "Virtual device information"

Aptio Setup Utility – Copyright (C) 2 Advanced	2019 American Megatrends, Inc.
Configuration Utility (Physical Device Information) (Vintual Device Information) (Namespace Information) (Create RAID Configuration) (Delete RAID Configuration) (Rebuild RAID Configuration) (Controller Information)	Display Virtual Device informations.

5) Select the "[0] New_VD"

Aptio Setup Utility – Copyright (C) 2019 Advanced	American Megatrends, Inc.
Virtual Device Information List	Press [Enter] key to view
▶ [0] New_VD	the detail information.

6) As shown in the figure below, you can see the RAID0 information:

Advanced	
Detail Information	
ID	0
Name	New_VD
Status	Functional
BGA Type	NONE
BGA Status	NONE
RAID Level	RAIDO
Member Count	2
Member ID	[0] [1]
Stripe Block	128K
Size	931GB

Method 2: check in UEFI

1. Choose to boot from the USB flash drive (shown as "UEFI: SanDisk, Partition 1" for the

example below):

info -o vd

Aptio Setup Utility – Copyright (C) 2019 America Main Advanced IPMI Event Logs Security Boot Save & Exit	
Save Options Discard Changes and Exit Save Changes and Reset Save Changes Default Options Restore Optimized Defaults Save as User Defaults Restore User Defaults Boot Override UEFI: Built-in EFI Shell UEFI: SanDisk, Partition 1 (B97/D0/F0) UEFI: PKE IPV4 Intel(R) I350 Gigabit Network Connection(MAC:3cecef40aidc) (B97/D0/F1) UEFI: PKE IPV4 Intel(R) I350 Gigabit Network Connection(MAC:3cecef40aidc) (B97/D0/F1) UEFI: PKE IPV4 Intel(R) I350 Gigabit Network Connection(MAC:3cecef40aidd) (B97/D0/F1) UEFI: PKE IPV6 Intel(R) I350 Gigabit Network Connection(MAC:3cecef40aidd) (B97/D0/F1) UEFI: PKE IPV6 Intel(R) I350 Gigabit Network Connection(MAC:3cecef40aidd) Launch EFI Shell from filesystem device	+: Select Screen 1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

2. Next, locate the "**mnv_cli.efi**" program and run it:



3. you can recognized the RAID0 by entering the following command:

> info −o vd	
and Andres	
VD ID:	0
Name:	New_VD
Status:	Functional
Importable:	No
RAID Mode:	RAIDO
size:	931 GB
PD Count:	2
PDs:	0 1
Stripe Block Size:	128K
Sector Size:	512 bytes
Total # of VD:	ì

Method 3: check in a windows operating System

1. This method assumes you have access to a Windows Server 2019 system and have installed the WebGUI software.

2. Open the WebGUI software, it will be displayed under Logical Device Information.

Global View	Physical	Logical	Setting	Event	SHI		
Create Array			Logic	al Devic	e Information		
Logical Device	Name Typ	the second		SectorSize		Status	
Rescan	VD_0 RA	ID 0 1.00 T	B 128k	512B	HighPoint SSD620	2 Normal	Maintenance
			Physi	cal Devi	e Information		
	Location	Model	Physi	cal Devi		Capacity	Max Free
	Location			cal Devic		Capacity 500.10 GB	Max Free 0.00 GB

Method 4: check in a CLI

- 1. This method assumes that you have already prepared a Windows 10 system.
- 2. Double click "mnv_cli" to start the CLI tool:

Name	Date modified	Туре	Size
🕞 mnv_cli	6/17/2020 3:50 PM	Application	387 KB

3. you can recognized the RAIDO by entering the following command:

info -o vd

VD ID:	ö
Name:	New_VD
Status:	Functional
Importable:	No
RAID Mode:	RAIDO
size:	931 GB
PD Count:	2
PDs:	0 1
Stripe Block Size:	128K
Sector Size:	512 bytes
Total # of VD:	ł