



How to create RAID volume on MSI Z590 motherboard

MADE FOR GAMERS & CREATORS





Modify RAID configuration
in BIOS setup .

Step 1: Into BIOS Setup.



Step 2: Modify 3 * Items in BIOS Setup.



- BIOS / Settings / Advanced / Integrated Peripherals
- Modify “SATA mode” to “RAID/Optane Mode”.
- Modify “M2_2-RST PCIE Storage Remapping” to “Enabled”.
- Modify “M2_3-RST PCIE Storage Remapping” to “Enabled”.

Step 2: Modify 3 * Items in BIOS Setup.



msi CLICK BIOS 5

EZ Mode (F7) F12 En X

20:34 Wed 12 May, 2021

CPU Speed 3.00 GHz
DDR Speed 2133 MHz

CREATOR GENIE

CPU XMP Profile 1 XMP Profile 2

Boot Priority

CPU > DVD > USB > USB > USB > USB > USB

Settings\Advanced\Integrated Peripherals

HOT KEY I >

SETTINGS

Overclocking settings
OC

VGA Detection	[Auto]
Onboard LAN Configuration	
Onboard LAN Controller	[Enabled]
LAN Option ROM	[Disabled]
Network stack	[Disabled]
Onboard Wi-Fi/BT Module Control	[Auto]
SATA Configuration	
SATA Mode	[RAID/Optane Mode]
M.2/Optane Genie	[Disabled]
M2_2 - RST Pcie Storage Remapping	[Enabled]
M2_3 - RST Pcie Storage Remapping	[Enabled]
SATA1 Hot Plug	[Disabled]
SATA2 Hot Plug	[Disabled]
SATA3 Hot Plug	[Disabled]

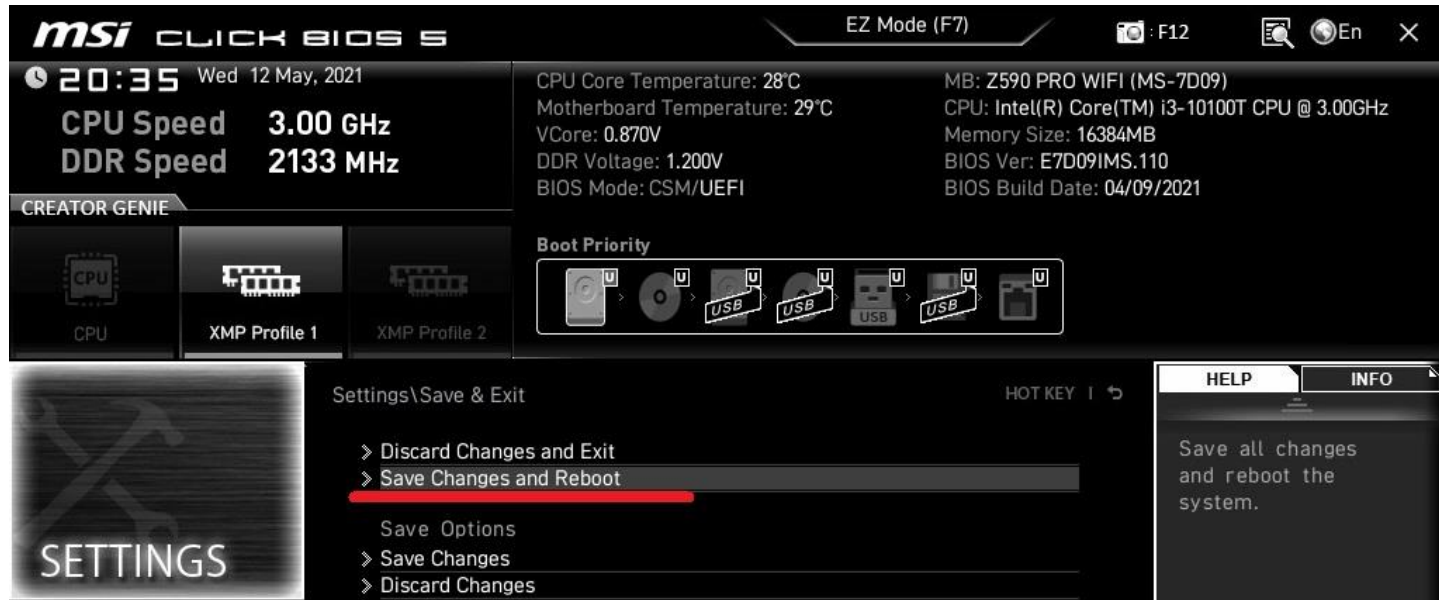
HELP **INFO**

Select to enable Intel Optane memory technology with specific M.2 memory module to improve performance of tradition spindle hard-drive.

Step 3: Press F10 Button for Saving Changes and Reboot



- BIOS / Settings / Save & Exit
- Or please press “Save Changes and Reboot”.



Step 4: Save Configuration and Exit.



- Please press “YES” button.



Step 5: Into BIOS setup again.



Step 6: Press Intel(R) Rapid Storage Technology Item.



- BIOS / Settings / Advanced /

The screenshot displays the MSI Click BIOS 5 interface. At the top, it shows 'EZ Mode (F7)' and system information including CPU Core Temperature (27°C), Motherboard Temperature (28°C), VCore (0.870V), DDR Voltage (1.200V), BIOS Mode (CSM/UEFI), MB (Z590 PRO WIFI (MS-7D09)), CPU (Intel(R) Core(TM) i3-10100T CPU @ 3.00GHz), Memory Size (16384MB), BIOS Ver (E7D09IMS.110), and BIOS Build Date (04/09/2021). The left sidebar features 'CREATOR GENIE' and 'SETTINGS' (highlighted). The main area shows 'Settings\Advanced' with a list of options: PCIe/PCI Sub-system Settings, ACPI Settings, Integrated Peripherals, Integrated Graphics Configuration, Intel (R) Thunderbolt, USB Configuration, Super IO Configuration, Power Management Setup, BIOS CSM/UEFI Mode (set to [UEFI]), Wake Up Event Setup, Secure Erase+, NVMe SSD Self-Test, and Intel(R) Rapid Storage Technology (highlighted with a red bar). A right sidebar contains 'HELP' and 'INFO' tabs, with the 'INFO' tab showing text about RAID volumes.

msi CLICK BIOS 5

EZ Mode (F7) F12 En X

22:16 Wed 12 May, 2021

CPU Speed 3.00 GHz
DDR Speed 2133 MHz

CREATOR GENIE

CPU XMP Profile 1 XMP Profile 2

Boot Priority

Settings\Advanced

HOT KEY I

PCle/PCI Sub-system Settings
ACPI Settings
Integrated Peripherals
Integrated Graphics Configuration
Intel (R) Thunderbolt
USB Configuration
Super IO Configuration
Power Management Setup
BIOS CSM/UEFI Mode [UEFI]
Wake Up Event Setup
Secure Erase+
NVMe SSD Self-Test
Intel(R) Rapid Storage Technology

HELP INFO

This formset allows the user to manage RAID volumes on the Intel(R) RAID Controller

Overclocking settings
OC



Step 7: Press Create RAID Volume item.

- It is showed storages.
- Then please press “**Create RAID Volume**” item.





Step 8: Modify Name and RAID Level.

- Please modify “Name” and “RAID Level” you wanted.

msi CLICK BIOS S EZ Mode (F7) F12 En X

22:17 Wed 12 May, 2021

CPU Speed 3.00 GHz
DDR Speed 2133 MHz

CREATOR GENIE

CPU XMP Profile 1 XMP Profile 2

Boot Priority

CPU Core Temperature: 28°C
Motherboard Temperature: 28°C
VCore: 0.870V
DDR Voltage: 1.200V
BIOS Mode: CSM/UEFI

MB: Z590 PRO WIFI (MS-7D09)
CPU: Intel(R) Core(TM) i3-10100T CPU @ 3.00GHz
Memory Size: 16384MB
BIOS Ver: E7D09IMS.110
BIOS Build Date: 04/09/2021

SETTINGS

Settings\Advanced\Intel(R) Rapid Storage Technology\
Create RAID Volume

Create RAID Volume

Name: Volume1
RAID Level: [RAID0 (Stripe)]

Select Disks:

PCIe 1.0, INTEL SSDPEKKW256G7 BTPY63250	[X]
PCIe 2.0, INTEL SSDPEKKW256G7 BTPY63250	[X]

Strip Size: [64KB]
Capacity (MB): 488392

HELP **INFO**

X - to Select Disk

Step 9: Select Disk.



- Please select disk you want to create RAID.



Step 10: Press Create Volume Item.



- Please press “Create Volume” item.

msi CLICK BIOS 5 EZ Mode (F7) F12 En X

22:17 Wed 12 May, 2021

CPU Speed 3.00 GHz
DDR Speed 2133 MHz

CREATOR GENIE

CPU XMP Profile 1 XMP Profile 2

Boot Priority

CPU Core Temperature: 28°C
Motherboard Temperature: 28°C
VCore: 0.872V
DDR Voltage: 1.200V
BIOS Mode: CSM/UEFI

MB: Z590 PRO WIFI (MS-7D09)
CPU: Intel(R) Core(TM) i3-10100T CPU @ 3.00GHz
Memory Size: 16384MB
BIOS Ver: E7D09IMS.110
BIOS Build Date: 04/09/2021

SETTINGS

Overclocking settings

Settings\Advanced\Intel(R) Rapid Storage Technology\
Create RAID Volume

Create RAID Volume

Name: Volume1
RAID Level: [RAID0 (Stripe)]

Select Disks:

PCIe 1.0, INTEL SSDPEKKW256G7 BTPY63250 [X]
PCIe 2.0, INTEL SSDPEKKW256G7 BTPY63250 [X]

Strip Size: [64KB]
Capacity (MB): 488392

> **Create Volume**

HELP **INFO**

Create a volume with the settings specified above

Step 11: Showed RAID Volumes.



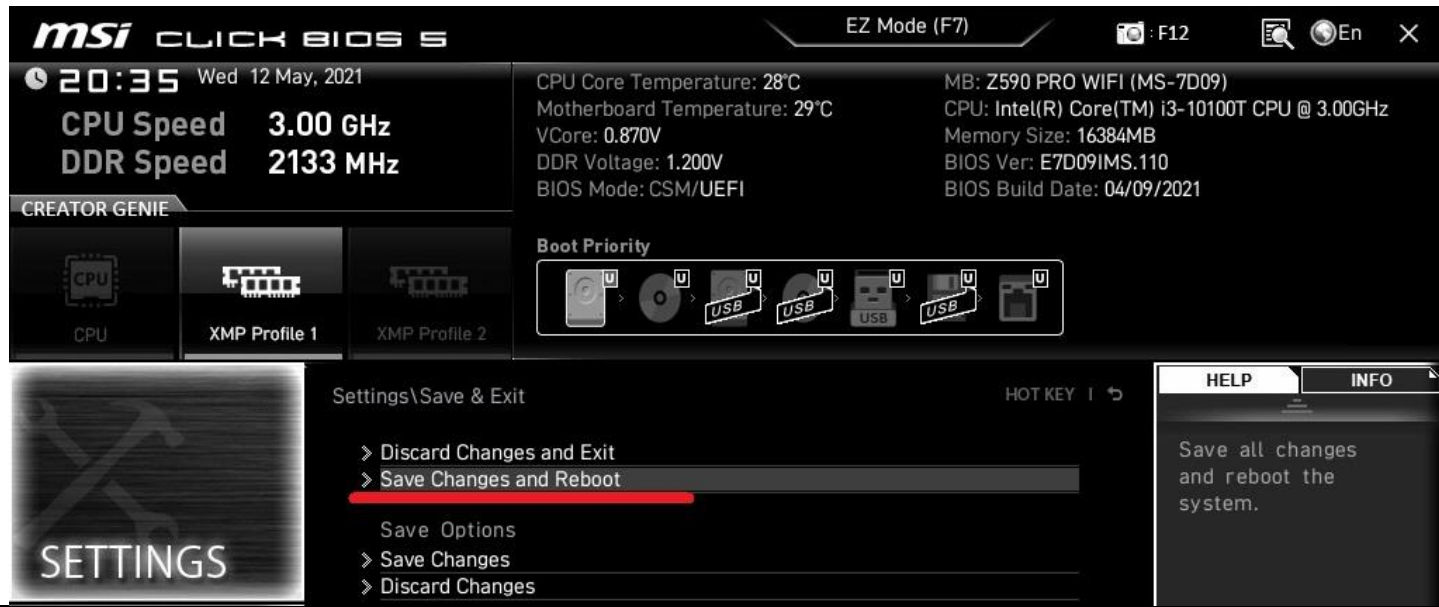
- It will be showed RAID volume.



Step 12: Press F10 button for Saving Changes and Reboot



- BIOS / Settings / Save & Exit
- Or please press “Save Changes and Reboot” and then press “OK button”.





Load RST driver during
installing Windows 10
process.

Step 13: Download RST Driver on MSI Website.



- Please download “**Intel Rapid Storage Technology Driver**” on MSI website. Example:

The screenshot shows the MSI Z590 PRO WIFI support page. The page has a red header with the product name and navigation tabs: OVERVIEW, SPECIFICATIONS, GALLERY, and SUPPORT. A left sidebar contains links for Products Service, Specifications, Warranty, and Contact Us. The main content area has tabs for BIOS, Driver (selected), Manual, and Utility. Under the Driver tab, there is a dropdown menu for operating systems, currently set to Win10 64. Below this, there are expandable sections for LAN Drivers, System & Chipset Drivers, Others Drivers, and On-Board PIDE/SATA Drivers. The On-Board PIDE/SATA Drivers section is expanded, showing a table of drivers.

Title	Version	Release Date	File Size
Intel Rapid Storage Technology Driver	18.1.6.1039	2021-05-11	16.28 MB

Step 14: Copy RST Driver to USB Storage.



- Please copy this RST driver to USB storage and then plug this USB storage on this system.

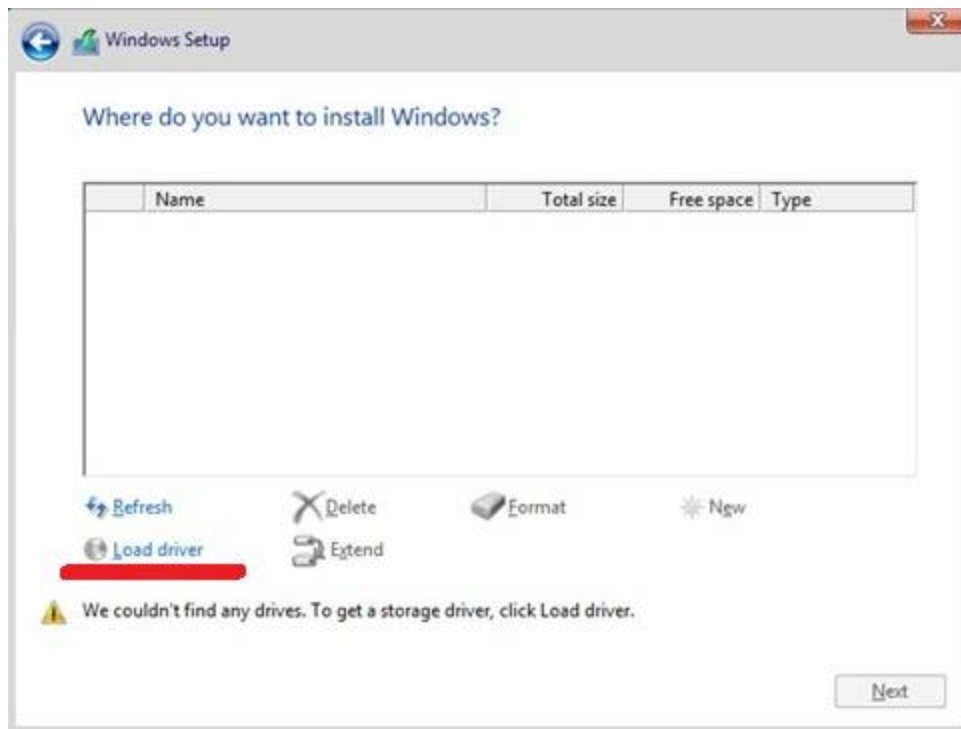
2 (E:) > 7D09RST > intel_rst_18.1 > Intel Rapid Storage Technology Driver > NonVMD > f6flpy-x64

名稱	修改日期	類型	大小
HfcDisableService.exe	2021/2/27 上午 05:06	應用程式	1,613 KB
iaAHCIC.cat	2021/2/27 上午 05:06	安全性目錄	12 KB
iaAHCIC.inf	2021/2/27 上午 05:06	安裝資訊	17 KB
iaStorAC.cat	2021/2/27 上午 05:06	安全性目錄	15 KB
iaStorAC.inf	2021/2/27 上午 05:06	安裝資訊	39 KB
iaStorAC.sys	2021/2/27 上午 05:06	系統檔案	1,446 KB
iaStorAfs.sys	2021/2/27 上午 05:06	系統檔案	72 KB
iaStorAfsNative.exe	2021/2/27 上午 05:06	應用程式	215 KB
iaStorAfsService.exe	2021/2/27 上午 05:06	應用程式	2,897 KB
Optane.dll	2021/2/27 上午 05:06	應用程式擴充	117 KB
OptaneEventLogMsg.dll	2021/2/27 上午 05:06	應用程式擴充	23 KB
RstMwEventLogMsg.dll	2021/2/27 上午 05:06	應用程式擴充	27 KB
RstMwService.exe	2021/2/27 上午 05:06	應用程式	1,872 KB

Step 15: Press Load Driver During Installation.



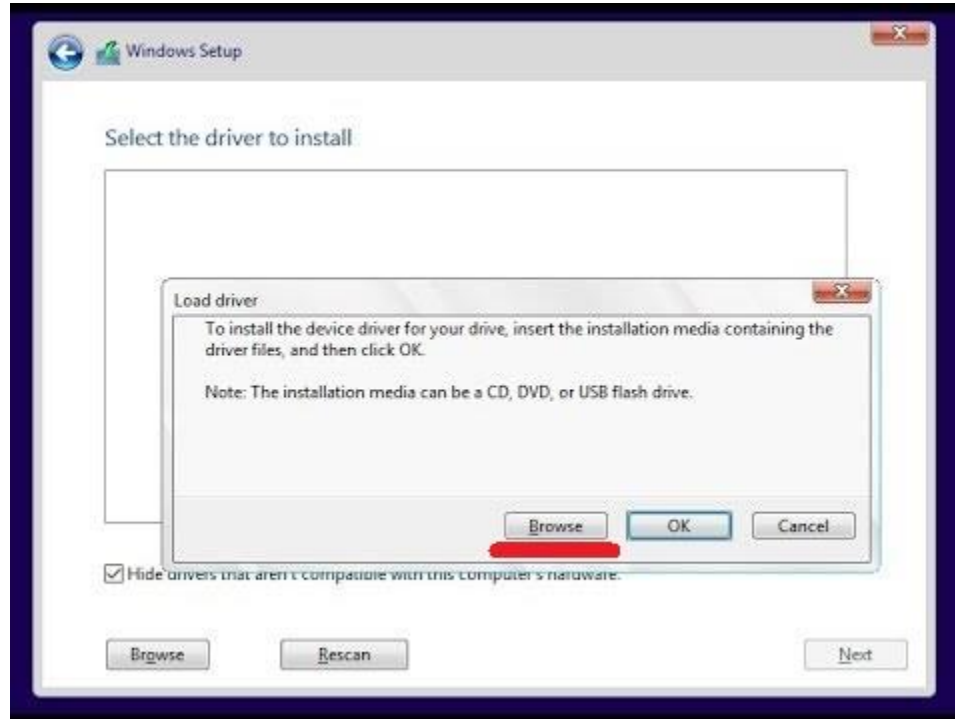
- It will be not showed any storage during installation and then press “Load driver” item.



Step 16: Press Browse Button.



- Please press “**Browse**” button and then choose folder of RST driver on USB storage.

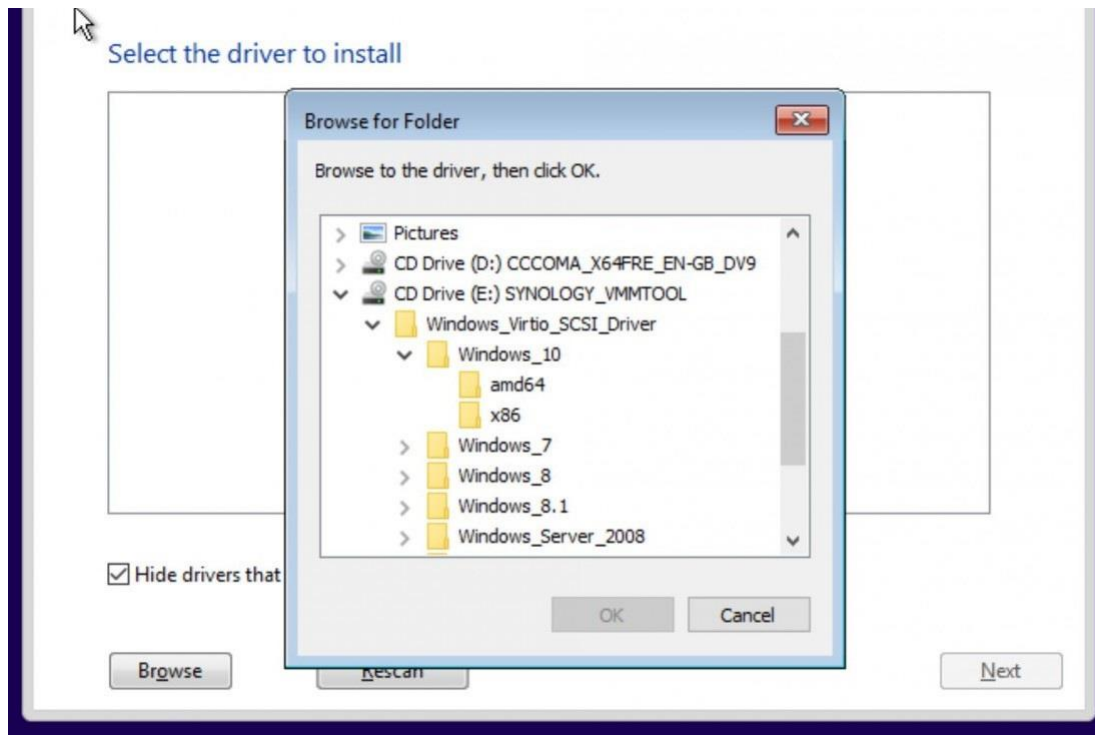


Step 17: Choose Folder of RST Driver.



- Choose folder of RST driver on USB storage as below.

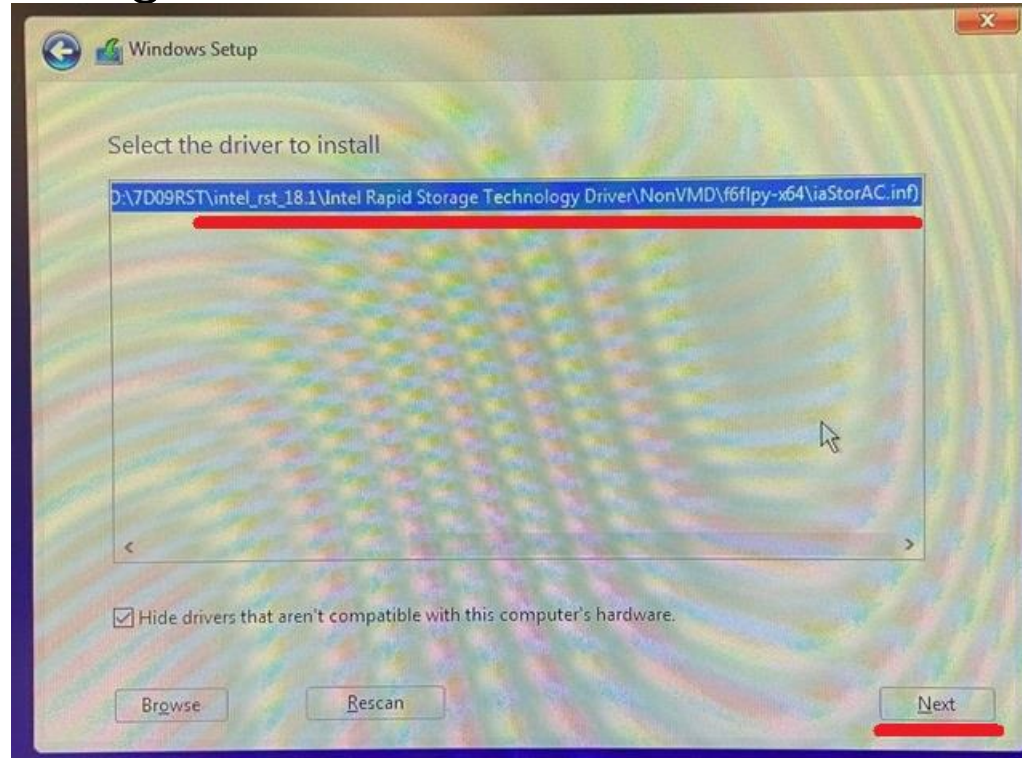
2 (E:) > 7D09RST > intel_rst_18.1 > Intel Rapid Storage Technology Driver > NonVMD > f6flpy-x64



Step 18: Press Next Button for Loading Driver.



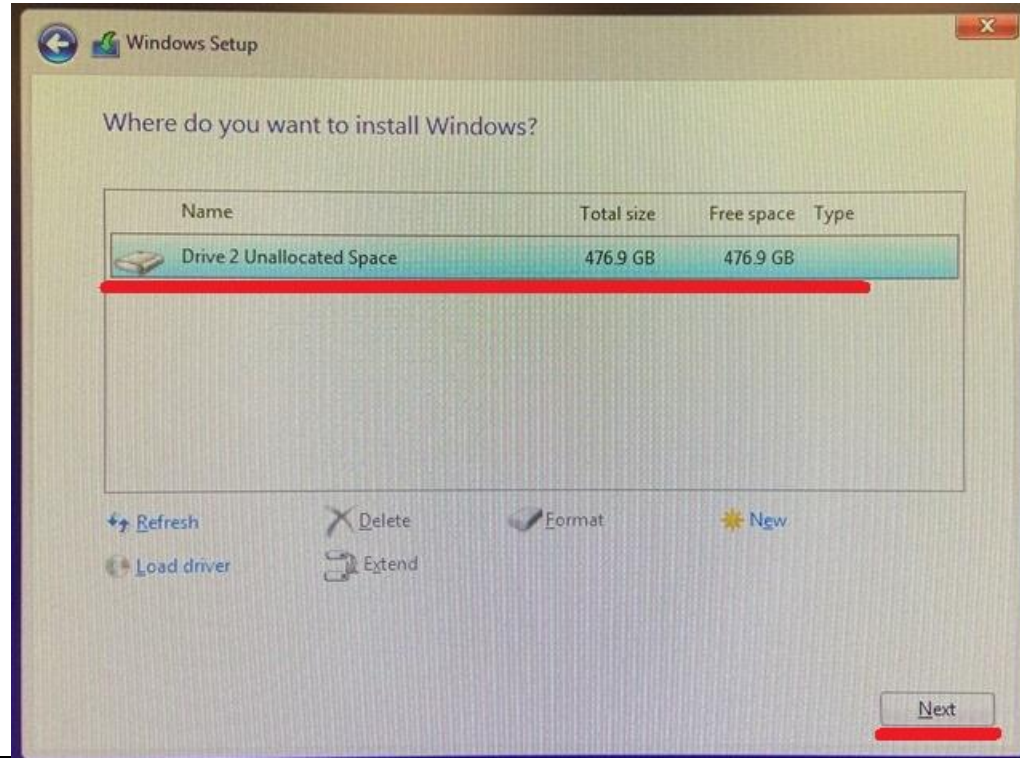
- It will be showed location of driver and then please press “Next” button for loading driver.



Step 19: Showed RAID Volume.



- It will be showed RAID volume and then press “Next” button for installing Windows OS on this RAID storage .



Step 20: Check RAID Volume in Device Manager.



- It has been installed Windows 10 OS on this RAID volume.

The screenshot displays the Windows System Information window with the 'System Summary' tab selected. The 'Device Manager' window is also open, showing the 'Disk drives' section. A red box highlights the 'Intel Raid 1 Volume' entry in the Device Manager. Another red box highlights the 'System Summary' table in the System Information window.

Item	Value
OS Name	Microsoft Windows 10 Pro
Version	10.0.19042 Build 19042
Other OS Description	Not Available
OS Manufacturer	Microsoft Corporation
System Name	DESKTOP-5P1TT6H
System Manufacturer	Micro-Star International Co., Ltd.
System Model	MS-7D09
System Type	x64-based PC
System SKU	Default string
Processor	Intel(R) Core(TM) i3-10100T CPU @ 3.00GHz, 3000 Mhz, 4 C
BIOS Version/Date	American Megatrends International, LLC. 1.18, 4/16/202
SMBIOS Version	3.3
Embedded Controller Version	255.255
BIOS Mode	UEFI
BaseBoard Manufacturer	Micro-Star International Co., Ltd.
BaseBoard Product	Z590 PRO WIFI (MS-7D09)
BaseBoard Version	1.0

Note:



- M2_1 slot is from CPU and it is available on 11th Gen Intel CPU.
- M2_2 slot and M2_2 slot are from Z590 chipset.
- For RAID, M2_1 slots is just detected **Intel SSD**.
- So we are suggest installing M.2 SSD on M2_2 slot and M2_3 slot .

- 3x M.2 slots (Key M)

- M2_1 slot (from CPU)*

- Available only on 11th Gen Intel® CPU

- Supports up to PCIe 4.0x4

- Supports 2242/ 2260/ 2280/ 22110 storage devices

- M2_2*, M2_3** slots (from Z590 chipset)

- Support up to PCIe 3.0x4

- Support up to SATA 6Gb/s

- Support 2242/ 2260/ 2280 storage devices



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