Configuring a RAID Set

(AMD 800 Series)

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RAID Levels

	RAID 0	RAID 1	RAID 5 (Note 1)	RAID 10
Minimum Number of Hard Drives	≥2	2	≥3	4
Array Capacity	Number of hard drives * Size of the smallest drive	Size of the smallest drive	(Number of hard drives -1) * Size of the smallest drive	(Number of hard drives/2) * Size of the smallest drive
Fault Tolerance	No	Yes	Yes	Yes

To configure a RAID set, follow the steps below:

- A. Install hard drive(s) in your computer.
- B. Configure controller mode in BIOS Setup.
- C. Configure a RAID array in RAID BIOS
- D. Install the RAID driver and operating system

Before you begin

- SATA hard drives or SSDs. (Note 2) To ensure optimal performance, it is recommended that you use two hard
 drives with identical model and capacity. (Note 3)
- A Windows setup disc.
- An Internet connected computer.
- A USB thumb drive.

Preparing the Hard Drives and BIOS Settings

A. Installing hard drives

Install the hard drives/SSDs in the SATA/M.2 connectors on the motherboard. Then connect the power connectors from your power supply to the hard drives.

(Note 1) Only available on NVMe SSDs with the AMD Ryzen[™] 9000 Series Processors.

- (Note 2) An M.2 PCIe SSD cannot be used to set up a RAID set either with an M.2 SATA SSD or a SATA hard drive.
- (Note 3) Refer to the "Internal Connectors" section of the user's manual for the installation notices for the M.2, and SATA connectors.

B. Configuring controller mode in BIOS Setup

Step:

Turn on your computer and press <Delete> to enter BIOS Setup during the POST (Power-On Self-Test). Under Settings\IO Ports, set SATA Configuration\SATA Mode to RAID (Figure 1). Then save the settings and restart your computer. (If you want to use NVMe PCIe SSDs to configure RAID, make sure to set NVMe RAID mode to Enabled.)

E Save & Exit BCLK 100.25MH Voltage
100.25M
100.25M
100.25MI
0.927 V
0.927 V
32768ME
5.017 V

Figure 1

C. RAID Configuration

Step 1:

In BIOS Setup, go to Boot and set CSM Support to Disabled (Figure 2). Save the changes and exit BIOS Setup.

Favorites (F11)	43 Tweaker	Settings	System Info.	() Boot	🕒 Save & Exit
Boot Option Priorities Boot Option #1 Bootup NumLock State Security Option Full Screen LOGO Show Fast Boot CSM Support		Windows Boot Manage On System Enabled Disabled	er (Seegate FireCuda 530 2P500GM 30013)	CPU Frequency 3628.62MHz Temperature 36.0 °C Memory Frequency	BCLK 100.25MH Veltage 0.927 V
CSM Support Administrator Password User Password		* Disabled		4812.38MT/s Ch A/8 Volt 2.010 V	32769MB
i Secure Boot Preferred Operating Mode				Voltage PM VCC18 1.826 V +12V 12.024 V	+5V 5.025 V
le/Disable CSM Support.			1	5mart Fan 6 [F6] 🔲 Q-Flash [F8]	Help (F1)

Figure 2



The BIOS Setup menus described in this section may differ from the exact settings for your motherboard. The actual BIOS Setup menu options you will see shall depend on the motherboard you have and the BIOS version.

Step 2:

After the system reboot, enter BIOS Setup again. Then enter the **Settings\IO Ports\RAIDXpert2 Configuration Utility** sub-menu (Figure 3).

Favorites (F11)	🛆 Tweaker	Settings	System Info.	() Boot	🕞 Save & Exit
Initial Display Dutput Integrated Graphics HD Audio Controller PCIEX16 Briurcation Abore 4G Decoding Re-Size BAR Support SR-100' Support Onboard IAN Controller Onboard IAN Controller		PCIe 1 Slot Auto Enabled Auto Enabled Enabled Disabled Enabled		CPU Freesurery 3625.38MHz Temperature 37.0 °C Memory Freesurery	BCLK 100.25MH Voltage 0.924 V
Gigabyte Utilities Downloader Co USB Configuration NVMe Configuration SATA Configuration	infiguration			4812.14MT/s Ch A/B Volt 2.013 V	32768MB
SALA Configuration Network Stack Configuration Realtek PCIe 5 GBE Family Contr RAID/gert2 Configuration Unity				Voltage PM VCC18 1.826 V	+5V 5.025 V
				+12V 12.024 V	
ect to configure RAIDXpert2 contro	ler			😤 Smart Fan 6 [F6] 🔲 Q-Flash [R	8] (9) Help (F1)

Figure 3

Step 3:

On the RAIDXpert2 Configuration Utility screen, press <Enter> on Array Management to enter the Create Array screen. Then, select a RAID level (Figure 4).Options include RAIDABLE (Note 1), RAID 0, RAID 1, RAID 5 (Note 2), and RAID 10 (the selections available depend on the number of the hard drives being installed). Next, press <Enter> on Select Physical Disks to enter the Select Physical Disks screen.

Favorites (F11)	🛆 Tweaker	Settings	System Info.	🖒 Boot	🕞 Save & Exit
If any physical disks are in Lega Create Array Select RAID Level Select Physical Disks	scy state, please delete those logical i	Legacy arrays to be able to crea Volume	ate RAID arrays.	CPU Frequency 3629.16MHz Temperature 36.0 °C	BCLM 100.23MH Vettage 0.924 V
Configure Array Parameters:			RAID Level		
		Select	RAID Level	Memory	
			IDABLE	Frequency	
				4811.23MT/s	32768MB
Select CacheTagSize:			AID 0		327001410
			AJD 1	Ch A/B Volt	
Read Cache Policy:			AID 5	2.007 V	
Write Cache Policy:		R	AID 10		
				Voltage	
Create Array				PM VCC18	
				1.826 V	5.017 V
					5.017 4
				+12V	
				12.024 V	
ects the desired BAID level. The co	infiguration utility supports Volume.	RAIDAble, RAID 0, RAID 1, and I	RAID 5 and RAID 10.		
				🛠 Smart Fan 6 [F6] 🔲 Q-Flash (F8)	(P) Help (F1)

Figure 4

(Note 1) If you want to install the operating system onto a single drive/SSD first, select **RAIDABLE** mode. (Note 2) Only available on NVMe SSDs with the AMD Ryzen[™] 9000 Series Processors. Step 4:

On the **Select Physical Disks** screen, select the hard drives to be included in the RAID array and set them to **Enabled**. Next, use the down arrow key to move to **Apply Changes** and press <Enter> (Figure 5).Then return to the previous screen and set the **Array Size**, **Array Size Unit**, **Read Cache Policy** and **Write Cache Policy**.

Favorites (F11)	(C) Tweaker	Settings	System Info.	() Boot	Save & Ext
Select Media Type: Physical Disk 0:1:1, NVMe G Physical Disk 1:1:1, NVMe G		BOTH Enabled Enabled		CPU Frequency	
Physical Disk 2:1:1, NVMe G Physical Disk 3:1:1, NVMe G	en4 x4, 1.0 TB, Ready	Enabled Enabled		3629.59MHz Temperature 37.0 °C	100.26MH Voltage 0.924 V
Check All Uncheck All Apply Changes				Memory Frequency	
offind runnillen				4812.91MT/s Ch A/8 Volt 2.007 V	32768MB
				Voltage PM VCC18 1.826 V +12V 12.006 V	*SV 5.017 V
nits the changes made to the				🛠 Smart Fan 6 [76] 🔳 Q-Flash [F8]	(Р) Неф (F1)

Figure 5

Step 5: After setting the capacity, move to **Create Array** and press <Enter> to begin. (Figure 6)

Favorites (F11)	🕰 Tweaker	Settings	System Info.	() Boot	🕒 Save & Exit
Create Array Select RAID Level: Select Physical Disks	cy state, please delete those logical L	egacy arrays to be able to create	RAID arrays.	CPU Produktory 36299.80MHz Temperature 37.0 °C	BCLK 100.29MH Voltage 0.924 V
Configure Array Parameters: Array Size: Array Size Unit:		1998192 MB (MegaBytes)		Memory Frequency	
Select CacheTagSize: Read Cache Policy:		256KB Read Cache		4814.35MT/s Ch A/8 Volt 2.013 V	32769MB
Write Cache Policy: Create Array		Write Back Cache		Voltage PM VCC18	
				1.826 V +12V 12.024 V	5.025 V
ates the Array				🔆 Smart Fan 6 (16) 🔳 Q-Flash (18)	(9) Help (F1)

Figure 6

After completing, you'll be brought back to the **Array Management** screen. Under **Manage Array Properties** you can see the new RAID volume and information on RAID level, array name, array capacity, etc. (Figure 7)

ADRUS					07/11/2024 14:13 Thursday
Favorites (F11)	Ca Tweaker	Settings	System Info.	🖒 Boot	Save & Exit
Select Array:		Array 1, RAID0, 1.9 TB,	Normal	~	
Array Properties: Array ID: RAID Level: Array Status: Array Capacity: Cache Tag Size: Hidden:	1 RAIDO Normal 1 9 TB 256KB No			CPU Froundry 3626.71MHz Temperature 37.0 °C Memory Froundry	BCLR 100.25MH Voltage 0.924 V
Array Policies: Read Cache Policy: Write Cache Policy:	Read Cache Write Back Cache			4812.28MT/s Ch A/8 Veit 2.007 V	32768MB
View Associated Physic Manage Dedicated Hot				Voltage PM VCC18 1.826 V •12V 12.024 V	+5V 5.017 V
ielects an Array.				🛠 Smart Fan 6 [14] 🔲 Q-Flash [18]	() Нер (F1) С

Figure 7

Delete RAID Volume

To delete a RAID array, select the array to be deleted on the RAIDXpert2 Configuration Utility\Array Management\Delete Array screen. Press <Enter> on Delete Array(s) to enter the Delete screen. Then set Confirm to Enabled and press <Enter> on Yes (Figure 8).

ADRUS					NCED MODE	07/11/2024 14:13 Thursday
Favorites (F11)	43 Tweaker	Settings	 System Info. 		') Boot	🕞 Save & Exit
Deleting an Array will delete all of						
Are you sure you want to delete	the selected Array(s)?					
Confirm		Enabled			3629.23MHz Temperature	100.26MH: Voltage
YES	p to 15 seconds. After selecting			-	37.0 °C	0.924 V
Deleting an Array may take u Yes, please wait for the opera						
NO NO					Frequency 4812.91MT/s	5ize 32768MB
					2.013 V	
					Voltage	
					1.826 V	5.025 V
					12.024 V	
				😵 Smart P	un 6 [F6] 🔲 Q-Flash [F8]	() Help (F1)
C Back						

Figure 8

Installing the RAID Driver and Operating System

With the correct BIOS settings, you are ready to install the operating system.

A. Installing the Operating System

As some operating systems already include RAID driver, you do not need to install separate RAID driver during the Windows installation process. After the operating system is installed, we recommend that you install all required drivers from the GIGABYTE Control Center to ensure system performance and compatibility. If the operating system to be installed requires that you provide additional RAID driver during the OS installation process, please refer to the steps below:

Step 1:

Go to GIGABYTE's website, browse to the motherboard model's web page, download the AMD RAID Preinstall Driver file on the Support\Download\SATA RAID/AHCI page, unzip the file and copy the files to your USB thumb drive.

Step 2:

Boot from the Windows setup disc and perform standard OS installation steps. When the screen requesting you to load the driver appears, select **Browse**.

Step 3:

Insert the USB thumb drive and then browse to the location of the drivers. Follow the on-screen instructions to install the following three drivers in order.

- ① AMD-RAID Bottom Device
- 2 AMD-RAID Controller
- ③ AMD-RAID Config Device

Finally, continue the OS installation.

AMD-RAID	Controller [storport] (11\RAID\064\SATA_F D:Hw11\RAID\064\SA1	TA_RAID/renaid inf)	
AMD-RAID	Coufig Device (D'Hw	11/RAID/s64/SATA_R	AID reefg inf)	

B. Rebuilding an Array

Rebuilding is the process of restoring data to a hard drive from other drives in the array. Rebuilding applies only to fault-tolerant arrays such as RAID 1 and RAID 10 arrays. To replace the old drive, make sure to use a new drive of equal or greater capacity. The procedures below assume a new drive is added to replace a failed drive to rebuild a RAID 1 array.

While in the operating system, make sure the Chipset and RAID drivers have been installed.

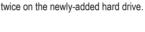


 Dia
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In the Disk Devices section, left-click your mouse

Step 1:

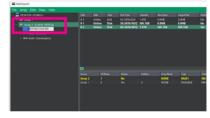
Right-click on the RAIDXpert2 icon on the desktop and then select Run as administrator to launch the AMD RAIDXpert2 utility.





Step 3:

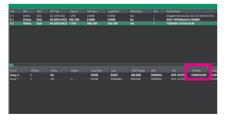
On the next screen, select Assign as Global Spare and click OK.



Step 4:

Step 2:

You can check the current progress in the Active Volumes section on the bottom or left of the screen.



Step 5:

Then rebuild is complete when the Task State column shows "COMPLETED."