

**RAID
Configuration
Guide
(AMD)**

ASUS[®]

Motherboard

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About this guide

This guide contains information that you need to create AMD RAID configurations. You can create different RAID configurations based on your motherboard chipset and software.



The screenshots in this guide are for reference only. The screenshots may vary with models, but the configurations steps are similar.

Where to find more information

The ASUS website (www.asus.com) provides updated information on ASUS hardware and software products.

AMD RAID Configuration

If your motherboard supports RaidXpert2 Configuration Utility, you can create Volume, RAIDABLE, RAID 0, RAID 1, or RAID 10 (depends on system licensing) configurations.



If you want to install a Windows® operating system to a hard disk drive included in a RAID set, you have to create a RAID driver disk and load the RAID driver during OS installation. Refer to section 6. **Installing the RAID controller driver during Windows® 10 and Windows® 11 OS installation** for details.

1. RAID definitions

Volume provides the ability to link-together storage from one or several disks, regardless of the size of the space on those disks. This configuration is useful in scavenging space on disks unused by other disks in the array. This configuration does not provide performance benefits or data redundancy, disk failure will result in data loss.

RAIDABLE arrays (also known as RAID Ready) are a special type of Volume (JBOD) that allows the user to add more storage space or create a redundant array after a system is installed. RAIDABLE arrays are created using Option ROM, UEFI, or rcadm.



The ability to create RAIDABLE arrays may vary per system.

RAID 0 (Data striping) optimizes two identical hard disk drives to read and write data in parallel, interleaved stacks. Two hard disks perform the same work as a single drive but at a sustained data transfer rate, double that of a single disk alone, thus improving data access and storage. Use of two new identical hard disk drives is required for this setup.

RAID 1 (Data mirroring) copies and maintains an identical image of data from one drive to a second drive. If one drive fails, the disk array management software directs all applications to the surviving drive as it contains a complete copy of the data in the other drive. This RAID configuration provides data protection and increases fault tolerance to the entire system. Use two new drives or use an existing drive and a new drive for this setup. The new drive must be of the same size or larger than the existing drive.

RAID 10 is data striping and data mirroring combined without parity (redundancy data) having to be calculated and written. With the RAID 10 configuration you get all the benefits of both RAID 0 and RAID 1 configurations. Use four new hard disk drives or use an existing drive and three new drives for this setup.

2. Installing storage devices

The motherboard supports SATA hard disk drives and PCIE SSD storage devices. For optimal performance, install identical drives of the same model and capacity when creating a disk array.



Refer to Chapter 2 in your motherboard's user guide for details on installing storage devices to your motherboard.

3. RaidXpert2 Configuration Utility in UEFI BIOS

To enter the RaidXpert2 Configuration Utility in UEFI BIOS:

1. Enter the BIOS Setup during POST.



Refer to Chapter 3 in your motherboard's user guide for details on entering and navigating through the BIOS Setup.

2. Go to **Advanced > SATA Configuration**, then set **SATA Mode** to **[RAID]**.



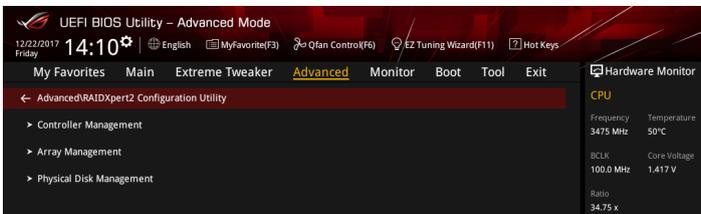
Due to chipset limitation, when SATA ports are set to RAID mode, all SATA ports run at RAID mode together.

3. Configure additional settings for your storage device and RAID configuration:
 - If you are using SATA storage devices, no additional settings are required. Please proceed to next step.
 - If you are setting up an NVMe RAID set, go to **Advanced > SATA Configuration** (or **Advanced > AMD PBS**), then set **NVMe RAID mode** to **[Enabled]**.
 - If you are using Hyper M.2 x16 card(s), go to **Advanced > Onboard Devices Configuration**, then set the corresponding PCIE slot(s) to **[PCIe RAID Mode]**.



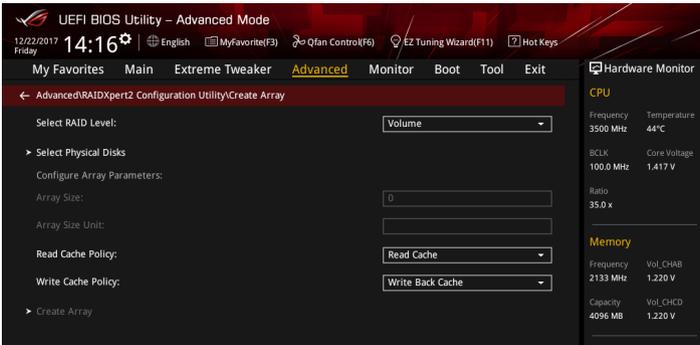
The Hyper M.2 x16 card is purchased separately.

4. Go to **Boot > CSM (Compatibility Support Module)**, then set **Launch CSM** to **[Disabled]**.
5. Save your changes and exit the BIOS Setup, then enter the BIOS Setup again.
6. Go to **Advanced > RaidXpert2 Configuration Utility** to display the RaidXpert2 Configuration Utility menu.

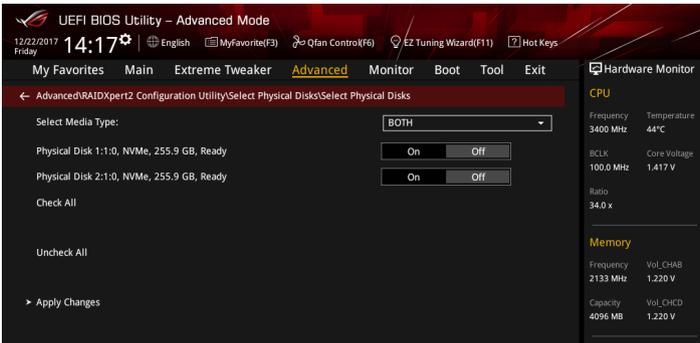


3.1 Creating a RAID set

1. From the RaidXpert2 Configuration Utility menu, go to **Array Management > Create Array** to enter the Create Array menu. The following screen appears:

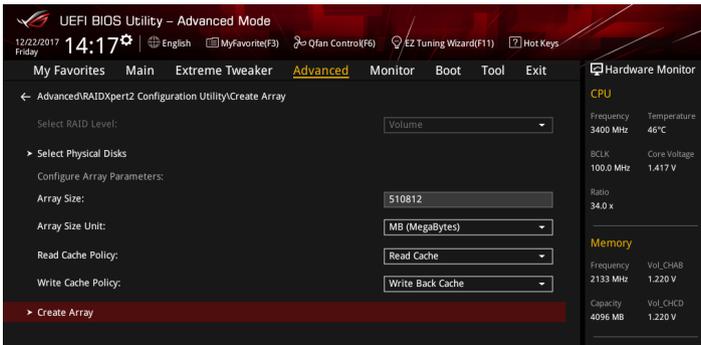


2. When the **Select RAID Level** item is selected, press <Enter> to select the RAID level to create, and then press <Enter>.
3. When the **Select Physical Disks** item is selected, press <Enter> to enter the Select Physical Disks menu. The following screen appears:



4. Toggle the physical disks that you want to include in the RAID set to **On**, then select **Apply Changes** and press <Enter> to complete selection.

5. When the **Array Size:** item is selected, enter the RAID volume capacity that you want and press <Enter>. The default value indicates the maximum allowed capacity.
6. When the **Array Size Unit:** item is selected, press <Enter> to select the size unit for the RAID array, and then press <Enter>.
7. When the **Read Cache Policy:** item is selected, press <Enter> to select the read policy for the RAID array, and then press <Enter>.
8. When the **Write Cache Policy:** item is selected, press <Enter> to select the write policy for the RAID array, and then press <Enter>.
9. When the **Create Array** item is selected, press <Enter> to create the RAID volume and return to the Array Management menu.

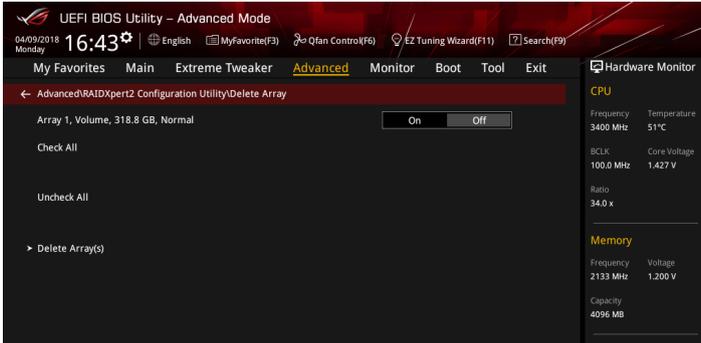


3.2 Deleting a RAID set

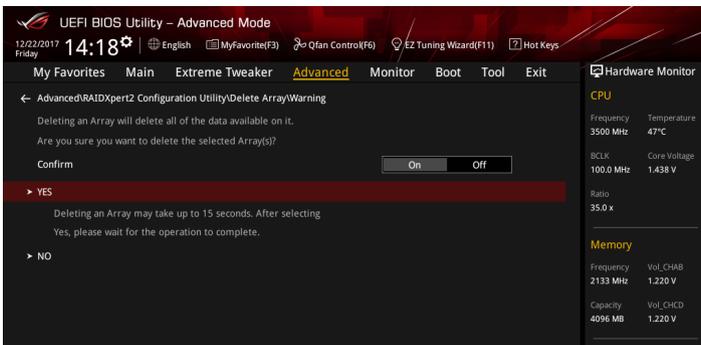


Be cautious when deleting a RAID set. You will lose all data on the hard disk drives when you delete a RAID set.

1. From the RaidXpert2 Configuration Utility menu, go to **Array Management > Delete Array** to enter the Delete Array menu. The following screen appears:



2. Toggle the array(s) that you want to delete to **On**.
3. When the **Delete Array(s)** item is selected, press <Enter>, toggle the **Confirm** item to **On**, then select **YES** to delete the RAID volume, or select **NO** to cancel.



4. Installing the RAID controller driver during Windows® 10 or Windows® 11 OS installation

After creating the RAID sets, you are now ready to install an operating system to the independent drives or bootable array. This part provides the instructions on how to install the RAID controller drivers during OS installation.



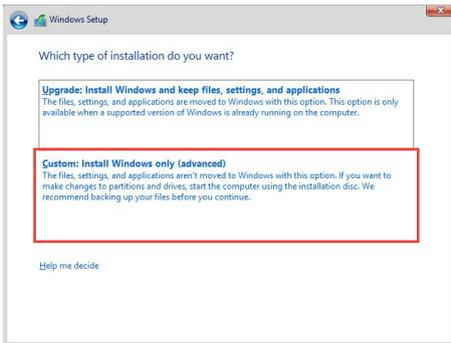
The steps and screenshots are for reference only and may change with newer Windows updates.



Your motherboard package may include different installation media which contain the necessary drivers, however, we strongly recommend you download and use the latest drivers of your motherboard product from the ASUS support site.

To install the RAID controller driver when installing Windows® 10 or Windows® 11 OS:

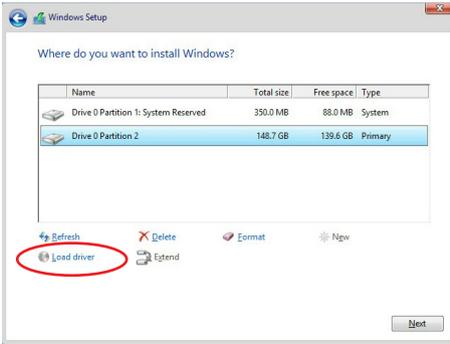
1. Boot the computer using the Windows® 10 OS or Windows® 11 installation media. Follow the screen instructions to start installing Windows®.
2. When prompted to choose a type of installation, click **Custom: Install Windows only (advanced)**.



2. You will need to install two (2) drivers for both SATA and NVMe RAID. The two drivers need to be installed in the order shown below.

For SATA RAID:

A. Click **Load Driver**.



- B. A message appears, reminding you to insert the installation media containing the driver of the RAID controller driver. Click **Browse** to continue.



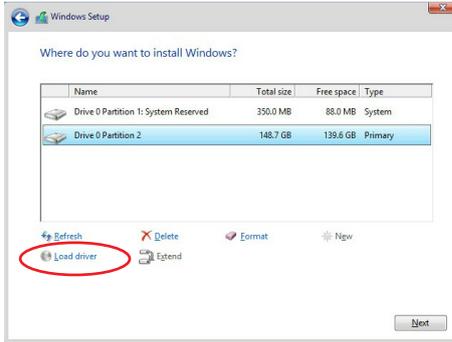
- C. Locate the **Drivers** folder, then navigate to **RAID > RAID_driver > SATA_RAID > rcbottom**, and click **OK**.
- D. Click **Next** and wait for the AMD-RAID Bottom Device driver (rcbottom) to be installed
- E. Repeat steps A and B.
- F. Locate the **Drivers** folder, then navigate to **RAID > RAID_driver > SATA_RAID > rcraid**, and click **OK**.
- G. Click **Next** and wait for the AMD-RAID Controller [storport] (rcraid) to be installed

For NVMe RAID:



Ensure **NVMe RAID mode** is set to **[Enabled]** in the BIOS if you wish to install NVMe RAID drivers. For more information on the BIOS settings please refer to **RaidXpert2 Configuration Utility in UEFI BIOS**.

A. Click **Load Driver**.

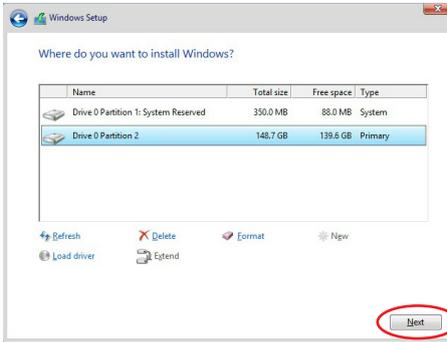


B. A message appears, reminding you to insert the installation media containing the driver of the RAID controller driver. Click **Browse** to continue.



- C. Locate the **Drivers** folder, then navigate to **RAID > RAID_driver > NVME_DID > rcbottom**, and click **OK**.
- D. Click **Next** and wait for the AMD-RAID Bottom Device driver (rcbottom) to be installed
- E. Repeat steps A and B.
- F. Locate the **Drivers** folder, then navigate to **RAID > RAID_driver > NVME_DID > rcrraid**, and click **OK**.
- G. Click **Next** and wait for the AMD-RAID Controller [storport] (rcraid) to be installed

3. Select the drive to install Windows and click **Next**.



4. Setup then proceeds with the OS installation. Follow screen instructions to complete.

