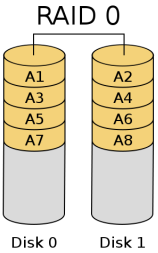
RAID Configuration Guide

1. *Introduction of RAID*

This motherboard adopts a chipset that supports RAID. The term “RAID” stands for “Redundant Array of Independent Disks”, which is a method of combining two or more hard disk drives into one logical unit. For optimal performance, please install identical drives of the same model and capacity when creating a RAID set. The following are common examples of RAID. Please refer to the user manual for the types of RAID your motherboard supports, and notice that other requirements such as a RAID supporting disk drive and operating system are also crucial for creating a RAID volume.

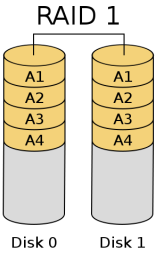
RAID 0 (Data Striping)

RAID 0 is called data striping that optimizes two identical hard disk drives to read and write data in parallel, interleaved stacks. It will improve data access and storage since it will double the data transfer rate of a single disk alone while the two hard disks perform the same work as a single drive, but at a sustained data transfer rate and it has no fault tolerance.



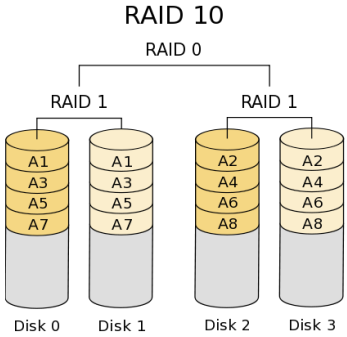
RAID 1 (Data Mirroring)

RAID 1 is called data mirroring that copies and maintains an identical image of data from one drive to a second drive. It provides data protection and increases fault tolerance to the entire system since the disk array management software will direct all applications to the surviving drive as it contains a complete copy of the data in the other drive if one drive fails.



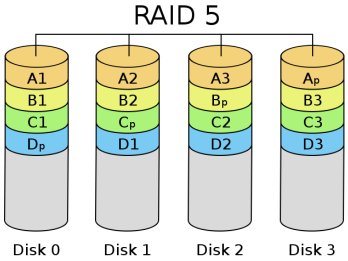
RAID 10

RAID 10 is a striped configuration with RAID 1 segments whose segments are RAID 1 arrays. This configuration has the same fault tolerance as RAID 1, and has the same overhead for fault-tolerance as mirroring alone. RAID 10 achieves high input / output rates by striping RAID 1 segments. In some instances, a RAID 10 configuration can sustain multiple simultaneous drive failure. A minimum of four hard disk drives is required for this setup.



RAID 5

RAID 5 stripes both data and parity information across three or more hard disk drives. Among the advantages of RAID 5 configuration include better HDD performance, fault tolerance, and higher storage capacity. The RAID 5 configuration is best suited for transaction processing, relational database applications, enterprise resource planning, and other business systems. Use a minimum of three identical hard disk drives for this setup.



2. *RAID Configuration*

RAID Configuration Precautions

1. Please use two new drives if you are creating a RAID 0 (striping) array for performance. It is recommended to use two SATA drives of the same size. If you use two drives of different sizes, the smaller capacity hard disk will be the base storage size for each drive. For example, if one hard disk has an 80GB storage capacity and the other hard disk has 60GB, the maximum storage capacity for the 80GB-drive becomes 60GB, and the total storage capacity for this RAID 0 set is 120GB.
2. You may use two new drives, or use an existing drive and a new drive to create a RAID 1 (mirroring) array for data protection (the new drive must be of the same size or larger than the existing drive). If you use two drives of different sizes, the smaller capacity hard disk will be the base storage size. For example, if one hard disk has an 80GB storage capacity and the other hard disk has 60GB, the maximum storage capacity for the RAID 1 set is 60GB.
3. Please verify the status of your hard disks before you set up your new RAID array.
4. Please backup your data first before you create RAID functions. In the process you create RAID, the system will ask if you want to “Clear Disk Data” or not. It is recommended to select “Yes”, and then your future data building will operate under a clean environment.

2.1 Install the hard disk drives

Connect two or more **new** hard disk drives of the **same model** and **capacity** to your system.

Before creating a RAID array, please check the user manual for information of:

1. What levels of RAID does your motherboard support
2. Which SATA ports support RAID
3. Other related requirements

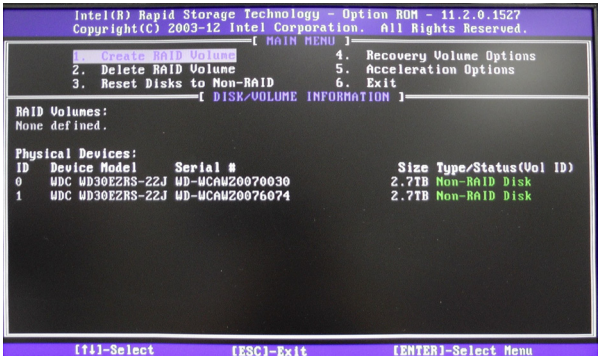
2.2 Set up UEFI

Enter UEFI SETUP UTILITY → Advanced screen → Storage Configuration. Set “SATA Mode Selection” to [RAID].

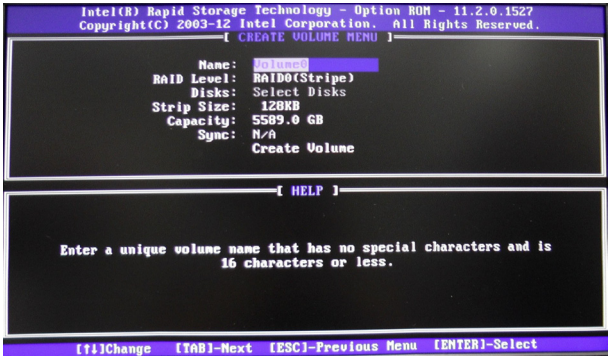
2.3 Configure Intel RAID BIOS

Reboot your computer. Press <Ctrl+I> to enter the RAID BIOS when you see the RAID software status screen.

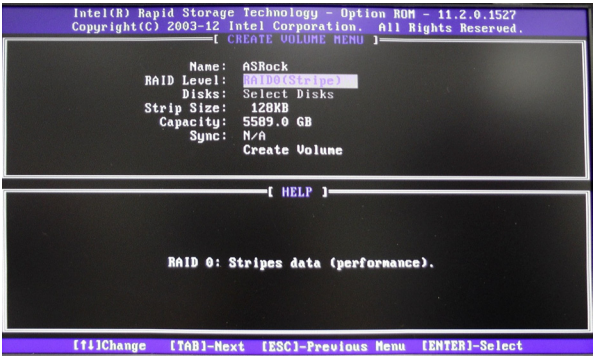
Select the option **Create RAID Volume** and press <Enter>.



In the Create Volume Menu, please insert a unique name for your RAID volume.

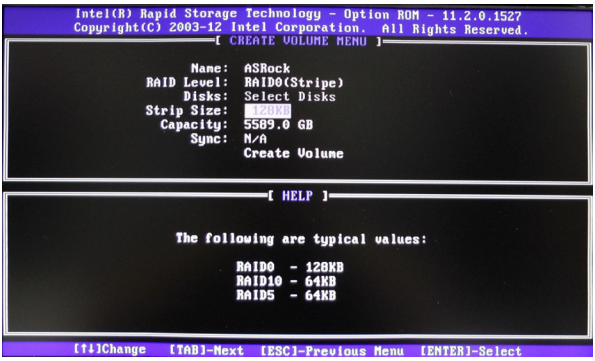


Select your desired RAID Level.

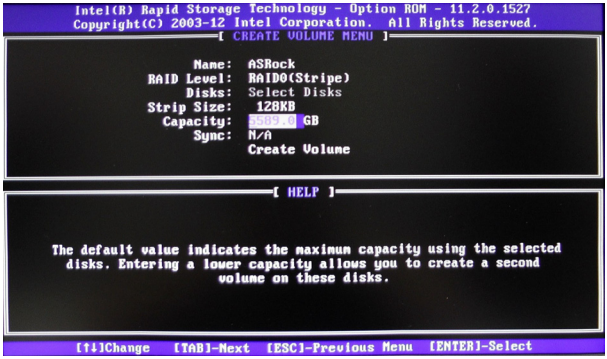


If you selected RAID 0 (Stripe), you are required to select the stripe size for your RAID 0 array. The available values range from 8 KB to 128 KB. The default selection is 128 KB. The strip value should be chosen based on the planned drive usage.

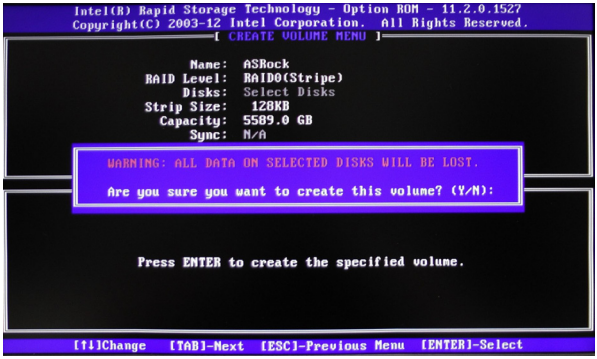
- 8/16 KB - low disk usage
- 64 KB - typical disk usage
- 128 KB - performance disk usage



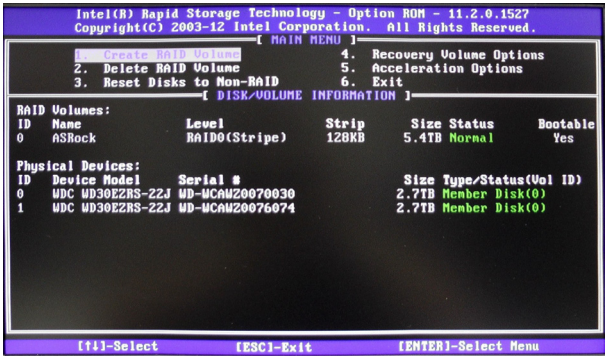
After setting strip size, set the disk Capacity.



Press <Enter> and then Press <Y> to continue when the utility prompts a confirmation message.

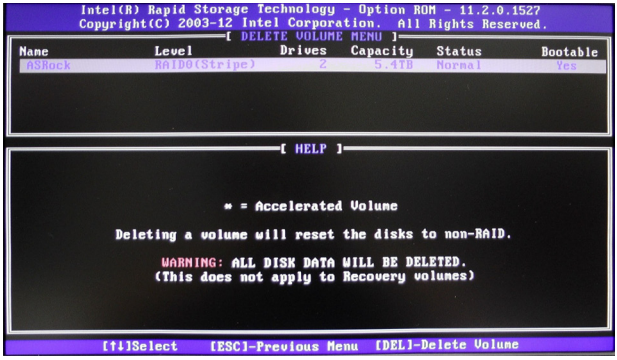


After the configuration, you will see the detailed information about the RAID array that you set up.



Please note that you are only allowed to create one RAID partition at a time under BIOS RAID. If you want to create an extra RAID partition, please use the RAID utility under Windows to configure RAID after you install the OS.

If you want to delete a RAID volume, please select the option **Delete RAID Volume**, press <Enter>, and then follow the instructions on the screen.



3. Installing Windows® 8 / 8 64-bit / 7 / 7 64-bit / Vista™ / Vista™ 64-bit / XP / XP 64-bit on a HDD in RAID mode

After the UEFI and RAID BIOS setup you may start installing **Windows® 8 / 8 64-bit / 7 / 7 64-bit / Vista™ / Vista™ 64-bit / XP / XP 64-bit** OS as usual.