Intel® 600 RAID

USER GUIDE

Motherboard

Contents

RAID Configuration

The introduction of RAID levels and types are as below:

RAID 0 breaks the data into blocks which are written to separate hard drives. Spreading the hard drive I/O load across independent channels greatly improves I/O performance.

RAID 1 provides data redundancy by mirroring data between the hard drives and provides enhanced read performance.

RAID 5 provides data striping at the byte level and also stripe error correction information. This results in excellent performance and good fault tolerance.

RAID 10 uses four hard drives to create a combination of RAID 0 and 1 by forming a RAID 0 array from two RAID 1 arrays.

RAID level comparison

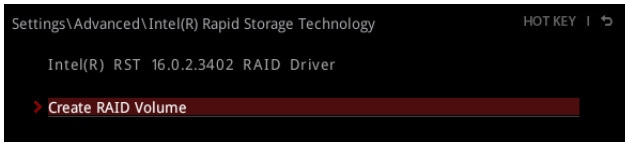|	RAID 0	RAID 1	RAID 5	RAID 10
Minimum # drives	2	2	3	4
Data protection	None	Excellent	Excellent	Excellent
Read performance	Excellent	OK	Good	OK
Write performance	Excellent	Good	OK	Good
Capacity utilization	100%	50%	67%~(1-1/n)	50%

⚠️ *Important*

All the information/ volumes/ pictures listed in your system might differ from the illustrations in this appendix.

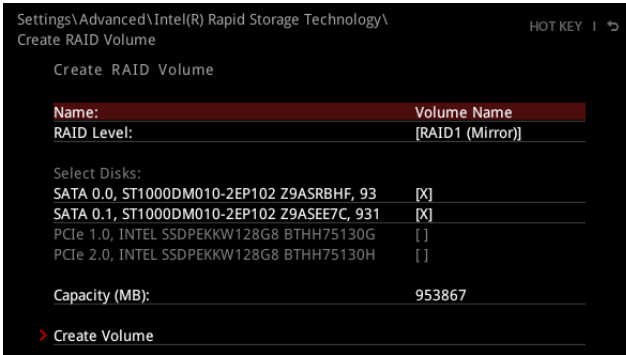## Enabling Intel® Rapid Storage Technology

1. Power on and press **Delete** key to enter BIOS Setup menu.

2. Press **F7** to switch to Advanced mode from EZ mode.

3. Go to **BIOS > SETTINGS > Advanced > Integrated Peripherals > RAID Configuration (Intel VMD) > Enable RAID/Optane Function** and change setting to **Enabled**.

4. Press **F10** to save the configuration and exit, and then reboot and press **Delete** key to enter BIOS Setup menu.

5. Go to **BIOS > SETTING > Advanced > Intel(R) Rapid Storage Technology** sub-menu**.**

Creating RAID Volume

1. To enable Intel(R) Rapid Storage Technology, Enter **Create RAID Volume** screen.

```
Settings\Advanced\Intel(R) Rapid Storage Technology        HOT KEY  |  ↺

        Intel(R) RST  16.0.2.3402  RAID  Driver

    >  Create RAID Volume
```

2. Specify a **Name** for RAID volume.

```
Settings\Advanced\Intel(R) Rapid Storage Technology\        HOT KEY  |  ↺
Create RAID Volume

    Create  RAID  Volume

    Name:                                        Volume Name
    RAID Level:                                  [RAID1 (Mirror)]

    Select Disks:
    SATA 0.0, ST1000DM010-2EP102 Z9ASRBHF, 93    [X]
    SATA 0.1, ST1000DM010-2EP102 Z9ASEE7C, 931   [X]
    PCIe 1.0, INTEL SSDPEKKW128G8 BTHH75130G     [ ]
    PCIe 2.0, INTEL SSDPEKKW128G8 BTHH75130H     [ ]

    Capacity (MB):                               953867

  > Create Volume
```

3. Select **RAID Level** best suited to your usage model in RAID Level.

4. In **Select Disks** field, press **Space** key or press **Enter** key and use ↑↓ **arrow keys** to select the option **X** to the disks you want to create for the RAID volume.

5. Select **Strip Size** for the RAID array. The available values range from 4KB to 128 KB in power of 2 increments. The strip size should be chosen based on the planned drive usage. Here are some typical values:
RAID0 -128KB / RAID10 - 64KB / RAID5 - 64KB.

6. Select the capacity of the volume in **Capacity (MB)** field. The default value is the maximum volume capacity of the selected disks.

7. Go to **Create Volume** field and press **Enter** to create the RAID volume. Upon completion you are returned to the **Intel(R) Rapid Storage Technology** menu.

Removing a RAID Volume

Here you can delete the RAID volume, but please note that all data on RAID drives will be lost.

⚠️ *Important*

If your system currently boots to RAID and you delete the RAID volume, your system will become unbootable.

1. Go to **BIOS > SETTING > Advanced > Intel(R) Rapid Storage Technology**.

2. Select the RAID volume from **Intel(R) Rapid Storage Technology** screen to enter **RAID VOLUME INFO** screen.
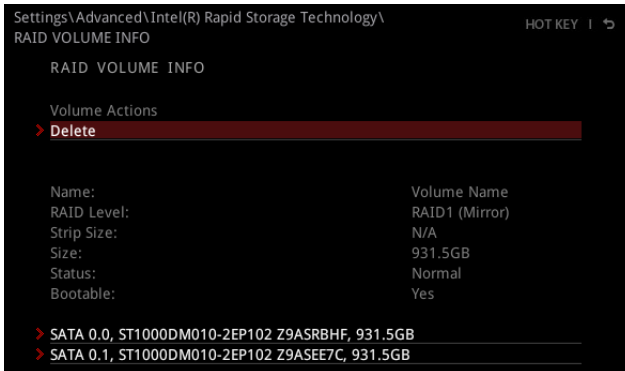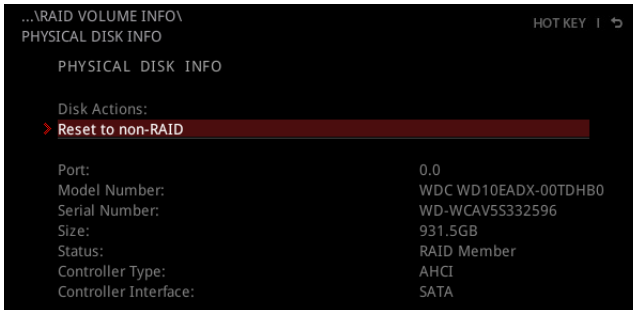

3. Select **Delete** option and press **Enter** key to delete the selected RAID volume.

4. Select **Yes** option and press **Enter** key to accept the volume deletion.
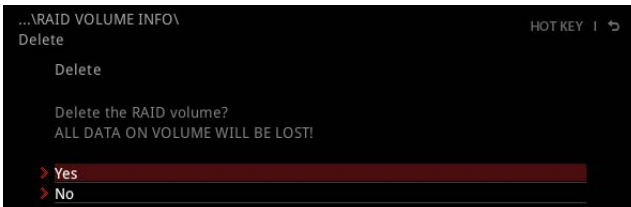
Resetting Disks to Non-RAID

1. Go to **BIOS > SETTING > Advanced > Intel(R) Rapid Storage Technology**.

2. Select the RAID volume from **Intel(R) Rapid Storage Technology** screen to enter **RAID VOLUME INFO** screen.

3. Select the disk and press **Enter** to enter **PHYSICAL DISK INFO** screen.

4. Select **Reset to non-RAID** option and press **Enter** to delete the RAID volume and remove any RAID structures from the drives. The following screen will appear:
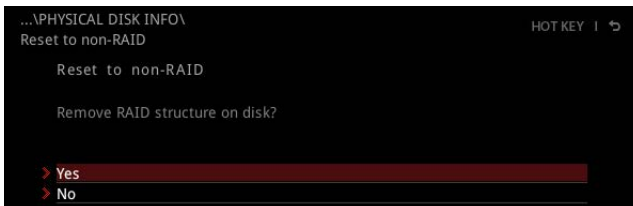
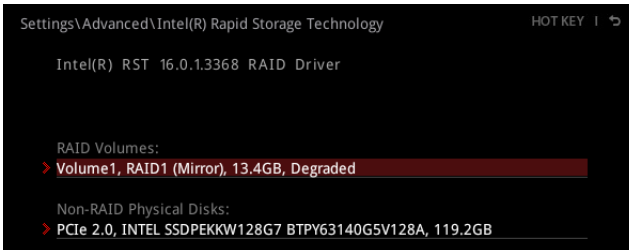5. Select **Yes** option and press **Enter** key to accept the disk resetting.

⚠ *Important*

• You will lose all data on the RAID drives and any internal RAID structures when you perform this operation.

• Issues such as incompatible RAID configurations, a failed volume or a failed disk could possibly require you to ***Reset Disks to Non-RAID***.

Rebuilding RAID Array

A RAID 1, RAID 5 or RAID 10 volume is reported as **Degraded** when one of its hard drive members fails or is temporarily disconnected, and data mirroring is lost. As a result, the system can only utilize the remaining functional hard drive member. To re-establish data mirroring and restore data redundancy, refer to the procedure below that corresponds to the current situation.

1. Power off your computer.

2. Replace the failed hard drive with a new one that is of equal or greater capacity.

3. Reboot the system and go to **BIOS > SETTING > Advanced > Intel(R) Rapid Storage Technology**.

4. Select the **Degraded** RAID volume from **Intel(R) Rapid Storage Technology** screen to enter **RAID VOLUME INFO** screen.

5. Select **Rebuild** option and press **Enter** key to rebuild the new hard drive.

Installing RAID Driver

New Operating System Installation

The following details the installation of the drivers while installing Windows 10 64-bit or newer versions of operating system.

1. After selecting the location to install Windows, click on **Load driver** button to install a third party RAID driver.

2. When prompted, insert the USB flash drive with **Intel RAID Drivers** and then click **Browse**.

   ▪ To create an **Intel RAID Drivers** USB flash drive. Insert the MSI USB Drive into the optical drive. Copy all the contents in \\Storage\Intel\

3. Navigate to the directory containing the saved Intel RAID drivers, then click **OK**.

4. Select the **(iaStorAC.inf)** driver, click **Next**.

5. You have successfully installed the RAID driver, and Windows setup should continue.

6. Leave the disk/ USB drive in the computer until the system reboots itself. Windows setup will need to copy the files after the RAID volume is formatted.

Installing Intel® Rapid Storage Technology Software

The following details how to enable Intel(R) Rapid Storage Technology in BIOS.

1. Insert the MSI Drive disc/ USB Drive into the optical drive/ USB port.

2. Click **Select to choose what happens with this disc** pop-up notification, then select **Run DVDSetup.exe** to open the installer. If you turn off the AutoPlay feature from the Windows Control Panel, you can still manually execute the **DVDSetup. exe** from the root path of the MSI Drive disc/ USB Drive.

3. Under **Drivers/Software** tab, check **Intel RAID Drivers** check-box.

4. Click the **Install** button.

5. When prompted to restart, click **OK** button.

6. Restart your computer and enter the Windows operating system.

7. Double-click the **Intel® Rapid Storage Technology** icon to open the Intel® Rapid Storage Technology software.

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Revision History

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