Configuring a RAID Set (B460 Series)

RAID Levels

	RAID 0	RAID 1	RAID 5	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 create a RAID set, follow the steps below:
A.   Install SATA hard drive(s) or SSDs in your computer.
B.   Configure SATA controller mode in BIOS Setup.
C.   Configure a RAID array in RAID BIOS. (Note 1)
D.   Install the RAID driver and operating system.

Before you begin, please prepare the following items:
• At least two 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.
• Motherboard driver disc.
• A USB thumb drive.

Configuring SATA Controllers

A. Installing hard drives
Install the hard drives/SSDs in the Intel® Chipset controlled connectors on the motherboard. Then connect the power connectors from your power supply to the hard drives.

(Note 1)   Skip this step if you do not want to create RAID array on the SATA controller.
(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 "Internal Connectors" for the installation notices for the M.2 and SATA connectors.

B. Configuring SATA controller mode in BIOS Setup

Make sure to configure the SATA controller mode correctly in system BIOS Setup.

Step 1:

Turn on your computer and press <Delete> to enter BIOS Setup during the POST (Power-On Self-Test). Go to **Settings\IO Ports\SATA And RST Configuration**, make sure **SATA Controller(s)** is enabled. To create RAID, set **SATA Mode Selection** to **Intel RST Premium With Intel Optane System Acceleration**. Then save the settings and restart your computer. (Figure 1) Note: When using a PCIe SSD, make sure to set the **Use RST Legacy OROM** item under **Settings\IO Ports\SATA And RST Configuration** to **Disabled** and **RST Control PCIe Storage Devices** to **Manual.** Then depending the M.2 connector you use, set the corresponding **PCIe Storage Dev on Port XX** item to **RST Controlled**. Finally, save the settings and exit BIOS Setup. (If you want to use NVMe PCIe SSDs to configure RAID, make sure to set **NVMe RAID mode** to **Enabled**.)
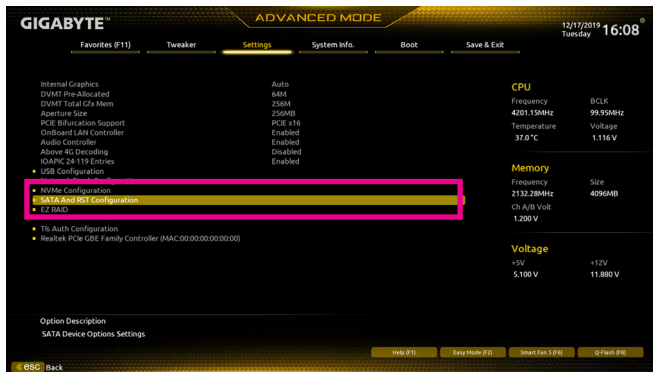

Figure 1

Step 2:

To use the EZ RAID feature, follow the steps in "C-1." To configure UEFI RAID, follow the steps in "C-2." To enter the legacy RAID ROM, refer to "C-3" for more information. Finally, save the settings and exit BIOS Setup.

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.

C-1. Using EZ RAID

GIGABYTE motherboards provide you with the EZ RAID feature, allowing you to quickly configure a RAID array with simplified steps.

Step 1:

After restarting the computer, enter the BIOS Setup and go to **Settings**. Press <Enter> on the **EZ RAID** item. Select the type of hard drives you use for RAID in the **Type** tab and then press <Enter>. (Figure 2)
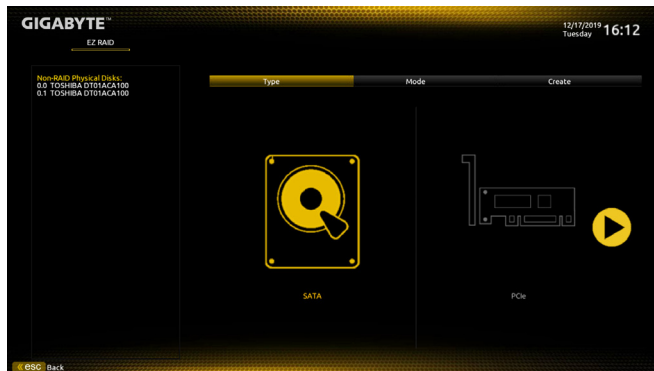

Figure 2

Step 2:

Go to the **Mode** tab to select a RAID level. RAID levels supported include RAID 0, RAID 1, RAID 10, and RAID 5 (the selections available depend on the number of the hard drives being installed). Then press <Enter> to move to the **Create** tab. Click **Proceed** to begin (Figure 3).
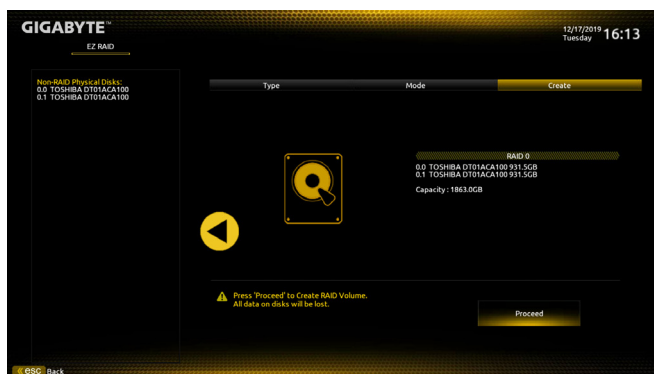
Figure 3

After completing, you'll be brought back to the **Intel(R) Rapid Storage Technology** screen. Under **RAID Volumes** you can see the new RAID volume. To see more detailed information, press <Enter> on the volume to check for information on RAID level, stripe block size, array name, and array capacity, etc. (Figure 4).

Figure 4

Delete RAID Volume
To delete a RAID array, press <Enter> on the volume to be deleted on the **Intel(R) Rapid Storage Technology** screen. After entering the **RAID VOLUME INFO** screen, press <Enter> on **Delete** to enter the **Delete** screen. Press <Enter> on **Yes** (Figure 5).

Figure 5

C-2. UEFI RAID Configuration

Step 1:

In BIOS Setup, go to **Boot** and set **CSM Support** to **Disabled** (Figure 6). Save the changes and exit BIOS Setup.
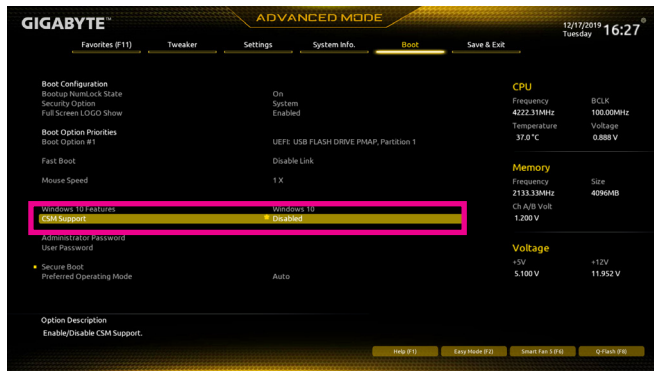
Figure 6

Step 2:

After the system reboot, enter BIOS Setup again. Then enter the **Settings\IO Ports\Intel(R) Rapid Storage Technology** sub-menu (Figure 7).
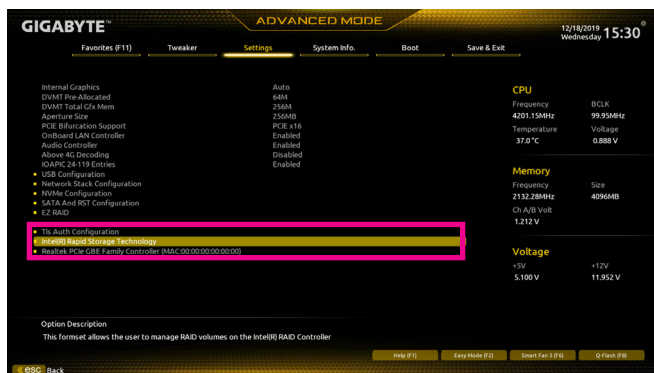
Figure 7

Step 3:

On the **Intel(R) Rapid Storage Technology** menu, press <Enter> on **Create RAID Volume** to enter the **Create RAID Volume** screen. Enter a volume name with 1~16 letters (letters cannot be special characters) under the **Name** item and press <Enter>. Then, select a RAID level (Figure 8). RAID levels supported include RAID 0, RAID 1, RAID 10, and RAID 5 (the selections available depend on the number of the hard drives being installed). Next, use the down arrow key to move to **Select Disks**.
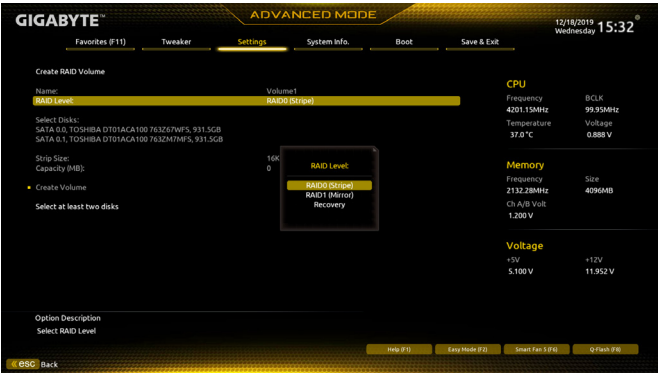
Figure 8

Step 4:

Under **Select Disks** item, select the hard drives to be included in the RAID array. Press the <Space> key on the hard drives to be selected (selected hard drives are marked with "X"). Then set the stripe block size (Figure 9). The stripe block size can be set from 4 KB to 128 KB. Once you have selected the stripe block size, set the volume capacity.
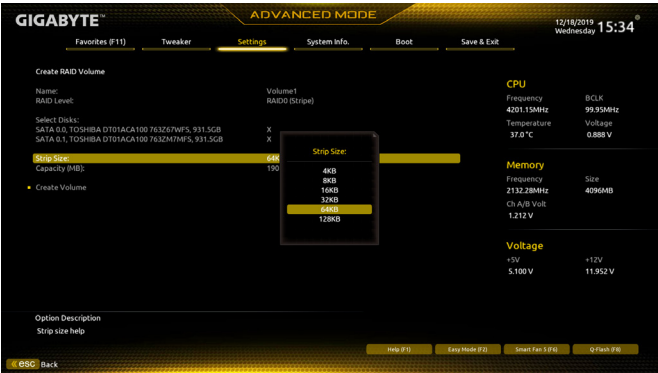
Figure 9

Step 5:
After setting the capacity, move to **Create Volume** and press <Enter> to begin. (Figure 10)
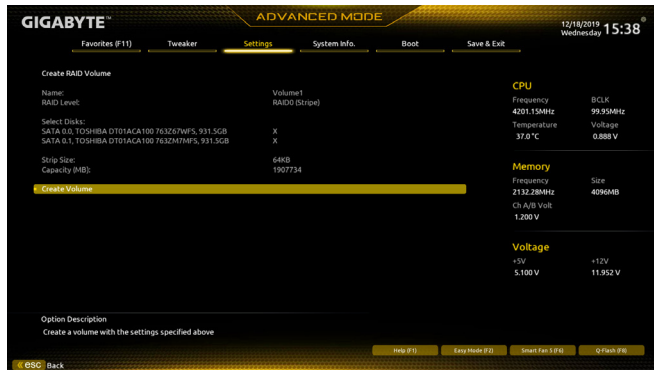
Figure 10

After completing, you'll be brought back to the **Intel(R) Rapid Storage Technology** screen. Under **RAID Volumes** you can see the new RAID volume. To see more detailed information, press <Enter> on the volume to check for information on RAID level, stripe block size, array name, and array capacity, etc. (Figure 11)
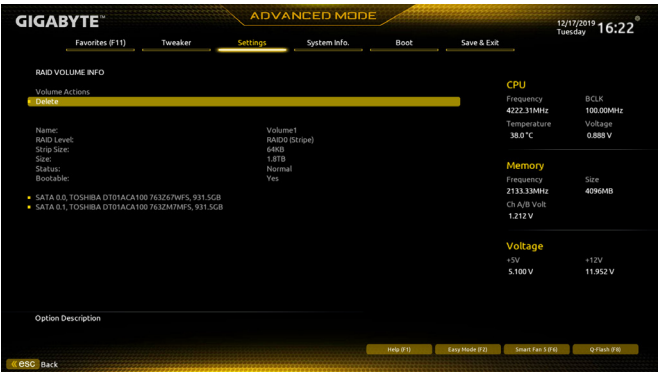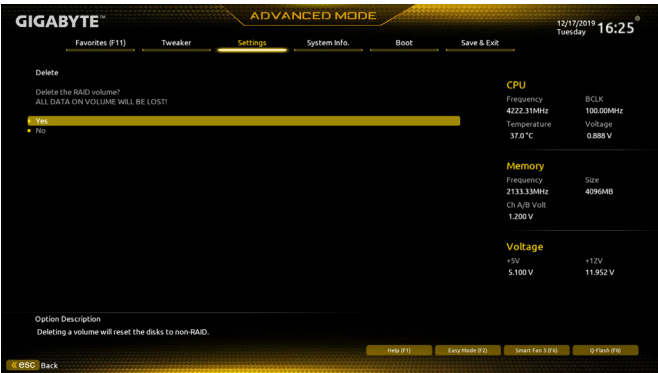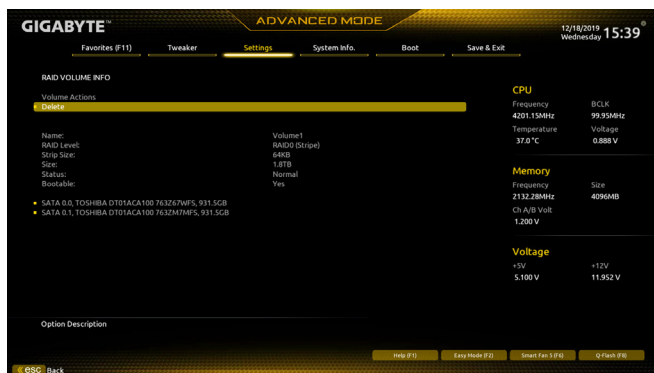

Figure 11

Delete RAID Volume

To delete a RAID array, press <Enter> on the volume to be deleted on the **Intel(R) Rapid Storage Technology** screen. After entering the **RAID VOLUME INFO** screen, press <Enter> on **Delete** to enter the **Delete** screen. Press <Enter> on **Yes** (Figure 12).
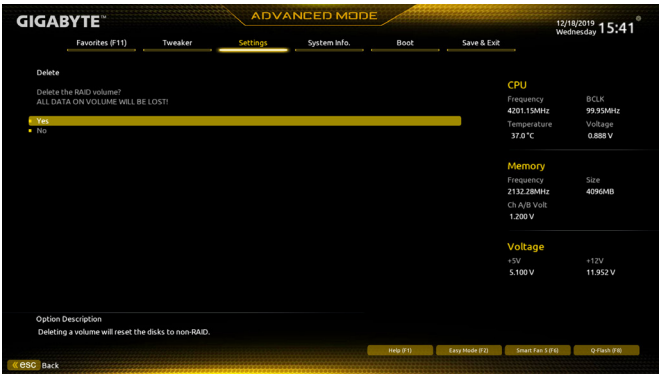
Figure 12

C-3. Configuring Legacy RAID ROM

You'll need a discrete graphics card to enter the legacy RAID ROM utility. Enter the Intel® legacy RAID BIOS setup utility to configure a RAID array. Skip this step and proceed with the installation of Windows operating system for a non-RAID configuration.

Step 1:
In BIOS Setup, go to **Boot** and set **CSM Support** to **Enabled** and **Storage Boot Option Control** to **Legacy**. Next, go to **Settings\IO Parts\SATA And RST Configuration** and make sure **USE RST Legacy OROM** is set to **Enabled**. Save the changes and exit BIOS Setup. After the POST memory test begins and before the operating system boot begins, look for a message which says "Press <Ctrl-I> to enter Configuration Utility" (Figure 13). Press <Ctrl> + <I> to enter the RAID Configuration Utility.

```
Intel(R) Rapid Storage Technology - Option ROM - 17.8.0.4460
Copyright (C) Intel Corporation.   All Rights Reserved.

RAID Volumes :
None defined.

Physical Devices :
ID        Device Model              Serial #                    Size        Type/Status(Vol ID)
1         TOSHIBA  DT01ACA1         763ZLL4FS                   931.5GB     Non-RAID Disk
2         TOSHIBA  DT01ACA1         763ZM7MFS                   931.5GB     Non-RAID Disk

Press  <CTRL - I>  to enter Configuration Utility...
```
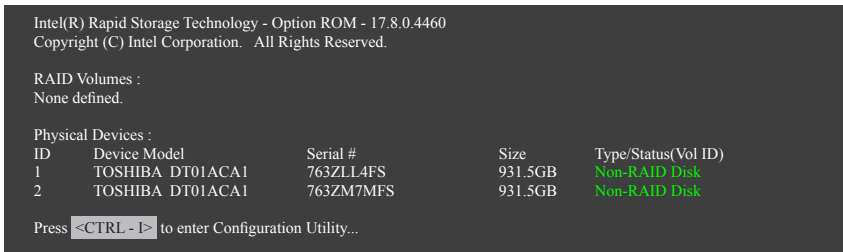
<p align="center">Figure 13</p>

Step 2:
After you press <Ctrl> + <I>, the **MAIN MENU** screen will appear (Figure 14).

Create RAID Volume
If you want to create a RAID array, select **Create RAID Volume** in **MAIN MENU** and press <Enter>.

```
Intel(R) Rapid Storage Technology - Option ROM - 17.8.0.4460
Copyright (C)  Intel Corporation.   All Rights Reserved.
============================== [ MAIN MENU ] ==============================
        1.  Create RAID Volume                      4.  Recovery Volume Options
        2.  Delete RAID Volume                       5.  Acceleration Options
        3.  Reset Disks to Non-RAID                   6.  Exit

===================== [ DISK/VOLUME INFORMATION ] =====================
RAID Volumes :
None defined.

Physical Deivces :
ID        Device Model              Serial #                    Size        Type/Status(Vol ID)
1         TOSHIBA  DT01ACA1         763ZLL4FS                   931.5GB     Non-RAID Disk
2         TOSHIBA  DT01ACA1         763ZM7MFS                   931.5GB     Non-RAID Disk


        [↑↓]-Select                      [ESC]-Exit                      [ENTER]-Select Menu
```

<p align="center">Figure 14</p>

Step 3:

After entering the **CREATE VOLUME MENU** screen, enter a volume name with 1~16 letters (letters cannot be special characters) under the **Name** item and press <Enter>. Then, select a RAID level (Figure 15). RAID levels supported include RAID 0, RAID 1, RAID 10, and RAID 5 (the selections available depend on the number of the hard drives being installed). Press <Enter> to proceed.

```
Intel(R) Rapid Storage Technology - Option ROM - 17.8.0.4460
          Copyright (C)  Intel Corporation.   All Rights Reserved.

                      [ CREATE VOLUME MENU ]
                     Name :   Volume0
               RAID Level :   RAID0(Stripe)
                    Disks :   Select Disks
               Strip Size :      16KB
                 Capacity :   1863.0 GB
                     Sync :   N/A
                              Create Volume

                            [ HELP ]



              RAID 0: Stripes data (performance).




      [↑↓]-Change          [TAB]-Next          [ESC]-Previous Menu          [ENTER]-Select
```
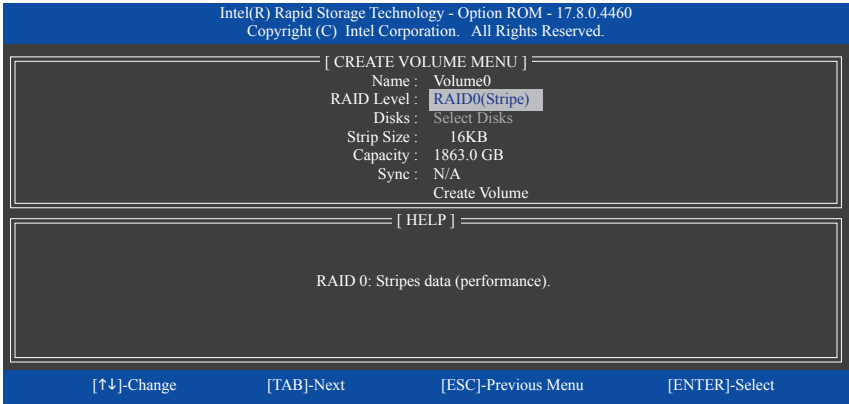
Figure 15

Step 4:

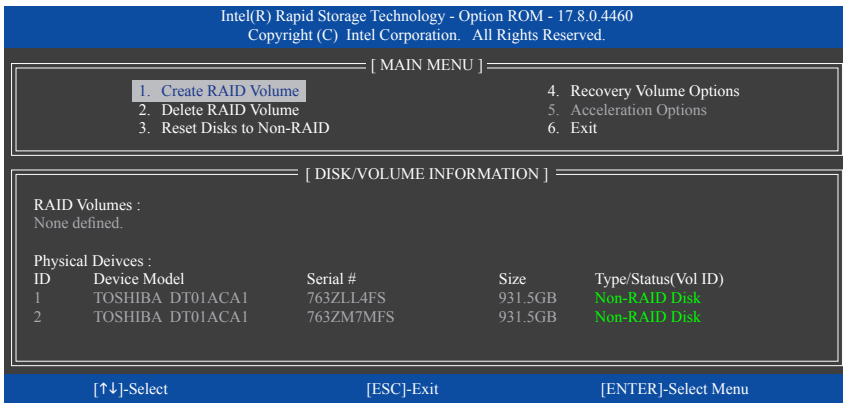Under **Disks** item, select the hard drives to be included in the RAID array. If only two hard drives are installed, they will be automatically assigned to the array. Set the stripe block size (Figure 16) if necessary. The stripe block size can be set from 4 KB to 128 KB. Once you have selected the stripe block size, press <Enter>.

```
Intel(R) Rapid Storage Technology - Option ROM - 17.8.0.4460
          Copyright (C)  Intel Corporation.   All Rights Reserved.

                      [ CREATE VOLUME MENU ]
                     Name :   Volume0
               RAID Level :   RAID0(Stripe)
                    Disks :   Select Disks
               Strip Size :   16KB
                 Capacity :   1863.0 GB
                     Sync :   N/A
                              Create Volume

                            [ HELP ]
              The following are typical values:

                     RAID0    -   128KB
                     RAID10   -   64KB
                     RAID5    -   64KB



      [↑↓]-Change          [TAB]-Next          [ESC]-Previous Menu          [ENTER]-Select
```

Figure 16

Step 5:

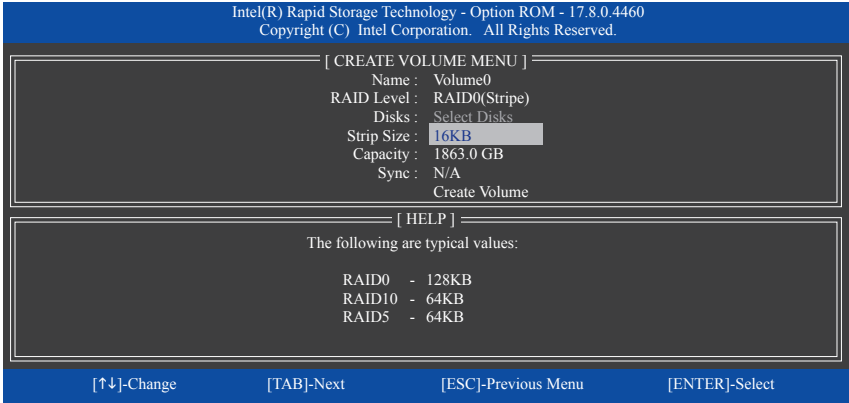Enter the array capacity and press <Enter>. Finally press <Enter> on the **Create Volume** item to begin creating the RAID array. When prompted to confirm whether to create this volume, press <Y> to confirm or <N> to cancel (Figure 17).

Intel(R) Rapid Storage Technology - Option ROM - 17.8.0.4460
Copyright(C) Intel Corporation. All Rights Reserved.

[CREATE VOLUME MENU]
Name :   Volume0
RAID Level :   RAID0(Stripe)
Disks :   Select Disks
Strip Size :   16 KB
Capacity :   1863.0 GB

WARNING : ALL DATA ON SELECTED DISKS WILL BE LOST.

Are you sure you want to create this volume? (Y/N) :

Press ENTER to create the specified volume.

[↑↓]-Change   [TAB]-Next   [ESC]-Previous Menu   [ENTER]-Select
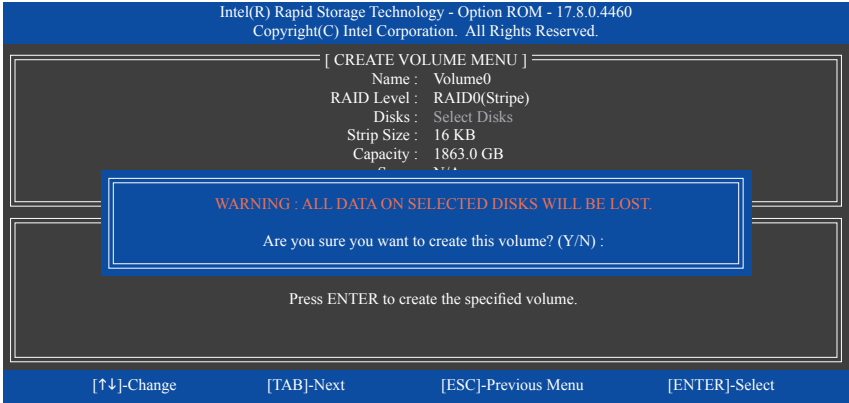
Figure 17

When completed, you can see detailed information about the RAID array in the **DISK/VOLUME INFORMATION** section, including the RAID level, stripe block size, array name, and array capacity, etc. (Figure 18)

Intel(R) Rapid Storage Technology - Option ROM - 17.8.0.4460
Copyright (C) Intel Corporation.   All Rights Reserved.

[MAIN MENU]
1. Create RAID Volume   4. Recovery Volume Options
2. Delete RAID Volume   5. Acceleration Options
3. Reset Disks to Non-RAID   6. Exit

[DISK/VOLUME INFORMATION]

RAID Volumes :
ID	Name	Level	Strip	Size	Status	Bootable
0	Volume0	RAID0(Stripe)	16KB	1.8TB	Normal	Yes

Physical Devices :
ID	Device Model	Serial #	Size	Type/Status(Vol ID)
1	TOSHIBA DT01ACA1	763ZLL4FS	931.5GB	Non-RAID Disk
2	TOSHIBA DT01ACA1	763ZM7MFS	931.5GB	Non-RAID Disk

[↑↓]-Select   [ESC]-Exit   [ENTER]-Select Menu
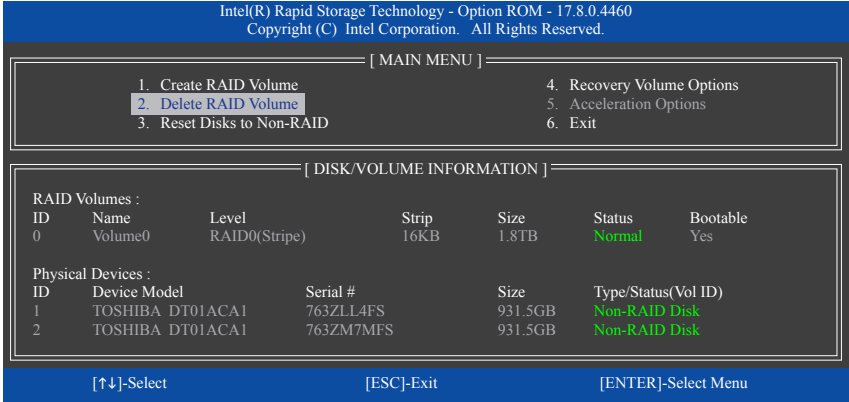
Figure 18

To exit the RAID BIOS utility, press <Esc> or select **6. Exit** in **MAIN MENU**.

Now, you can proceed to install the RAID driver and operating system.

Recovery Volume Options

Intel® Rapid Recover Technology provides data protection by allowing users to easily restore data and system operation using a designated recovery drive. With the Rapid Recovery Technology, which employs RAID 1 functionality, users can copy the data from the master drive to the recovery drive; if needed, the data on the recovery drive can be restored back to the master drive.

Before you begin:
• The recovery drive must have equal or greater capacity than the master drive.
• A recovery volume can be created with two hard drives only. A recovery volume and a RAID array cannot co-exist in the system at the same time, that is, if you have already created a recovery volume, you are unable to create a RAID array.
• By default, only the master drive can be viewed in the operating system; the recovery drive is hidden.

Step 1:
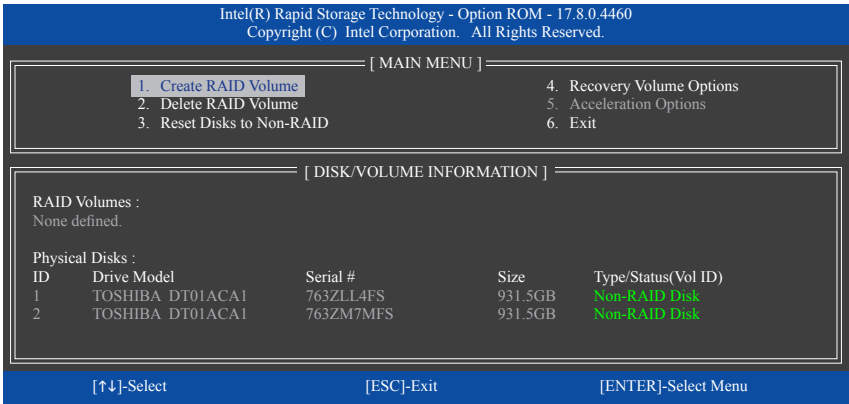Select **Create RAID Volume** in **MAIN MENU** and press <Enter> (Figure 19).

```
                Intel(R) Rapid Storage Technology - Option ROM - 17.8.0.4460
                    Copyright (C)  Intel Corporation.   All Rights Reserved.
━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━[ MAIN MENU ]━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━
    1.  Create RAID Volume                      4.  Recovery Volume Options
    2.  Delete RAID Volume                      5.  Acceleration Options
    3.  Reset Disks to Non-RAID                 6.  Exit

━━━━━━━━━━━━━━━━━━━━━[ DISK/VOLUME INFORMATION ]━━━━━━━━━━━━━━━━━━━━━
  RAID Volumes :
  None defined.

  Physical Disks :
  ID      Drive Model              Serial #           Size        Type/Status(Vol ID)
  1       TOSHIBA  DT01ACA1        763ZLL4FS          931.5GB     Non-RAID Disk
  2       TOSHIBA  DT01ACA1        763ZM7MFS          931.5GB     Non-RAID Disk


        [↑↓]-Select                    [ESC]-Exit                  [ENTER]-Select Menu
```

Figure 19

Step 2:
After entering the volume name, select **Recovery** under the **RAID Level** item and press <Enter> (Figure 20).

```
                Intel(R) Rapid Storage Technology - Option ROM - 17.8.0.4460
                    Copyright (C)  Intel Corporation.   All Rights Reserved.
━━━━━━━━━━━━━━━━━━━━━━━━━[ CREATE VOLUME MENU ]━━━━━━━━━━━━━━━━━━━━━━━
                       Name :   Volume0
                 RAID Level :   Recovery
                      Disks :   Select Disks
                 Strip Size :   N/A
                   Capacity :   931.5 GB
                       Sync :   Continuous
                                Create Volume
━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━[ HELP ]━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━



           Recovery: Copies data between a master and a recovery disk.



        [↑↓]-Change         [TAB]-Next          [ESC]-Previous Menu        [ENTER]-Select
```
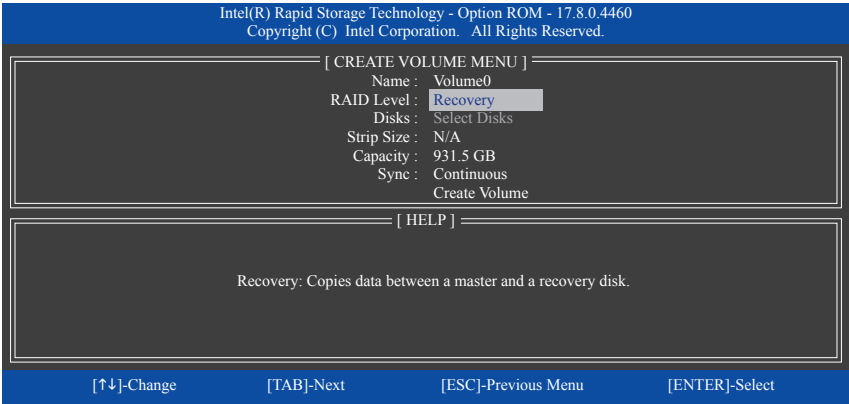
Figure 20

Step 3:
Press <Enter> under the **Select Disks** item. In the **SELECT DISKS** box, press <Tab> on the hard drive you want to use for the master drive and press <Space> on the hard drive you want to use for the recovery drive. (Make sure the recovery drive has equal or larger capacity than the master drive.) Then press <Enter> to confirm (Figure 21).
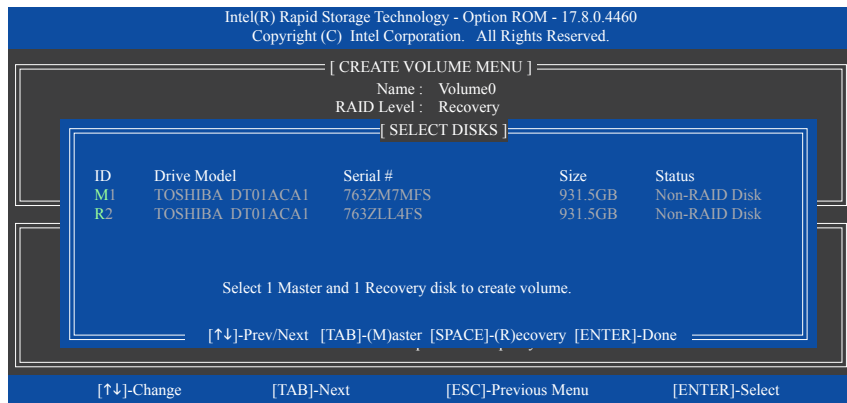
```
Intel(R) Rapid Storage Technology - Option ROM - 17.8.0.4460
        Copyright (C)  Intel Corporation.   All Rights Reserved.
================ [ CREATE VOLUME MENU ] ================
                   Name :   Volume0
            RAID Level :   Recovery
            ============ [ SELECT DISKS ] ============

   ID      Drive Model                Serial #              Size        Status
   M1      TOSHIBA  DT01ACA1          763ZM7MFS             931.5GB     Non-RAID Disk
   R2      TOSHIBA  DT01ACA1          763ZLL4FS             931.5GB     Non-RAID Disk



            Select 1 Master and 1 Recovery disk to create volume.

       [↑↓]-Prev/Next  [TAB]-(M)aster  [SPACE]-(R)ecovery  [ENTER]-Done

   [↑↓]-Change          [TAB]-Next           [ESC]-Previous Menu          [ENTER]-Select
```

Figure 21

Step 4:
Under **Sync**, select **Continuous** or **On Request** (Figure 22). When set to **Continuous**, changes made to the data on the master drive will be automatically and continuously copied to the recovery drive when both hard drives are installed in the system. **On Request** allows users to update data from the master drive to the recovery drive manually using the Intel® Rapid Storage Technology utility in the operating system. **On Request** also allows users to restore the master drive to a previous state.

```
Intel(R) Rapid Storage Technology - Option ROM - 17.8.0.4460
        Copyright (C)  Intel Corporation.   All Rights Reserved.
================ [ CREATE VOLUME MENU ] ================
                   Name :   Volume0
            RAID Level :   Recovery
                  Disks :   Select Disks
             Strip Size :   N/A
               Capacity :   931.5 GB
                   Sync :   Continuous
                          Create Volume
=================== [ HELP ] ===================

                  Select a sync option:
          On Request: volume is updated manually
        Continuous: volume is updated automatically


   [↑↓]-Change          [TAB]-Next           [ESC]-Previous Menu          [ENTER]-Select
```

Figure 22

Step 5:
Finally press <Enter> on the **Create Volume** item to begin creating the Recovery Volume and follow the on-screen instructions to complete.

Delete RAID Volume

To delete a RAID array, select **Delete RAID Volume** in **MAIN MENU** and press <Enter>. In the **DELETE VOLUME MENU** section, use the up or down arrow key to select the array to be deleted and press <Delete>. When prompted to confirm your selection (Figure 23), press <Y> to confirm or <N> to abort.
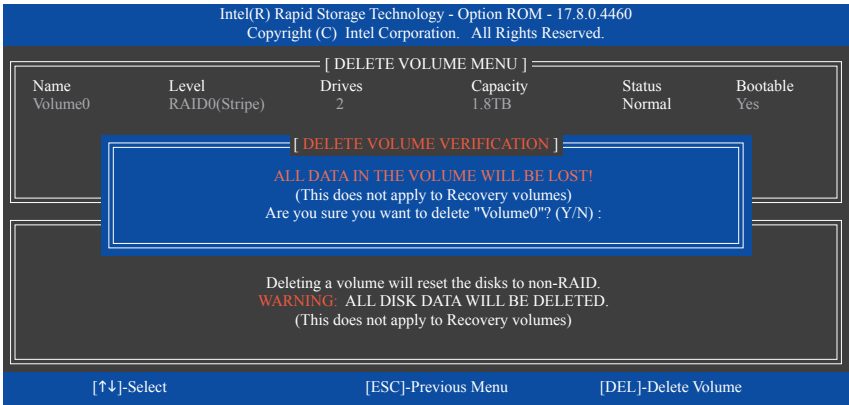
```
                    Intel(R) Rapid Storage Technology - Option ROM - 17.8.0.4460
                       Copyright (C)  Intel Corporation.   All Rights Reserved.
                              =[ DELETE VOLUME MENU ]=
   Name            Level            Drives          Capacity         Status      Bootable
   Volume0         RAID0(Stripe)      2              1.8TB            Normal      Yes

                    =[ DELETE VOLUME VERIFICATION ]=
                      ALL DATA IN THE VOLUME WILL BE LOST!
                       (This does not apply to Recovery volumes)
                     Are you sure you want to delete "Volume0"? (Y/N) :


                    Deleting a volume will reset the disks to non-RAID.
                     WARNING:  ALL DISK DATA WILL BE DELETED.
                       (This does not apply to Recovery volumes)


         [↑↓]-Select                    [ESC]-Previous Menu          [DEL]-Delete Volume
```

Figure 23

Installing the RAID Driver and Operating System

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

A. Installing Windows

As some operating systems already include Intel® 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 motherboard driver disc using "Xpress Install" 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:
Copy the **IRST** folder under **Boot** in the driver disc 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 driver. The location of the driver is as follows:
\IRST\f6flpy-x64

Step 4:
When a screen as shown in Figure 1 appears, select **Intel(R) Chipset SATA/PCIe RST Premium Controller** and click **Next** to load the driver and continue the OS installation.
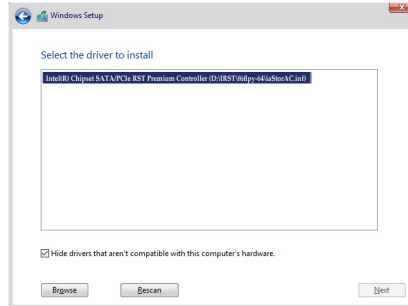
Figure 1

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, RAID 5 or RAID 10 arrays. The procedures below assume a new drive is added to replace a failed drive to rebuild a RAID 1 array. (Note: The new drive must have equal or greater capacity than the old one.)

Turn off your computer and replace the failed hard drive with a new one. Restart your computer.

• **Performing the Rebuild in the Operating System**

While in the operating system, make sure the chipset driver has been installed from the motherboard driver disc. Then launch the Intel® Rapid Storage Technology utility from the Start menu.

Step 1:
Go to the **Manage** menu and click **Rebuild to another disk** in **Manage Volume**.
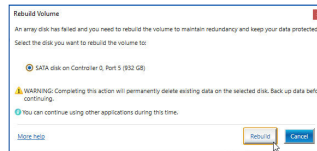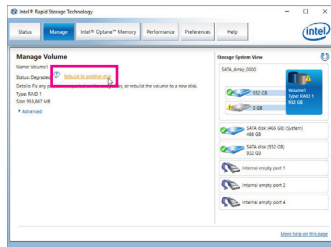
Step 2:
Select a new drive to rebuild the RAID and click **Rebuild**.
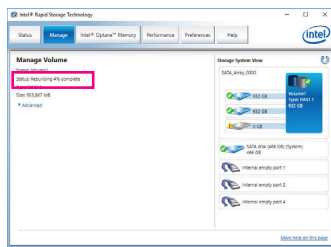
The **Status** item on the left of the screen displays the rebuild progress. After the RAID 1 volume rebuilding, the **Status** will display as **Normal**.

• **Restoring the Master Drive to a Previous State (for Recovery Volume only)**
When two hard drives are set to Recovery Volume in Update on Request mode, you can restore the master drive data to the last backup state when needed. For example, in case the master drive detects a virus, you can restore the recovery drive data to the master drive.

Step 1:
Select **4. Recovery Volume Options** in the **MAIN MENU** of the Intel® RAID Configuration Utility. On the **RECOVERY VOLUMES OPTIONS** menu, select **Enable Only Recovery Disk** to show the recovery drive in the operating system. Follow the on-screen instructions to complete and exit the RAID Configuration Utility.

Intel(R) Rapid Storage Technology - Option ROM - 17.8.0.4460
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[RECOVERY VOLUME OPTIONS]
1. Enable Only Recovery Disk
2. Enable Only Master Disk

[SELECT RECOVERY VOLUME]

Name	Level	Capacity	Status	Bootable
Volume0	Recovery(OnReq)	465.7GB	NeedsUpdate	Yes

Select a Recovery volume to do the operation.

[↑↓]-Up/Down   [SPACE]-Selects [ENTER]-Done

[↑↓]-select   [ESC]-Previous Menu   [ENTER]-Select

Step 2:
Go to the **Manage** menu of the Intel® Rapid Storage Technology utility and click **Recover data** in **Manage Volume**.

The **Status** item on the left of the screen displays the recovering status. After the recovery volume is completed, the **Status** will display as **Normal**.

Step 3:
Click **Yes** to begin the data recovery.

Installing an Intel® Optane™ Memory

A. System Requirements
1. Intel® Optane™ memory
2. The Optane™ memory must have at least 16 GB capacity, and it must have equal or smaller capacity than the hard drive/SSD to be accelerated.
3. The Optane™ memory cannot be used to accelerate an existing RAID array; the accelerated hard drive/SSD cannot be included in a RAID array.
4. The hard drive/SSD to be accelerated must be a SATA hard drive or M.2 SATA SSD.
5. The hard drive/SSD to be accelerated can be a system drive or data drive. The system drive must be GPT formatted and have Windows 10 64-bit (or later version) installed on it. The data drive must also be GPT formatted.
6. The motherboard driver disc.

B. Installation Guidelines

B-1: Installation in AHCI mode
If the SATA controller has been configured in AHCI mode, please follow the steps below:
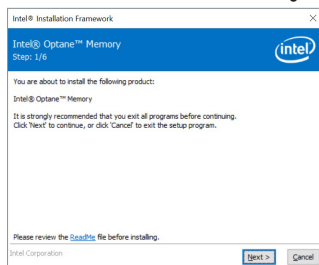
Step 1:
After entering the operating system, insert the motherboard driver disc into your optical drive. On the **Xpress Install** screen, select **Intel(R) Optane(TM) Memory System Acceleration** (Note) to install. Follow the on-screen instructions to continue. When completed, restart the system.

Step 2:
After re-entering the operating system, follow the on-screen instructions to complete the settings, and then the **Intel® Optane™ Memory** application will appear automatically. If you install more than one Optane™ memory, please select which one you are going to use. Then select which drive to be accelerated. Click **Enable**. All data on the Optane™ memory will be erased. Make sure you back up the data before continuing. Follow the on-screen instructions to proceed. When completed, restart the system.
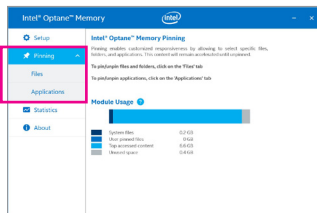
Step 3:
Launch the **Intel® Optane™ Memory** application from the Start menu and make sure the Intel® Optane™ Memory has been enabled. (The SATA controller mode is changed to "Intel RST Premium With Intel Optane System Acceleration" from AHCI mode. DO NOT change your SATA controller mode back to AHCI. Doing so will cause the Optane™ memory unable to function properly.)

Step 4:
If you want to accelerate the system drive, you can select specific folders, files, or applications to accelerate using the **Intel® Optane™ Memory Pinning** function. (The Optane™ memory used must have at least 32 GB capacity.)

(Note)   If the system already has Intel® Rapid Storage Technology utility installed, you have to remove it first before installing the Intel(R) Optane(TM) Memory System Acceleration application.

B-2: Installation in Intel RST Premium With Intel Optane System Acceleration mode

If the SATA controller has been configured in Intel RST Premium With Intel Optane System Acceleration mode, please follow the steps below:
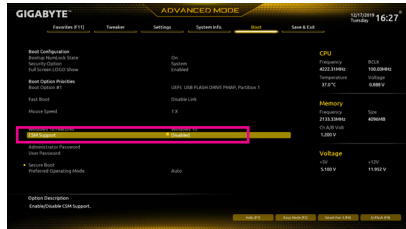

Step 1:
After system restarts, go to the BIOS Setup, make sure **CSM Support** under the **Boot** menu is disabled.

Step 2:
Go to **Settings\IO Ports\SATA And RST Configuration** and make sure **USE RST Legacy OROM** is disabled and **RST Control PCIe Storage Devices** is set to **Manual**. Then depending on which M.2 connector you install the Optane™ memory in, set the corresponding **PCIe Storage Dev on Port XX** item to **RST Controlled**.
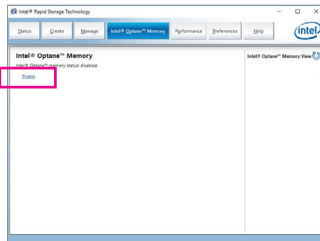
Step 3:
Enter the operating system, launch the I**ntel® Rapid Storage Technology** utility from the Start menu, and then enable Intel® Optane™ Memory on the **Intel® Optane™ Memory** tab.
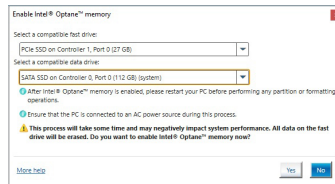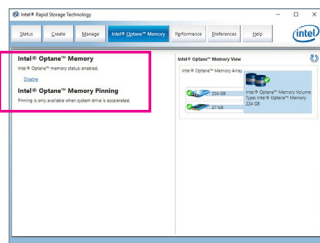
Step 4:
If you install more than one Optane™ memory, please select which one you are going to use. Then select which drive to be accelerated. Click **Yes** to continue. Follow the on-screen instructions to proceed. When completed, restart the system.

Step 5:
Launch the **Intel® Rapid Storage Technology** utility from the Start menu and make sure the Intel® Optane™ Memory has been enabled. If you want to accelerate the system drive, you can select specific folders, files, or applications to accelerate using the **Intel® Optane™ Memory Pinning** function. (The Optane™ memory used must have at least 32 GB capacity.)

- An Optane™ memory cannot be used to accelerate an M.2 PCIe SSD.
- If more than one Optane™ memory is installed, you can select only one of them to accelerate your SATA-based boot drive. The other(s) can only be used as data drive(s).
- Do not abruptly remove the Optane™ memory. Doing so will cause the operating system to stop functioning correctly.
- If you want to change/remove the Optane™ memory, you must disable it using the Intel® Rapid Storage Technology or Intel(R) Optane Memory application first.
- After enabling the Optane™ memory, the related BIOS settings will remain even after a BIOS update.