User's Guide

for

ICH6R RAID

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1.1 Introduction

Following are the Parallel ATA (P-ATA) and Serial ATA (S-ATA) device configurations supported by Intel ICH6R.

- ATA Operate Mode:

  There are two modes to select: SATA Only mode and Native mode.

- SATA Only Mode:

  Only suports 2 S-ATA devices (Use for FB83).

  Only suports 4 S-ATA devices (Use for FB81/FB95).

- Native Mode:

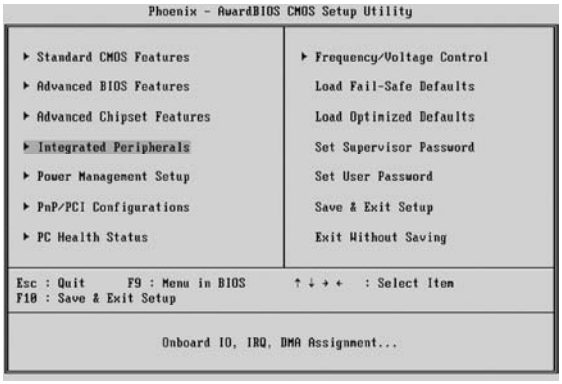
  1. In this mode, system BIOS will search all available IRQs to use for HDD.
  2. New OS that support switch to Native Mode (Win2K , WinXP, Windows.NET Server) can set SATA and PATA to Native Mode.
  3. Enhanced Mode:Maximum of 4 ATA deivces (Use for FB83) Maxmum of 6 ATA deivces (Use for FB81/ FB95).
  4. RAID Mode:Maximum of 4 ATA deivces (Use for FB83), Maxmum of 6 ATA deivces (Use for FB81/ FB95). I
  5. Supports 2 P-ATA and 2 S-ATA devices (Use for FB83), 2 P-ATA and 4 S-ATA devices (Use for FB81/ FB95).

2.1 BIOS Configuration

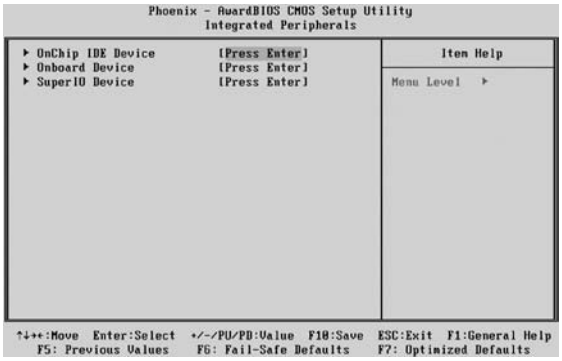
Assumption: Have Intel RAID driver on floppy disk Assemble new system with ICH6R motherboard + 2 SATA HDDs (Use for FB83), ICH6R motherboard + 4 SATA HDDs (Use for FB81/FB95).

2.1.1 System BIOS Setup:

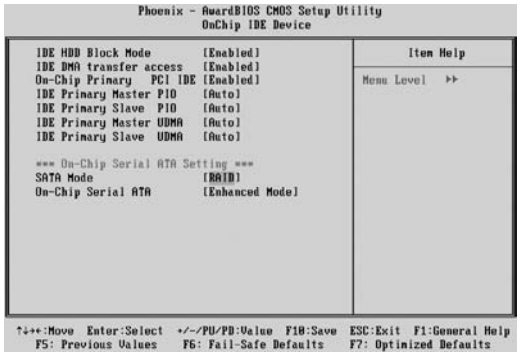
1. Select Integrated Peripherals, Press <Enter>.



2. Select OnChip IDE Device, Press <Enter>.



3. Change SATA Mode to RAID, On-Chip Serial ATA to Enhanced Mode and Serial ATA Port0/1 Mode to SATA0/1 master.



3.1 Create Intel RAID Driver Floppy Disk

This procedure should be used to create a floppy disk containing the Intel RAID driver for use in installing the RAID driver using the F6 method.

1.On a system running Windows, insert Motherboard Driver CD.

2.Insert a blank floppy diskette into the floppy drive.

3.Double-click on the D:\Intel\GRAID\F6 Install Floppy Disk Utility\F6 Floppy.exe and answer all prompts presented, if your CD ROM Driver's label is D.

4.When installation is complete, your floppy should contain the following files:

iaahci.cat

iaahci.inf

iastor.cat

iastor.inf

iastor.sys

icense.txt

readme.txt

txtsetup.oem

4.1 Using the Intel RAID Option ROM

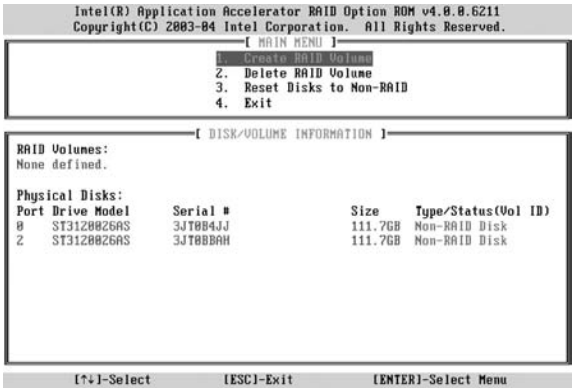
4.1.1 Creating, Deleting, and Resetting RAID Volumes

The Serial ATA RAID volume may be configured using the RAID Configuration utility stored within the Intel RAID Option ROM. During the Power-On Self Test (POST), the following message will appear for a few seconds. After the above message shows, press <Ctrl> and <I> keys simultaneously to enter the RAID Configuration Utility.

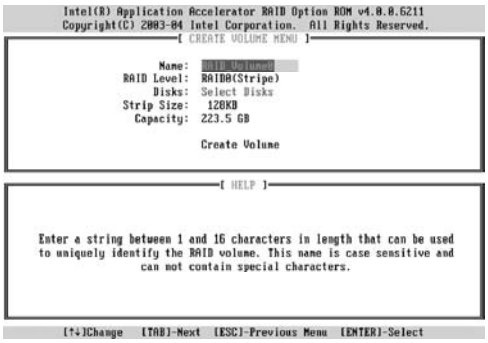
4.1.2 Create RAID Volume

Note: The following procedure should only be used with a newly-built system or if you are reinstalling your operating system. The following procedure should not be used to migrate an existing system to RAID 0.

After pressing the <Ctrl> and <I> keys simultaneously, the following window will appear:



Step 1. Select this option "Create RAID_Volume" and press <Enter>. The following screen appears:



Specify a RAID Volume name and then press the <TAB> or <Enter> key to go to the next field.

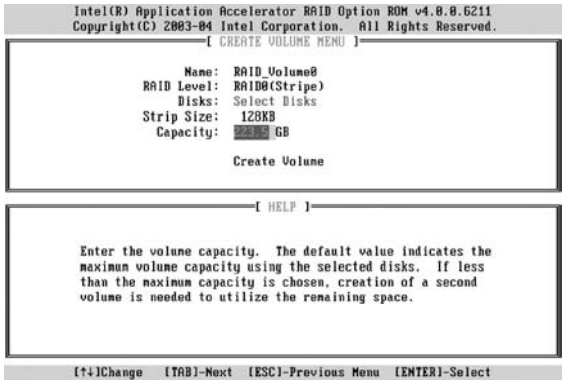
Step 2. Choose the RAID level : RAID 0(Stripe) or RAID 1(Mirror) best suited to your usage model.

After choose RAID level, use the "upper arrow" or "down arrow" keys and press the <Tab> or <Enter> key to select and advance to the next field.

If select the strip value for the RAID 0 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 suggested selections:

- 16 KB: Best for sequential transfers.
- 64 KB: Good general purpose strip size.
- 128 KB: Best performance for most desktops and workstations. (The default value.)

Step 3. From the Strip size, press the <Tab> or <Enter> key to advance to the "Create Volume" prompt. The window will appear as follows:

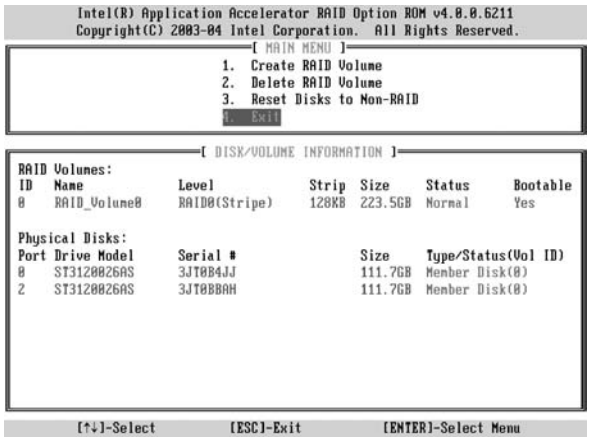


Step 4. Then Press <Enter> to create the specified volume and the following prompt will show:

Step 5. Press <Y> to confirm the selection and the following prompt will show:

or press <N> to create the RAID volume again.

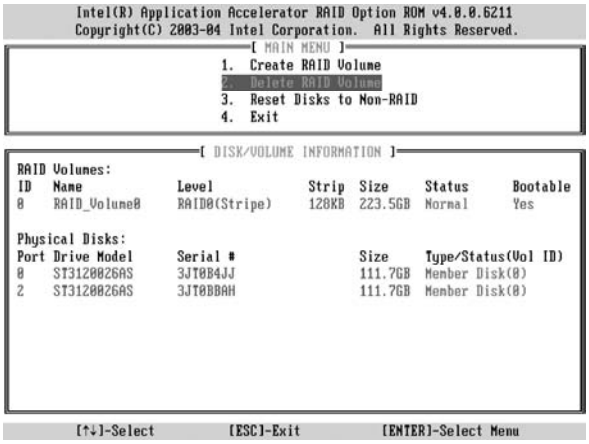
Step 6. Scroll to option 4 Exit and press <Enter> to exit the RAID Configuration utility. The following prompt appears:



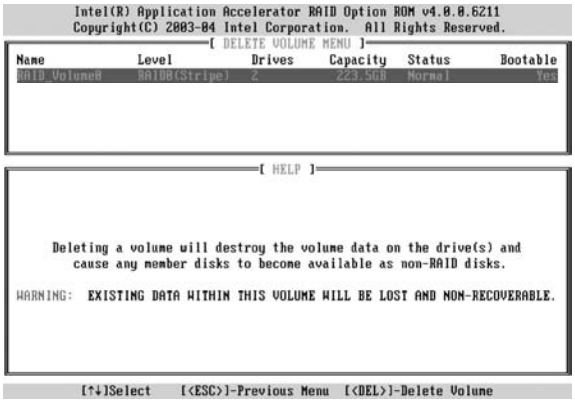
Step 7. Click <Y> to confirm the exit.

4.1.3 Delete RAID Volume

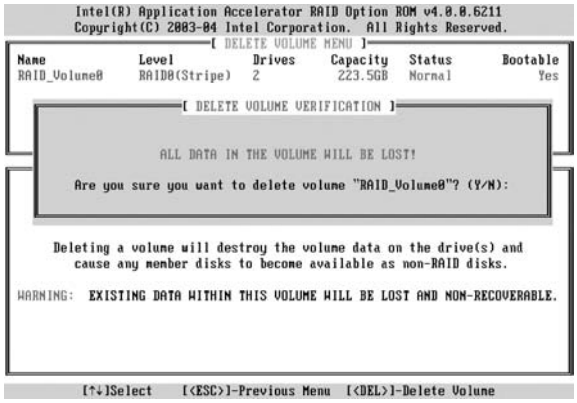
Here you can delete the RAID volume, but please be noted that all data on RAID drives will be lost.



Step 1. Select option 2 "Delete RAID Volume" from the main menu window and press the <Enter> key to select a RAID volume for deletion. The following window will appear:



Step 2. Select the volume and press <Delete> key to delete the RAID volume. The following prompt appears:



Step 3. Press <Y> key to accept the volume deletion.

4.1.4 Reset Disks to Non-RAID

Here you can reset RAID data, but please be noted that the reset drive will revert back to Non-RAID disks.

Step 1. Select option 3 **Reset Disks to Non-RAID** and press <Enter> to delete the RAID volume and remove any RAID structures from the drives. Use the "upper arrow" or "down arrow" keys to choose which disks that want to reset. The following screen appears:

Step 2. Press <SPACE> key to select the disk. The following screen appears:

Step 3. Press <Y> key to accept the selection.

5.1 Install Driver in Windows XP

➢ **New Windows XP Installation**

The following details the installation of the drivers while installing Windows XP.

1. Start the installation: Boot from the CD-ROM. Press F6 when the message "Press F6 if you need to install third party SCSI or RAID driver" appears.

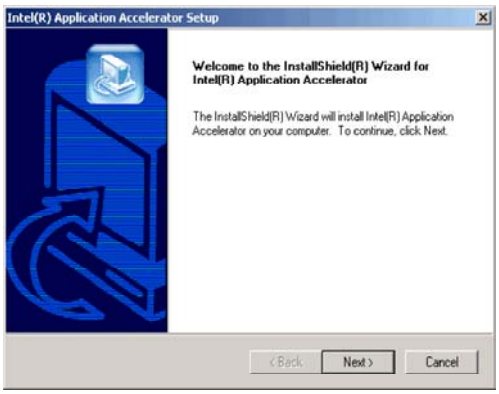
2. When the Windows XP Setup window is generated, press S to specify an Additional Device(s).

3. At the beginning of Windows XP Setup, press F6 to install a third-party SCSI or RAID driver. When prompted, insert a floppy disk containing the Intel RAID driver.
   After reading the floppy disk. The 'Intel 82801FR SATA RAID Controller' will be presented -- select this driver to install.

4. Finish the Windows XP installation and install all necessary drivers.

5.2 Installation Intel Application Accelerator RAID Edition 4.0 software:

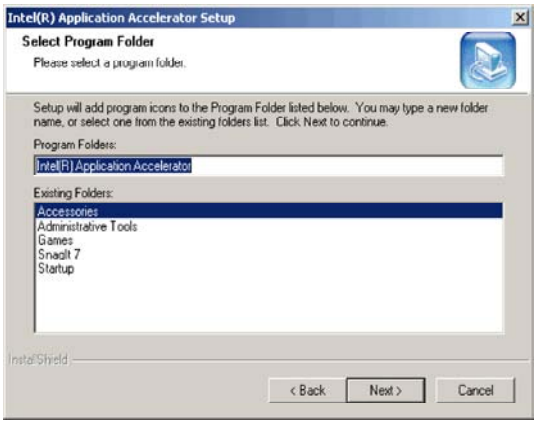
1. Click on the Next button to proceed the installation in the welcoming window.



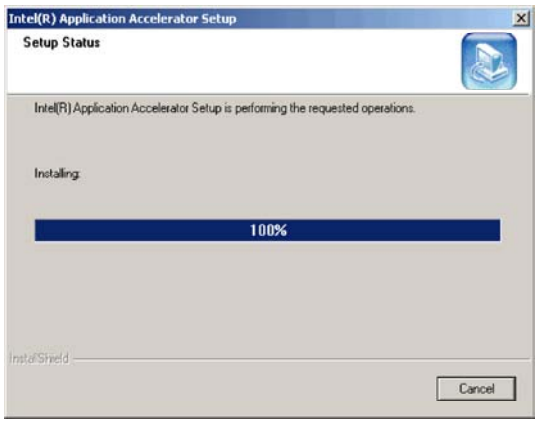
2. After reading the license agreement in the following window, click **Yes** button to continue.

3. Select the folder in which you want the program to be installed in the following window, and click **Next** button to start installation.

4. Select a program folder in the following window where you want Setup to add the program icon.



5. The following window appears to show the Intel Application Accelerator RAID Edition Setup installation status.



6. Once the installation is complete, the following window appears.

7. Click **Finish** button to continue.

6.1 RAID Migration Instructions

The Intel Application Accelerator RAID Edition offers the flexibility to upgrade from a single Serial ATA (SATA) hard drive to a two drive RAID 0 configuration when an additional SATA hard drive is added to the system.

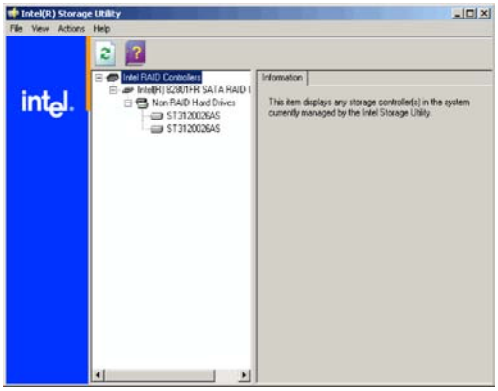
This process will create a new RAID volume from an existing disk. However, several important steps must be followed at the time the system is first configured in order to take advantage of RAID when upgrading to a second SATA hard drive:

1. BIOS must be configured for RAID before installing Windows* XP on the single SATA hard drive.
2. Install the Intel Application Accelerator RAID driver during Windows Setup.
3. Install the Intel Application Accelerator RAID Edition after the opeating system is installed.

Note: A "Create from Existing Disk" operation will delete all existing data from the added disk and the data cannot be recovered. It's critical to backup all important data on the added disk before proceeding. However, during the migration process, the data on the source disk is preserved.

6.2 Create RAID Volume from Disk

1. Run Intel Application Accelerator software. The following window appears:



6.2.1 Create RAID volume

The following steps outline how to build a RAID 1 or RAID 0 system with Microsoft Windows XP installed using two SATA hard drives.

Step 1. Click **Actions** and select **Create RAID volume** to create a new RAID volume, click **NEXT** button to connect.

Step 2. Select the RAID volume name, RAID Level, and select Strip Size. Then click **NEXT**.

- **RAID Volume Name:**

A desired RAID volume name needs to be typed in where the "RAID_Volume 0" text currently appears above. The RAID volume name has a maximum limit of 16 characters. The RAID volume name must also be in English alphanumeric ASCII characters.

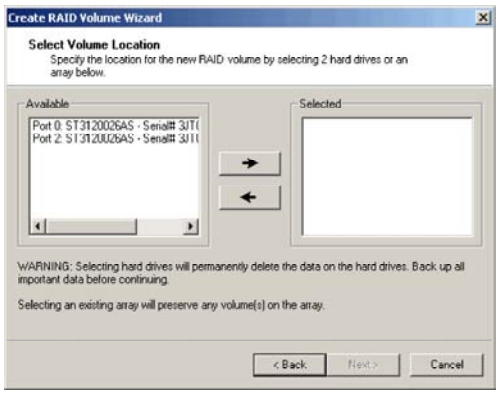
- **RAID Leavel:**

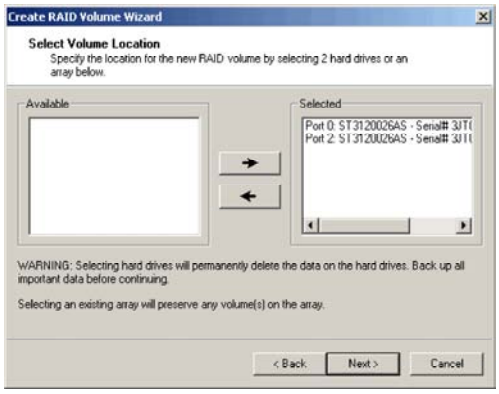
1.RAID0 : Stripe.
2.RAID1 : Mirror.

- **Strip Size:**

Select the desired strip size setting. As indicated, the optimal setting is 128KB. Selecting any other option may result in performance degradation. Even though 128KB is the recommended setting for most users, you should choose the strip size value which is best suited to your specific RAID usage model. The most typical strip size settings are:
4KB: For specialized usage models requiring 4KB strips
8KB: For specialized usage models requiring 8KB strips
16KB: Best for sequential transfers
32KB: Good for sequential transfers
64KB: Good general purpose strip size
128KB: Best performance for most desktops and workstations

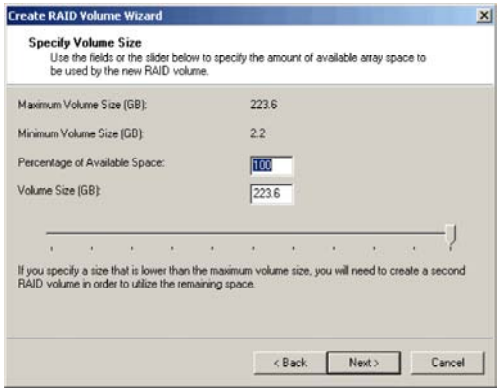
Step 3. Select the hard drives that you wish to use.





Then click **NEXT**.

Step 4. Specify the amount of available array space to be used by the new RAID volume. Then click NEXT.



The following window appears:

Then Click **Finish**.

6.2.2 Create RAID Volume from Existing Hard Device

Before you click **Create RAID Volume** in Step 1, select **Create RAID volume from Existing Hard Device**. Then build a RAID system with Microsoft Windows installed using 2 SATA devices.

It is very important to note which disk is the source disk (the one containing all of the information to be migrated) and which one is the target disk. On a RAID Ready system, this can be determined by making a note during POST of which port (e.g. Port 0 or Port2) the single disk is attached to.

You can also use the Intel Application Accelerator RAID Edition utility before the second disk is installed to verify the Port and serial number of the drive that contains all the data.

7.1 Intel Application Accelerator RAID Edition

Why don't I see extra hard drive afer a RAID migration?

To ensure that non-Windows* partitions are kept intact, the migration to RAID 0 does not utilize the extra space made available by adding a second hard drive.

To take advantage of the extra hard drive space you will need to do one of the following:

1. Create a new partition using Windows* Disk Management (See below for instructions)

-or-

2. Extend the partition to fill the rest of the available space. Win dows does not natively include tools to do this, but there are 3rd party software utilities to accomplish this such as Partition Magic* or Partition Commander*.

8.1 Installation for Creating a New Partition Using Windows Disk Management

To create a new partition using Windows Disk Management, complete the following steps:

Complete one of the following Step 1 tasks, then proceed with the remaining steps:

1.

a)Right-Click "My Computer", select "Manage". In the Com puter Management program window, left-click "Disk Management" in the program tree on the left (located under "Storage" subsection).

-or-

b) Within the Control Panel (Start/Control Panel), double-click "Administrative Tools". In the windows that appears, double-click "Computer Management ". In the Computer Management program window, left-click "Disk Management" in the program tree on the left (located under "Storage" subsection).

2.Maximize the Computer Management program window for easier viewing.

3.In the Computer Management program window, you should see your RAID Volume represented as a physical disk. Notice that the RAID Volume size of the two Serial ATA disks combined. At this point, you sjould see the partitions within the RAID Volume that were originally on the single disk you used as your source.