

HPT370 UltraDMA-100 & RAID Setup Guide For EP-BX7+100

RAID Introduction

The HPT370 ROM BIOS provides a built-in setup program which allows the user to modify, create, or delete arrays. RAID stands for Redundant Array of Inexpensive Disks. It is a method of combining several hard drives into one unit called an array. RAID offers fault tolerance and higher performance than a single hard drive or group of independent hard drives. There are different levels of RAID representing different types of functions. The HPT370 integrated into the EP-BX7+100 supports the following:

<i>Level</i>	<i>Description</i>	<i>Min. Drives Required</i>	<i>Best For</i>
RAID 0	Data Striping	2	Performance
RAID 1	Disk Mirror	2	Data protection
RAID 0+1	Striping & Mirror	4	Performance & Protection

To enter the setup utility power on the computer and wait until after the memory test finishes. When the following is displayed on the screen press the <Ctrl><H> keys immediately. At least one hard drive must be attached to the HTP370 controllers on motherboard connectors UIDE1 or UIDE2, otherwise entry into the HPT370 BIOS will be denied.

HighPoint Technologies, Inc. HPT370 UDMA/ATA100 RAID Controller BIOS
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Press <Ctrl><H> to run BIOS Setting Utility
Scan Devices. Please Wait...

The menu displays all the major selection items. Select the item you need to configure. The selection is made by moving the cursor (press any direction key) to the item and pressing the 'Enter' key. An on-line help message is displayed at the right corner of the screen as the cursor is moved to various items which provides a better understanding of each function. When a selection is made, the menu of the selected item will appear so that the user can modify associated configuration parameters.

Channel Status

From the BIOS setting utility the user will be presented with many options. Under the menu will be displayed the Channel Status window. This displays all the currently attached drives on UIDE1 and EIDE2 of the motherboard. Drives attached to motherboard connectors IDE1 and IDE2 are controlled by the UltraDMA-33 controller and thus are not supported for RAID functionality. The port, drive name, mode, size, and its status will be displayed for reference.

Array Status

By pressing the <F1> function key the Channel Status window will be replaced with the Array Status. This windows shows all currently created RAID arrays in the system. Their names, block size and size will be displayed.

1. Create RAID

Select item “1. Create RAID” to create a RAID array in your system. From picking this menu item you will be presented with the following choices:

1. Array Mode
2. Select Disk Drives
3. Block Size
4. Start Creation Process

Array Mode

The first step in creating an array is to set the desired mode. Three possible RAID array modes are presented. Select the mode in which the drives should function.

Striping (MODE 0) for Performance takes two or more drives and combines their storage capabilities into one. Example: If you stripe a 4GB HDD and a 2GB HDD drive you will make an array of 6GB total. Software and operating systems will not see the two drives - only the 6GB array.

Mirror (RAID 1) for Security takes two drives and mirrors all data on one drive to the other. Although you physically have two drives your software and operating system for all practical purposes will only see one. Any data stored on your drive will automatically be mirrored onto the other. Both drives should be identical size, model, and type.

Striping + Mirror (RAID 0+1). This option combines the both RAID 0 and RAID 1 above. It allows the user to mirror striped drives onto another set of striped drives for extra protection.

Select Disk Drives

After making a decision of what type of array to create next you need to choose what drives you wish to participate with it. After choosing this menu item parenthesis will appear next to the drives in the Channel Status window. Use the arrow keys to move the cursor to the desired drives. Press the <Enter> key to select them. After choosing the drives press the <Esc> once.

Block Size

This option sets the block sizes that the array will create to organize the data. It is recommended to keep the default of 64K selected.

Start Creation Process

This is the final step in the RAID array creation. After you have confirmed your mode and drives use this option to create the array. Warning this will destroy all previous data on the drives selected. The creation will only take a moment and will bring the user back to the main menu. At this point the array is created and should now be partitioned and format for operating system use.

Once created the array will be given a name by the utility. If this is the first array in the system it will be named Array #0. A second array in the system will be named Array #1 and so forth.

2. Delete RAID

Select item “2. Delete RAID” from the main menu to erase a RAID array currently in the system. Upon closing this option the Channel Status window will be displayed along with a set of parenthesis next to any arrayed drives. Only the first drive of the array will have the parenthesis. Use the arrow keys to move the cursor to the desired drive. Press the <Enter> key to select it. You now will be prompted by a warning message. If you are sure you want the array removed press <Y>. The array is now removed and the drives have all been separated into individuals. Drives that were originally stripped may now have their data corrupted.

3. Duplicate Mirror Disk

Select item “3. Duplicate Mirror Disk” from the main menu to create an exact copy of one drive to another. Both drives should be identical size, model, and type. Upon selecting this option you will be shown the following three choices.

1. Select Source Disk
2. Select Target Disk
3. Start Duplication Process

Select Source Disk

Before you can duplicate (copy) any drive you must first select what drive it is you want to copy. Upon choosing this option the Channel Status window will be displayed along with a set of parenthesis next to all the drives. Use the arrow keys to move the cursor to the desired drive. Press the <Enter> key to select it.

Select Target

Use this option to pick the destination drive. Upon choosing this option the Channel Status window will be displayed along with a set of parenthesis next to all the drives. Use the arrow keys to move the cursor to the desired drive. Press the <Enter> key to select it. Any data previously on this drive will be erased using the next step - start duplication process.

Start Duplication Process

This option will start the copy process. Depending upon the size of the drives the copying may take up to 30 minutes or more. Upon completion the drives should now exact copies of each other (mirror).

This option is useful for making a RAID 1 array out of an existing drive with data. First copy the drive onto a similar drive then make the array out of both of them.

4. Create Spare Disk

Select item “4. Create Spare Disk” from the main menu to include an extra drive into an existing RAID 1 mirror array. So in case one of the drives in the array malfunctions the spare will take over.

1. Select Mirror Array
2. Select Spare Drive

Select Mirror Array

Select the array currently in the system you would like to add the spare drive into.

Select Spare Drive

Select the extra drive you would like to include into the mirror. Any existing data on the drive may be lost as the mirror takes over.

5. Remove Spare Disk

Select item “5. Remove Spare Disk” from the main menu to remove any spare drives that were added into an existing RAID 1 mirror array. Select the mirror array you wish to remove a spare from then the actual spare drive.

6. Set Drive Mode

Select item “6. Set Drive Mode” from the main menu to adjust the data transfer mode for any drive attached to the HPT370 controller. Upon choosing this option the Channel Status window will be displayed along with a set of parenthesis next to all the drives. Use the arrow keys to move the cursor to the desired drive. Press the <Enter> key to select it.

When selecting a drive a pop-up window will be displayed showing the following available modes. Only select modes for which your drive actually supports. Refer to your hard drive’s documentation for more information.

- PIO 0
- PIO 1
- PIO 2
- PIO 3
- PIO 4
- MW DMA 0
- MW DMA 1
- MW DMA 2
- UDMA 0
- UDMA 1
- UDMA 2
- UDMA 3
- UDMA 4

7. Select Boot Disk

Select item “7. Select Boot Disk” from the main menu to choose what hard drive attached to the HPT370 should be allowed to boot the system. This drive must also contain a bootable working operating system. Note: The Boot Device (Boot sequence) option in the Award BIOS must also be set to give priority to the HPT370 over the onboard Intel UltraDMA-33 IDE controller. Select “SCSI” in the Award BIOS and the HPT370 will be allowed to boot the system with its attached drives.

