



LSI MegaRAID User's Manual



Q2143
August 2005

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About This Manual

This manual is designed for users who have already acquired knowledge of personal computer integration so as to help establish a powerful ASUS server.

Overview

The structure of this manual is listed as follows:

1. Overview : How to use this manual

This chapter will make a description of how to use this manual as well as guide throughout the contents of the following chapters.

2. Chapter 1: RAIDs Setup

With a step-by-step description, this chapter shows the procedures of setting up a RAID on your system at the time when system is powered on and not yet enters the operation system.

3. Chapter 2: Setup for Operation Systems

This chapter will guide you through the relevant settings after entering the operation systems.

Special Messages

This manual uses the following icons to call your attention to specific instructions or explanations.



Warning: Provides messages of high importance, including messages relating to personal safety or system integrity.



Caution: Draws attention so as to prevent possible inappropriate actions which could lead to damages to the system.



Important: Important tips or things to be paid attention to.



Note: Tips, definitions, or further explanations

More Information about This Product

You could get, via the following two media, information about the ASUS products you are using as well as the upgrade information for both software and hardware.

1. ASUS Website

Visit ASUS global website and acquire all kinds of information about ASUS hardware and software products.

2. Other Documents

Besides the articles listed as the contents of shipping package, there also may have other documents within the package, such as warranty documents provided by your dealer.

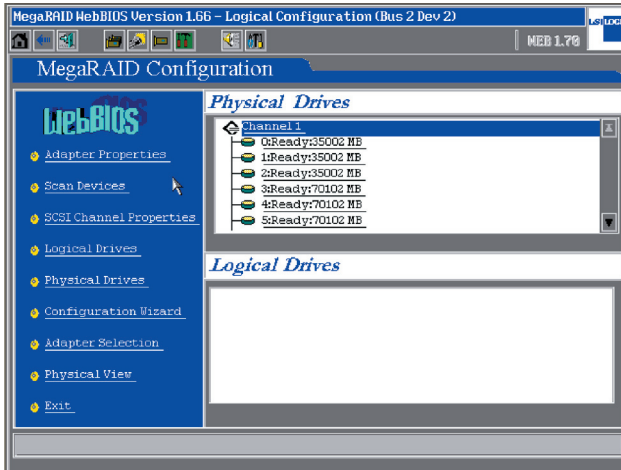
1

RAID Setup

With step-by-step descriptions, this chapter introduces the procedures of setting up a RAID on your system at the time when system is powered on and not yet enters the operation system.

1.1 Change the Speed of SCSI Channel

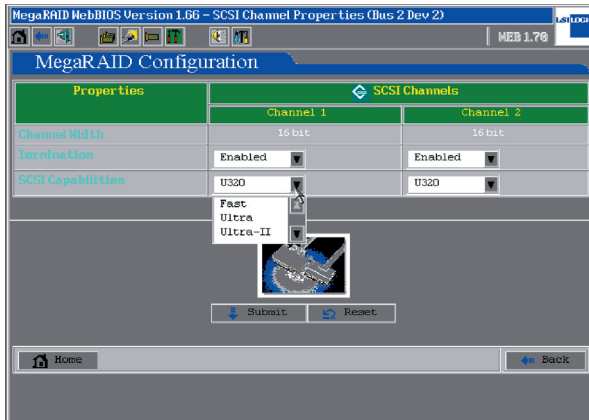
1. Press **Ctrl + H** at the same time and enter the MegaRAID WebBIOS configuration window. Select with your mouse or keyboard the **SCSI Channel Properties** in the WebBIOS configuration menu.



2. The window will show the current operation speed of the SCSI channels. You could enable one single channel (320-1) or two channels as well. (320-0,320-2)



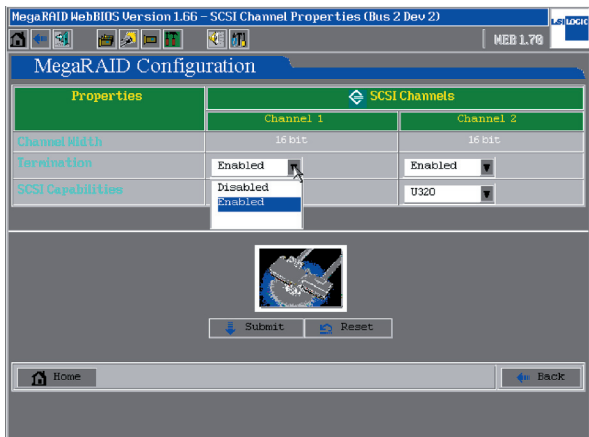
- Click on the arrow of **SCSI Capabilities** box and open the drop down menu. The four speed selections are Fast, Ultra, Ultra-II, U160, and U320. Select a suitable speed and click the **Submit** button to save the new configuration.



- If it is to disable one of the channels (the disabled channel will not be accessed to any storage devices), you could set the **Termination** of this very channel to **Disabled** and click **Submit** to apply.

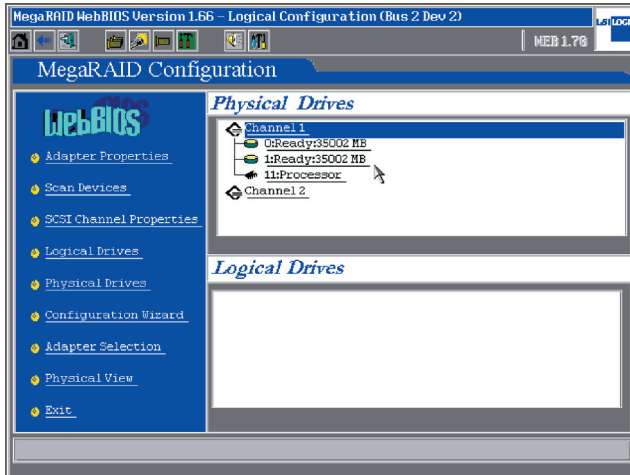


Warning: Do not make unnecessary changes to the settings of **Termination**. The default setting is **Enabled** so that there would be no such occasions that the system could not find storage devices.

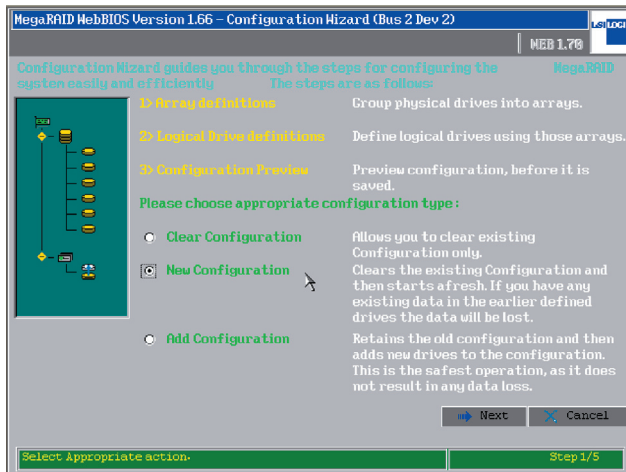


1.2 RAID 0 or RAID 1 Setup

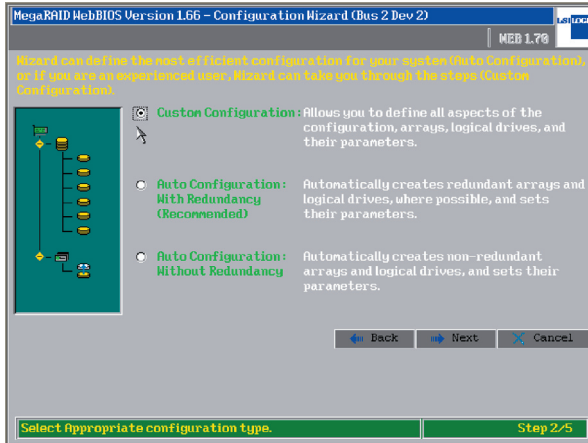
1. Press at the same time **Ctrl + H** and enter the MegaRAID WebBIOS configuration window where information about all physical drivers installed is displayed. Click **Configuration Wizard** to start RAID setup.



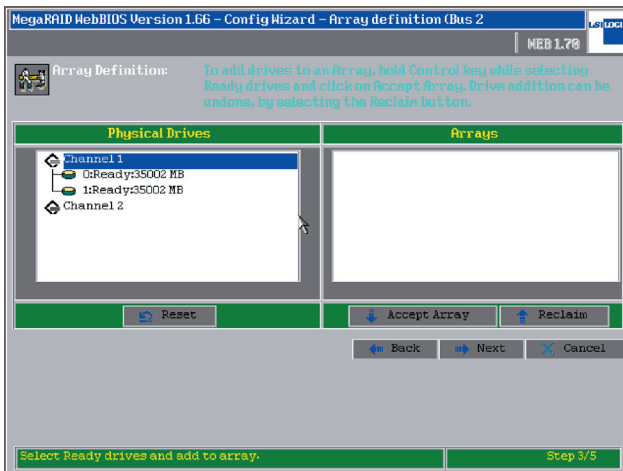
2. If this is the first time to setup a RAID on your system, please select **New Configuration** and click **Next** to continue.



3. If the setting is to meet special requirements, please click on **Custom Configuration**. You could also let the **Configuration Wizard** to set up a RAID automatically by selecting **Auto Configuration**. Press **Next** to continue.

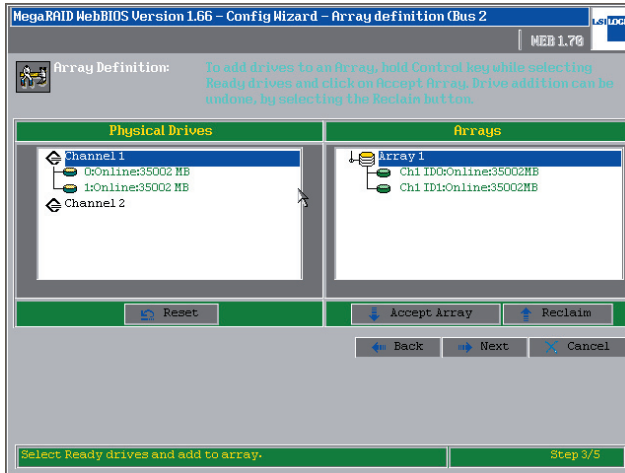


4. Press and hold on the **Ctrl** key on your keyboard and select two ready drives with your mouse, then click **Accept Array** to setup RAID 1.

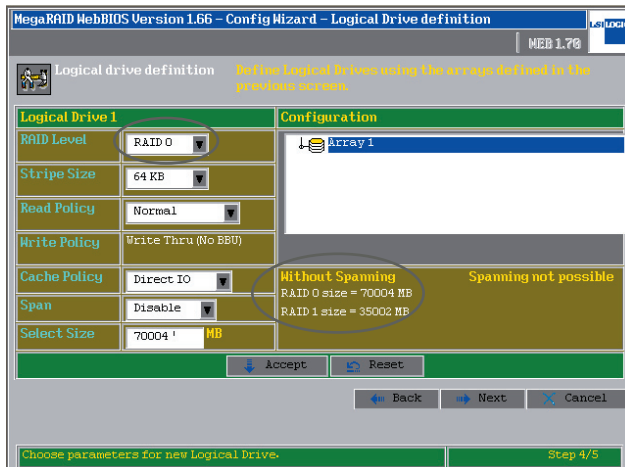


The minimum requirements of hard drives for different types of RAID are: RAID 0: at least two disks; RAID 1: at least two disks and the number of disks must be even.

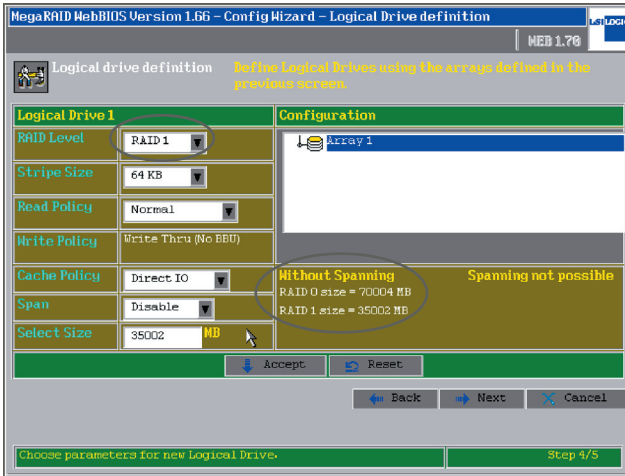
5. In the right side windows you could view the information of all RAID5 (arrays). Click **Accept Array** and **Next** to continue.



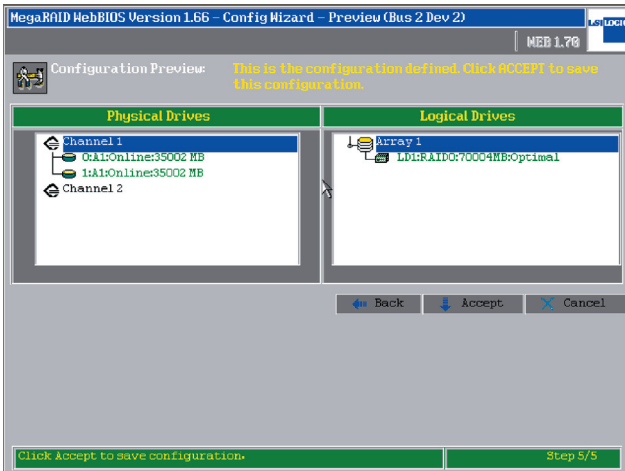
6. For RAID 0 configuration, set the **RAID Level** as **RAID 0**, and input the **RAID 0 size** value within the circled area into the **Select Size** box (For example: RAID 0 size= 70004 MB). Then click **Accept** and **Next** to continue.



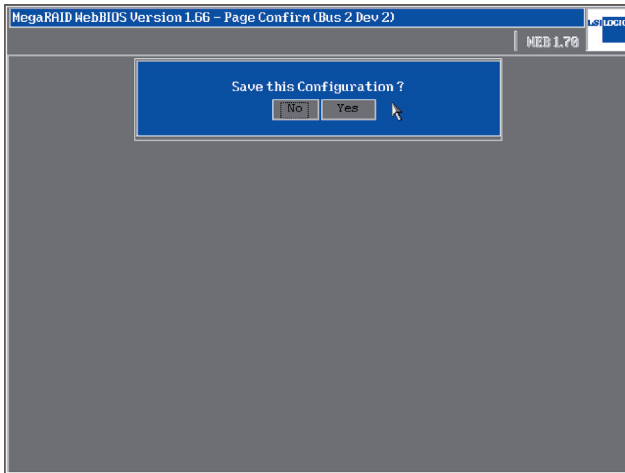
- For RAID 1 configuration, set the **RAID Level** as RAID 1, and input the **RAID 1 size** value within the circled area into the **Select Size** box (For example: RAID 1 size= 35002 MB). Then click **Accept** and **Next** to continue.



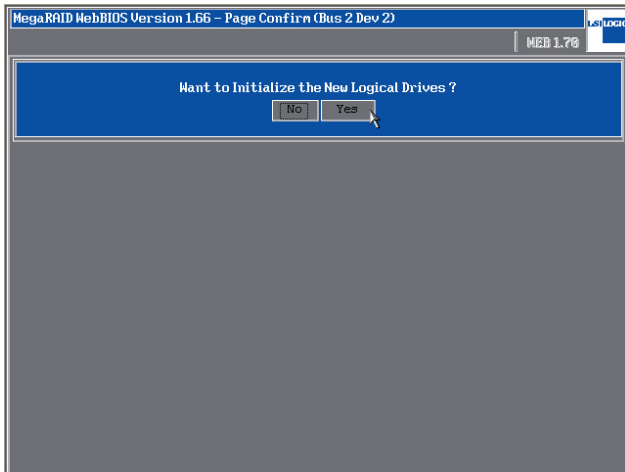
- The **Logical Drives** window now displays the status of the configured RAID, Click on **Accept** to continue.



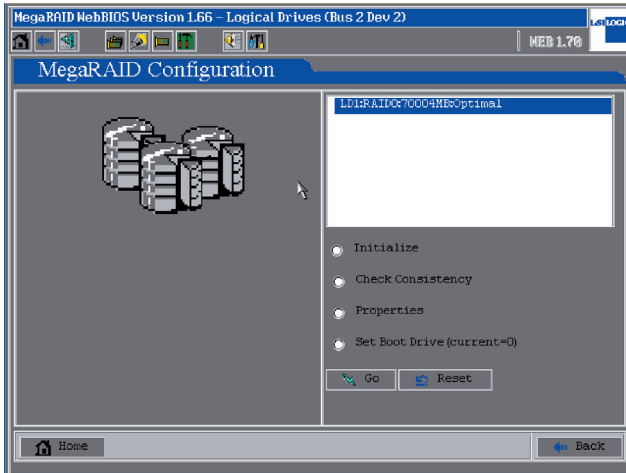
9. Click **Yes** to save the setup.



10. Click **Yes** to initialize the new logical drives.

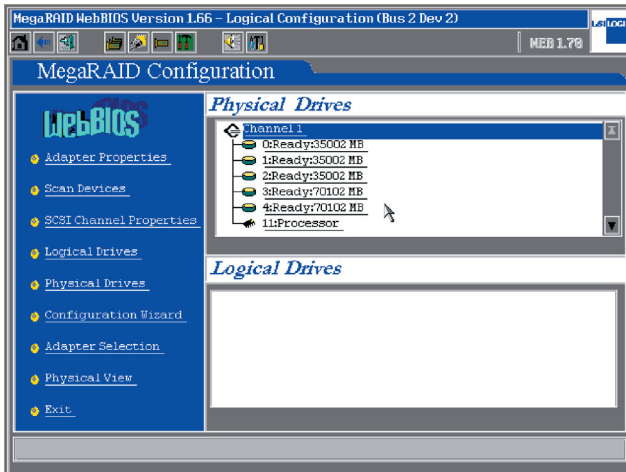


11. If no boot device is ever set, please select **Set Boot Drive** and then select **Go** to change the settings so that the RAID storage devices could become the first boot device.

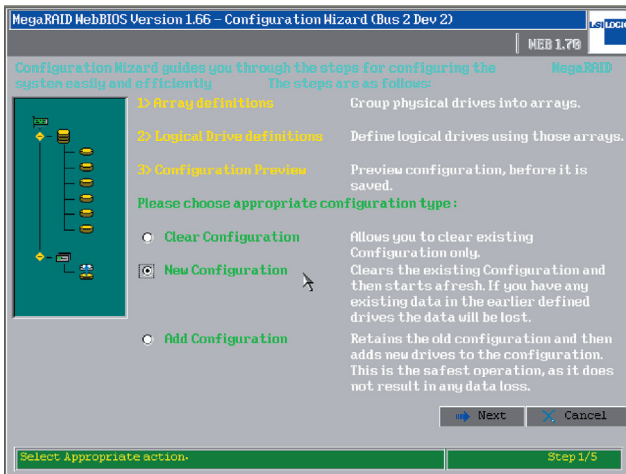


1.3 RAID 5 Setup

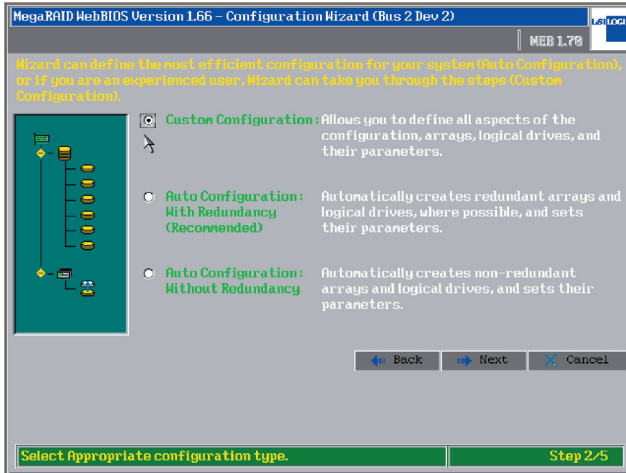
1. Press at the same time **Ctrl + H** and enter the MegaRAID WebBIOS configuration window where information about all physical drivers installed is displayed. Click **Configuration Wizard** to start the RAID settings.



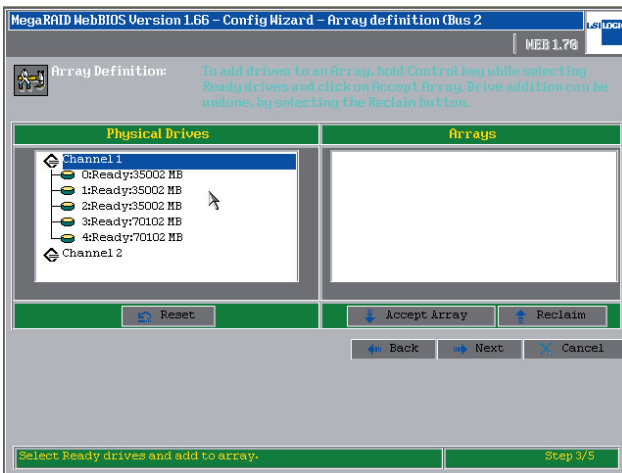
2. If this is the first time to setup a RAID on your system, please select **New Configuration** and click **Next** to continue.



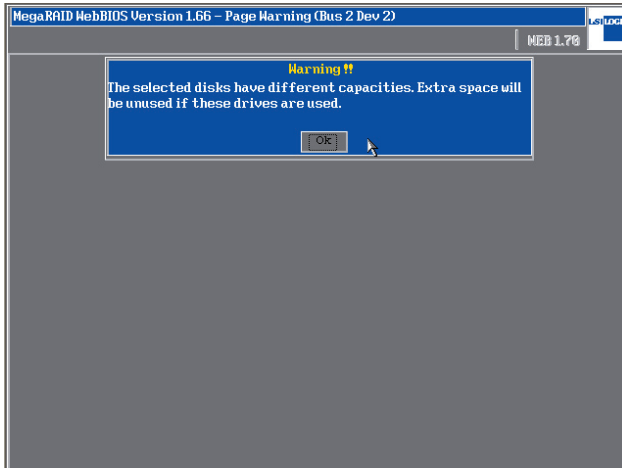
3. If the setting is to meet individual requirements, please select **Custom Configuration**. You could also let the Configuration Wizard set up a RAID automatically by selecting Auto Configuration. Click Next to continue.



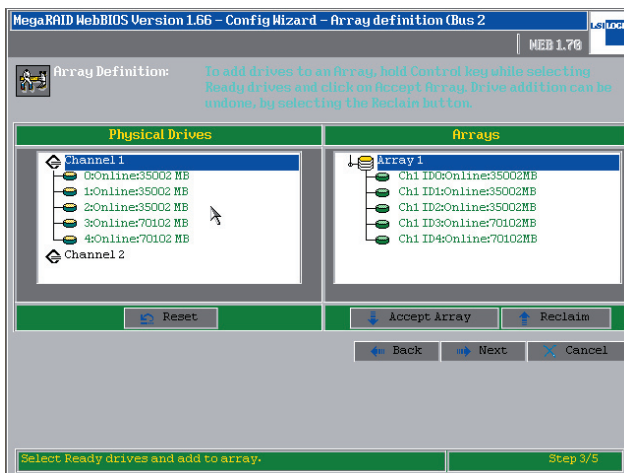
4. Hold on the **Ctrl** key on your keyboard and select with your mouse five ready drives, then click on **Accept Array** to setup Array 1. At least three hard disks are needed for establishing RAID 5.



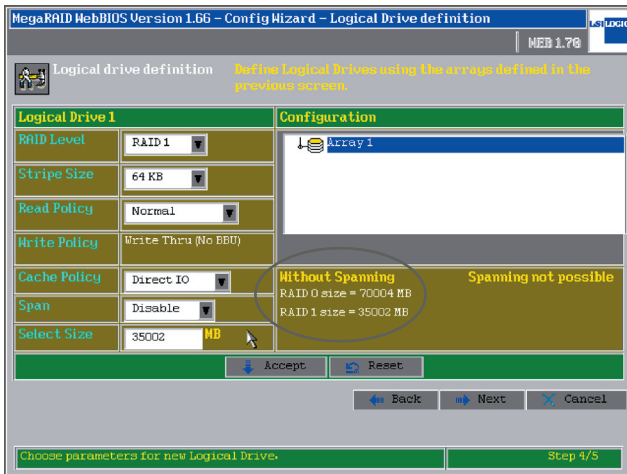
- This warning window will prompt out when hard disks of different sizes are deployed in a RAID. If hard disks of identical space are used, this window would not appear. (We recommend using hard disks of a same model for RAID configuration)



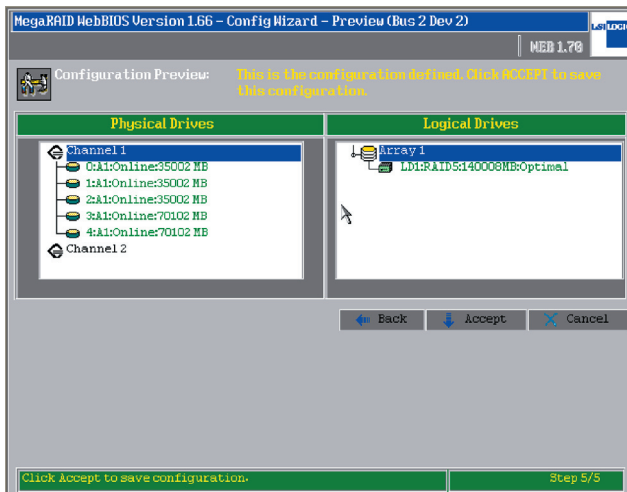
- You could see the information of RAID in the **Array Definition** window. Click **Next** to continue the settings.



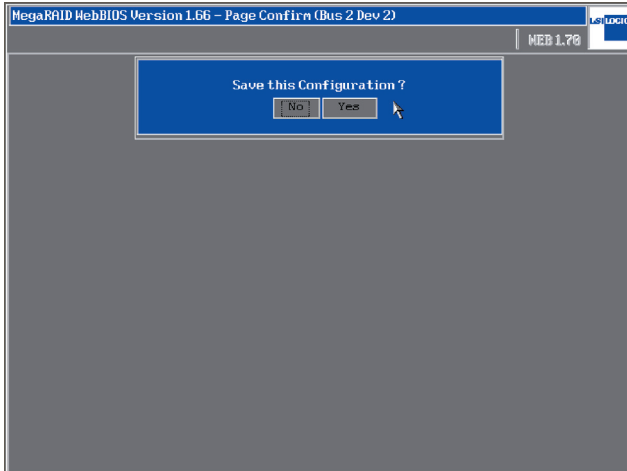
- Set **RAID Level** as **RAID 5** and input the **Select Size** box with the **RAID 5 size** value within the circled area.



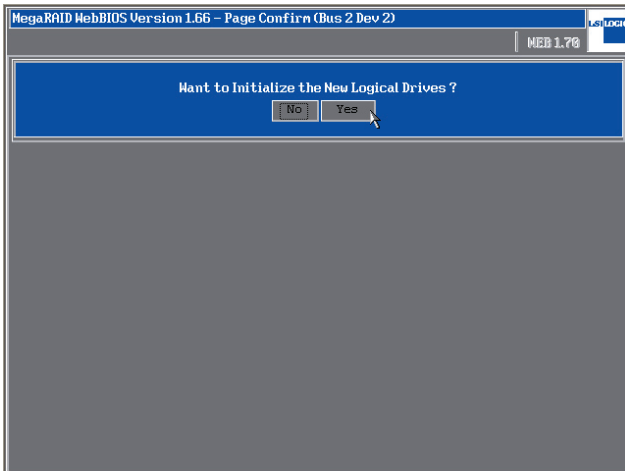
- You could see information of all RAID settings in the left side window. Click **Accept** to continue.



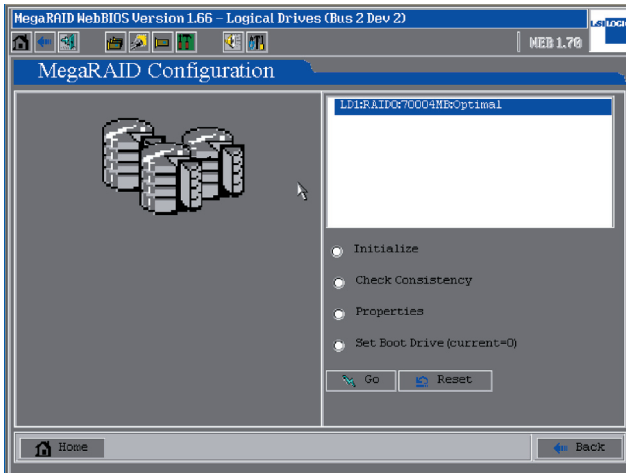
9. Click **Yes** to save the configuration, or click **No** to cancel the settings.



10. Click **Yes** to initialize the new logical drives.

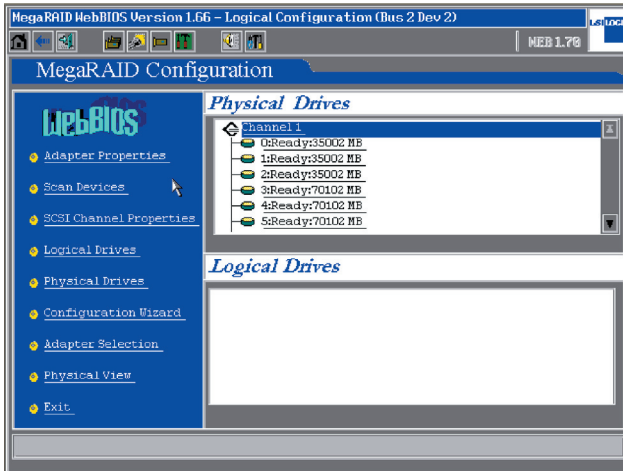


11. If no boot device is ever set, please select **Set Boot Drive** and then click **Go** to change the settings so that the RAID storage device could become the first boot device.

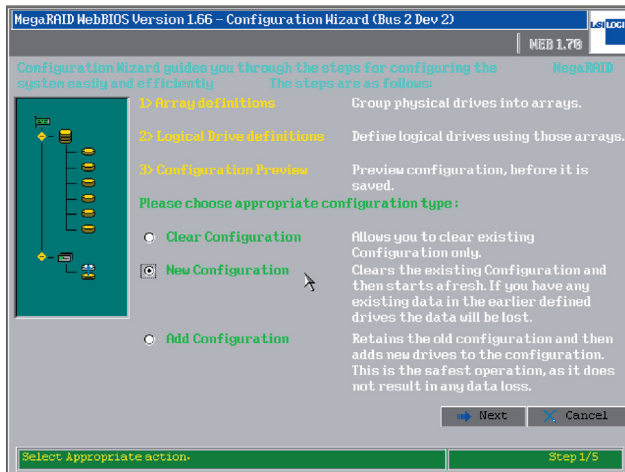


1.4 RAID 50 Setup

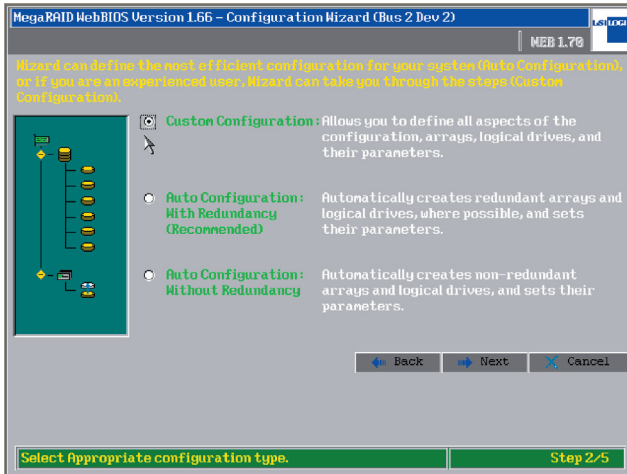
1. Press at the same time **Ctrl + H** and enter the MegaRAID WebBIOS configuration window where information about all physical drivers installed is displayed. Click **Configuration Wizard** to start the RAID settings.



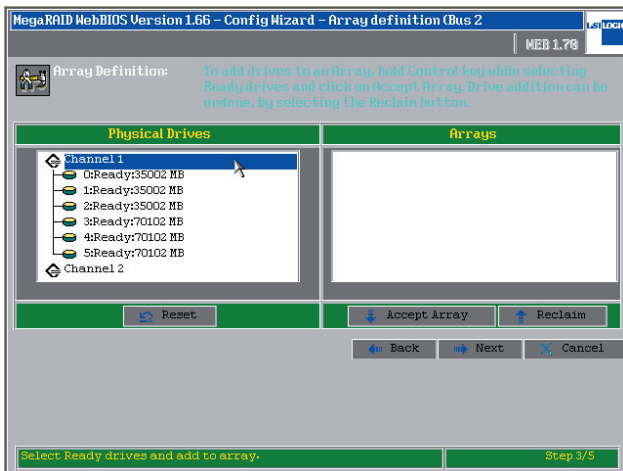
2. If this is the first time to set up a RAID on your system, please select **New Configuration** and click **Next**.



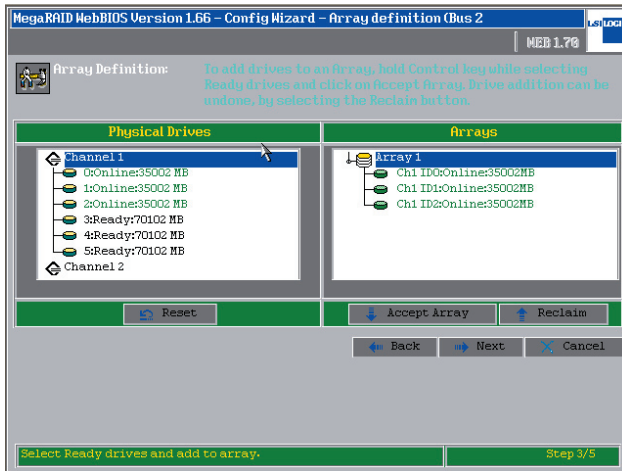
- If the setting is to meet individual requirements, please select **Custom Configuration**. You could also let the Configuration Wizard to set up a RAID automatically by selecting **Auto Configuration**. Then press **Next** to continue.



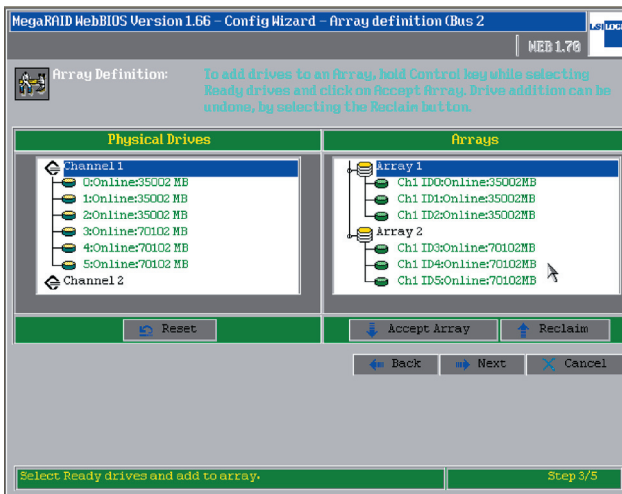
- Hold on the **Ctrl** key on your keyboard and select with your mouse three ready drives, then click on **Accept Array** to setup RAID 50. Note: a minimum of 6 hard drives is needed for RAID 50.



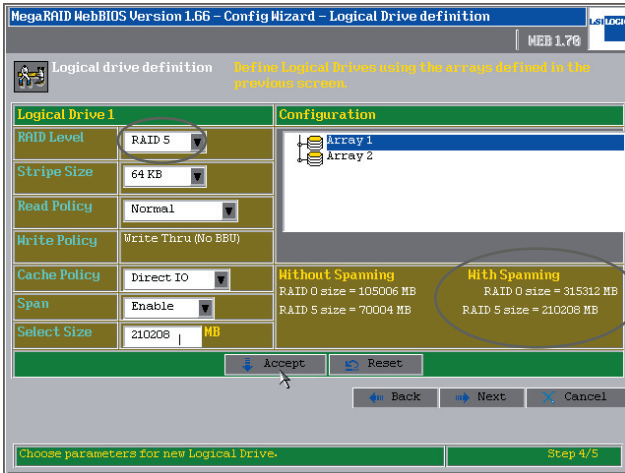
- The three disks are now set as Array 1. Click **Accept Array** to continue.



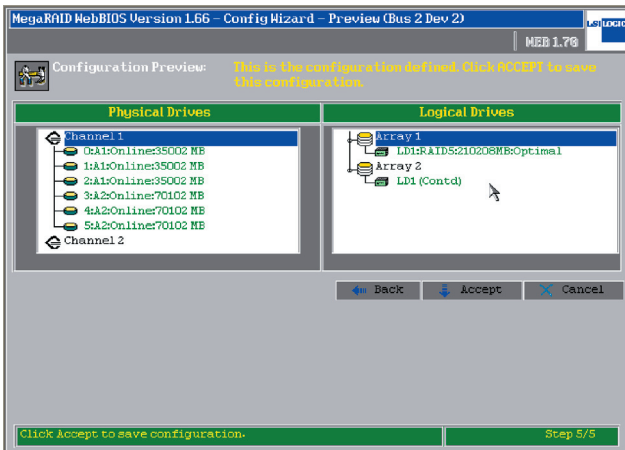
- Then set the rest three hard disks as Array 2 and click **Accept Array**. Press **Next** to continue.



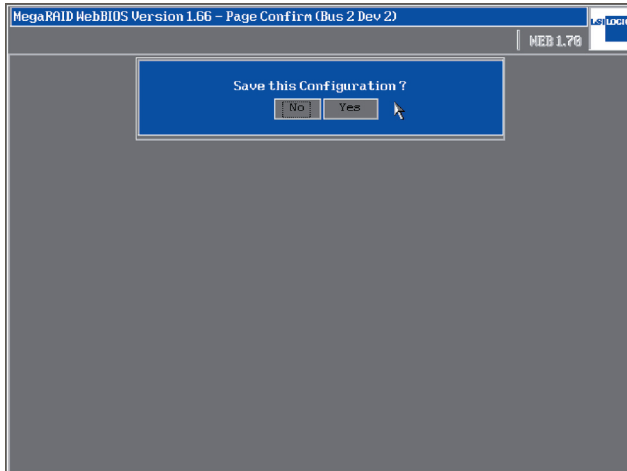
7. Select **Array 1** and set the **RAID Level** as RAID5 and **Span** as **Enabled**. Then input the **RAID 5 size** value with spanning in the circled area into the **Select Size** box. Click **Accept** to continue.



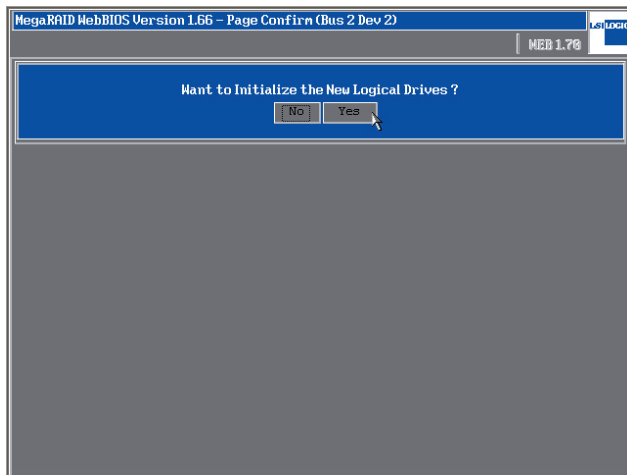
8. You could now view all the RAID setup information in the **Configuration Preview** window. The two arrays then form a RAID 50, with the Array 2 being the continuance of RAID 1.



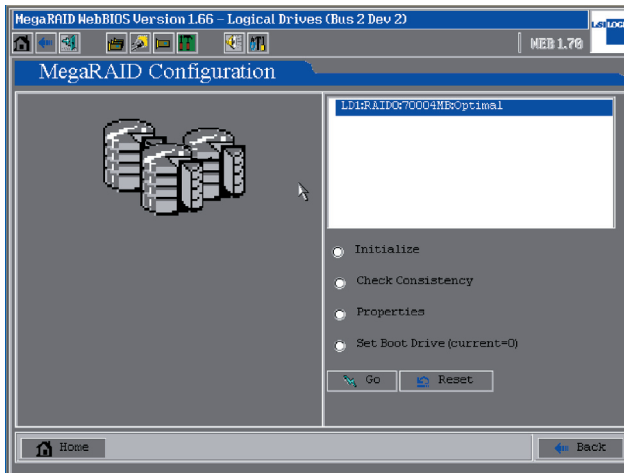
9. Click **Yes** to save the configuration.



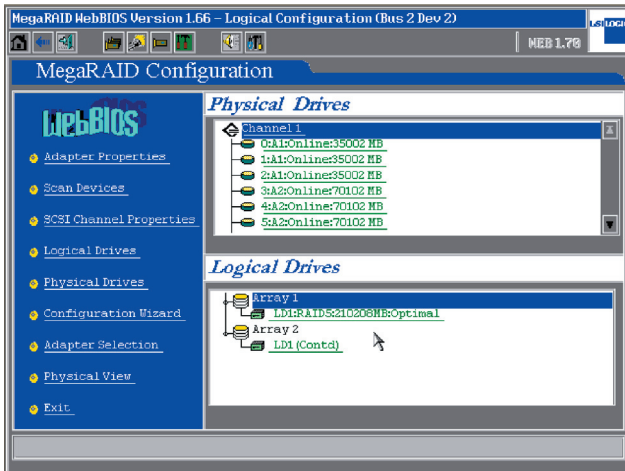
10. Click **Yes** to initialize the new logical drives.



11. If no boot storage device is ever set, please select **Set Boot Drive** and then select **Go** to change the settings so that the RAID storage device could become the first boot device.

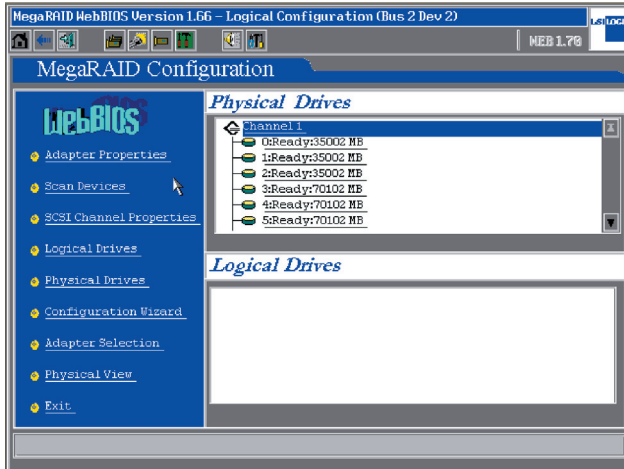


12. Now you could see information about all physical drives and logical drives in the home page of WebBIOS.

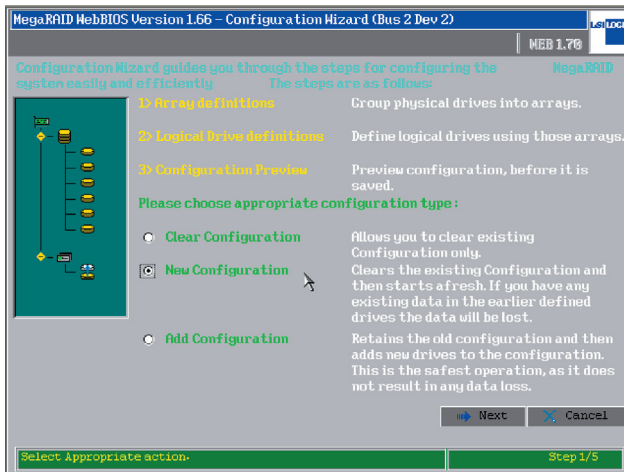


1.5 RAID 10 Setup

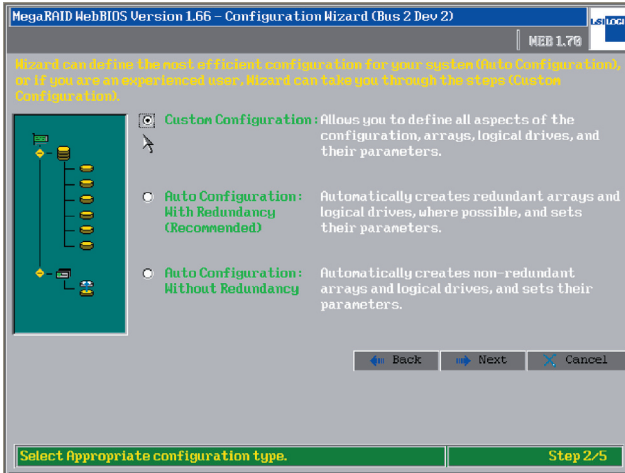
1. Press **Ctrl + H** at the same time and enter the MegaRAID WebBIOS configuration window, where information about all physical drivers installed is displayed. Click **Configuration Wizard** to start the RAID settings.



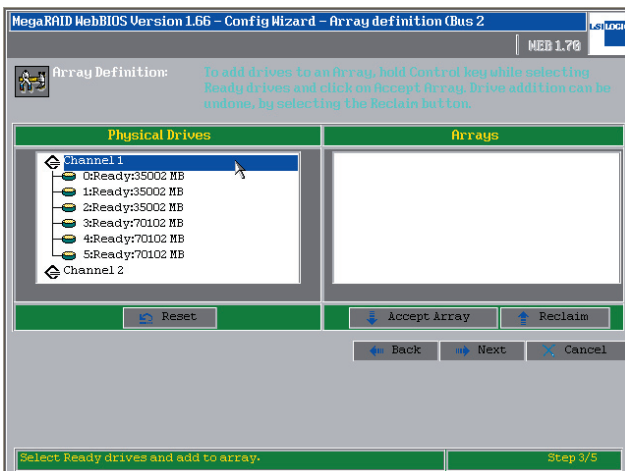
2. If this is the first time to setup a RAID on your system, click **New Configuration** and then click **Next** to continue.



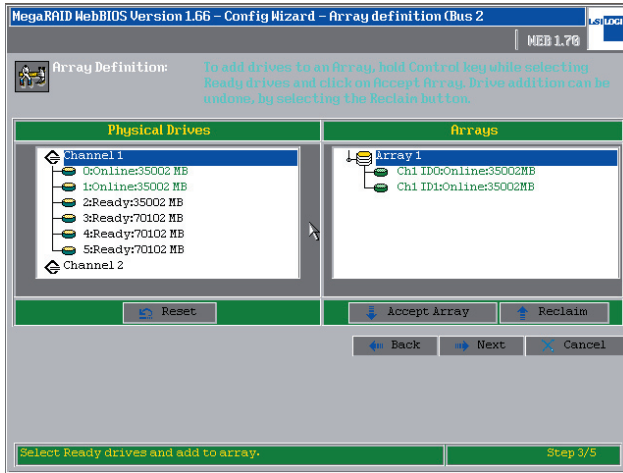
3. If the setting is to meet individual requirements, please select **Custom Configuration**. You could also let the Configuration Wizard set up a RAID automatically by selecting **Auto Configuration**. Click **Next** to continue.



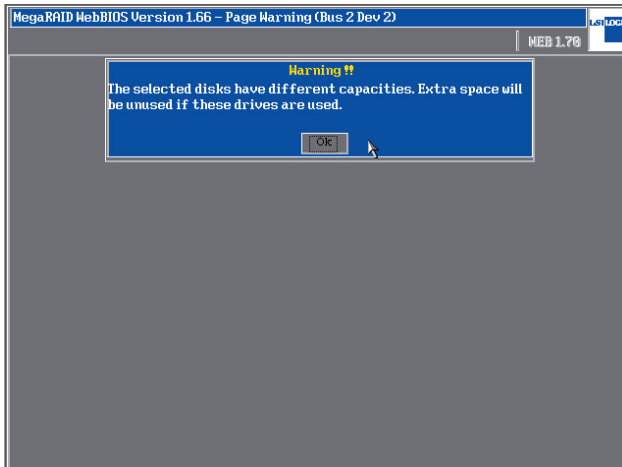
4. Hold on the **Ctrl** key of your keyboard and select with your mouse two ready drives, click on **Accept Array** to set up Array 1 as RAID 0. Repeat this procedure to setup Array 2. At least four hard disks are need to setup RAID 10.



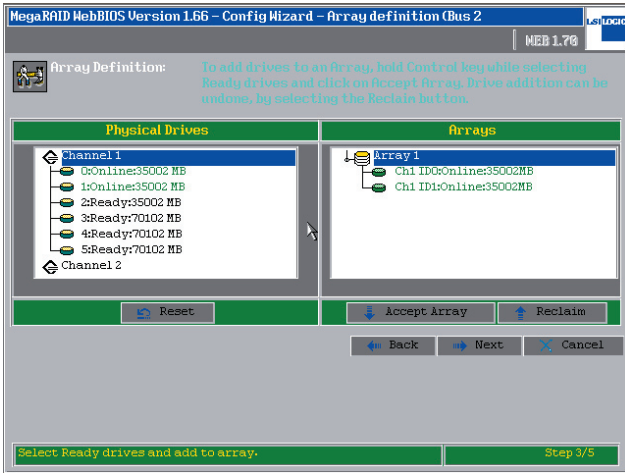
5. Select two hard disks as and set them as Array1, and the rest Array 2. At least two hard disks are needed for setting up RAID 1, and the number of disks must be even.



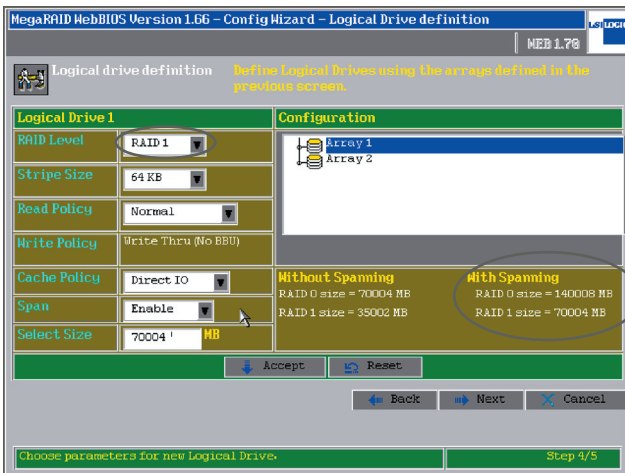
6. This warning window will prompt out when hard disks of different sizes are deployed in a RAID. If hard disks of identical space are used, this window would not appear. (We recommend using hard disks of a same model for RAID configuration)



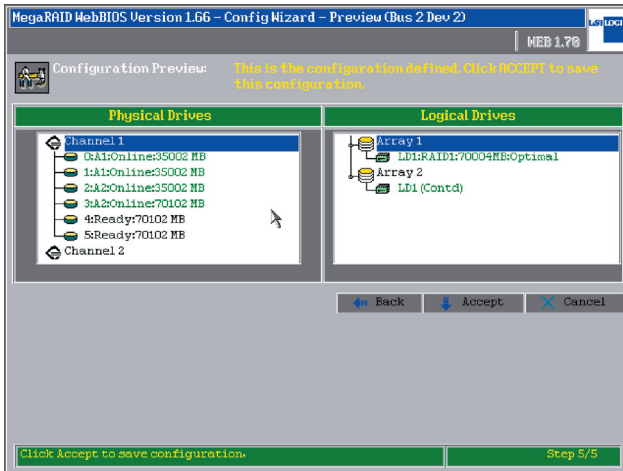
- You could now see information of all RAID settings. When you have finished the setting for Array 1 and Array 2, please click **Next** to continue.



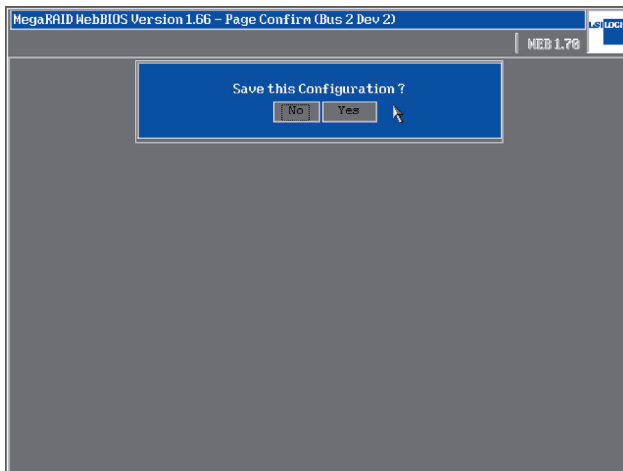
- Set Array 1 as RAID 1, and set the **Span** as **Enable**. Input the **Select Size** box with the RAID 1 size value within the circled area; then click **Accept** and **Next** to apply.



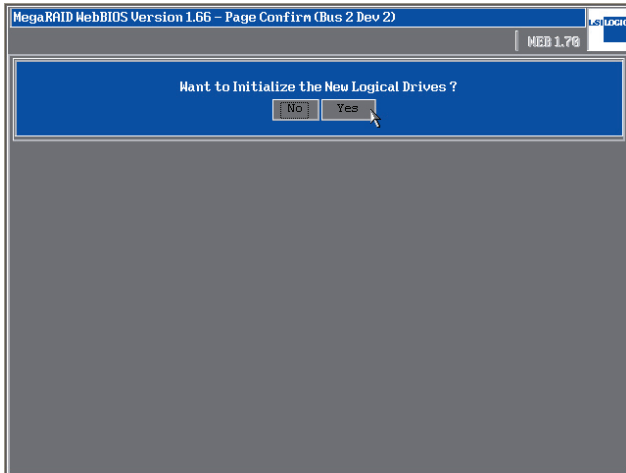
9. You could then see the information of RAID settings in the Configuration Preview window. The two arrays form a RAID 10, with the Array 2 being the continuance of the Array 1.



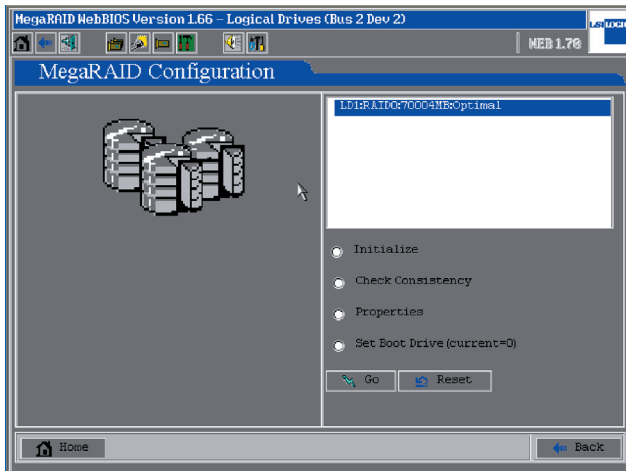
10. Click **Yes** to save the settings, or to click **No** to cancel the configuration.



11. Click **Yes** to initialize the new array of Logical Drives.

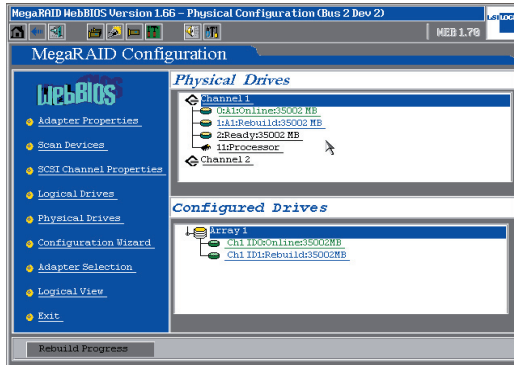


12. If no boot device is ever set, please select **Set Boot Drive** and then select **Go** to change the settings so that the RAID storage device could become the first boot device.



1.6 Array Rebuild

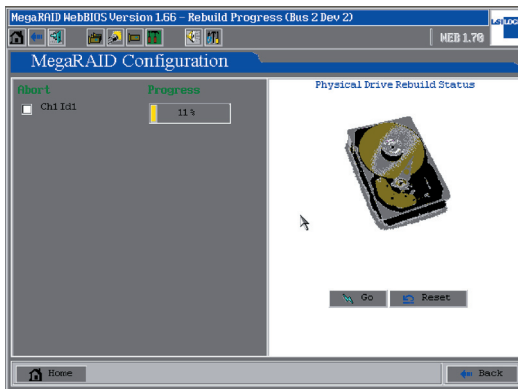
1. When one of the hard disks within the array is removed and substituted with new disk, the array could automatically start the rebuilding process. You could check the information of the rebuilding progress in the MegaRAID WebBIOS configuration window. If you would like to check the rebuilding speed, please click on the **Rebuild Progress** button.



2. The rebuilding progress is displayed in the left side window. If necessary, you could select **Abort** and then click **Go** to cancel the rebuilding process.

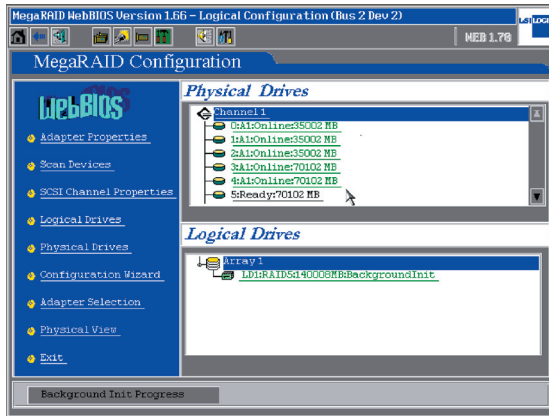


Caution: Do not launch unnecessary abortion to the array rebuilding process, nor to cut the power supply during the rebuilding process, in case the existing data being destroyed.

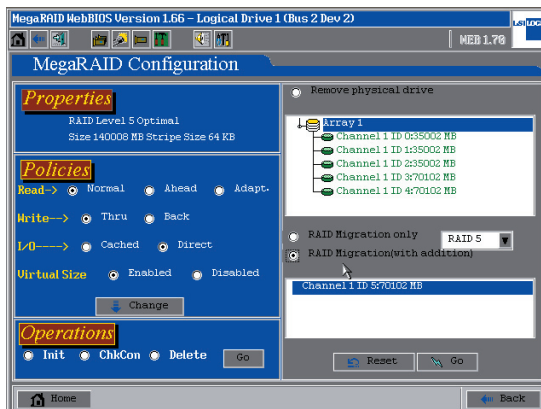


1.7 Migration Setup

1. If new hard disks are to be installed onto the SCSI backplane, please select **Scan Devices** to discover the disk first. Then you will find the ready disk in the **Physical Drives** window. Click on **Logical Drives** to set up Migration.



2. There are two available options for Migration setup:
 - I. RAID Migration only: to make the Array 1 to do the "RAID Migration" automatically.
 - II. RAID Migration (with addition): to make the Array 1 and the new hard disk to do the "RAID Migration". In this option, you could change the existing RAID to any RAID type you want to setup. Click "Go" to apply the settings.

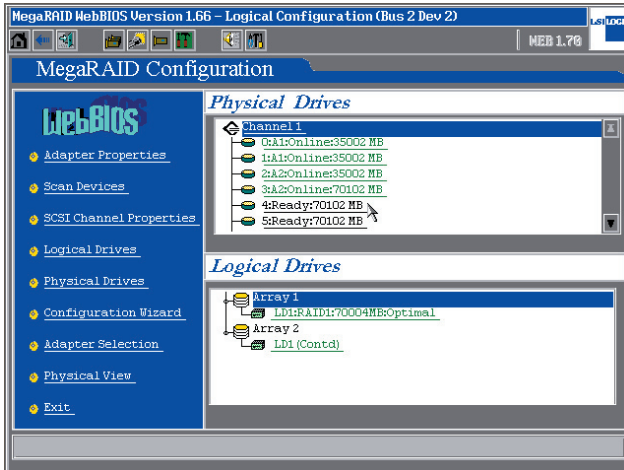


1.8 Hotspare Setup

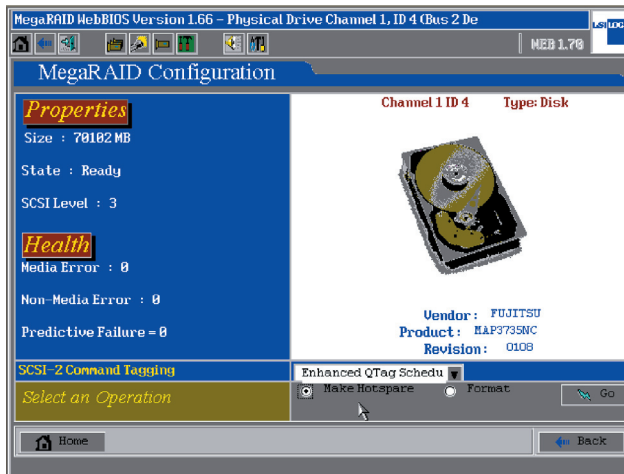
1. Select a **ready** physical drive and set it as **Hotspare**.



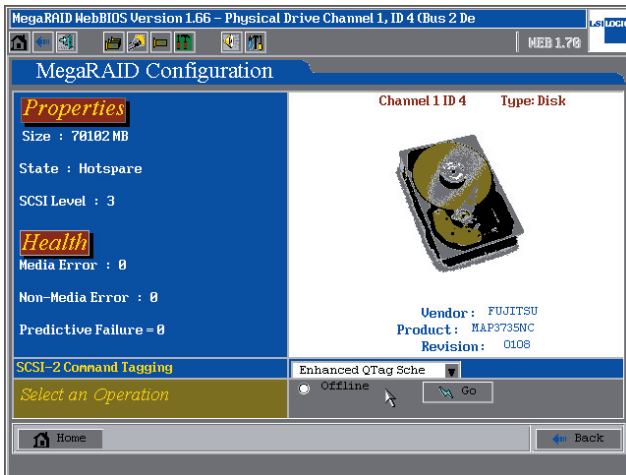
Note: The disks already set as a part of RAID (Online) could not be selected.



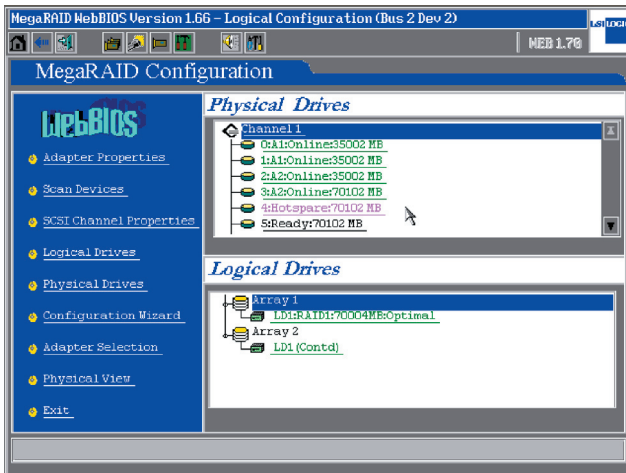
2. Select **Make Hotspare** and click **Go** to set this hard disk as **Hotspare**.



3. If it is to stop the Hotspare function, select **Offline** and click **Go** to cancel.

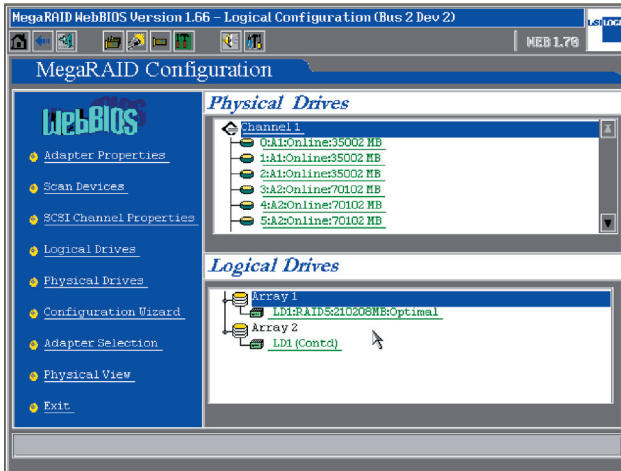


4. The hard disk assigned as Hotspare will be highlighted in pink characters, which means the Hotspare setting is completed.

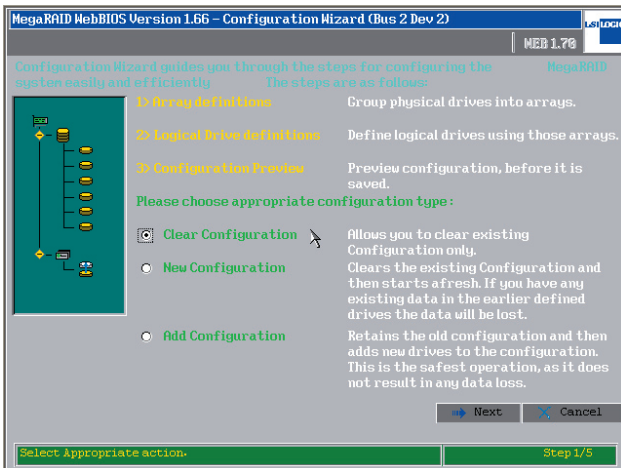


1.9 Clear Arrays

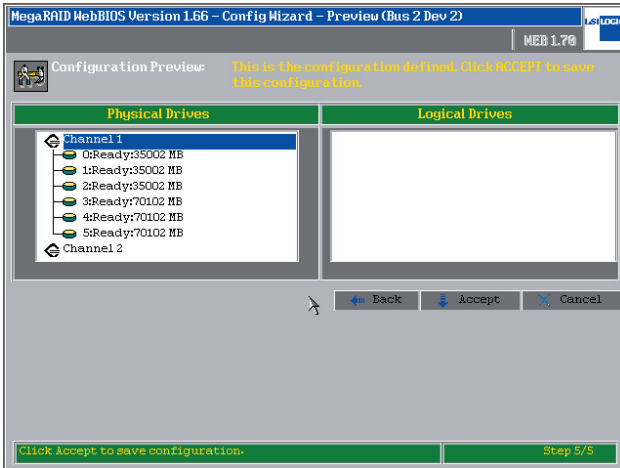
1. Press **Ctrl + H** at the same time and enter the MegaRAID WebBIOS configuration window, where information about all physical drivers installed is displayed. Click **Configuration Wizard** to start the setup.



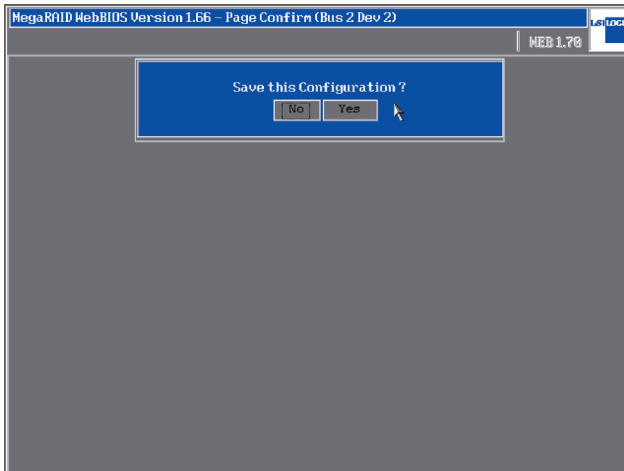
2. Select **Clear Configuration** tab, and then click **Next**.



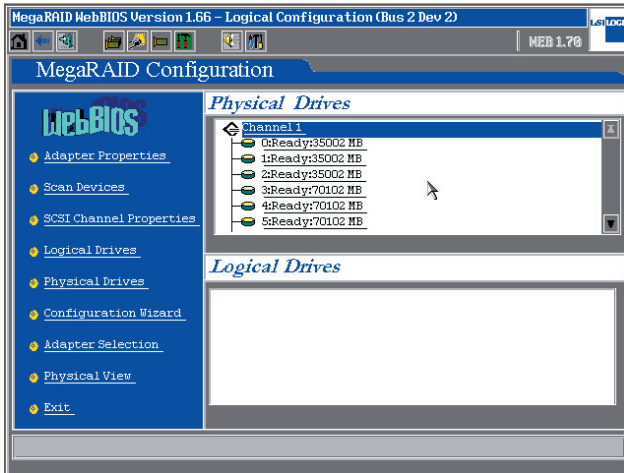
3. You could find no Logical Drivers in the right side window, which means the disk arrays have already been cleared. Click **Accept** to continue.



4. Click **Yes** and save the configuration.



5. In the right side windows, all the storage devices are listed in the **Physical Drives** window, while the **Logical Drives** window is blank.



2

System Setup

This chapter will guide you through the relevant settings after entering the operation systems.

2.1 Install Drives for Operation Systems

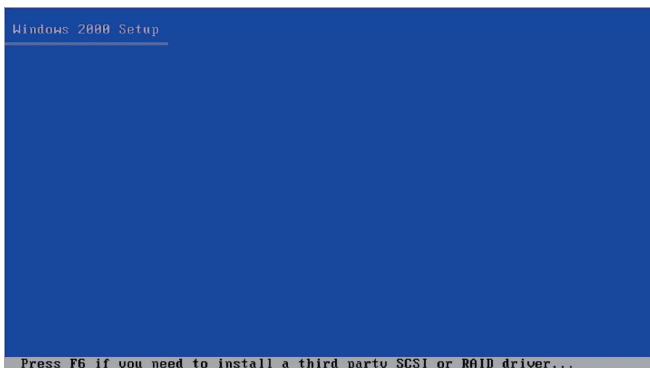
The SCSI RAID device installed in this server works in compliance with operating system such as Microsoft® Server 2003, RedHat Linux®, and SuSE Linux®. Next, we are to get on with the drive installation procedures for these respective OS.

2.1.1 Microsoft® Windows®

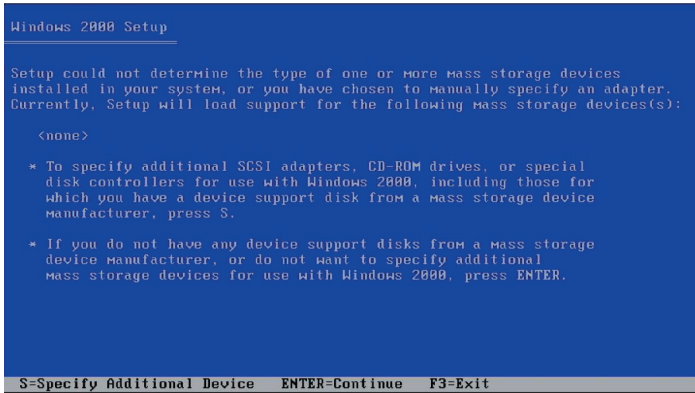
Insert the support CD with the label reading **LSI MegaRAID SCSI 320-0/320-1 320 & ASUS AZ CRB** into your optical drive and open the **Driver** folder. There are, in this folder, drivers for all operating systems for creating a installation floppy disk. For example, if it is to make a drive disk for Windows® OS, please open **Driver\Windows**, where you could see several different folders for different Windows® OS. If it is to create a driver disk for Windows 2000®, please click open the folder named Windows 2000, then insert a blank disk into your floppy drive, then click **MakeDisk.exe** to make the disk. If your OS is Windows 2003®, after selecting the folder, you are to make one more selection between win2003 32bit and win2003 64bit.

You could also get access ASUS global website to download the ***.zip** driver. Unzip the file in Windows® OS and run the ***.exe** file, the driver would automatically write into the floppy disk. If the unzipped files are not ***.exe** file, please copy these files directly into a blank disk.

1. As soon as the screen for Windows® installation prompts, press immediately F6.



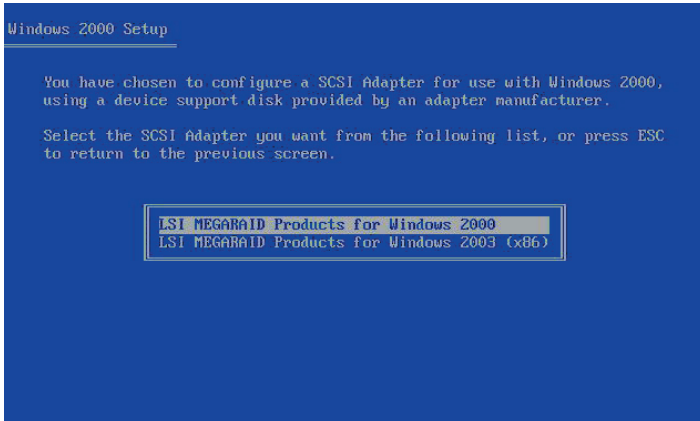
2. When a screen as follows prompts out, press **S** to install driver for the operation system.



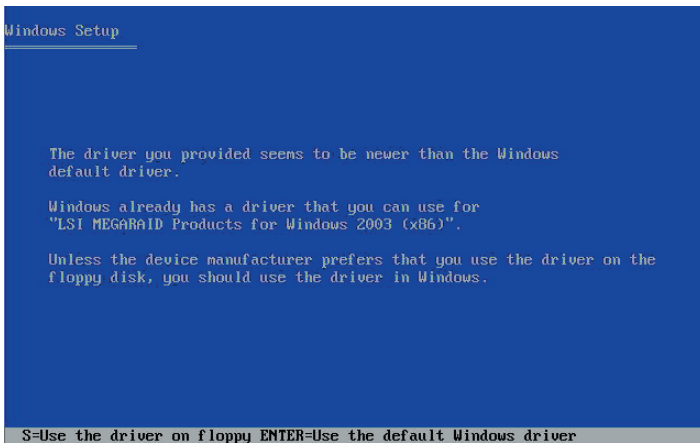
3. Insert the drive disk previously prepared into the floppy drive, and press **Enter**.



4. For Windows 2000®, please select **LSI MAGARAID Product for Windows 2000 Driver**; For Windows 2003®, please select **LSI MEGARAID Products for Windows 2003 (x86)**.



5. For Windows 2003 Server®, when driver program is selected, a following window would prompt out, displaying the detected preset driver of Windows 2003 Server®. Press S and select to install from the floppy disk.

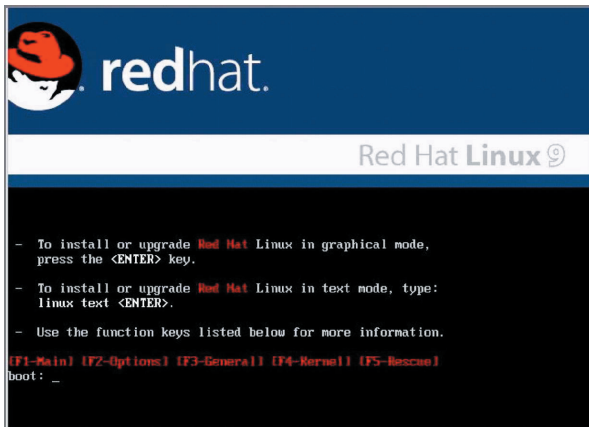


Then please follow the instructions of Windows® and complete the installation. DO NOT take out the floppy disk until the first time system restart is completed.

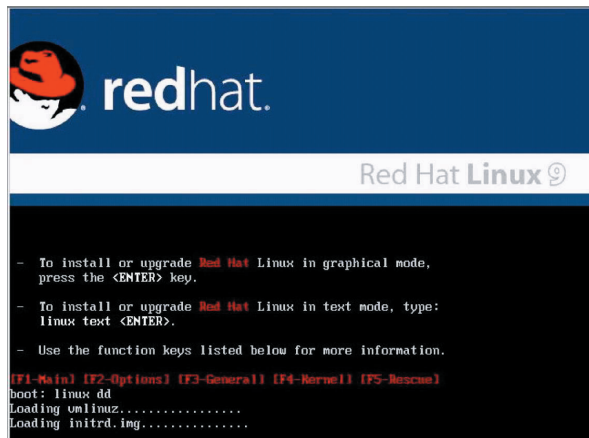
2.1.2 RedHat Linux®

You could get access ASUS global website to download the *.zip driver. Unzip the file in Windows® OS and run the *.exe file, the driver would automatically write into the floppy disk. If the unzipped files are not *.exe file, please copy these files directly into a blank disk.

1. Insert the Linux® installation CD into your optical drive and start the system. Then input **linux dd** when the following screen appears, and press **Enter**.



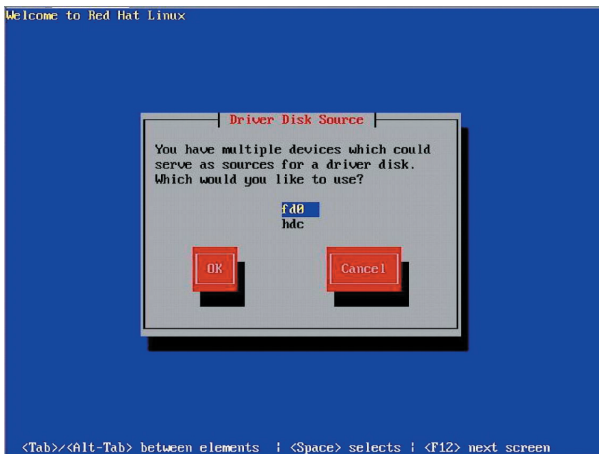
2. Then you could see the reading action in the following screen.



3. Insert the drive disk into the floppy drive, and follow the instruction to proceed with the installation. Press **Yes**, and then press **Enter**.

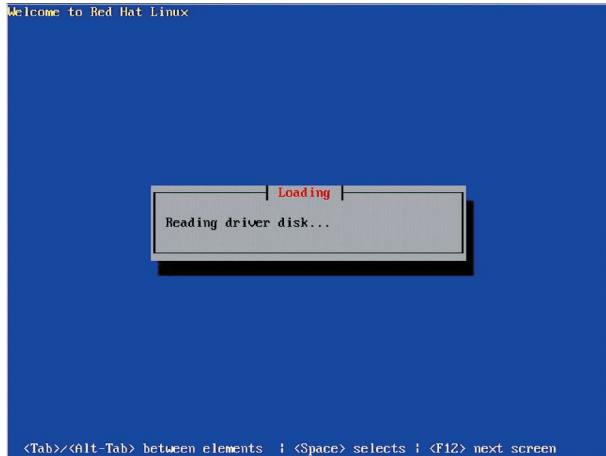


4. Select **fd0** to install from floppy drive. Select **OK** and press **Enter**.

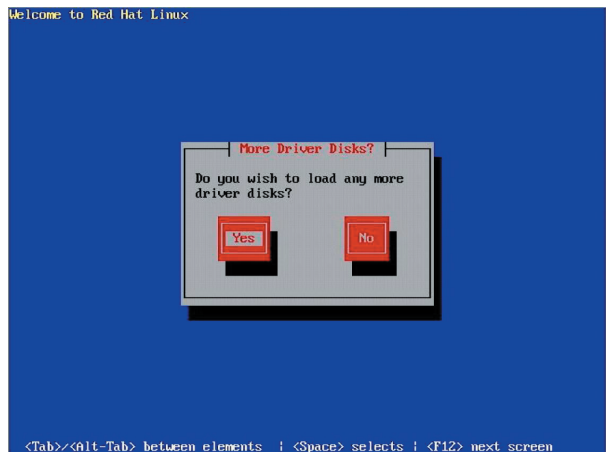


If a USB floppy drive is deployed, please select sda to install from the floppy disk.

5. The operating system now is reading from the drive disk in the floppy drive.



6. When the installation is completed, please select No and press Enter to enter the Linux® OS; if more drivers are to be installed, please select Yes and press Enter, then repeat the step 3-4 to proceed with the installation.





LSI MegaRAID 中文使用手冊



Q2143
August 2005

給使用者的說明

本產品的所有部分，包括配件與軟體等，其所有權歸華碩電腦公司（以下簡稱華碩）所有，未經華碩公司許可，不得任意地仿製、拷貝、謄抄或轉譯。本使用手冊沒有任何型式的擔保、立場表達或其它暗示。若有任何因本使用手冊或其所提到之產品的所有資訊，所引起直接或間接的資料流失、利益損失或事業終止，華碩及其所屬員工恕不為其擔負任何責任。除此之外，本使用手冊所提到的產品規格及資訊僅供參考，內容亦會隨時更新，恕不另行通知。本使用手冊的所有部分，包括硬體及軟體，若有任何錯誤，華碩沒有義務為其擔負任何責任。

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本產品驅動程式改變，使用手冊都會隨之更新。更新的細部說明請您到華碩的網站瀏覽或是直接與華碩公司聯絡。

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產品名稱：華碩 LSI MegaRAID 使用手冊

手冊版本：Q2143 V1.0

發表日期：2005 年 07 月

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關於本使用手冊

本使用手冊主要是針對有經驗且具有個人電腦系統整合知識的使用者所撰寫的，以幫助您建立起最新、功能強大的華碩伺服器。

章節說明

本使用手冊的結構如下：

1. 簡介：關於本使用手冊

本章首先引導您如何閱讀本使用手冊，並再針對各章節的內容做一概括的介紹。

2. 第一章：磁碟陣列設定

本章節將以清楚的解說，直接帶您進行本產品在開機後，且尚未進入 Windows 等作業系統前的 RAID 相關設定。

3. 第二章：作業系統下的設定

本章節將以清楚的解說，來帶您進行進入作業系統後的 RAID 相關設定。

提示符號

以下為本手冊所使用到的各式符號說明：



警告：假如因不當的動作可能會對人體或產品產生傷害。



小心：假如因不當的動作可能會對產品造成損害。



注意：重點提示，重要的注意事項。



說明：小祕訣，名詞解釋，或是進一步的資訊說明。

哪裡可以找到更多的產品資訊

您可以經由下面所提供的兩個管道來獲得您所使用的華碩產品資訊以及軟硬體的升級資訊等。

1. 華碩網站

您可以到 <http://tw.asus.com> 華碩電腦全球資訊網站取得所有關於華碩軟硬體產品的各項資訊。

2. 其他文件

在您的產品包裝盒中，除了本手冊所列舉的標準配件之外，也有可能夾帶其他的文件，譬如經銷商所附的產品保證單據等。

第一章 磁碟陣列設定

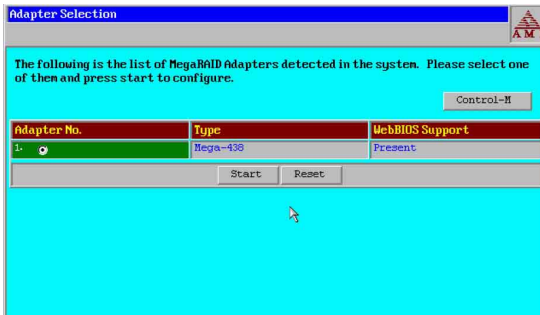
1

本章節將以清楚的解說，直接帶您進行本產品在開機後，且尚未進入 Windows 等作業系統前的 RAID 相關設定。

當您開機後，螢幕上顯示 LSI 時（如下圖所示），請按下 Ctrl+H 鍵來進入 LSI WebBIOS 設定畫面，並透過鍵盤與滑鼠來做控制。

**Copyright© AMERICAN MEGATRENDS, INC. Press <Ctrl> <M>
to Run Configuration Utility Or press <Ctrl> <H> for WebBIOS.**

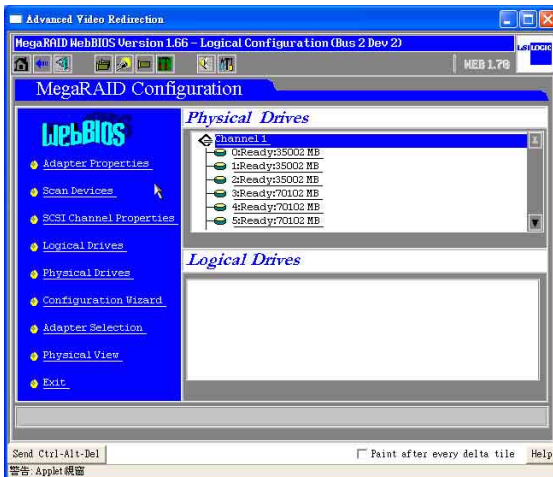
進入 WebBIOS 的畫面後，如以下的步驟，請點選 [Start] 按鈕開始進入設定工具。



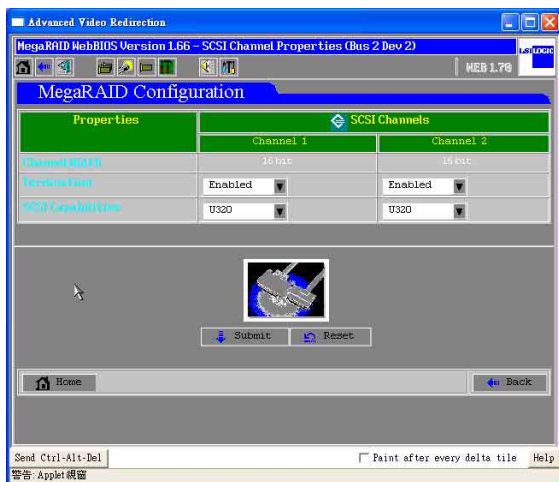
1.1 如何更改 SCSI 通道的速度

請依照以下的方式，來進行設定：

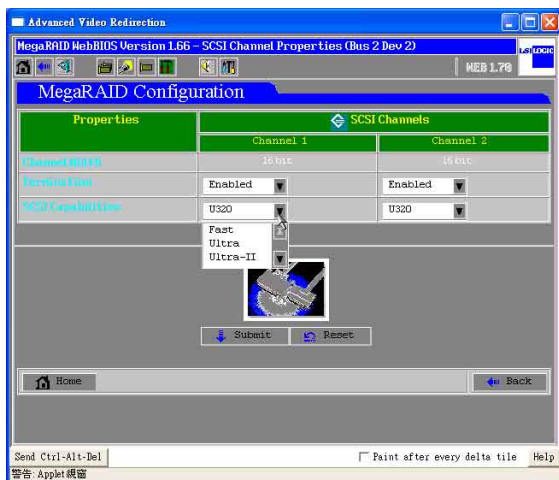
1. 請使用滑鼠或鍵盤點選 WebBIOS 內左邊設定畫面中的【SCSI Channel Properties】



2. 在上方的設定畫面中，為顯示單（320-1）或雙（320-0、320-2）通道目前的運作速度。



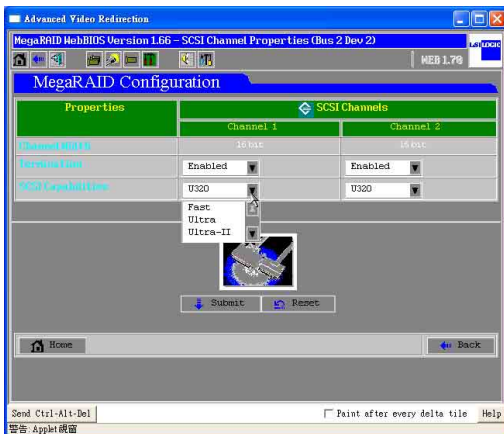
3. 用滑鼠點選【SCSI Capabilities】上的箭頭圖示，可以進行更改其執行速度：Fast、Ultra、Ultra-II、U160、U320。選好後，點選【Submit】來儲存已更改的設定。



4. 若有需要將其中一個通道關掉（即該通道無法連接任何裝置），可以將【Termination】設定為【Disabled】（關閉）→【Submit】。



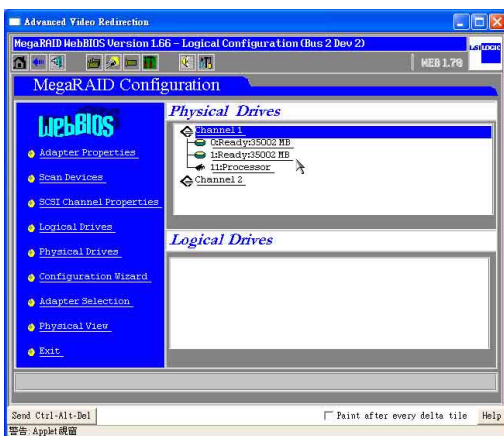
請注意：請不要任意更改【Termination】的設定，此預設值為【Enabled】（開啓），避免系統找不到儲存裝置。



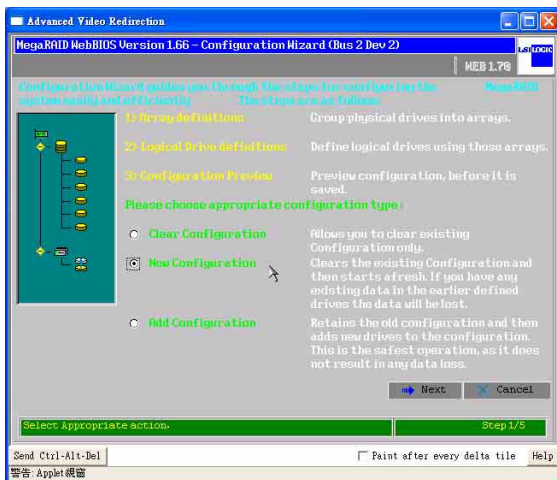
1.2 如何建立 RAID 0 或 RAID 1

請依照以下的方式，來進行設定：

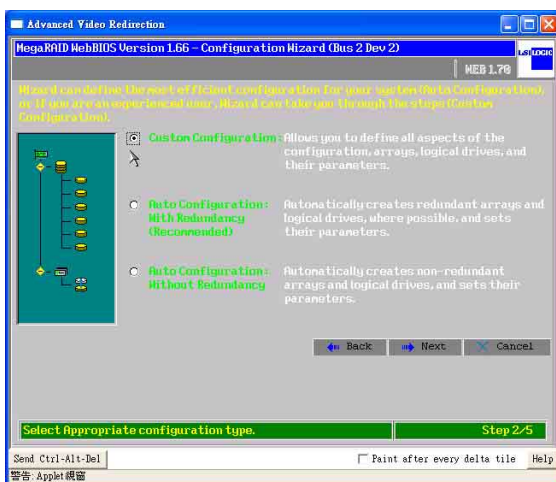
1. 同時按下 <Ctrl+H> 鍵，進入 MegaRAID BIOS 畫面，就可以看到目前所有的實體硬碟（Physical Drivers）的資訊。請在左邊的視窗點選【Configuration Wizard】後，進行 RAID 設定步驟。



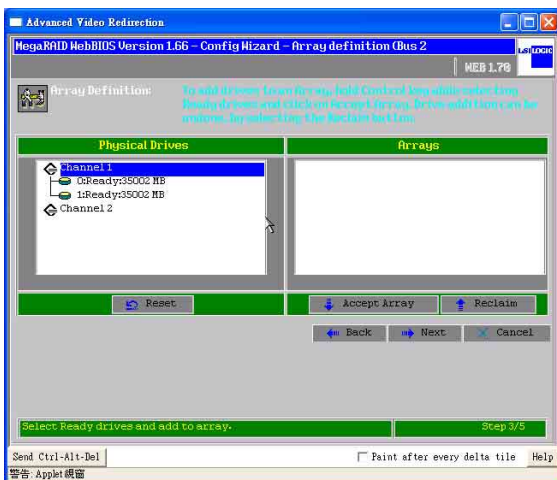
2. 若您是第一次設定 RAID，請點選【New Configuration】，然後再點選【Next】。



3. 若需要自行採用手動的方式設定，請點選【Custom Configuration】；也可以點選【Auto Configuration】，讓【Configuration Wizard】自動設定 RAID。

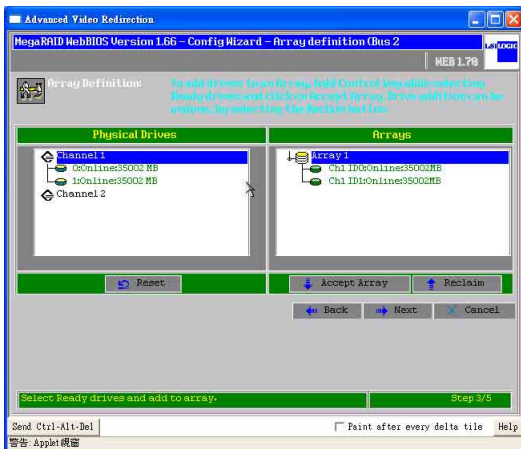


- 接著請按住 <Ctrl> 鍵，並用滑鼠左鍵點選 2 個 Ready Drives，然後點選【Accept Array】來建立 RAID 1。

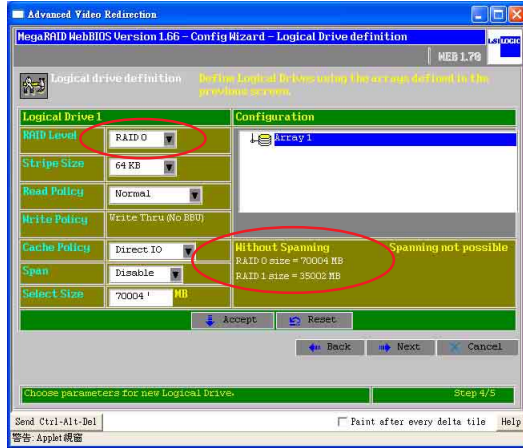


建立 RAID 1 需要 2 顆硬碟裝置；建立 RAID 0 則最少需要 2 顆硬碟裝置。

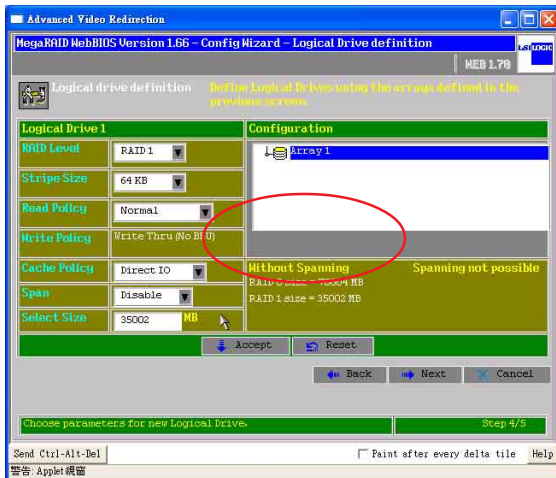
- 接著在此視窗右邊中，可以看到所有 RAID(Array)的資訊。當您完成 RAID 1 的設定後，請點選【Accept Array】，然後再點選【Next】。



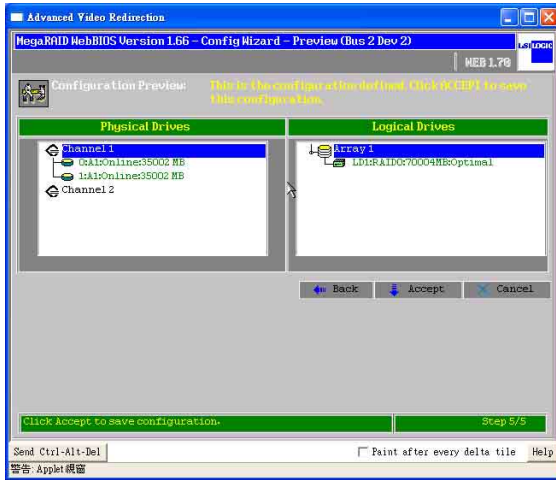
6. 請先選擇 RAID 等級（RAID 0 或 RAID 1）後，再依據下方顯示 RAID 容量大小，並在【Select Size】內手動輸入數值，然後點選【Accept】，接著再點選【Next】。例如：設定為 RAID 0 等級後，輸入 RAID 0 size = 70004 MB，然後點選【Accept】，接著再點選【Next】。



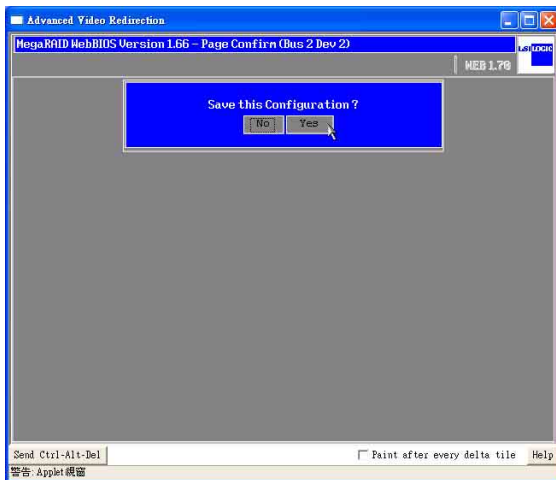
7. 如果設定為 RAID 1 等級，您也可參考以下圖上所圈起來的【RAID】狀態，其中 RAID 1 size 所顯示的容量來設定【Select Size】內的數值。例如：RAID 1 size = 35002 MB，然後點選【Accept】，接著再點選【Next】。



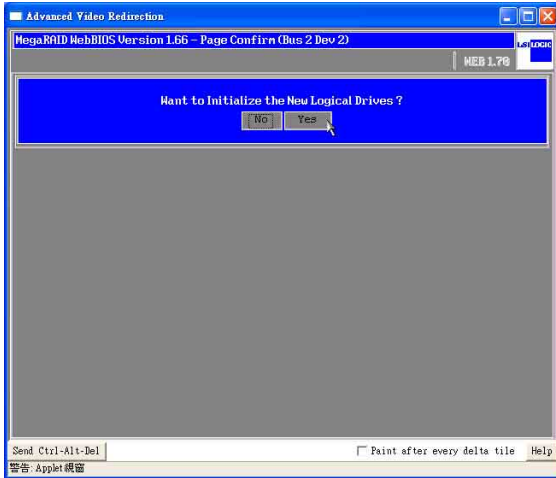
8. 在底下圖的右邊 Logical Drivers 視窗中，則顯示您設定完成的 RAID 狀態。
請點選【Accept】進行下一個步驟：



9. 接著請點選【Yes】，儲存設定值：

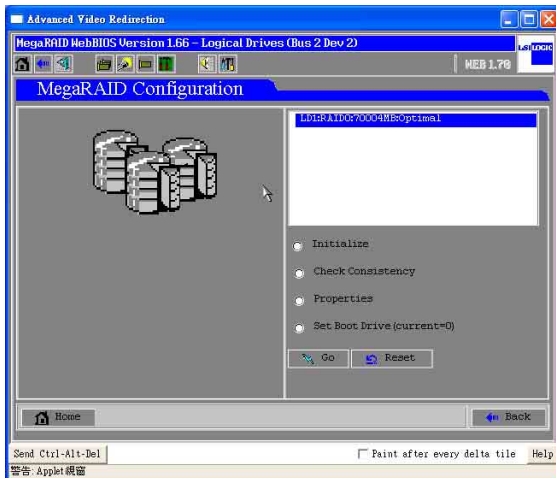


10. 然後請點選【Yes】，針對新的磁碟陣列（Logical Drives）進行初始化（Initialize）：



執行初始化後，原硬碟內的資料將會自動清除。

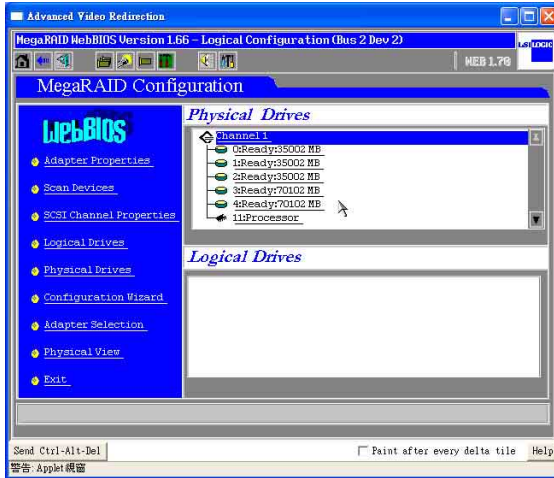
11. 若您從來沒有設定過任何開機的儲存裝置，請點選【Set Boot Drive】，然後點選【Go】來變更設定，讓 RAID 儲存裝置成為開機的第 1 順序。



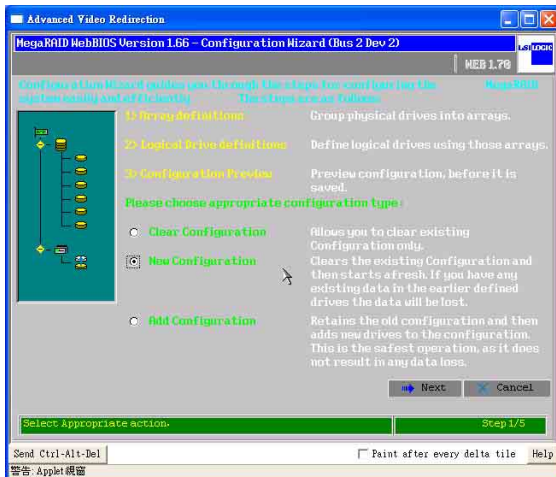
1.3 如何設定 RAID 5

請依照以下的方式，來進行設定：

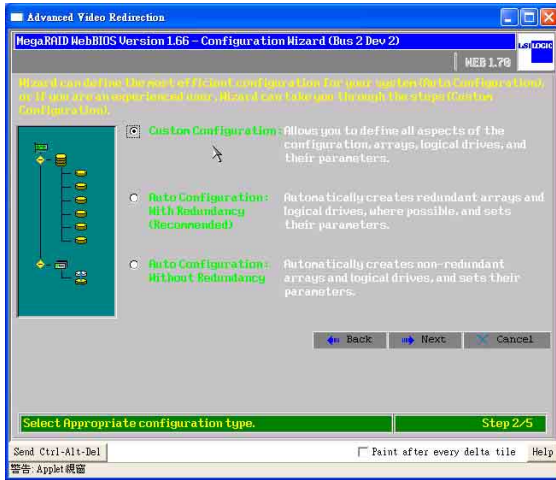
1. 同時按下 <Ctrl+H> 鍵，進入 MegaRAID BIOS 畫面，就可以看到目前所有的實體硬碟（Physical Drivers）的資訊。請在左邊的視窗點選【Configuration Wizard】後，進行 RAID 設定步驟。



2. 若您是第一次設定 RAID，請點選【New Configuration】，然後再點選【Next】。



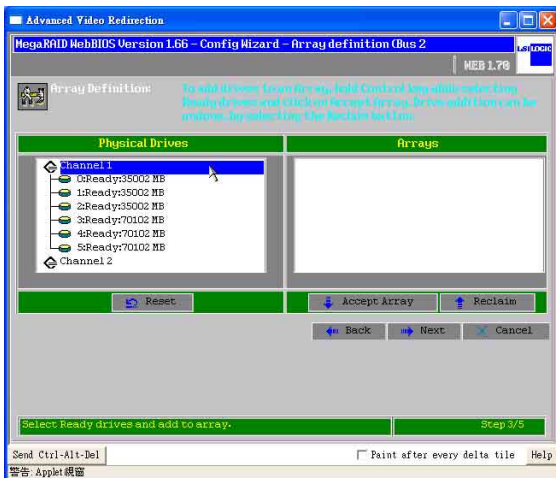
3. 若需要自行採用手動的方式設定，請點選【Custom Configuration】；也可以點選【Auto Configuration】，讓【Configuration Wizard】自動設定 RAID。



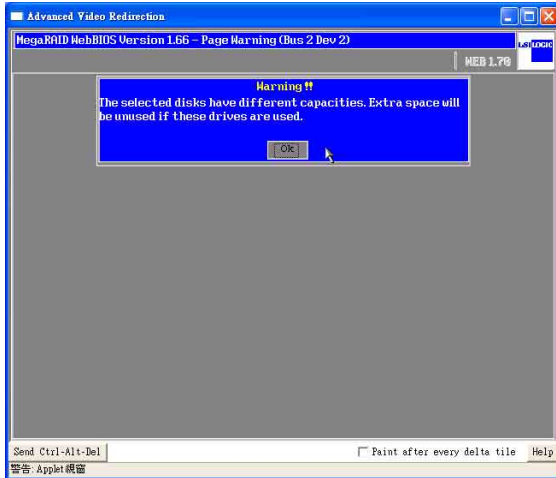
4. 接著請按住 <Ctrl> 鍵，並用滑鼠左鍵點選 3 個以上的 Ready Drives 硬碟裝置，然後點選【Accept Array】來建立 Array 1 為 RAID 5。



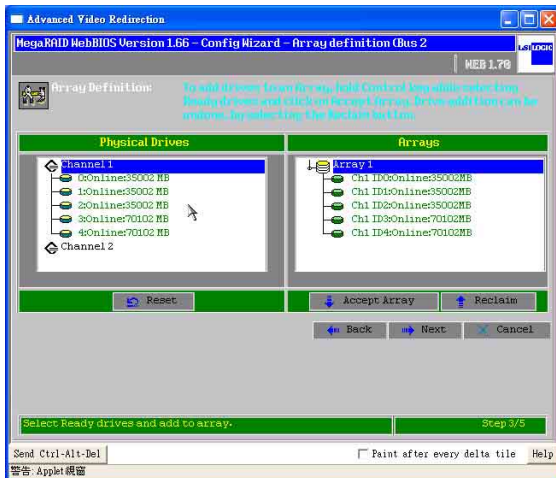
建立 RAID 5 最少需要 3 顆硬碟。



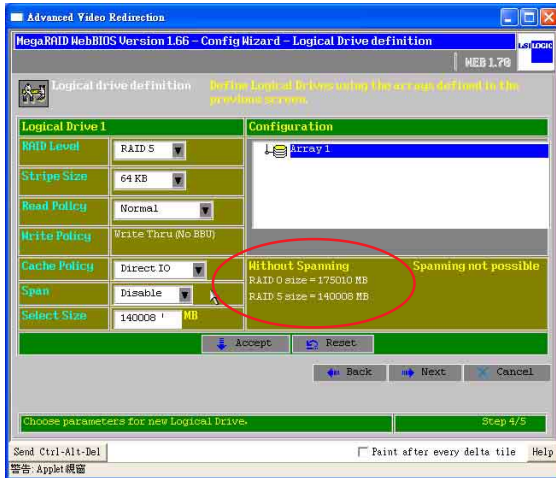
5. 若以下的警告訊息，則表示您在同一個 RAID 設定中使用不同容量的硬碟。若您使用的為相同容量的硬碟（建議使用相同型號的硬碟），則不會看到此提示訊息。



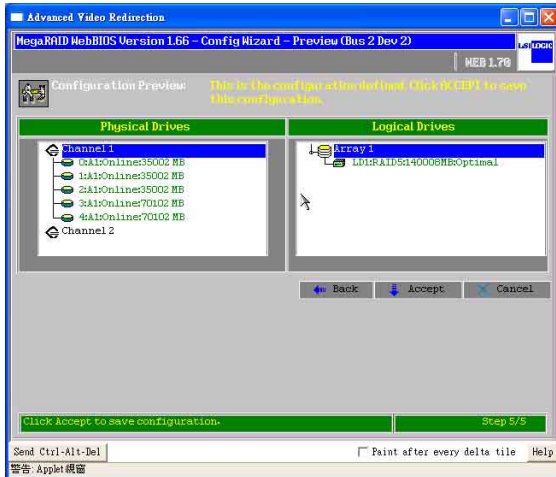
6. 您可以在右邊視窗查詢所有 RAID 設定資訊。設定完【Array 1】後，請點選【Next】進行下一個步驟。



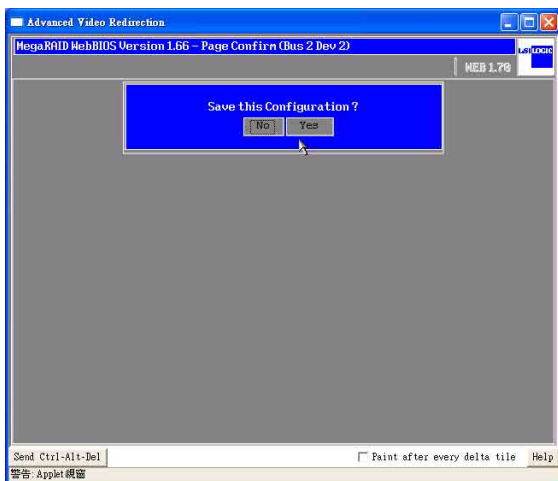
7. 接著請參考下圖的圈選中的資訊，先選擇【RAID 5】，再從【Select Size】選項中鍵入【RAID 5 Size =】的數值，然後點選【Accept】。



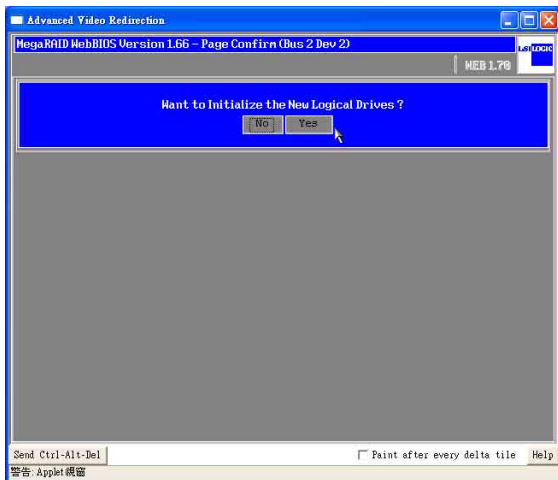
8. 接著您可以在下圖中的右邊視窗，看到所有 RAID 設定資訊，點選【Accept】，進行下一個步驟。



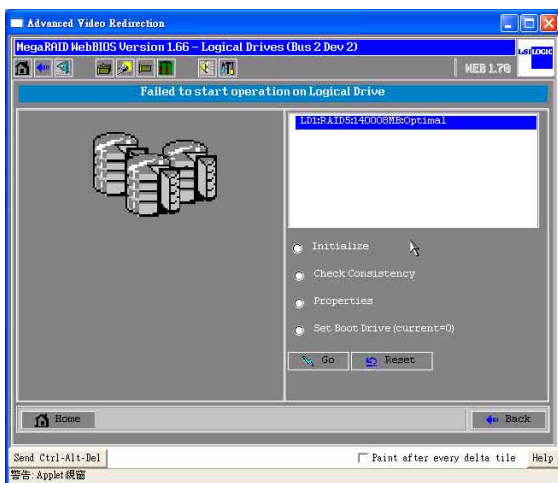
9. 請點選【Yes】，儲存設定值，或者點選【No】取消設定。



10. 然後請點選【Yes】，針對新的磁碟陣列（Logical Drives）進行初始化（Initialize）。



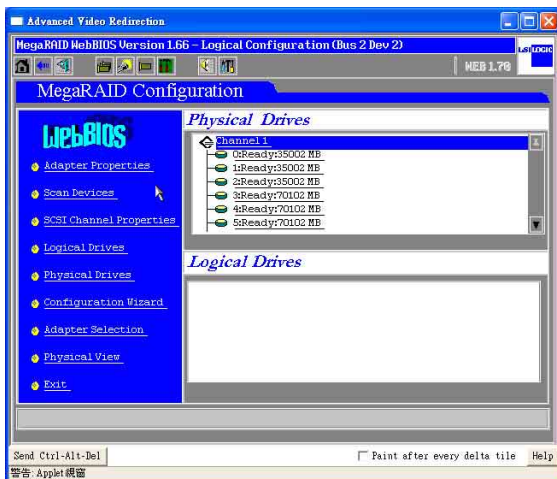
11. 若您從來沒有設定過任何開機的儲存裝置，請點選【Set Boot Drive】，然後點選【Go】來變更設定，讓 RAID 儲存裝置成爲開機的第 1 順序。



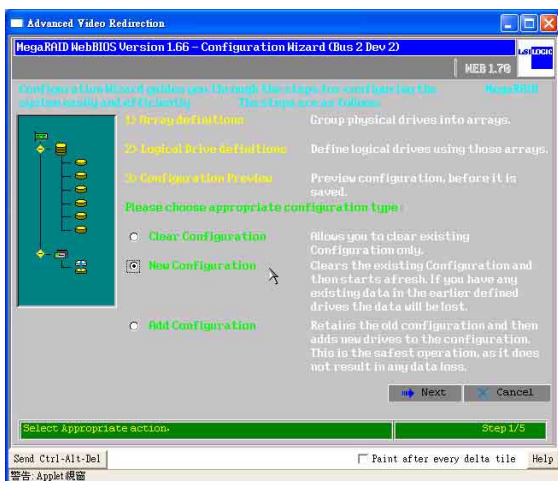
1.4 如何建立 RAID 50

請依照以下的方式，來進行設定：

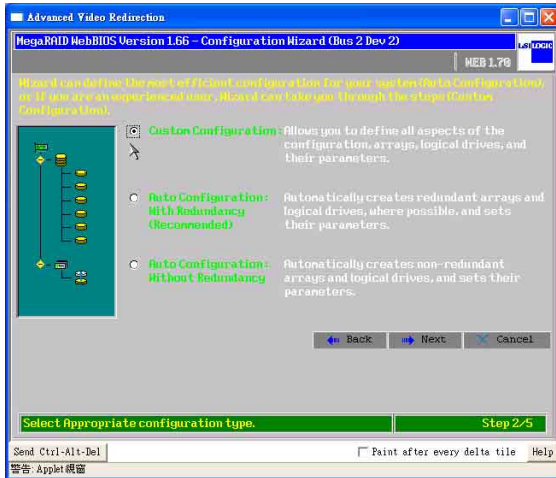
1. 同時按下 <Ctrl+H> 鍵，進入 MegaRAID BIOS 畫面，就可以看到目前所有的實體硬碟（Physical Drivers）的資訊。請在左邊的視窗點選【Configuration Wizard】後，進行 RAID 設定步驟。



2. 若您是第一次設定 RAID，請點選【New Configuration】，然後再點選【Next】。



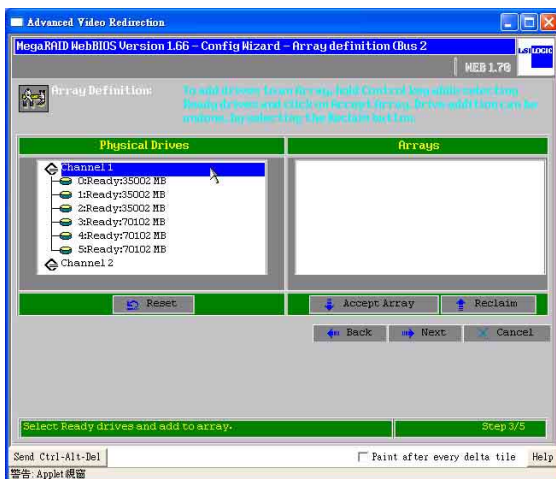
3. 若需要自行採用手動的方式設定，請點選【Custom Configuration】；也可以點選【Auto Configuration】，讓【Configuration Wizard】自動設定 RAID。



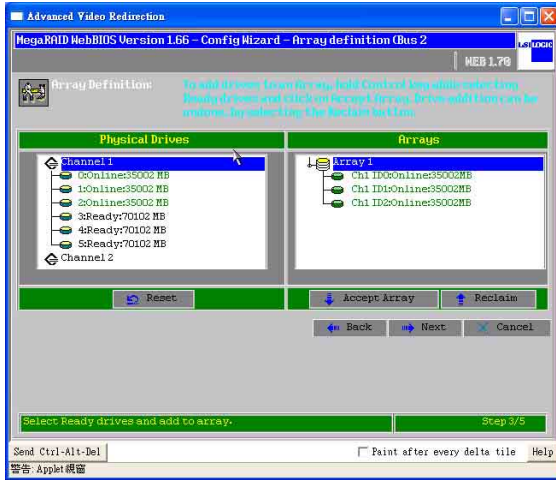
4. 在點選硬碟裝置的畫面，請確認左邊視窗 Physical Drivers 顯示【Ready】的硬碟裝置最少 6 顆。



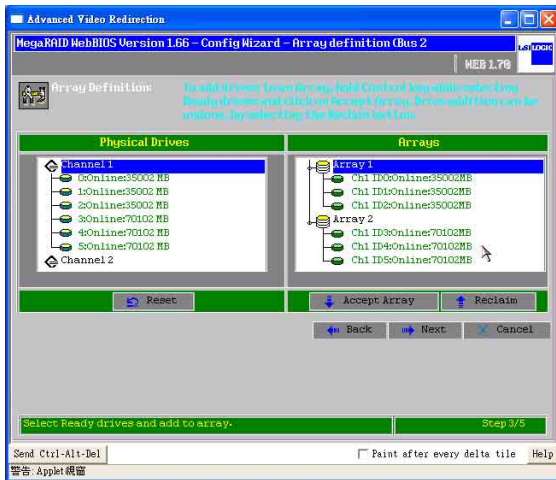
建立 RAID 50 需要 6、8 或 10 顆等偶數的硬碟組合。



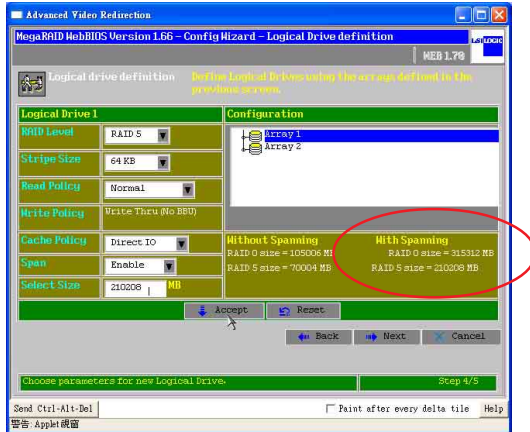
5. 接著請按住 <Ctrl> 鍵，並用滑鼠左鍵點選 3 個 Ready Drives，然後點選【Accept Array】，將前 3 顆硬碟設定為 Array 1。



6. 然後再將後 3 顆硬碟設定為 Array 2，接著點選【Accept Array】，完成後右邊視窗（Arrays）會顯示 Array 1 和 Array 2 後，接著再點選【Next】。

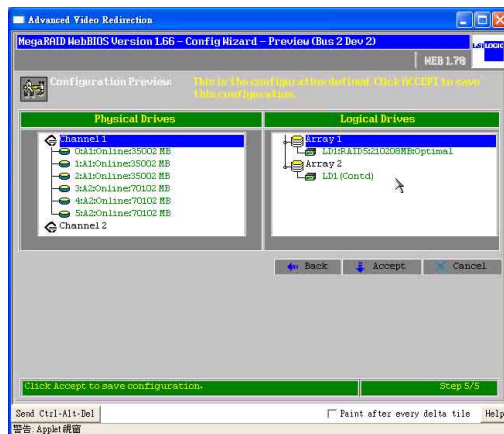


7. 點選【Array 1】設定 RAID 狀態為 RAID 5，並將【Span】選項選擇【Enabled】（開啓）。接著參考下圖的圈選中的資訊中 With spanning RAID 5 數值，在【Select Size】選項中鍵入【RAID 5 Size =】的數值，然後點選【Accept】。

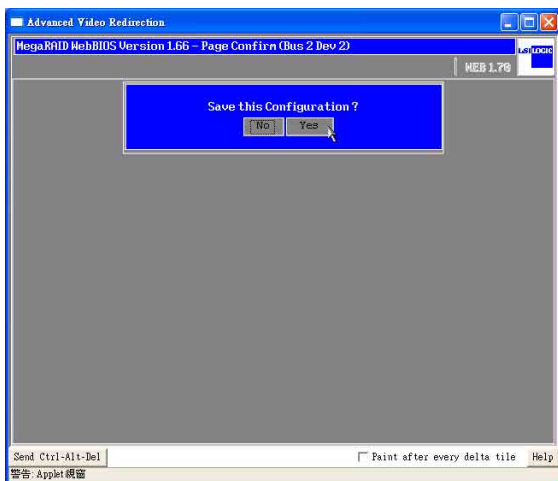


以上步驟7和圖片為採用韌體為 1L26 或 1Z26 版本使用，若您的韌體版本為 1I37 或 1Z37，則設定的步驟為：當您設定好 RAID 5，並將 [Spna] 設定為 [Enable]，接著輸入 Array 1 旁所顯示 “R5=(size)” 大小之後，按住 <Ctrl> 鍵，並同時點選 Configuration 視窗下的 Array 1 和 Array 2，然後點選 [Accept]，接著再按 [Next]。

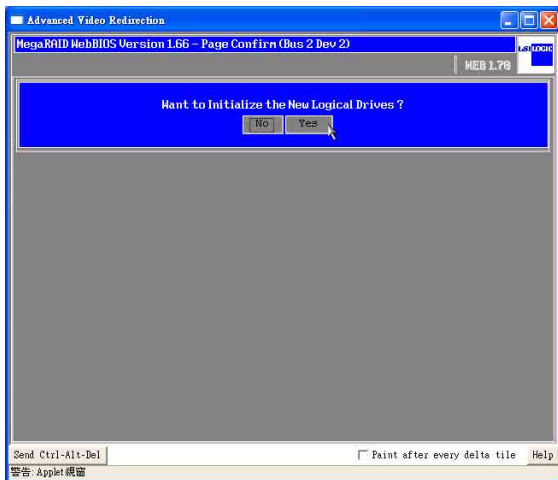
8. 您可以看到所有的設定資訊，【Array 2】是【Array 1】的延續，為 RAID 50。



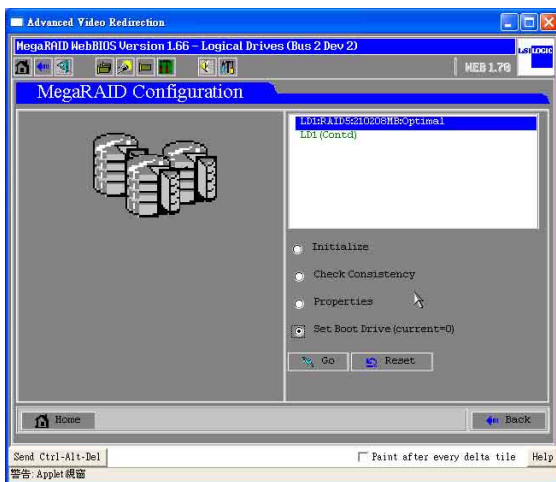
9. 接著請點選【Yes】，儲存設定值：



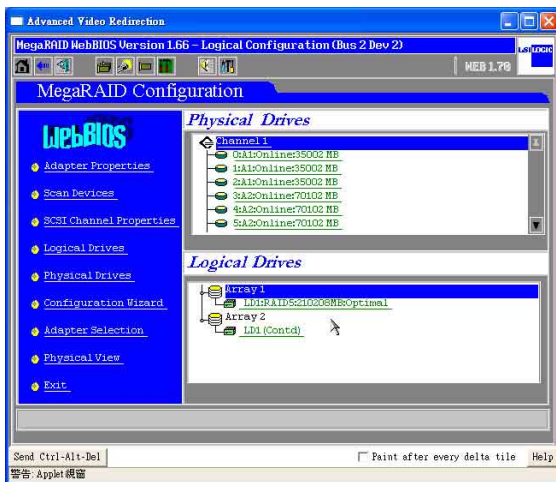
10. 然後請點選【Yes】，針對新的磁碟陣列（Logical Drives）進行初始化（Initialize）：



11. 若您從來沒有設定過任何開機的儲存裝置，請點選【Set Boot Drive】，然後點選【Go】來變更設定，讓 RAID 儲存裝置成爲開機的第 1 順序。



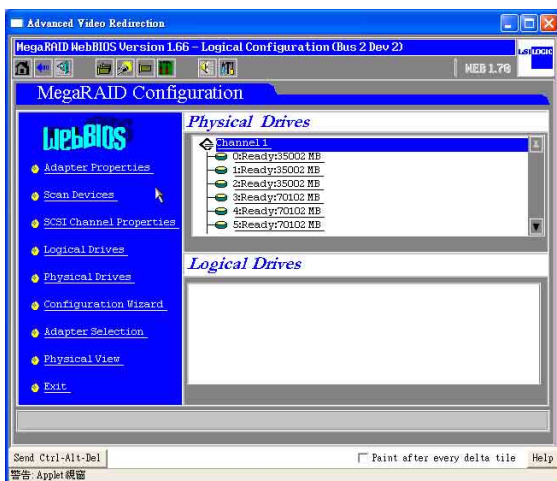
12. 您可以在 WebBIOS 首頁中，看到所有 Physical 及 Logical Drivers (Array)：RAID 設定)的狀態資訊。



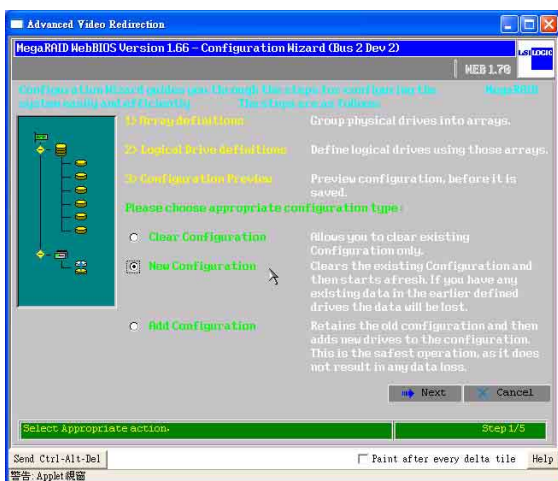
1.5 如何設定 RAID 10

請依照以下的方式，來進行設定：

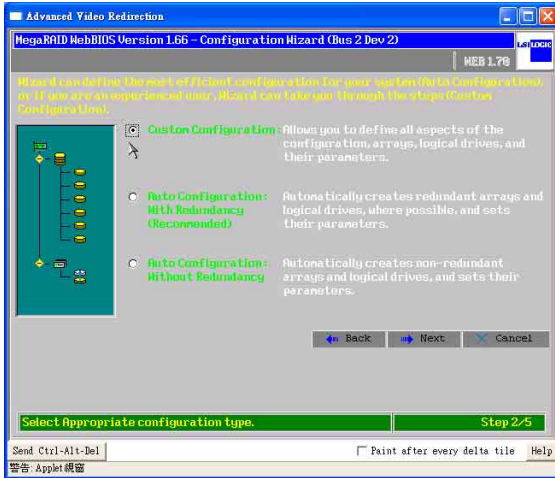
1. 同時按下 <Ctrl+H> 鍵，進入 MegaRAID BIOS 畫面，就可以看到目前所有的實體硬碟（Physical Drivers）的資訊。請在左邊的視窗點選【Configuration Wizard】後，進行 RAID 設定步驟。



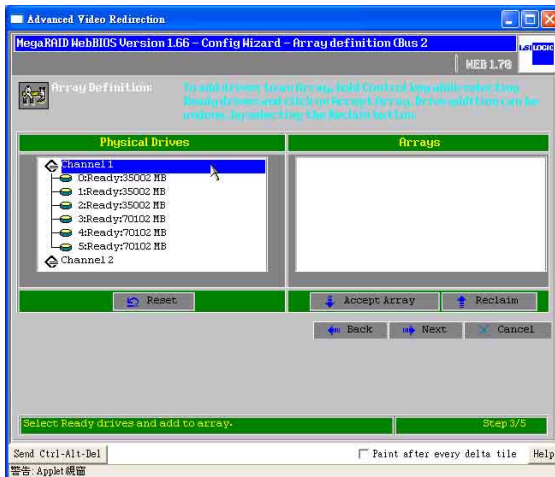
2. 若您是第一次設定 RAID，請點選【New Configuration】，然後再點選【Next】。



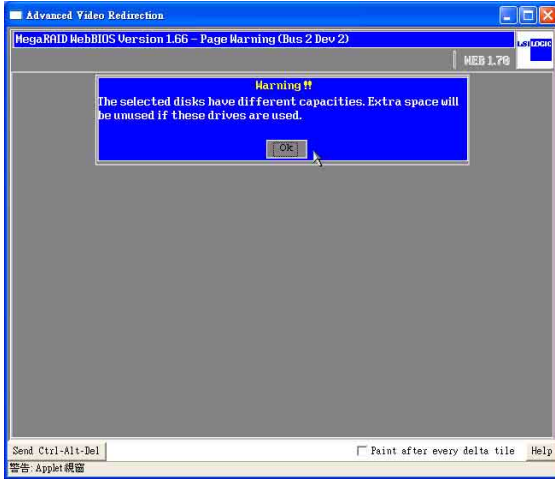
3. 若需要自行採用手動的方式設定，請點選【Custom Configuration】；也可以點選【Auto Configuration】，讓【Configuration Wizard】自動設定 RAID。



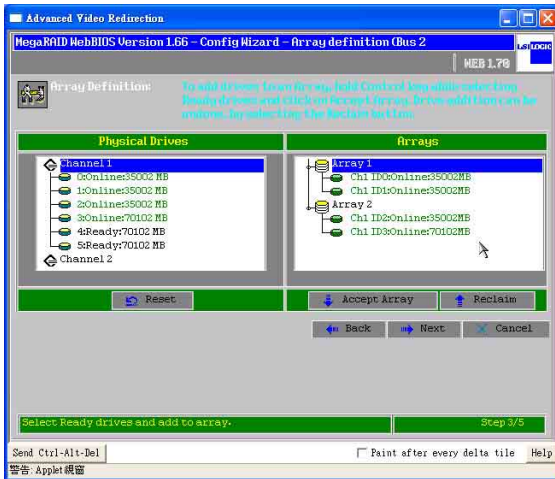
4. 接著請按住 <Ctrl> 鍵，並用滑鼠左鍵點選 2 個 Ready Drives，然後點選【Accept Array】來建立 Array 1 為 RAID 0。再以相同步驟建立 Array 2。例如：RAID 10 需要 4 顆硬碟。



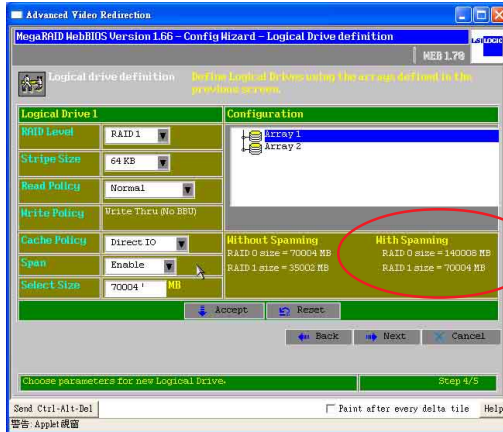
5. 若以下的警告訊息，則表示您在同一個 RAID 設定中使用不同容量的硬碟。若您使用的為相同容量的硬碟（建議使用相同型號的硬碟），則不會看到此提示訊息。



6. 您可以看到所有的設定資訊，設定好【Array 2】和【Array 1】後，請點選【Next】進行下一個步驟。

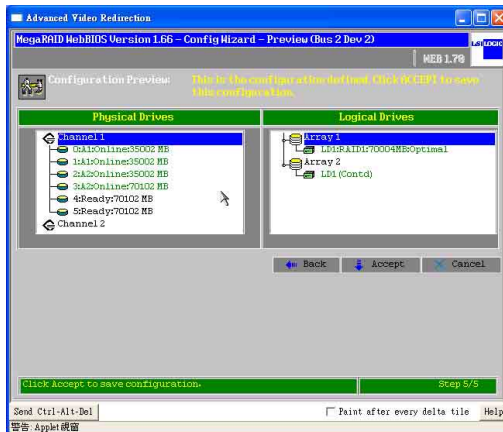


7. 點選【Array 1】設定為 RAID 1，並將【Span】選項選擇【Enabled】（開啓）。接著參考下圖圈選中的資訊中 With Spanning 下 RAID 1 size 數值，在【Select Size】選項中鍵入【RAID 1 Size =】的數值，然後點選【Accept】，再按【Next】。

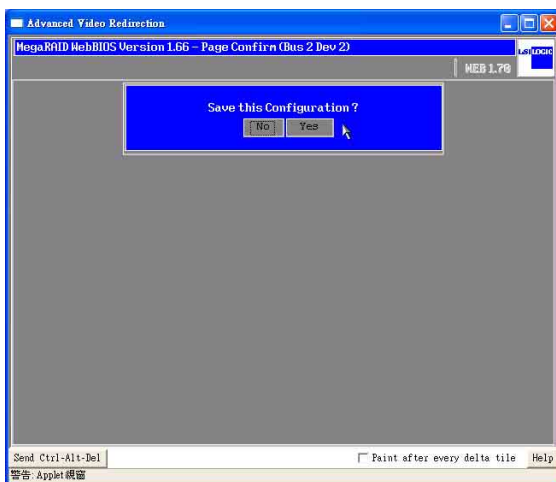


以上步驟7 和圖片為採用韌體為 1L26 或 1Z26 版本使用，若您的韌體版本為 1I37 或 1Z37，則設定的步驟為：當您設定好 RAID 1，並將 [Spna] 設定為 [Enable]，接著輸入 Array 1 旁所顯示 “R1=(size)” 大小之後，按住 <Ctrl> 鍵，並同時點選 Configuration 視窗下的 Array 1 和 Array 2，然後點選 [Accept]，接著再按 [Next]。

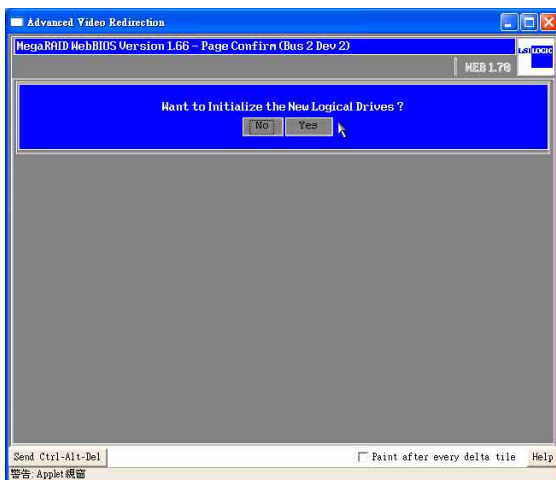
8. 您可以看到所有的設定資訊，【Array 2】是【Array 1】的延續，為 RAID 10。



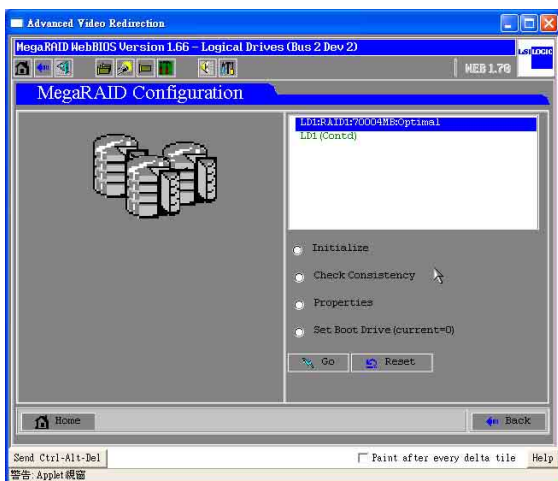
9. 請點選【Yes】，儲存設定值，或者點選【No】取消設定。



10. 然後請點選【Yes】，針對新的磁碟陣列（Logical Drives）進行初始化（Initialize）。



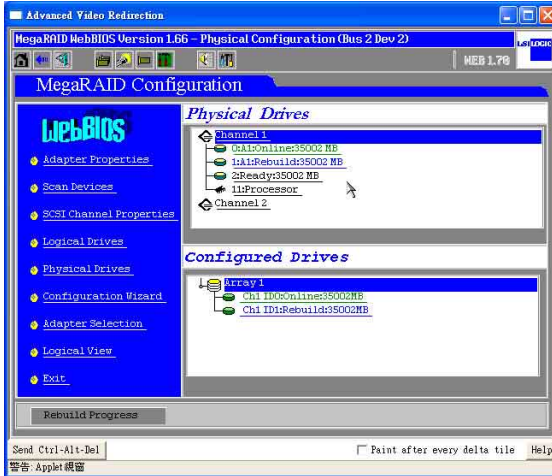
11. 若您從來沒有設定過任何開機的儲存裝置，請點選【Set Boot Drive】，然後點選【Go】來變更設定，讓 RAID 儲存裝置成爲開機的第 1 順序。



1.6 如何重建磁碟陣列

請依照以下的方式，來進行設定：

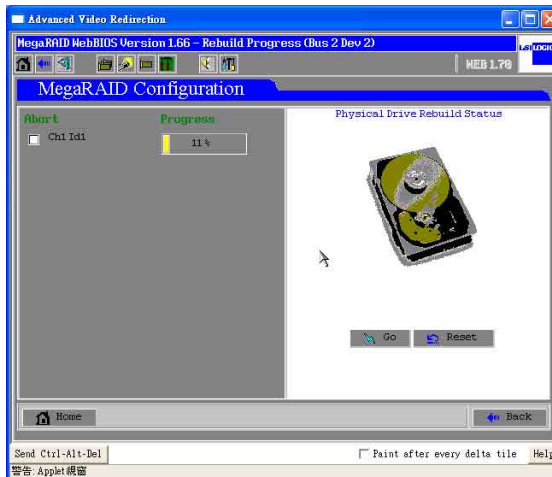
1. 當您更換硬碟後，磁碟陣列會自動重建。您可在 MegaRAID WebBIOS 畫面中，查詢磁碟陣列重建的進度資訊。若您希望到重建速度，請點選正在進行重建硬碟的【Rebuild Progress】按鈕。



2. 在底下視窗的左邊，為顯示重建百分比（Rebuilding Progress）。除非必要，您可以選擇【Abort】，然後按下【Go】來取消重建。



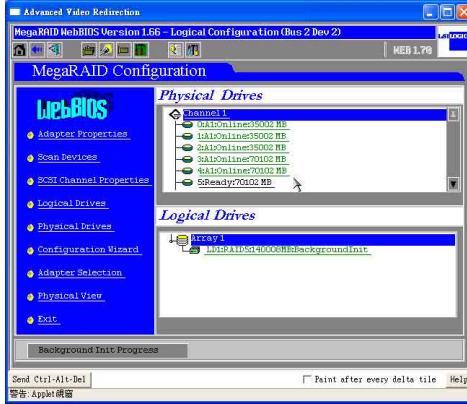
注意：請勿任意取消磁碟陣列重建，以及中途斷電，避免損壞其存在的資料。



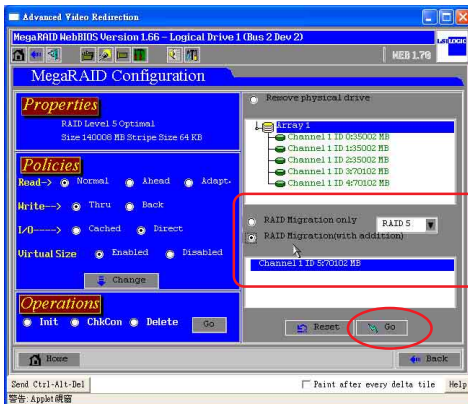
1.7 如何設定 Migration

請依照以下的方式，來進行設定：

1. 若您於 SCSI 背板 (backplane) 加入新的硬碟，請點選以下視窗圖左邊的【Scan Devices】做偵測。接著，您會在【Physical Drivers】看到【Ready】的硬碟。請點選【Logical Drivers】的 Array 設定做 Migration。



2. 接著，您可以有兩種選擇：
 - A. RAID Migration only：Array 1 自行做【RAID Migration】。
 1. 首先變更 Array 的 RAID 等級，接著請點選【RAID Migration only】。
 2. 完成點選後，再選擇下方的【Go】按鈕執行變更。
 - B. RAID Migration with addition：將新的硬碟裝置加入現有設定 Array 中，請先點選下方新增硬碟裝置，再選擇 [RAID Migration with addition] 後，再選擇 RAID 等級。當選擇完成後，點選【Go】讓此設定生效。



1.8 如何設定 Hotspare

請依照以下的方式，來進行設定：

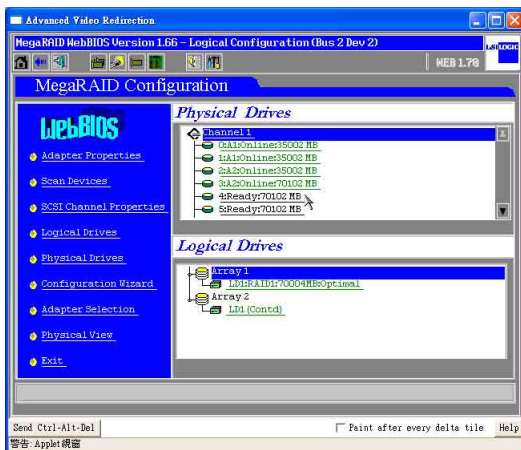
1. 請點選【Ready】狀態的【Physical Drives】設定為【Hotspare】。



請注意：已經設定為 RAID (Online) 的硬碟無法被點選。



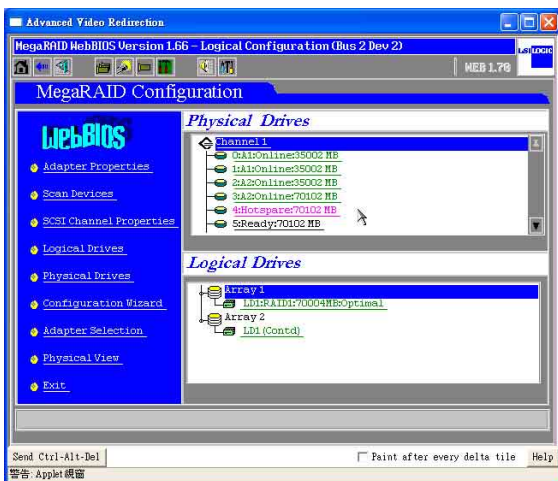
Hotspare 只能提供具有容錯等級的 RAID 設定做為備援硬碟裝置，如：RAID 1、RAID 5、RAID 10 和 RAID 50。



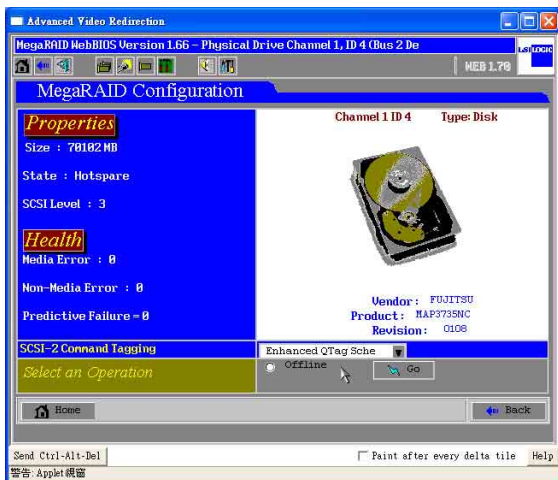
2. 點選【Make Hptspare】，然後點選【Go】，設定這類硬碟為【Hotspare】的狀態。



3. 若已經被指定為【Hotspare】的硬碟會顯示成粉紅色的，表示設定完成。



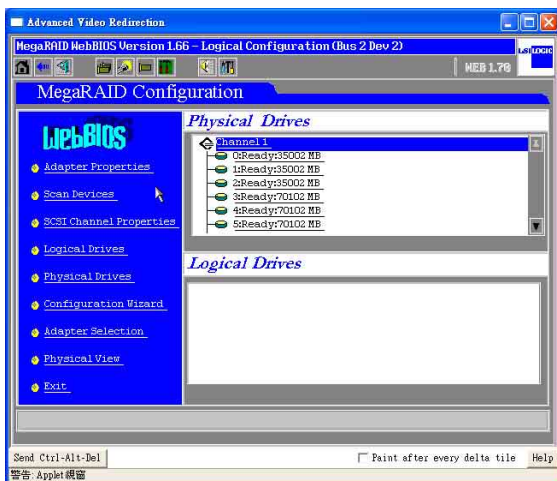
4. 若您要停止已被設定硬碟的【Hotspare】功能，可點選【Offline】，然後點選【Go】來強制取消。



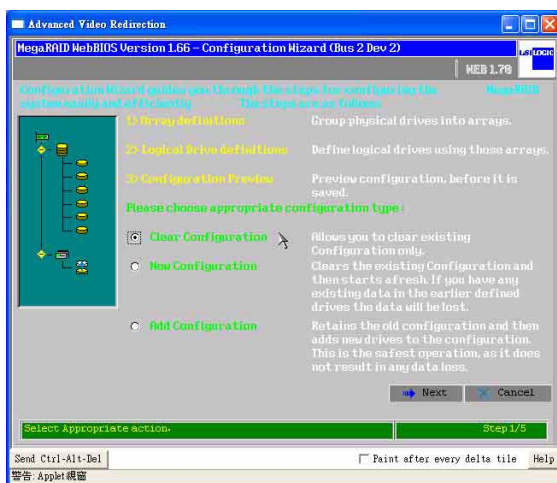
1.9 如何清除已存在的磁碟陣列設定

請依照以下的方式，來進行設定：

1. 同時按下 <Ctrl+H> 鍵，進入 MegaRAID BIOS 畫面，就可以看到目前所有的實體硬碟（Physical Drivers）的資訊。點選【Configuration Wizard】後，接著進行下一個步驟。

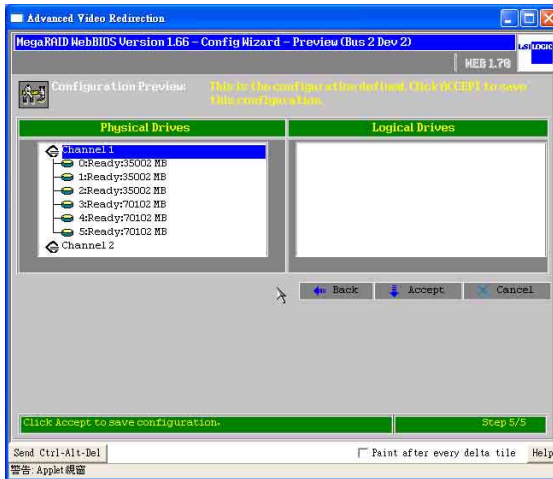


2. 選擇【Clear Configuration】，然後點選【Next】。

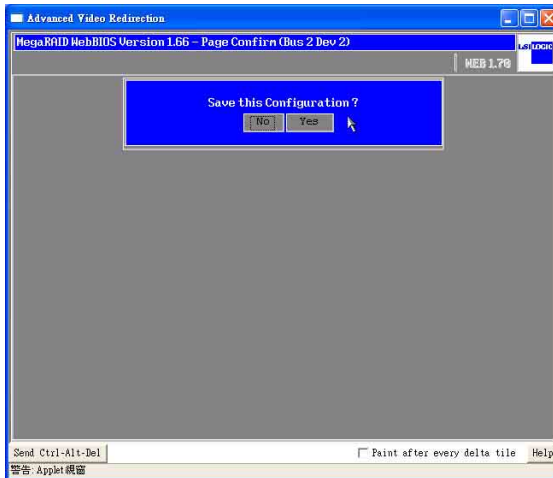


此步驟將會清除 RAID 卡上面所有 array（陣列）的設定值。

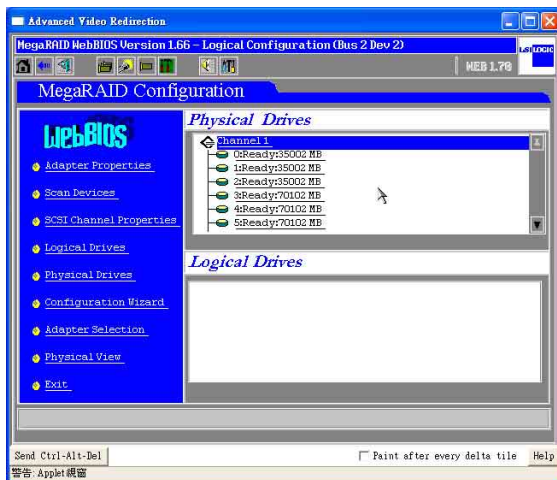
3. 這時您可以檢查在右邊視窗中，已經沒有 Logical Drives，表示磁碟陣列已經被清除了，接著請點選【Accept】。



4. 然後點選【Yes】，儲存已經被更改的設定。



5. 如下圖所示，在 Web BIOS 首頁的右方視窗中，會顯示所有實體硬碟（Physical Drivers）都在【Ready】的狀態下，沒有 Logical Drivers（邏輯磁碟）。



第二章 作業系統下的設定

2

本章節將以清楚的解說，帶您進行進入Windows等作業系統後的 RAID 相關設定。

2.1 安裝 SCSI RAID 驅動程式

本伺服器安裝的 SCSI RAID 裝置，適用於 Microsoft Windows® 2000、Windows® Server 2003、RedHat Linux®、SuSE Linux® 等作業系統（OS，Operating System）。接著我們就按照不同的作業系統，來做這一方面的驅動程式安裝說明。

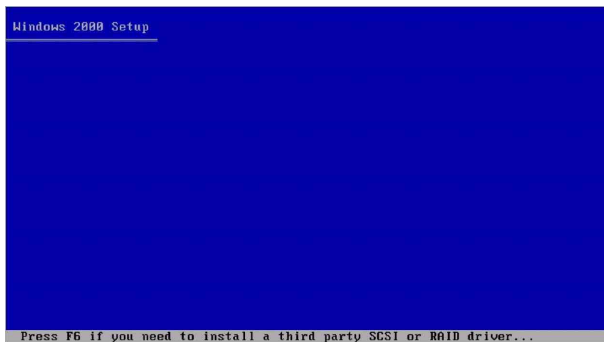
2.1.1 安裝至 Windows 中

請放入標示【LSI MegaRAID SCSI 320-0/320-1 320 & ASUS AZ CRB】的華碩驅動程式光碟片，接著請開啓光碟中的 Driver 目錄。在此目錄中，有包含製作各作業系統的驅動程式，讓您選擇來進行製作至磁片中。例如：您要製作支援 Windows 作業系統系列的 SCSI RAID 驅動程式磁片時，請開啓進入 Driver\Windows\ 目錄，您會看到多個不同 Windows 系統的資料夾，若您要製作 Windows 2000 的驅動程式磁片，請點選開啓 Windows 2000 資料夾，然後於軟碟機中放入磁片，接著使用滑鼠點選 MakeDisk.exe 來製作磁片；或者您使用的為 Windows 2003 作業系統，請選擇該目錄後，再選擇 win2003 32bit 或 64bit 資料夾，接著同樣點選 MakeDisk.exe 來製作驅動程式磁片。

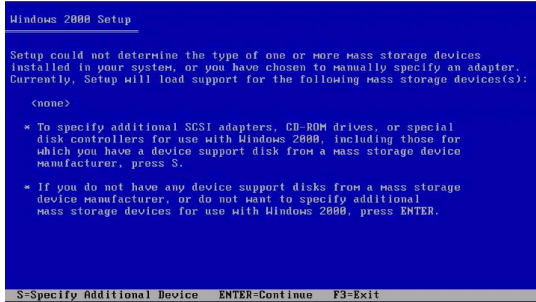
或

您可上網連結至華碩官方網站上，來下載 *.zip 驅動程式，在 Windows 作業系統下解壓縮後執行 *.exe 檔，就會自動解壓縮道磁片中。若解壓縮後的檔案並非為 MakeDisk.exe，則請直接將所有檔案複製至空白磁碟片上。

2. 接著在 Windows 安裝畫面開始時，按下 <F6> 鍵，如下圖所示：



3. 當讀取進行直到出現以下的畫面時，再按下 <S> 鍵後準備安裝附加裝置的驅動程式。

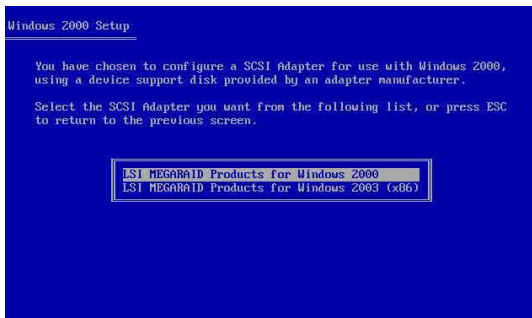


4. 再放入先前製作好的驅動程式磁片，然後按下 <Enter> 鍵。

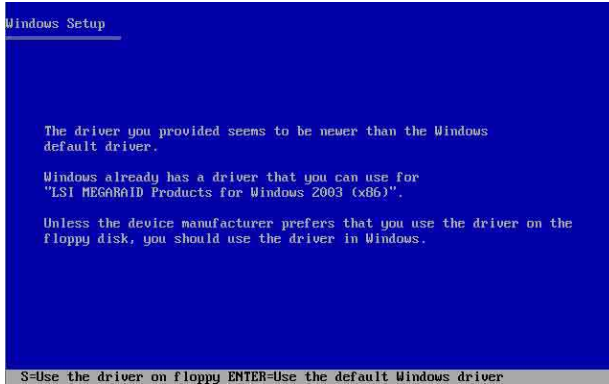


5. Windows 2000 的使用者，請選擇【LSI MEGARAID Products for Windows 2000 Driver】，若 Windows 2003 Server 的使用者請選擇【LSI MEGARAID Products for Windows 2003 (x86)】。

若您使用的為 Windows XP 系統，在使用零通道的 RAID 介面卡（320-0 和 AZCRB）安裝時，請選擇 [MegaRAID SCSI 320-0 controller]；而在使用單通道的 RAID 介面卡（320-1）安裝時，請選擇 [MegaRAID SCSI 320-1 RAID controller]；而在使用雙通道的 RAID 介面卡（320-2）安裝時，請選擇 [MegaRAID SCSI 320-2 RAID controller] 進行設定。



6. Windows XP 和 Windows 2003 Server 使用者，選擇驅動程式後，會出現下列視窗，顯示偵測到 Windows 光碟片中預設的驅動程式比磁片上的版本還要舊時，此時請按 <S> 鍵，選擇使用磁片中的驅動程式來進行安裝。



7. 接下來請依照 Windows 安裝畫面指示，進行安裝作業系統，請勿將磁片移除，直到第一次重新開機完畢。

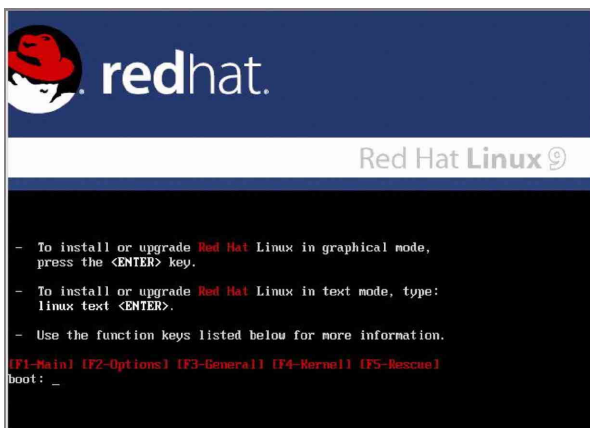
2.1.2 安裝至 Red Hat Linux 中

請放入標示 [LSI MegaRAID] 的華碩驅動程式光碟，接著請開啓光碟中的 Driver 目錄。在此目錄中，有包含製作各作業系統的驅動程式，讓您選擇來進行製作至磁片中。例如：您要製作 Red Hat 和 SuSe 9.0 作業系統的 SCSI RAID 驅動程式，請開啓 \Driver\Linux\Redhat\2.10.8\Linux_2.10.8.2-1\Redhat and SuSe 9.0\Drivers\ 目錄，並選擇 megaraid2-v2.10.8.2-rhl90-kernels.img 檔案，將此檔案解壓縮到磁片中，來製作 Red Hat 9.0 驅動程式磁片

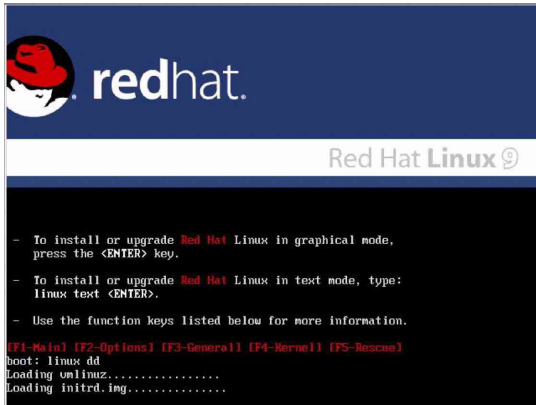
或

您可上網連結至華碩官方網站上，來下載 *.zip 驅動程式，在 Windows 作業系統下解壓縮後執行 *.exe 檔，就會自動解壓縮到磁片中。若解壓縮後的檔案並非為 MakeDisk.exe，則請直接將所有檔案複製至空白磁碟片上。

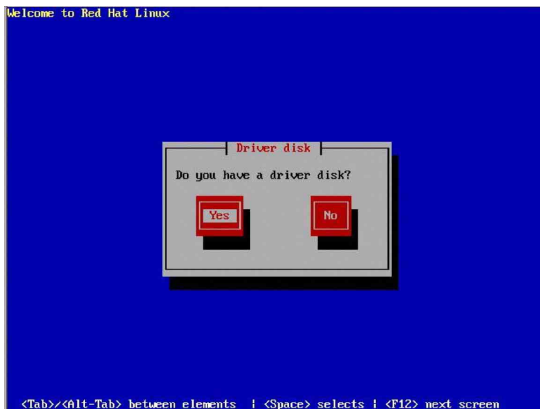
2. 接著將 Linux 安裝光碟放入，並開機。然後在底下的畫面中，輸入「linux dd」後，按下 <Enter> 鍵。



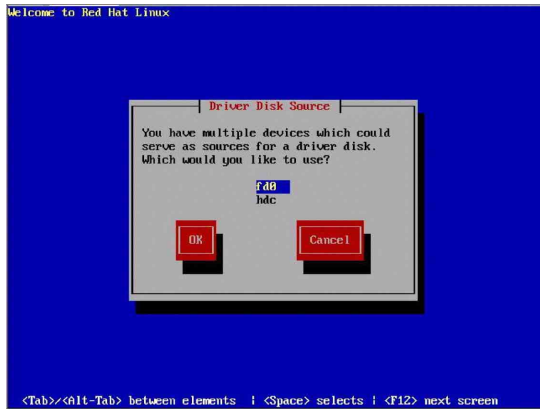
3. 輸入後就可以看到如下圖正在進行的讀取動作。



4. 接著請放入驅動程式磁片，並遵照畫面指示來進行安裝，請選擇「Y e s 」後，按下 <Enter> 鍵。

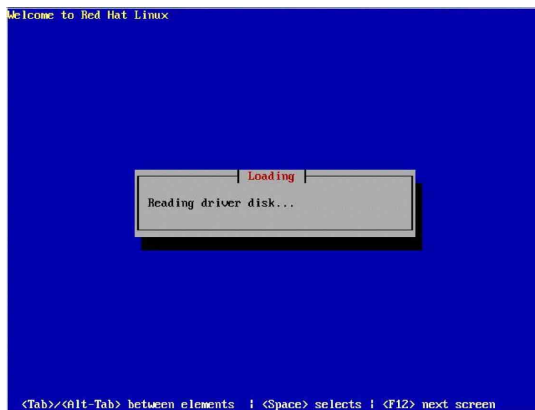


5. 請選擇「fd0」指定從軟碟機安裝驅動程式並選 OK 後，按下 <Enter> 鍵。



若為採用 USB 介面的軟碟機，請選擇【sda】指定從 USB 軟碟機來安裝驅動程式。

6. 此時作業系統就會開始讀取軟碟機中的驅動程式磁片。



7. 安裝完畢後，請選擇「No」並按下 <Enter> 鍵直接進入 Linux 作業系統，或是若還需要安裝其他驅動程式，請選擇「Yes」並按下 <Enter> 鍵，然後再重複步驟 3~4 安裝驅動程式。

