

SATA II 2-channel RAID PCI Controller

Quick Installation Guide

1. Introduction

The SATA II 2-channel RAID PCI Controller series is an ultra high-speed dual channel Serial ATA 1.5Gbps RAID controller for use in PCI-enabled system.

1-1 Features and Benefits

- Compliant with PCI plug-n-play 2.3
- Compliant with Serial ATA 1.0a specification with support for full complement of SATA II optional features
- Support Serial ATA II data transfer rate up to 150MB/s (1.5Gb/s)
- Support SATA II NCQ (Native Command Queuing) to maximize system performance
- Provides two independent SATA II channels support up to two SATA II hard disk drives
- Supports RAID 0 (stripping) for performance and RAID 1 (mirroring) for reliability!
- JBOD (Just a Bunch Of Disks) feature provides multi-drive capacity for easy accessing
- Provides LED indication for device access per channel
- Can be used as the boot controller when a bootable device is attached

1-2 System Requirements

- PCI-enabled system with one available PCI slot
- Windows 98SE/NT4.0/ME/2000/XP/Server 2003

1-3 Board Layout

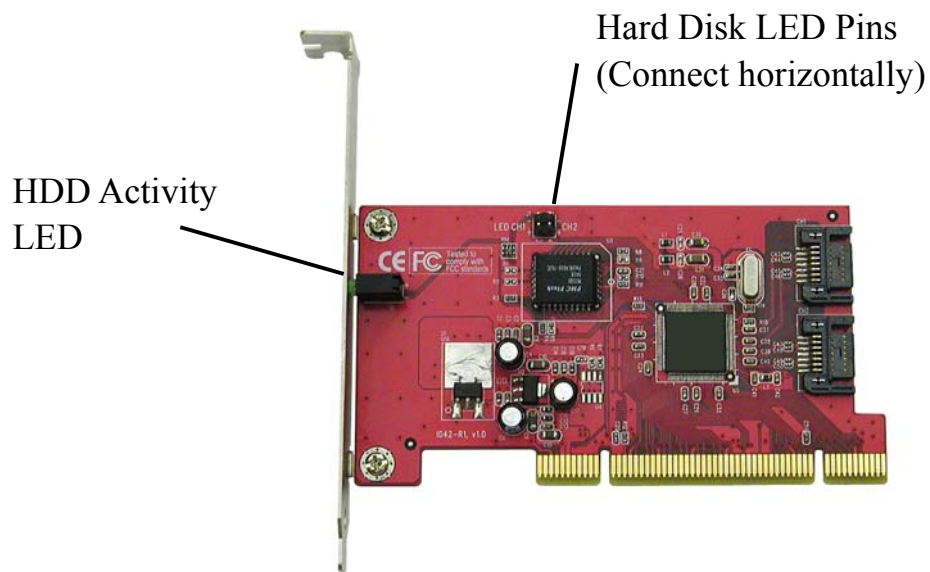


Figure 1. SATA II 2-channel RAID PCI

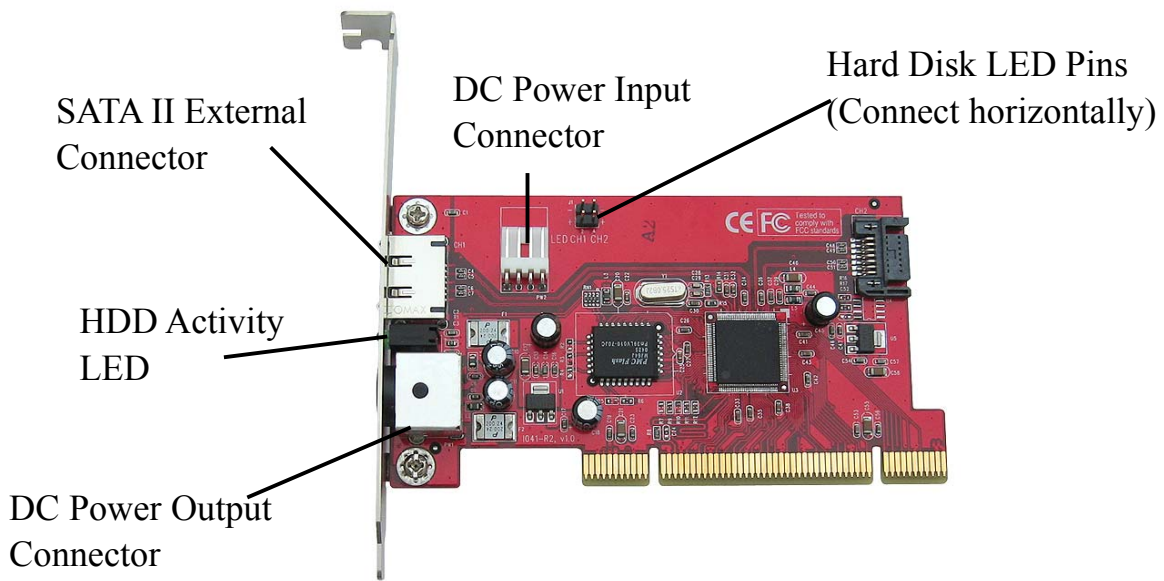


Figure 2. SATA II 1+1 channel RAID PCI

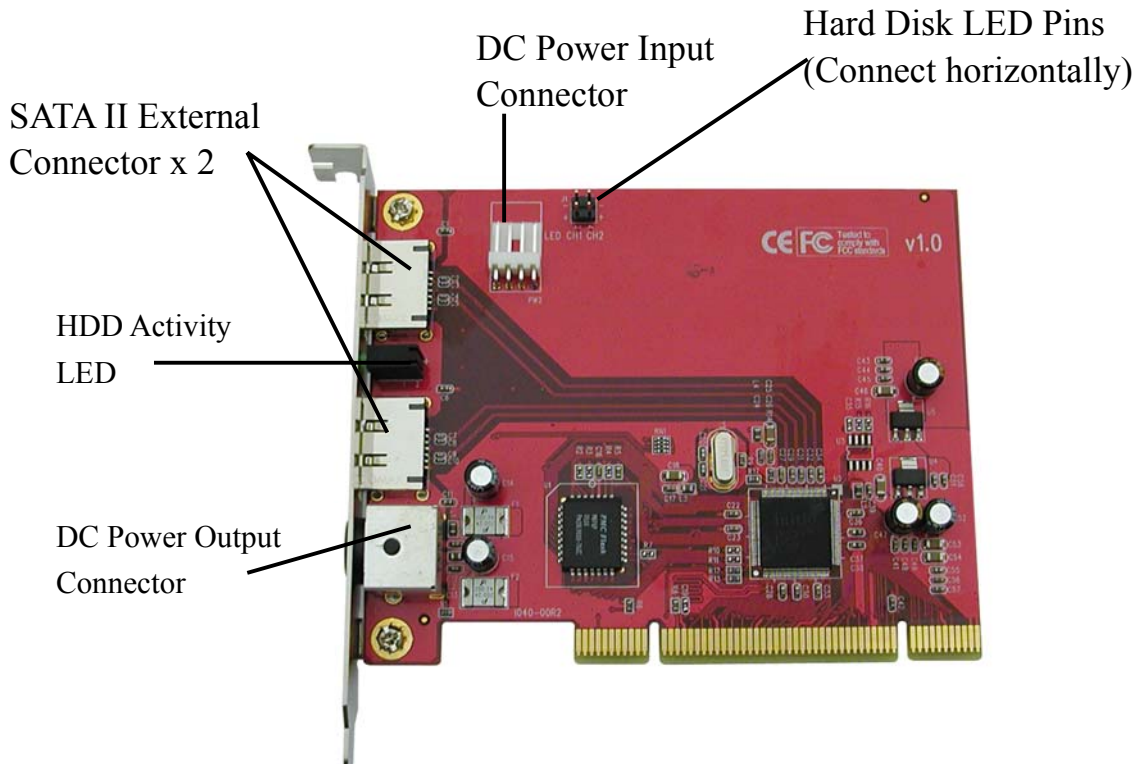
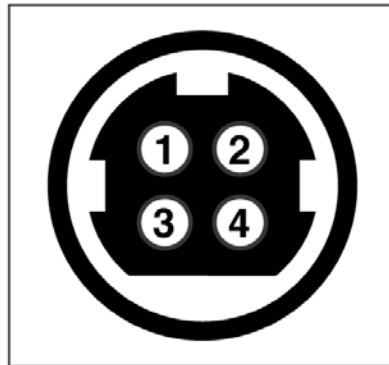


Figure 3. SATA II 2-ext.-channel RAID PCI

Remark: This QIG is applied for the above 3 items.

Pin Assignment of DC Power Output Connector



1. DC 12V 2. Gnd 3. DC 5V 4. Gnd

2. Installation

2-1 Static Electricity Precaution

One of the routine precautions you must be aware of when working with computer components is the problem of static electricity discharge.

Caution: Static Electricity Discharge may permanently damage your system. To avoid possible static electricity discharge during the installation, please follow the guidelines below:

- Discharge any static electricity build up in your body by touching a large grounded metal surface or the computer case (if plugged in), for a few seconds.
- During the installation, avoid any contact with internal parts

2-2 Hardware Installation

1. Turn OFF the power of your computer and any other connected peripheral devices.
2. Unplug the power cord from the back of the computer.
3. Remove your computer's cover.
4. Remove the slot bracket from an available PCI slot.
5. To install the card, carefully align the card's bus connector with the selected PCI slot on the motherboard.
6. Push the board down firmly, but gently, until it is well seated.
7. Replace the slot bracket holding screw to secure the board.
8. Connect the SATA data cable and SATA power cable to the SATA HDD.

9. Close the cover of your computer and plug the power back to your computer.
10. Restart the system and refer to the next section for Software Installation.

Remark: For the controller with external SATA II channel(s), please connect the 4-pin power connector from switching power supply to the “DC Input Power Connector” before replace the computer cover.



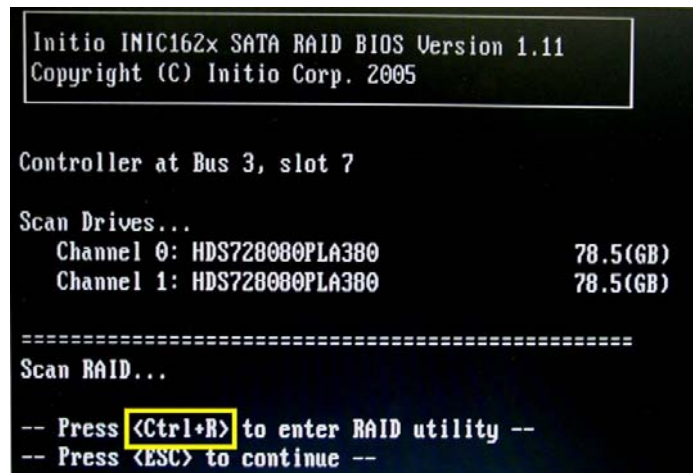
Warning: In order to prevent any data loss resulting from inappropriate operation, please backup data before you start to install your system.

3. RAID Arrays

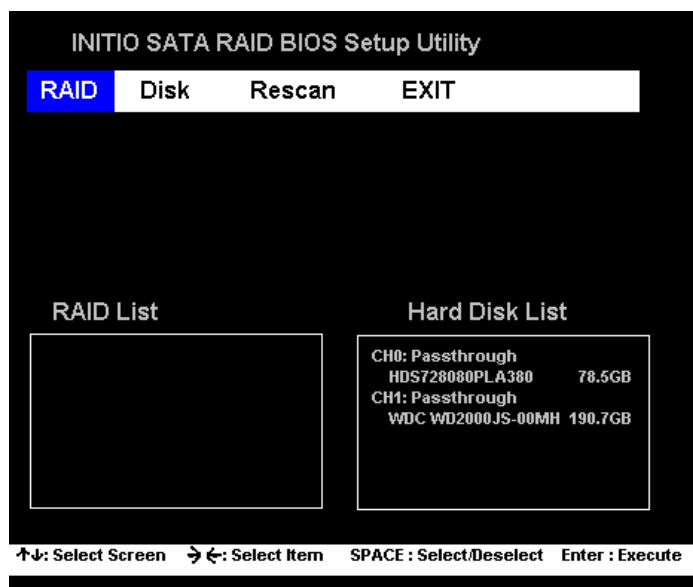
RAID Arrays are setup in the SATA II 2-channel RAID PCI's BIOS. Please refer to the following section to setup your RAID set accordingly.

During boot up the system, the following BIOS banner displays as the below,

1. Press **Ctrl+R** key to enter the INIC162x SATA RAID BIOS utility.



2. In the BIOS Setup Utility, the configuration utility associates each hard drive with a single logical drive. If logical drives have already been configured, the BIOS utility doesn't change their configuration.

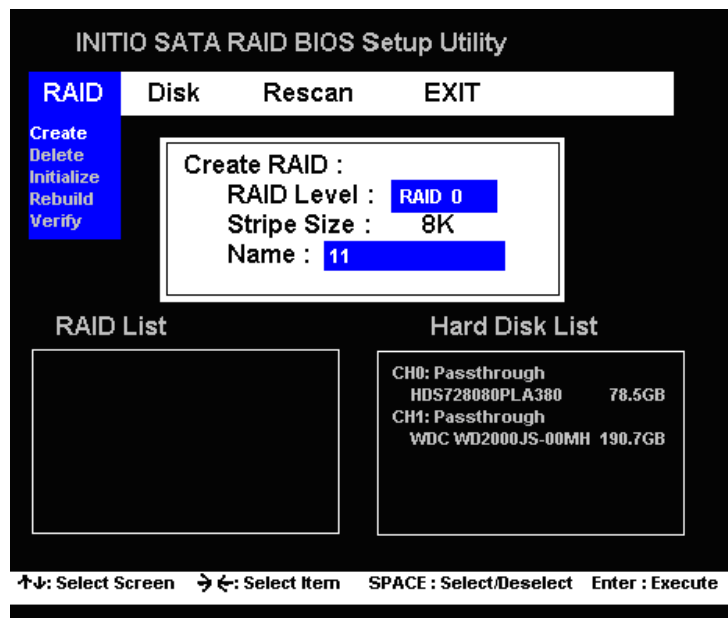


3-1 Create RAID 0 (Striping)

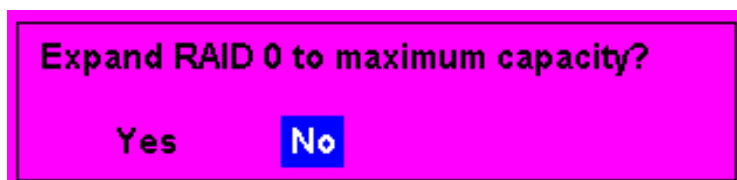
This RAID array is used on **New/Blank** hard disk drives. Striping will destroy existing data on the hard disk drives.

1. The stripe size parameter specifies the size of the segment written to each disk in a RAID configuration. You can set the stripe size to 8, 16, 32, 64, 128, or 256 Kbytes. The default is 8 Kbytes.

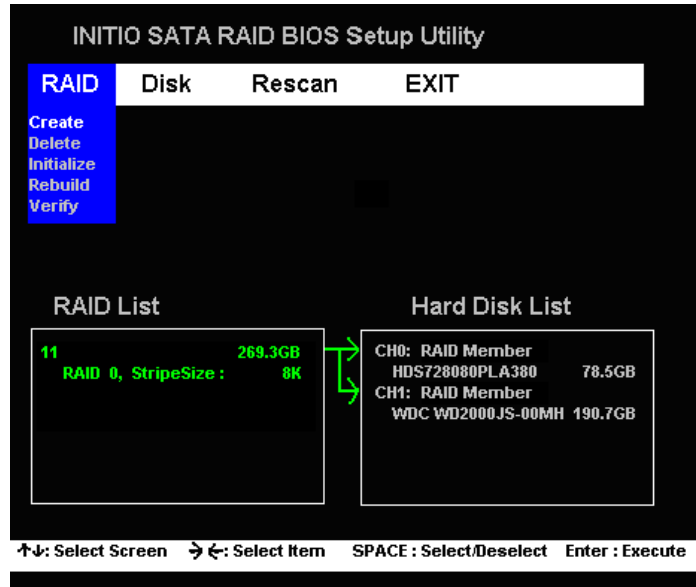
A larger stripe size produces higher read performance. If your computer regularly performs random read requests, choose a smaller stripe size.



2. You can decide to expand RAID 0 to maximum capacity or not, as below.

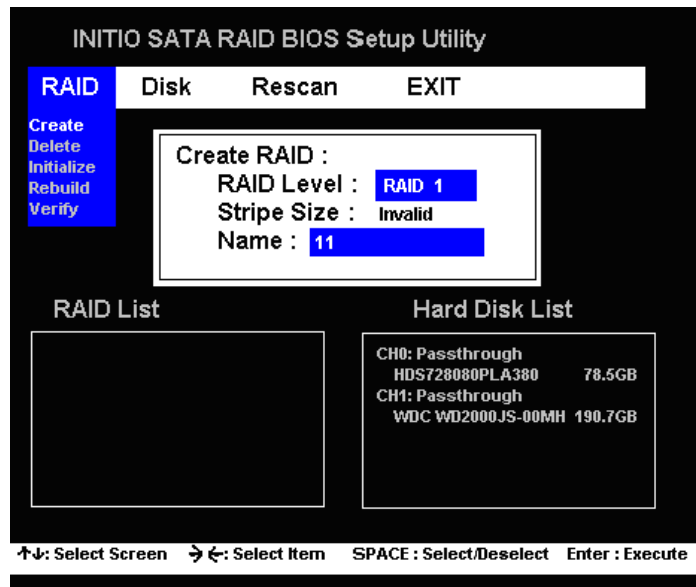


- The RAID list will display the RAID 0's information includes the RAID Level, Stripe Size, Name and Capacity as below.

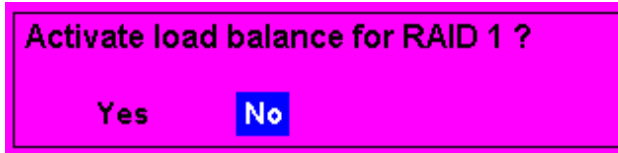


3-2 Create RAID 1 (Mirroring)

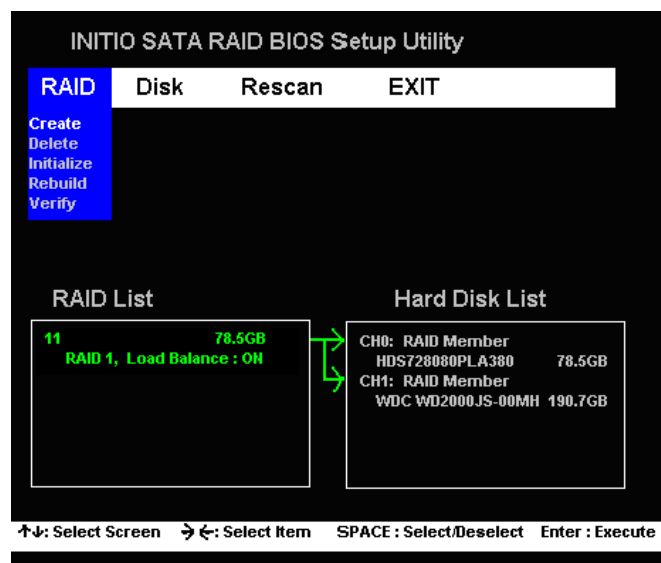
- RAID 1 requires exactly two physical drives, data duplicated on another disk by mirroring. RAID 1 will limit the disk space to the smaller size of the drive and reduced performance during rebuilds.



2. You can activate the function of load balance for RAID 1, it can let each drive averages the loading.

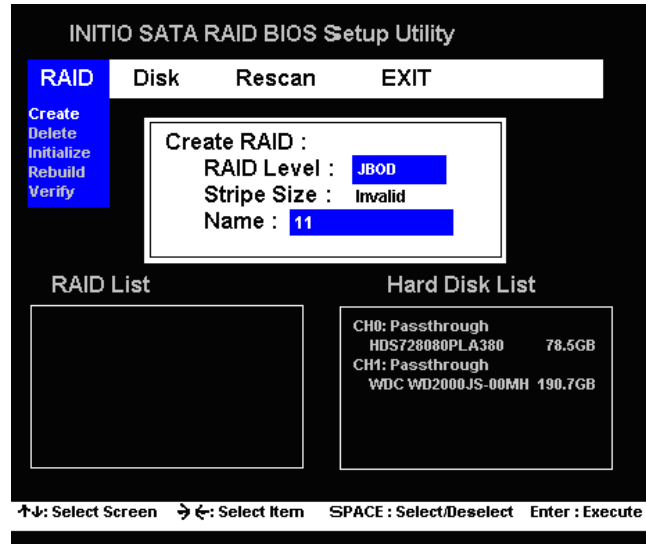


3. The RAID list will display the RAID 1's information includes the RAID Level, Load Balance, Name and Capacity as below.

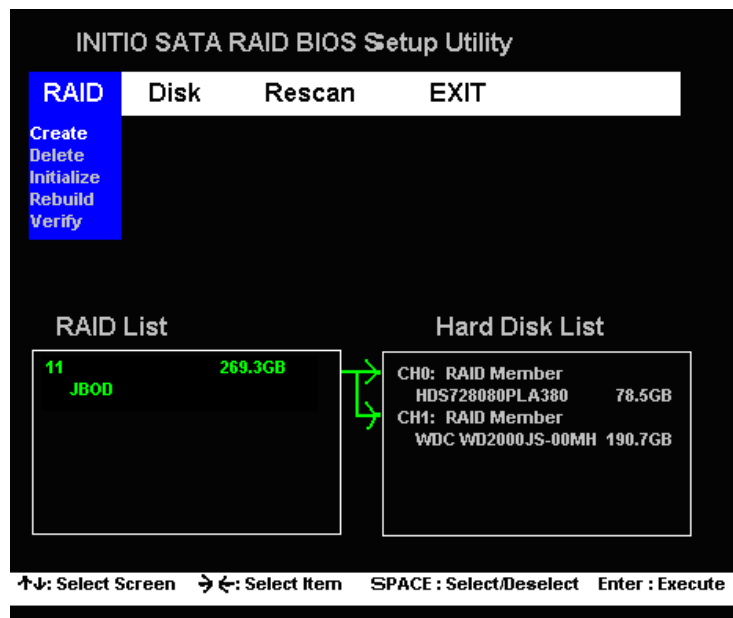


3-3 Create JBOD

1. Data just bunches as one logical drive from two physical disks.

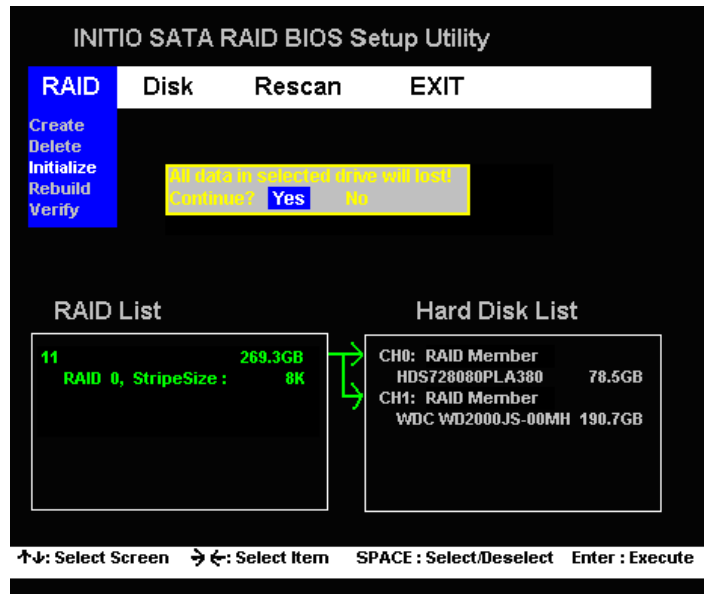


2. The RAID list will display the RAID JBOD's information includes the RAID Level, Name and Capacity as below.

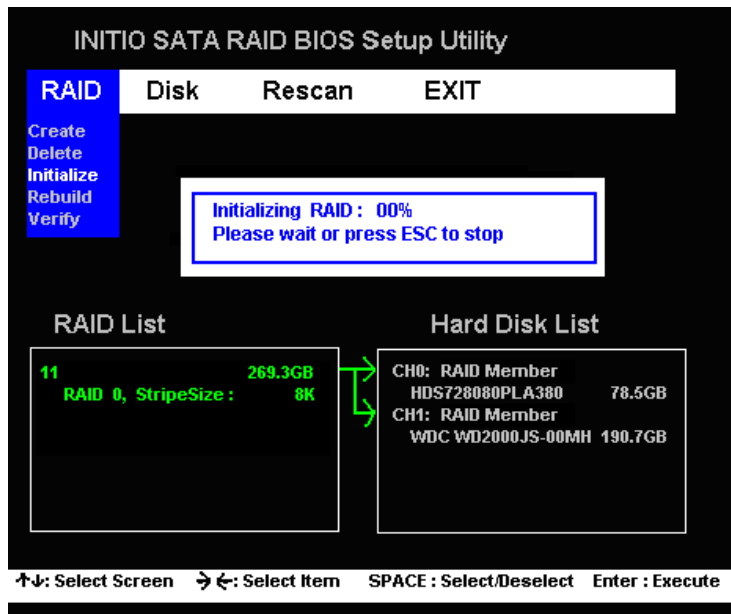


3-4 Initialize RAID

1. Perform the below steps to initialize a logical drive by using the initialize selection, continue the steps will destroy all the data on the hard disk drive.

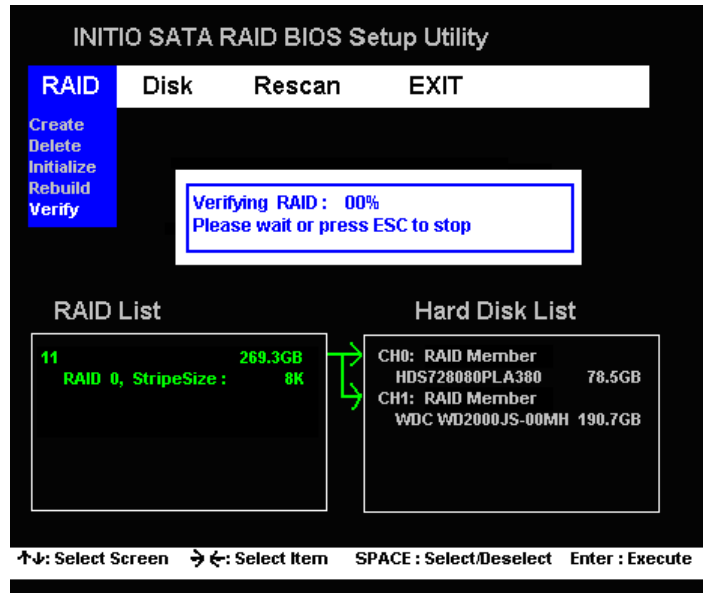


2. The process of initialization will display as following, you also can press ESC key to leave the process.



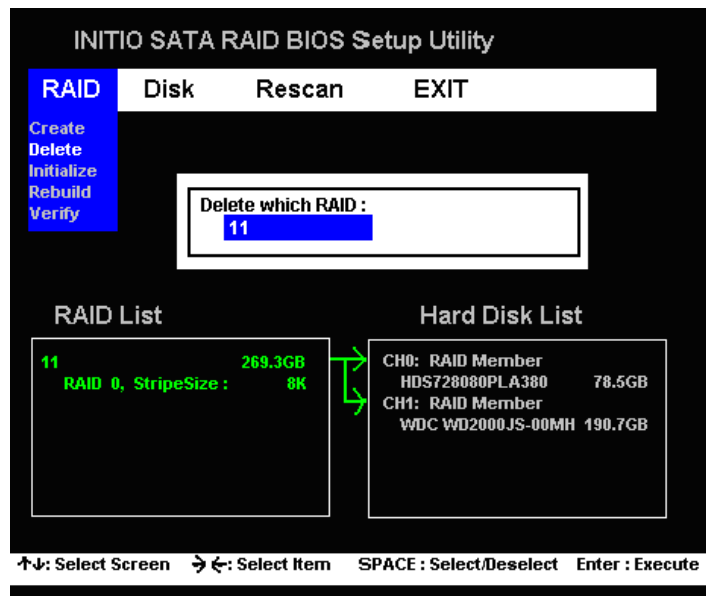
3-5 Verify RAID

The process of verifying will display as following, only the HDD containing data can be verified. You also can press ESC key to leave the process.



3-6 Delete RAID

Select the delete from the RAID menu, and choose the name of RAID which you want to delete as below.

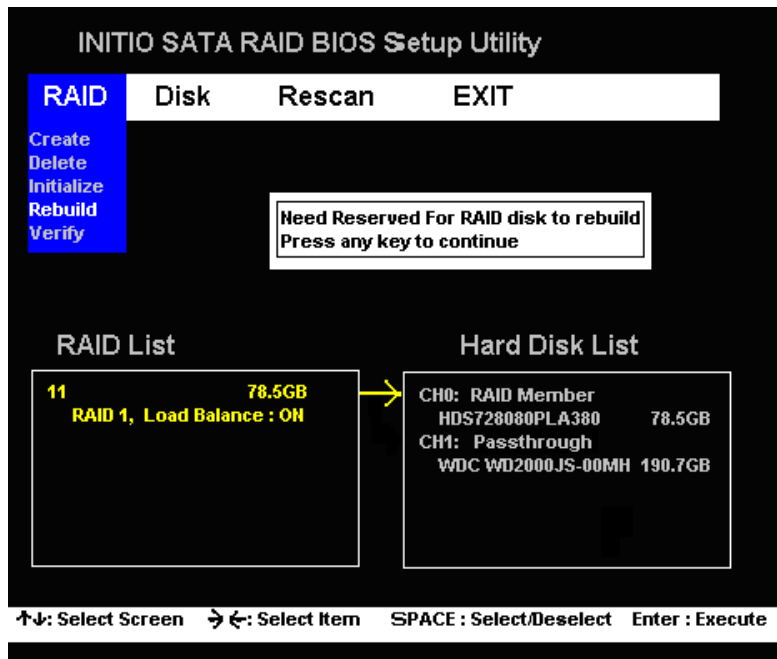


Note: The two hard disk drives will not be accessed after “Delete RAID” process completed.
Strongly suggest you not to use this feature.

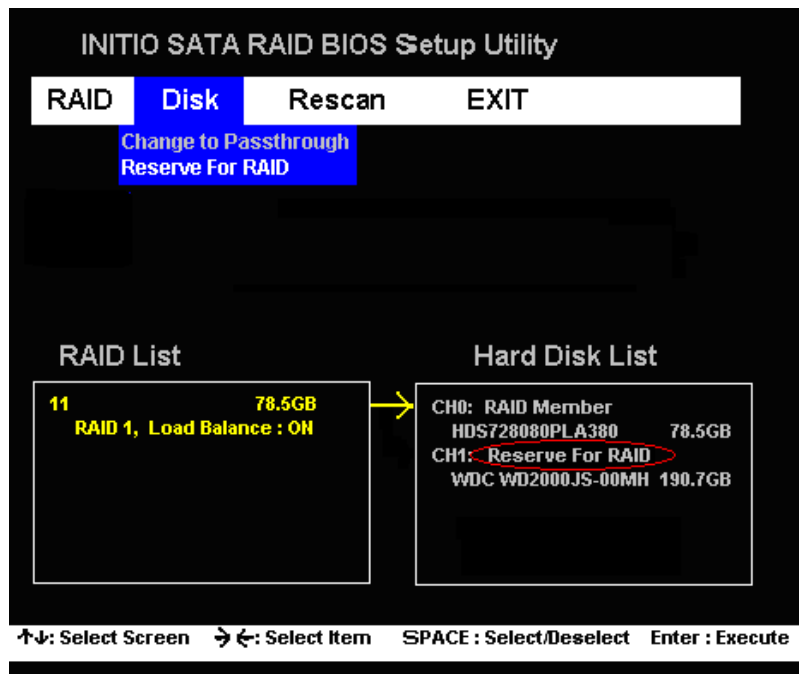
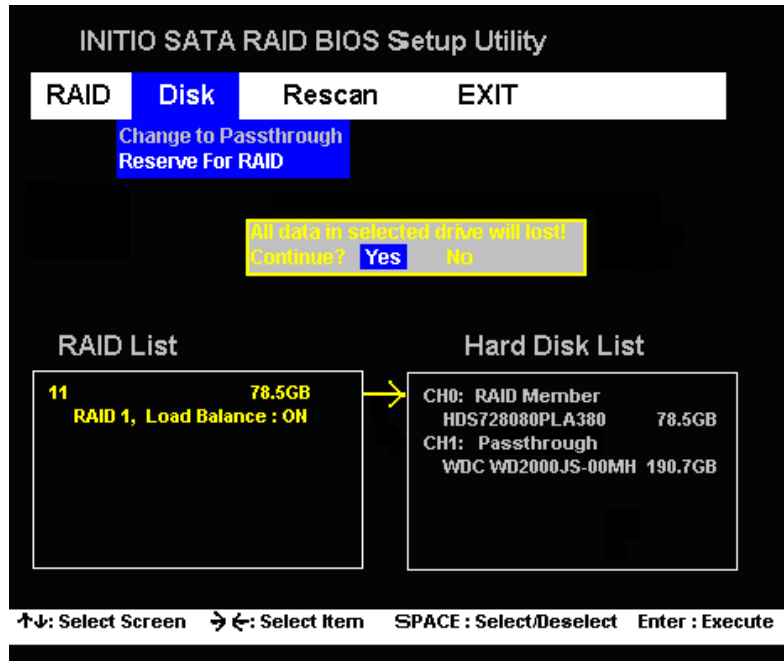
3-7 Rebuild RAID

When a failure to one member occurs, you will be notified either by the **RAID BIOS** during boot or by the **SATA RAID Manager** while in Windows.

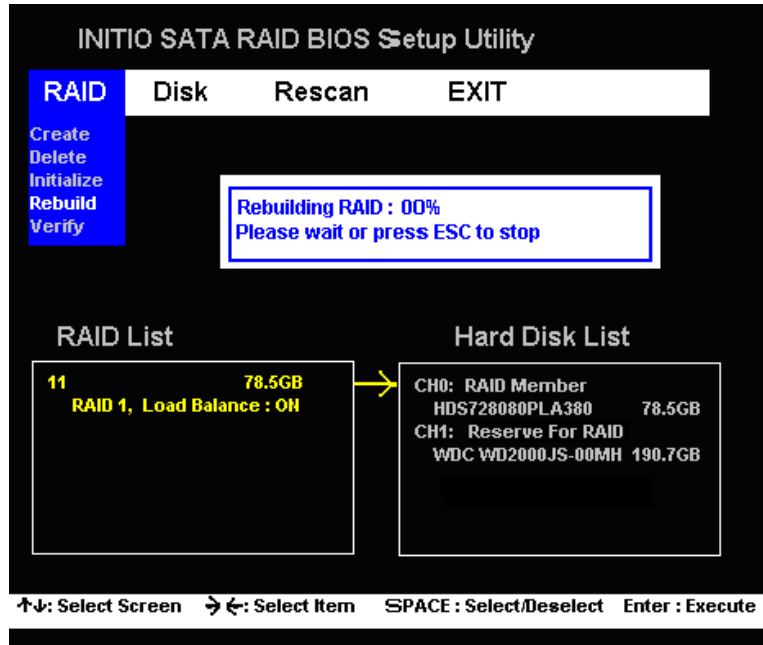
1. Replace the failed drive(s) with one of equal or greater capacity, then start the computer.
2. During boot, press **Ctrl+R** to enter the **RAID BIOS**.
3. Select “Rebuild RAID” as following screen.



4. Set the new drive as “Reserve for RAID” as following screens. The new drive needs to be changed from “Passthrough” to “Reserve For RAID”.

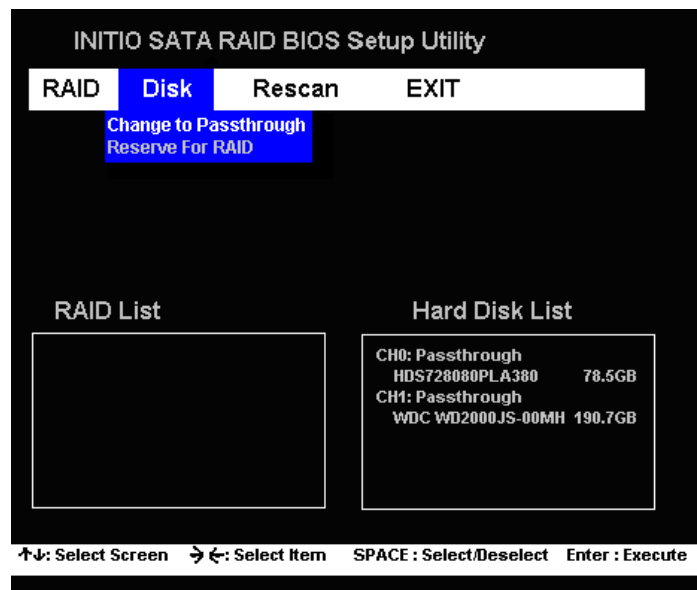


- The mirror will rebuild. Rebuild time is dependent on the size of the mirror set.



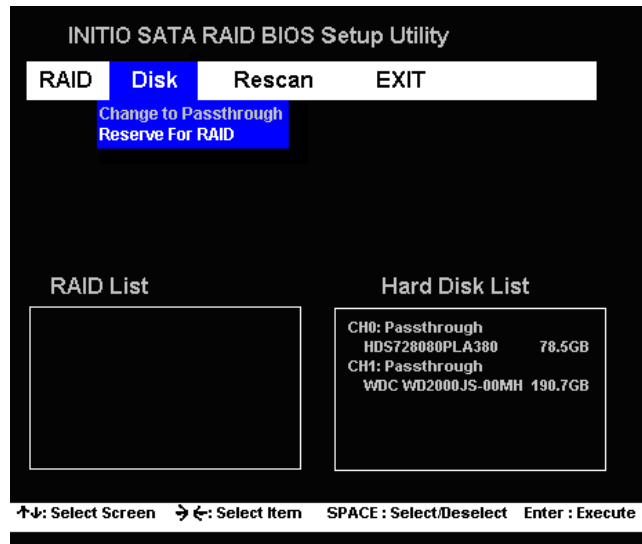
3-8 Change to Pass-through

Select the item of “Change to Passthrough” on the Disk menu for change the hard disk from the state of “Raid Member” or “Reserve for RAID”.



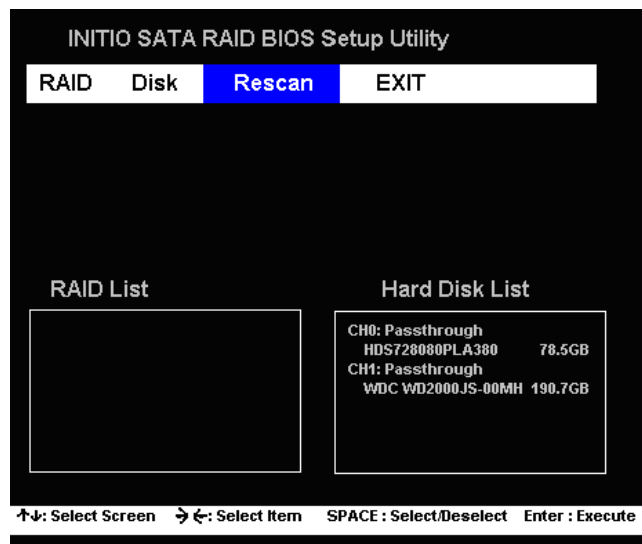
3-9 Reserve For RAID

Select the item of “Reserve For RAID” on the Disk menu, and change the hard disk from “Passthrough” to “Reserve For RAID” for rebuilding function.



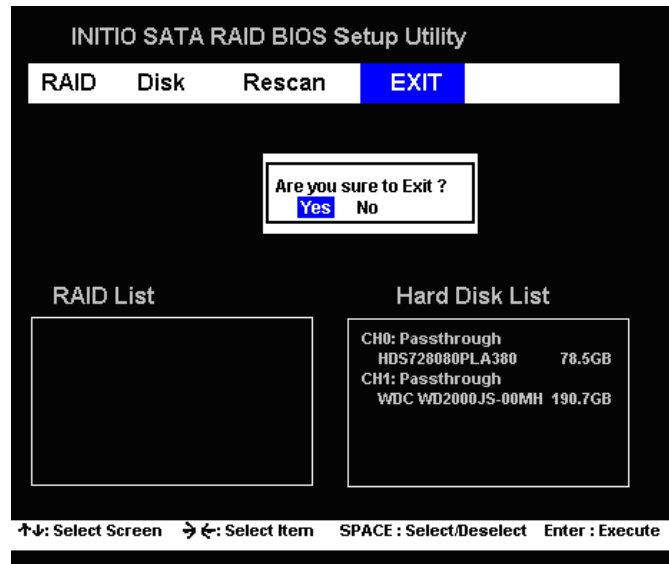
3-10 Rescan

The Rescan function updates the status of RAID drive and shows the information on the RAID List and Hard Disk List.



3-11 Exit BIOS Utility

Select the Exit selection to leave the RAID BIOS Setup utility.



4. Driver Installation

4-1 Windows 98SE Driver Installation

For New Windows 98SE installation

1. Install the board, then boot up your system.
2. Setup the RAID array prior to Windows installation.
3. Follow Microsoft procedures to install Windows 98SE accordingly.
4. Once Windows has installed and booted, double click **My Computer/Control Panel/System**. Select **Device Manager** tab.
5. Double click **PCI Card** listed under **Other Devices**.
6. Select **Driver** tab, then click **Update Driver** button.
7. Insert the driver CD into your CD-ROM drive, then click **Next**.
8. Select **Search for a better driver than the one your device is using now [Recommended]**, then click **Next**.
9. Select **Specify a location:** then type **E:\win9x**, then click **Next**, then **Finish**. (Change “E”: to match your CD-ROM drive alphabet)
10. When **Initio INIC162x S-ATA Raid Controller** displays, click **Next**, then click **Finish**.
11. Remove the driver CD and click **Yes**, restart Windows to complete the driver installation.

For Existing Windows 98SE installation

1. After installing the board and boot up your system.
2. Setup the RAID array prior to driver installation.
3. When **Add New Hardware Wizard** displays **PCI Card**, then click **Next**.

4. Insert the driver CD into your CD-ROM drive.
5. Check **Search for the best driver for your device (Recommended)**, then click **Next**.
6. Choose Specify a location, type **E:\win9x**, then click **Next**. (Change “E”: to match your CD-ROM drive alphabet)
7. When **Initio INIC162x S-ATA Raid Controller** displays, click **Next**, then click **Finish**.
8. Remove the driver CD while restart your system to complete the installation.

4-2 Windows ME Driver Installation

For New Windows ME installation

1. Install the board, then boot up your system.
2. Setup the RAID array prior to Windows installation.
3. Follow Microsoft procedures to install Windows ME accordingly.
4. Once Windows has installed, double click **My Computer/Control Panel/ System**, then Select **Device Manager** tab.
5. Double click **PCI Card** listed under **Other Devices**.
6. Select **Driver** tab and click **Update Driver** button.
7. Insert the driver CD into your CD-ROM drive, then click **Next**.
8. Select **Automatic search for a better driver [Recommended]**, click **Next**,
9. Select **Initio INIC162x S-ATA Raid Controller**, click **OK**, then click **Finish**.
10. Remove the driver CD, then click **Yes** to restart Windows and complete the installation.

For Existing Windows ME installation

1. After installing the board and boot up your system.
2. Setup the RAID array prior to driver installation.
3. When **Add New Hardware Wizard** displays **PCI Card**, check **Automatic search for a better driver (Recommended)**.
4. Insert driver CD into your CD-ROM drive, then click **Next**.
5. Select **Initio INIC162x S-ATA Raid Controller**, then click **OK**.
6. Click **Finish**, then remove the driver CD while restart your system to complete the installation.

4-3 Windows NT4.0 Driver Installation

For New Windows NT4.0 installation

A new installation of Windows NT4.0 requires a floppy disk for the driver installation. To make this floppy disk, copy the contents of the **Floppy** folder, found on the driver CD, onto a blank floppy disk then follow the directions below.

1. Install the board and boot up your system.
2. Setup the RAID array prior to Windows installation.
3. Follow Microsoft Procedures to install Windows NT4.0 accordingly.
4. At the **Windows NT Setup** screen, press **F6** to specify and add the driver.
5. Press **S**, select **Other**, then press **Enter**.
6. Insert the driver diskette and press **Enter**.
7. Select **Initio INIC162x SATA RAID Controller For Windows NT4.0** in the box, press **Enter**.

8. Press **Enter** to continue and follow on-screen instructions to complete the installation.

For Existing Windows NT4.0 System

1. Install the board and boot up you system.
2. Setup the RAID array prior to driver installation.
3. Double click **My Computer/ Control Panel/ SCSI Adapters**, then click on the **Drivers** tab.
4. Click **Add...** then **Have Disk...**
5. Insert the driver CD into your CD-ROM drive, type in **E:\winnt**, then click **OK**. (Change “E”: to match your CD-ROM drive alphabet)
6. Select **Initio INIC162x S-ATA Raid Controller**, then click **OK**, click **OK** again.
7. Click **Yes** and remove the driver CD while restart your system to complete the installation.

4-4 Windows 2000 Driver Installation

For New Windows 2000 installation

A new installation of Windows 2000 requires a floppy disk for the driver installation. To make this floppy disk, copy the contents of the **Floppy** folder, found on the driver CD, onto a blank floppy disk then follow the directions below.

1. Install the board and boot up you system.
2. Setup the RAID array prior to Windows installation.
3. Follow Microsoft procedures to install Windows 2000 accordingly.
4. At the **Windows 2000 Setup** screen promptly press **F6** to install the driver.
5. Press **S** to specify Additional device.

6. Insert the driver diskette and press **Enter**.
7. Select **INITIO INIC162x SATA RAID Controller For Windows 2000** in the box, press **Enter**.
8. Press **Enter** to continue and follow the on screen instructions to complete driver installation.

For Existing New Windows 2000 installation

1. After installing the board, boots up your system.
2. Setup the RAID array prior to driver installation.
3. When **Found New Hardware Wizard** appears, click **Next**.
4. Insert driver CD into your CD-ROM drive.
5. When **Found New Hardware Wizard** displays **PCI Device**, check **Search for a suitable driver for my device [recommended]**, then click **Next**.
6. Select **CD-ROM drives**, then click **Next, Next**.
7. When **Initio INIC162x S-ATA Raid Controller**, then click **Yes**, then **Finish**.
8. When **Digital Signature Not Found** displays **Initio Raid Interface**, then click **Yes**.
9. Remove the driver CD while restart your system to complete driver installation.

4-5 Windows XP/2003 Driver Installation

For New Windows XP/2003 installation

A new installation of Windows XP/2003 requires a floppy disk for the driver installation. To make this floppy disk, copy the contents of the **Floppy** folder, found on the driver CD, onto a blank floppy disk then follow the directions below.

1. Install the board and boot up you system.
2. Setup the RAID array prior to Windows installation.
3. Follow Microsoft procedures to install Windows XP/2003 accordingly.
4. At the **Windows Setup** screen, press **F6** to install the driver.
5. Press **S** to specify the location of the driver.
6. Insert the driver diskette, then press **Enter**.
7. Select **INITIO INIC162x SATA RAID Controller For Windows XP/2003** in the box, press **Enter**.
8. Press **Enter** to continue and follow on-screen instructions to complete driver installation.

For Existing Windows XP/2003 installation

1. After installing the board, boots up your system.
2. Setup the RAID array prior to driver installation.
3. When **Found New Hardware Wizard** displays **PCI Device**, check **Install the software automatically [Recommended]**.
4. Insert driver CD into your CD-ROM drive, then click **Next**.
5. When **Found New Hardware Wizard** displays **Initio INIC162x S-ATA Raid Controller**, then click **Next**.
6. When **Hardware Installation** displays **Initio INIC162x S-ATA Raid Controller**, click **Continue Anyway**, then click **Finish**.
7. When **Found New Hardware Wizard** displays **Initio Raid Interface**, check **Install the software automatically [Recommended]**, then click **Next, Next**.
8. When **Hardware Installation** displays **Initio Raid Interface** then click **Continue Anyway**, then click **Finish**.
9. Remove the driver CD while restart your system to complete the driver installation.

5. SATA RAID Manager Utility

The SATA RAID Manager Utility provides the user an easy way to monitor your RAID set.

<p>It supports only Windows 2000/XP and Server 2003. For the customer uses Windows 98SE/ME, please upgrade your OS.</p>
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Installing the SATA RAID Manager Utility

1. Place the driver CD into the CD-ROM drive.
2. At the Windows desktop click **Start**, then **Run**.
3. Type **D:\GUI\Setup.exe**, then click **OK**.
(Change **D:** to match your CD-ROM drive)
4. Follow on-screen instructions to complete the installation.

SATA RAID Manager Utility Overview

Choose the INITIO SATA RAID program from the start menu to launch the program. Upon launching the utility, the main windows should appear on the tool bar. Click it to activate the main windows.

The Initio SATA RAID Manager mainly consists of a System Menu, a Task Menu, an Array View Window and a Device View Window. The task menu consists of all operation entry points while the array and device view windows graphically display the result of operations and the current configuration of RAID and related devices.

6. Troubleshooting

The following table describes problems you might encounter, along with suggested solutions.

Problem	Recommend solution
Drives aren't detected.	Change cables or change the drives if everything fails.
BIOS system will hang during booting.	Disable the SATA Host controller of embedded motherboard on main board's BIOS setup.
It can't finish the installation of Raid manager application on windows 2000 when you updating the application of Raid manager.	Remember to unplug the SATA host card when you update the application or driver of windows 2000.
Bootting function fail with SATA optical drive from SATA host controller.	Update the motherboard's BIOS.
There is no existing RAID configuration on any of the drives connected to the system and the message with RAID utility displays reserve for Raid.	Press <Ctrl + R> key to enter the BIOS configuration Utility, then select a rebuild method to configure the drives.
Update the windows service patch file that will show warning message during the upgrading action.	Remember to unplug the SATA host card when you update the service patch file of windows 2000.

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