Serial-ATA

RAID Card

Version 1.0

User Manual

Contents

Features ……P.4

Specifications ……P.5

Package Content…… ……P.5

System Requirement ……P.6

Driver Installation ……P.6

Install Serial-ATA Host Card GUI Utility……...P.16

Starting the Guide of BIOS Configuration ……....P.19

RAID Explained……P.31

Overview

Serial ATA is the next-generation internal storage inter-connect, designed to replace parallel ATA technology. Serial ATA is the proactive evolution of the ATA interface from a parallel bus to serial bus architecture. This architecture overcomes the electrical constraints that are increasing the difficulty of continued speed enhancements for the classic parallel ATA bus.

Introduction

The PCI SATA Host Card is PCI Serial-ATAII phase one IDE Controller Card which provides an efficient and economical way for users increasing the speed or fault-tolerance of their PC. It can upgrade your desktop computer to have dual internal Serial ATA channels with NCQ, TCQ and hot plugging features. It is fully compliant Serial ATA ports on the device side to access Serial ATA storage media such as hard disk drives, CD-RW and DVD-ROM drives.

Features

The Serial-ATA PCI card is a true 32-bit PCI-Bus Serial-ATA card. It supports the following I/O feature.

- Fully compatible with PCI Spec. Ver2.3 standard
- Serial ATA Specifications 1.0a compatible
- Serial ATA II Specifications 1.0 compatible
  (Extensions to Serial ATA 1.0a)
- Provides dual Serial ATA channels (up to 2 drives)
- Serial ATA maximum transfer rate of 1.5 GB/s
- Serial ATA Disk RAID 0/1/JBOD support
- Integrated PCI DMA engines
- SATA hot plug/unplug hardware support
- Implements Power Management support.
- Serial ATA TCQ and NCQ commands support.
- Serial ATA RAID Manager Configuration Utility support
- Supports 48-bit LBA (Logical Block Addressing) for hard drives
- larger than 137GB

Specifications

Interface: PCI 32 bit/66 MHz

Mode: Serial ATA II phase one

Controller: INITIO INI1622

RAID: RAID 0 (Striping) and RAID 1 (Mirroring)

Channel: Two internal Serial ATA ports

- Supports Native Command Queuing (NCQ)
- Supports tagged command queuing (TCQ)

O.S. Support: Windows2000/XP/2003/ and Linux 2.4x, 2.6x

Environment:

Operation temperature: 0℃~57℃

Storage temperature:-20℃~85℃

Operation humidity: 5℃~95% RH

Package Content

Check if the following items are present and in good condition upon opening your package. Contract your retailer if any of the items is damaged or missing.

1. Serial-ATA PCI Host Controller × 1
2. Serial-ATA Cable x 1
3. CD Driver x 1
4. User Manual x 1

System Requirements

- Available PCI slot
- Serial-ATA driver
- Serial-ATA cables
- Driver support Windows 98SE / ME / 2000 / XP and Linux 2.2

Driver Installation

◆ **Windows 2000/XP/2003 Fresh Installation**

Follow the instructions in this section if you are performing a new installation of Windows 2000/XP/2003 and you wish to boot from a device attached to the SATA PCI Card.

1. Power off the system. Insert the SATA host card into an available PCI slot. Connect Serial ATA cable(s) between the SATA host card and the Serial ATA device(s). Power up the system.

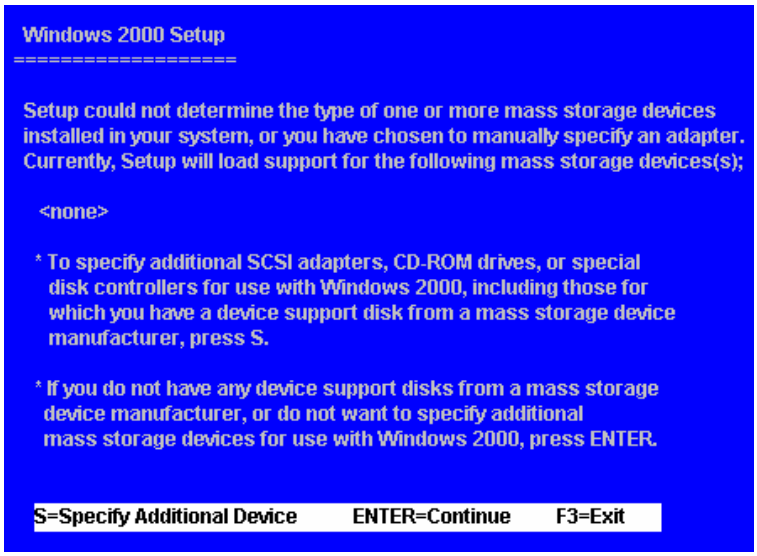
2. Copy all files from directory into the diskette. Put your Windows 2000/XP/2003 CD into the CD-ROM/DVD drive, or the 2000 / XP / 2003

   [Ex : \Serial-ATA\Initio\Driver\ ]

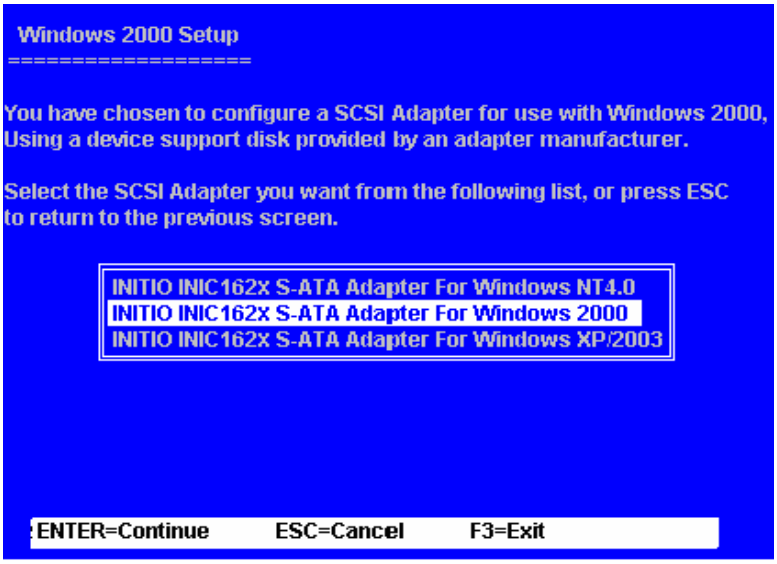
3. Boot diskette #1 in the floppy drive if your system cannot boot from the CD.
4. Install Step by Step

4.1 Press **[F6]** for third party SCSI or driver installation at the beginning of text mode installation.

4.2 Press **[S]** when setup asks if you want to specify an additional device, and insert the diskette which you had copied.



4.3 Press [Enter] and select [INITIO INIC 162X S-ATA Adapter For windows OS].



4.4 Press [Enter] again when prompted to continue on with text mode setup.

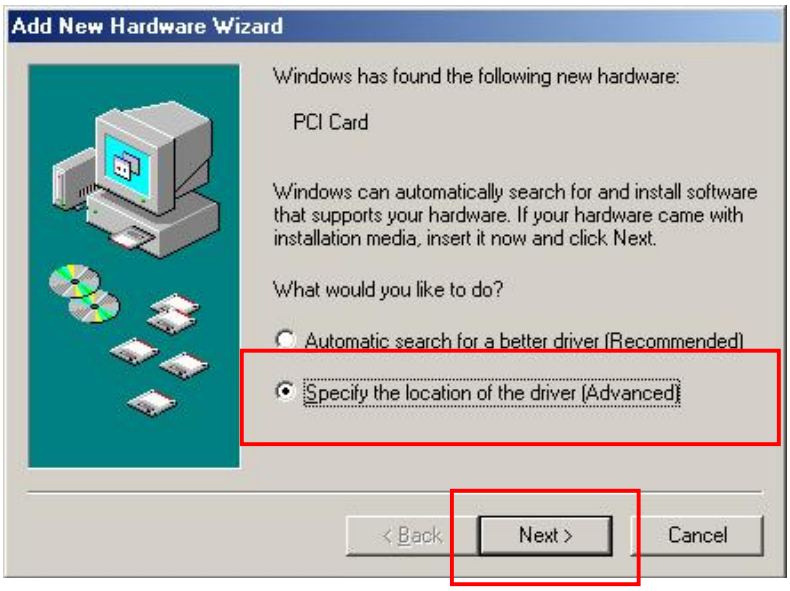
5. Follow the setup instructions to select your choice for partition and file system.

6. After setup examines your disks, it will copy files from the CD to the hard drive selected above and restart the system. After restart the setup process will resume to finish the installation.

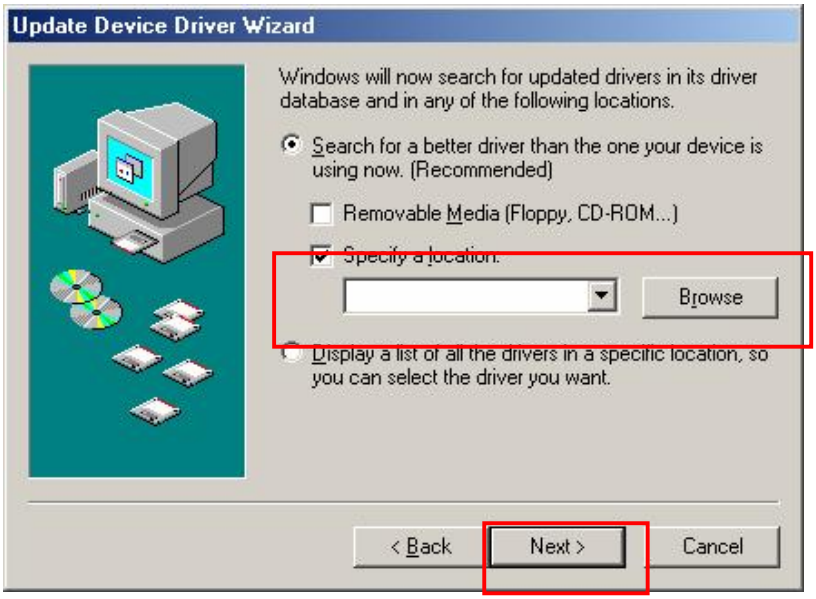
7. Once the operating system installation has completed you can follow the instructions in section 4 to verify controller was installed correctly.

◆ Windows 98SE / ME Installation

1. Select the selection of **[Specify the location of the driver]** and click the **[NEXT]** button.



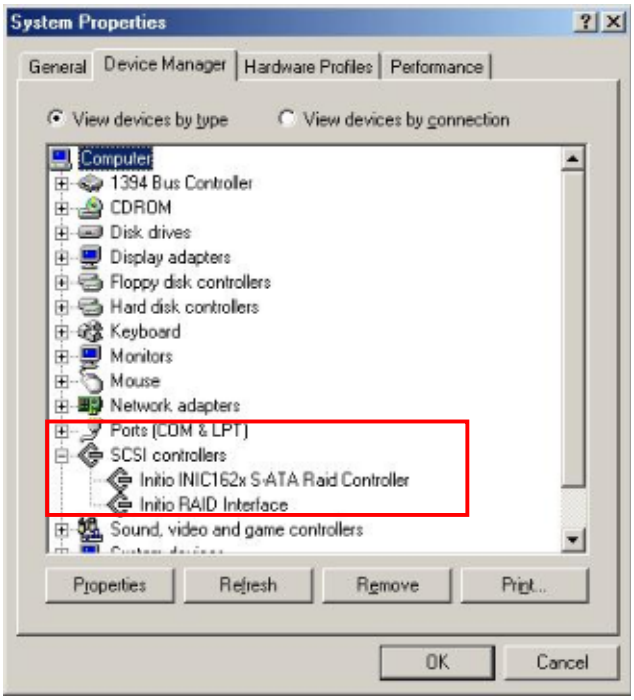
2. Choose the **[Specify a location]** and assign the SATA PCI card driver' s location. **(path : \Serial-ATA\Initio\Driver\ )**



3. Press the **[NEXT]** button for installs the driver.

4. Press **[Finish]** button for finish the installing.

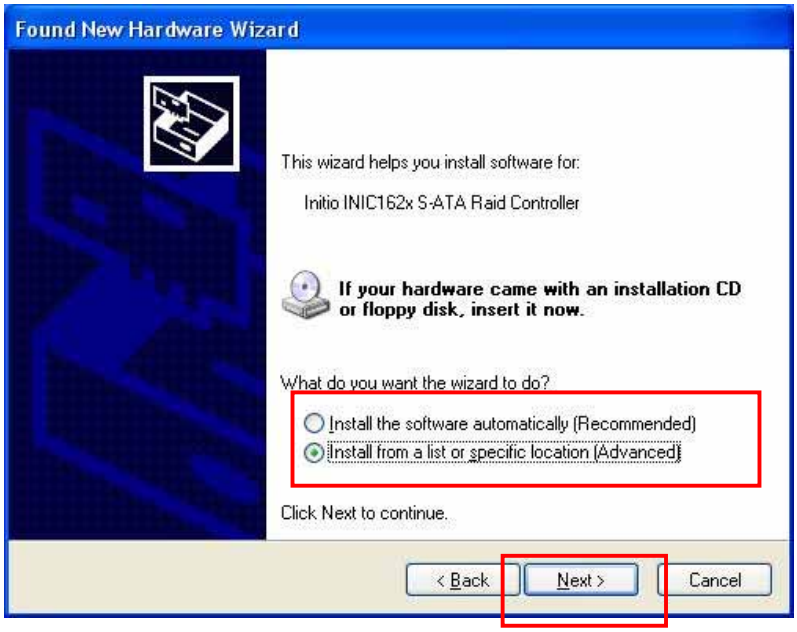
5. You can verify the driver is installed normally or not on Device Manager.



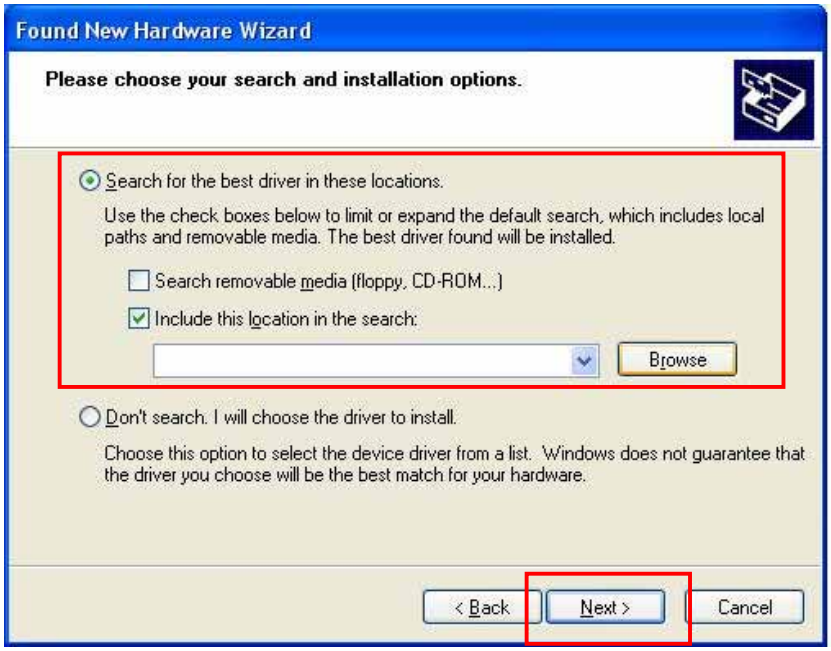
◆ **Windows 2000 / XP / 2003 Installation**

1. Choose the selection of **[No, not this time]** for don' t connect to Windows Update and press **[NEXT]** button.

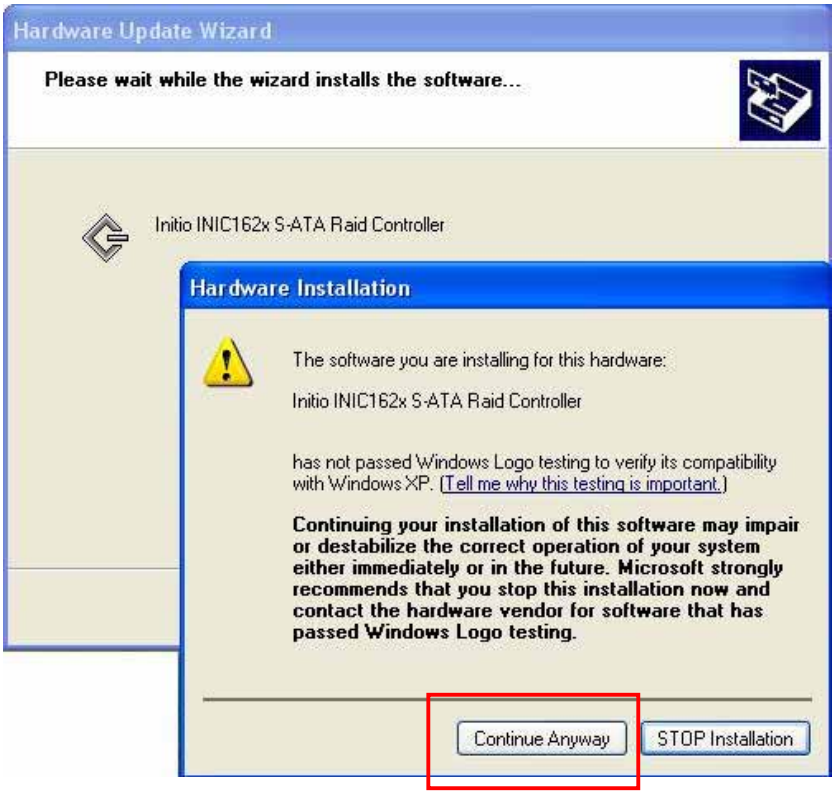
2. Choose the item of **[Install from a list or specific location]** and click **[NEXT]** button to continue.



3. Select the **[Include this location in the search]** and assign the 162x driver' s location for which system by **[Browse]** key.
(path : \Serial-ATA\Initio\Driver\ )



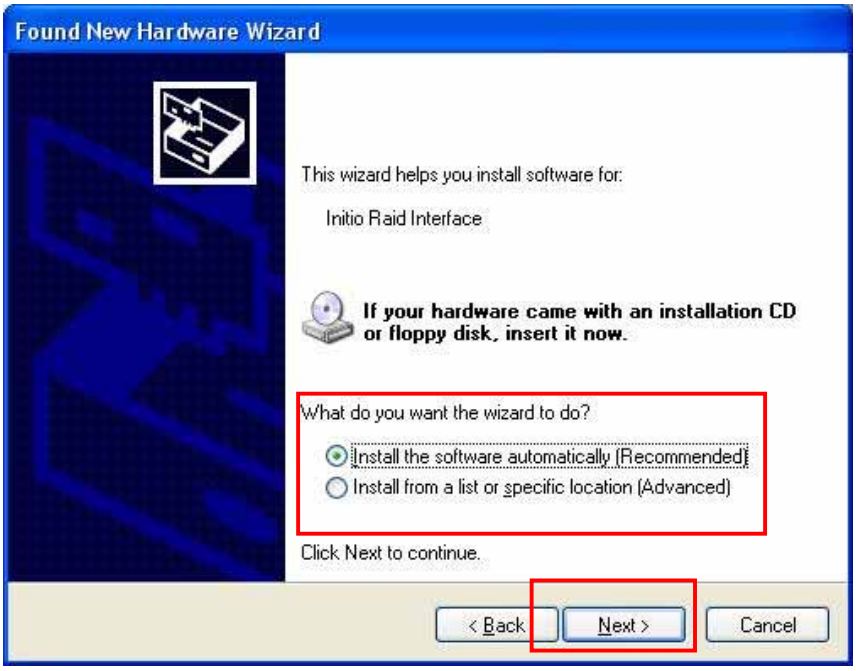
4. Press the button of **[Continue Anyway]** for installs the software.



5. Click **[Finish]** button to finish the installing.

6. And then the Initio Raid Interface will be found by hardware wizard.

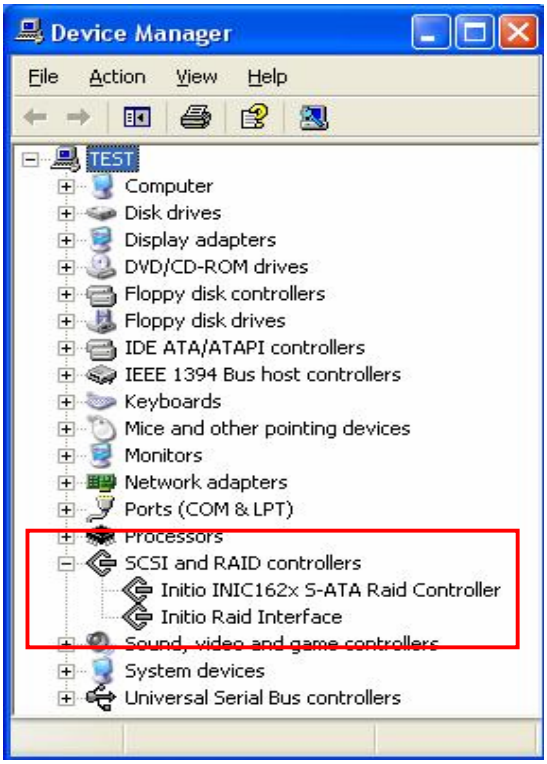
7. Choose the item of **[install the software automatically]** and click **[NEXT]** button to continue.



8. Press the button of **[Continue Anyway]** for installs the software.

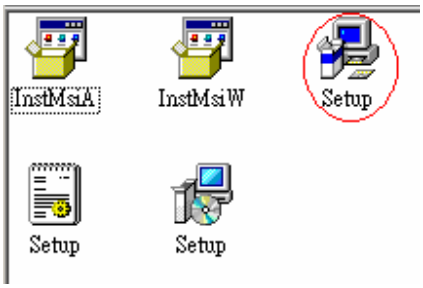
9. Click **[Finish]** button to finish the installing of Initio Raid Interface.

10. You can see **[Initio INIC162x S-ATA Raid Controller]** and **[Initio Raid Interface]** list in **[SCSI and RAID Controllers]** on Device Manager that means installation successfully.



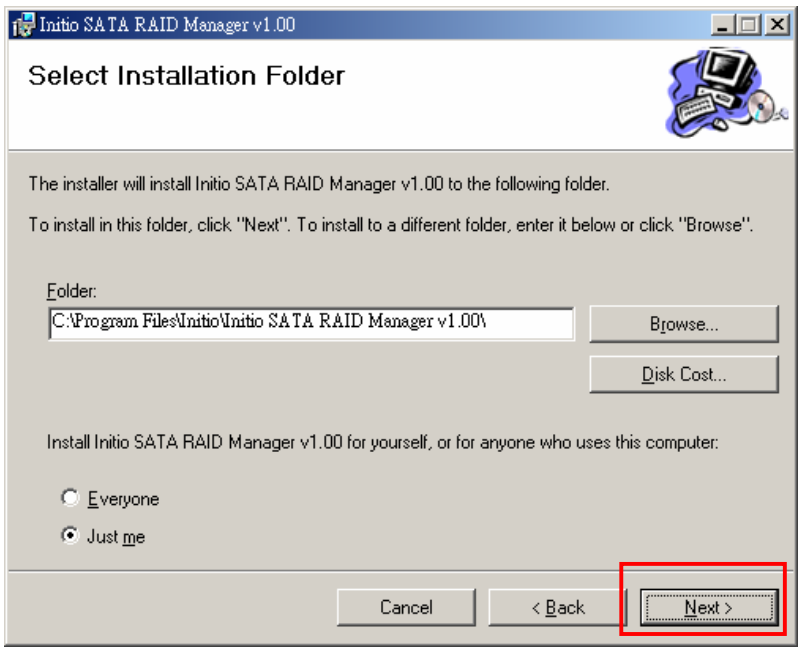
Install Serial-ATA Host Card GUI Utility

1. Click the Setup.exe file to install the application of RAID Manager and driver.

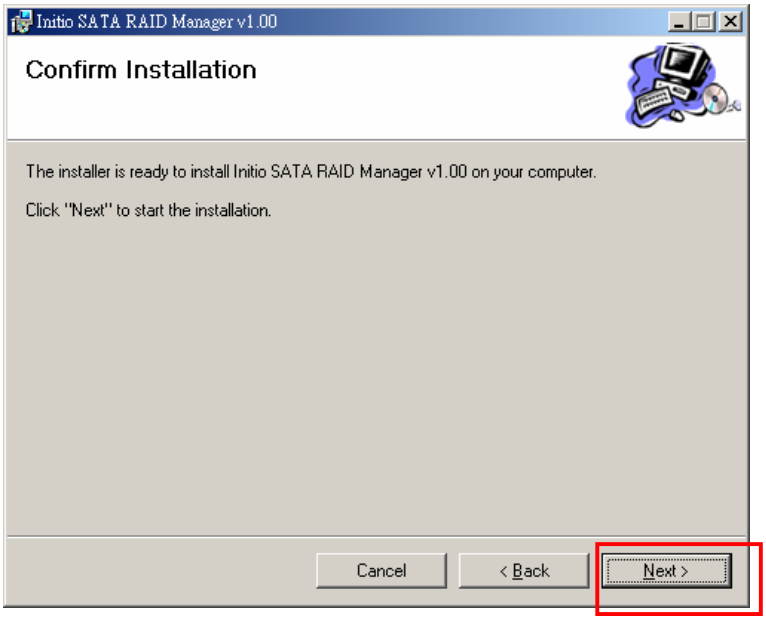


2. Click the **[Next]** button.

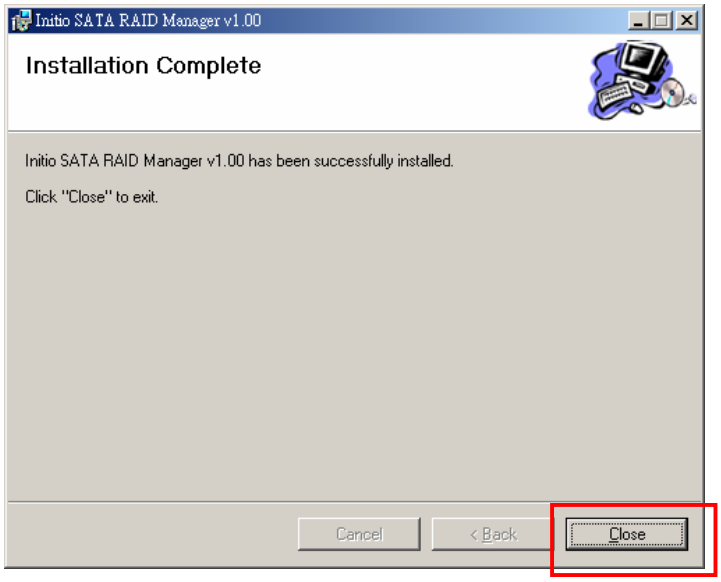
3. Click the **[Next]** button to install a different folder by press the **[Browse]** button, the button of **[Disk Cost]** provides the disk space for user to choice.



4. Click the **[Next]** button to confirm the installation.



5. Click the **[Close]** button, it has been successfully installed.



6. Restart the system.

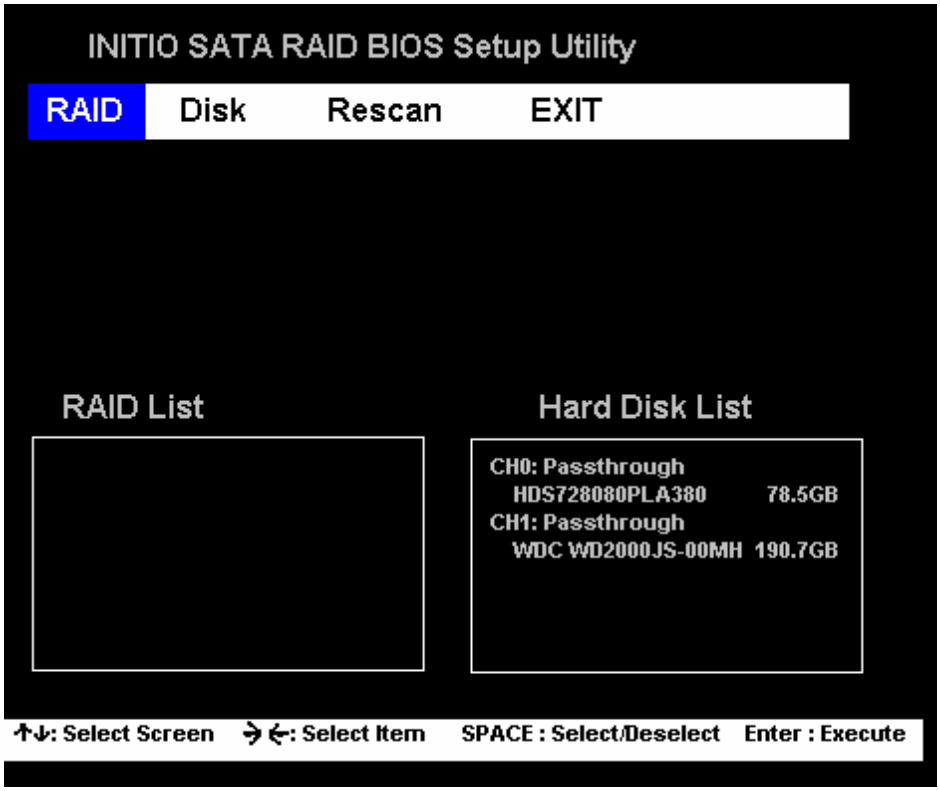
Starting the Guide of BIOS Configuration

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

1. Press **[Ctrl + R]** key to run the SATA Host Card BIOS utility.

```
-----Press < Ctrl + R > to enter RAID utility------
-----Press < ESC > to continue-----
```

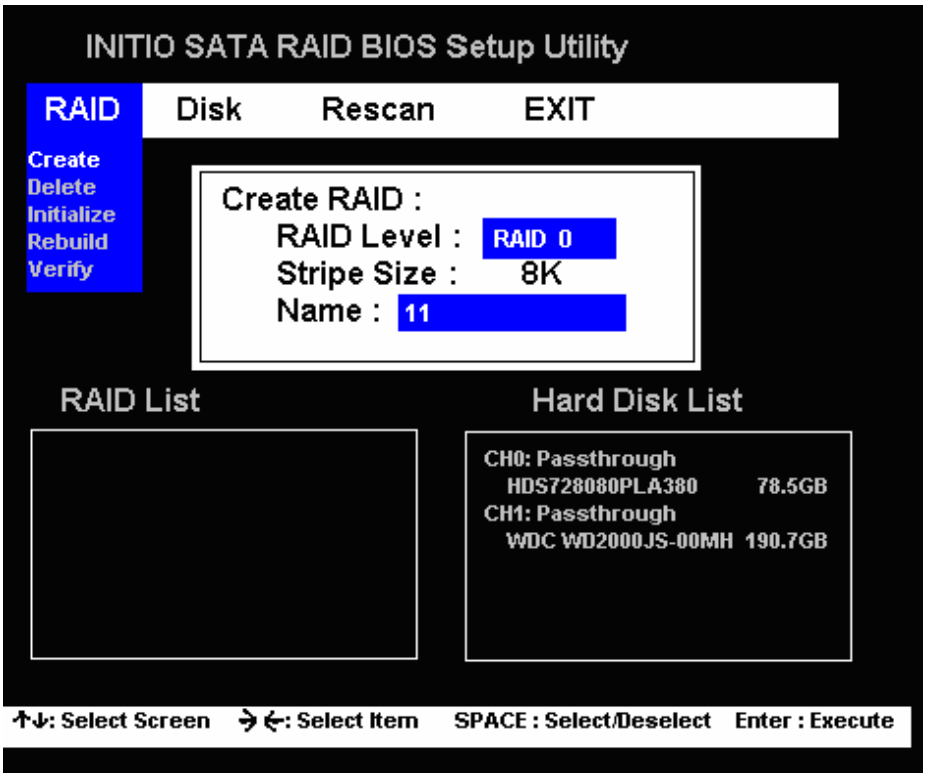
2. In the BIOS Setup Utility, the configuration utility associates each hard drive with a single logical drive. If logical drives have already been configured, the BIOS utility doesn’ t change their configuration.



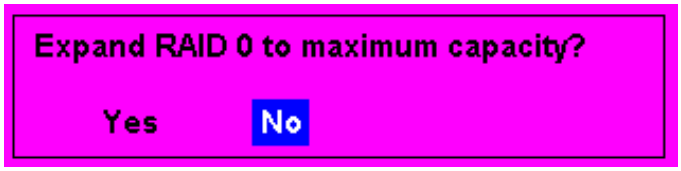
Create RAID

RAID 0

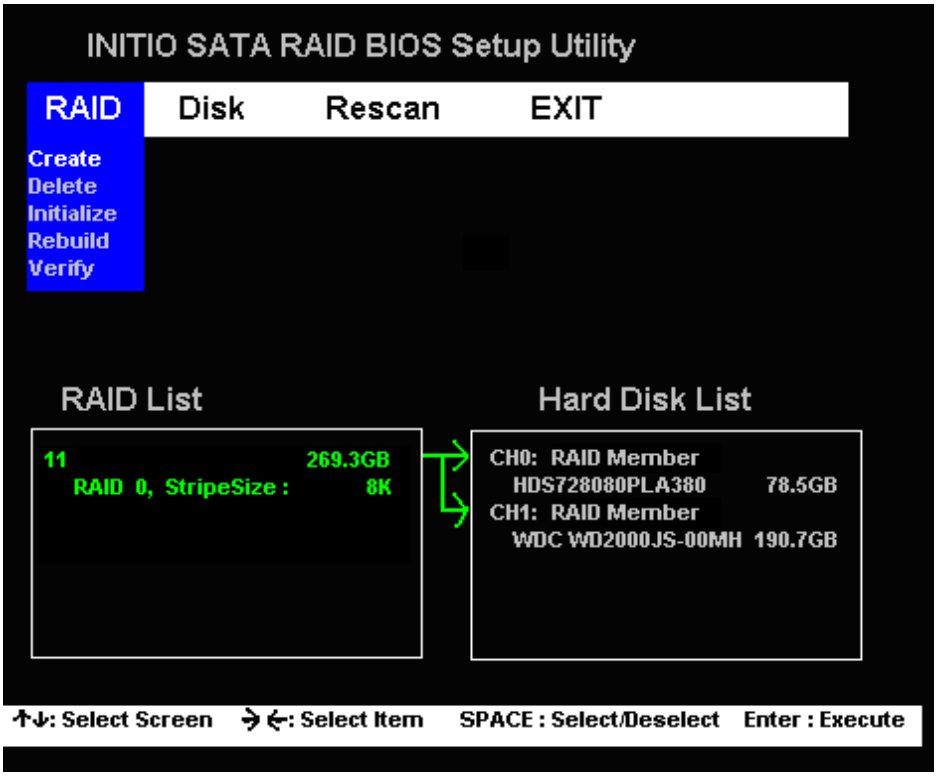
1. The stripe size parameter specifies the size of the segment written to each disk in a RAID configuration. You can set the stripe size to 8, 16, 32, 64, 128, or 256 Kbytes. The default is 8 Kbytes. A larger stripe size produces higher read performance. If your computer regularly performs random read requests, choose a smaller stripe size.



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

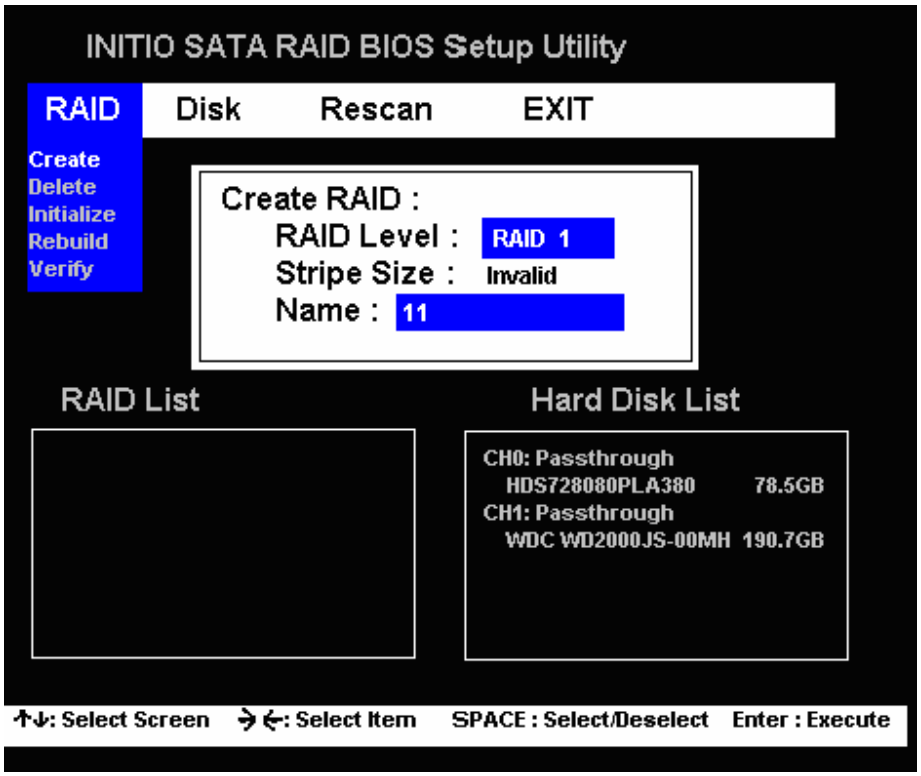


3. The RAID list will display the RAID 0' s information includes the RAID Level, Stripe Size, Name and Capacity as below.

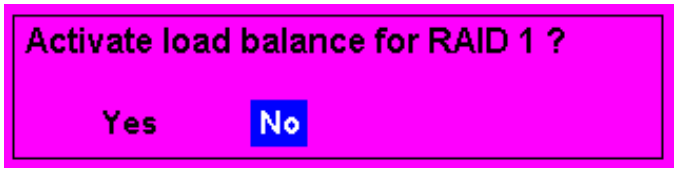


RAID 1

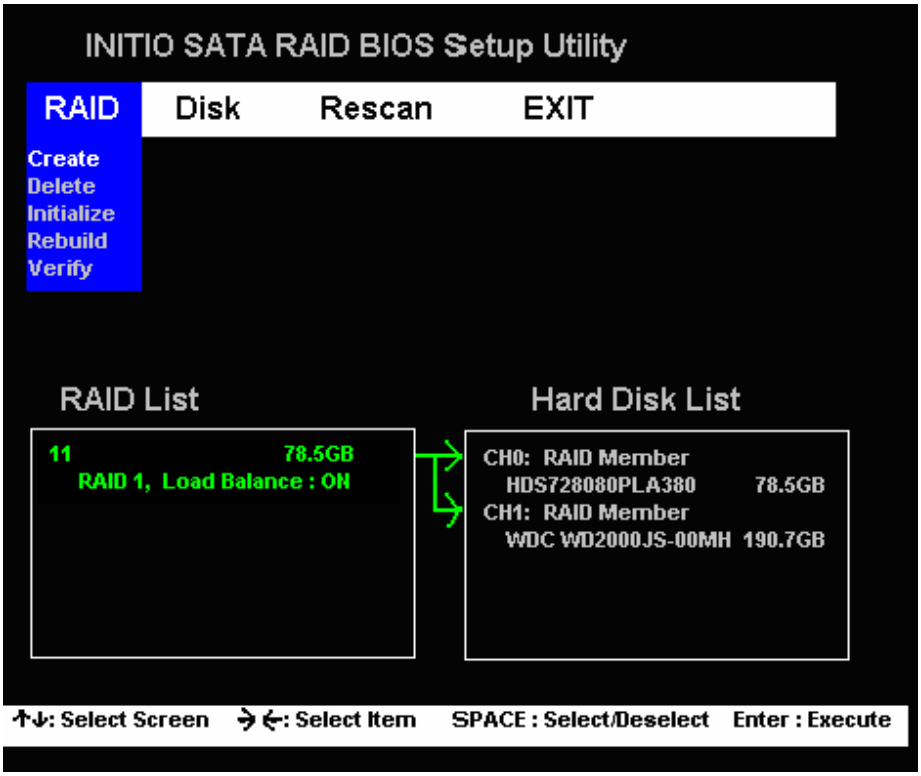
1. RAID 1 requires exactly two physical drives, data duplicated on another disk by mirroring, more disk space required. RAID 1 will reduce usable disk space to the size of the smallest drive and reduced performance during rebuilds.



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

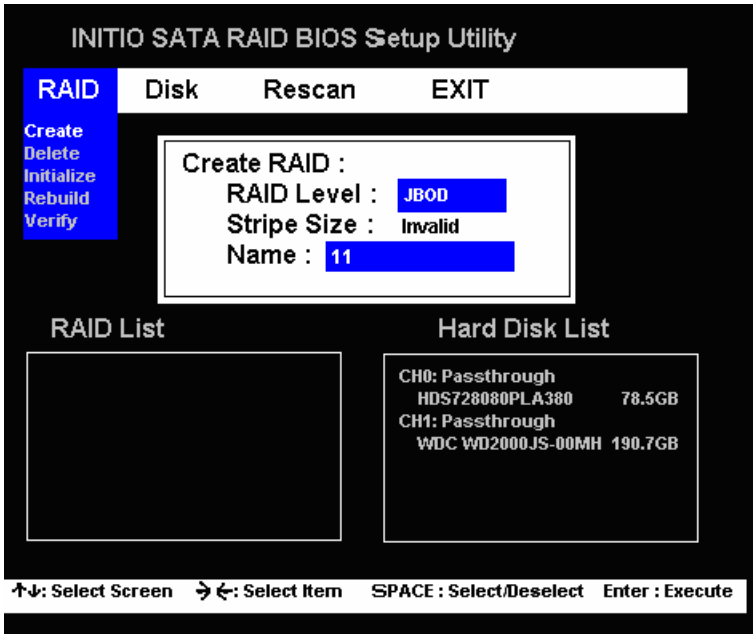


3. The RAID list will display the RAID 1’ s information includes the RAID Level, Load Balance, Name and Capacity as below.

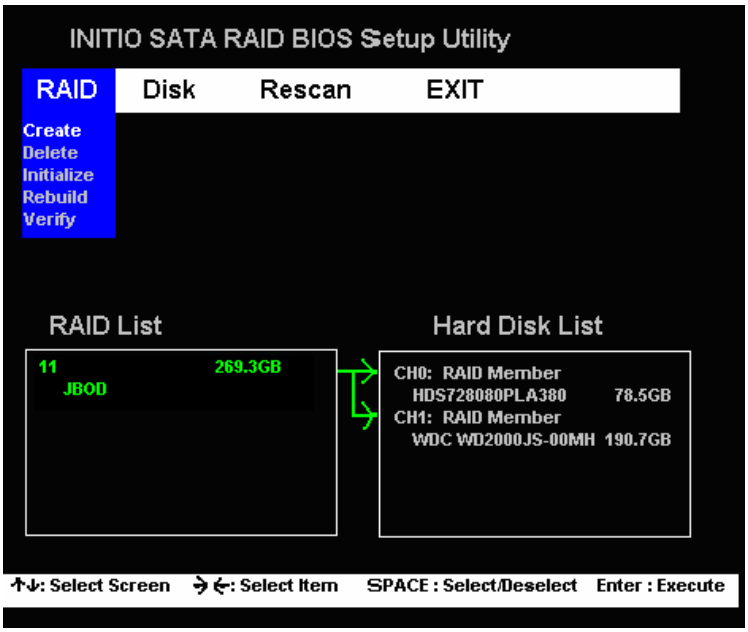


JBOD

1. Data just bunch one logical drive from two physical disks, pure spanning.

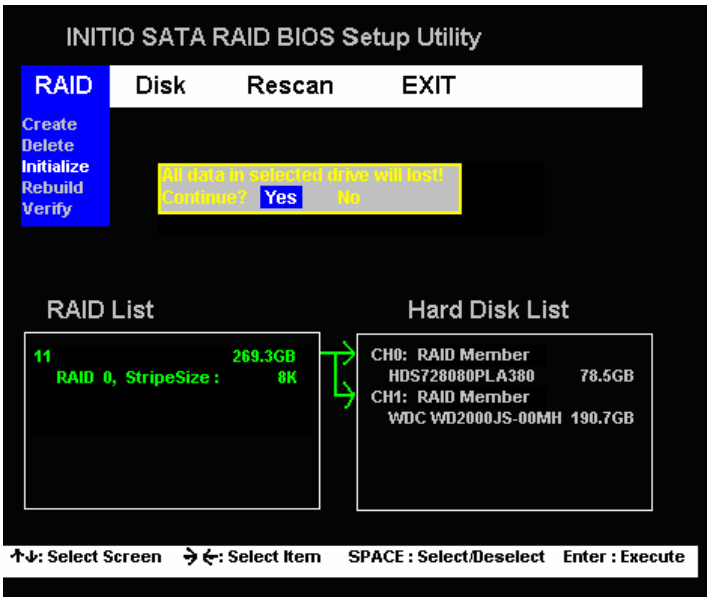


2. The RAID list will display the RAID JBOD' s information includes the RAID Level, Name and Capacity as below.

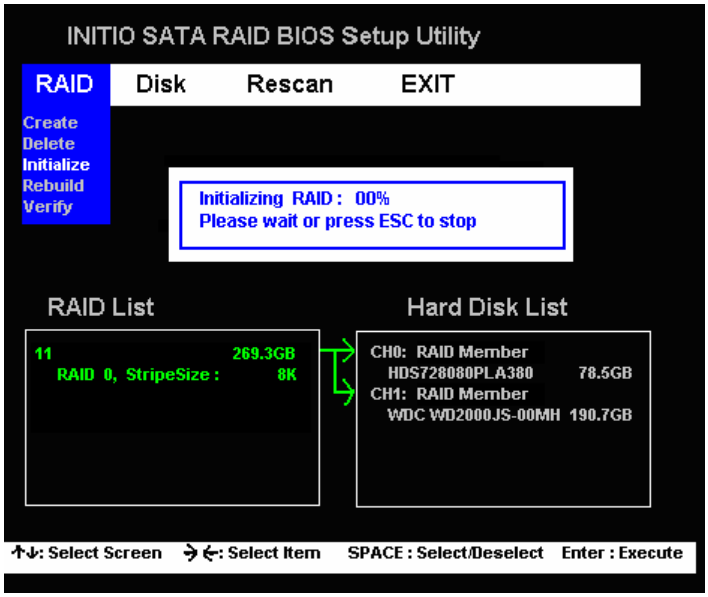


Initialize RAID

1. Perform the below steps to initialize a logical drive by using the initialize selection, pay attention about the warning message that all data in selected drive will be lost and continue the choices.

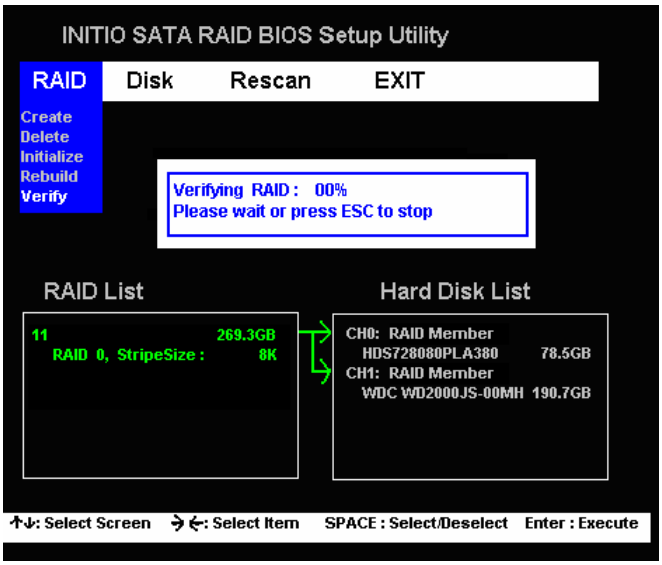


2. The initializing action will spend much time and the process of initializing action will display how much percent is finished, you also can press ESC key to leave the initializing action.



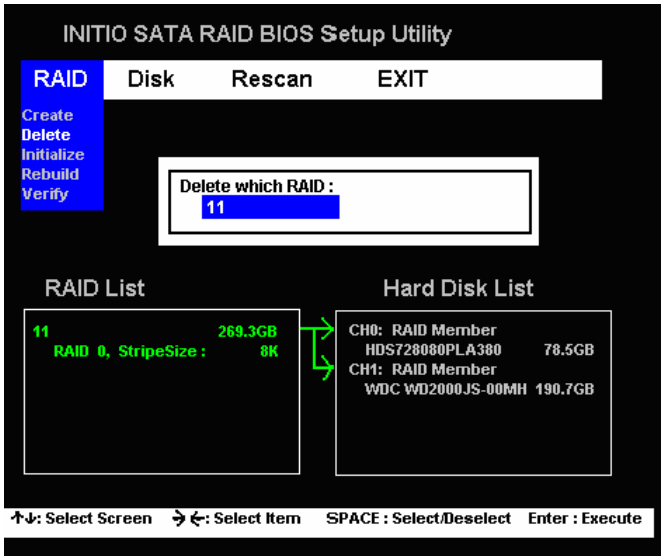
Verify RAID

The verifying action will spend much time and the process of verifying action will display how much percent is finished, you also can press ESC key to leave the verifying action.



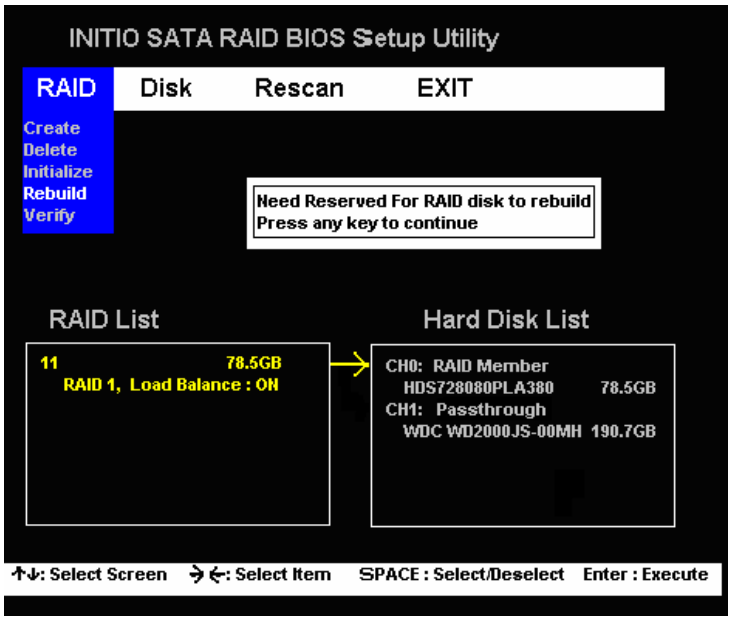
Delete RAID

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

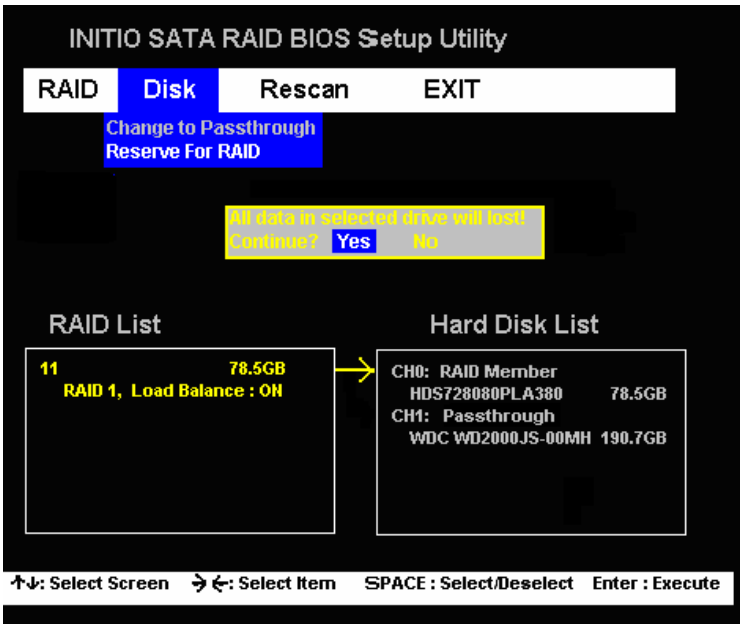


Rebuild

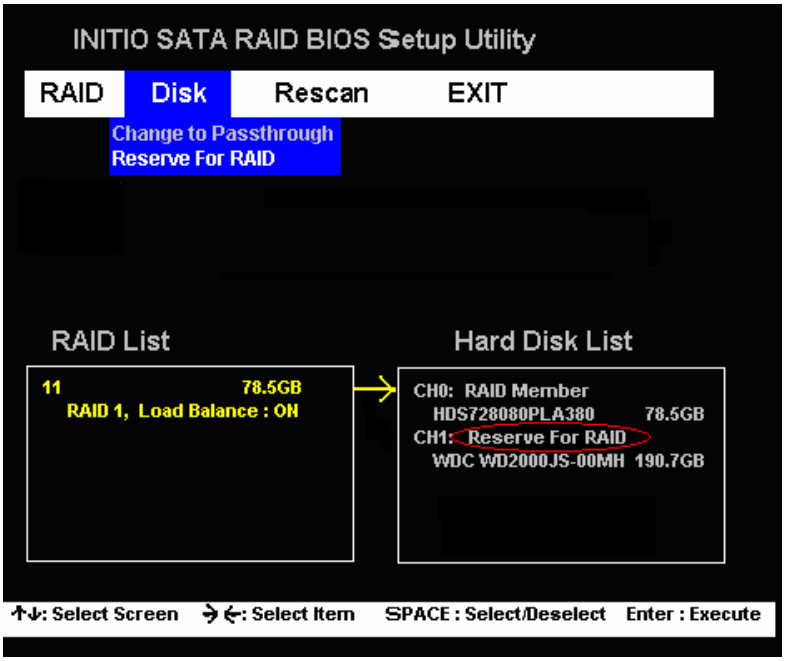
1. When the RAID 1 is broken, you can do the Rebuild function, but you need the **[Reserved For RAID]** disk to rebuild, the below image will prompt you to pay attention.



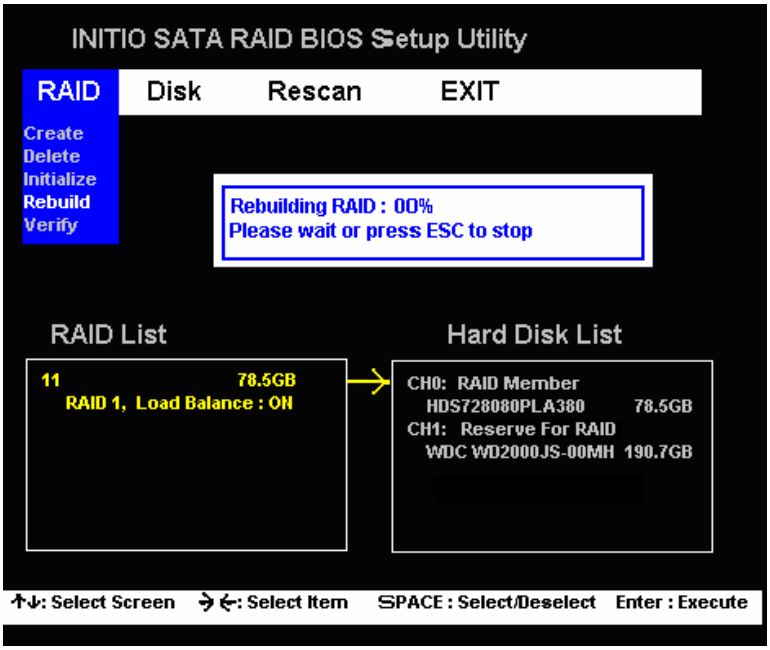
2. To pay attention about the warning message that all data will lost.



3. The state will be changed from **[Passthrough]** to **[Reserve For RAID]**.

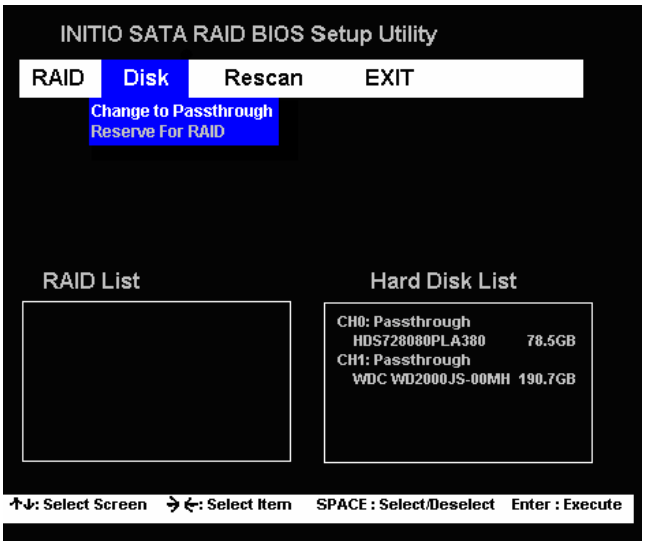


4. Rebuilding action will take a long time, so you can wait or press ESC key to stop it.



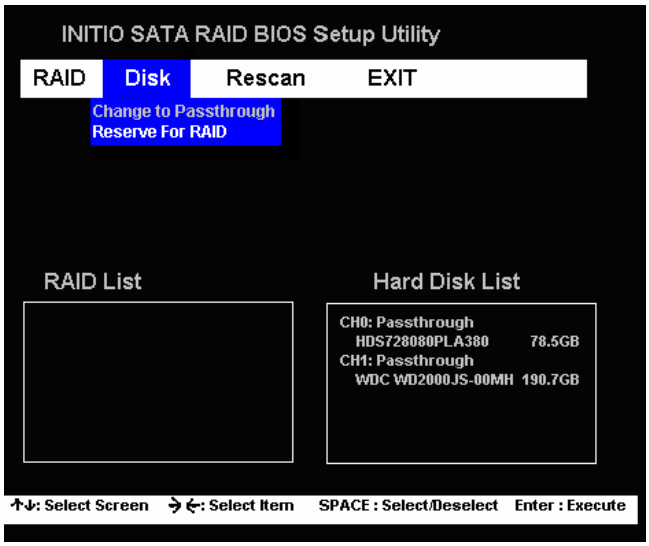
Change to Pass-through

Select the item of **[Change to Passthrough]** on the Disk menu for change the hard disk to pass-through mode to leave the state of Raid Member or Reserve for RAID.



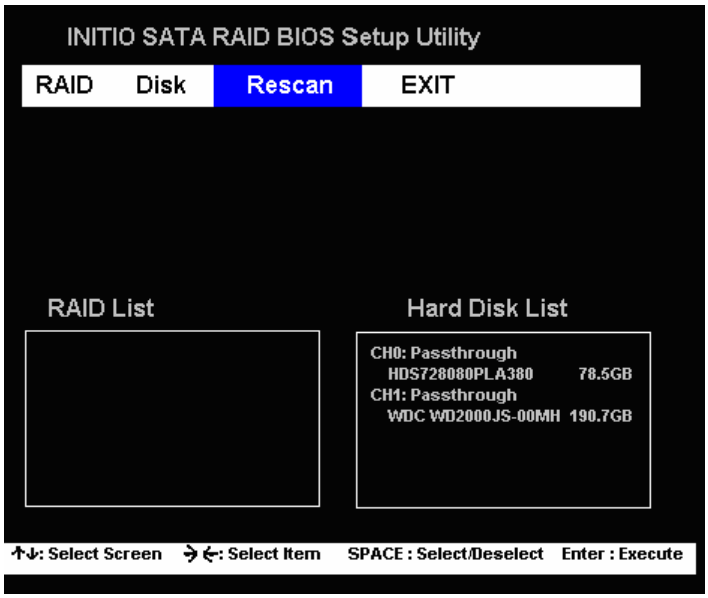
Reserve for RAID

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.



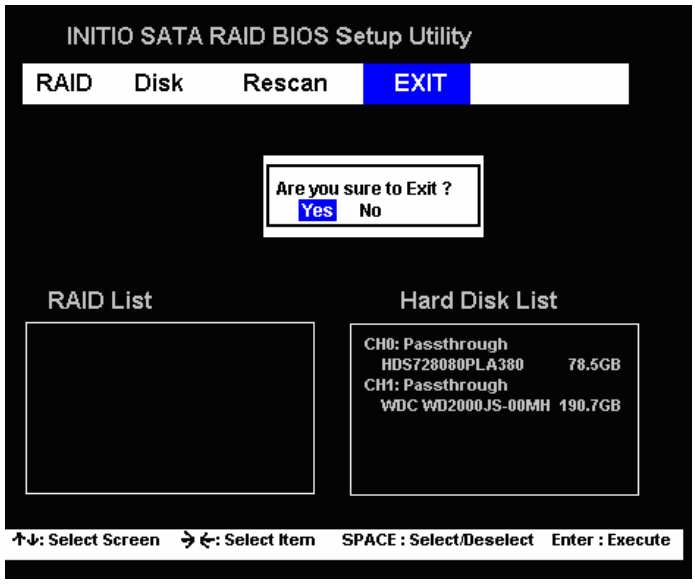
Rescan

The Rescan function updates the status of RAID drive that will refresh all of the attached devices and be showed the information on the RAID List and Hard Disk List.



Exit BIOS Utility

You can select the Exit selection to leave the RAID BIOS Setup utility.



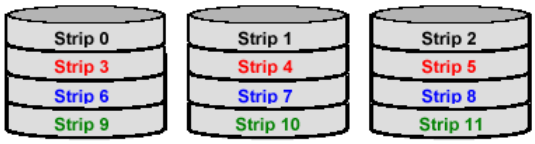
RAID Explained

◆ RAID - Redundant Array of Independent Disks

RAID technology manages multiple disk drives to enhance I/O performance and provide redundancy in order to withstand the failure of any individual member, without loss of data. Medley provides three RAID Set types, Striped (RAID 0), Mirrored (RAID 1)

◆ Disk Striping (RAID 0)

Striping is a performance-oriented, non-redundant data mapping technique. While Striping is discussed as a RAID Set type, it is actually does not provide fault tolerance. With modern ATA bus mastering technology, multiple I/O operations can be done in parallel, enhancing performance. Striping arrays use multiple disks to form a larger virtual disk. This figure shows a stripe set using three disks with stripe one written to disk one, stripe two to disk two, and so forth.



◆ Disk Mirroring (RAID 1)

Disk mirroring creates an identical twin for a selected disk by having the data simultaneously written to two disks. This redundancy provides instantaneous protection from a single disk failure. If a read failure occurs on one drive, the system reads the data from the other drive.