# Table of Contents

# Configuring SATA Hard Drive(s) (Controller: Silicon Image Sil3112)

## To configure SATA hard drive(s), follow the steps below:

(1)  Install SATA hard drive(s) in your system.

(2)  Configure SATA controller mode and boot sequence in BIOS Setup.

(3)* Configure RAID set in RAID BIOS.

(4)  Make a floppy disk containing the SATA controller driver.

(5)  Install the SATA controller driver during OS installation.

### Before you begin

Please prepare:

(a)  Two SATA hard drives (to ensure optimal performance, it is recommended that you use two hard drives with identical model and capacity). If you do not want to create RAID with the SATA controller, you may prepare only one hard drive.

(b)  An empty formatted floppy disk.

(c)  Windows XP/2000 setup disk.

(d)  Driver CD for your motherboard.

## (1)  Installing SATA hard drive(s) in your system

Attach one end of the SATA signal cable to the rear of the SATA hard drive and the other end to available SATA port(s) on the motherboard (If there are more than one SATA controller on your motherboard, you may check the name of the SATA connnector to identify the SATA controlller for the connector. For example, SATA0_SII/SATA1_SII is controlled by the Sil3112 controller). Then connect the power connector from your power supply to the hard drive.

"*"  Skip this step if you do not want to create RAID array on the SATA controller

## (2)  Configuring SATA controller mode and boot sequence in BIOS Setup

You have to make sure whether the SATA controller is configured correctly in system BIOS Setup and set BIOS boot sequence for the SATA hard drive(s).

Step 1:

Turn on your computer and press Del to enter BIOS Setup during POST (Power-On Self Test). In BIOS Setup menu, go to **Integrated Peripherals** and assure that **Onboard H/W SATA** is enabled. If you want to create RAID, set  the **Serial ATA Function** item to **RAID** (**RAID** by default) (Figure 1). Change the **Serial ATA Function** item to **BASE** if you do not want to create RAID.
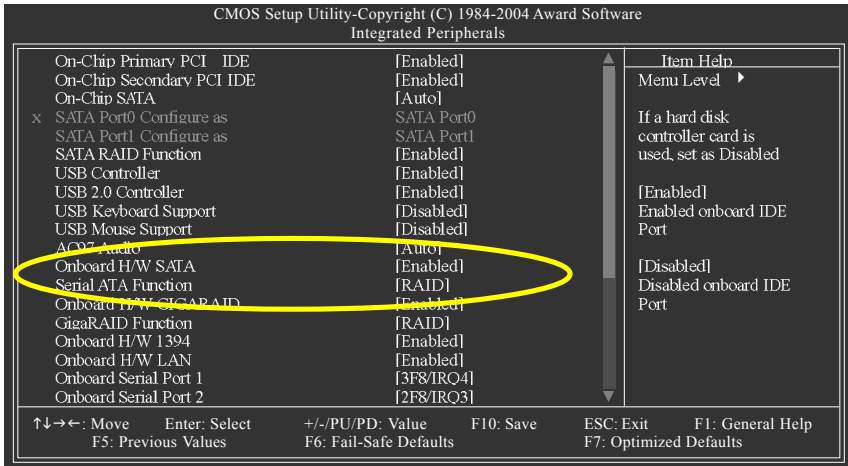
```
            CMOS Setup Utility-Copyright (C) 1984-2004 Award Software
                            Integrated Peripherals

      On-Chip Primary PCI   IDE          [Enabled]              Item Help
      On-Chip Secondary PCI IDE          [Enabled]          Menu Level
      On-Chip SATA                       [Auto]
  x   SATA Port0 Configure as            SATA Port0          If a hard disk
      SATA Port1 Configure as            SATA Port1          controller card is
      SATA RAID Function                 [Enabled]           used, set as Disabled
      USB Controller                     [Enabled]
      USB 2.0 Controller                 [Enabled]           [Enabled]
      USB Keyboard Support               [Disabled]          Enabled onboard IDE
      USB Mouse Support                  [Disabled]          Port
      AC97 Audio                         [Auto]
      Onboard H/W SATA                   [Enabled]           [Disabled]
      Serial ATA Function                [RAID]              Disabled onboard IDE
      Onboard H/W GIGARAID               [Enabled]           Port
      GigaRAID Function                  [RAID]
      Onboard H/W 1394                   [Enabled]
      Onboard H/W LAN                    [Enabled]
      Onboard Serial Port 1              [3F8/IRQ4]
      Onboard Serial Port 2              [2F8/IRQ3]

   ↑↓→←: Move     Enter: Select      +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help
         F5: Previous Values          F6: Fail-Safe Defaults           F7: Optimized Defaults
```

Figure 1

> **NOTE** The BIOS Setup menus described in this section may not show the exact settings for your motherboard. The actual BIOS Setup menu options you will see shall depend on the motherboard you have and the BIOS version .

Step 2:

Select **Hard Disk Boot Priority** under the **Advanced BIOS Features** menu. In the **Hard Disk Boot Priority** submenu, select the model of the SATA hard drive onto which you want to install Microsoft Windows 2000/XP (Figure 2).
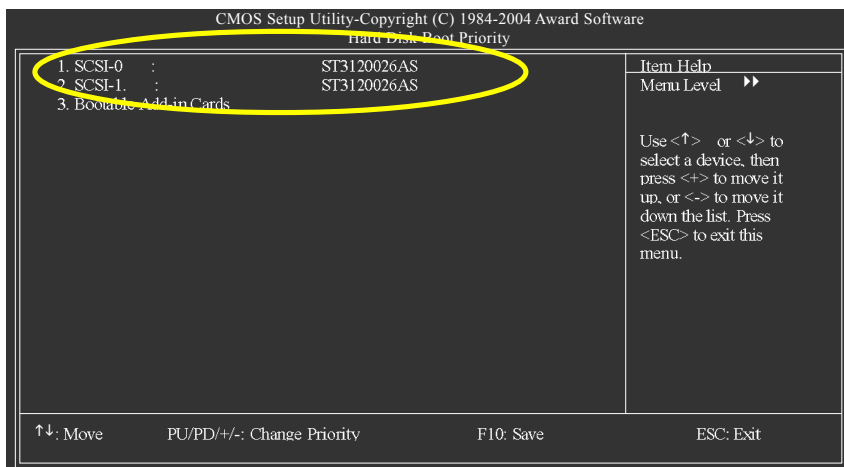
```
           CMOS Setup Utility-Copyright (C) 1984-2004 Award Software
                            Hard Disk Boot Priority

    1. SCSI-0    :                ST3120026AS          Item Help
    2. SCSI-1.   :                ST3120026AS          Menu Level    ▸▸
    3. Bootable Add-in Cards

                                                       Use <↑>   or <↓> to
                                                       select a device, then
                                                       press <+> to move it
                                                       up, or <-> to move it
                                                       down the list. Press
                                                       <ESC> to exit this
                                                       menu.




    ↑↓: Move      PU/PD/+/-: Change Priority      F10: Save          ESC: Exit
```

Figure 2

Step 3:

Set **First Boot Device** under the **Advanced BIOS Features** menu to **CD-ROM** to boot from CD-ROM drive after system restarts (Figure 3).
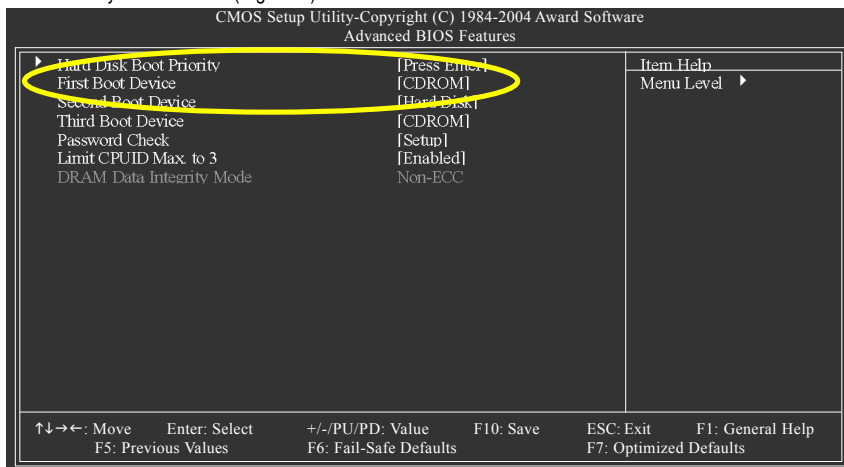
```
           CMOS Setup Utility-Copyright (C) 1984-2004 Award Software
                            Advanced BIOS Features

  ▸ Hard Disk Boot Priority             [Press Enter]    Item Help
    First Boot Device                   [CDROM]          Menu Level   ▸
    Second Boot Device                  [Hard Disk]
    Third Boot Device                   [CDROM]
    Password Check                      [Setup]
    Limit CPUID Max. to 3               [Enabled]
    DRAM Data Integrity Mode            Non-ECC






  ↑↓→←: Move    Enter: Select    +/-/PU/PD: Value  F10: Save   ESC: Exit    F1: General Help
      F5: Previous Values       F6: Fail-Safe Defaults      F7: Optimized Defaults
```

Figure 3

Step 4:

Save and exit BIOS Setup.

## (3) Configuring RAID set in RAID BIOS

Enter the RAID BIOS setup utility to configure a RAID array. Skip this step and proceed to Section 4 if you do not want to create RAID.

Step 1:
After the Power-On Self Test (POST) memory test begins and before the operating system boot begins, look for a message which says "Press <Ctrl+S> or <F4> to enter RAID utility"(Figure 4). Hit the CTRL+ S or F4 key(s) to enter the RAID BIOS setup utility. If you cannot enter the RAID BIOS correctly, assure that your SATA drives are properly installed.

```
SiI 3112A SATARaid Controller BIOS Version 4.1.36C
Copyright (C) 1997-2004 Silicon Image, Inc.

Press <Ctrl+S> or F4 to enter RAID utility

Primary Channel:        ST3120026AS                    114472MB
Secondary Channel:      ST3120026AS                    114472MB
```

Figure 4

Step 2:
After you enter the **RAID Configuration Utility,** a screen similar to that below will appear (Figure 5). **Main Menu:** The Main Menu in the upper left corner allows you to use the UP or DOWN ARROW key to highlight through choices. Highlight an item that you want to execute and press ENTER.

The **Create RAID set** selection allows user to create a new RAID Set. If there is a previously created RAID set on the hard drives, it is recommended that you back up the data and remove the old RAID set before creating a new RAID set.

The **Delete RAID set** selection allows users to delete an existing RAID set.

The **Rebuild Mirrored set** is used to initiate the copying of data from an existing drive to a replacement drive that has been installed in a RAID 1 set after the failure of one of the members.

The **Resolve Conflicts** is used to automatically find the member drives of a RAID set which has been disrupted (physical drives swapped around, for example) and restore the RAID set to proper operation.
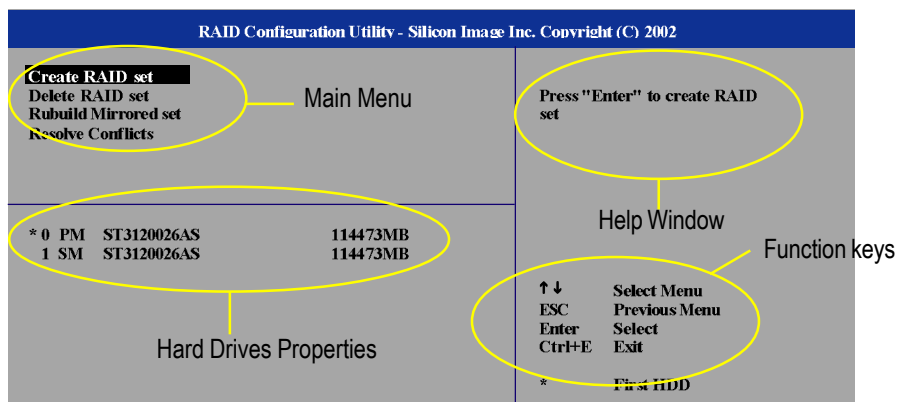
```
RAID Configuration Utility - Silicon Image Inc. Copyright (C) 2002

Create RAID set                    Main Menu        Press "Enter" to create RAID
Delete RAID set                                     set
Rubuild Mirrored set
Resolve Conflicts

                                                    Help Window

                                                                    Function keys
* 0  PM   ST3120026AS        114473MB
  1  SM   ST3120026AS        114473MB
                                                    ↑↓      Select Menu
                                                    ESC     Previous Menu
                                                    Enter   Select
            Hard Drives Properties                  Ctrl+E  Exit

                                                    *       First HDD
```

Figure 5

Step 3:

**Create RAID set:**

Select **Create RAID set** and press ENTER, and then the RAID type selection menu will appear (Figure 6). Use UP or DOWN ARROW key to select a RAID type that you want to create and press ENTER. The options include Striped (RAID 0) and Mirrored (RAID 1).
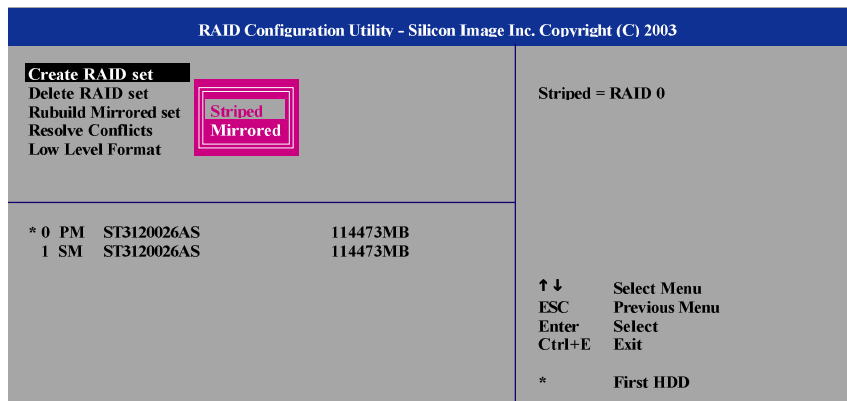
| RAID Configuration Utility - Silicon Image Inc. Copyright (C) 2003 | |
| --- | --- |
| **Create RAID set**<br>**Delete RAID set**<br>**Rubuild Mirrored set**<br>**Resolve Conflicts**<br>**Low Level Format**<br><br>**Striped**<br>**Mirrored** | **Striped = RAID 0** |
| **\* 0  PM    ST3120026AS         114473MB**<br>  **1  SM    ST3120026AS         114473MB** | ↑↓        **Select Menu**<br>**ESC        Previous Menu**<br>**Enter      Select**<br>**Ctrl+E     Exit**<br><br>**\*           First HDD** |

Figure 6

Step 4:

After the selection of a RAID type, select **Auto configuration** or **Manual configuration** (Figure 7). If **Auto configuration** is selected, BIOS will automatically assign RAID member drives and set the chunk size of Striped Sets to 64KB. If **Manual configuration** is selected, you can manually change the chunk size (from 4K to 128K) and then assign the drives to be used in the RAID array.

| RAID Configuration Utility - Silicon Image Inc. Copyright (C) 2002 | |
| --- | --- |
| **Auto configuration**<br>**Manual configuration** | **Press "Enter" to automatically create a striped (RAID 0) set**<br><br>**Striped size is 16K**<br>**First drive is drive 0**<br>**Second drive is drive 1** |
| **\* 0  PM    ST3120026AS         114473MB**<br>  **1  SM    ST3120026AS         114473MB** | ↑↓        **Select Menu**<br>**ESC        Previous Menu**<br>**Enter      Select**<br>**Ctrl+E     Exit**<br><br>**\*           First HDD** |
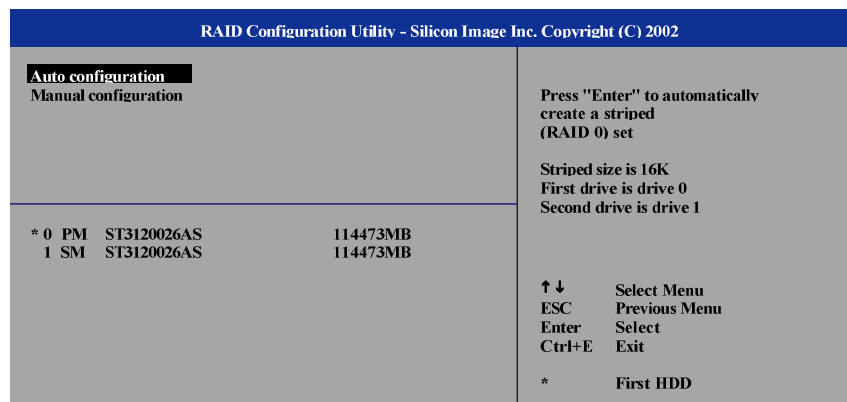
Figure 7

Step 5:

After finishing all the settings of a RAID set and press ENTER, the prompt "Are You Sure?" will appear. Press Y to confirm your selection. After the RAID array is created, the lower-left screen will list the RAID set information, including RAID type, chunk size and toal array size (Figure 8).
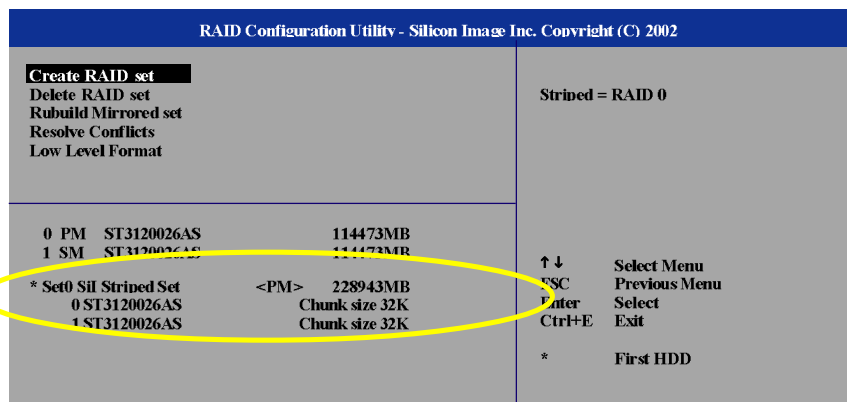


Figure 8

If you want to remove one or more RAID sets, select **Delete RAID set** item (Figure 9) in Main Menu. Press ENTER and follow the on-screen instructions to delete the RAID set.
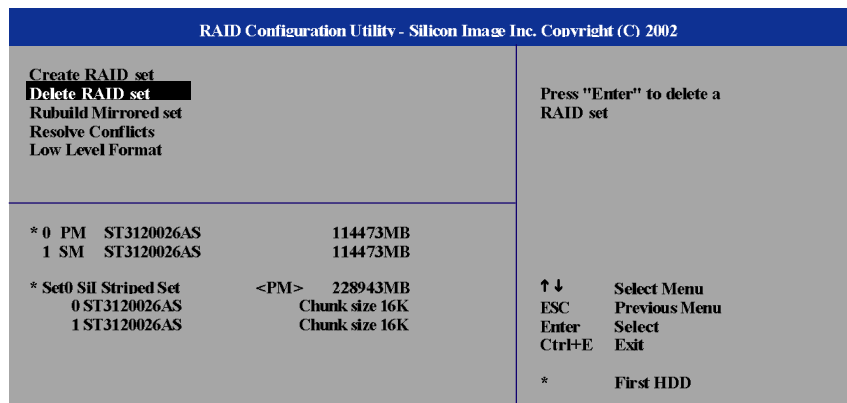


Figure 9

After completing the configuration, press CTRL+E to exit the RAID Configuration Utility.
Now, you can proceed to the installation of the SATA driver and operating system.

## (4) Making a SATA controller driver disk

To install Windows 2000/XP onto a SATA hard disk on the Sil3112 controller successfully, you need to install required driver for the SATA controller during OS installation. Without the driver, the hard drives may not be recognized during the Windows setup process.

First of all, you need to copy the driver for the SATA controller from the motherboard driver CD to a floppy disk. The instructions below explain how to copy the driver.

Step 1: Find an available system and insert the motherboard driver CD into the CD-ROM drive. The installation utility will appear automatically. Quit the installation utility first.

Step 2: Go to **My Computer** and right-click the CD-ROM drive icon and select **Open** (Figure 10).
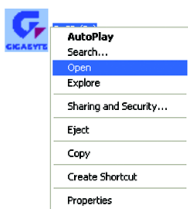


Figure 10

Step 3: Go to the **BootDrv** folder and look for an executable program named MENU.*exe* (Figure 11).
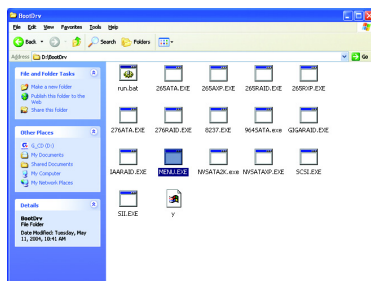


Figure 11

Step 4:

Double-click MENU.*exe*. An MS-DOS prompt screen similar to Figure 12 below will appear.
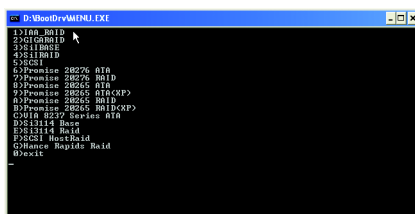


Figure 12

Step 5:

Insert an empty floppy disk. If you want to create RAID array(s), press 4 to select the **4)SilRAID** item.
If you do not want to create RAID array, press 3 to select **3)SilBASE**.  Then it will take about one minute
to copy the SATA driver from the motherboard driver CD to the floppy disk.

Step 6:

Press 0  to exit when the procedure is complete (Figure 13).  You have copied the SATA driver sucessfully.
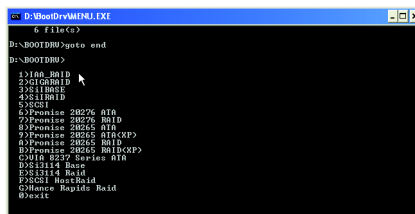


Figure 13

## (5)  Installing SATA controller driver during OS installation

Now that you have prepared a floppy disk with the SATA controller driver and configured BIOS settings, you are ready to install Windows 2000/XP onto your SATA hard drive with the driver. The following is an example of Windows XP installation.

Step 1: Restart your system to boot from the Windows 2000/XP Setup disk and press F6
as soon as you see the "Press F6 if you need to install a 3rd party SCSI or RAID driver" message (Figure 20).  After pressing F6, there will be a few moments of some files being loaded before you see the next screen.

Windows Setup

Press F6 if you need to install a 3rd party SCSI or RAID driver.
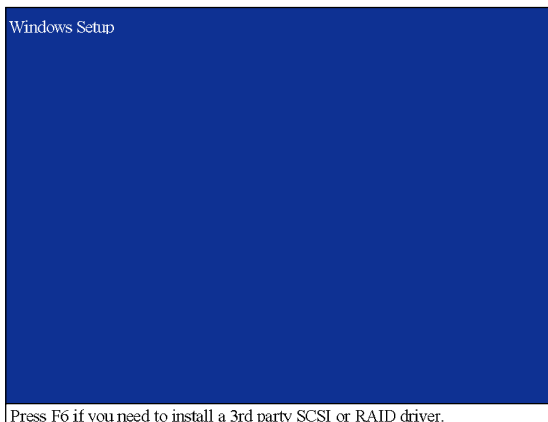
Figure 14

Step 2:
When a screen similar to that below appears (Figure 15), insert the floppy disk containing the SATA driver and press S.

Windows Setup

Setup could not determine the type of one or more mass storage devices installed in your system, or you have chosen to manually specify an adapter. Currently, Setup will load support for the following mass storage devices(s)

   <none>

   * To specify additional SCSI adapters, CD-ROM drives, or special
     disk  controllers for use with Windows, including those for
     which you have a device support disk from a mass storage device
     manufacturer, press S.

   * If you do not have any device support disks from a mass storage
     device manufacturer, or do not want to specify additional
     mass storage devices for use with Windows, press ENTER.

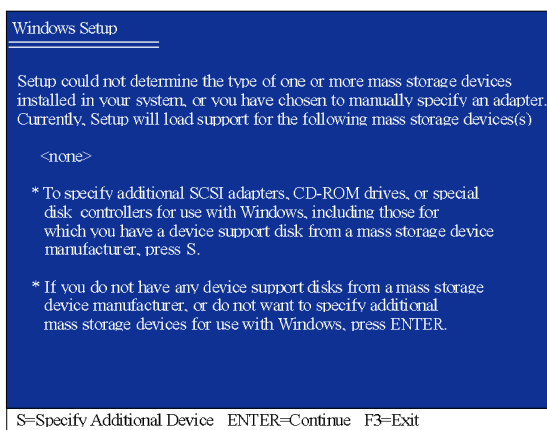S=Specify Additional Device   ENTER=Continue   F3=Exit

Figure 15

Step 3:

If Setup correctly recognizes the driver in the floppy disk, a controller menu similar to Figure 16 below will appear. If you want to install Windows XP, use the ARROW keys to select **Silicon Image Sil 3x12 SATARaid Controller for Windows XP***  and press ENTER.  Then it will begin to load the SATA driver from the floppy disk.
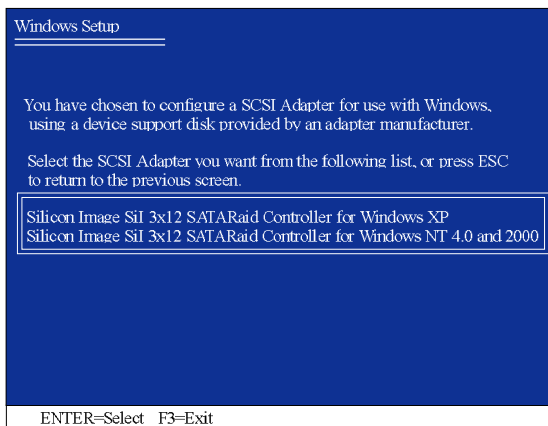


Figure 16

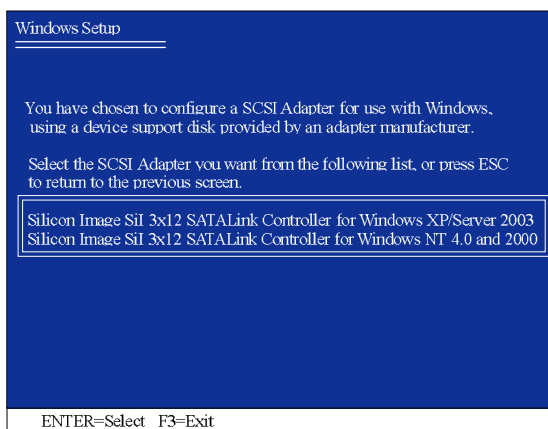If you have copied the SATA non-RAID driver, a screen similar to that below will appear. Use the ARROW keys to select **Silicon Image Sil 3x12 SATALink Controller for Windows XP/Server 2003*** (Figure 17) and press ENTER.  Then it will begin to load the SATA driver from the floppy disk.



Figure 17

⚠️ **CAUTION** If a message appears saying one or some file(s) cannot be found, please check the floppy disk or copy the correct SATA driver again from the motherboard driver CD.

**"*"**  Select the driver according to the operating system that you want to install.

Step 4:
When the screen as shown below appears, press ENTER to continue the SATA driver installation from the floppy disk. The driver installation will be finished in about one minute.
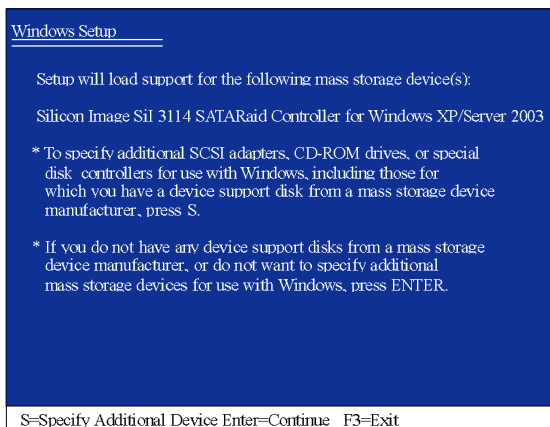


Figure 18

After the SATA controller driver installation is completed, you should see a screen silimar to Figure 19 below. It indicates that you have installed the SATA controller driver succesfully. You can proceed with the Windows 2000/XP installation.
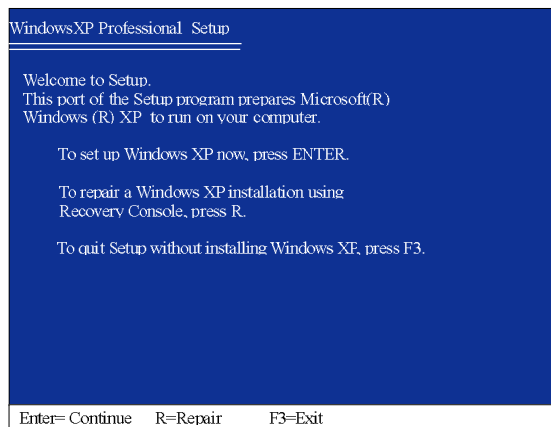


Figure 19

(Note: Each time you add a new hard drive to a RAID array, the RAID driver will have to be installed under Windows once for that hard drive. After that, the driver will not have to be installed.)