

# **XP-M5S661GX**

Intel® Pentium® 4 LGA775 Processor Motherboard

## User's Manual

12MM-M5S661GX-1002R

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To avoid unnecessary errors of operation, please consult the user manual prior to hardware installation. For more up-to-date information, please link to our company website at <http://www.xper.com.tw>

Prior to beginning installation procedures, please make sure that your computer turned off and is connected to a grounded power outlet. If your system is not turned off during installation, this could result in harm or damage to the motherboard, the components as well as to the user.

### Declaration of Conformity

Via Manufacture/Importer  
Gigatrend Technology Co., Ltd.  
Ausschlag Weg 41, D-72537 Herbling, Germany  
declare that the product  
**Motherboard**  
**XP-M5S661GX**  
is in conformity with  
(reference to the specification on which conformity is declared)  
in accordance with 89/339/EEC (EMC Directive)

- |  |  |                                     |   |
|--|--|-------------------------------------|---|
| <input type="checkbox"/> EN 55011            | Limits and methods of measurement of radio interference characteristics of industrial, scientific and medical (ISM) radio frequency equipment          | <input type="checkbox"/> EN 61008-2 | Disturbances in supply systems caused by household appliances and similar electrical appliances ("noise Emissions") |
| <input type="checkbox"/> EN 55013            | Limits and methods of measurement of radio disturbance characteristics of broadcast receivers and associated equipment                                 | <input type="checkbox"/> EN 61008-3 | Disturbances in supply systems caused by household appliances and similar electrical appliances ("noise Emissions") |
| <input type="checkbox"/> EN 55014-1          | Limits and methods of measurement of radio disturbance characteristics of radiofax electronic equipment, portable fax and similar electrical apparatus | <input type="checkbox"/> EN 55024   | Information Technology equipment-Immunity Characteristics-Limits and methods of measurement                         |
| <input type="checkbox"/> EN 55015            | Limits and methods of measurement of radio disturbance characteristics of broadcast receivers and associated equipment                                 | <input type="checkbox"/> EN 50082-1 | Generic immunity standard Part 1: Radiated: commercial and light industry   |
| <input type="checkbox"/> EN 55020            | Immunity from radio interference of broadcast receivers and associated equipment   | <input type="checkbox"/> EN 50082-2 | Generic immunity standard Part 2: Industrial environment  |
| <input type="checkbox"/> EN 55022            | Limits and methods of measurement of radio disturbance characteristics of information technology equipment   | <input type="checkbox"/> EN 55014-2 | Immunity requirements for household appliances tools and similar apparatus  |
| <input type="checkbox"/> EN VDE 0855 part 10 | Cable-distribution systems: Equipment for receiving signals from secured and television signals  | <input type="checkbox"/> EN 50081-2 | EMC standards for uninterruptible power systems (UPS)   |
| <input type="checkbox"/> EN VDE 0855 part 12 | Cable-distribution systems: Equipment for receiving signals from secured and television signals  |                                     |   |

CE marking



(CE conformity marking)

The manufacturer also declares the conformity of above mentioned product with the latest applicable safety standards in accordance with LVD 73/23/EEC

- |                                   |   |                                     |   |
|-----------------------------------|---|-------------------------------------|---|
| <input type="checkbox"/> EN 60950 | Safety requirements for mains operated electronic and related apparatus for household and similar general use | <input type="checkbox"/> EN 60950   | Safety for information technology equipment including electrical business equipment |
| <input type="checkbox"/> EN 60335 | Safety of household and similar electrical appliances   | <input type="checkbox"/> EN 50081-1 | General and Safety requirements for uninterruptible power systems (UPS)             |

Manufacturer/Importer

Signature: Jimmy Huang

(Stamp)

Date: Aug. 5, 2005

Name: Jimmy Huang

## DECLARATION OF CONFORMITY

Per FCC Part 2 Section 2.1077(a)



Responsible Party Name: **Gigatrend Technology Co., Ltd**

Address: **17358 Railroad Street  
City of Industry, CA 91748(U.S.A.)**

Phone/Fax No: **(818) 854-9338/ (818) 854-9339**

hereby declares that the product

**Product Name: Motherboard**

**Model Number: XP-M5S661GX**

Conforms to the following specifications:

FCC Part 15, Subpart B, Section 15.107(a) and Section 15.109(a),  
Class B Digital Device

**Supplementary Information:**

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful and (2) this device must accept any interference received, including that which may cause undesired operation.

Representative Person's Name: ERIC LI

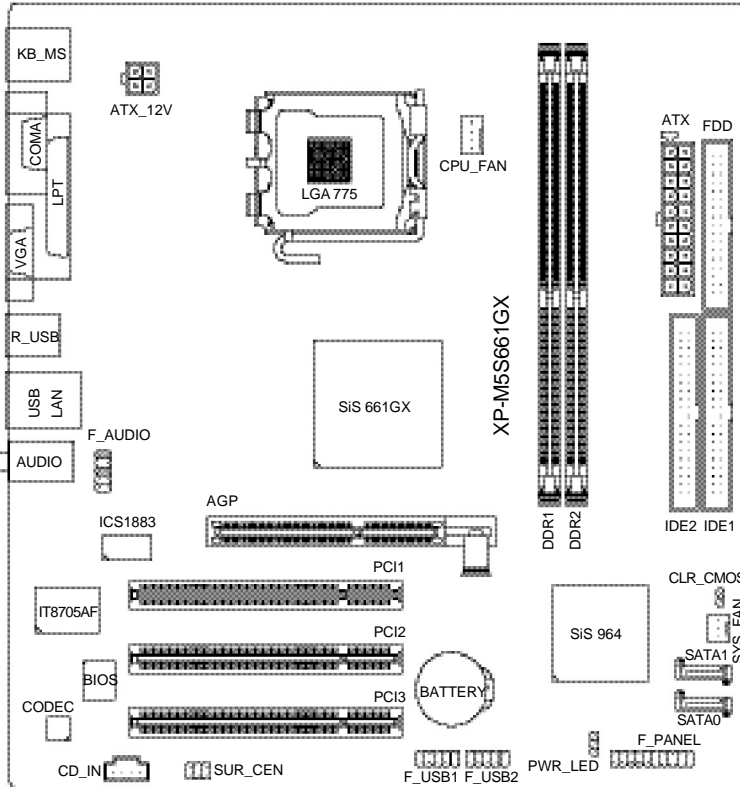
Signature: ERIC LI

Date: Aug. 5, 2005


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# Motherboard Layout



# 1. Product Introduction

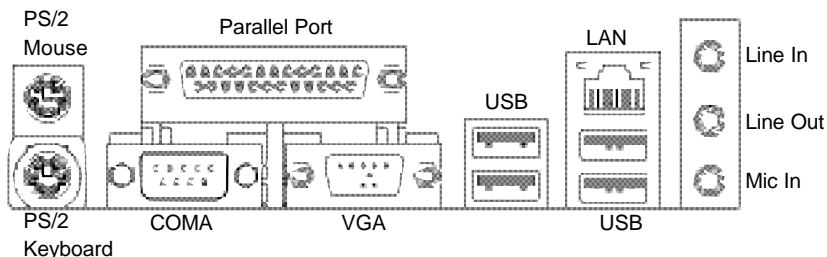
The user manual provides steps related to quick installation. If you wish to view complete product information, please select the  Open User Manual button located on the driver CD or link to our website at <http://www.axper.com> to received the most up-to-date information.

## 1.1. Feature Summary

CPU	LGA775 for Intel® Pentium®4 Processor Intel® Pentium®4 533MHz FSB L2 cache depends on CPU
Chipset	North Bridge: SiS® 661GX South Bridge: SiS® 964
Memory	2 184-pin DDR DIMM sockets, supports up to 2GB DRAM (Max.) Supports DDR400/DDR333/DDR266 DIMM Supports only 2.5V DDR SDRAM
Slots	1 AGP slot support 4X/8X(1.5V) device 3 PCI slots support 33MHz & PCI 2.2 compliant
On-Board IDE	2 IDE controllers provide IDE HDD/CD-ROM(IDE1, IDE2) with PIO, Bus Master (Ultra DMA33/ATA66/ATA100/ATA133) operation modes Can connect up to 4 IDE devices
On-Board SATA	2 SATA ports support 2 SATA devices with up to 150MB/s transfer rate and can support data striping (RAID 0) and mirroring (RAID 1)
On-Board Floppy	1 Floppy port supports 2 FDD with 360K, 720K, 1.2M, 1.44M and 2.88M bytes
On-Board Peripherals	1 Parallel port supports Normal/EPP/ECP mode 1 VGA port, 1 Serial port (COMA) 8 USB 2.0/1.1 ports (4 x Rear, 4 x Front by cable) 1 Front Audio connector 1 PS/2 Keyboard 1 PS/2 Mouse
On-Board VGA	Built-in SiS® 661GX Chipset
On-Board LAN	Built-in ICS1883 chip 1 RJ45 port
On-Board Sound	Realtek ALC655 CODEC Support 2 / 4 / 6 channel Line Out / Line In / Mic In CD In connection
BIOS	Licensed AWARD BIOS Supports BIOSNow!
I/O Control	IT8705AF
Hardware Monitor	System voltage detect CPU temperature detect CPU/System fan revolution detect
Form Factor	Micro-ATX form factor, 24.4cm x 23.0cm

## 1.2. I/O Back Panel and Connectors & Jumper Setting

### 1.2.1. I/O Back Panel

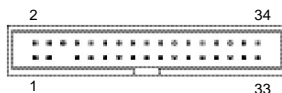


PS/2 Keyboard	Connects PS/2 standard keyboard and PS/2 standard mouse
PS/2 Mouse connector	Connects PS/2 standard keyboard and PS/2 standard mouse
Parallel port (LPT)	Connects to printer
COMA (Serial port)	Connects to serial-based mouse or data processing devices
VGA Port	Connects to 15-pin D-Sub device such as a monitor
USB (Universal Serial Bus Port)	Prior to use, please make sure that your system as well as the connected attachments support the USB interface. If driver installation is required, please consult the USB section of the user manual.
LAN (RJ45 LAN Port)	Internet connection with speed of up to 10/100Mbps
Line In	Connects to optical devices, CD players and other audio input devices
Line Out	Connects to speakers or headphones
Mic In	Connects to microphone

### 1.2.2. Connectors & Jumper Setting

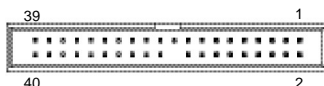
#### FDD (Floppy Disk Drive Connector)

The FDD connector is able to connect a single floppy disk drive via a FDD cable. Usually one edge of the FDD cable is marked in red, please attach this marked edge to position 1 on the connector.



#### IDE1 / IDE2 (IDE1 and IDE2 Connectors)

The IDE connector is able to connect two IDE devices via an IDE cable and requires checking of the IDE jumper setting. It is recommended that the hard drive be connected to the first IDE connector while the optical drive be connected to the second IDE connector.

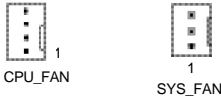


**CPU\_FAN (CPU Fan Power Connector); SYS\_FAN (System Fan Power Connector)**

The cooler fan power connector supplies a +12V power voltage via a 3-pin/4-pin(only for CPU\_FAN) power connector and possesses a ful-proof connection design. Most coolers are designed with color-coded power connector wires. A red power connector wire indicates a positive connection and requires a +12V power voltage. The black connector wire is the ground wire (GND). Please remember to connect the power to the cooler to prevent system overheating and failure.

Caution!

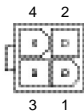
Please remember to connect the power to the CPU fan to prevent CPU overheating and failure.



PIN	SIGNAL
1	GND
2	+12V
3	Sense
4	Speed Control (Only for CPU_FAN)

**ATX\_12V (+12V Power Connector)**

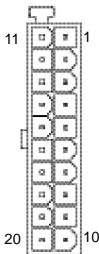
The ATX\_12V power connector provides power to the CPU. If this connector is not attached, the system will not start.



PIN	SIGNAL
1	GND
2	GND
3	+12V
4	+12V

**ATX (ATX Power Connector)**

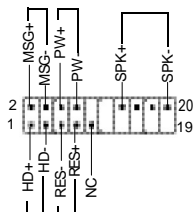
The ATX power connector provides power to the motherboard. Prior to connection, please make sure that the power supply is disconnected.



PIN	SIGNAL	PIN	SIGNAL
1	3.3V	11	3.3V
2	3.3V	12	-12V
3	GND	13	GND
4	+5V	14	PS_ON (soft on/off)
5	GND	15	GND
6	+5V	16	GND
7	GND	17	GND
8	Power Good	18	-5V
9	5VSB (stand by +5V)	19	+5V
10	+12V	20	+5V

**F\_PANEL (Front Panel Control Connector)**

The F\_Panel Control Connector connects to certain connectors on the front panel of the system casing such as IDE Hard Disk Active LED, speaker, reset, and power on/off connectors. You can use the schematic diagram below as the basis for connection.



PIN	SIGNAL
HD	IDE Hard Disk Active LED
SPK	Speaker Connector
RES	Reset Switch
PW	Power Switch
MSG	Message LED/Power/Sleep LED
NC	NC

## PWR\_LED

Connects to the system power LED indicator whereby the power is indicated as ON or OFF. However, the indicator will flash when the system is suspended.



PIN	SIGNAL
1	MPD+
2	MPD-
3	MPD-

## CLR\_CMOS (Clear CMOS)

You can clear the motherboard CMOS with the jumper to return your system to its initial status. To prevent improper usage, the jumper does not include the jumper plug. If you wish to use the Clear CMOS function, please short circuit the 1-2Pin.



Short : Clear CMOS



Open : Normal

## F\_AUDIO (Front Audio Connector)

Connects to the audio connector located on the front panel of the system casing (dependent on case design). When use of the front panel audio connector is required, please remove the 5-6 pin, 9-10pin jumper. Please note that use of only the front panel audio connector or the rear panel audio connector is permitted.



PIN	SIGNAL	PIN	SIGNAL
1	MIC	6	Rear Audio (R)
2	GND	7	Reserved
3	MIC_BIAS	8	NO PIN
4	POWER	9	Front Audio (L)
5	Front Audio (R)	10	Rear Audio (L)

## CD\_IN (Optical Drive Audio Connector)

Connects CD-ROM or DVD-ROM audio connector.



PIN	SIGNAL
1	CD_L
2	GND
3	GND
4	CD_R

## F\_USB1/F\_USB2 (Front USB Connector)

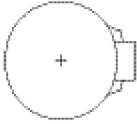
Connects to the USB connector located on the front panel of the system casing (dependent on case design). Note: Please make sure that each USB connection matches its designated position. If connections are made incorrectly, the result can lead to inability to use the function or even damage.



PIN	SIGNAL	PIN	SIGNAL
1	POWER	6	USB Dy+
2	POWER	7	GND
3	USB Dx-	8	GND
4	USB Dy-	9	NO PIN
5	USB Dx+	10	NC



## BATTERY



The improper removal of the battery can result in harm. When replacing a battery, please make sure you use one that is of similar brand and model number.

For information related to battery specifications and precautions, please refer to the manufacturer instructions.

If you wish to delete the data stored in the CMOS, please follow the steps below:

1. Please turn off your computer and unplug the power.
2. Remove the battery from the motherboard.
3. Wait 10 minutes and then replace the battery onto the motherboard.
4. Plug in the power supply and turn on your system.

## SUR\_CEN (Surround Center Connector)

Connects to the optional surround center cable.



PIN	SIGNAL
1	SUR OUTL
2	SUR OUTR
3	GND
4	No Pin
5	CENTER_OUT
6	LEF_OUT

## 2. Hardware Installation



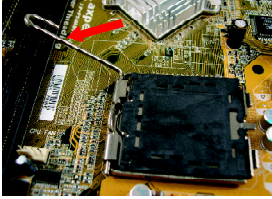
1. Please make sure that the CPU used is supported by your motherboard.
2. Please be aware of the placement position of the CPU. If the CPU does not insert properly, do not apply force but check the placement position.
3. Please make sure that an even layer of heat sink paste is added between the CPU and the fan sink.
4. Please do not turn on the power prior to installing the fan sink. Doing so can result in overheating and lead to permanent damage to the CPU.
5. Please follow the CPU specifications when setting the frequency. It is not recommended that system speed settings exceed that of hardware specifications. If you wish to set your system speed to exceed the recommended specifications, please check your hardware specifications eg: CPU, graphics card, memory, hard drive

The following must be supported to allow the use of Hyper-Threading Technology:

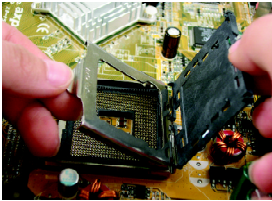
- an Intel Pentium 4 CPU with HT
- a motherboard supporting HT
- HT selection feature within BIOS
- an operating system supporting HT

## 2.1. Installation of a LGA775 Pentium 4 CPU and Fan Sink

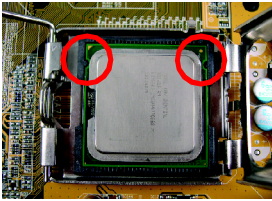
### 2.1.1. Installation of a LGA775 CPU



1. Push the socket lever arm down and away from the CPU socket and raise it up completely.



2. Open the load plate and gently remove the plastic cover.



3. Hold the CPU with your thumb and index fingers (do not touch the bottom of the CPU when holding it). Align notches on the two sides of the CPU with the small sockets of the CPU socket and place the CPU straight down.

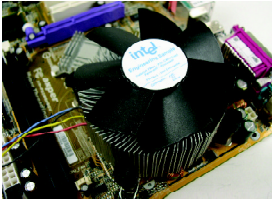


4. Make sure the CPU is properly installed and then close the load plate. Lower the socket lever and engage it to lock the CPU in place.

## 2.1.2. Installation of Fan Sink



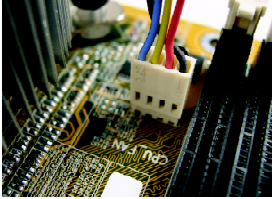
1. Apply a thin coating of thermal paste to completely cover the surface of the CPU.



2. Align the four fasteners of the fan sink with the four holes around the CPU socket. Push down each fastener and you should hear a "click" when the fastener is attached. Make sure the four fasteners are attached securely.



Prior to installation of the fan sink, check the direction of each fastener by the arrow engraved on fastener top. Before attaching the fasteners, turn each fastener clockwise. To uninstall the fan sink, release each fastener by rotating the fastener along the direction of the arrows and pull them up.



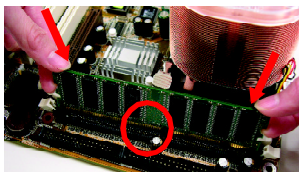
3. Connect the 4-wire power cable of the fan sink to the CPU\_FAN header on the motherboard to complete the installation.

## 2.2. Installation of Memory

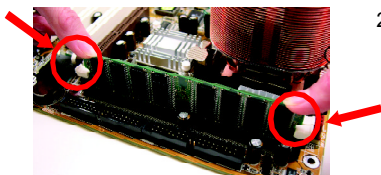
### CAUTION

1. Before installing or removing memory, please make sure that the computer power is turned off to prevent hardware damage.
2. Please make sure that the memory used is supported by the motherboard.
3. Memory modules have a foolproof insertion design. The memory can be installed only when facing the correct position. If you cannot insert the module, please switch directions.
4. It is recommended that memory of similar capacity, specifications and brand be used.

The motherboard supports DIMM memory modules, whereby BIOS will automatically detect memory capacity and specifications. Memory modules are designed so that they can be inserted only in one direction.



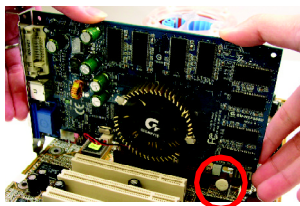
1. Unfasten the clips on each end of the memory slots. Correctly align the memory module in the slot and push downwards.



2. Once the memory module is correctly inserted, the clips will automatically refasten. If the memory module is positioned in the wrong direction, it will not insert. If this occurs, please switch directions.

## 2.3. Installation of the Graphics Card

1. Before installing the graphics card, please carefully read the accompanying user manual. As well, make sure the computer power is turned off.
2. Your graphics card must be 1.5V and support the AGP4X/8X specification.
3. When installing or removing the graphics card, first pull out the white AGP knob before insertion or removal. Releasing the AGP knob will hold the graphics card firmly in place.



### 3. BIOS Setup

BIOS (Basic Input and Output System) stores all the information of the motherboard settings that is needed for system initiation as well as examining the CMOS. Its CMOS SETUP utility allows the user to make changes in BIOS configurations that are required or to activate certain features.

The CMOS SETUP saves each item configuration in the CMOS SRAM of the motherboard. When the power is turned off, the battery on the motherboard supplies the required power to the CMOS SRAM.

When the power is turned on, pushing the <Del> button during the BIOS POST (Power-On Self Test) will bring up the CMOS SETUP screen. If you wish to enter the BIOS setup, please press "Ctrl + F1" at the BIOS setup screen.

When using BIOS setup for the first time, it is recommended that you save the present BIOS onto a disk in case you need to reset the BIOS back to its original settings. If you wish to update to a new BIOS, the BIOSNow! can be used.

The user can select BIOSNow! as a way to quickly and easily update or back up BIOS without entering the operating system.

### 4. Driver Installation

Driver installation for the Windows 2000/XP operating systems is simple. Once you insert the provided driver disks into your optical drive, the AUTORUN screen will appear. If this screen does not appear, you can use "D:\setup.exe" (with "D" being the specified drive) to bring up the screen shown below. Just follow the screen instructions to easily complete driver installation.

## 5. Installation of SATA RAID Disks

The Serial ATA channel controlled by the SiS 964 southbridge chip supports RAID 0 and RAID 1. This section explains the steps required to configure RAID disks.

RAID (Redundant Array of Independent Disks) is a method of combining two hard disk drives into one logical unit. The advantage of an Array is to provide better performance or data fault tolerance. Hard disk drives can be combined together through a few different methods. The different methods are referred to as different RAID levels. Different RAID levels represent different performance levels, security levels and implementation costs.

### RAID 0 (Striping)

RAID 0 reads and writes sectors of data interleaved between multiple drives. If any disk member fails, it affects the entire array. The disk array data capacity is equal to the number of drive members times the capacity of the smallest member. RAID 0 does not provide fault tolerance functionality.

### RAID 1 (Mirroring)

RAID 1 writes duplicate data onto a pair of drives and reads both sets of data in parallel. If one of the mirrored drives suffers a mechanical failure or does not respond, the remaining drive will continue to function. Due to redundancy, the drive capacity of the array is the capacity of the smallest drive. Due to the fault tolerance, if any RAID 1 drive fails, data access will not be affected as long as there are other working drives in the array.

## 5.1. Configuring the System BIOS for the SATA Channel

1. Connect two SATA hard disks to the SATA ports on the motherboard.
2. Reboot your system and press the <Delete> key to enter the BIOS setup screen after POST begins.
3. Under **Integrated Peripherals**, locate the SATA controller and SATA mode setup options. Assure that the SATA controller and SATA RAID mode are enabled.
4. Save changes and exit the BIOS Setup.

## 5.2. Creating RAID 0

1. Upon re-boot, you will see the RAID software prompting you to press CTRL+S keys to enter the SiS RAID BIOS Setting Utility. Press CTRL+S.
2. In the SiS RAID BIOS Setting Utility, press <R> to enter the RAID Setup utility.
3. In the RAID Setup window, press <A> to create RAID volume. Then, use number keys 1~3 to select a RAID type. Press 2 to select RAID 0 and then press <Enter>.
4. Use <1> or <2> key to select **Auto Create** or **Manual Create**.
5. When the next message appears, if you wish to proceed to map and stripe all current data and future data to the RAID disks, press <Y>. Or press <N> to perform striping on future data only. Then press <Enter>.
6. **After the completion, you will see the RAID 0 array under the Current Created Raid list in the RAID Setup window.**

### 5.3. Creating RAID 1

1. Upon re-boot, you will see the RAID software prompting you to press CTRL+S keys to enter the SiS RAID BIOS Setting Utility. Press CTRL+S.
2. In the SiS RAID BIOS Setting Utility, press <R> to enter the RAID Setup utility.
3. In the RAID Setup window, press <A> to create RAID volume. Then, use number keys 1~3 to select a RAID type. Press 3 to select RAID 1 and then press <Enter>
4. Use <1> or <2> key to select **Auto Create** or **Manual Create**.  
**Manual Create** allows you to assign the source disk.
5. When the prompt "Duplicate the SOURCE data to RAID disks?" appears, press Y or N as needed.
6. **After the completion, you will see the RAID 1 array under the Current Created Raid list in the RAID Setup window.**

### 5.4. Making the SATA RAID Driver Disk

For the RAID disks to be recognized correctly during Windows Setup process, you need to install the SiS 964 SATA RAID driver at the beginning of Windows Setup. The procedure below introduces how to make a floppy disk containing the RAID driver.


1. Insert the Axper motherboard driver CD to the CD-ROM drive in your system. Go to **My Computer** and right-click the CD-ROM icon to select **Open**.
2. In the **BootDrv** folder, double-click the Menu.exe file. Then a MS-DOS prompt screen will appear, presenting a list of SATA/RAID/SCSI controllers.
3. Select the RAID controller for your motherboard. (Example: select **SiS 964 SATA** for the XP-M5S661GX motherboard.) Then the driver file will be automatically copied and transferred to the floppy disk. Wait until it's done, then you can begin to install Windows operating system to the RAID disks.

### 5.5. Loading the SiS 964 Serial ATA Driver

1. **Boot from the Windows Installation CD. Press <F6> as soon as you see the Press F6** if you need to install a 3rd party SCSI or RAID driver message. Follow the on-screen instructions and supply the RAID driver with the floppy disk. Then proceed to complete the Windows installation and drivers installation.

(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.)

For more details about SATA RAID configurations, please refer to the manual file in the motherboard driver CD.

 This product must not be disposed of with your other household waste and must be handed over to a designated collection point for the recycling of waste electrical and electronic equipment !





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