Certificate HK07/01191.00

The management system of

# ELITEGROUP COMPUTER SYSTEMS CO., LTD. ECS MANUFACTURING (SHENZHEN) CO., LTD.

2F, No.240, Sec.1, Nei Hu Road, Taipei, Taiwan 114, R.O.C
No.20 & No.26 (Except 1F, 2F&3F) Free Trade Zone, Shatoujiao, Shenzhen City, Guangdong Province, China

has been assessed and certified as meeting the requirements of

## ISO 9001:2000

For the following activities

**Design and Sales of Mainboards, Personal Computers, Notebooks, and Peripheral Cards;**
**Design and Manufacturing of Mainboards and Peripheral Cards.**

Further clarifications regarding the scope of this certificate and the applicability of ISO 9001:2000 requirements may be obtained by consulting the organization

This certificate is valid from 16 March 2007 until 15 March 2010
Issue 1. Certified with SGS since March 2007

Multiple certificates have been issued for this scope
The main certificate is numbered HK07/01191.00

Authorised by

P. Earl

SGS United Kingdom Ltd Systems & Services Certification
Rossmore Business Park Ellesmere Port Cheshire CH65 3EN UK
t +44 (0)151 350-6666 f +44 (0)151 350-6600 www.sgs.com

Certificate No.

*PRC-HSPM-1172*

**Issued:** July 10, 2007
**Revision:** N/A
**Expiration:** July 09, 2010

## IECQ Certificate of Hazardous Substance Process Management (HSPM)

**applicable to the European Directive 2002/95/EC ("RoHS") requirements.**

The Supervising Inspectorate (SGS-CSTC Standards Technical Services Co., Ltd.), sponsored by the United States National Authorized Institution, ECCB certify that

**ECS Manufacturing (Shenzhen) Co., Ltd.**
No. 20 & 26 (except 1F, 2F & 3F),
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Shenzhen, Guangdong Province, P.R. China

Has developed and implemented Hazardous Substances Process Management, procedures, and related processes in compliance with the applicable requirements for HSPM organization approval which is in accordance with the Basic Rules IECQ-01 and Rules of Procedure QC 001002-5 "IECQ Hazardous Substance Process Management" of the IEC Quality Assessment System for Electronic Components (IECQ), and with respect to the Specification QC 080000 IECQ HSPM.

**This certification is applicable to all electronic components and related materials and processes for the**

Design and manufacture of Mainboards and Peripheral Cards.

**Issued by Certification Authorities:**

Electronic Component Certification Board

Signed:

Stanley H. Salot Jr. – President, ECCC
ECCB
PO Box 9041
Midland, Texas 79708
Tel: (432) 697-9970 Fax: (866) 260-6181
Web Site: www.eccb.org

SGS-CSTC Standards Technical Services Co., Ltd
16F Century YuHui Mansion
73 Fucheng Road
Beijing, China
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# Preface

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Version 1.0b

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This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and the receiver
- Connect the equipment onto an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

Shielded interconnect cables and a shielded AC power cable must be employed with this equipment to ensure compliance with the pertinent RF emission limits governing this device. Changes or modifications not expressly approved by the system's manufacturer could void the user's authority to operate the equipment.

## Declaration of Conformity

This device complies with part 15 of the FCC rules. Operation is subject to the following conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation

## Canadian Department of Communications

This class B digital apparatus meets all requirements of the Canadian Interference-causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Réglement sur le matériel brouilieur du Canada.

## About the Manual

The manual consists of the following:

**Chapter 1**

**Introducing the Motherboard**

Describes features of the motherboard.

Go to ⇨ page 1

**Chapter 2**

**Installing the Motherboard**

Describes installation of motherboard components.

Go to ⇨ page 7

**Chapter 3**

**Using BIOS**

Provides information on using the BIOS Setup Utility.

Go to ⇨ page 29

**Chapter 4**

**Using the Motherboard Software**

Describes the motherboard software

Go to ⇨ page 47

**Chapter 5**

**ATI CrossFire™ Technology Support**

Describes the ATI CrossFire™ Technology

Go to ⇨ page 53

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# Chapter 1
# *Introducing the Motherboard*

## Introduction

Thank you for choosing the P35T-A motherboard. This motherboard is a high performance, enhanced function motherboard designed to support the LGA775 socket Intel® Yorkfield/Wolfdale/Core™2 Extreme/Core™2 Quad/Core™2 Duo/Pentium Duo Core (E2140/E2160)/Celeron D 4xx series processors for high-end business or personal desktop markets.

The motherboard incorporates the P35 Northbridge (NB) and ICH9 Southbridge (SB) chipsets. The Northbridge supports a Front Side Bus (FSB) frequency of 1333/1066/800 MHz using a scalable FSB Vcc_CPU. The memory controller supports DDR2 memory DIMM frequencies of 800/667. It supports four DDR2 Sockets with up to maximum memory of 8 GB. DDR2 Maximum memory bandwidth of 12.8 Gb/s in dual-channel symmetric mode assuming DDR2 800 MHz. High resolution graphics via two PCI Express slots, intended for Graphics Interface, are fully compliant to the PCI Express Base Specification revision 1.1.

The ICH9 Southbridge supports three PCI slots which are PCI 2.3 compliant. In addition, one PCI Express x1 slot is supported. It implements an EHCI compliant interface that provides 480 Mb/s bandwidth for twelve USB 2.0 ports. The Southbridge integrates a Serial ATA host controller, supporting six SATA ports with maximum transfer rate up to 3.0 Gb/s each.

The motherboard is equipped with advanced full set of I/O ports in the rear panel, including PS/2 mouse and keyboard connectors, COM1, ESATA, six USB ports, one optional LAN port, and audio jacks for microphone, line-in and 6/8-channel (optional) line-out.

# Feature

## Processor

The motherboard uses an LGA775 type of Intel® Yorkfield/Wolfdale/Core™2 Extreme/Core™2 Quad/Core™2 Duo/Pentium Duo Core (E2140/E2160)/Celeron D 4xx series that carries the following features:

- Accommodates Intel® Yorkfield/Wolfdale/Core™2 Extreme/Core™2 Quad/Core™2 Duo/Pentium Duo Core (E2140/E2160)/Celeron D 4xx series processors
- Supports a system bus (FSB) of 1333/1066/800 MHz
- Supports "Hyper-Threading" technology CPU

"Hyper-Threading" technology enables the operating system into thinking it's hooked up to two processors, allowing two threads to be run in parallel, both on separate "logical" processors within the same physical processor.

## Chipset

The P35 Northbridge (NB) and ICH9 Southbridge (SB) chipsets are based on an innovative and scalable architecture with proven reliability and performance.

***P35 (NB)***

- Supports 36-bit host bus addressing, allowing the CPU to access the entire 64 GB of the memory address space
- 2 GB/s point-to-point Direct Media Interface (DMI) to ICH9 (1 GB/s each direction)
- Supports 512 Mb and 1 Gb DDR2 or DDR3 technologies for x8 and x16 devices
- One, 16-lane PCI Express port intended for Graphics Attach, compatible to the PCI Express* Base Specification revision 1.1

***ICH9 (SB)***

- Enhanced DMA Controller, interrupt controller, and timer functions
- Compliant with PCI Express Base Specification, Revision 1.1
- Compliant with PCI 2.3 specification
- Integrated SATA 3.0 Gb/s Host Controller
- Integrated USB 2.0 Host Controller supporting up to 12 USB 2.0 ports
- Integrated Gigabit LAN Controller
- Support Intel® Active Management Technology with System Defence, Intel® I/O Virtualization (VT-d) and Trusted Execution Technology

## Memory

- Supports DDR2 800/667 DDR SDRAM with Dual-channel architecture
- Accommodates four unbuffered DIMMs
- Up to 2 GB per DIMM with maximum memory size up to 8 GB

## Onboard LAN

The onboard LAN controller provides the following features:

- Supports full duplex at 10/100/1000 Mb/s Auto negotiation operation
- Intergrated voltage regulatior & power supply control at 3.3V
- Compliant fully with IEEE802.3ab

## Audio (Optional)

This motherboard may support either of the following Audio chipsets:

| |
|---|
| • 7.1 + 2 Channel High Definition Audio Codec<br>• All DACs support 192K/96K/48K/44.1KHz sample rate<br>• Software selectable 2.5V/3.75V VREFOUT<br>• Meets Microsoft WHQL/WLP 2.x audio requirements<br>• Direct Sound 3D™ compatible |
| • 5.1 Channel High Definition Audio Codec<br>• ADCs support 44.1K/48K/96K sample rate<br>• Meets Microsoft WHQL/WLP 3.0x audio requirements<br>• Direct Sound 3D™ compatible |
| • 7.1 + 2 Channel High Definition Audio Codec<br>• All DACs support 192K/96K/48K/44.1KHz sample rate<br>• High-quality analog differential CD input<br>• Meets Microsoft WHQL/WLP 3.0 audio requirements<br>• Direct Sound 3D™ compatible |

## 1394a Fire Wire (Optional)

- Compliant with single chip host controller for IEEE Std 1394-1995 and IEEE 1394a-2000
- Intergrated 400 Mb/s 2-Port PHY for the PCI BUS
- 3.3V Power supply with 5V Tolerant Inputs

## Expansion Options

The motherboard comes with the following expansion options:

- Two PCI Express slots for Graphic Interface
- One PCI Express x1 Slots
- Three 32-bit PCI v2.3 compliant slots
- One IDE connector that supports two IDE devices
- One floppy disk drive interface
- six 7-pin SATA connectors

## Integrated I/O

The motherboard has a full set of I/O ports and connectors:

- Two PS/2 ports for mouse and keyboard
- One serial port
- One ESATA connector
- Six USB ports
- One LAN port (optional)
- Audio jacks for microphone, line-in and 6/8-channel (optional) High Definition Audio output

## BIOS Firmware

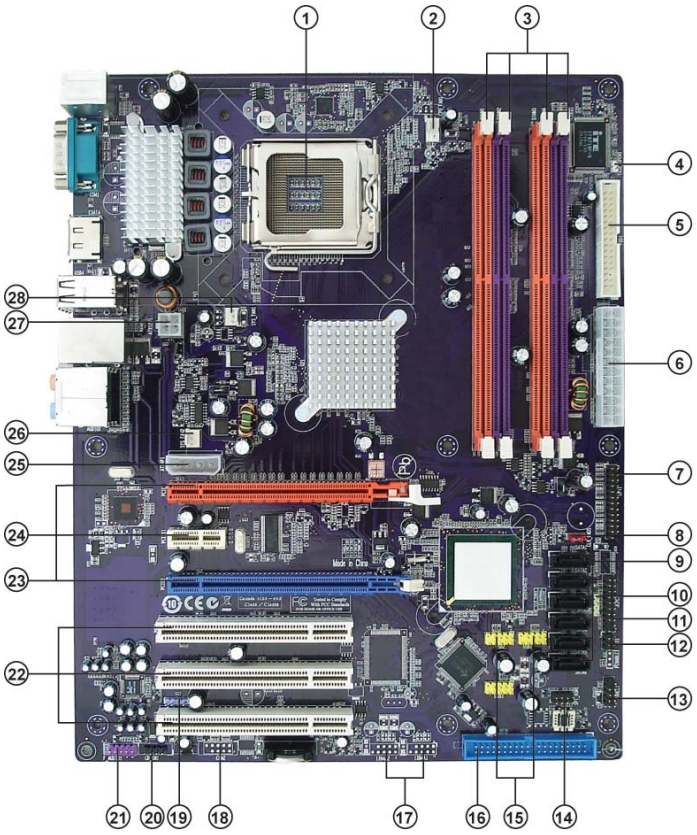
This motherboard uses AMI BIOS that enables users to configure many system features including the following:

- Power management
- Wake-up alarms
- CPU parameters
- CPU and memory timing

The firmware can also be used to set parameters for different processor clock speeds.

*Some hardware specifications and software items are subject to change with out prior notice.*

## Motherboard Components



### *Table of Motherboard Components*

| LABEL | COMPONENTS |
|---|---|
| 1. CPU Socket | LGA775 socket for Intel® Yorkfield/Wolfdale/Core™2 Extreme/Core™2 Quad/Core™2 Duo/Pentium Duo Core (E2140/E2160)/Celeron D 4xx series CPUs |
| 2. CPU_FAN1 | CPU cooling fan connector |
| 3. DIMM1~4 | 240-pin DDR2 SDRAM slots |
| 4. CASE_OPEN1 | Chassis detect header |
| 5. FDD1 | Floppy disk drive connector |
| 6. ATX1 | Standard 24-pin ATX power connector |
| 7. LPT1 | Onboard parallel port header |
| 8. CLR_CMOS | Clear CMOS jumper |
| 9. SATA1~6 | Serial ATA connectors |
| 10. SPK1 | Speaker header |
| 11. JLPC1* | TPM header |
| 12. IR1 | Internal infrared header |
| 13. PANEL1 | Front panel switch/LED header |
| 14. SPI_ROM1 | SPI ROM header |
| 15. USB1~3 | Front Panel USB headers |
| 16. IDE1 | Primary IDE channel |
| 17. 1394A1~2* | Onboard 1394a headers |
| 18. COM2* | Onboard Serial port header |
| 19. SPDIFO1 | SPDIF out header |
| 20. CD_IN1 | Analog audio input connector |
| 21. F_AUDIO1 | Front panel audio header |
| 22. PCI1~3 | 32-bit add-on card slots |
| 23. PCIE1~2 | PCI Express slots for graphics interface |
| 24. PCIEX1 | PCI Express x1 slot |
| 25. ATX4P1 | Auxiliary power connector for graphics card |
| 26. SYS_FAN2 | System cooling fan connector |
| 27. ATX12V1 | 4-pin +12V power connector |
| 28. SYS_FAN1 | System cooling fan connector |

*"*" stands for optional components.*

This concludes Chapter 1. The next chapter explains how to install the motherboard.

# Chapter 2
# *Installing the Motherboard*

## Safety Precautions

- Follow these safety precautions when installing the motherboard
- Wear a grounding strap attached to a grounded device to avoid damage from static electricity
- Discharge static electricity by touching the metal case of a safely grounded object before working on the motherboard
- Leave components in the static-proof bags they came in
- Hold all circuit boards by the edges. Do not bend circuit boards

## Choosing a Computer Case

There are many types of computer cases on the market. The motherboard complies with the specifications for the ATX system case. First, some features on the motherboard are implemented by cabling connectors on the motherboard to indicators and switches on the system case. Make sure that your case supports all the features required. Secondly, this motherboard supports one or two floppy diskette drives. Make sure that your case has sufficient power and space for all drives that you intend to install.

Most cases have a choice of I/O templates in the rear panel. Make sure that the I/O template in the case matches the I/O ports installed on the rear edge of the motherboard.

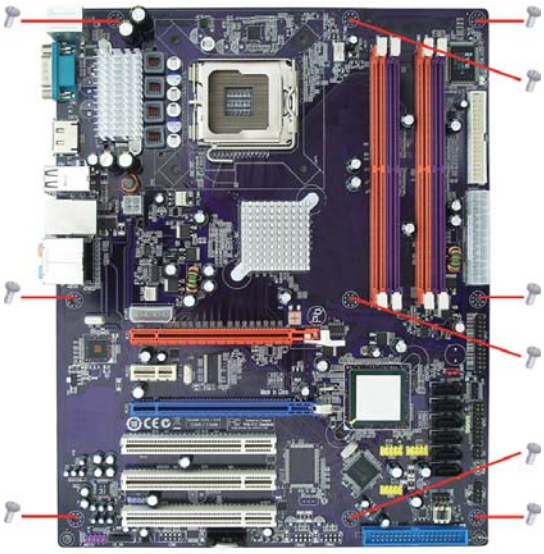
This motherboard carries an ATX form factor of 305 x 244 mm. Choose a case that accommodates this form factor.

## Installing the Motherboard in a Case

Refer to the following illustration and instructions for installing the motherboard in a case.

Most system cases have mounting brackets installed in the case, which correspond the holes in the motherboard. Place the motherboard over the mounting brackets and secure the motherboard onto the mounting brackets with screws.

Ensure that your case has an I/O template that supports the I/O ports and expansion slots on your motherboard.



*Do not over-tighten the screws as this can stress the motherboard.*

## Checking Jumper Settings

This section explains how to set jumpers for correct configuration of the motherboard.

### *Setting Jumpers*

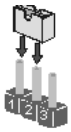
Use the motherboard jumpers to set system configuration options. Jumpers with more than one pin are numbered. When setting the jumpers, ensure that the jumper caps are placed on the correct pins.

The illustrations show a 2-pin jumper. When the jumper cap is placed on both pins, the jumper is SHORT. If you remove the jumper cap, or place the jumper cap on just one pin, the jumper is OPEN.

**SHORT**

**OPEN**

This illustration shows a 3-pin jumper. Pins 1 and 2 are SHORT.



### *Checking Jumper Settings*

The following illustration shows the location of the motherboard jumpers. Pin 1 is labeled.


### *Jumper Settings*

| Jumper | Type | Description | Setting (default) | |
|---|---|---|---|---|
| **CLR_CMOS** | 3-pin | Clear CMOS | 1-2: NORMAL<br>2-3: CLEAR CMOS<br>Before clearing the CMOS, make sure to turn off the system. | 1<br>CLR_CMOS |

*To avoid the system unstability after clearing CMOS, we recommend users to enter the main BIOS setting page to "Load Optimal Defaults" and then "Save Changes and Exit".*

# Installing Hardware

## *Installing the Processor*

*Caution: When installing a CPU heatsink and cooling fan make sure that you DO NOT scratch the motherboard or any of the surface-mount resistors with the clip of the cooling fan. If the clip of the cooling fan scrapes across the motherboard, you may cause serious damage to the motherboard or its components.*

*On most motherboards, there are small surface-mount resistors near the processor socket, which may be damaged if the cooling fan is carelessly installed.*

*Avoid using cooling fans with sharp edges on the fan casing and the clips. Also, install the cooling fan in a well-lit work area so that you can clearly see the motherboard and processor socket.*

### Before installing the Processor

This motherboard automatically determines the CPU clock frequency and system bus frequency for the processor. You may be able to change these settings by making changes to jumpers on the motherboard, or changing the settings in the system Setup Utility. We strongly recommend that you do not over-clock processors or other components to run faster than their rated speed.

*Warning:*

*1. Over-clocking components can adversely affect the reliability of the system and introduce errors into your system. Over-clocking can permanently damage the motherboard by generating excess heat in components that are run beyond the rated limits.*

*2. Always remove the AC power by unplugging the power cord from the power outlet before installing or removing the motherboard or other hardware components.*

This motherboard has an LGA775 socket. When choosing a processor, consider the performance requirements of the system. Performance is based on the processor design, the clock speed and system bus frequency of the processor, and the quantity of internal cache memory and external cache memory.

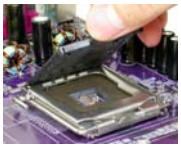
## CPU Installation Procedure

The following illustration shows CPU installation components.

A. Read and follow the instructions shown on the sticker on the CPU cap.


B. Unload the cap
- Use thumb & forefinger to hold the lifting tab of the cap.
- Lift the cap up and remove the cap completely from the socket.

C. Open the load plate
- Use thumb & forefinger to hold the hook of the lever, pushing down and pulling aside unlock it.
- Lift up the lever.
- Use thumb to open the load plate. Be careful not to touch the contacts.



D. Install the CPU on the socket
- Orientate CPU package to the socket. Make sure you match triangle marker to pin 1 location.

E. Close the load plate
- Slightly push down the load plate onto the tongue side, and hook the lever.
- CPU is locked completely.

F. Apply thermal grease on top of the CPU.

G. Fasten the cooling fan supporting base onto the CPU socket on the motherboard.

H. Make sure the CPU fan is plugged to the CPU fan connector. Please refer to the CPU cooling fan user's manual for more detail installation procedure.

*1. To achieve better airflow rates and heat dissipation, we suggest that you use a high quality fan with 3800 rpm at least. CPU fan and heatsink installation procedures may vary with the type of CPU fan/ heatsink supplied. The form and size of fan/heatsink may also vary.*

*2. DO NOT remove the CPU cap from the socket before installing a CPU.*

*3. Return Material Authorization (RMA) requests will be accepted only if the motherboard comes with the cap on the LGA775 socket.*

## *Installing Memory Modules*

This motherboard accommodates four memory modules. It can support four 240-pin DDR2 800/667. The total memory capacity is 8 GB.

### DDR2 SDRAM memory module table

| Memory module | Memory Bus |
|---|---|
| ***DDR2 667*** | ***333 MHz*** |
| ***DDR2 800*** | ***400 MHz*** |

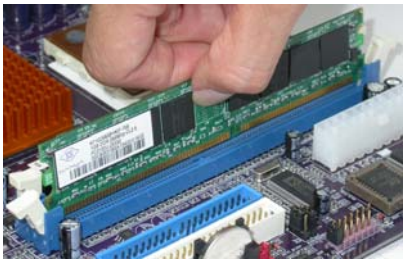
You must install at least one module in any of the four slots. Each module can be installed with 2 GB of memory; total memory capacity is 8 GB.


*Do not remove any memory module from its antistatic packaging until you are ready to install it on the motherboard. Handle the modules only by their edges. Do not touch the components or metal parts. Always wear a grounding strap when you handle the modules.*

## Installation Procedure

Refer to the following to install the memory modules.

1. This motherboard supports unbuffered DDR2 SDRAM .
2. Push the latches on each side of the DIMM slot down.
3. Align the memory module with the slot. The DIMM slots are keyed with notches and the DIMMs are keyed with cutouts so that they can only be installed correctly.
4. Check that the cutouts on the DIMM module edge connector match the notches in the DIMM slot.
5. Install the DIMM module into the slot and press it firmly down until it seats correctly. The slot latches are levered upwards and latch on to the edges of the DIMM.
6. Install any remaining DIMM modules.



### Table A: DDR2 (memory module) QVL (Qualified Vendor List)

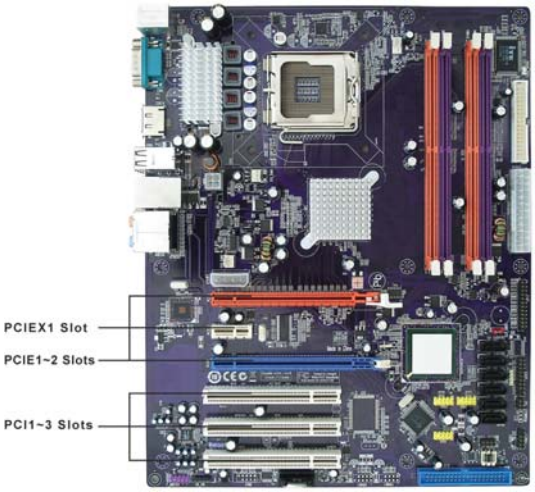
The following DDR2 800/667 memory modules have been tested and qualified for use with this motherboard.

| Type | Size | Vendor | Module Name |
|---|---|---|---|
| DDR2 667 | 256 MB | Infineon | HYS64T325001HU-3-A<br>HYB18T256 |
| | | Ramxel | 5NB31 D9DCG |
| | 512 MB | A-DATA | AD29608A88-3EG |
| | | Apacer | Apacer AM4B5708AIJS0703F 512MB |
| | | Corsair | VALUESELECT 32M8CEC |
| | | Corsair | 64M8CFE PS1000545 |
| | | Corsair | Corsair K4T5108QC |
| | | GEIL | GL2L64M088BA18W |
| | | GEIL | GL2L64M088BA30AW |
| | | Ramxel | 5LB31 D9DCL |
| | | Sync MAX | 04400WB01 R050008A |
| | | Samsung | K4T51083QC |
| | | Samsung | PC35300U-25331-Z<br>K4T56083QF-ZCE6 |
| | | Twinmos | TMM6208G8M30B |
| | | Transcend | JetRam J12Q3AB-6 |
| | | Transcend | SEL520ZCE6 K4T51083QC |
| | 1 GB | Apacer | Elpida 1GB AM4B5708GEWS7E-0637F |
| | | Apacer | AM4B5708GQJS7E0631F |
| | | Infineon | HYB18T512800BF3S |
| | | Infineon | Aeneon AET93E30RB-0650 1GB |
| | | PQI | PQI PQB2648D38R0648 1GB |
| DDR2 800 | 512 MB | Infineon | HYS64T64020HU-2.5-A<br>HYB18T256 800AF25 |
| | | Sync MAX | DDR2-800 64M*8 |
| | 1 GB | CORSAIR | CM2X1024-6400PRO |
| | | Infineon | Aeneon AET93F30RB-0650 |
| | | Kingbox | DDR264082200-3 |
| | | UMAX | U2S12D30TP-8E |

## *Expansion Slots*

### Installing Add-on Cards

The slots on this motherboard are designed to hold expansion cards and connect them to the system bus. Expansion slots are a means of adding or enhancing the motherboard's features and capabilities. With these efficient facilities, you can increase the motherboard's capabilities by adding hardware that performs tasks that are not part of the basic system.




**PCIE1~2 Slots** The PCI Express slots are used to install an external PCI Express graphics card that is fully compliant to the PCI Express Base Specification revision 1.1.

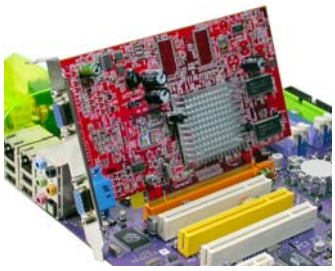
**PCIEX1 Slot** The PCI Express x1 slot is fully compliant to the PCI Express Base Specification revision 1.1.

**PCI1~3 Slots** This motherboard is equipped with three standard PCI slots. PCI stands for Peripheral Component Interconnect and is a bus standard for expansion cards, which for the most part, is a supplement of the older ISA bus standard. The PCI slots on this board are PCI v2.3 compliant.

*Before installing an add-on card, check the documentation for the card carefully. If the card is not Plug and Play, you may have to manually configure the card before installation.*

Follow these instructions to install an add-on card:

1 Remove a blanking plate from the system case corresponding to the slot you are going to use.
2 Install the edge connector of the add-on card into the expansion slot. Ensure that the edge connector is correctly seated in the slot.
3 Secure the metal bracket of the card to the system case with a screw.



*1. For some add-on cards, for example graphics adapters and network adapters, you have to install drivers and software before you can begin using the add-on card.*

*2. The onboard PCI interface does not support 64-bit SCSI cards.*

**Table B: Supported PCI Express VGA Card List for CrossFire Function**

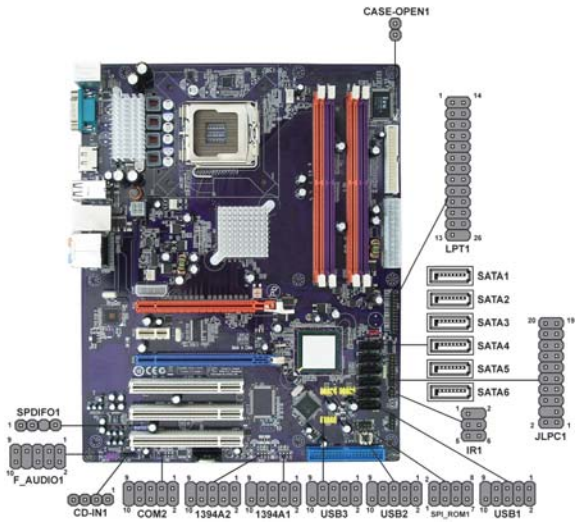
| PCI-E Card | |
|---|---|
| ASUS EAX1600XT SILENT/TVD/256M/A | Radeon X1600XT |
| MSI RX1300 TD256E (256M) | Radeon X1300Pro |

**Table C: Supported PCI Express VGA Card List for PCI Express Slot (PCI Express x4)**

| VGA Chip | Model Name |
|---|---|
| ATI | ATI RADEON X850 CrossFire Edition 256M |
| | ASUS EAX1300PRO/TD/256M/A |
| | BD X1600PRO/256M/A/D/TV |
| | Colorful X1600PRO-GD3/128M/128bit/DDR3 |
| | Colorful Radeon X800XL/CH/128MB/DDR |
| | Colorful X1300-GD3/128M/128bit/DDR3 |
| | Colorful ATI X300/TV Out 128M |
| | DATALAND X700Pro/DVI/TV/128bit/256M |
| | DATALAND Radeon X1600PRO/128bit/128MB |
| | DATALAND Radeon X300/128bit/128M |
| | Gigabyte X700Pro/DVI+TV Out 128M |
| | Jetway 600XT 256M |
| | MSI V040 X1300 PRO/256M/B/TV |
| | MAXSUN X1600XT 256M/128bit/DDR3 |
| | MAXSUN X550 128bit/256M |
| | SPPHIRE X1900XT 512M PCI-E |
| | SPPHIRE DEON X1950 PRO GDDR3 PCI-EDUAL DVI-I/TVO/256 |
| | SAPPHIRE Radeon X800gto/128MB/V/D/VO |
| | SAPPHIRE ATI Radeon X700 VPU 128MB |
| NVIDIA | ASUS EN6600LE/SILENCER/TD/256M/A |
| | ASUS EN6800XT/HTD/256M/V1.00 |
| | BD3466 V1.2 GeForce 6600/256M |
| | BD3493 6200TC 128M |
| | BD 7300LE/128M |
| | Colorful GF7800GT CH/512M/256bit/DDR3 |
| | Colorful 7900GT CH 512M DDR3 |
| | Colorful GF7900GT/256M |
| | ECS N6200LE-128TY/128M/64bit/DDR2 |
| | ECS N6200LE-128TT/128M/64bit/DDR |
| | ECS N7600GT-256MX |
| | ECS N7600GS-256DY |
| | ECS N7300GT-256DY |
| | ECS N7300GT-512DZ |
| | ECS N7600GS-512DZ |
| | ECS N6600LE-128DV/128M/128bit/DDR |
| | GEFORCE 6600LE 256MB/128bit/GD2 |
| | Leadtek Nvidia Quadro FX1300 128MB |
| | Leadtek WinFast PX6600LE 256M/128bit |
| | MSI MSV040/X1 |
| | SPARK S-HERO 7300LE/128MB/DDR2 |
| | Unika PCX7858GTX/512MB/256bit/DDR3 |
| | XFX GF 5300/128M |
| | XFX GF7300GT/256MB/DDR2 |
| | YINGTONG 7100GS GEFORCE 7100GS-128MB/128BIT |
| | YINGTONG GF7300GS-128GD2 |
| | ZENO 7600GS/128MB/DDR3 |

## *Connecting Optional Devices*

Refer to the following for information on connecting the motherboard's optional devices:




### F_AUDIO1: Front Panel Audio header for Azalia

This header allows the user to install auxiliary front-oriented microphone and line-out ports for easier access.

| Pin | Signal Name | Pin | Signal Name |
|---|---|---|---|
| 1 | PORT 1L | 2 | AUD_GND |
| 3 | PORT 1R | 4 | PRESENCE# |
| 5 | PORT 2R | 6 | SENSE1_RETURN |
| 7 | SENSE_SEND | 8 | KEY |
| 9 | PORT 2L | 10 | SENSE2_RETURN |

### SATA1~6: Serial ATA connectors

These connectors are use to support the new Serial ATA devices for the highest date transfer rates (3.0 Gb/s), simpler disk drive cabling and easier PC assembly. It eliminates limitations of the current Parallel ATA interface. But maintains register compatibility and software compatibility with Parallel ATA.

| Pin | Signal Name | Pin | Signal Name |
|---|---|---|---|
| 1 | Ground | 2 | TX+ |
| 3 | TX- | 4 | Ground |
| 5 | RX- | 6 | RX+ |
| 7 | Ground | - | - |

### 1394A1~2: IEEE 1394A headers (optional)

Connect these headers to any device with IEEE 1394a interface.

| Pin | Signal Name | Pin | Signal Name |
|---|---|---|---|
| 1 | TPA+ | 2 | TPA- |
| 3 | GND | 4 | GND |
| 5 | TPB+ | 6 | TPB- |
| 7 | Cable-Power | 8 | Cable-Power |
| 9 | Key Pin | 10 | GND |

### USB1~3: Front Panel USB headers

The motherboard has six USB ports installed on the rear edge I/O port array. Additionally, some computer cases have USB ports at the front of the case. If you have this kind of case, use auxiliary USB connector to connect the front-mounted ports to the motherboard.

| Pin | Signal Name | Function |
|---|---|---|
| 1 | USBPWR | Front Panel USB Power |
| 2 | USBPWR | Front Panel USB Power |
| 3 | USB_FP_P0- | USB Port 0 Negative Signal |
| 4 | USB_FP_P1- | USB Port 1 Negative Signal |
| 5 | USB_FP_P0+ | USB Port 0 Positive Signal |
| 6 | USB_FP_P1+ | USB Port 1 Positive Signal |
| 7 | GND | Ground |
| 8 | GND | Ground |
| 9 | Key | No pin |
| 10 | USB_FP_OC0 | Overcurrent signal |

*Please make sure that the USB cable has the same pin assignment as indicated above. A different pin assignment may cause damage or system hang-up.*

### CD_IN1: Analog Audio Input connector

| Pin | Signal Name | Function |
|---|---|---|
| 1 | CD_L | CD In left channel |
| 2 | GND | Ground |
| 3 | GND | Ground |
| 4 | CD_R | CD In right channel |

### SPI_ROM1: SPI ROM header

This 16 Mb ROM contains the programmable BIOS program.

| Pin | Signal Name | Function |
|---|---|---|
| 1 | CHIP SELECT | Select chip |
| 2 | VCC | VCC |
| 3 | DATA OUTPUT | data output |
| 4 | HOLD | hold |
| 5 | WRITE PROTECT | BIOS write protect |
| 6 | CLOCK | clock |
| 7 | CND | CND |
| 8 | DATA INPUT | data input |

### LPT1: Onboard parallel port header

This is a header that can be used to connect to the printer, scanner or other devices.

| Pin | Signal Name | Pin | Signal Name |
|---|---|---|---|
| 1 | STROBE | 14 | ALF |
| 2 | PD0 | 15 | ERROR |
| 3 | PD1 | 16 | INIT |
| 4 | PD2 | 17 | SLCTIN |
| 5 | PD3 | 18 | Ground |
| 6 | PD4 | 19 | Ground |
| 7 | PD5 | 20 | Ground |
| 8 | PD6 | 21 | Ground |
| 9 | PD7 | 22 | Ground |
| 10 | ACK | 23 | Ground |
| 11 | BUSK | 24 | Ground |
| 12 | PE | 25 | Ground |
| 13 | SLCT | 26 | Key |

### COM2: Onboard serial port header (Optional)

Connect a serial port extension bracket to this header to add a second serial port to your system.

| Pin | Signal Name | Function |
|---|---|---|
| 1 | NDCDB | Data carry detect |
| 2 | NSINB | Serial Data In |
| 3 | NSOUTB | Serail Data Out |
| 4 | NDTRB | Data terminal ready |
| 5 | GND | Ground |
| 6 | NDSRB | Date set ready |
| 7 | NRTSB | Request to send |
| 8 | NCTSB | Clear to send |
| 9 | NRIB | Ring Indicator |
| 10 | KEY | Key |

### SPDIFO1: SPDIF out header

This is an optional header that provides an S/PDIF (Sony/Philips Digital Interface) output to digital multimedia device through optical fiber or coaxial connector.

| Pin | Signal Name | Function |
|---|---|---|
| 1 | SPDIF | SPDIF digital output |
| 2 | +5VA | 5V analog Power |
| 3 | Key | No pin |
| 4 | GND | Ground |

### JLPC1: TPM header (optional)

Use this low pin count header for LPC/SIR devices.

| Pin | Signal Name | Pin | Signal Name |
|---|---|---|---|
| 1 | CK_P_33M_JLPC | 2 | GND |
| 3 | FWH4 | 4 | KEY |
| 5 | PCIRST_L1 | 6 | SMBDATA |
| 7 | FWH3 | 8 | FWH2 |
| 9 | VCC3 | 10 | FWH1 |
| 11 | FWH0 | 12 | GND |
| 13 | PENABLE | 14 | NC |
| 15 | 3VSBY | 16 | SIRQ |
| 17 | GND | 18 | GND |
| 19 | LPCPD_L | 20 | SMBCLK |

### IR1: Infrared header

The motherboard supports an Infrared (IR1) data port. Infrared ports allow the wireless exchange of information between your computer and similarly equipped devices such as printers, laptops, Personal Digital Assistants (PDAs), and other computers.

| Pin | Signal Name |
|---|---|
| 1 | NC |
| 2 | Key |
| 3 | VCC |
| 4 | GND |
| 5 | IRTX |
| 6 | IRRX |

### CASE_OPEN1: Chassis Intrusion Detect Header

| Pin 1-2 | Function |
|---|---|
| Short | Case Open |
| Open | Case Close |

## *Installing a Hard Dish Drive/CD-ROM/SATA Hard Drive*

This section describes how to install IDE devices such as a hard disk drive and a CD-ROM drive.

### About IDE Devices

Your motherboard has one IDE channel interface. An IDE ribbon cable supporting two IDE devices is bundled with the motherboard.

*You must orient the cable connector so that the pin1 (color) edge of the cable corresponds to the pin 1 of the I/O port connector.*

#### IDE1: IDE Connector

This motherboard supports six high data transfer SATA ports with each runs up to 3.0 Gb/s. To get better system performance, we recommend users connect the CD-ROM to the IDE channel, and set up the hard drives on the SATA ports.

IDE devices enclose jumpers or switches used to set the IDE device as MASTER or SLAVE. Refer to the IDE device user's manual. Installing two IDE devices on one cable, ensure that one device is set to MASTER and the other device is set to SLAVE. The documentation of your IDE device explains how to do this.

### About SATA Connectors

Your motherboard features six SATA connectors supporting a total of six drives. SATA refers to Serial ATA (Advanced Technology Attachment) is the standard interface for the IDE hard drives which are currently used in most PCs. These connectors are well designed and will only fit in one orientation. Locate the SATA connectors on the motherboard and follow the illustration below to install the SATA hard drives.

### Installing Serial ATA Hard Drives

To install the Serial ATA (SATA) hard drives, use the SATA cable that supports the Serial ATA protocol. This SATA cable comes with an SATA power cable. You can connect either end of the SATA cable to the SATA hard drive or the connector on the motherboard.

**SATA cable (optional)**

**SATA power cable (optional)**

Refer to the illustration below for proper installation:

1 Attach either cable end to the connector on the motherboard.
2 Attach the other cable end to the SATA hard drive.
3 Attach the SATA power cable to the SATA hard drive and connect the other end to the power supply.

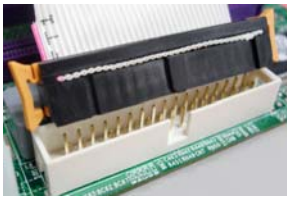
*This motherboard does not support the "Hot-Plug" function.*

## *Installing a Floppy Diskette Drive*

### FDD1: Floppy Disk Connector

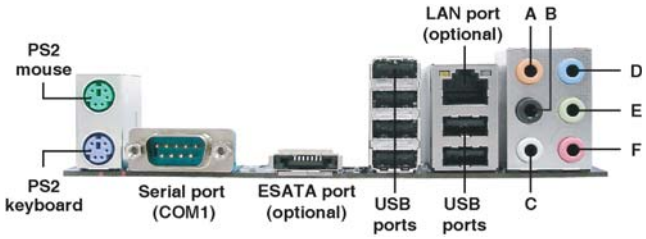
Connect the single end of the floppy connector to the onboard floppy connector firstly, and then connect the remaining plugs on the other end to the floppy drives correspondingly.

*You must orient the cable connector so that the pin 1 (color) edge of the cable corresponds to the pin 1 of the I/O port connector.*



## Connecting I/O Devices

The backplane of the motherboard has the following I/O ports:




**PS2 Mouse** Use the upper PS/2 port to connect a PS/2 pointing device.

**PS2 Keyboard** Use the lower PS/2 port to connect a PS/2 keyboard.

**ESATA Port (optional)** Use this port to connect to an external SATA box or a Serial ATA port multiplier.

**Serial Port (COM1)** Use the COM port to connect serial devices such as mice or fax/modems. COM1 is identified by the system as COM1/3.

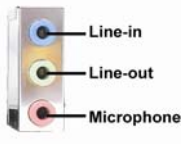
**LAN Port (optional)** Connect an RJ-45 jack to the LAN port to connect your computer to the Network.

**USB Ports** Use the USB ports to connect USB devices.

**Audio Ports (optional)** Use the audio jacks to connect audio devices. The D port is for stereo line-in signal, while the F port is for microphone in signal. This motherboard supports 8-channel audio devices that correspond to the A, B, C, and E port respectively. In addition, all of the 3 ports, B, C, and E provide users with both right & left channels individually. Users please refer to the following note for specific port function definition.

| | |
|---|---|
| A: Center & Woofer | D: Line-in |
| B: Back Surround | E: Front Out |
| C: Side Surround | F: Mic_in Rear |

*The above port definition can be changed to audio input or audio output by changing the driver utility setting.*




*This motherboard may adopt 6-channel audio ports.*

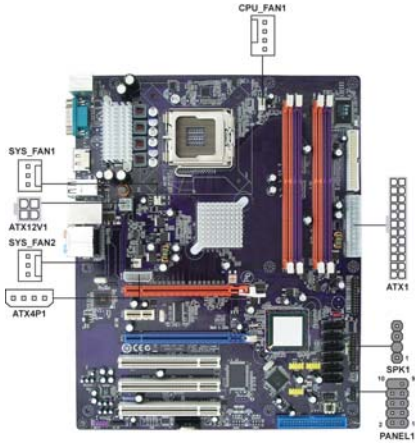
Use the three audio ports to connect audio devices. The first jack is for stereo line-in signal. The second jack is for stereo line-out signal. The third jack is for microphone.

This concludes Chapter 2. The next chapter covers the BIOS.

## Connecting Case Components

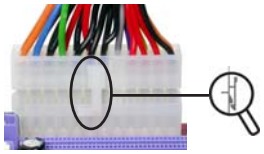
After you have installed the motherboard into a case, you can begin connecting the motherboard components. Refer to the following:

1 Connect the CPU cooling fan cable to **CPU_FAN1**.
2 Connect the system cooling fan connector to **SYS_FAN1/2**.
3 Connect the connector for graphics interface to **ATX4P1**.
4 Connect the case switches and indicator LEDs to the **PANEL1**.
5 Connect the case speaker cable to **SPK1**.
6 Connect the standard power supply connector to **ATX1**.
7 Connect the auxiliary case power supply connector to **ATX12V1**.




### *Connecting 24-pin power cable*

Users please note that the 24-pin power cable can be connected to the ATX1 connector.

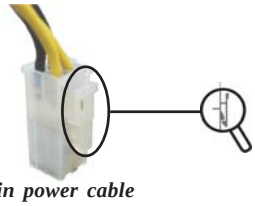


With ATX v2.x power supply, users please note that when installing 24-pin power cable, the latches of power cable and the ATX1 match perfectly.

***24-pin power cable***

### *Connecting 4-pin power cable*

The ATX12V1 power connector is used to provide power to the CPU.



When installing 4-pin power cable, the latches of power cable and the ATX12V1 match perfectly.

***4-pin power cable***

### CPU_FAN1: CPU Cooling FAN Power Connector

| Pin | Signal Name | Function |
|---|---|---|
| 1 | GND | System Ground |
| 2 | +12V | Power +12V |
| 3 | Sense | Sensor |
| 4 | PWM | PWM |

*Users please note that the fan connector supports the CPU cooling fan of 1.1A ~ 2.2A (26.4W max) at +12V.*

### SYS_FAN1/2: System Cooling FAN Power Connectors

| Pin | Signal Name | Function |
|---|---|---|
| 1 | GND | System Ground |
| 2 | +12V | Power +12V |
| 3 | Sense | Sensor |

### ATX1: ATX 24-pin Power Connector

| Pin | Signal Name | Pin | Signal Name |
|---|---|---|---|
| 1 | +3.3V | 13 | +3.3V |
| 2 | +3.3V | 14 | -12V |
| 3 | Ground | 15 | Ground |
| 4 | +5V | 16 | PS_ON |
| 5 | Ground | 17 | Ground |
| 6 | +5V | 18 | Ground |
| 7 | Ground | 19 | Ground |
| 8 | PWRGD | 20 | -5V |
| 9 | +5VSB | 21 | +5V |
| 10 | +12V | 22 | +5V |
| 11 | +12V | 23 | +5V |
| 12 | +3.3V | 24 | Ground |

### ATX12V1: ATX 12V Power Connector

| Pin | Signal Name |
|---|---|
| 1 | Ground |
| 2 | Ground |
| 3 | +12V |
| 4 | +12V |

### ATX4P1: Auxliary Power Connector for Graphics Interface

| Pin | Signal Name |
|---|---|
| 1 | NC |
| 2 | GND |
| 3 | GND |
| 4 | +12V |

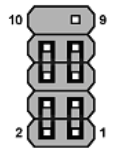
*Make sure to connect a 4-pin ATX power cable to ATX4P1; otherwise, the system will be unstable.*

### SPK1: Internal speaker

| Pin | Signal Name |
|---|---|
| 1 | VCC |
| 2 | Key |
| 3 | NC |
| 4 | Sig |

### *Front Panel Header*

The front panel header (PANEL1) provides a standard set of switch and LED headers commonly found on ATX or micro-ATX cases. Refer to the table below for information:




PANEL1

| Pin | Signal | Function | Pin | Signal | Function |
|---|---|---|---|---|---|
| 1 | HD_LED_P | Hard disk LED (+) | 2 | FP PWR/SLP | *MSG LED (+) |
| 3 | HD_LED_N | Hard disk LED (-) | 4 | FP PWR/SLP | *MSG LED (-) |
| 5 | RST_SW_N | Reset Switch (-) | 6 | PWR_SW_P | Power Switch (+) |
| 7 | RST_SW_P | Reset Switch (+) | 8 | PWR_SW_N | Power Switch (-) |
| 9 | RSVD | Reserved | 10 | Key | No pin |

***** *MSG LED (dual color or single color)*

#### *Hard Drive Activity LED*

Connecting pins 1 and 3 to a front panel mounted LED provides visual indication that data is being read from or written to the hard drive. For the LED to function properly, an IDE drive should be connected to the onboard IDE interface. The LED will also show activity for devices connected to the SCSI (hard drive activity LED) connector.

#### *Power/Sleep/Message waiting LED*

Connecting pins 2 and 4 to a single or dual-color, front panel mounted LED provides power on/off, sleep, and message waiting indication.

#### *Reset Switch*

Supporting the reset function requires connecting pin 5 and 7 to a momentary-contact switch that is normally open. When the switch is closed, the board resets and runs POST.

#### *Power Switch*

Supporting the power on/off function requires connecting pins 6 and 8 to a momentary-contact switch that is normally open. The switch should maintain contact for at least 50 ms to signal the power supply to switch on or off. The time requirement is due to internal de-bounce circuitry. After receiving a power on/off signal, at least two seconds elapses before the power supply recognizes another on/off signal.

*Memo*

Chapter 3

*Using BIOS*

## About the Setup Utility

The computer uses the latest "American Megatrends Inc." BIOS with support for Windows Plug and Play. The CMOS chip on the motherboard contains the ROM setup instructions for configuring the motherboard BIOS.

The BIOS (Basic Input and Output System) Setup Utility displays the system's configuration status and provides you with options to set system parameters. The parameters are stored in battery-backed-up CMOS RAM that saves this information when the power is turned off. When the system is turned back on, the system is configured with the values you stored in CMOS.

The BIOS Setup Utility enables you to configure:

- Hard drives, diskette drives and peripherals
- Video display type and display options
- Password protection from unauthorized use
- Power Management features

The settings made in the Setup Utility affect how the computer performs. Before using the Setup Utility, ensure that you understand the Setup Utility options.

This chapter provides explanations for Setup Utility options.

### *The Standard Configuration*

A standard configuration has already been set in the Setup Utility. However, we recommend that you read this chapter in case you need to make any changes in the future.

This Setup Utility should be used:

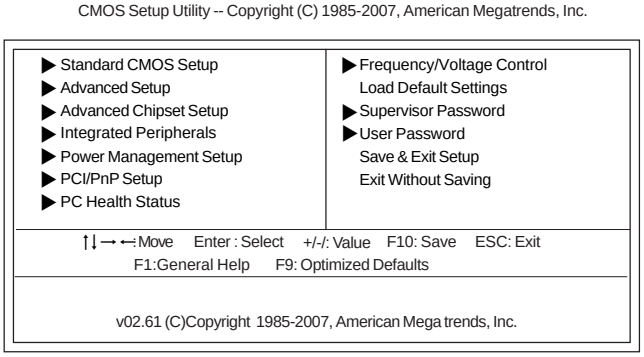
- when changing the system configuration
- when a configuration error is detected and you are prompted to make changes to the Setup Utility
- when trying to resolve IRQ conflicts
- when making changes to the Power Management configuration
- when changing the password or making other changes to the Security Setup

### *Entering the Setup Utility*

When you power on the system, BIOS enters the Power-On Self Test (POST) routines. POST is a series of built-in diagnostics performed by the BIOS. After the POST routines are completed, the following message appears:

***Press DEL to enter SETUP***

Press the delete key to access the BIOS Setup Utility.




## Using BIOS

When you start the Setup Utility, the main menu appears. The main menu of the Setup Utility displays a list of the options that are available. A highlight indicates which option is currently selected. Use the cursor arrow keys to move the highlight to other options. When an option is highlighted, execute the option by pressing <Enter>.

Some options lead to pop-up dialog boxes that prompt you to verify that you wish to execute that option. Other options lead to dialog boxes that prompt you for information.

Some options (marked with a triangle ▶) lead to submenus that enable you to change the values for the option. Use the cursor arrow keys to scroll through the items in the submenu.

In this manual, default values are enclosed in parenthesis. Submenu items are denoted by a triangle ▶.

*The default BIOS setting for this motherboard applies for most conditions with optimum performance. It is not suggested to change the default values in the BIOS setup and the manufacture takes no responsibility to any damage caused by changing the BIOS settings.*

### *BIOS Navigation Keys*

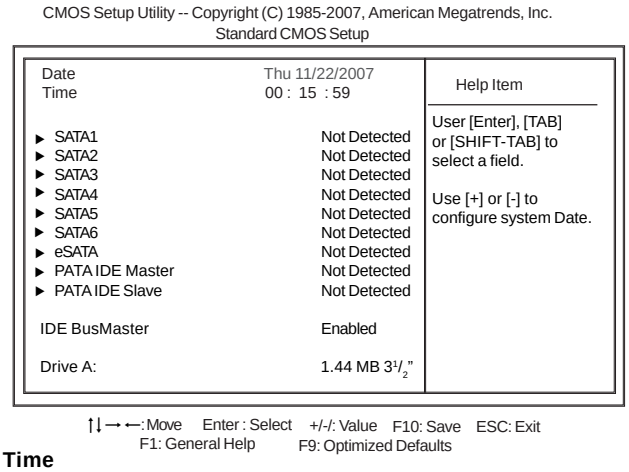
The BIOS navigation keys are listed below:

| KEY | FUNCTION |
|---|---|
| **ESC** | Exits the current menu |
| ↑↓→← | Scrolls through the items on a menu |
| **+/-/PU/PD** | Modifies the selected field's values |
| **Enter** | Select |
| **F9** | Loads an optimized setting for better performance |
| **F10** | Saves the current configuration and exits setup |
| **F1** | Displays a screen that describes all key functions |

*For the purpose of better product maintenance, the manufacture reserves the right to change the BIOS items presented in this manual. The BIOS setup screens shown in this chapter are for reference only and may differ from the actual BIOS. Please visit the manufacture's website for updated manual.*

## *Standard CMOS Setup*

This option displays basic information about your system.

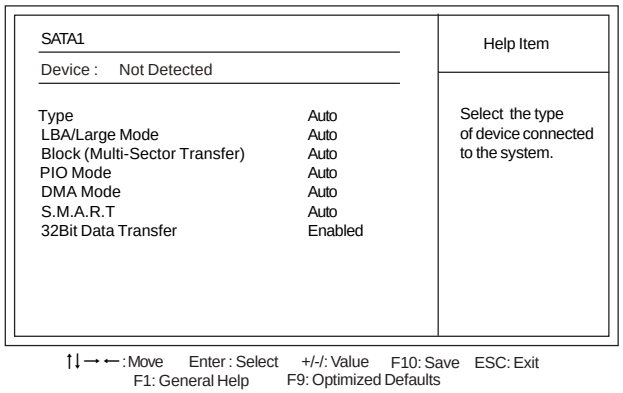



### Date & Time

The Date and Time items show the current date and time on the computer. If you are running a Windows OS, these items are automatically updated whenever you make changes to the Windows Date and Time Properties utility.

### ► PATA IDE Master/Slave/SATA Devices

Your computer has one IDE channel and each channel can be installed with one or two devices (Master and Slave). In addition, this motherboard supports seven SATA channels and each channel allows one SATA device to be installed. Use these items to configure each device on the SATA channel.



***Type (Auto)***

Use this item to configure the type of the IDE device that you specify. If the feature is enabled, it will enhance hard disk performance by reading or writing more data during each transfer.

***LBA/Large Mode (Auto)***

Use this item to set the LAB/Large mode to enhance hard disk performance by optimizing the area the hard disk is visited each time.

***Block (Multi-Sector Transfer) (Auto)***

If the feature is enabled, it will enhance hard disk performance by reading or writing more data during each transfer.

***PIO Mode (Auto)***

Use this item to set the PIO mode to enhance hard disk performance by optimizing the hard disk timing.

***DMA Mode (Auto)***

DMA capability allows user to improve the transfer-speed and data-integrity for compatible IDE devices.

***S.M.A.R.T. (Auto)***

The S.M.A.R.T. (Self-Monitoring, Analysis and Reporting Technology) system is a diagnostics technology that monitors and predicts device performance. S.M.A.R.T. software resides on both the disk drive and the host computer.

***32Bit Data Transfer (Enabled)***

Use this item to set the onboard SATA-IDE channel to be disabled, IDE, or RAID.

Press <Esc> to return to the Standard CMOS Setup page.

**IDE BusMaster (Enabled)**

This item enables or disables the DMA under DOS mode. We recommend you to leave this item at the default value.

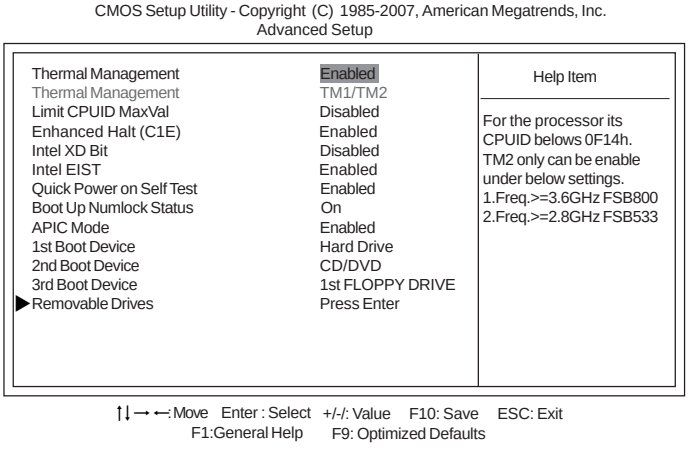
**Drive A (1.44 MB 3$^{1}/_{2}$")**

This item defines the characteristics of any diskette drive attached to the system. You can connect one or two diskette drives.

Press <Esc> to return to the main menu setting page.

## *Advanced Setup*

This page sets up more advanced information about your system. Handle this page with caution. Any changes can affect the operation of your computer.




### Thermal Management (Enabled; TM1/2)

This item displays CPU's temperature and enables you to set a safe temperature to Prescott CPU.

### Limit CPUID MaxVal (Disabled)

This item can support Prescott CPUs for old OS. Users please note that under NT 4.0, it must be set "Enabled", while under WinXP, it must be set "Disabled"

### Enhanced Halt (C1E) (Enabled)

This item enables or disables enhanced halt (C1E).

### Intel XD Bit (Disabled)

This item allows users to enable or disable the Intel XD bit.

### Intel EIST (Enabled)

This item allows users to enable or disable the EIST (Enhanced Intel SpeedStep technology).

### Quick Power on Self Test (Enabled)

Enable this item to shorten the power on testing (POST) and have your system start up faster. You might like to enable this item after you are confident that your system hardware is operating smoothly.

### Boot Up Numlock Status (On)

This item defines if the keyboard Num Lock key is active when your system is started.

### APIC Mode (Enabled)

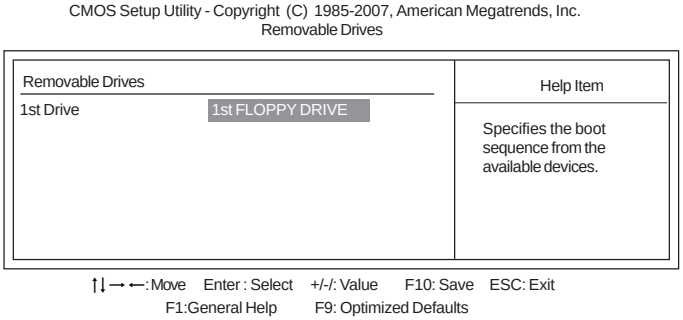
This item allows you to enable or disable the APCI (Advanced Programmable Interrupt Controller) mode. APIC provides symmetric multi-processing (SMP) for systems, allowing support for up to 60 processors.

### 1st/2nd/3rd Boot Device (Hard Drive/CD;DVD/1st FLOPPY DRIVE)

Use this item to determine the device order the computer used to look for an operating system to load at start-up time. The devices showed here will be different depending on the exact devices installed on your motherboard.

### ▶Removable Drives (Press Enter)

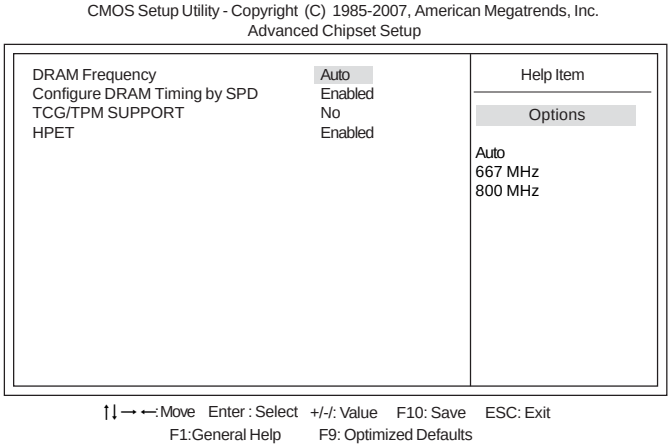
Scroll to this item and press <Enter> to view the following screen:




Press <Esc> to return to the main menu setting page.

## *Advanced Chipset Setup*

This page sets up more advanced information about your system. Handle this page with caution. Any changes can affect the operation of your computer.




### DRAM Frequency (Auto)

This item enables users to adjust the DRAM frequency. The default setting is auto and we recommend users leave the setting unchanged. Modify it at will may cause the system to be unstable.

### Configure DRAM Timing by SPD (Enabled)

When this item is set to enable, the DDR timing is configured using SPD. SPD (Serial Presence Detect) is located on the memory modules, BIOS reads information coded in SPD during system boot up.

### TCG/TPM SUPPORT (No)

This item is set to support the TCG (Trusted Computing Group) and TPM (Trusted Plat-form Module) function.

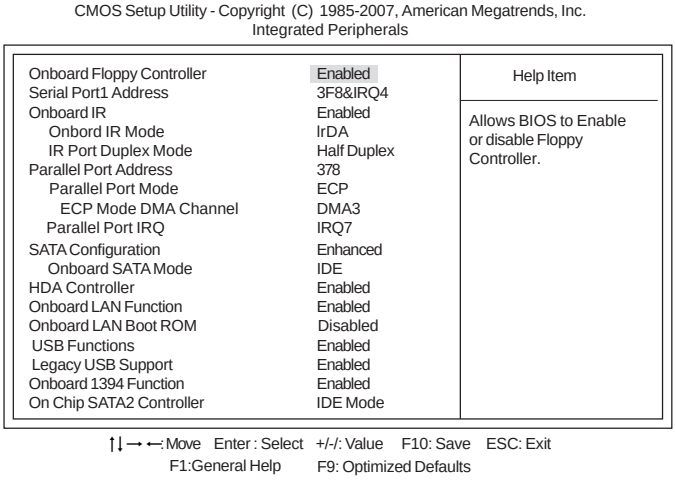
### HPET (Enabled)

This item enables or disables HPET ( High Performance Event Timer) support.

Press <Esc> to return to the main menu setting page.

## *Integrated Peripherals*

This page sets up some parameters for peripheral devices connected to the system.




**OnBoard Floppy Controller (Enabled)**

Use this item to enable or disable the onboard floppy disk drive interface.

**Serial Port1 Address (3F8/IRQ4)**

Use this item to enable or disable the onboard COM1 serial port, and to assign a port address.

**Onboard IR (Enabled)**

Use this item to enable or disable the onboard infrared port, and to assign a port address.

**Onboard IR Mode (IrDA)**

This field is available if the “Onboard IR” is set to any option but Disabled. Onboard IR Mode Select enables you to select the infrared communication protocol-Normal(default), IrDA, or ASKIR. IrDA is an infrared communication protocol with a maximum baud rate up to 115.2K bps. ASKIR is Sharp’s infrared communication protocol with a maximum baud rate up to 57.6K bps.

**IR Port Duplex Mode (Half Duplex)**

This field is available when Onbord IR Mode is set to either ASKIR or IrDA. This item enables you to determine the infrared function of the onboard infrared chip. The options are Full and Half (default). Full-duplex means you can transmit and receive data simultaneously. Half-duplex is the transmission of data in either transmitting or receiving, only one direction at a time.

**Parallel Port Address (378)**

Use this item to enable or disable the onboard Parallel port, and to assign a port address.

**Parallel Port Mode (ECP)**

Use this item to select the parallel port mode. You can select Normal (Standard Parallel Port), ECP (Extended Capabilities Port), EPP (Enhanced Parallel Port), or BPP (Bi-Directional Parallel Port).

**ECP Mode DMA Channel (DMA3)**

Use this item to assign the DMA Channel under ECP Mode function.

**Parallel Port IRQ (IRQ7)**

Use this item to assign IRQ to the parallel port.

**SATA Configuration (Enhanced)**

Use this item to show the Serial ATA Configuration options: Disabled, Compatible, Enhanced.

**Onboard SATA Mode (IDE)**

Use this item to select the mode of the Serial ATA.

**HDA Controller (Enabled)**

Use this item to enable or disalbe the High Definition audio device.

**OnBoard LAN Function (Enabled)**

Use this item to enable or disable the onboard LAN function.

**OnBoard LAN Boot ROM (Disabled)**

Use this item to enable or disable the booting from the onboard LAN or a network add-in card with a remote boot ROM installed.

**USB Functions (Enabled)**

Use this item to enable or disable the USB function.

**Legacy USB Support (Enabled)**

Use this item to enable or disable support for legacy USB devices. Setting to Auto allows the system to detect the presence of USB device at startup. If detected, the USB controller legacy mode is enabled. If no USB device is detected, the legacy USB support is disabled.

**Onboard 1394 Function (Enabled)**

This option allows you to enable or disable the onboard 1394 function.

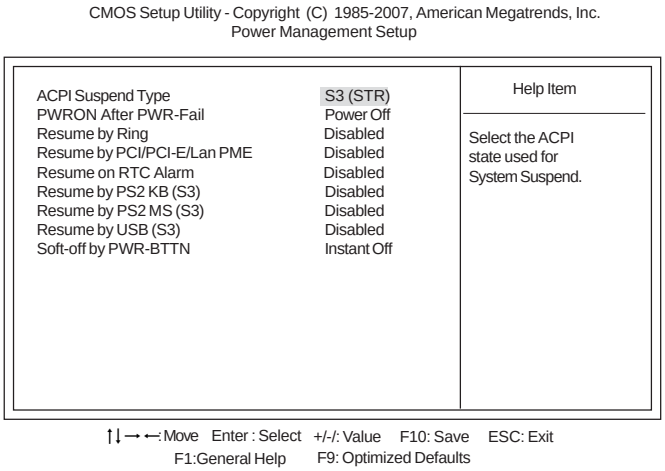
**On Chip SATA2 Controller (IDE Mode)**

This item allows you to enable or disable the onchip Serial ATA controller.

Press <Esc> to return to the main menu setting page.

## *Power Management Setup*

This page sets up some parameters for system power management operation.




### ACPI Suspend Type (S3(STR))

Use this item to define how your system suspends. In the default, S3, the suspend mode is a suspend to RAM, i.e, the system shuts down with the exception of a refresh current to the system memory.

### PWRON After PWR-Fail (Power Off)

This item enables your computer to automatically restart or return to its operating status.

### Resume by Ring (Disabled)

An input signal on the serial Ring Indicator (RI) line (in other words, an incoming call on the modem) awakens the system from a soft off state.

### Resume by PCI/PCI-E/Lan PME (Disabled)

These items specify whether the system will be awakened from power saving modes when activity or input signal of the specified hardware peripheral or component is detected.

### Resume on RTC Alarm (Disabled)

The system can be turned off with a software command. If you enable this item, the system can automatically resume at a fixed time based on the system's RTC (realtime clock). Use the items below this one to set the date and time of the wake-up alarm. You must use an ATX power supply in order to use this feature.

### Resume by PS2 KB (S3) (Disabled)

This item enable or disable you to allow keyboard activity to awaken the system from power saving mode.

**Resume by PS2 MS (S3) (Disabled)**
This item enable or disable you to allow mouse activity to awaken the system from power saving mode.

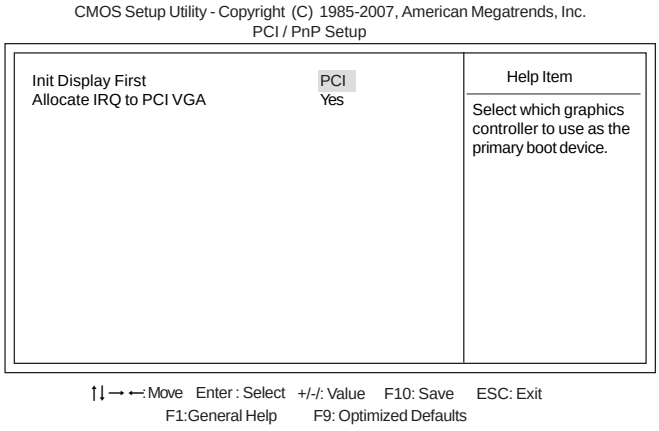
**Resume by USB (S3) (Disabled)**
This item allows you to enable/disable the USB device wakeup function from S3/S4 mode.

**Soft-Off By PWR-BTTN (Instant Off)**
Under ACPI (Advanced Configuration and Power management Interface) you can create a software power down. In a software power down, the system can be resumed by Wake Up Alarms. This item lets you install a software power down that is controlled by the power button on your system. If the item is set to Instant-Off, then the power button causes a software power down. If the item is set to Delay 4 Sec, then you have to hold the power button down for four seconds to cause a software power down.

Press <Esc> to return to the main menu setting page.

## *PCI / PnP Setup*

This page sets up some parameters for devices installed on the PCI bus and those utilizing the system plug and play capability.




**Init Display First (PCI)**

Use this item to select which graphics controller to use as the primary boot devices.

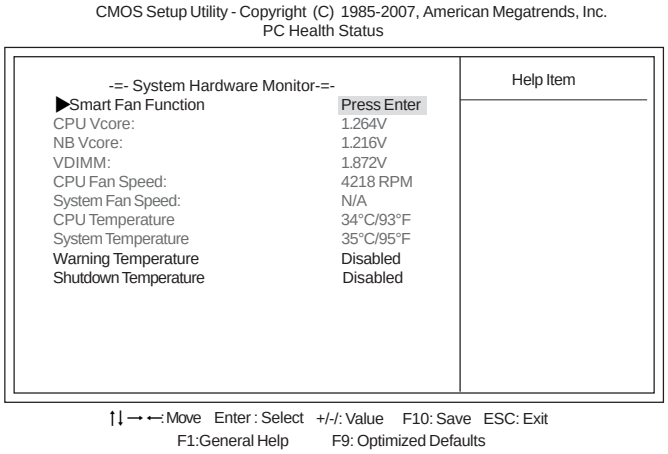
**Allocate IRQ to PCI VGA (Yes)**

If this item is enabled, an IRQ will be assigned to the PCI VGA graphics system. You set this value to No to free up an IRQ.

Press <Esc> to return to the main menu setting page.

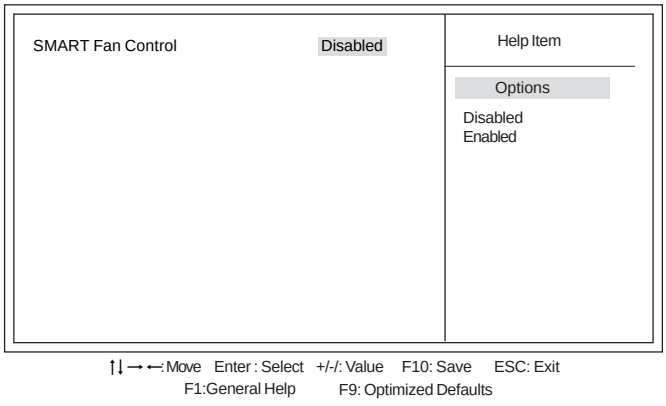
## *PC Health Status*

On motherboards support hardware monitoring, this item lets you monitor the parameters for critical voltages, temperatures and fan speeds.




### ▶Smart Fan Function

Scroll to this item and press <Enter> to view the following screen:




### ***SMART Fan Control (Disabled)***

This item allows you to enable/disable the control of the system fan speed by changing the fan voltage.

*ECS supports the latest PECI host technology. While using Wolfdale or Yorkfield CPU, the original images of the BIOS item "PC Health Status" and "Smart FAN Function" will be replaced by PECI mode and negative number. (The max data from PECI is zero.)*

CMOS Setup Utility - Copyright (C) 1985-2007, American Megatrends, Inc.
PC Health Status

| | | Help Item |
|---|---|---|
| Hardware Health Event Monitoring | | |
| ▶Smart Fan Function | Press Enter | |
| System Temperature | 33°C/91°F | |
| CPU Fan Speed: | 2537 RPM | |
| SYS FAN Speed: | 0 RPM | |
| CPU Vcore: | 1.280V | |
| VDIMM: | 1.840V | |
| -=- PECI Mode-=- | | |
| Offset to TCC Activation Temp.: | -20 | |

↑↓→←:Move Enter : Select +/-/: Value F10: Save ESC: Exit
F1:General Help F9: Optimized Defaults

CMOS Setup Utility - Copyright (C) 1985-2007, American Megatrends, Inc.
Smart Fan Function

| | | Help Item |
|---|---|---|
| SMART Fan Control | Enabled | |
| SMART Fan start PWM value | 28 | |
| SMART Fan start Offset (-) | 30 | Options |
| CPU DeltaT | +3 | Disabled |
| Fan1 Slope PWM value/1 Unit | 5 | Enabled |
| Fan1 Full Speed Offset (-) | 10 | |
| SMART Fan2 Control | Disabled | |

↑↓→←:Move Enter : Select +/-/: Value F10: Save ESC: Exit
F1:General Help F9: Optimized Defaults

Press <Esc> to return to the PC Health Status page.

**System Component Characteristics**

These items display the monitoring of the overall inboard hardware health events, such as System & CPU temperature, CPU & DIMM voltage, CPU & system fan speed,...etc.

- CPU Vcore
- NB Vcore
- VDIMM
- CPU/System Fan Speed
- CPU/System Temperature

**Warning Temperature (Disabled)**

This item enables or disables the warning temperature.

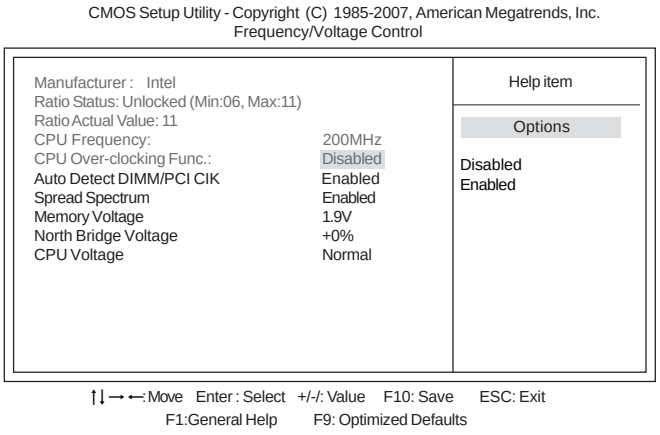
**Shutdown Temperature (Disabled)**

Enable you to set the maximum temperature the system can reach before powering down.

Press <Esc> to return to the main menu setting page.

## *Frequency/Voltage Control*

This page enables you to set the clock speed and system bus for your system. The clock speed and system bus are determined by the kind of processor you have installed in your system.




**Manufacturer (Intel)**

This item displays the information of current manufacturer of the CPU installed in your computor.

**Ratio Status/Ratio Actual Value (11)**

These items show the ratio status and the actual ratio of the CPU installed in your system.

**CPU Frequency (200MHz)**

This item indicates the current CPU frequency. Users can not make any change to this item. Please noted that the frequency will be varied with different CPU.

**Auto Detect DIMM/PCI Clk (Enabled)**

When this item is enabled, BIOS will disable the clock signal of free DIMM/PCI slots.

**Spread Spectrum (Enabled)**

If you enable spread spectrum, it can significantly reduce the EMI (Electro-Magnetic Interference) generated by the system.

**Memory Voltage (1.9V)**

This item allows users to adjust the DDR memory voltage.

**North Bridge Voltage (+0%)**

This item allows users to adjust the North Bridge voltage.

**CPU Voltage (Normal)**

This item allows users to adjust the CPU voltage.

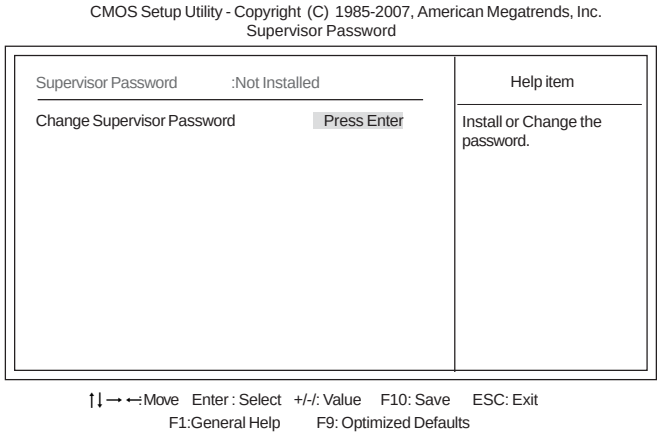
Press <Esc> to return to the main menu setting page.

## *Load Default Settings*

This option opens a dialog box that lets you install stability-oriented defaults for all appropriate items in the Setup Utility. Select <OK> and then press <Enter> to install the defaults. Select <Cancel> and then press <Enter> to not install the defaults.

## *Supervisor Password*

This page helps you install or change a password.




**Supervisor Password (Not Installed)**

This item indicates whether a supervisor password has been set. If the password has been installed, *Installed* displays. If not, *Not Installed* displays.

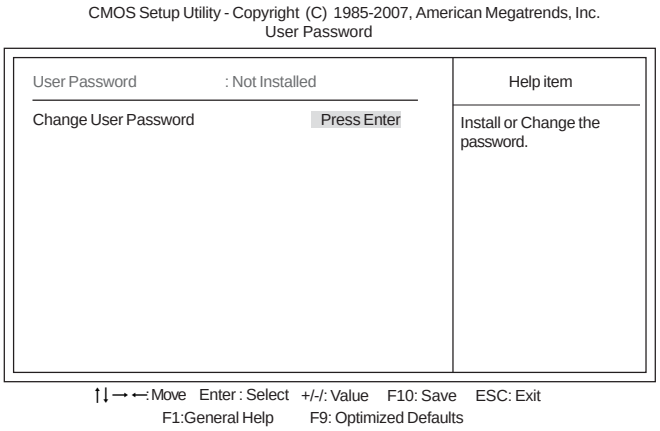
**Change Supervisor Password (Press Enter)**

You can select this option and press <Enter> to access the sub menu. You can use the sub menu to change the supervisor password.

Press <Esc> to return to the main menu setting page.

### *User Password*

This page helps you install or change a password.




#### User Password (Not Installed)

This item indicates whether a user password has been set. If the password has been installed, *Installed* displays. If not, *Not Installed* displays.

#### Change User Password (Press Enter)

You can select this option and press <Enter> to access the sub menu. You can use the sub menu to change the supervisor password.

Press <Esc> to return to the main menu setting page.

### *Save & Exit Setup*

Highlight this item and press <Enter> to save the changes that you have made in the Setup Utility and exit the Setup Utility. When the Save and Exit dialog box appears, select [OK] to save and exit, or select [Cancel] to return to the main menu.

### *Exit Without Saving*

Highlight this item and press <Enter> to discard any changes that you have made in the Setup Utility and exit the Setup Utility. When the Exit Without Saving dialog box appears, select [OK] to discard changes and exit, or select [Cancel] to return to the main menu.

*If you have made settings that you do not want to save, use the "Exit Without Saving" item and select [OK] to discard any changes you have made.*

### *Updating the BIOS*

You can download and install updated BIOS for this motherboard from the manufacturer's Web site. New BIOS provides support for new peripherals, improvements in performance, or fixes for known bugs. Install new BIOS as follows:

1. If your motherboard has a BIOS protection jumper, change the setting to allow BIOS flashing.
2. If your motherboard has an item called Firmware Write Protect in Advanced BIOS features, disable it. (Firmware Write Protect prevents BIOS from being overwritten.)
3. Prepare a bootable device or create a bootable system disk. (Refer to Windows online help for information on creating a bootable system disk.)
4. Download the Flash Utility and new BIOS file from the manufacturer's Web site. Copy these files to the bootable device.
5. Turn off your computer and insert the bootable device in your computer. (You might need to run the Setup Utility and change the the boot priority items on the Advanced BIOS Features Setup page, to force your computer to boot from the bootable device first.)
6. At the C:\ or A:\ prompt, type the Flash Utility program name and the file name of the new BIOS and then press <Enter>. Example: AMINF340.EXE040706.ROM
7. When the installation is complete, remove the bootable device from the computer and restart your computer. If your motherboard has a Flash BIOS jumper, reset the jumper to protect the newly installed BIOS from being overwritten. The computer will restart automatically.

This concludes Chapter 3. Refer to the next chapter for information on the software supplied with the motherboard.

*Memo*

Chapter 4

# *Using the Motherboard Software*

## About the Software CD-ROM

The support software CD-ROM that is included in the motherboard package contains all the drivers and utility programs needed to properly run the bundled products. Below you can find a brief description of each software program, and the location for your motherboard version. More information on some programs is available in a README file, located in the same directory as the software. Before installing any software, always inspect the folder for files named README.TXT, INSTALL.TXT, or something similar. These files may contain important information that is not included in this manual.

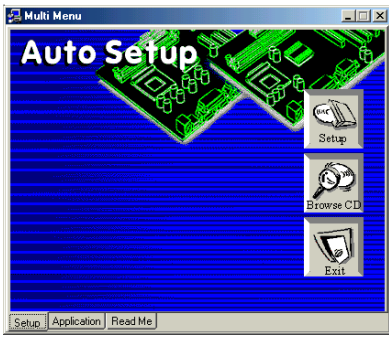
1. *Never try to install all software from folder that is not specified for use with your motherboard.*
2. *The notice of Intel HD audio installation (optional): The Intel High Definition audio functionality unexpectedly quits working in Windows Server 2003 Service Pack 1 or Windows XP Professional x64 Edition. Users need to download and install the update packages from the Microsoft Download Center "before" installing HD audio driver bundled in the Driver CD. Please log on to http://support.microsoft.com/default.aspx?scid=kb;en-us;901105#appliesto for more information.*

## Auto-installing under Windows 2000/XP/Vista

The Auto-install CD-ROM makes it easy for you to install the drivers and software for your motherboard.

*If the Auto-install CD-ROM does not work on your system, you can still install drivers through the file manager for your OS (for example, Windows Explorer). Refer to the Utility Folder Installation Notes later in this chapter.*

The support software CD-ROM disc loads automatically under Windows 2000/XP/Vista. When you insert the CD-ROM disc in the CD-ROM drive, the autorun feature will automatically bring up the install screen. The screen has three buttons on it, Setup, Browse CD and Exit.




*If the opening screen does not appear; double-click the file "setup.exe" in the root directory.*

### Setup Tab

| | |
|---|---|
| **Setup** | Click the **Setup** button to run the software installation program. Select from the menu which software you want to install. |
| **Browse CD** | The **Browse CD** button is the standard Windows command that allows you to open Windows Explorer and show the contents of the support CD.<br><br>Before installing the software from Windows Explorer, look for a file named README.TXT, INSTALL.TXT or something similar. This file may contain important information to help you install the software correctly.<br><br>Some software is installed in separate folders for different operating systems, such as Windows 2000/XP/Vista. Always go to the correct folder for the kind of OS you are using.<br><br>In install the software, execute a file named SETUP.EXE or INSTALL.EXE by double-clicking the file and then following the instructions on the screen. |
| **Exit** | The **EXIT** button closes the Auto Setup window. |

### Application Tab

Lists the software utilities that are available on the CD.

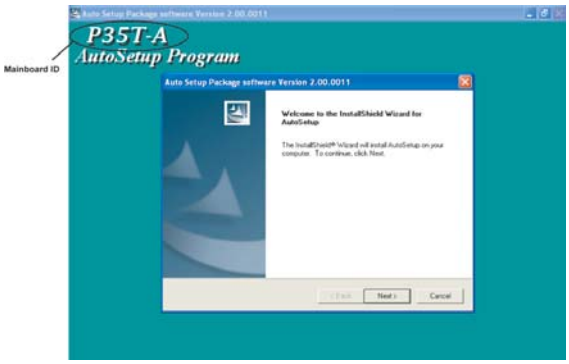
### Read Me Tab

Displays the path for all software and drivers available on the CD.

## *Running Setup*

*Follow these instructions to install device drivers and software for the motherboard:*

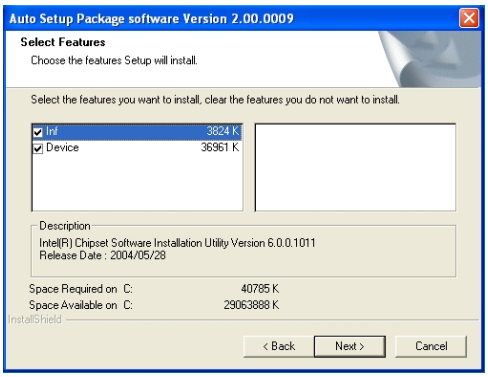
1. *Click **Setup.** The installation program begins:*




*The following screens are examples only. The screens and driver lists will be different according to the motherboard you are installing.*

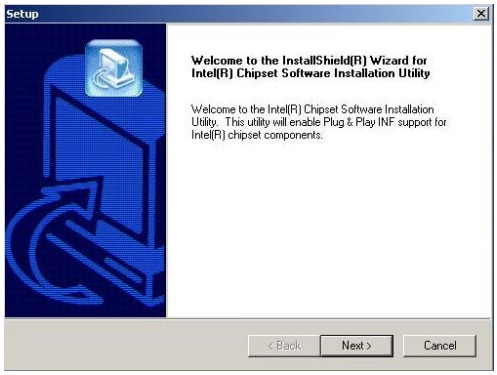
The motherboard identification is located in the upper left-hand corner.

2. *Click **Next.** The following screen appears:*




3. *Check the box next to the items you want to install. The default options are recommended.*

4. *Click **Next** run the Installation Wizard. An item installation screen appears:*



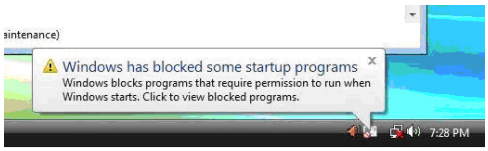

5. *Follow the instructions on the screen to install the items.*

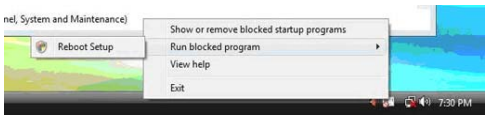
1. Drivers and software are automatically installed in sequence. Follow the onscreen instructions, confirm commands and allow the computer to restart a few times to complete the installation.

2. During the Windows Vista Driver Auto Setup Procedure, users should use one of the following two methods to install the driver after the system restart.

*Method 1. Run Reboot Setup*

Windows Vista will block startup programs by default when installing drivers after the system restart. You must select taskbar icon **Run Blocked Program** and run **Reboot Setup** to install the next driver, until you finish all drivers installation.



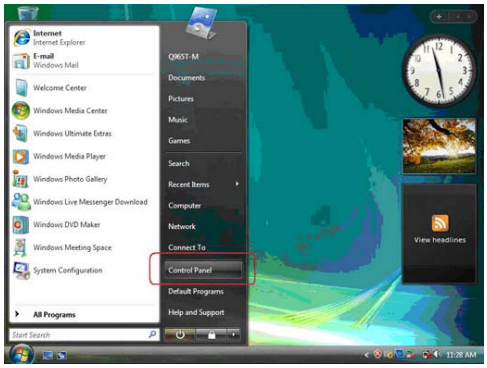

*Method 2. Disable UAC (User Account Control)*

* For administrator account only. Standard user account can only use Method 1.

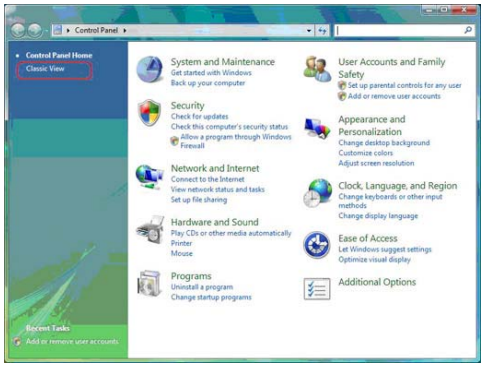
Disable Vista UAC function before installing drivers, then use CD driver to install drivers, it will continue to install drivers after system restart without running blocked programs.

*Follow these instructions to Disable Vista UAC function:*

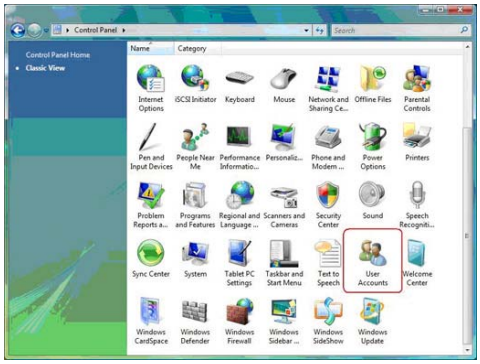
1. *Go to* ***Control Panel****.*



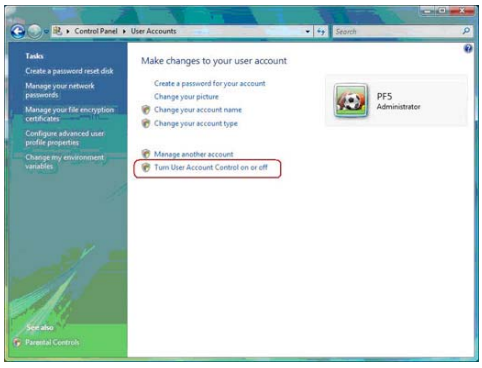
2. *Select* ***Classic View***.



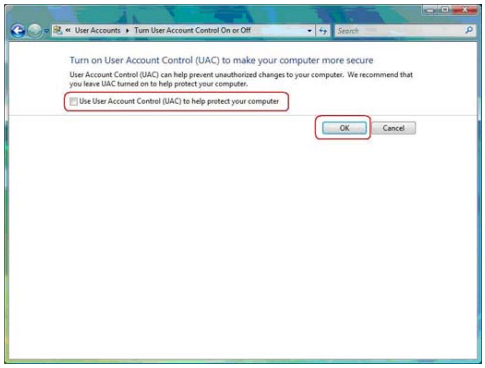

3. *Set* ***User Account***.




4. *Select* ***Turn User Account Control on or off*** *and press* ***Continue***.



***5.*** *Disable* ***User Account Control (UAC) to help protect your computer*** *item and press* ***OK****, then press* ***Restart Now****. Then you can restart your computer and continue to install drivers without running blocked programs.*




## Manual Installation

Insert the CD in the CD-ROM drive and locate the PATH.DOC file in the root directory. This file contains the information needed to locate the drivers for your motherboard.

Look for the chipset and motherboard model; then browse to the directory and path to begin installing the drivers. Most drivers have a setup program (SETUP.EXE) that automatically detects your operating system before installation. Other drivers have the setup program located in the operating system subfolder.

If the driver you want to install does not have a setup program, browse to the operating system subfolder and locate the readme text file (README.TXT or README.DOC) for information on installing the driver or software for your operating system.

## Utility Software Reference

All the utility software available from this page is Windows compliant. They are provided only for the convenience of the customer. The following software is furnished under license and may only be used or copied in accordance with the terms of the license.

*These software(s) are subject to change at anytime without prior notice. Please refer to the support CD for available software.*

This concludes Chapter 4.

Chapter 5

# *ATI CrossFire™ Technology Support*

This motherboard supports the ATI CrossFire™ Technology that allows you to install multi-graphics processing units (GPU) graphics cards. Follow the installation procedures in this section.

## Requirements

1 You should have a CrossFire Ready motherboard, a CrossFire Edition graphics card and a CrossFire ready graphics card.
2 Visit the ECS website (www.ecs.com.tw) for a list of qualified CrossFire ready graphics card for this motherboard.
3 Make sure that your graphics card driver supports the ATI CrossFire™ technology. Download the latest driver from the ATI website (www.ati.com).
4 Make sure that your power supply unit (PSU) can provide at least the minimum
power required by your system.

## Installing a single graphics card

1. Install a PCI Express x16 graphics card on the **PCIE1** slot.

2. Connect one end of the external cable to the graphics card.

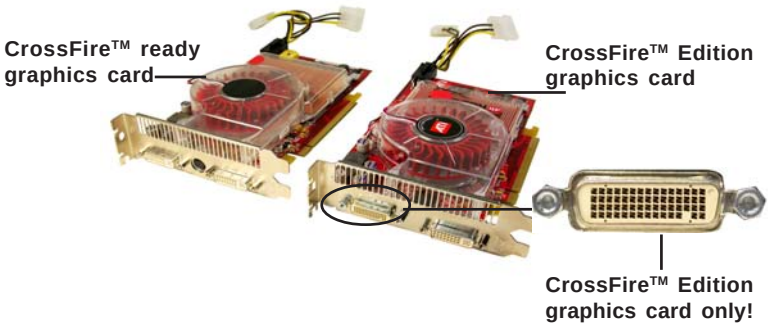
3. Connect the loose end to the corresponding port on your monitor.

4. Connect an auxiliary power source from the power supply to the graphics card.

## Installing CrossFire™ graphics cards

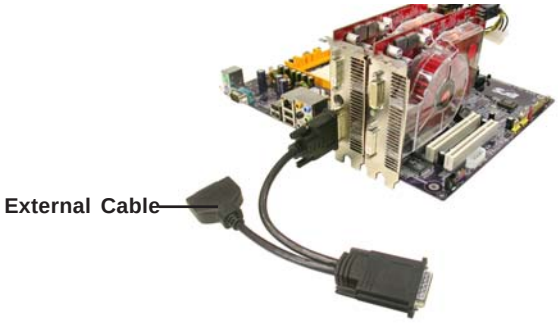
*Before installing a CrossFire™ system, refer to the user guide that comes with the ATI CrossFire™ Edition graphics card.*

1. Prepare one CrossFire™ Edition graphics card and one CrossFire™ ready graphics card.

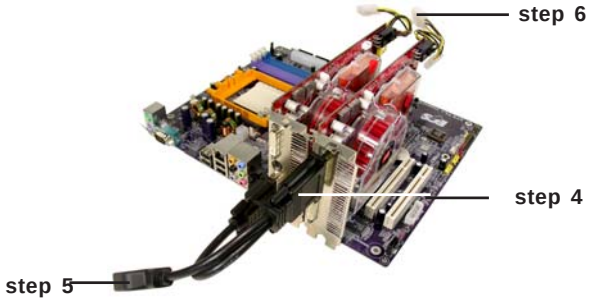



2. Insert the CrossFire™ ready graphics card into the **PCIE2** slot, and the CrossFire™ Edition graphics card into the **PCIE1** slot. Make sure that the card is properly seated on the slot.

3. Connect an external cable to the CrossFire™ ready graphics card installed on the **PCIE2** slot.



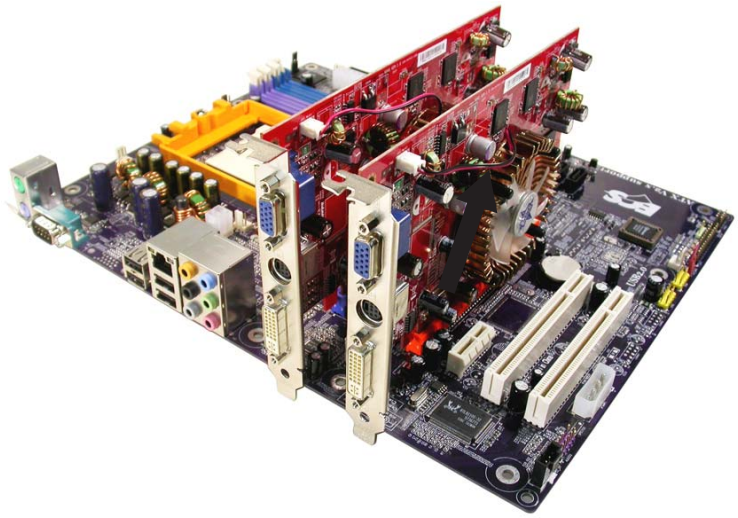
4. Connect the other end of the external cable to the CrossFire™ Edition graphics card installed on **PCIE1** slot.




5. Connect the loose end of the external cable to the corresponding port on your

6. Connect an auxiliary power source from the power supply to the graphics cards.

*Users can also install any two ATI CrossFire™ X1300/X1600 series graphics cards to activate the ATI CrossFire™ Technology. The monitor cable must be connected to the graphics card installed in "PCIE1" slot, as the following picture shows.*



## Installing the device drivers

Refer to the documentation that comes with your graphics card package to install the device drivers.

1. *The ATI CrossFire™ technology supports only the following operating systems:*
   - *Windows® XP 32-bit (Home or Professional) with Service Pack 2 (SP2)*
   - *Windows® XP Professional 64-bit Edition*

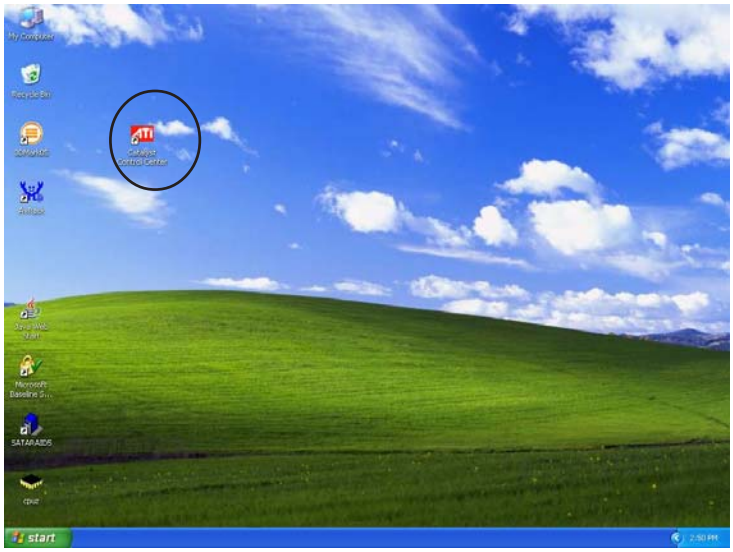
2. *Make sure that your graphics card driver supports the ATI CrossFire™ Technology. Download the latest driver from the ATI website (www.ati.com).*

## Using the Catalyst™ Control Center

The Catalyst™ Control Center allows you to access display features of the ATI hardware and software you installed. Use this application to adjust your graphics settings, enable/disable connected devices, and change your desktop orientation.

### *Launching the Catalyst™ Control Center*

- Double-click the Catalyst™ Control Center icon on your desktop shortcut.



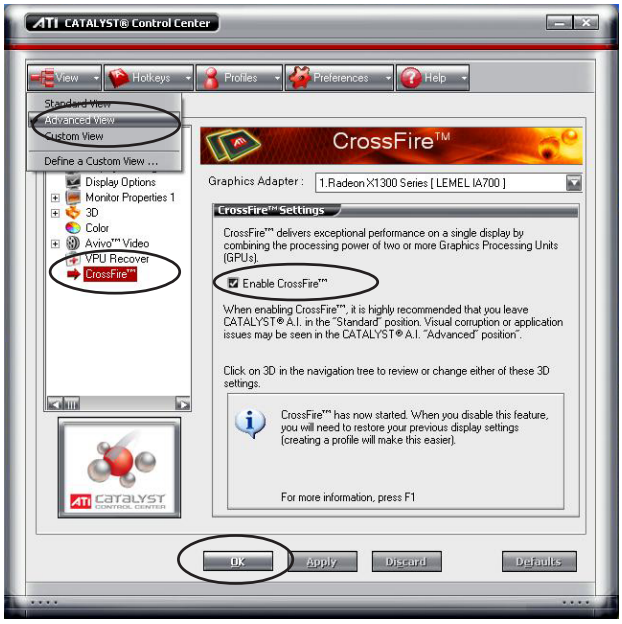
# The Catalyst™ Control Center Dialog Box

## *View*

The Catalyst™ Control Center provides two views; one is Standard view for beginners, the other is Advance view for advanced users to access and configure the complete features of the software.

### *To enable CrossFire™:*

- Set the view to **Advance**.
- Click the CrossFire™ item in Graphics Settings.
- In the CrossFire™ Setting dialog, tick the box opposite Enable CrossFire™.
- Click **OK** to effect the setting.




- *Set to Advance view to enable the CrossFire™ function.*
- *Make sure that the Dual-slot configuration item in the BIOS is set to [Enabled] if you want to enable the CrossFire™ function.*

*Memo*