

# **Micro-ATX RX965QV**

**Intel® 65nm  
Core™ 2 Duo/ Pentium® Dual core/  
Pentium® 4/ Pentium® D/  
Celeron 440  
w/ 1066/800/533MHz FSB**

## **User's Manual**

**Rev 1.03 – Jul, 2009**

## **FCC Statement**

THIS DEVICE COMPLIES WITH PART 15 FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS:

- (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE.
- (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRE OPERATION.

THIS EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS "A" DIGITAL DEVICE, PURSUANT TO PART 15 OF THE FCC RULES.

THESE LIMITS ARE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINST HARMFUL INTERFERENCE WHEN THE EQUIPMENT IS OPERATED IN A COMMERCIAL ENVIRONMENT. THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENERGY AND, IF NOT INSTALLED AND USED IN ACCORDANCE WITH THE INSTRUCTION MANUAL, MAY CAUSE HARMFUL INTERFERENCE TO RADIO COMMUNICATIONS.

OPERATION OF THIS EQUIPMENT IN A RESIDENTIAL AREA IS LIKELY TO CAUSE HARMFUL INTERFERENCE IN WHICH CASE THE USER WILL BE REQUIRED TO CORRECT THE INTERFERENCE AT HIS OWN EXPENSE.

## **Notice**

This guide is designed for experienced users to setup the system within the shortest time. For detailed information, please always refer to the electronic user's manual.

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## **A Message to the Customer**

### ***BCM Customer Services***

Each and every BCM product is built to the most exacting specifications to ensure reliable performance in the harsh and demanding conditions typical of industrial environments. Whether your new BCM device is destined for the laboratory or the factory floor, you can be assured that your product will provide the reliability and ease of operation for which the name BCM has come to be known.

Your satisfaction is our primary concern. Here is a guide to BCM customer services. To

ensure you get the full benefit of our services, please follow the instructions below carefully.

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We want you to get the maximum performance from your products. So if you run into technical difficulties, we are here to help. For the most frequently asked questions, you can easily find answers in your product documentation. These answers are normally a lot more detailed than the ones we can give over the phone. So please consult the user's manual first.

To receive the latest version of the user's manual; please visit our Web site at:

<http://www.bcmcom.com>.

If you still cannot find the answer, gather all the information or questions that apply to your problem, and with the product close at hand, call your dealer. Our dealers are well trained and ready to give you the support you need to get the most from your BCM products. In fact, most problems reported are minor and are able to be easily solved over the phone. In addition, free technical support is available from BCM engineers every business day. We are always ready to give advice on application requirements or specific information on the installation and operation of any of our products. Please do not hesitate to call or e-mail us.

### **BCM Advanced Research**

7 Marconi,  
Irvine, California, 92618  
USA

Tel : +1-949-470-1888

Fax : +1-949-470-0971

<http://www.bcmcom.com>

E-mail: [support@bcmcom.com](mailto:support@bcmcom.com)

## ***Product Warranty***

BCM warrants to you, the original purchaser, that each of its products will be free from defects in materials and workmanship for two years from the date of purchase.

This warranty does not apply to any products which have been repaired or altered by persons other than repair personnel authorized by BCM, or which have been subject to misuse, abuse, accident or improper installation. BCM assumes no liability under the terms of this warranty as a consequence of such events. Because of BCM high quality-control standards and rigorous testing, most of our customers never need to use our repair service. If any of BCM products is defective, it will be repaired or replaced at no charge during the warranty period. For out-of-warranty repairs, you will be billed according to the cost of replacement materials, service time, and freight. Please consult your dealer for more details. If you think you have a defective product, follow these steps:

1. Collect all the information about the problem encountered. (For example, CPU type and speed, BCM products model name, hardware & BIOS revision number, other hardware and software used, etc.) Note anything abnormal and list any on-screen messages you get when the problem occurs.
2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information available.
3. If your product is diagnosed as defective, obtain an RMA (return material authorization) number from your dealer. This allows us to process your good return more quickly.
4. Carefully pack the defective product, a complete Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.

Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

## Manual Objectives

This manual describes in detail the BCM RX965QV mainboard.

We strongly recommend that you study this manual carefully before attempting to interface with RX965QV or change the standard configurations. Whilst all the necessary information is available in this manual we would recommend that unless you are confident, you contact your supplier for guidance.

Please be aware that it is possible to create configurations within the CMOS RAM that make booting impossible. If this should happen, clear the CMOS settings, (see the description of the Jumper Settings for details).

If you have any suggestions or find any errors concerning this manual and want to inform us of these, please contact our Customer Service department with the relevant details.

## Safety Precautions

### Warning!



Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges. Only experienced electronics personnel should open the PC chassis.

### Caution!



Always ground yourself to remove any static charge before touching the mainboard. Modern electronic devices are very sensitive to static electric charges. As a safety precaution, use a grounding wrist strap at all times. Place all electronic components in a static-dissipative surface or static-shielded bag when they are not in the chassis.

## Document Amendment History

Revision	Date	Comment
1 <sup>st</sup>	June, 2008	Initial Release
2 <sup>nd</sup> (1.01)	Oct, 2008	1. Added BIOS flash instruction at Chapter 3. 2. Update LVDS header pin definition.
3 <sup>rd</sup> (1.02)	Jan, 2009	1. Update J8 information.
4 <sup>th</sup> (1.03)	Jul, 2009	1. Update "JBAT1" and "COM2","COM3","COM4" information.

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## Mainboard Specifications

<b>Model</b>	<b>RX965QV</b>
<b>Processor</b>	Intel® 65nm LGA 775 processors. Supports Intel® Core™ 2 Duo/ Pentium® Dual Core/ Pentium® 4/ Pentium® D/ Celeron 440 w/ 1066/800/533MHz FSB
<b>North Bridge</b>	Intel® Q965
<b>Memory</b>	DDR2 800/667/533 SDRAM * Supports DDR2 533MHz (PC2-4200), DDR2 667MHz (PC2-5300), DDR2 800MHz (PC2-6400) memory modules up to 8GB max. (2GB max/ DIMM slot) * DDR2 667MHz recommended for 8GB configuration * 4 DDR2 DIMM slots (240-pin/ 1.8V), supports Non-ECC, un-buffered memory
<b>Integrated Graphics</b>	Intel® GMA 3000 Engine; up to 256MB can be allocated for GFX
<b>South Bridge</b>	Intel® ICH8DO
<b>SATA</b>	6 x SATA II connectors supports 3.0 Gbs transfer speed
<b>PCI-E</b>	1 x PCI-E x 16 slot
<b>PCI</b>	3 x PCI Slots (PCI 2.2 compliant)
<b>USB</b>	10 x USB 2.0 ports (4 x Rear I/O, 6 x header)
<b>IDE</b>	Jmicron® JMB368 PCI-E to IDE Controller Supports Ultra DMA 66/100/133 transfer rate
<b>TPM</b>	Infineon® TPM 1 x TPM 1.2 Security Device
<b>LVDS</b>	Supports Resolutions: 1024x768 (24bit x1), 1280x1024 (24bit x2), 1400x1050 (24bit x1), 1600x1200 (24bit x2)
<b>Super I/O Controller</b>	Winbond® 83627DHG
<b>Floppy Controller</b>	1 x std. floppy controller
<b>Serial Ports</b>	4 x RS232 port (1 x Rear I/O, 3 x header)
<b>Watch Dog Timer</b>	1 ~ 255 sec timer
<b>HW Monitor</b>	Yes
<b>Audio</b>	Realtek® ALC888 HD Audio Codec with auto jack sensing
<b>LAN</b>	Intel® 82566DM Gigabit LAN 1 x 10/100/1000 LAN Intel® 82573L PCI-E Gigabit LAN 1 x 10/100/1000 LAN

BIOS	AMI © BIOS
	AMI Bios with 16Mb SPI ROM
<b>Expansion Slots</b>	
PCI-E	1 x PCI-E x 16 Slot supports PCI-E x16 Graphic card or ADD2-DVI card
PCI	3 x PCI slot
<b>Onboard I/O Headers</b>	
IDE	1 x IDE Connector
SATA	6 x Std. SATA Connectors
Floppy	1 x Std. Floppy Header
USB	3 x USB Headers (6 ports on headers)
RS232	3 x Header
LAN LED	1 x Header
CD-IN	1 x Header
Front Audio	1 x Header
SPDIF	1 x Header
LVDS	1 x LVDS Header
	1 x LVDS Inverter Header
Front Panel	1 x Headers
Fan Header	3 x Headers
Chassis Intrusion Header	1 x Header
<b>Back I/O Panel</b>	
PS/2 Keyboard Mouse	1 x DIN 6 Stack up Connector
VGA	1 x DB 15 Connector
Serial	1 x DB 9 Connector
LPT Port	1 x DB 25 Connector
LAN and USB	2 x Stack up RJ45 and USB Connectors (2 USB ports)
Audio	1 x 6 jacks Audio Connector
<b>Power &amp; Connector</b>	
	1 x Std. 24 pin ATX Connector
	1 x 4 pin ATX 12 Connector
<b>Form Factor</b>	
	Micro ATX 9.6" x 9.6"

# Chapter 1: System Setup

This chapter describes the motherboard features and the new technologies it supports

## 1.1 Welcome!

The motherboard delivers a host of new features and latest technologies, making it another line of BCM long life motherboards! Before you start installing the motherboard, and hardware devices on it, check the items in your package with the list below.

If any of the below items is damaged or missing, please contact your vendor.

## 1.2 Packing Contents

### Motherboard

- 1 x RX965QV

### Cable

- 1 x Serial ATA Signal Cable
- 1 x Serial ATA Power Cable
- 1 x Ultra DMA 100/66 IDE Cable

### Accessories

- 1 x RX965QV I/O Shield

### Software CD

- 1 x CD contains drivers, user's manual, and QIG (Quick Installation Guide)

### Documentation

- 1 x Quick Installation Guide

## **1.3 Special Features**

### **1.3.1 Product Highlights**

#### **Intel® Core™ 2 Processor Ready**

This mainboard supports the Intel® Intel® Core™ 2 Quad, and Core™ 2 Duo processors in the LGA775 package. With the new Intel® Core™2 micorarchitecture technology and 1066/800 MHz FSB, Intel® Core™2 processor is one of the most powerful and energy efficient CPU in the world.

#### **Intel® Q965 Express Chipset**

The Intel® Q965 Express Chipset provides all business with more effective costs management, safer computing environment, and deploys more responsive PCs. It features the integrated graphics engine, Intel® Graphics Media Accelerator 3000.

#### **DDR2 Memory Support**

The mainboard supports DDR2 memory that features data transfer rates of 800/ 667/ 533MHz to meet the higher bandwidth requirements of the latest 3D graphics, multimedia, and Internet applications. The dual-channel DDR2 architecture doubles the bandwidth of your system memory to boost system performance, and eliminating bottlenecks with peak bandwidths of up to 12.8GB/s.

#### **Serial ATA 3.0Gb/s Technology**

The mainboard supports the Serial ATA (SATA) technology through 6 Serial ATA II interface from Intel® ICH8 chipset. The SATA II specification allows for thinner, more flexible cables with lower pin count, reduced voltage requirement (compared to IDE specification), and provides up to 300MB/s data transfer rate.

#### **High Definition Audio**

The mainboard came with the Realtek ALC888 high-definition audio CODEC that lets you enjoy high quality 7.1+2 channel audio without having to buy advanced sound cards.

#### **PCI-E x16 support**

The PCI-E x16 VGA interface specification enhances graphics performance with high bandwidth speeds up to 2.5 Gb/s.

#### **USB 2.0 Technology**

The mainboard implements the Universal Serial Bus (USB) 2.0 specification, dramatically increasing the connection speed from the 12Mbps bandwidth on USB1.1 to a fast 480Mbps on USB2.0. USB2.0 is backward compatible with USB1.1.

## **Trusted Platform Module (TPM) Support**

By combining the onboard TPM 1.2 with TPM security software (provided by the third party), it will enhance the security level of the system.



• **PRECAUTION:** When TPM is enabled and utilized through TPM software, there is possibility that the encrypted data will not be accessible, or recoverable if one of the following situations occurred:

1. Lost of TPM password.
2. System or board failure, or being replaced.
3. Hard Drive failure.

## **1.4 Before you proceed**

Take note of the following precautions before you install motherboard components or change any motherboard settings.

- **Unplug the power cord from the wall socket before touching any component.**
- **Use a grounded wrist strap or touch a safely grounded object or to a metal object, such as the power supply case, before handling components to avoid damaging them due to static electricity**
- **Hold components by the edges to avoid touching the ICs on them.**
- **Whenever you uninstall any component, place it on a grounded antistatic pad or in the bag that came with the component.**
- **Before you install or remove any component, ensure that the ATX power supply is switched off or the power cord is detached from the power supply. Failure to do so may cause severe damage to the motherboard, peripherals, and/or components.**

## 1.5 Mainboard Overview

Before you install the mainboard, study the configuration of your chassis to ensure that the motherboard fits into it.



**Make sure to unplug the power cord before installing or removing the mainboard. Failure to do so can cause you physical injury and damage mainboard components.**

### 1.5.1 Placement direction

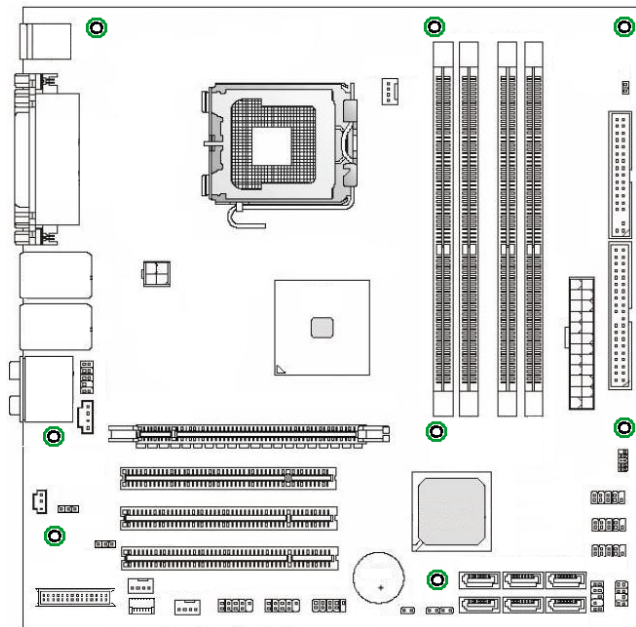
When installing the mainboard, make sure that you place it into the chassis in the correct orientation. The edge with external port goes to the rear part of the chassis as indicated in the image below.

### 1.5.2 Screw holes

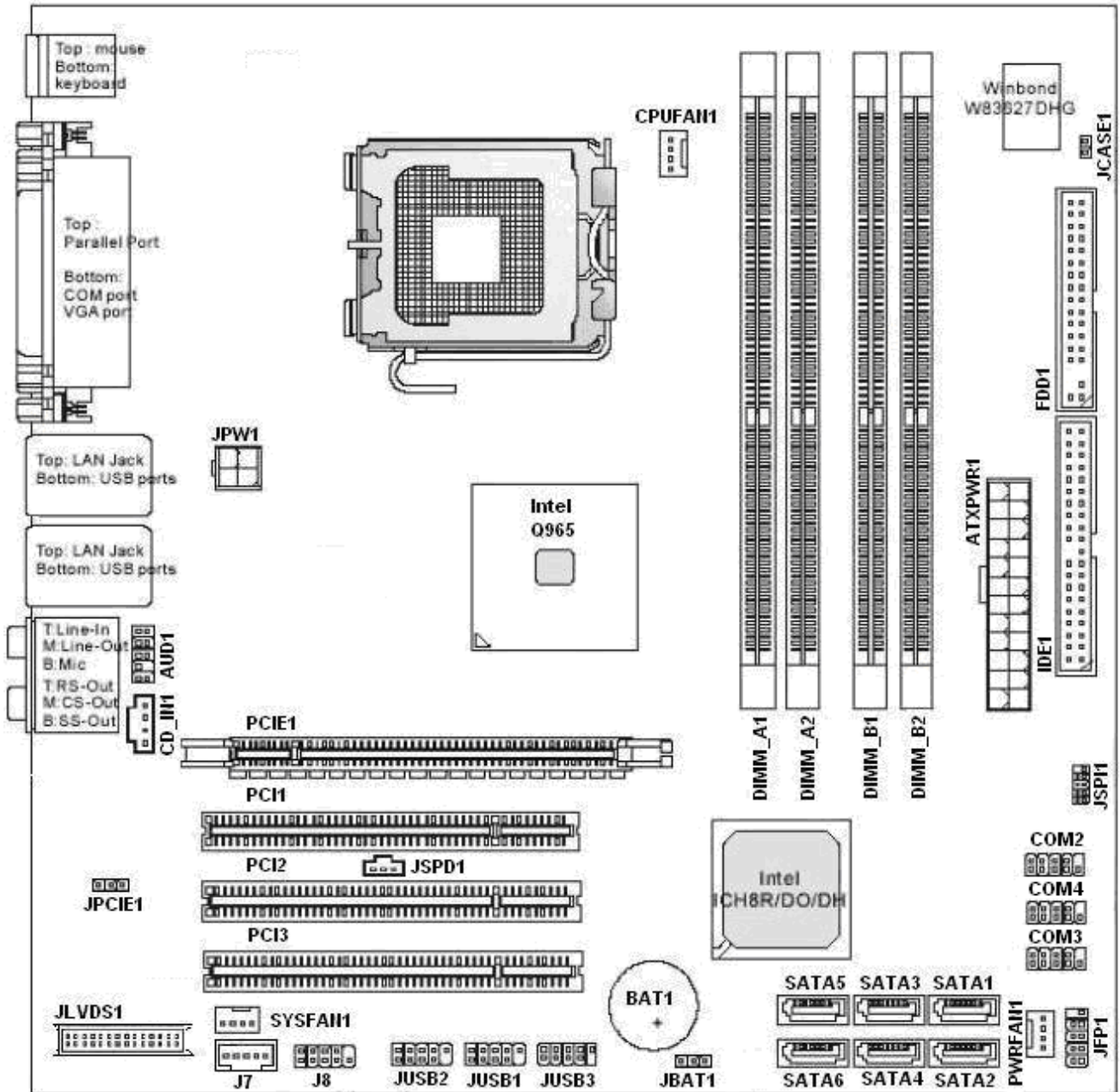
Place the screws into the holes indicated by circles to secure the mainboard to the chassis.



**Do not over-tighten the screws! Doing so may damage the mainboard.**



### 1.5.3 Mainboard Layout





## 1.6 Central Processing Unit (CPU)

This mainboard supports Intel® 65nm Core™ 2 Quad (Q6x00 Series), Core™ 2 Duo (E6x00 Series), Pentium® 4 (6x1 series), Pentium® D (9xx Series), Celeron D 352, Celeron 440 in LGA775 package (with 1066/800/533MHz FSB only). When you are installing the CPU, make sure to install the cooler to prevent overheating. If you do not have the CPU cooler, consult your dealer before turning on the system.

- Your boxed Intel® LGA775 processor package should come with installation instructions for the CPU, fan and heatsink assembly.
- Upon purchase of the mainboard, make sure that the PnP cap is on the socket and the socket pins are not bent. Contact your retailer immediately if the PnP cap is missing, or if you see any damage to the PnP cap/socket pins/motherboard components. BCM will shoulder the cost of repair only, if the damage is shipment/ transit-related.
- Keep the PnP cap after installing the mainboard. BCM will process Return Merchandise Authorization (RMA) requests only if the mainboard comes with the cap on the LGA775 socket.
- The product warranty does not cover damage to the socket pins resulting from incorrect CPU installation/removal, or misplacement/loss/incorrect removal of the PnP cap.

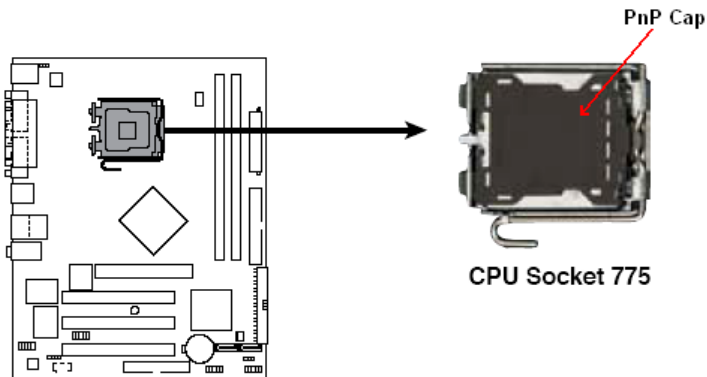


1. **Overheating: Overheating will seriously damage the CPU and system. Always make sure the cooling fan is function properly to protect the CPU from overheating. Make sure that you apply an even layer of thermal paste between the CPU and the heatsink to enhance heat dissipation.**
2. **Replacing the CPU: While replacing the CPU, always turn off the ATX power supply or unplug the power supply's power cord from the grounded outlet first to prevent damage to the system and the system.**

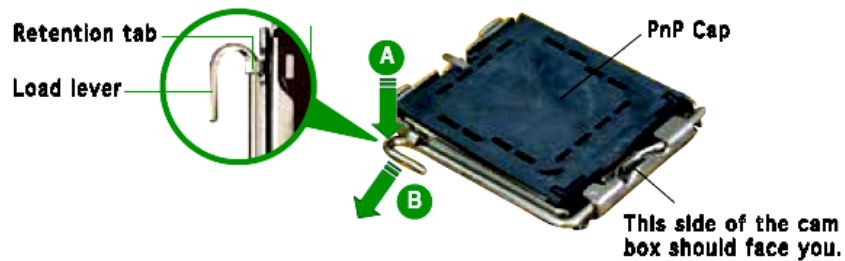
## 1.6.1 Installing the CPU

To install a CPU

1. Locate the CPU socket on the motherboard

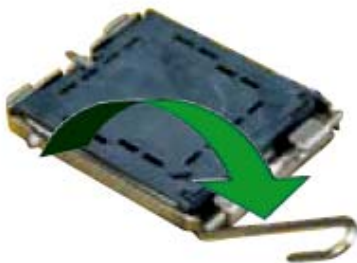


2. Press the load lever with your thumb (A) and move it to the left (B) until it is released from the retention tab.

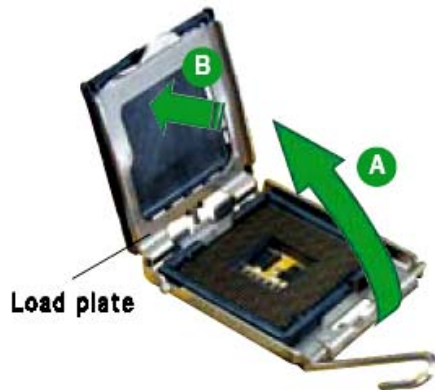


To prevent damage to the socket pins, do not remove the PnP cap unless you have installed the CPU.

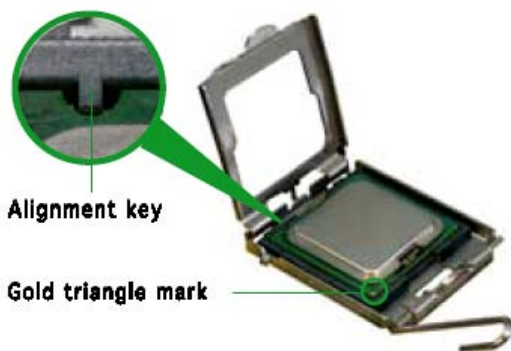
3. Lift the load lever in the direction of the arrow to a 135° angle



- Lift the load plate with your thumb and forefinger to a 100° angle (A), then push the PnP cap from the load plate window to remove (B).



- Position the CPU over the socket, making sure the gold triangle is on the bottom-left corner of the socket. The socket alignment key should fit into the CPU notch.



- Close the load plate (A), then push the load lever (B) until it snaps into the retention tab.



The CPU fits in only one correct orientation, DO NOT force the CPU into the socket to prevent damage to the socket pins or CPU.

## 1.6.2 Installing the CPU heatsink and fan

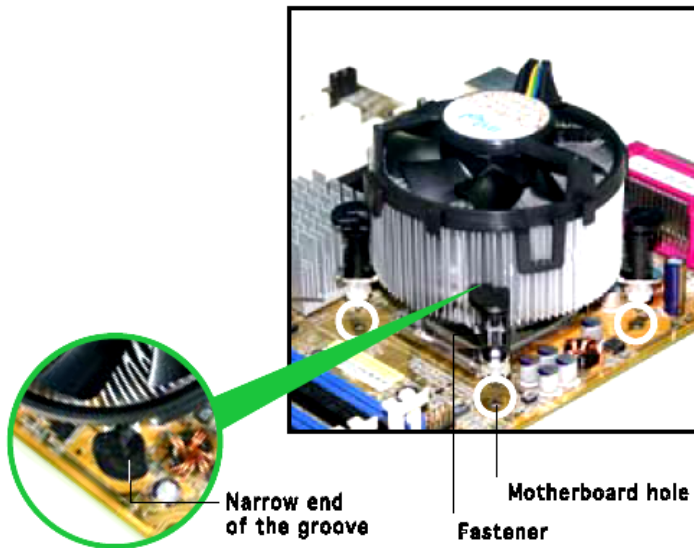
The Intel LGA775 processor requires a specially designed heatsink and fan assembly to ensure optimum thermal condition and performance.

- When you purchase a boxed Intel® processor, the package includes the CPU fan and heatsink assembly. If you buy a CPU separately, make sure that you use only Intel®-certified multi-directional heatsink and fan.
- Your Intel® LGA775 heatsink and fan assembly comes in a push-pin design and requires no tool to install.
- If you purchased a separate CPU heatsink and fan assembly, make sure that you have properly applied Thermal Interface Material to the CPU heatsink or CPU before you install the heatsink and fan assembly.

**Note:** Make sure that you have installed the mainboard to the chassis before you install the CPU fan and heatsink assembly.

To install the CPU heatsink and fan:

1. Place the heatsink on top of the installed CPU, making sure that the four fasteners match the holes on the motherboard.

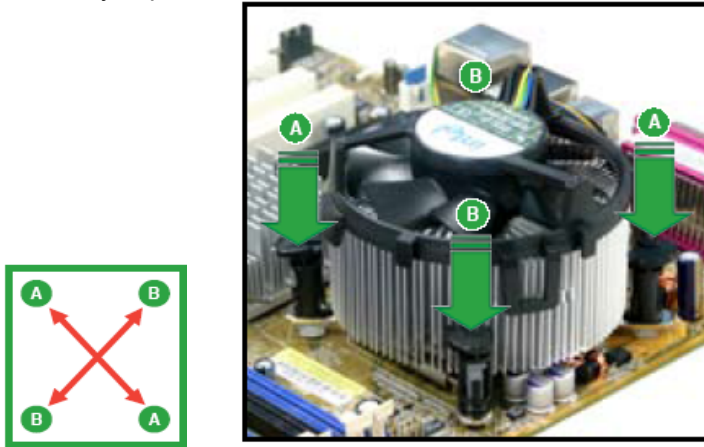


**Note:** Orient the heatsink and fan assembly such that the CPU fan cable is closest to the CPU fan connector.

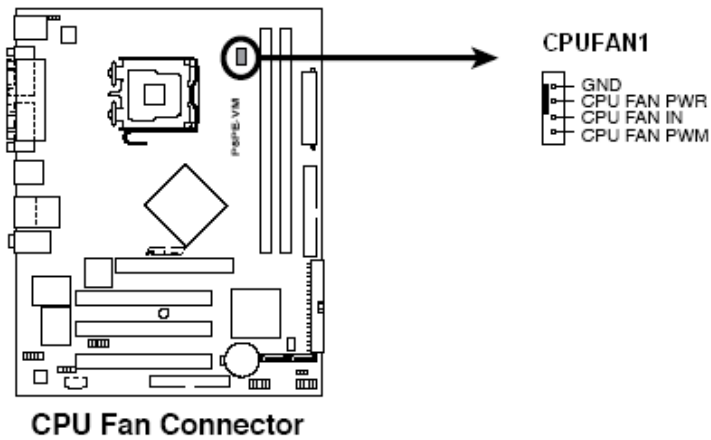


Make sure to orient each fastener with the narrow end of the groove pointing outward.  
(The photo shows the groove shaded for emphasis.)

2. Push down two fasteners at a time in a diagonal sequence to secure the heatsink and fan assembly in place.



3. Connect the CPU fan cable to the connector on the motherboard labeled CPUFAN1.

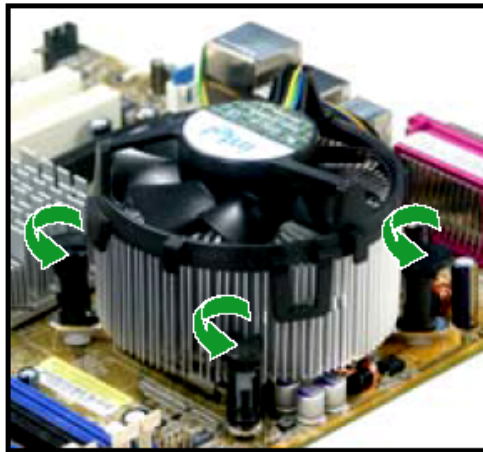


Do not forget to connect the CPU fan connector! Hardware monitoring errors can occur if you fail to plug in this connector.

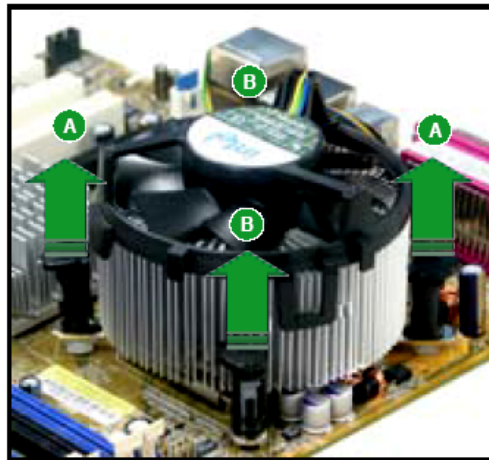
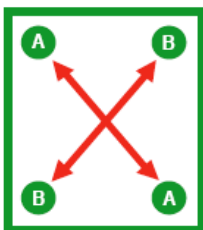
### 1.6.3 Uninstalling the CPU heatsink and fan.

To uninstall the CPU heatsink and fan:

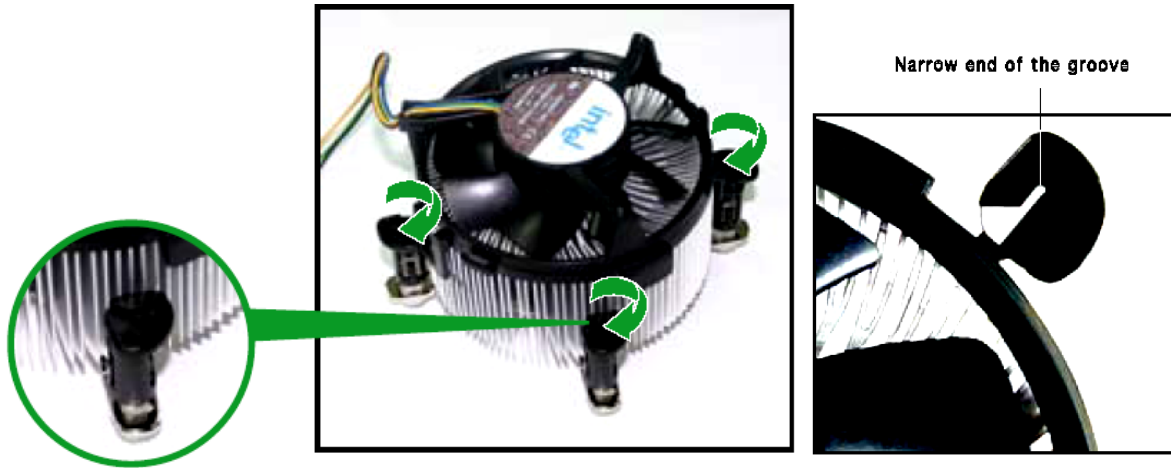
1. Disconnect the CPU fan cable from the connector on the motherboard.
2. Rotate each fastener counterclockwise.



3. Pull up two fasteners at a time in a diagonal sequence to disengage the heatsink and fan assembly from the mainboard.



4. Rotate each fastener clockwise to ensure correct orientation when reinstalling.

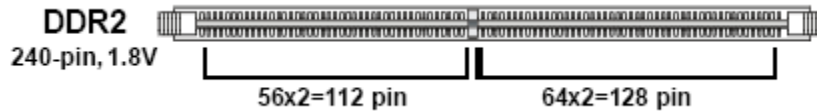


**The narrow end of the groove should point outward after resetting.  
(The photo shows the groove shaded for emphasis.)**

## 1.7 System Memory

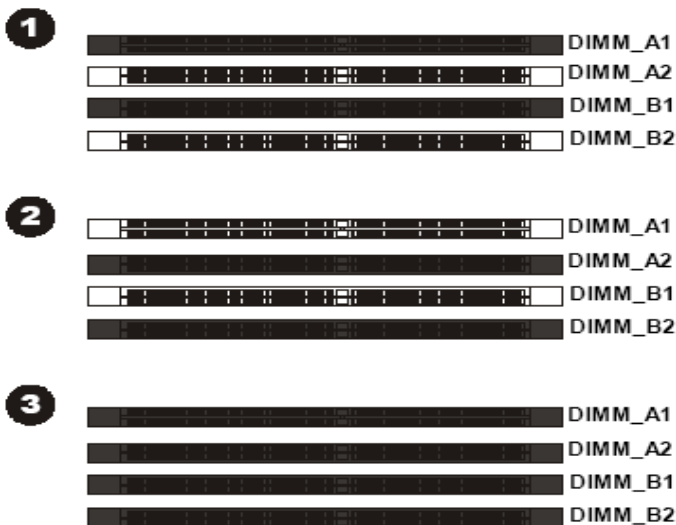
### 1.7.1 Overview

The mainboard comes with four 240-pin DDR2 Dual Inline Memory Modules (DIMM) sockets. You may use 533MHz (PC2-4200), 667MHz (PC2-5300), or 800MHz (PC2-6400); Non-ECC, Un-buffered 1.8V DDR2 memory modules on this board (2GB maximum for each slot). It is recommended to use 667MHz DIMM for 8GB configuration.



### 1.7.2 Dual-Channel mode Population Rule

In Dual-Channel mode, the memory modules can transmit and receive data with two data bus lines simultaneously. Enabling Dual-Channel mode can enhance the system performance. Please refer to the following illustrations for population rules under Dual-Channel mode.



- In dual-channel configurations, install only identical (the same type and size) DDR2 memory module pairs for each channel. For instance, DIMM\_A1 paired with DIMM\_B1, DIMM\_A2 paired with DIMM\_B2.

- Always install DIMMs with the same CAS latency. For optimum compatibility, it is recommended that you obtain memory modules from the same vendor.

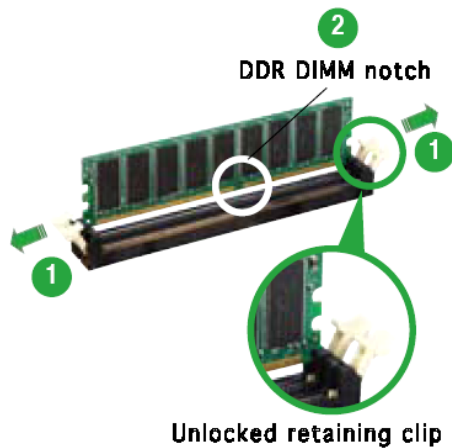


### 1.7.3 Installing DIMM



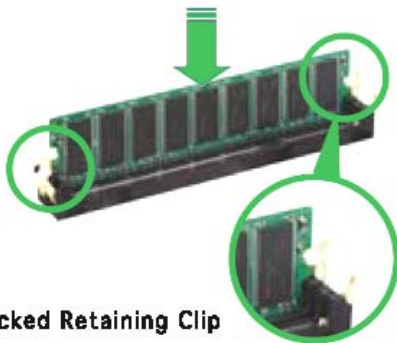
**Make sure to unplug the power supply before adding or removing DIMMS or other components. Failure to do so may cause severe damage to both the mainboard and the components.**

1. Unlock a DIMM socket by pressing the retaining clips outward.
2. Align a DIMM on the socket such that the notch on the DIMM matches the break on the socket.



**Unlocked retaining clip**

3. Firmly insert the DIMM into the socket until the retaining clips snap back in place and the DIMM is properly seated.



**Locked Retaining Clip**



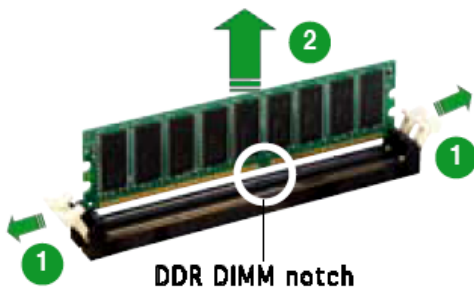
1. A DDR2 memory module is keyed with a notch so that it fits in only one direction.
2. **DO NOT** force the memory module into the socket in order to avoid damaging the memory module and the slot.

3. DDR2 memory modules are not interchangeable with DDR and is DDR2 standard is not backward compatible. You shall always install DDR2 memory modules in the DDR2 memory slots.
4. To enable the system boot-up successfully, always inset the memory module into the DMM\_A1 slot first.

### 1.7.4 Removing a DIMM

Follow these steps to remove a DIMM.

1. Simultaneously press the retaining clips outward to unlock the DIMM.



2. Remove the DIMM from the socket.

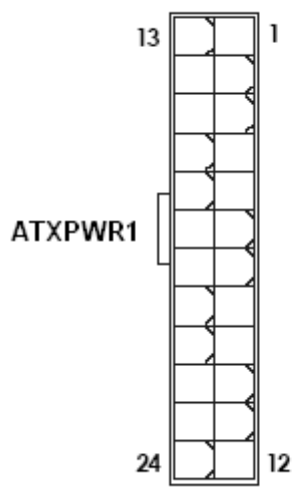
## 1.8 Power Supply

### 1.8.1 ATX 24-pin Power Connector: ATXPWR1

This connector connects to an ATX 24-pin connector from power supply unit (PSU). To connect the ATX 24-pin power connector, make sure the 24-pin power connector from PSU is inserted in the proper orientation and the pins are aligned. Then push down the 24-pin power connector firmly into the connector “ATXPWR1”.


You may use the 20-pin ATX power supply as you like. If you'd like to use the 20-pin ATX power supply, please align the 20-pin power connector from PSU to pin 1 & pin 13 (refer to the color picture below) of “ATXPWR1”. There is also a foolproof design on pin 11, 12, 23, & 24 to avoid wrong installation.

**Pin Definition**



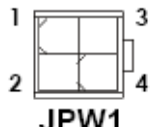
ATXPWR1

PIN	SIGNAL	PIN	SIGNAL
1	+3.3V	13	+3.3V
2	+3.3V	14	-12V
3	GND	15	GND
4	+5V	16	PS-ON#
5	GND	17	GND
6	+5V	18	GND
7	GND	19	GND
8	PWROK	20	Res
9	5VSB	21	+5V
10	+12V	22	+5V
11	+12V	23	+5V
12	+3.3V	24	GND



### 1.8.2 ATX 12V Power Connector: JPW1

This 12V power connector JPW1 is used to provide power to the CPU.



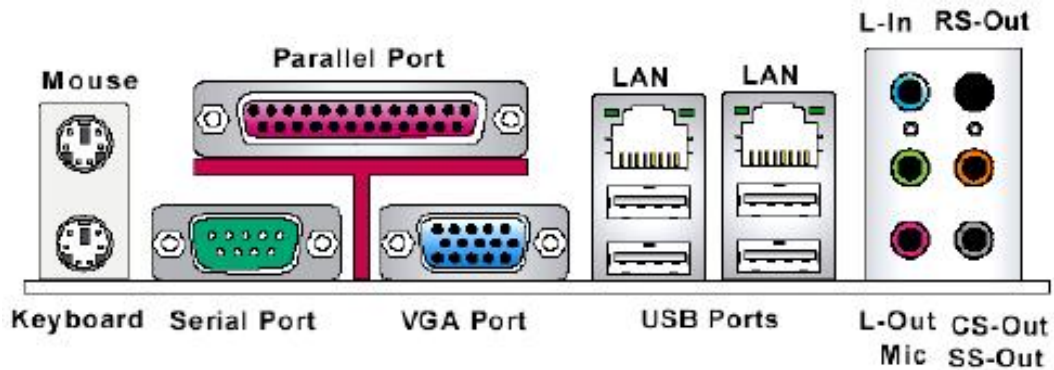
JPW1

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



1. For a fully configured system, we recommend that you use a power supply unit (PSU) that complies with ATX 12 V specification 2.0 ( or later version) and provides a minimum power of 400W.
2. Do not forget to connect the 4-pin JPW1 power plug; otherwise, the system will not boot.
3. Use of a PSU with a higher power output is recommended when configuring a system with more power-consuming devices. The system may become unstable or may not boot if the power is inadequate.

## 1.9 Back Panel



### • Mouse/Keyboard Connector

The standard PS/2® mouse/ keyboard DIN connector is for a PS/2® mouse/ keyboard.

### • USB Port

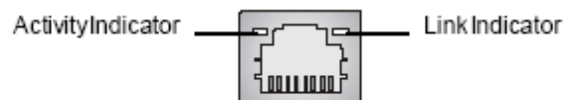
The USB (Universal Serial Bus) port is for attaching USB devices such as keyboard, mouse, or other USB compatible devices.

### • VGA Port

The DB 15-pin female connector is provided for monitor.

### • LAN (RJ-45) Jack

The standard RJ-45 jack is for connection to single Local Area Network (LAN). You can connect to a network cable to it.



LED	Color	LED State	condition
Left	Orange	Off	LAN link is not established.
		On (steady state)	LAN link is established.
		On (brighter & pulsing)	The computer is communicating with another computer on the LAN.
Right	Green	Off	10 Mbit/sec data rate is selected.
		On	100 Mbit/sec data rate is selected.
	Orange	On	1000 Mbit/sec data rate is selected.

### • Audio Ports

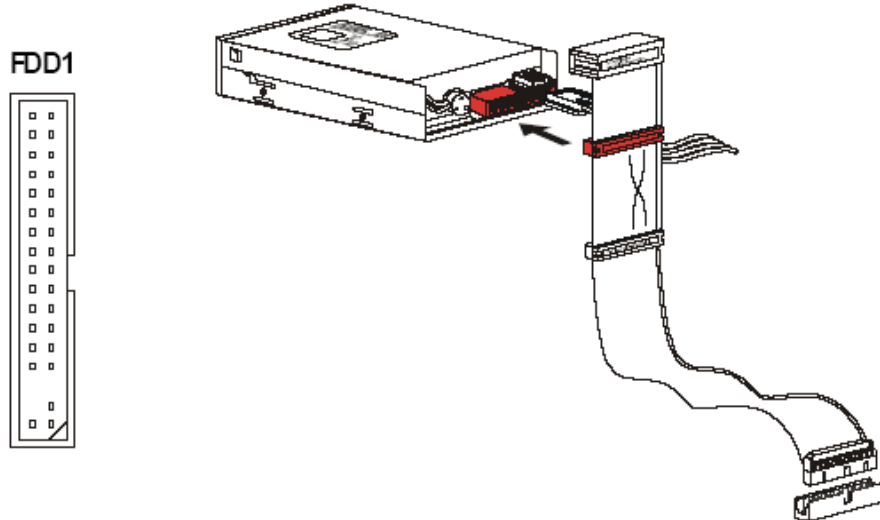
These audio connectors are used for audio devices. You can differentiate the color of the audio jacks for different audio sound effects.

- **Line-In (Blue color):** is used for external CD player, tape player or other audio devices.
- **Line-Out (Green color):** is a connector for speaker or headphones.
- **MIC (Pink color):** is a connector for microphone.
- **RS-Out (Black color):** Rear-Surround Out in 4/ 5.1/ 7.1 Channel mode.
- **CS-Out (Orange color):** Center/ Subwoofer Out in 5.1/ 7.1 Channel mode.
- **SS-Out (Gray color):** Side-Surround Out 7.1 Channel mode.

## 1.10 Connectors/ Headers

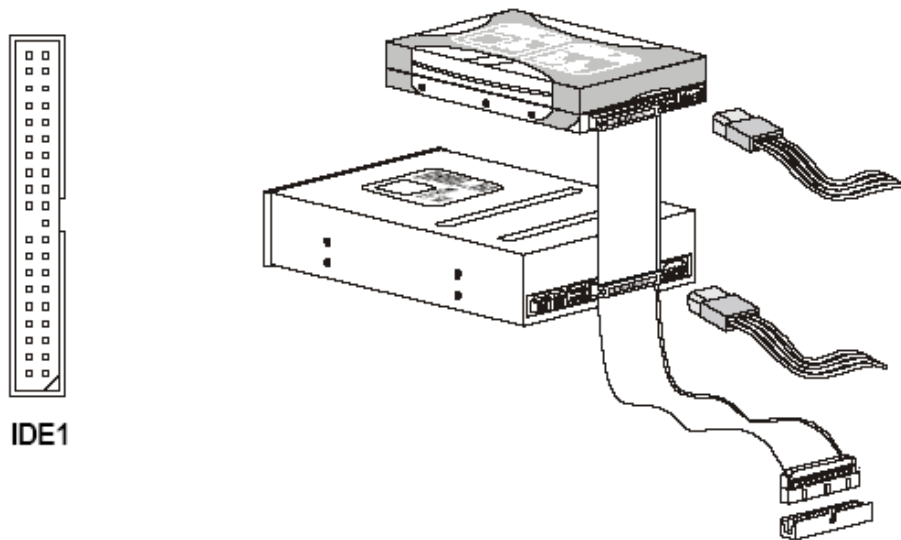
### 1.10.1 Floppy Disk Drive Connector: FDD1

This connector supports 360KB, 720KB, 1.2MB, 1.44MB, or 2.88MB floppy disk drive.



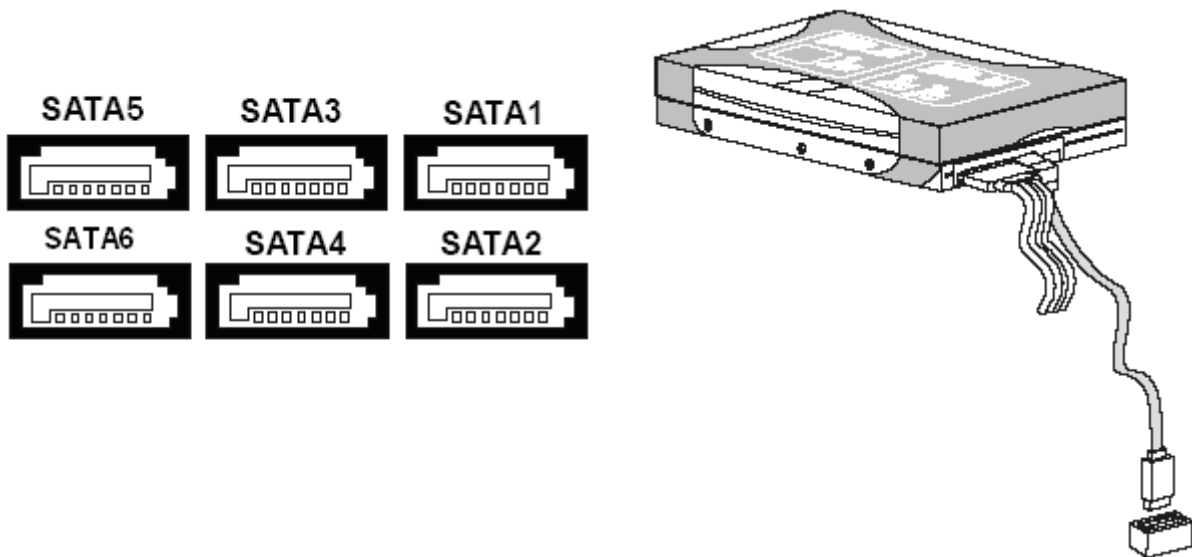
### 1.10.2 IDE Connector: IDE1 (Through JMicron "JWB368" PCI-EX to IDE Controller)

This connector supports IDE hard disk drives, optical disk drives and other IDE devices.



If you install two IDE devices on the same cable, you must configure the drives to master/ slave mode by setting jumpers. Refer to IDE device vendor's documentation for jumper setting instructions.

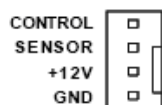
### 1.10.3 Serial ATA Connectors: SATA1, SATA2, SATA3, SATA4, SATA5, SATA6



Please do not fold the Serial ATA cable into 90-degree angle. Otherwise, data loss may occur during transmission.

### 1.10.4 Fan Power Connectors: CPUFAN1, SYSFAN1, PWRFAN1

The fan power connectors support system cooling fan with +12V. When connecting the wire to these fan connectors, please note that the red wire is designated as “Power” and should be connected to “+12V” pin; the black wire is designated as “Ground” and should be connected to “GND”. In order to take the advantage of System Hardware Monitor, be sure to use the fan which is specifically designed with speed sensor.



CPUFAN1



SYSFAN1/ PWRFAN1



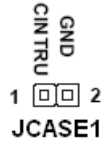
Please refer to the recommended CPU fans at processor’s official website or consult the vendor for proper CPU cooling fan.



### 1.10.5 Chassis Intrusion Switch Connector: JCASE1

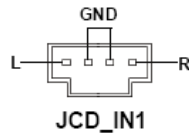
This connector connects to a 2-pin chassis switch. If the chassis is opened, the switch will be short. The system will record this status and show a warning message on the screen.

To clear the warning message, you must enter the BIOS and clear the record.



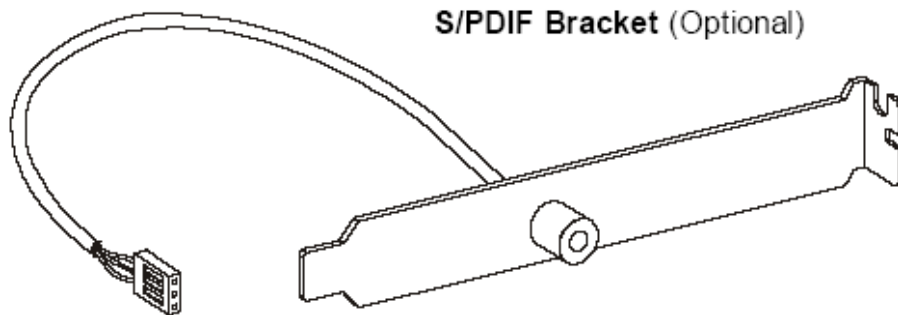
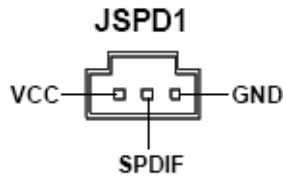
### 1.10.6 CD-In Connector: JCD\_IN1

This connector is provided for external audio input.



### 1.10.7 SPDIF-Out Connector: JSPD1

This connector is used to connect S/PDIF (Sony & Philips Digital Interconnect Format) interface for digital audio transmission.



### 1.10.8 Front Panel Audio Connector: JAUD1

This connector allows you to connect the front panel audio and is compliant with Intel® Front Panel I/O Connectivity Design Guide.



**HD Audio Pin Definition**

PIN	SIGNAL	DESCRIPTION
1	MIC_L	Microphone - Left channel
2	GND	Ground
3	MIC_R	Microphone - Right channel
4	PRESENCE#	Active low signal-signals BIOS that a High Definition Audio dongle is connected to the analog header. PRESENCE# = 0 when a High Definition Audio dongle is connected
5	LINEout_R	Analog Port - Right channel
6	MIC_JD	Jack detection return from front panel microphone JACK1
7	Front_JD	Jack detection sense line from the High Definition Audio CODEC jack detection resistor network
8	NC	No control
9	LINEout_L	Analog Port - Left channel
10	LINEout_JD	Jack detection return from front panel JACK2

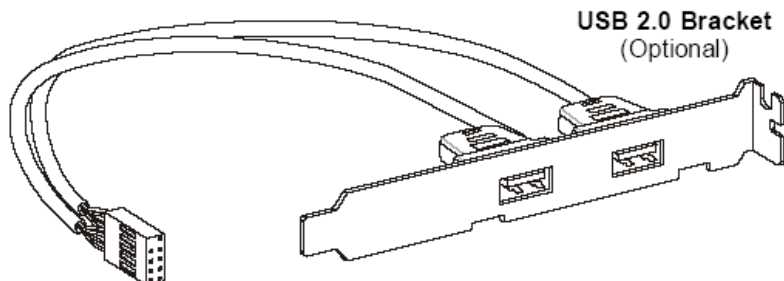
### 1.10.9 Front USB Connectors: JUSB1, JUSB2, JUSB3

This connector is compliant with Intel® I/O Connectivity Design Guide, which is ideal for connecting high-speed USB peripherals such as USB HDD, USB digital cameras, USB MP3 players, USB printers, etc.



**Pin Definition**

PIN	SIGNAL	PIN	SIGNAL
1	VCC	2	VCC
3	USB0-	4	USB1-
5	USB0+	6	USB1+
7	GND	8	GND
9	Key (no pin)	10	USBOC





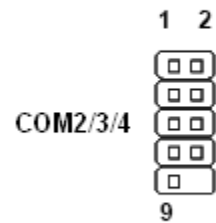
Be sure the pins of VCC and GND is connected to the connector correctly. Otherwise, it may cause damage to the USB port and/or the connected USB device.

### 1.10.10 Serial Port Connector: COM2, COM3, COM4

This connector is a 16550A high speed communication port that sends/receives 16 byte FIFOs.

**Pin Definition**

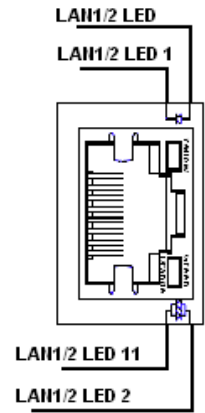
PIN	SIGNAL	DESCRIPTION
1	DCD	Data Carry Detect
2	SIN	Serial In or Receive Data
3	SOUT	Serial Out or Transmit Data
4	DTR	Data Terminal Ready
5	GND	Ground
6	DSR	Data Set Ready
7	RTS	Request To Send
8	CTS	Clear To Send
9	RI	Ring Indicate



### 1.10.11 Front Panel LAN LED Header: J8

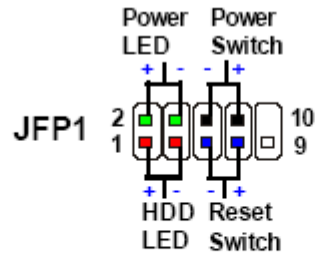
This header is provided for front panel LAN LED status.

Pin	Signal	Description
1	LAN1_LED +	82566DM LAN Activity + (LAN1 LED)
2	LAN2_LED +	82573L LAN Activity + (LAN2 LED)
3	LAN1_LED -	82566 DM LAN Activity - (LAN1 LED 1)
4	LAN2_LED -	82573L LAN Activity - (LAN2 LED 1)
5	LAN1_LED 1 +	82566DM LAN Power + (LAN1 LED 11)
6	LAN2_LED 2 +	82573L LAN Power + (LAN2 LED 11)
7	LAN1_LED 1-	82566DM LAN Power - (LAN1 LED 2)
8	LAN2_LED 2-	82573L LAN Power - (LAN2 LED 2)
9	N.C.	Not Connect
10	KEY	KEY (No Pin)



### 1.10.12 Front Panel Connectors: JFP1

These connectors are for electrical connections to the front panel switches and LEDs. The JFP1 is compliant with Intel® Front Panel I/O Connectivity Design Guide.



**JFP1 Pin Definition**

PIN	SIGNAL	DESCRIPTION
1	HD_LED +	Hard disk LED pull-up
2	FPPWR/SLP	MSG LED pull-up
3	HD_LED -	Hard disk active LED
4	FPPWR/SLP	MSG LED pull-up
5	RST_SW -	Reset Switch low reference pull-down to GND
6	PWR_SW-	Power Switch high reference pull-down to GND
7	RST_SW +	Reset Switch high reference pull-up
8	PWR_SW+	Power Switch low reference pull-up
9	RSVD_DNU	Reserved. Do not use.

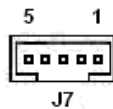
### 1.10.13 LVDS Header: JLVDS1

This board supports the LVDS panel with resolutions of: 1024x768 (24bit x1), 1280x1024 (24bit x2), 1400x1050 (24bit x 1), and 1600x1200 (24bit x 2).

Pin	Signal	Pin	Signal
1	VDD_SAFE3	2	VDD_SAFE3
3	VDD_SAFE5	4	VDD_SAFE5
5	SCLK_DDC	6	SDAT_DDC
7	Ground	8	Ground
9	LCD1DO1	10	LCD1DO0
11	LCD1DO1#	12	LCD1DO0#
13	Ground	14	Ground
15	LCD1DO3	16	LCD1DO2
17	LCD1DO3#	18	LCD1DO2#
19	Ground	20	Ground
21	LCD2DO1	22	LCD2DO0
23	LCD2DO1#	24	LCD2DO0#
25	Ground	26	Ground
27	LCD2DO3	28	LCD2DO2
29	LCD2DO3#	30	LCD2DO2#
31	Ground	32	Ground
33	LCD2CLK	34	LCD1CLK
35	LCD2CLK#	36	LCD1CLK#
37	Ground	38	Ground
39	+12V	40	+12V

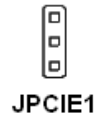
### 1.10.14 LCD Inverter Connector: J7

Pin	Signal
1	+ 12.0V
2	Ground
3	Inverter-On
4	Backlight Control
5	+ 5.0V



### 1.10.15 Video Output Select: JPCIE1

Pin	Signal
1-2	PCIEX-16 GRAPHIC CARD
2-3	LVDS (Default)



### 1.10.16 The Header: JSPI1

This header is reserved for factory use only.

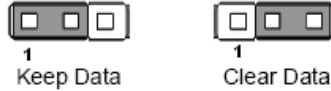
## 1.11 Jumpers

### 1.11,1 Clear CMOS Jumper: JBAT1

There is a CMOS RAM onboard that has a power supply from an external battery to keep the data of system configuration.

For normal state (default), the jumper is set on pin location 1 and 2.

To clear the CMOS, set the jumper to pin location 2 and 3 for at least 30 seconds while the system is off.



By shorting two pins for  
at least 30 seconds



1. You can clear CMOS by shorting pin 2-3 for at least 30 seconds (while the system is OFF), then place the jumper back to pin 1-2 for normal operation.

2. Avoid clearing the CMOS while the system is ON; this will damage the mainboard.



## 1.12 The Expansion Slots

In the future, you may need to install expansion cards. The following sub-sections describe the expansion slots and the expansion cards that they support.



**Make sure to unplug the power cord before adding or removing expansion cards.**

**Failure to do so may cause you physical injury and damage mainboard components.**

### 1.12.1 Installation of expansion card

To install an expansion Card:

1. Before install the expansion card, read the documentation that came with it and make the necessary hardware setting for the card.
2. Remove the chassis cover (if the mainboard is installed in a chassis).
3. Remove the expansion slot bracket from the chassis on the slot that you intend to use. Keep the screw for later use.
4. Align the card connector with the slot and press it firmly until the card is completely seated on the slot.
5. Secure the card to the chassis with the screw that have been removed earlier (in step 3).
6. Place the chassis cover back on.

### 1.12.2 Setup an expansion card

After installing the expansion card, configure it by adjusting the software settings.

1. Turn on the system and change the BIOS settings if necessary. See Chapter 2 for information on BIOS setup.
2. Install the software drivers for the expansion card.

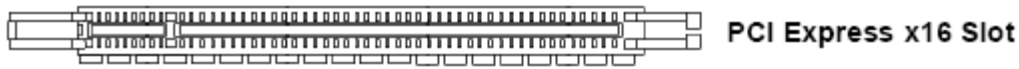
### 1.12.3 PCI (Peripheral Component Interconnect) Express Slot

The PCI Express slot supports the PCI Express interface expansion card.

- The PCI Express x16 supports up to 4.0GB/s transfer rate.
- The PCI Express x8 supports up to 2.0GB/s transfer rate.
- The PCI Express x4 supports up to 1.0GB/s transfer rate.
- The PCI Express x1 supports up to 250MB/s transfer rate.

### 1.12.3.1 PCI-E x 16 Slot: PCIE1

This slot supports PCI-E x16 graphic cards only.



### 1.12.3.2 PCI Slots: PCI1, PCI2, PCI3

The PCI slot supports LAN card, SCSI card, USB card, and other add-on cards that comply with PCI specifications.



1. When adding or removing expansion cards, make sure the system power is OFF.
2. After the card is installed on the system, make the adjustments under system BIOS if necessary, then install the card driver provided by the card vendor under system OS.
3. When using PCI cards on shared slots, ensure that the card driver support “Share IRQ” or the PCI cards do not need IRQ assignments. Otherwise, conflicts will arise between the two PCI groups; marking the system unstable and the card inoperable.

# Chapter 2: Starting Up the System

## 2.1 Starting Up Your System

1. After all connections are made, close your computer case cover.
2. Be sure all the switches are off, and check that the power supply input voltage is set to the local voltage, usually in-put voltage is 220V~240V or 110V~120V depending on your country's voltage used.
3. Connect the power supply cord into the power supply located on the back of your system case according to your system user's manual.
4. Turn on your peripheral as following order:
  - a. Your monitor.
  - b. Other external peripheral (Printer, Scanner, External Modem etc...)
  - c. Your system power. For ATX power supplies, you need to turn on the power supply and press the ATX power switch on the front side of the case.
5. The power LED on the front panel of the system case will light. The LED on the monitor may light up or switch between orange and green after the system is on. If it complies with green standards or if it is has a power standby feature. The system will then run power-on test. While the test are running, the BIOS will alarm beeps or additional message will appear on the screen.

If you do not see any thing within 30 seconds from the time you turn on the power. The system may have failed on power-on test. Recheck your jumper settings and connections or call your retailer for assistance.

Beep	Meaning
One short beep when displaying logo	No error during POST
Long beeps in an endless loop	No DRAM install or detected
One long beep followed by three short beeps	Video card not found or video card memory bad
High frequency beeps when system is working	CPU overheated System running at a lower frequency

6. During power-on, press <Del> key to enter BIOS setup. Follow the instructions in BIOS SETUP.
7. **Power off your computer:** You must first exit or shut down your operating system before switch off the power switch. For ATX power supply, you can press ATX power switching after exiting or shutting down your operating system. If you use Windows Operating Systems, click “**Start**” button, click

**“Shut down”** and then click **“Shut down the computer”** The power supply should turn off after windows shut down.

# Chapter 3: BIOS Setup

**Warning:** Before flashing the BIOS, please be sure to make the following adjustments on the system:

1. Fully disabled the iAMT feature (through Intel ME management utility during system post).
2. Flash the board with memory module installed on memory slot “DIMM\_B2” ONLY. No memory module occupied on memory slots “DIMM\_A1” and “DIMM\_B1” during the BIOS flash process.
3. After the BIOS is flashed; shut down the system, then place the memory module back to the memory slot(s).
4. Remove all power connections from power supply to the motherboard.
5. Clear the CMOS (For at least 30 seconds).
6. Reconnect all power connections from power supply to the motherboard.
7. When the system is booting first time after the new BIOS is flashed, it is recommended to enter the BIOS; load the option “Load Optimized Defaults”, and then “Save and Exit Setup”.

**NOT DOING SO MAY CAUSE THE BIOS INTENDED TO BE FLASHED UNSTABLE.**

## 3.1 Introducing BIOS

The BIOS is a program located on a Flash Memory on the motherboard. This program is a bridge between motherboard and operating system. When you start the computer, the BIOS program gains control. The BIOS first operates an auto-diagnostic test called POST (power on self test) for all the necessary hardware, it detects the entire hardware device and configures the parameters of the hardware synchronization. Only when these tasks are completed done it gives up control of the computer to operating system (OS). Since the BIOS is the only channel for hardware and software to communicate, it is the key factor for system stability, and in ensuring that your system performance as its best.

In the BIOS Setup main menu of Figure 3-1, you can see several options. We will explain these options step by step in the following pages of this chapter, but let us first see a short description of the function keys you may use here:

- Press <Esc> to quit the BIOS Setup.
- Press ↑↓←→ (up, down, left, right) to choose, in the main menu, the option you want to confirm or to modify.
- Press <F10> when you have completed the setup of BIOS parameters to save these parameters and to exit the BIOS Setup menu.
- Press Page Up/Page Down or +/- keys when you want to modify the BIOS parameters for the active option.

## 3.2 Entering BIOS Setup Menu

Power on the computer and by pressing <Del> immediately allows you to enter BIOS Setup Menu.

If you are not able to enter the BIOS menu but you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the “RESET” button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt> and <Delete> keys.



**The items under each BIOS category described in this chapter are under continuous update for better system performance. Therefore, the description may be slightly different from the latest BIOS and should be held for reference only.**

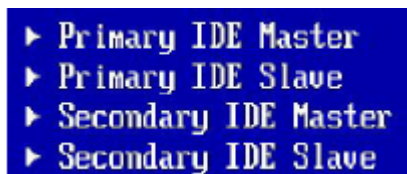
## 3.3 Getting Help

### Main Menu

The main menu lists the setup functions you can make changes to. You can use the arrow keys to select the item. The on-line description of the highlighted setup function is displayed at the bottom of the screen.

### Sub- Menu

If you find a right pointer symbol (as shown in the picture below) appears to the left of certain fields that means a sub-menu can be launched from this field. A sub-menu contains additional options for a field parameter. You can use arrow keys to highlight the field and press <Enter> to call up the sub-menu. Then you can use the control keys to enter values and move from field to field within a sub-menu. If you want to return to the main menu, just press the <ESC>.



### General Help <F1>

The BIOS setup program provides a General Help screen. You can call up this screen from any menu by simply pressing <F1>. The Help screen lists the appropriate keys to use and the possible selections for the highlighted item. Press <Esc> to exit the Help screen.

### 3.4 The Main Menu

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<p>Standard CMOS Features</p> <p>Advanced BIOS Features</p> <p>Advanced Chipset Features</p> <p>Integrated Peripherals</p> <p>Power management Setup</p> <p>PnP/PCI Configurations</p>	<p>H/W Monitor</p> <p>Load Optimized Defaults</p> <p>BIOS Setting Password</p> <p>Save &amp; Exit Setup</p> <p>Exit Without Saving</p>
<p>↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F6: Load Optimized Defaults</p>	
<p>v02.59 (C) Copyright 1985-2005, American Megatrends, Inc.</p>	

- **Standard CMOS Features**

Use this menu for basic system configurations, such as time, date, etc.

- **Advanced BIOS Features**

Use this menu to setup the items of AMI® special enhanced features.

- **Advanced Chipset Features**

Use this menu to change the values in the chipset registers and optimize your system's performance.

- **Integrated Peripherals**

Use this menu to specify your settings for integrated peripherals.

- **Power Management Setup**

Use this menu to specify your settings for power management.

- **PnP/PCI Configurations**

This entry appears if your system supports PnP/PCI.

- **H/W Monitor**

This entry shows your PC health status.

- **Load Optimized Defaults**

Use this menu to load the default values set by the mainboard manufacturer specifically for optimal performance of the mainboard.

- **BIOS Setting Password**

Use this menu to set the password for BIOS.

- **Save & Exit Setup**

Save changes to CMOS and exit setup.

- **Exit Without Saving**

Abandon all changes and exit setup.



### 3.5 Standard CMOS Features

The items in standard CMOS Features Menu include some basic setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.

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Standard CMOS Features

Date (MM:DD:YY) :	[Mon 05/19/2008]	Help Item
Time (HH:MM:SS) :	[02:54:42]	
▶ Primary IDE Master	[Not Detected]	
▶ Primary IDE Slave	[Not Detected]	
▶ Secondary IDE Master	[Not Detected]	
▶ Secondary IDE Slave	[Not Detected]	
Floppy A	[1.44 MB 3 1/2"]	
▶ System Information	[Press Enter]	
Halt on keyboard Error	[Disabled]	
↑ ↓ → ← : Move    Enter : Select    + / - / PU / PD : Value    F10 : Save    ESC : Exit    F1 : General Help F6 : Load Optimied Defaults		

#### • Date (MM:DD:YY)

This allows you to set the system to the date that you want (usually the current date).

The format is <day> <month> <date> <year>.

**Day**      Day of the week, from Sun to Sat, determined by BIOS. Read-only

**Month**    The month from Jan. through Dec.

**Date**     The date from 1 to 31 can be keyed by numeric function keys.

**Year**     The year can be adjusted by users.

#### • Time (HH:MM:SS)

This allows you to set the system time that you want (usually the current time). The time format is <hour> <minute> <second>.

- IDE Primary/ Secondary Master/Slave, IDE Third/ Fourth Master.

Press <Enter> to enter the sub-menu, and the following screen appears:

CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.		
IDE Primary Master		
IDE Primary Master	Help Item	
Device :Hard Disk	Disabled: Disables LBA Mode.	
Vendor :ST3120813AS		
Size :120.0GB		
LBA/Large Mode	[Auto]	Auto: Enables LBA Mode if the device supports it and the device is not already formatted with LBA
DMA Mode	[Auto]	
Hard Disk S.M.A.R.T.	[Auto]	



- IDE Primary/ Secondary Master/ Slave, IDE Third/Fourth Master are appearing when you connect the HDD to the SATA connector on the mainboard. For instance, the HDD connected to SATA1 header will be identified as Primary IDE Master; the HDD connected to SATA4 header will be connected identified as Secondary IDE Slave, and so on.

- Device/ Vendor/ Size

It will showing the device information that you connected to the SATA connector.

- LBA/ Large Mode

This allows you to enable or disable the LBA Mode. Setting to Auto enables LBA mode if the device supports it and the devices is not already formatted with LBA mode disabled.

- DMA Mode

Select DMA Mode.

- Hard Disk S.M.A.R.T.

This allows you to activate the S.M.A.R.T. (Self-Monitoring Analysis & Reporting Technology) Capability for the hard disks. S.M.A.R.T. is a utility that monitors your disk status to predict hard disk failure. This gives you an opportunity to move data from a hard disk that is going to fail to a safe place before the hard disk becomes offline.

- Floppy Drive A

This item allows you to set the type of floppy drives installed. Available options: [None], [360K, 5.25in.], [1.2M, 5.25in.], [720k, 3.5in.], [1.44M, 3.5in.], [2.88M, 3.5in.].

- **System Information**

Press <Enter> to enter the sub-menu, and the following screen appears:



CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.		
System Information		
Intel(R) Core(TM)2 CPU	6300 @ 1.86GHz	Help Item
CPU ID/MicroCode	06F5h/00h	
CPU Frequency	1.86GHz (266x7)	
BIOS Version	U0.0B0 030807	
Physical Memory	512MB	
Usage Memory	512MB	
Cache Size	2048 KB	

This sub-menu shows the CPU information, BIOS version and memory status of your system (read only).

- **Halt on Keyboard Error**

The setting determines whether the system will stop if an keyboard error is detected.

### 3.6 Advanced BIOS Features

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 Advanced BIOS Features

Quick Boot [Enabled] Boot Up Num-Lock LED [On] Intel (R) SpeedStep (tm) tech. [Automatic] Execute-Disable Bit Capabili [Enabled] IOAPIC Function [Enabled] ▶ Boot Sequence [Press Enter] ▶ Trusted Computeing [Press Enter]	<b>Help Item</b>
↑↓→←:Move Enter:Select +/-:PU/PD:Value F10:Save ESC:Exit F1:General Help F6: Load Optimied Defaults	

- **Quick Boot**

Setting the item to [Enabled] allows the system to boot within 10 seconds since it will skip some check items.

- **Boot Up Num-Lock LED**

This setting is to set the Num Lock status when the system is powered on. Setting to [On] will turn on the Num Lock key when the system is powered on. Setting to [Off] will allow users to use the arrow keys on the numeric keypad.

- **Intel® SpeedStep™ tech**

This feature enabled user to select the best balance between the CPU performance and power conservation. When set to maximum, the CPU speed is set to maximum. Minimum setting will keep CPU speed at minimum. Automatic setting will let the operating system to handle the CPU speed.

- **Execute Bit Support**

Intel's Execute Bit Support functionality can prevent certain classes of malicious "buffer overflow" attacks when combined with a supporting operating system. This functionality allows the processor to classify areas in memory by where application code can execute and where it cannot. When a malicious worm attempts to insert code in the buffer, the processor disables code execution, preventing damage or worm propagation.

- **IOAPIC Function**

This field is used to enable or disable the APIC (Advanced Programmable Interrupt Controller). Due to compliance with PC2001 design guide, the system is able to run in APIC mode. Enabling APIC mode will expand available IRQ resources for the system.

- **Boot Sequence**

Press <Enter>. To enter the sub-menu and the following screen appears:



- **1<sup>st</sup>/2<sup>nd</sup>/3<sup>rd</sup> Boot Device**

The items allow you to set the first/ second/ third boot device where BIOS attempts to load the disk operating system.

- **Boot From Other Device**

Setting the option to [Yes] allows the system to try to boot from other device. If the system fails to boot from the 1<sup>st</sup>/ 2<sup>nd</sup>/ 3<sup>rd</sup> boot device.

• **Trusted Computing**

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**Trusted Computing**

<b>Trusted Computing</b>	<b>Help Item</b>
TCG/TPM Support <b>[No]</b>	
↑ ↓ → ← : Move    Enter : Select    +/- / PU / PD : Value    F10 : Save    ESC : Exit    F1 : General Help F6 : Load Optimied Defaults	

Enable or disable the onboard TPM support.

### 3.7 Advanced Chipset Features

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#### Advanced Chipset Features

<b>Internal Graphics Mode Select</b> [Enabled, 8MB] <b>Boot Display Device</b> [CRT+LVDS] <b>DVMT Mode Select</b> [DVMT Mode] <b>DVMT/FIXED Memory</b> [256MB] <b>Flat Panel Type</b> [1024x768]  <b>PEG Port configuration</b> <b>PEG Port</b> [Auto]  <b>Intel AMT Support</b> [Disabled] <b>ME-HECI</b> [Enabled] <b>ME-IDER</b> [Disabled] <b>ME-KT</b> [Disabled]	<b>Help Item</b>
↑ ↓ → ← : Move    Enter : Select    +/- / PU/PD : Value    F10 : Save    ESC : Exit    F1 : General Help F6 : Load Optimied Defaults	

- **Internal Graphics Mode Select**

Select the amount of system memory used by the Internal Graphics device.

- **Boot Display Device**

Choose the display output through CRT, LVDS, or both.

- **DVMT Mode Select**

This item allows you to set the mode for the graphics core.

[Fixed] mode, a fixed-size fragment of the system memory is allocated to the graphics core. It can only be used by the graphics core.

[DVMT] mode, the driver of the graphics core uses the system memory like any other OS component or application does.

- **DVMT/FIXED Memory**

Choose the size of memory allocated for DVMT/FIXED memory.

- **Flat Panel Type**

Choose the right panel type to match with the one which is connected to the LVDS port.

- **Intel AMT Support**

Enable/Disable Intel AMT Setup Utility during system post (by pressing CTRL+P during system post).



### 3.8 Integrated Peripherals

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#### Integrated Peripherals

USB Device Legacy Support [Enabled] USB 2.0 Controller Mode [HiSpeed] GbE Controller [Enabled] GbE LAN Boot [Disabled] 82573 Controller [Enabled] 82573 LAN Boot [Disabled] Audio Controller [Enabled] ▶ SATA Devices Configuration [Press Enter] ▶ IDE Devices Configuration [Press Enter] ▶ I/O Devices Configuration [Press Enter]	Help Item
↑↓→←:Move    Enter:Select    +/-/PU/PD:Value    F10:Save    ESC:Exit    F1:General Help F6: Load Optimied Defaults	

- **USB Device Legacy Support**

Select [Enabled] if you need to use a USB-interfaced device in the operating system.

- **USB 2.0 Controller Mode**

Configures the USB 2.0 Controller in High Speed (480Mbps) or Full Speed (12Mbps).

- **GbE Controller**

This item is used to enable/ disable the onboard 82566DM Gigabit LAN controller.

- **GbE LAN Boot**

This item is used to decide whether to invoke the Boot ROM of the 82566DM Gigabit LAN controller.

- **82573 Controller**

This item is used to enable/ disable the onboard 82573L Gigabit LAN controller.

- **82573 LAN Boot**

This item is used to decide whether to invoke the Boot ROM of the 82573L Gigabit LAN controller.

- **Onboard Audio Controller**

This setting is used to enable/ disable the onboard audio controller.

• **SATA Devices Configuration**

Press <Enter> to enter the sub-menu and the following screen appears:

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**SATA Devices Configuration**

<p>SATA#1 Configuration [Enabled]          Configure SATA#1 as [IDE]          SATA#2 Configuration [Enhanced]</p>	<p>Help Item</p>
<p>↑ ↓ → ← : Move    Enter : Select    +/- / PU / PD : Value    F10 : Save    ESC : Exit    F1 : General Help          F6 : Load Optimied Defaults</p>	

• **SATA#1 Configuration**

Set the SATA#1 ports (SATA1, SATA2, SATA3, and SATA4) in the mode of “Enhanced”, “Compatible” or “Disable”.

- **Disabled:** Disabled the SATA devices.
- **Compatible:** Enable the SATA devices and releasethe IRQ14/15 for SATA devices.
- **Enhanced:** Select Enhanced if you want to use the SATA as IDE /RAID or AHCI function.

• **Configure SATA#1 as**

When this option is set to “Enhance”, the field is adjustable. It allows user to configure the SATA devices as IDE/ AHCI or RAID.

• **SATA#2 Configuration**

When the option “Configure SATA#1” is set to “IDE”, the filed is adjustable. It allows you to enable/ disable the SATA#2 controller (SATA ports “SATA5”, and “SATA6”).

- **IDE Devices Configuration**

Press <Enter> to enter the sub-menu and the following screen appears:

**CMOS Setup Utility - Copyright (C) 1985-2005 , American Megatrends, Inc.**

**IDE Devices Configuration**

<b>PCI IDE BusMaster</b>	<b>[Disabled]</b>	<b>Help Item</b>
↑↓→←:Move   Enter:Select   +/-/PU/PD:Value   F10:Save   ESC:Exit   F1:General Help F6: Load Optimied Defaults		

- **PCI IDE BusMaster**

Enable/ Disable BIOS uses PCI busmastering for reading/writing to IDE drives.

• **I/O Devices Configuration**

Press <Enter> to enter the sub-menu and the following screen appears:

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**I/O Devices Configuration**

<b>OnBoard Floppy Controller</b> [Enabled] <b>COM Port 1</b> [3F8/IRQ4] <b>COM Port 1 Type</b> [RS232] <b>IRDA Support</b> [Enabled] <b>IR Duplex Mode</b> [Half Duplex] <b>COM Port 2</b> [2E8] <b>COM Port 2 IRQ</b> [10] <b>COM Port 3</b> [2F0] <b>COM Port 3 IRQ</b> [11] <b>COM Port 4</b> [2E0] <b>COM Port 4 IRQ</b> [10] <b>Parallel Port</b> [378] <b>Parallel Port Mode</b> [Normal] <b>Parallel Port IRQ</b> [IRQ7]	<b>Help Item</b>
↑ ↓ → ← : Move    Enter : Select    +/- / PU / PD : Value    F10 : Save    ESC : Exit    F1 : General Help F6 : Load Optimied Defaults	

• **OnBoard Floppy Controller**

Enable/ disable the onboard floppy controller.

• **COM Port 1**

Set the serial COM port #1 base address and IRQ.

• **COM Port 1 Type**

Set the COM port #1 in the mode of "RS232", "RS422", or "RS485".

• **IRDA Support**

Enable/ disable the IrDA port.

• **IR Duplex Mode**

Select the "Full Duplex" or "Half Duplex" for IR Duplex mode.

• **COM Port 2**

Set the base address for serial COM port #2.

• **COM Port 2 IRQ**

Set the IRQ for serial COM port #2.

- **COM Port 3**

Set the base address for serial COM port #3.

- **COM Port 3 IRQ**

Set the IRQ for serial COM port #3.

- **COM Port 4**

Set the base address for serial COM port #4.

- **COM Port 4 IRQ**

Set the IRQ for serial COM port #4.

- **Parallel Port**

Set the base address for parallel port.

- **Parallel Port Mode**

Set the mode for parallel port.

- **Parallel Port IRQ**

Set the IRQ for parallel port.

### 3.9 Power Management Setup

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#### Power Management Features

ACPI Function [Enabled] ACPI Standby State [S1/POS] Power Button Function [Power Off] Restore on AC Power Loss [Off] High Performance Event Timer [Disabled] ▶ Wakeup Event Setup [Press Enter]	<b>Help Item</b>
↑ ↓ → ← : Move    Enter : Select    +/- / PU / PD : Value    F10 : Save    ESC : Exit    F1 : General Help F6 : Load Optimized Defaults	

#### • ACPI Function

This item is to activate the ACPI (Advanced Configuration and Power Management Interface) Function. If your operating system is ACPI-aware, such as Windows 2000/XP, select [Enabled].

#### • ACPI Standby State

This item specifies the power saving modes for ACPI function. If your operating system supports ACPI, such as Windows 2000/ XP, you can choose to enter the Standby mode in S1(POS) or S3 (STR) fashion through the setting of this field. Settings are:

[S1] The S1 sleep mode is a low power state. In this state, no system context is lost (CPU or chipset) and hardware maintains all system context.

[S3] The S3 sleep mode is a lower power state where the information of system configuration and open applications/files is saved to main memory that remains powered while most other hardware components turn off to save energy. The information stored in memory will be used to restore the system when a “wake up” event occurs.

• **Power Button Function**

This feature sets the function of the power button. Settings are:

- [Power Off]     The power button functions as normal power off button.
- [Suspend]     When you press the power button, the computer enters the suspend/sleep mode, but if the button is pressed for more than four seconds, the computer is turned off.

• **Restore On AC Power Loss**

This item specifies whether your system will reboot after a power failure or interrupt occurs. Settings are:

- [Off]            Always leaves the computer in the power off state.
- [On]             Always leaves the computer in the power on state.
- [Last State]    Restores the system to the status before power failure or interrupt occurred.

• **Wakeup Event Setup**

Press <Enter> and the following sub-menu appears:

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**Wakeup Event Setup**

	Help Item
USB Device Wakeup From S3/S4    [Enabled]	
S3 Power on by PS/2 KB            [Any Key]	
Keyboard Password                [Press Enter]	
S3 Power On by PS/2 Mouse       [Left Button]	
GbE Wake Up From S5             [Enabled]	
Resume by Ring                    [Disabled]	
Resume by PCI Device (PME#)    [Enabled]	
Resume by RTC Alarm              [Disabled]	
↑ ↓ → ← : Move    Enter : Select    +/- / PU/PD : Value    F10 : Save    ESC : Exit    F1 : General Help F6 : Load Optimied Defaults	

• **USB Device Wakeup From S3/S4**

The item allows the activity of the USB device to wake up the system from S3/S4 state.

- **S3 Power on by PS/2 KB**

This setting determines whether the system will be awakened from what power saving modes when input signal of the PS/2 keyboard is detected.

- **S3 Power on by PS/2 Mouse**

This setting determines whether the system will be awakened from what power saving modes when input signal of the PS/2 mouse is detected.

- **Resume By PCI Device (PME#)**

When set to [Enabled], the feature allows your system to be awakened from the power saving modes through any event on PME (Power Management Event).

- **Resume By RTC Alarm**

The field is used to enable or disable the feature of booting up the system on a scheduled time/date.



### 3.10 PnP/PCI Configurations

This section describes configuring the PCI bus system and PnP (Plug & Play) feature. PCI, or Peripheral Component Interconnect, is a system which allows I/O devices to operate at speeds nearing the speed the CPU itself uses when communicating with its special components. This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.

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#### PNP/PCI Configurations

Clear ESCD Initate Graphic Adapter PCI Latency Timer ▶ IRQ Resource Setup ▶ DMA Resource Setup	[No] [PEG/PCI] [64] [Press Enter] [Press Enter]	Help Item
↑ ↓ → ← : Move    Enter : Select    +/- / PU / PD : Value    F10 : Save    ESC : Exit    F1 : General Help F6 : Load Optimied Defaults		

- **Clear ESCD**

Enable will clear NVRAM during system boot.

- **Initate Graphic Adapter**

This setting specifies which graphics controller to use as the primary boot device.

- **PCI Latency Timer**

This item controls how long each PCI device can hold the bus before another takes over. When set to higher values, every PCI device can conduct transactions for a longer time and thus improve the effective PCI bandwidth. For better PCI performance, you should set the item to higher values.

- **IRQ Resource Setup**

Press <Enter> to enter the sub-menu and the following screen appears:

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IRQ Resource Setup		
		Help Item
IRQ3	[Available]	
IRQ4	[Available]	
IRQ5	[Available]	Available: Specified
IRQ7	[Available]	IRQ is available to be
IRQ9	[Available]	used by PCI/PnP
IRQ10	[Available]	devices.
IRQ11	[Available]	Reserved: Specified
IRQ14	[Available]	IRQ is reserved for
IRQ15	[Available]	use by Legacy ISA
		devices.

- **IRQ 3/ 4/ 5/ 7/ 9/ 10/ 11/ 14/ 15**

These items specify the bus where the specified IRQ line is used.

The settings determine if AMI BIOS should remove an IRQ from the pool of available IRQs passed to devices that are configurable by the system BIOS. The available IRQ pool is determined by reading the ESCD NVRAM. If more IRQs must be removed from the IRQ pool, the end user can use these settings to reserve the IRQ by assigning an [Reserved] setting to it. Onboard I/O is configured by AMI BIOS. All IRQs used by onboard I/O are configured as [Available]. If all IRQs are set to [Reserved], and IRQ 14/ 15 are allocated to the onboard PCI IDCE, IRQ 9 will be available for PCI and PnP devices.



**IRQ (Interrupt Request) lines are system resources allocated to I/O devices. When an I/O device needs to gain attention of the operating system, it signals this by causing an IRQ to occur. After receiving the signal, and when the operating system is ready, the system will interrupt itself and perform the service required by the I/O device.**

- **DMA Resource Setup**

Reserve the DMA resource.

### 3.11 H/W Monitor

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#### H/W Monitor

SYSFAN TargetTemp Value [030] PWRFAN TargetTemp Value [050] CPU FAN TargetTemp Value [045] Chassis Intrusion [Disabled]		Help Item
System Temperature :38°C/100°F CPU Temperature :45°C/113°F CPU FAN Speed :1125 RPM Vcore :1.264V 3VCC :3.232V +12.0V :11.985V +5.0V :4.940V VSB :3.232V		
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F6: Load Optimied Defaults		

#### • SYSFAN TargetTemp Value

The mainboard provides the Smart Fan function which can control the SYSFAN speed automatically depending on the current temperature to keep it within a specific range. You can select a fan target value here. If the current system temperature reaches to the target value, the smart fan function will be activated. It provides several sections to speed up for cooling down automatically.

#### • PWRFAN TargetTemp Value

The mainboard provides the Smart Fan function which can control the PWRFAN fan speed automatically depending on the current temperature to keep it within a specific range. You can select a fan target value here. If the current system fan temperature reaches to the target value, the smart fan function will be activated. It provides several sections to speed up for cooling down automatically.

#### • CPU FAN TargetTemp Value

The mainboard provides the Smart Fan function which can control the CPU fan speed automatically depending on the current temperature to keep it within a specific range. You can select a fan target value here. If the current CPU fan temperature reaches to the target value, the smart fan function will be activated. It provides several sections to speed up for cooling down automatically.

- **Chassis Intrusion**

The field enables or disables the feature of recording the chassis intrusion status and issuing a warning message if the chassis is once opened. To clear the warning message, set the field to [Reset]. The setting of the field will automatically return to [Enabled] later.

- **CPU/ System Temperature, CPU FAN/ SYS FAN1 Speed, CPU Vcore, 3VCC, +12.0V, +5.0V, VSB**

These items display the current status of all of the monitored hardware devices/ components such as CPU voltage, temperatures and all fans' speeds.

### 3.12 Load Optimized Defaults

This option allows user to restore all of the BIOS settings to the default Optimized values. The Optimized Defaults are the default values set by the mainboard manufacturer specifically for optimal performance of the mainboard.

When you select Load Optimized Defaults, a message as below appears:



Selecting **OK** and pressing **<ENTER>** loads the default factory settings for optimal system performance.



- **For most of the system applications, it is recommended to load the “Load Optimized Defaults”. After this option is loaded, don’t forget to load “Save & Exit Setup” in order for the optimized defaults to take effect.**

### 3.13 BIOS Setting Password

When you select this function, a message as below will appear on the screen:



Type the password, up to six characters in length, and press <Enter>. The password typed now will replace any previously set password from CMOS memory. You will be prompted to confirm the password. Retype the password the press <Enter>. You may also press <ESC> to abort the selection and not enter a password.

To clear a set password, just press <Enter> when you are prompted to enter the password. A message will show up confirming the password will be disabled. Once the password is disabled, the system will boot and you can enter Setup without entering any password.

When a password has been set, you will be prompted to enter it every time you try to enter Setup. This prevents an unauthorized person from changing any part of your system configuration.