ITX-220

Motherboard

E4855

Second Edition V2
June 2009

Contents

Contents

Notices

Federal Communications Commission Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

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

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 manufacturer's 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 receiver.
- Connect the equipment to 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.

> The use of shielded cables for connection of the monitor to the graphics card is required to assure compliance with FCC regulations. Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

Canadian Department of Communications Statement

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

This class B digital apparatus complies with Canadian ICES-003.

REACH

Complying with the REACH (Registration, Evaluation, Authorisation, and Restriction of Chemicals) regulatory framework, we published the chemical substances in our products at ASUS REACH website at http://green.asus.com/english/REACH.htm.

> **DO NOT** throw the motherboard in municipal waste. This product has been designed to enable proper reuse of parts and recycling. This symbol of the crossed out wheeled bin indicates that the product (electrical and electronic equipment) should not be placed in municipal waste. Check local regulations for disposal of electronic products.

> **DO NOT** throw the mercury-containing button cell battery in municipal waste. This symbol of the crossed out wheeled bin indicates that the battery should not be placed in municipal waste.

Safety information

Electrical safety

- To prevent electric shock hazard, disconnect the power cable from the electric outlet before relocating the system.

- When adding or removing devices to or from the system, ensure that the power cables for the devices are unplugged before the signal cables are connected. If possible, disconnect all power cables from the existing system before you add a device.

- Before connecting or removing signal cables from the motherboard, ensure that all power cables are unplugged.

- Seek professional assistance before using an adapter or extension cord. These devices could interrupt the grounding circuit.

- Ensure that your power supply is set to the correct voltage in your area. If you are not sure about the voltage of the electrical outlet you are using, contact your local power company.

- If the power supply is broken, do not try to fix it by yourself. Contact a qualified service technician or your retailer.

- The optical S/PDIF is an optional component (may or may not be included in your motherboard) and is defined as a CLASS 1 LASER PRODUCT.

> ⚠ INVISIBLE LASER RADIATION, AVOID EXPOSURE TO BEAM.

- Never dispose of the battery in fire. It could explode and release harmful substances into the environment.

- Never dispose of the battery with your regular household waste. Take it to a hazardous material collection point.

- Never replace the battery with an incorrect battery type.

> ⚠
> - RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE.
> - DISPOSE OF USED BATTERIES ACCORDING TO THE ABOVE BATTERY-RELATED INSTRUCTIONS.

Operation safety

- Before installing the motherboard and adding devices on it, carefully read all the manuals that came with the package.

- Before using the product, ensure that all cables are correctly connected and the power cables are not damaged. If you detect any damage, contact your dealer immediately.

- To avoid short circuits, keep paper clips, screws, and staples away from connectors, slots, sockets and circuitry.

- Avoid dust, humidity, and temperature extremes. Do not place the product in any area where it may become wet.

- Place the product on a stable surface.

- If you encounter technical problems with the product, contact a qualified service technician or your retailer.

About this guide

This user guide contains the information you need when installing and configuring the motherboard.

How this guide is organized

This guide contains the following parts:

- **Chapter 1: Product introduction**

  This chapter describes the features of the motherboard and the new technology it supports.

- **Chapter 2: BIOS information**

  This chapter tells how to change system settings through the BIOS Setup menus. Detailed descriptions of the BIOS parameters are also provided.

Conventions used in this guide

To ensure that you perform certain tasks properly, take note of the following symbols used throughout this manual.

DANGER/WARNING: Information to prevent injury to yourself when trying to complete a task.

CAUTION: Information to prevent damage to the components when trying to complete a task.

IMPORTANT: Instructions that you MUST follow to complete a task.

NOTE: Tips and additional information to help you complete a task.

Where to find more information

Refer to the following sources for additional information and for product and software updates.

1. **ASUS websites**

   The ASUS website provides updated information on ASUS hardware and software products. Refer to the ASUS contact information.

2. **Optional documentation**

   Your product package may include optional documentation, such as warranty flyers, that may have been added by your dealer. These documents are not part of the standard package.

Typography

Bold text	Indicates a menu or an item to select.
Italics	Used to emphasize a word or a phrase.
<Key>	Keys enclosed in the less-than and greater-than sign means that you must press the enclosed key.
	Example: <Enter> means that you must press the Enter or Return key.
<Key1>+<Key2>+<Key3>	If you must press two or more keys simultaneously, the key names are linked with a plus sign (+).
	Example: <Ctrl>+<Alt>+<D>

ITX-220 specifications summary

CPU	Integrated Intel® Celeron® 220 processor Supports Intel® EM64T technology
Chipset	Northbridge: Intel® 945GC Southbridge: Intel® ICH7
CPU Fan	Fan Dimensions: 40 x 40 x10mm Rated Speed: 5000 ± 10% RPM Rated Voltage: DC 12V Maximum Air Flow: 5.57 CFM Noise Level: 25.3 dBA (Max. 27.5 dBA)
Front Side Bus	533 MHz

Memory	Dual channel memory architecture
	   - 2 x 240-pin DIMM sockets support unbuffered
	     non-ECC 533 MHz DDR2 memory modules
	   - Supports up to 4GB system memory
	* Refer to www.asus.com or this user manual for the
	    Memory QVL (Qualified Vendors Lists).
	** When you install a total memory of 4GB capacity
	    or more, Windows® 32-bit operating system may only
	    recognize less than 3GB. We recommend a maximum
	    of 3GB system memory if you are using a Windows®
	    32-bit operating system.

Graphics	Integrated Intel® Graphics Media Accelerator 950 Supports D-Sub with max. resolution of 2048 x 1536 x 32 Bpp @75Hz Maximum shared memory of 224MB
Expansion slot	1 x PCI slot
Storage	Intel® ICH7 SouthBridge supports: - 2 x Serial ATA 3Gb/s ports
Audio	VIA VT1705 High Definition Audio 6-channel CODEC
LAN	Realtek® PCIe Gb LAN controller
USB	Supports up to 6 USB 2.0/1.1 ports (2 ports at mid-board, 4 ports at back panel)
ASUS special features	ASUS CrashFree BIOS 3 ASUS EZ Flash 2 ASUS MyLogo 2™ ASUS AI NET 2
Rear panel ports	1 x PS/2 keyboard port 1 x PS/2 mouse port 1 x VGA port 1 x COM port 1 x LAN (RJ-45) port 4 x USB 2.0 ports 6-channel audio I/O ports

(continued on the next page)

ITX-220 specifications summary

Internal connectors	1 x USB connector supports additional 2 USB ports 1 x Speaker connector 2 x Serial ATA connectors 1 x Chassis fan connector 1 x Chassis intrusion connector 1 x CPU fan connector 1 x TPM connector (optional) 1 x System panel connector 1 x High definition front panel audio connector 1 x 24-pin EATX power connector 1 x 4-pin ATX 12V power connector
BIOS features	8 Mb Flash ROM, AMI BIOS, PnP, DMI v2.0, WfM 2.0, SMBIOS 2.5, ACPI v2.0a
Accessories	1 x Serial ATA cable 1 x I/O shield
Support DVD contents	Drivers ASUS PC Probe II ASUS Update Anti-virus software (OEM version) User Manual
Form Factor	Mini ITX form factor: 6.75 in x 6.75 in (17.1cm x 17.1cm)

*Specifications are subject to change without notice.

Chapter 1

Product introduction

Thank you for buying an ASUS® ITX-220 motherboard!

Before you start installing the motherboard, and hardware devices on it, check the items in your motherboard package. Refer to page ix for the list of accessories.

> ✎ If any of the items is damaged or missing, contact your retailer.

1.1   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.
>
> • Before handling components, use a grounded wrist strap or touch a safely grounded object or a metal object, such as the power supply case, 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, or components.

Onboard LED

The motherboard comes with a standby power LED that lights up to indicate that the system is ON, in sleep mode, or in soft-off mode. This is a reminder that you must shut down the system and unplug the power cable before removing or plugging in any motherboard component. The illustration below shows the location of the onboard LED.

ITX-220 Onboard LED

SB_PWR

ON
Standby Power

OFF
Powered Off
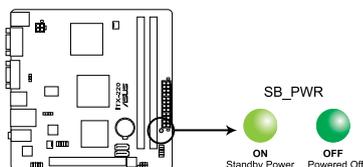
1.2 Motherboard overview

1.2.1 Motherboard layout

> Ensure that you install the motherboard into the chassis in the correct orientation. The edge with external ports goes to the rear part of the chassis.

Place this side towards the rear of the chassis.
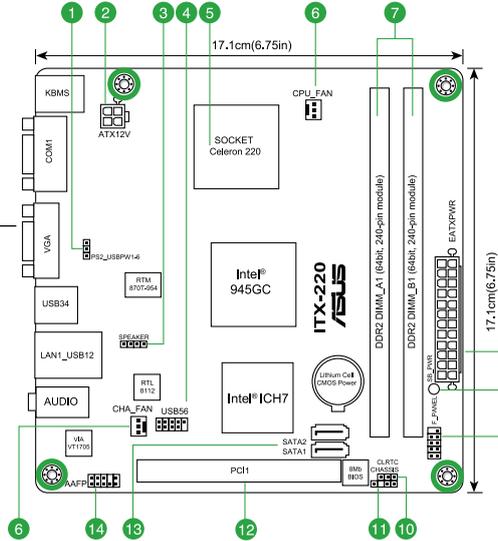
> Place four screws into the holes indicated by circles to secure the motherboard to the chassis. DO NOT overtighten the screws! Doing so can damage the motherboard.

1.2.2 Layout contents

	Connectors/Jumpers/Slots/LED	Page		Connectors/Jumpers/Slots/LED	Page
1.	Keyboard/mouse power (3-pin PS2_USBPW1-6)	1-7	8.	Standby power LED (SB_PWR)	1-1
2.	ATX power connectors (24-pin EATXPWR, 4-pin ATX12V)	1-9	9.	System panel connector (10-1 pin F_PANEL)	1-12
3.	Speaker connector (4-pin SPEAKER)	1-10	10.	Clear RTC RAM (3-pin CLRTC)	1-7
4.	USB connector (10-1 pin USB56)	1-10	11.	Chassis intrusion connector (4-1 pin CHASSIS)	1-11
5.	CPU Socket	1-3	12.	PCI slot	1-6
6.	CPU and chassis fan connectors (3-pin CPU_FAN, 3-pin CHA_FAN)	1-11	13.	Serial ATA connectors (7-pin SATA1, SATA2)	1-13
7.	DDR2 DIMM slots	1-4	14.	Front panel audio connector (10-1 pin AAFP)	1-13

1.3   Central Processing Unit (CPU)

The motherboard comes with an onboard Intel® Celeron® 220 processor and a specially designed CPU heatsink and fan.

Celeron 220 processor
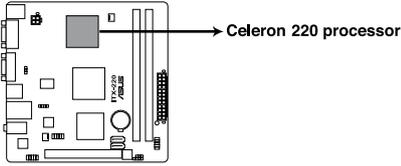
ITX-220 CPU socket Celeron 220

Ensure that the CPU fan cable is connected to the onboard CPU_Fan connector.

CPU_FAN

GND
+12V
Rotation
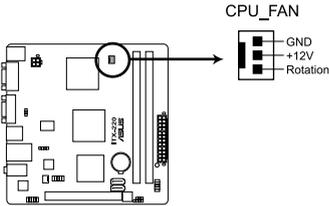
ITX-220 CPU fan connector

1.4 System memory

1.4.1 Overview

The motherboard comes with two Double Data Rate 2 (DDR2) Dual Inline Memory Modules (DIMM) sockets. The figure illustrates the location of the DDR2 DIMM sockets:

Channel	Sockets
Channel A	DIMM_A1
Channel B	DIMM_B1
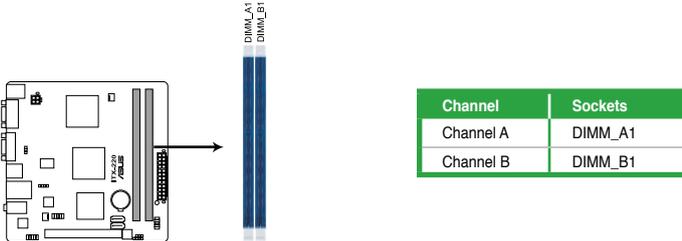
ITX-220 240-pin DDR2 DIMM sockets

1.4.2 Memory configurations

You may install 512MB, 1GB and 2GB unbuffered non-ECC DDR2 DIMMs into the DIMM sockets.

- You may install varying memory sizes in Channel A and Channel B. The system maps the total size of the lower-sized channel for the dual-channel configuration. Any excess memory from the higher-sized channel is then mapped for the single-channel operation.

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

- Due to the memory address limitation on 32-bit Windows® OS, when you install 4GB or more memory on the motherboard, the actual usable memory for the OS can be about 3GB or less. For effective use of memory, we recommend that you do any of the following:

    - Use a maximum of 3GB system memory if you are using a 32-bit Windows® OS.
    - Install a 64-bit Windows® OS when you want to install 4GB or more memory on the motherboard.

- This motherboard does not support DIMMs made up of 256 megabits (Mb) chips or less.

This motherboard supports up to 4GB on Windows® XP Professional x64 and Windows® Vista x64 editions. You may install a maximum of 2GB DIMMs on each slot.

ITX-220 Motherboard Qualified Vendors Lists (QVL)

DDR2-533 MHz capability

Size	Vendor	Part No.	SS/DS	CL	Chip No.	Chip Brand	DIMM socket support (Optional) A*	B*
512MB	Corsair	VS 512MB533D2	SS	N/A	64M8CEDGPS0900805	Corsair	·	
512MB	Corsair	VS 512MB533D2	DS	N/A	MIII0052532M8CEC	Corsair	·	·
1024MB	Corsair	VS1GB533D2	DS	N/A	64M8CFEGQIB0900718	Corsair	·	
512MB	Elpida	EBE51UD8ABFA-5C-E	SS	N/A	E5108AB-5C-E	Elpida	·	
512MB	Kingmax	KLBC28F-A8KB4	SS	N/A	KKEA88B4IAK-37	Kingmax	·	·
2048MB	Aeneon	AET860UD00-370A08X	DS	N/A	AET03F370AFVV26176G 0542	AENEON	·	·
1024MB	Elixir	M2Y1G64TU8HBOB-37B	DS	N/A	N2TU 51280BE-37B61921300CP	Elixir	·	·
512MB	REMAXEL	RML1040EG38D6F-533	SS	N/A	E5108AG-5C-E	Elpida	·	·
512MB	TAKEMS	TMS51B264C081-534AE	SS	N/A	MS18T 51280-3.7EA07100	takeMS	·	
512MB	TAKEMS	TMS51B264C081-534AP	SS	N/A	MS18T 51280-3.7P0704D	takeMS	·	·
512MB	TAKEMS	TMS51B264C081-534QI	SS	N/A	MS18T 51280-3.7	takeMS	·	·
1024MB	TAKEMS	TMS1GB264C081-534AE	DS	N/A	MS18T 51280-3.7EA0651D	takeMS	·	·
1024MB	TAKEMS	TMS1GB264C081-534AP	DS	N/A	MS18T 51280-3.7P0645D	takeMS	·	·
1024MB	TAKEMS	TMS1GB264C081-534QI	DS	N/A	MS18T 51280-3.7	takeMS	·	·

> **SS: Single-sided / DS: Double-sided**
> **DIMM support:**
> • **A*:** Supports one module inserted into either slot as the single-channel memory configuration.
> • **B*:** Supports one pair of modules inserted into both the blue slots as one pair of dual-channel memory configuration.

> Visit the ASUS website at www.asus.com for the latest QVL.

1.5 Expansion slot

In the future, you may need to install expansion cards. The following sub-sections describe the slot and the expansion cards that it supports.

⚠️ Unplug the power cord before adding or removing expansion cards. Failure to do so may cause you physical injury and damage motherboard components.

1.5.1 Installing an expansion card

To install an expansion card:

1. Before installing the expansion card, read the documentation that came with it and make the necessary hardware settings for the card.

2. Remove the system unit cover (if your motherboard is already installed in a chassis).

3. Remove the bracket opposite the slot that you intend to use. Keep the screw for later use.

4. Align the card connector with the slot and press firmly until the card is completely seated on the slot.

5. Secure the card to the chassis with the screw you removed earlier.

6. Replace the system cover.

1.5.2 Configuring an expansion card

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

1. Turn on the system and change the necessary BIOS settings, if any. See Chapter 2 for information on BIOS setup.

2. Assign an IRQ to the card.

3. Install the software drivers for the expansion card.

1.5.3 PCI slot

The PCI slot supports cards such as a LAN card, SCSI card, USB card, and other cards that comply with PCI specifications.

1.6   Jumpers

1.   **Clear RTC RAM (3-pin CLRTC)**

This jumper allows you to clear the Real Time Clock (RTC) RAM in CMOS. You can clear the CMOS memory of date, time, and system setup parameters by erasing the CMOS RTC RAM data. The onboard button cell battery powers the RAM data in CMOS, which include system setup information such as system passwords.
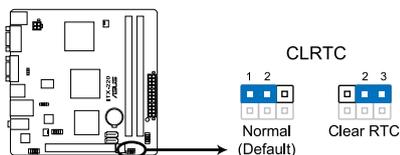
ITX-220 Clear RTC RAM

To erase the RTC RAM:

1.   Turn OFF the computer and unplug the power cord.

2.   Move the jumper cap from pins 1-2 (default) to pins 2-3. Keep the cap on pins 2-3 for about 5-10 seconds, then move the cap back to pins 1-2.

3.   Plug the power cord and turn ON the computer.

4.   Hold down the **<Del>** key during the boot process and enter BIOS setup to re-enter data.

Except when clearing the RTC RAM, never remove the cap on CLRTC jumper default position. Removing the cap will cause system boot failure!

If the steps above do not help, remove the onboard battery and move the jumper again to clear the CMOS RTC RAM data. After clearing the CMOS, reinstall the battery.

2.   **Keyboard/mouse power (3-pin PS2_USBPW1-6)**

This jumper allows you to enable or disable the keyboard/mouse and USB port 1-6 wake-up feature. When you set this jumper to pins 2-3 (+5VSB), you can wake up the computer by pressing a key on the keyboard (the default is the Space Bar), clicking the mouse, or using a USB device. This feature requires an ATX power supply that can supply at least 1A on the +5VSB lead, and a corresponding setting in the BIOS.
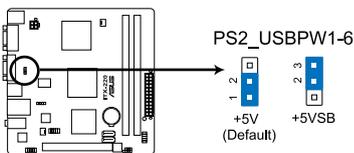
ITX-220 Keyboard Power Setting

1.7 Connectors

1.7.1 Rear panel connectors
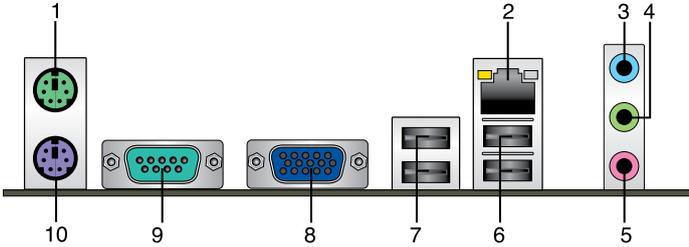
1. **PS/2 mouse port (green).** This port is for a PS/2 mouse.

2. **LAN (RJ-45) port.** This port allows Gigabit connection to a Local Area Network (LAN) through a network hub. Refer to the table below for the LAN port LED indications.

   LAN port LED indications

ACT/LINK LED		SPEED LED	
Status	Description	Status	Description
OFF	No link	OFF	10 Mbps connection
ORANGE	Linked	ORANGE	100 Mbps connection
BLINKING	Data activity	GREEN	1 Gbps connection
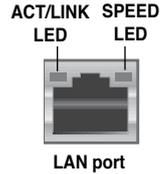
3. **Line In port (light blue).** This port connects the tape, CD, DVD player, or other audio sources.

4. **Line Out port (lime).** This port connects a headphone or a speaker. In 4-channel and 6-channel configurations, the function of this port becomes Front Speaker Out.

5. **Microphone port (pink).** This port connects a microphone.

> Refer to the audio configuration table below for the function of the audio ports in 2, 4, or 6-channel configuration.

Audio 2, 4, or 6-channel configuration

Port	Headset 2-channel	4-channel	6-channel
Light Blue	Line In	Rear Speaker Out	Rear Speaker Out
Lime	Line Out	Front Speaker Out	Front Speaker Out
Pink	Mic In	Mic In	Bass/Center

6. **USB 2.0 ports 1 and 2.** These two 4-pin Universal Serial Bus (USB) ports are available for connecting USB 2.0 devices.

7. **USB 2.0 ports 3 and 4.** These two 4-pin Universal Serial Bus (USB) ports are available for connecting USB 2.0 devices.

8. **Video Graphics Adapter (VGA) port.** This 15-pin port is for a VGA monitor or other VGA-compatible devices.

9. **COM port**. This port is for pointing devices or other serial devices.

10. **PS/2 keyboard port (purple).** This port is for a PS/2 keyboard.

1.7.2   Internal connectors

1. **ATX power connectors (24-pin EATXPWR, 4-pin ATX12V)**

   These connectors are for ATX power supply plugs. The power supply plugs are designed to fit these connectors in only one orientation. Find the proper orientation and push down firmly until the connectors completely fit.

ITX-220 ATX power connectors
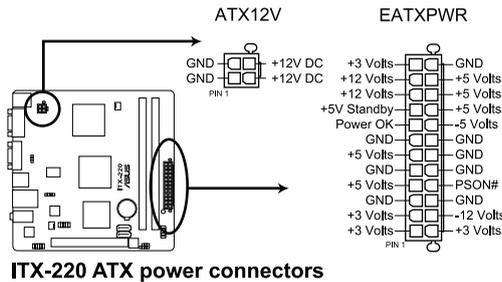
- For a fully configured system, we recommend that you use a power supply unit (PSU) that complies with ATX 12 V Specification 2.0 (or later version) and provides a minimum power of 400 W.

- Do not forget to connect the 4-pin ATX12V power plug. Otherwise, the system will not boot.

- We recommend that you use a PSU with a higher power output when configuring a system with more power-consuming devices or when you intend to install additional devices. The system may become unstable or may not boot up if the power is inadequate.

2. **USB connector (10-1 pin USB56)**

This connector is for a USB 2.0 port. Connect the USB module cable to this connector, then install the module to a slot opening at the back of the system chassis. This USB connector complys with USB 2.0 specification that supports up to 480 Mbps connection speed.
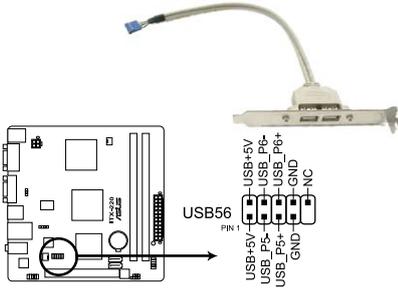
ITX-220 USB2.0 connector

Never connect a 1394 cable to the USB connector. Doing so will damage the motherboard!

The USB module cable is purchased separately.

3. **Speaker connector (4-pin SPEAKER)**

This 4-pin connector is for the chassis-mounted system warning speaker. The speaker allows you to hear system beeps and warnings.
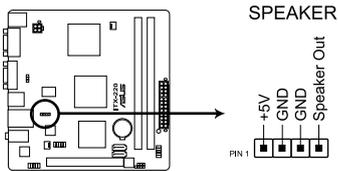
ITX-220 Speaker Out Connector

4. **CPU and chassis fan connectors (3-pin CPU_FAN, 3-pin CHA_FAN)**

The fan connectors support cooling fans of 350 mA~2000 mA (24 W max.) or a total of 1 A~3.48 A (41.76 W max.) at +12V. Connect the fan cables to the fan connectors on the motherboard, ensuring that the black wire of each cable matches the ground pin of the connector.

> Do not forget to connect the fan cables to the fan connectors. Insufficient air flow inside the system may damage the motherboard components. These are not jumpers! Do not place jumper caps on the fan connectors!

CPU_FAN

GND
+12V
Rotation

CHA_FAN

Rotation
+12V
GND

ITX-220 fan connectors
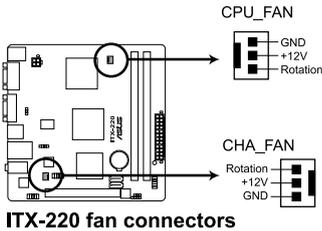
5. **Chassis intrusion connector (4-1 pin CHASSIS)**

This connector is for a chassis-mounted intrusion detection sensor or switch. Connect one end of the chassis intrusion sensor or switch cable to this connector. The chassis intrusion sensor or switch sends a high-level signal to this connector when a chassis component is removed or replaced. The signal is then generated as a chassis intrusion event.

By default, the pin labeled "Chassis Signal" and "Ground" are shorted with a jumper cap. Remove the jumper caps only when you intend to use the chassis intrusion detection feature.

CHASSIS

+5VSB_MB
Chassis Signal
GND

ITX-220 Chassis intrusion connector
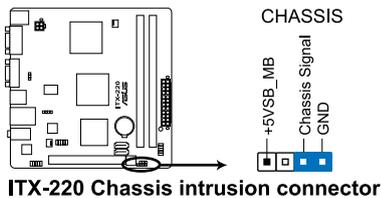
6.   System panel connector (10-1 pin F_PANEL)

This connector supports several chassis-mounted functions.
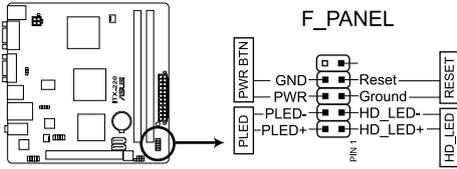
ITX-220 System panel connector

• **System power LED (2-pin PLED)**

This 2-pin connector is for the system power LED. Connect the chassis power LED cable to this connector. The system power LED lights up when you turn on the system power, and blinks when the system is in sleep mode.

• **Hard disk drive activity LED (2-pin HD_LED)**

This 2-pin connector is for the HDD Activity LED. Connect the HDD Activity LED cable to this connector. The HD LED lights up or flashes when data is read from or written to the HDD.

• **ATX power button/soft-off button (2-pin PWRBTN)**

This connector is for the system power button. Pressing the power button turns the system on or puts the system in sleep or soft-off mode depending on the BIOS settings. Pressing the power switch for more than four seconds while the system is ON turns the system OFF.

• **Reset button (2-pin RESET)**

This 2-pin connector is for the chassis-mounted reset button for system reboot without turning off the system power.

7.   Serial ATA connectors (7-pin SATA1, SATA2)

These connectors are for the Serial ATA signal cables for Serial ATA 3Gb/s hard disk drives and optical disk drives. The Serial ATA 3Gb/s is backward compatible with the Serial ATA 1.5Gb/s specification. The data transfer rate of the Serial ATA 3Gb/s is faster than the standard parallel ATA (133 Mb/s).
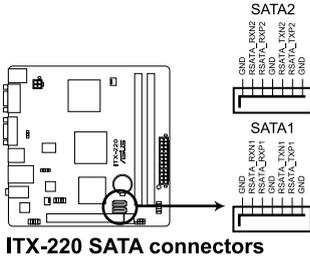
ITX-220 SATA connectors

8.   Front panel audio connector (10-1 pin AAFP)

This connector is for a chassis-mounted front panel audio I/O module that supports either HD Audio or legacy AC`97 audio standard. Connect one end of the front panel audio I/O module cable to this connector.
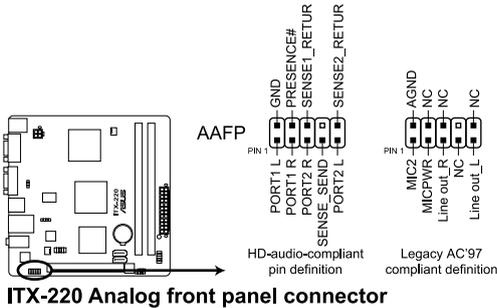
ITX-220 Analog front panel connector

•   We recommend that you connect a high-definition front panel audio module to this connector to avail of the motherboard's high-definition audio capability.

•   If you want to connect a high-definition front panel audio module to this connector, set the **Front Panel Support Type** item in the BIOS setup to **[HD Audio]**. If you want to connect an AC'97 front panel audio module to this connector, set the item to **[AC97]**. By default, this connector is set to **[HD Audio]**. See section **2.4.5 Chipset** for details.

1.8 Software support

1.8.1 Installing an operating system

This motherboard supports Windows® XP/Vista Operating Systems (OS). Always install the latest OS version and corresponding updates to maximize the features of your hardware.

> • Motherboard settings and hardware options vary. Refer to your OS documentation for detailed information.
>
> • Ensure that you install Windows® XP Service Pack 3 or later versions / Windows® Vista Service Pack 1 or later versions before installing the drivers for better compatibility and system stability.

1.8.2 Support DVD information

The Support DVD that comes with the motherboard package contains the drivers, software applications, and utilities that you can install to avail all motherboard features.

> The contents of the Support DVD are subject to change at any time without notice. Visit the ASUS website at www.asus.com for updates.

To run the Support DVD

Place the Support DVD to the optical drive. The DVD automatically displays the Drivers menu if Autorun is enabled in your computer.

> The following screen is for reference only.
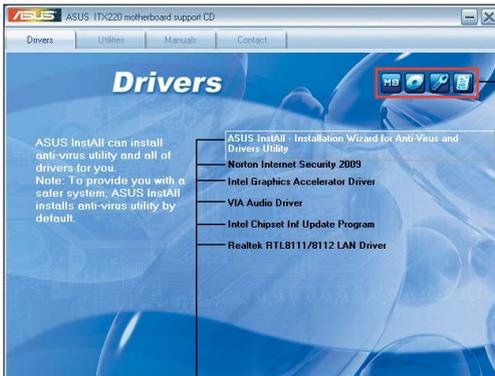
Click an icon to display Support DVD/ motherboard information

Click an item to install

> If Autorun is NOT enabled in your computer, browse the contents of the Support DVD to locate the file ASSETUP.EXE from the BIN folder. Double-click the ASSETUP.EXE to run the DVD.

Chapter 2

BIOS information

2.1 Managing and updating your BIOS

Save a copy of the original motherboard BIOS file to a USB flash disk in case you need to restore the BIOS in the future. Copy the original motherboard BIOS using the ASUS Update utility.

2.1.1 ASUS Update utility

The ASUS Update is a utility that allows you to manage, save, and update the motherboard BIOS in Windows® environment.

- ASUS Update requires an Internet connection either through a network or an Internet Service Provider (ISP).

- This utility is available in the support DVD that comes with the motherboard package.

Installing ASUS Update

To install ASUS Update:

1. Place the support DVD in the optical drive. The **Drivers** menu appears.

2. Click the **Utilities** tab, then click **ASUS Update**.

3. Follow the onscreen instructions to complete the installation.

Quit all Windows® applications before you update the BIOS using this utility.

Updating the BIOS

To update the BIOS:

1. From the Windows® desktop, click **Start** > **Programs** > **ASUS** > **ASUSUpdate** > **ASUSUpdate** to launch the ASUS Update utility.

2. From the dropdown list, select any of the updating process:

Updating from the Internet

a. Select **Update BIOS from the Internet**, then click **Next**.

b. Select the ASUS FTP site nearest you to avoid network traffic, or click **Auto Select** then click **Next**.

c. From the FTP site, select the BIOS version that you wish to download then click **Next**.

> The ASUS Update utility is capable of updating itself through the Internet. Always update the utility to avail all its features.

Updating from a BIOS file

a. Select **Update BIOS from a file**, then click **Next**.

b. Locate the BIOS file from the **Open** window, then click **Open**.

3. Follow the onscreen instructions to complete the updating process.

2.1.2 ASUS EZ Flash 2 utility

The ASUS EZ Flash 2 feature allows you to update the BIOS without using an OS-based utility.

> Before you start using this utility, download the latest BIOS file from the ASUS website at www.asus.com.

To update the BIOS using EZ Flash 2:

1. Insert the USB flash disk that contains the latest BIOS file to the USB port, then launch EZ Flash 2 in any of these two ways:

   • Press **<Alt> + <F2>** during POST to display the following:


```
        ASUSTek EZ Flash 2 BIOS ROM Utility V3.36
FLASH TYPE: WOINBOND W25X80
┌─── Current ROM ───┐          ┌─── Update ROM ───┐
 BOARD: ITX-220                  BOARD: Unknown
 VER: 0209 (H:00 B:05)           VER: Unknown
 DATE: 04/01/2009                DATE: Unknown
PATH: A:\
 A:

┌── Note ──┐
 [Enter] Select or Load  [Tab] Switch   [V] Drive Info
 [Up/Down/Home/End] Move    [B] Backup      [ESC] Exit
```
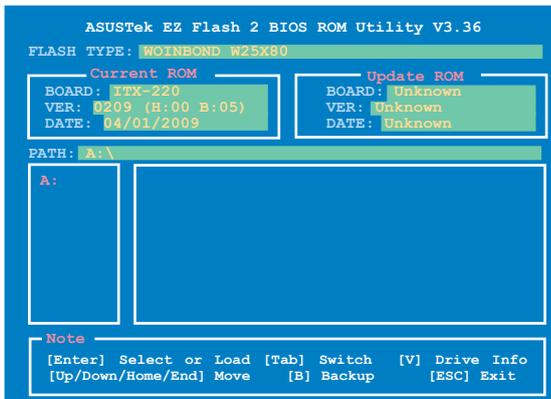
- Enter the BIOS setup program. Go to the **Tools** menu to select **EZ Flash 2** and press **<Enter>** to enable it.
  Press **<Tab>** to switch between drives until the correct BIOS file is found.

2. When the correct BIOS file is found, EZ Flash 2 performs the BIOS update process and automatically reboots the system when done.

- Only a USB flash disk with **FAT 32/16** format and single partition can support the ASUS EZ Flash 2 utility.

- Do not shut down or reset the system while updating the BIOS to prevent system boot failure!

2.1.3   ASUS CrashFree BIOS 3 utility

The ASUS CrashFree BIOS 3 is an auto recovery tool that allows you to restore the BIOS file when it fails or gets corrupted during the updating process. You can update a corrupted BIOS file using the motherboard support DVD or a USB flash disk that contains the updated BIOS file.

- Prepare the motherboard support DVD or the USB flash disk containing the updated motherboard BIOS before using this utility.

- Always connect the SATA cable to the SATA1 / SATA 2 connector. Otherwise, the utility will not function.

Recovering the BIOS

To recover the BIOS:

1. Turn on the system.

2. Insert the support DVD or USB flash disk containing the BIOS file to the optical drive or USB port.

3. The utility displays the following message and automatically checks the support DVD or USB flash disk for the BIOS file.

```
Bad BIOS checksum. Starting BIOS recovery...
Checking for CD-ROM...
CD-ROM not found!
Checking for USB Device...
```

When found, the utility reads the BIOS file and starts erasing the corrupted BIOS file.

```
Bad BIOS checksum. Starting BIOS recovery...
Checking for USB Device...
USB Device found.
Reading file "ITX220.ROM". Completed.
Start Erasing...\
```

4.   Restart the system after the utility completes the updating process.

⚠️
- Only a USB flash disk with FAT 32/16 format and single partition can support ASUS CrashFree BIOS 3. The device size should be smaller than 8GB.

- DO NOT shut down or reset the system while updating the BIOS! Doing so can cause system boot failure!

📝
The recovered BIOS may not be the latest BIOS version for this motherboard. Download the latest BIOS file from the ASUS website at www.asus.com.

2.2   BIOS setup program

Use the BIOS Setup program when you are installing a motherboard, reconfiguring your system, or prompted to "Run Setup." This section explains how to configure your system using this utility.

If you wish to enter Setup after POST, reboot the system by doing any of the following procedures:

- Restart using the OS standard shutdown procedure.
- Press **<Ctrl>**+**<Alt>**+**<Del>** simultaneously.
- Press the reset button on the system chassis.
- Press the power button to turn the system off then back on.

⚠️
Using the **power button**, **reset button**, or the **<Ctrl>+<Alt>+<Del>** keys to force reset from a running operating system can cause damage to your data or system. We recommend to always shut down the system properly from the operating system.

✎
- The default BIOS settings for this motherboard apply for most conditions to ensure optimum performance. If the system becomes unstable after changing any BIOS settings, load the default settings to ensure system compatibility and stability. Select the **Load Setups Default** item under the Exit Menu. See section **2.8 Exit Menu**.

- The BIOS setup screens shown in this section are for reference purposes only, and may not exactly match what you see on your screen.

- Visit the ASUS website at www.asus.com to download the latest BIOS file for this motherboard.

2.3   Main menu

When you enter the BIOS Setup program, the **Main** menu screen appears, giving you an overview of the basic system information.

```
                          BIOS SETUP UTILITY
  Main    Advanced    Power    Boot    Tools    Exit

  System Time              [00:31:48]              Use [ENTER], [TAB] or
  System Date              [Mon 01/21/2002]        [SHIFT-TAB] to select
                                                   a field.

▶ SATA 1                   [Not Detected]          Use [+] or [-] to
▶ SATA 2                   [Not Detected]          configure system time.

▶ Storage Configuration

▶ System Information
                                                   ←→   Select Screen
                                                   ↑↓   Select Item
                                                   +-   Change Field
                                                   Tab  Select Field
                                                   F1   General Help
                                                   F10  Save and Exit
                                                   ESC  Exit

        v02.58 (C)Copyright 1985-2009, American Megatrends, Inc.
```

2.3.1   System Time [xx:xx:xx]

Allows you to set the system time.

2.3.2   System Date [Day xx/xx/xxxx]

Allows you to set the system date.

2.3.3   SATA 1/SATA 2

While entering Setup, the BIOS automatically detects the presence of SATA devices. There is a separate sub-menu for each SATA device. Select a device item then press <Enter> to display the SATA device information.

The BIOS automatically detects the values opposite the dimmed items (Device, Vendor, Size, LBA Mode, Block Mode, PIO Mode, Async DMA, Ultra DMA, and SMART Monitoring). These values are not user-configurable. These items show N/A if no Serial ATA device is installed in the system.

LBA/Large Mode [Auto]

Enables or disables the LBA mode. Setting to **[Auto]** enables the LBA mode if the device supports this mode, and if the device was not previously formatted with LBA mode disabled. Configuration options: [Disabled] [Auto]

Block (Multi-sector Transfer) M [Auto]

Enables or disables data multi-sectors transfers. When set to **[Auto]**, the data transfer from and to the device occurs multiple sectors at a time if the device supports multi-sector transfer feature. When set to **[Disabled]**, the data transfer from and to the device occurs one sector at a time. Configuration options: [Disabled] [Auto]

PIO Mode [Auto]

Selects the PIO mode. Configuration options: [Auto] [0] [1] [2] [3] [4]

DMA Mode [Auto]

Selects the DMA mode. Configuration options: [Auto]

SMART Monitoring [Auto]

Sets the Smart Monitoring, Analysis, and Reporting Technology.
Configuration options: [Auto] [Disabled] [Enabled]

32Bit Data Transfer [Enabled]

Enables or disables 32-bit data transfer. Configuration options: [Disabled] [Enabled]

2.3.4   Storage Configuration

The items in this menu allow you to set or change the configurations for the SATA devices installed in the system. Select an item then press **<Enter>** if you want to configure the item.

SATA Operate Mode [Enhanced Mode]

Disables or allows selection of the SATA operation mode depending on the operating system (OS) that you installed. Set to [Enhanced Mode] if you are using a native OS, such as Windows® 2000/XP. Configuration options: [Disabled] [Compatible Mode] [Enhanced Mode]

2.3.5   System Information

This menu gives you an overview of the general system specifications. The BIOS automatically detects the items in this menu.

AMI BIOS

Displays the auto-detected BIOS information.

Processor

Displays the auto-detected CPU specification.

System Memory

Displays the auto-detected system memory.

2.4 Advanced menu

The **Advanced** menu items allow you to change the settings for the CPU and other system devices.

⚠️ Take caution when changing the settings of the Advanced menu items. Incorrect field values can cause the system to malfunction.

```
                              BIOS SETUP UTILITY
    Main    Advanced     Power     Boot    Tools    Exit

                                                    Adjust System
  ▶  JumperFree Configuration                       frequency/voltage.
  ▶  TPM Configuration
  ▶  USB Configuration

  ▶  CPU Configuration
  ▶  Chipset
  ▶  Onboard Devices Configuration
  ▶  PCIPnP
```
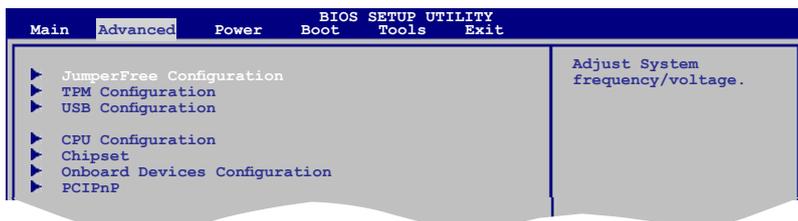
2.4.1 JumperFree Configuration

The items in this menu allows you to adjust the system frequency/voltage.

Ai Overclocking [Auto]

Allows selection of CPU overclocking options to achieve desired CPU internal frequency. Select either one of the preset overclocking configuration options:

> **Manual** - allows you to individually set overclocking parameters.

> **Auto** - loads the optimal settings for the system.

✏️ The following item appears only when you set the **AI Overclocking** item to **[Manual]**.

CPU Frequency [xxx]
Displays the frequency sent by the clock generator to the system bus and PCI bus. The value of this item is auto-detected by the BIOS. Use the **<+>** and **<->** keys to adjust the CPU frequency. You can also type the desired CPU frequency using the numeric keypad. The values range from 133 to 140. Refer to the table below for the correct Front Side Bus and CPU External Frequency settings.

2.4.2 TPM Configuration

The items in this menu allow you to set the TPM (Trusted Platform Module) features. Select an item then press **<Enter>** to display the configuration options.

✏️ The TPM Configuration item appears only when a TPM module is installed in this motherboard.

TCG/TPM SUPPORT [NO]

Allows you to enable or disable TPM/TCG setting. Configuration options: [Yes] [No]

The following two items appear only when you set the **TCG/TPM SUPPORT** item to [Yes].

TPM Enable/Disable Status [No State]
This item is not user-configurable.
TPM Owner Status [No State]
This item is not user-configurable.

2.4.3   USB Configuration

The items in this menu allows you to change the USB-related features. Select an item then press **<Enter>** to display the configuration options.

The Module Version and USB Devices Enabled items show the auto-detected values. If no USB device is detected, the item shows **None**.

USB Functions [Enabled]

Allows you to disable or enable the USB functions.
Configuration options: [Disabled] [Enabled]

Legacy USB Support [Auto]

Allows you to enable or disable support for Legacy USB storage devices, including USB flash drives and USB hard drives. Setting to **[Auto**] allows the system to detect the presence of USB devices at startup. If detected, the USB controller legacy mode is enabled. If no USB device is detected, the legacy USB support is disabled.
Configuration options: [Disabled] [Enabled] [Auto]

USB 2.0 Controller [Enabled]

Allows you to enable or disable USB 2.0 controller.
Configuration options: [Enabled] [Disabled]

USB 2.0 Controller Mode [HiSpeed]

Allows you to configure the USB 2.0 controller in HiSpeed (480Mbps) or Full Speed (12Mbps). Configuration options: [FullSpeed] [HiSpeed]

The following items may only appear when a USB storage device is plugged.

USB Mass Storage Device Configuration

USB Mass Storage Reset Delay [20 Sec]
Allows you to set the maximum time that the BIOS waits for the USB storage device to initialize. Configuration options: [10 Sec] [20 Sec] [30 Sec] [40 Sec]
Emulation Type [Auto]
Allows you to select the emulation type. Configuration options: [Auto] [Floppy] [Forced FDD] [Hard Disk] [CDROM]

2.4.4   CPU Configuration

The items in this menu show the CPU-related information that the BIOS automatically detects.

Max CPUID Value Limit [Disabled]

Allows you to determine whether to limit CPUID maximum value. Set this item to [Disabled] for Windows XP operating system; set this item to [Enabled] for legacy operating system such as Windows NT4.0. Configuration options: [Disabled] [Enabled]

CPU TM function [Enabled]

Enables or disables Intel® CPU Thermal Monitor (TM) function, a CPU overheating protection function. When enabled, the CPU core frequency and voltage are reduced when the CPU overheats. Configuration options: [Disabled] [Enabled]

Execute Disable Bit [Enabled]

Allows you to enable or disable the No-Execution Page Protection Technology. Setting this item to **[Disabled]** forces the XD feature flag to always return to zero (0). Configuration options: [Disabled] [Enabled]

2.4.5   Chipset

The **Chipset** menu allows you to change the advanced chipset settings. Select an item then press **<Enter>** to display the submenu.

North Bridge Configuration

Configure DRAM Timing by SPD [Enabled]

Allows you to enable or disable configuring the DRAM Timing by SPD.
Configuration options: [Enabled] [Disabled]

Boot Graphic Adapter Priority [PCI/Int-VGA]

Allows selection of the graphics controller to use as primary boot device.
Configuration options: [Internal VGA] [PCI/Int-VGA]

Internal Graphics Mode Select [Enabled, 8MB]

Allows you to select the amount of system memory used by the internal graphics device.
Configuration options: [Disabled] [Enabled, 1MB] [Enabled, 8MB]

DVMT Mode Select [DVMT Mode]

Allows you to select the graphics memory type.
Configuration options: [Fixed Mode] [DVMT Mode] [Combo Mode]

> *DVMT/FIXED Memory [128MB]*
> Allows you to select the amount of the DVMT/FIXED memory.
> Configuration options: [64MB] [128MB] [Maximum DVMT]

South Bridge Configuration

HD Audio Controller [Enabled]

Allows you to enable or disable the high definition audio controller.
Configuration options: [Enabled] [Disabled]

Front Panel Support Type [HD Audio]
Allows you to select the front panel support type. If High Definition Audio Front Panel
used, please set HD Audio mode. Configuration options: [AC97] [HD Audio]

2.4.6 Onboard Devices Configuration

Onboard Gigabit LAN [Enabled]

Allows you to enable or disable the onboard LAN controller.
Configuration options: [Enabled] [Disabled]

LAN Option ROM [Disabled]
Allows you to enable or disable the boot ROM in the onboard LAN controller. This item
appears only when the Onboard LAN item is set to Enabled.
Configuration options: [Disabled] [Enabled]

Serial Port1 Address [3F8/IRQ4]

Allows you to select the Serial Port1 base address.
Configuration options: [Disabled] [3F8/IRQ4] [2F8/IRQ3] [3E8/IRQ4] [2E8/IRQ3]

2.4.7 PCI PnP

The PCI PnP menu items allow you to change the advanced settings for PCI/PnP devices.
The menu includes setting IRQ and DMA channel resources for either PCI/PnP or legacy ISA
devices, and setting the memory size block for legacy ISA devices.

> Take caution when changing the settings of the PCI PnP menu items. Incorrect field values
> can cause the system to malfunction.

Plug and Play O/S [No]

When set to [No], BIOS configures all the devices in the system. When set to [Yes] and if you
install a Plug and Play operating system, the operating system configures the Plug and Play
devices not required for boot. Configuration options: [No] [Yes]

PCI Latency Timer [64]

Allows you to select the value in units of PCI clocks for the PCI device latency timer register.
Configuration options: [32] [64] [96] [128] [160] [192] [224] [248]

Allocate IRQ to PCI VGA [Yes]

When set to **[Yes]**, BIOS assigns an IRQ to PCI VGA card if the card requests for an IRQ.
When set to **[No]**, BIOS does not assign an IRQ to the PCI VGA card even if requested.
Configuration options: [Yes] [No]

Palette Snooping [Disabled]

When set to [Enabled], the pallete snooping feature informs the PCI devices that an
ISA graphics device is installed in the system so that the latter can function correctly.
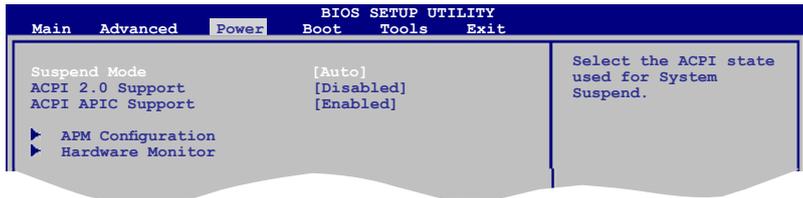Configuration options: [Disabled] [Enabled]

IRQ-xx assigned to [PCI Device]

When set to [PCI Device], the specific IRQ is free for use of PCI/PnP devices. When set to [Reserved], the IRQ is reserved for legacy ISA devices.
Configuration options: [PCI Device] [Reserved]

2.5   Power menu

The Power menu items allow you to change the settings for the Advanced Power Management (APM). Select an item then press **<Enter>** to display the configuration options.

```
                              BIOS SETUP UTILITY
    Main    Advanced    Power    Boot    Tools    Exit

    Suspend Mode              [Auto]                  Select the ACPI state
    ACPI 2.0 Support          [Disabled]              used for System
    ACPI APIC Support         [Enabled]               Suspend.

  ▶   APM Configuration
  ▶   Hardware Monitor
```

2.5.1   Suspend Mode [Auto]

Allows you to select the Advanced Configuration and Power Interface (ACPI) state to be used for system suspend. Configuration options: [S1 (POS) Only] [S3 Only] [Auto]

> **[S1(POS) Only]** - Enables the system to enter the ACPI S1 (Power on Suspend) sleep state. In S1 sleep state, the system appears suspended and stays in a low power mode. The system can be resumed at any time.

> **[S3 Only]** - Enables the system to enter the ACPI S3 (Suspend to RAM) sleep state (default). In S3 sleep state, the system appears to be off and consumes less power than in the S1 state. When signaled by a wake-up device or event, the system resumes to its working state exactly where it was left off.

> **[Auto]** - Detected by OS.

2.5.2   ACPI 2.0 Support [Disabled]

Allows you to add more tables for Advanced Configuration and Power Interface (ACPI) 2.0 specifications. Configuration options: [Disabled] [Enabled]

2.5.3   ACPI APIC Support [Enabled]

Allows you to enable or disable the Advanced Configuration and Power Interface (ACPI) support in the Application-Specific Integrated Circuit (ASIC). When set to Enabled, the ACPI APIC table pointer is included in the RSDT pointer list.
Configuration options: [Disabled] [Enabled]

2.5.4   APM Configuration

Restore on AC Power Loss [Power Off]

When set to **[Power Off]**, the system goes into off state after an AC power loss. When set to **[Power On]**, the system goes on after an AC power loss. Configuration options: [Power Off] [Power On]

Power On By RTC Alarm [Disabled]

Allows you to enable or disable RTC to generate a wake event. When this item is set to Enabled, the items RTC Alarm Date, RTC Alarm Hour, RTC Alarm Minute, and RTC Alarm Second appear with set values. Configuration options: [Disabled] [Enabled]

Power On By External Modems [Disabled]

This allows either settings of [Enabled] or [Disabled] for powering up the computer when the external modem receives a call while the computer is in Soft-off mode.
Configuration options: [Disabled] [Enabled]

> The computer cannot receive or transmit data until the computer and applications are fully running. Thus, connection cannot be made on the first try. Turning an external modem off and then back on while the computer is off causes an initialization string that turns the system power on.

Power On By PCI(E) Devices [Disabled]

When set to [Enabled], this parameter allows you to turn on the system through a PCI / PCI Express LAN or modem card. This feature requires an ATX power supply that provides at least 1A on the +5VSB lead. Configuration options: [Disabled] [Enabled]

Power On By PS/2 Keyboard [Disabled]

Allows you to use specific keys on the keyboard to turn on the system. This feature requires an ATX power supply that provides at least 1A on the +5VSB lead.
Configuration options: [Disabled] [Space Bar] [Ctrl-Esc] [Power Key]

Power On By PS/2 Mouse [Disabled]

When set to [Enabled], this parameter allows you to use the PS/2 mouse to turn on the system. This feature requires an ATX power supply that provides at least 1A on the +5VSB lead. Configuration options: [Disabled] [Enabled]

2.5.5   Hardware Monitor

CPU Temperature [xxxºC/xxxºF] or [Ignored]

MB Temperature [xxxºC/xxxºF] or [Ignored]

The onboard hardware monitor automatically detects and displays the motherboard and CPU temperatures. Select **Ignored** if you do not wish to display the detected temperatures.

CPU Fan Speed [xxxxRPM] or [Ignored]

The onboard hardware monitor automatically detects and displays the CPU fan speed in rotations per minute (RPM). If the fan is not connected to the motherboard, the field shows **N/A**. Select Ignored if you do not wish to display the detected speed.
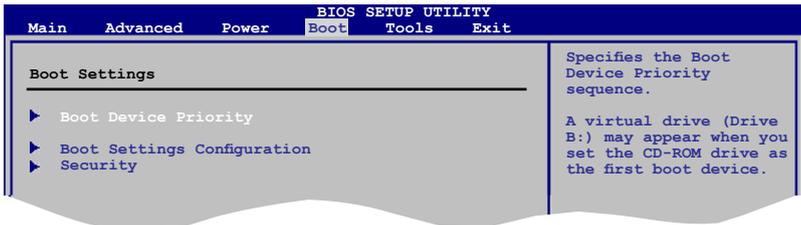
Chassis Fan Speed [Ignored] or [N/A]

The onboard hardware monitor automatically detects and displays the Chassis fan speed in rotations per minute (RPM). If the fan is not connected to the motherboard, the field shows **N/A**. Select Ignored if you do not wish to display the detected speed.

VCORE Voltage, 3.3V Voltage, 5V Voltage, 12V Voltage [xxxV] or [Ignored]

The onboard hardware monitor automatically detects the voltage output through the onboard voltage regulators.

2.6   Boot menu

The **Boot** menu items allow you to change the system boot options. Select an item then press **<Enter>** to display the sub-menu.

```
                           BIOS SETUP UTILITY
   Main     Advanced     Power    Boot    Tools    Exit
                                              Specifies the Boot
   Boot Settings                              Device Priority
                                              sequence.

 ▶   Boot Device Priority                     A virtual drive (Drive
                                              B:) may appear when you
 ▶   Boot Settings Configuration              set the CD-ROM drive as
 ▶   Security                                 the first boot device.
```

2.6.1   Boot Device Priority

1st ~ xxth Boot Device

These items specify the boot device priority sequence from the available devices. The number of device items that appears on the screen depends on the number of devices installed in the system. Configuration options: [Removable Dev.] [Hard Drive] [ATAPI CD-ROM] [Disabled]

2.6.2   Boot Settings Configuration

Quick Boot [Enabled]

Enabling this item allows the BIOS to skip some power on self tests (POST) while booting to decrease the time needed to boot the system. When set to **[Disabled]**, BIOS performs all the POST items. Configuration options: [Disabled] [Enabled]

Full Screen Logo [Enabled]

This allows you to enable or disable the full screen logo display feature. Configuration options: [Disabled] [Enabled]

> Set this item to **[Enabled]** to use the ASUS MyLogo2™ feature.

AddOn ROM Display Mode [Force BIOS]

Sets the display mode for option ROM. Configuration options: [Force BIOS] [Keep Current]

Bootup Num-Lock [On]

Allows you to select the power-on state for the NumLock.
Configuration options: [Off] [On]

PS/2 Mouse Support [Auto]

Allows you to enable or disable support for PS/2 mouse.
Configuration options: [Disabled] [Enabled] [Auto]

Wait For 'F1' If Error [Enabled]

When set to **Enabled**, the system waits for the F1 key to be pressed when error occurs.
Configuration options: [Disabled] [Enabled]

Hit 'DEL' Message Display [Enabled]

When set to **[Enabled]**, the system displays the message **Press DEL to run Setup** during POST. Configuration options: [Disabled] [Enabled]

Interrupt 19 Capture [Disabled]

When set to **[Enabled]**, this function allows the option ROMs to trap Interrupt 19.
Configuration options: [Disabled] [Enabled]

2.6.3   Security

The **Security** menu items allow you to change the system security settings. Select an item then press **<Enter>** to display the configuration options.

Change Supervisor Password

Select this item to set or change the supervisor password. The **Supervisor Password** item on top of the screen shows the default **Not Installed**. After you set a password, this item shows **Installed**.

To set a Supervisor Password:

1.   Select the **Change Supervisor Password** item and press **<Enter>**.

2.   From the password box, type a password composed of up to six letters and/or numbers, then press **<Enter>**.

3.   Confirm the password when prompted.

The message **Password Installed** appears after you successfully set your password.

To change the supervisor password, follow the same steps in setting a supervisor password.

To clear the supervisor password, select the **Change Supervisor Password** then press **<Enter>** twice. The message **Password uninstalled** appears.

If you forget your BIOS password, you can clear it by erasing the CMOS Real Time Clock (RTC) RAM. See section **1.9 Jumpers** for information on how to erase the RTC RAM.

After you have set a supervisor password, the other items appear to allow you to change other security settings.

User Access Level [Full Access]

This item allows you to select the access restriction to the Setup items.
Configuration options: [No Access] [View Only] [Limited] [Full Access]

>   **[No Access] -** prevents user access to the Setup utility.

>   **[View Only] -** allows access but does not allow change to any field.

>   **[Limited] -** allows changes only to selected fields, such as Date and Time.

>   **[Full Access] -** allows viewing and changing all the fields in the Setup utility.

Change User Password

Select this item to set or change the user password. The **User Password** item on top of the screen shows the default **Not Installed**. After you set a password, this item shows **Installed**.

To set a User Password:

1.   Select the **Change User Password** item and press **<Enter>**.

2.   From the password box, type a password composed of up to six letters and/or numbers, then press **<Enter>**.

3.   Confirm the password when prompted.

The message **Password Installed** appears after you set your password successfully.

To change the user password, follow the same steps in setting a user password.

Clear User Password

Select this item to clear the user password.

Password Check [Setup]

When set to **[Setup]**, BIOS checks for user password when accessing the Setup utility. When set to **[Always]**, BIOS checks for user password both when accessing Setup and booting the system. Configuration options: [Setup] [Always]

2.7   Tools menu

The Tools menu items allow you to configure options for special functions. Select an item then press **<Enter>** to display the sub-menu.

```
                              BIOS SETUP UTILITY
    Main   Advanced     Power     Boot    Tools    Exit

       AI NET 2                                LAN Cable Status
    ASUS EZ Flash 2
```

2.7.1   AI NET 2
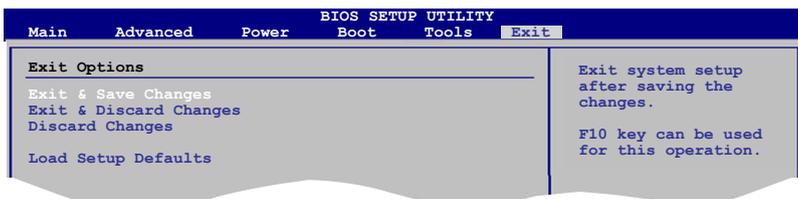
Check Realtek LAN cable [Disabled]

Enables or disables checking of the Realtek LAN cable during the Power-On Self-Test (POST). Configuration options: [Disabled] [Enabled]

2.7.2   ASUS EZ Flash 2

Allows you to run ASUS EZ Flash 2. When you press **<Enter>**, a confirmation message appears. Use the left/right arrow key to select between **[Yes]** or **[No]**, then press **<Enter>** to confirm your choice. Please see section **2.1.2 ASUS EZ Flash 2 utility** for details.

2.8   Exit menu

The Exit menu items allow you to load the optimal or failsafe default values for the BIOS items, and save or discard your changes to the BIOS items.

```
                              BIOS SETUP UTILITY
    Main       Advanced     Power     Boot    Tools    Exit

    Exit Options                              Exit system setup
                                              after saving the
    Exit & Save Changes                       changes.
    Exit & Discard Changes
    Discard Changes                           F10 key can be used
                                              for this operation.
    Load Setup Defaults
```

Pressing **<Esc>** does not immediately exit this menu. Select one of the options from this menu or **<F10>** from the legend bar to exit.