P4i45GL
P4i45GV

User Manual

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(1) this device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.

ASRock Website: http://www.asrock.com

Contents

Chapter 1 Introduction

Thank you for purchasing ASRock P4i45GL/P4i45GV motherboard, a reliable motherboard produced under ASRock's consistently stringent quality control. It delivers excellent performance with robust design conforming to ASRock's commitment to quality and endurance.

Chapter 1 and 2 of this manual contain introduction of the motherboard and step-by-step installation guide. Chapter 3 and 4 contain basic BIOS setup and support CD information. More information of advanced BIOS setup is offered on page 23 for advanced users' reference.

Because the motherboard specifications and the BIOS software might be updated, the content of this manual will be subject to change without notice. In case any modifications of this manual occur, the updated version will be available on ASRock website without further notice. You may find the latest memory and CPU support lists on ASRock website as well. ASRock website: http://www.asrock.com

1.1 Package Contents

ASRock P4i45GL/P4i45GV motherboard
(Micro ATX Form Factor: 9.6-in x 8.2-in, 24.4 cm x 20.8 cm)
ASRock P4i45GL/P4i45GV Quick Installation Guide
ASRock P4i45GL/P4i45GV Support CD
One 80-conductor Ultra ATA 66/100 IDE Ribbon Cable
One Ribbon Cable for a 3.5-in Floppy Drive
One ASRock I/O™ Shield
One COM Port Bracket
One ASRock MR Card (Optional)

1.2 Specifications

Platform:	Micro ATX Form Factor: 9.6-in x 8.2-in, 24.4 cm x 20.8 cm
CPU:	Socket 478, supports Intel® Pentium® 4 (Prescott, Northwood, Willimate) / Celeron® processor
Chipsets:	North Bridge **(P4i45GL):** Intel® 845GL chipsets, standard FSB 400MHz (see **CAUTION 1**), Max. 533 MHz at overclocking mode (see **CAUTION 2**); North Bridge **(P4i45GV):** Intel® 845GV chipsets, standard FSB 533 MHz, supports Hyper-Threading Technology (see **CAUTION 3**); South Bridge: Intel® ICH4
VGA:	Intel® Extreme Graphics, Max. 64MB VRAM
Memory:	**P4i45GL:** 2 DDR DIMM slots: DDR DIMM1 and DDR DIMM2 supports PC2100 (DDR266), Max. 2GB; **P4i45GV:** 2 DDR DIMM slots, DDR DIMM1 and DDR DIMM2 supports PC2100 (DDR266) / PC2700 (DDR333), Max. 2GB (see **CAUTION 4**)
IDE:	IDE1: ATA 100 / Ultra DMA Mode 5 IDE2: ATA 100 / Ultra DMA Mode 5 Supports up to 4 IDE devices
Floppy Port:	Supports up to 2 floppy disk drives
Audio:	5.1 channels AC'97 Audio
PCI LAN:	Speed: 802.3u (10/100 Ethernet), supports Wake-On-LAN
Hardware Monitor:	CPU temperature sensing, Chassis temperature sensing CPU overheat shutdown to protect CPU life (ASRock U-COP)(see **CAUTION 5**) CPU fan tachometer, Chassis fan tachometer Voltage monitoring: +12V, +5V, +3V, Vcore
PCI slots:	3 slots with PCI Specification 2.2 (see **CAUTION 6**)
AGI slot:	1 AGI [ASRock Graphics Interface] slot (see **CAUTION 7**)
AMR slot:	1 slot, supports ASRock MR card (Optional)
USB 2.0:	6 USB 2.0 ports: includes 4 default USB 2.0 ports on the rear panel, plus one header to support 2 additional USB 2.0 ports (see **CAUTION 8**)
ASRock I/O™:	1 PS/2 mouse port, 1 PS/2 keyboard port, 1 parallel port: ECP/EPP support, 1 VGA port 1 RJ 45 port, 4 default USB 2.0 ports 1 Game port Audio Jack: Line Out / Line In / Microphone In

BIOS:	AMI legal BIOS Supports “Plug and Play” ACPI 1.1 compliance wake up events Supports jumperfree SMBIOS 2.3.1 support CPU frequency stepless control (only for advanced users’ reference, see **CAUTION 9**)
OS:	Microsoft® Windows® 98SE / ME / 2000 / XP compliant

CAUTION!

1. P4i45GL motherboard may be fine tuned to support higher CPU bus frequencies on certain condition. Please refer to “NOTE” on page 7 in the support CD.
2. If the installed CPU runs with the FSB frequency at 533MHz on P4i45GL motherboard, it will support PC2100(DDR266) and PC2800(DDR350).
3 About the setting of “Hyper Threading Technology”, please check page 25 of the User Manual in the support CD.
4. P4i45GV motherboard will support PC2700(DDR333) at FSB 533MHz.
5. While CPU overheat is detected, the system will automatically shutdown. Please check if the CPU fan on the motherboard functions properly before you resume the system. To improve heat dissipation, remember to spray thermal grease between the CPU and the heatsink when you install the PC system.
6. Because the installed AMR card will occupy the same external connecting position with the PCI card installed in “PCI3” slot, you will not be able to install any PCI card in “PCI3” slot if an AMR card has already been installed in the AMR slot.
7. The AGI [ASRock Graphics Interface] slot is a special design that only supports compatible AGP VGA cards. For the information of the compatible AGP VGA cards, please refer to the “Supported AGP VGA Cards List” on page 8. For the proper installation of AGP VGA card, please refer to the installation guide on page 16.
8 Power Management for USB 2.0 works fine under Microsoft® Windows® XP SP1/2000 SP4. It may not work properly under Microsoft® Windows® 98/ME. Please refer to Microsoft® official document at http://www.microsoft.com/whdc/hwdev/bus/USB/USB2support.mspx
9. Although this motherboard offers stepless control, it is not recommended to perform over-clocking. Frequencies other than the recommended CPU bus frequencies may cause the instability of the system or damage the CPU.

NOTE

P4i45GL may be fine tuned to support higher CPU front side bus frequencies on certain condition. Please refer to the table below for the details.

	CPU FSB	Configuration Note
P4i45GL	533 MHz	1. It supports DDR266 memory module at both DDR DIMM1 and DIMM2.
		2. It supports DDR350 memory module **ONLY** at DDR DIMM1.
		3. To support DDR350, please set DDR350 in BIOS DRAM Frequency.
		4. It supports CL=2 and CL=2.5 only.

The Recommended Memory Modules list for **P4i45GL** motherboard.

FSB 533MHz / DDR350 Mode

DRAM VENDOR	SIZE (MB)	TYPE	CELL VENDOR	CELL NO.	SINGLE SIDE / DOUBLE SIDE
TWINMOS	256	DDR333	TWINMOS	TMD7608F8E60B	SINGLE SIDE
TWINMOS	256	DDR400	TWINMOS	TMD7608F8E50B	SINGLE SIDE
TWINMOS	512	DDR400	TWINMOS	TMD7608F8E50B	DOUBLE SIDE
TWINMOS	512	DDR400	M.TEC	TTD7608F8E50B	DOUBLE SIDE
ADATA	256	DDR400	WINBOND	W942508CH-5	SINGLE SIDE
ADATA	256	DDR400	WINBOND	W942508BH-5	SINGLE SIDE
ADATA	256	DDR400	ADATA	ADD8608A8A-4.5B	SINGLE SIDE
KINGMAX	256	DDR400	KINGMAX	KDL388P4EA-50	SINGLE SIDE
KINGMAX	512	DDR400	KINGMAX	KDL388P4EA-50	DOUBLE SIDE
KINGSTON	256	DDR333	MOSEL	V58C2256804SAT6	SINGLE SIDE
KINGSTON	512	DDR333	INFINEON	HYB25D256800BT-6	DOUBLE SIDE
MICRON	256	DDR333	MICRON	46V32M8-6TC	SINGLE SIDE
MICRON	256	DDR400	MICRON	46V16M8	DOUBLE SIDE
INFINEON	128	DDR400	INFINEON	HYB25D256800BT-5	SINGLE SIDE
INFINEON	256	DDR400	INFINEON	HYB25D256800BT-5	SINGLE SIDE
TRANSCEND	256	DDR333	SAMSUNG	K4H560838D-TCB3	SINGLE SIDE

Since the memory types are changing rapidly, please visit ASRock website (http://www.asrock.com/support/index.htm) for the latest recommended memory support list.

1.3 Supported AGP VGA Cards List

(for Windows 2000/Windows XP)

I. AGP 4X

Graphics Chip Vendor	Model Name
n-VIDIA	ASUS AGP-V7100 ASUS AGP-V7100PRO ASUS AGP-V7100 MAGIC / 32M ASUS AGP-V7700Ti ASUS AGP-V8170DDR ASUS AGP-V8170SE / LP ASUS AGP-V8200 T2 ASUS AGP-V8200 T5 ASUS AGP-V8440 ASUS AGP-V8460 Ultra GAINWARD- GF3-TI500/64M GAINWARD- GF3-TI500/128M Inno3D GeForce2 MX400 Leadtek WinFast A170 TH Leadtek WinFast A170 DDR Leadtek WinFast A250LE TD Leadtek WinFast GeForce2 MX MX64 Leadtek WinFast GeForce2 H MX400 MSI- GF4-MX440SE PROLINK GF4-MX440 SPARKLE GF4-MX440
ATI	Gigabyte GV-AP64D Gigabyte GV-AP64D-H Gigabyte GV-AR64S-H POWERCOLOR RADEON 9000 POWERCOLOR RADEON 9100 TRANSCEND TS64MVDR7
SiS	SYNNEX GCM-SiS315EA32

For the latest updates of the supported AGP VGA cards list, please visit ASRock website for details.

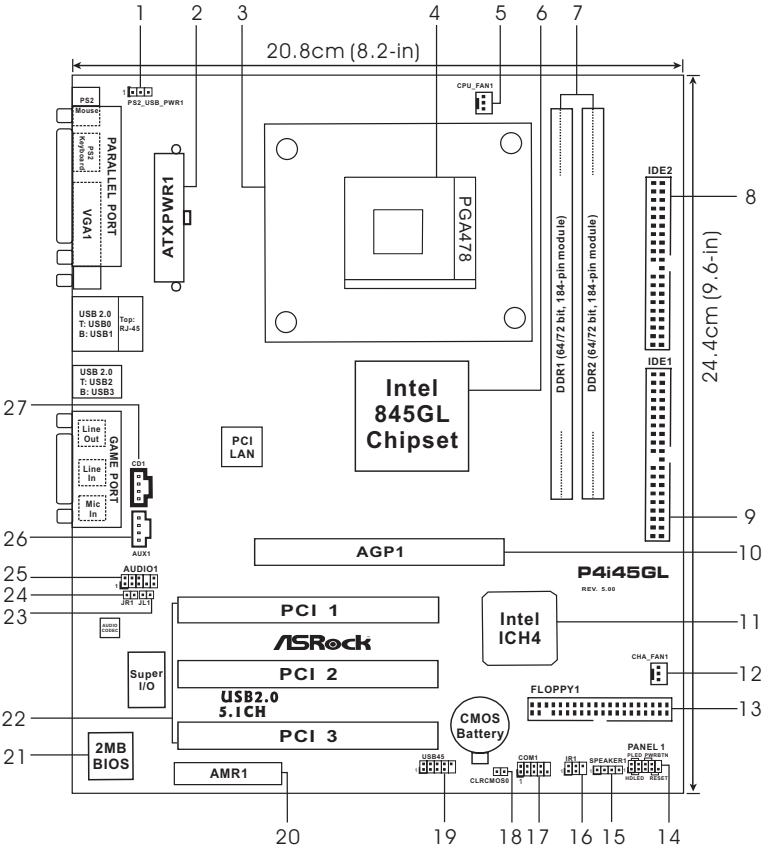
ASRock website: http://www.asrock.com/support/index.htm

II. AGP 8X

Graphics Chip Vendor	Model Name
n-VIDIA	ALBATRON GF4-MX440 64M AOPEN Aeolus FX5600S-DV128 AOPEN Aeolus FX5200-V128 ASUS AGP-V9180 ASUS AGP-V9280 VIEDO SUITE ASUS AGP-V9520 MAGIC/T ASUS V9900 ASUS V9900 ULTRA ELSA-GLADIC 518 ELSA-GLADIC 518 P Inno3D GeForce FX5600 LEADTEK A280 LE LEADTEK A340TDH MSI Ti4800SE-VTD8X PALIT GF4 MX440 8X 64MB PROLINK GeForceFX5900 PROLINK GF4-TI4200 SPARKLE GF4-MX440-8X
ATI	CLUB3D ATI R9800 Gigabyte GV R9000 PRO Gigabyte RADEON 9500 Gigabyte RADEON 9700 PRO POWER COLOR 9200 SAPHIRE RADEON 9200-128MB
SiS	POWER COLOR XABRE600

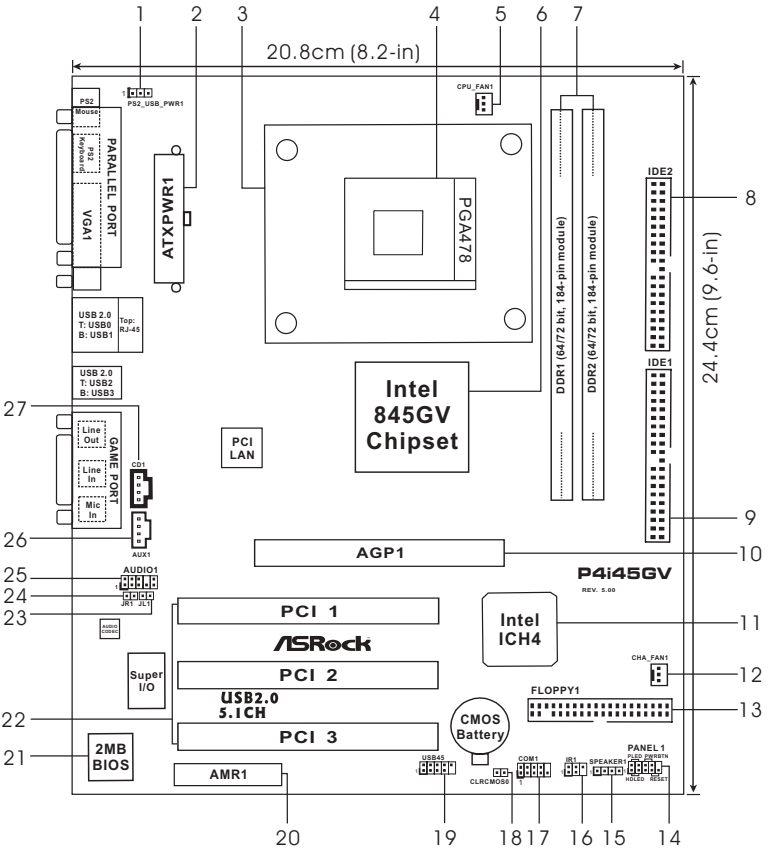
For the latest updates of the supported AGP VGA cards list, please visit ASRock website for details.
ASRock website: http://www.asrock.com/support/index.htm

1.4 Motherboard Layout(P4i45GL)



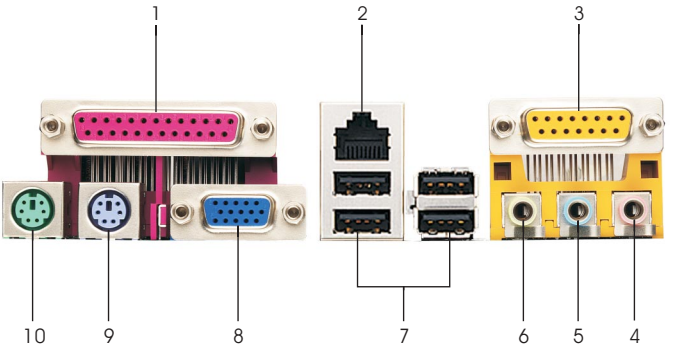
1	PS2_USB_PWR1 Jumper
2	ATX Power Header (ATXPWR1)
3	CPU Heatsink Retention Module
4	CPU Socket
5	CPU Fan Connector (CPU_FAN1)
6	North Bridge Controller
7	184-pin DDR DIMM Slots (DDR DIMM1- 2)
8	Secondary IDE Connector (IDE2, Black)
9	Primary IDE Connector (IDE1, Blue)
10	ASRock Graphics Interface Slot (AGP1)
11	South Bridge Controller
12	Chassis Fan Connector (CHA_FAN1)
13	Floppy Connector (FLOPPY1)
14	System Panel Header (PANEL1)
15	Chassis Speaker Header (SPEAKER1)
16	Infrared Module Header (IR1)
17	COM Port Header (COM1)
18	Clear CMOS (CLRCMOS0, 2-pin jumper)
19	USB 2.0 Header (USB45, Blue)
20	AMR Slot (AMR1)
21	BIOS FWH Chip
22	PCI Slots (PCI 1- 3)
23	JL1 Jumper
24	JR1 Jumper
25	Front Panel Audio Header (AUDIO1)
26	Internal Audio Connector: AUX1 (White)
27	Internal Audio Connector: CD1 (Black)

Motherboard Layout(P4i45GV)



1	PS2_USB_PWR1 Jumper
2	ATX Power Header (ATXPWR1)
3	CPU Heatsink Retention Module
4	CPU Socket
5	CPU Fan Connector (CPU_FAN1)
6	North Bridge Controller
7	184-pin DDR DIMM Slots (DDR DIMM1- 2)
8	Secondary IDE Connector (IDE2, Black)
9	Primary IDE Connector (IDE1, Blue)
10	ASRock Graphics Interface Slot (AGP1)
11	South Bridge Controller
12	Chassis Fan Connector (CHA_FAN1)
13	Floppy Connector (FLOPPY1)
14	System Panel Header (PANEL1)
15	Chassis Speaker Header (SPEAKER1)
16	Infrared Module Header (IR1)
17	COM Port Header (COM1)
18	Clear CMOS (CLRCMOS0, 2-pin jumper)
19	USB 2.0 Header (USB45, Blue)
20	AMR Slot (AMR1)
21	BIOS FWH Chip
22	PCI Slots (PCI 1- 3)
23	JL1 Jumper
24	JR1 Jumper
25	Front Panel Audio Header (AUDIO1)
26	Internal Audio Connector: AUX1 (White)
27	Internal Audio Connector: CD1 (Black)

1.5 ASRock I/O™



1	Parallel Port	6	Line Out (Lime)
2	RJ-45 Port	7	USB 2.0 Ports
3	Game Port	8	VGA Port
4	Microphone (Pink)	9	PS/2 Keyboard Port (Purple)
5	Line In (Light Blue)	10	PS/2 Mouse Port (Green)

Chapter 2 Installation

P4i45GL/P4i45GV is a Micro ATX form factor (9.6-in x 8.2-in, 24.4 cm x 20.8 cm) motherboard. Before you install the motherboard, study the configuration of your chassis to ensure that the motherboard fits into it.

Pre-installation Precautions

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

1. Unplug the power cord from the wall socket before touching any component.
2. To avoid damaging the motherboard components due to static electricity, NEVER place your motherboard directly on the carpet or the like. Also remember to use a grounded wrist strap or touch a safety grounded object before you handle components.
3. Hold components by the edges and do not touch the ICs.
4. Whenever you uninstall any component, place it on a grounded antistatic pad or in the bag that comes with the component.

Before you install or remove any component, ensure that the power 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.

2.1 CPU Installation

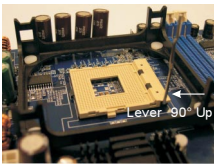
Step 1. Unlock the socket by lifting the lever up to a 90° angle.

Step 2. Position the CPU directly above the socket such that its marked corner matches the base of the socket lever.

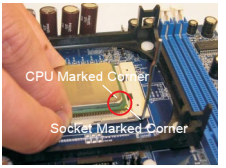
Step 3. Carefully insert the CPU into the socket until it fits in place.

The CPU fits only in one correct orientation. DO NOT force the CPU into the socket to avoid bending of the pins.

Step 4. When the CPU is in place, press it firmly on the socket while you push down the socket lever to secure the CPU. The lever clicks on the side tab to indicate that it is locked.



STEP 1:
Lift Up The Socket Lever



STEP 2/STEP 3:
Match The CPU Marked Corner
to The Socket Marked Corner

STEP 4:
Push Down And Lock
The Socket Lever

2.2 Installation of CPU Fan and Heatsink

Intel® Pentium®4 CPU requires larger heatsink and cooling fan. Thermal grease between the CPU and the heatsink is also needed to improve heat dissipation. Make sure that the CPU and the heatsink are securely fastened and in good contact with each other. Then connect the CPU fan to the CPU_FAN connector (CPU_FAN1, see page 10/11, No. 5). For proper installation, please kindly refer to the instruction manuals of the CPU fan and heatsink vendors.

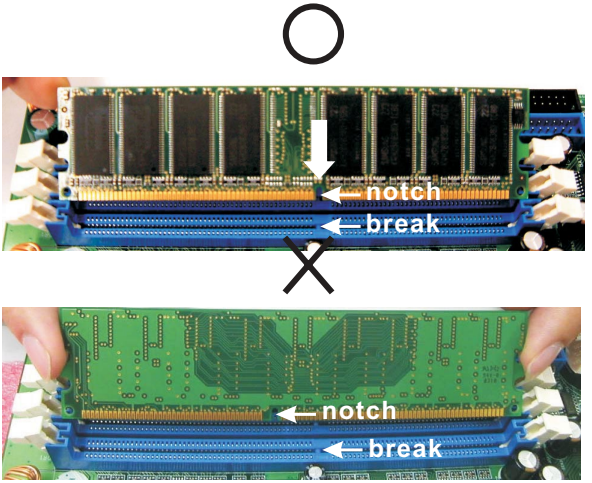
2.3 Installation of Memory Modules (DIMM)

P4i45GL/P4i45GV motherboard provides two 184-pin DDR (Double Data Rate) DIMM slots.

Please make sure to disconnect power supply before adding or removing DIMMs or the system components.

Step 1. Unlock a DIMM slot by pressing the retaining clips outward.

Step 2. Align a DIMM on the slot such that the notch on the DIMM matches the break on the slot.



The DIMM only fits in one correct orientation. It will cause permanent damage to the motherboard and the DIMM if you force the DIMM into the slot at incorrect orientation.

Step 3. Firmly insert the DIMM into the slot until the retaining clips at both ends fully snap back in place and the DIMM is properly seated.

2.4 Expansion Slots (PCI, AMR, and AGI Slots)

There are 3 PCI slots, 1 AMR slot, and 1 AGI slot on this motherboard.

PCI slots: PCI slots are used to install expansion cards that have the 32-bit PCI interface.

Because the installed AMR card will occupy the same external connecting position with the PCI card installed in "PCI3" slot, you will no be able to install any PCI card in "PCI3" slot if an AMR card has already been installed in the AMR slot.

AMR slot: AMR slot is used to insert an ASRock MR card (optional) with v.92 Modem functionality.

AGI slot: The AGI [ASRock Graphics Interface] slot is a special design that only supports compatible AGP VGA cards. For the information of the compatible AGP VGA cards, please refer to the "Supported AGP VGA Cards List" on page 8.

To install the system with an add-on AGP VGA card, you must make sure to install the driver of add-on AGP VGA card before you install the onboard VGA driver. If the onboard VGA driver has already been installed before you install the add-on AGP VGA card, the system will automatically set the onboard VGA as the primary graphics adapter. In that case, if you want to install the add-on AGP VGA card, you need to remove the onboard VGA driver first, and then install the add-on AGP VGA card and its driver. For the detailed instruction, please refer to the documents in the Support CD, "AGI Slot Installation Guide (for Windows 2000)" and "AGI Slot Installation Guide (for Windows XP)", which are located in the folder at the following path:

..\ Easy Dual Monitor

Installing an expansion card

Step 1. Before installing the expansion card, please make sure that the power supply is switched off or the power cord is unplugged. Please read the documentation of the expansion card and make necessary hardware settings for the card before you start the installation.

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

Step 3. Remove the bracket facing the slot that you intend to use. Keep the screws for later use.

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

Step 5. Fasten the card to the chassis with screws.

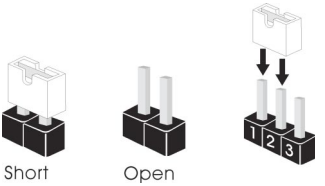
Step 6. Replace the system cover.

2.5 Easy Dual Monitor Feature

Thanks to ASRock patented AGI8X Technology, this motherboard supports Easy Dual Monitor upgrade. With the internal onboard VGA and the external add-on AGP VGA card, you can easily enjoy the benefits of Dual Monitor feature. For the detailed instruction, please refer to the document at the following path in the Support CD: **..\ Easy Dual Monitor**

2.6 Jumpers Setup

The illustration shows how jumpers are setup. When the jumper cap is placed on pins, the jumper is "SHORT". If no jumper cap is placed on pins, the jumper is "OPEN". The illustration shows a 3-pin jumper whose pin1 and pin2 are "SHORT" when jumper cap is placed on these 2 pins.



Jumper	Setting	Description
PS2_USB_PWR1 (see p.10/p.11, No. 1)		Short pin2, pin3 to enable +5VSB (standby) for PS/2 or USB wake up events.

Note: To select +5VSB, it requires 2 Amp and higher standby current provided by power supply.

JR1 (see p.10/p.11, No. 24)
JL1 (see p.10/p.11, No. 23)

Note: If the jumpers JL1 and JR1 are short (see the figure above), both the front panel and the rear panel audio connectors can work.

Clear CMOS
(CLRCMOS0, 2-pin Jumper)
(see p.10/p.11, No. 18)

Note: CLRCMOS0 allows you to clear the data in CMOS. The data in CMOS includes system setup information such as system password, date, time, and system setup parameters. To clear and reset the system parameters to default setup, please turn off the computer and unplug the power cord, then use a jumper cap to short the pins on CLRCMOS0 for 3 seconds. Please remember to remove the jumper cap after clearing the CMOS. If you need to clear the CMOS when you just finish updating the BIOS, you must boot up the system first, and then shut it down before you do the clear-CMOS action.

2.7 Onboard Headers and Connectors

Onboard headers and connectors are NOT jumpers. Do NOT place jumper caps over these headers and connectors. Placing jumper caps over the headers and connectors will cause permanent damage of the motherboard!

Connector	Figure	Description
FDD Connector (33-pin FLOPPY1) (see p.10/p.11, No. 13)		

Note: Make sure the red-striped side of the cable is plugged into Pin1 side of the connector.

Primary IDE Connector (Blue)
(39-pin IDE1, see p.10/p.11, No. 9)

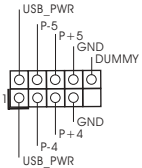
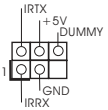
Secondary IDE Connector (Black)
(39-pin IDE2, see p.10/p.11, No. 8)

connect the blue end to the motherboard

connect the black end to the IDE devices

80-conductor ATA 66/100 cable

Note: If you use only one IDE device on this motherboard, please set the IDE device as “Master”. Please refer to the instruction of your IDE device vendor for the details. Besides, to optimize compatibility and performance, please connect your hard disk drive to the primary IDE connector (IDE1, blue) and CD-ROM to the secondary IDE connector (IDE2, black).

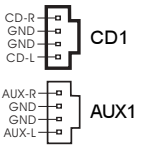
USB 2.0 Header (9-pin USB45) (see p.10/p.11, No. 19)		ASRock I/O™ accommodates 4 default USB 2.0 ports. If those USB 2.0 ports on the I/O panel are not sufficient, this USB 2.0 header is available to support 2 additional USB 2.0 ports.
Infrared Module Header (5-pin IR1) (see p.10/p.11, No. 16)		This header supports an optional wireless transmitting and receiving infrared module.

Internal Audio Connectors

(4-pin CD1, 4-pin AUX1)

(CD1: see p.10/p.11, No. 27)

(AUX1: see p.10/p.11, No. 26)

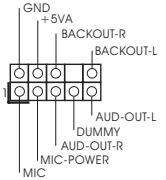


These connectors allow you to receive stereo audio input from sound sources such as a CD-ROM, DVD/ROM, TV tuner card, or MPEG card.

Front Panel Audio Header

(9-pin AUDIO1)

(see p.10/p.11, No. 25)

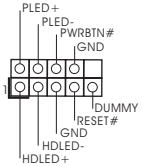


This is an interface for front panel audio cable that allows convenient connection and control of audio devices.

System Panel Header

(9-pin PANEL1)

(see p.10/p.11, No. 14)

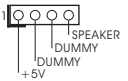


This header accommodates several system front panel functions.

Chassis Speaker Header

(4-pin SPEAKER 1)

(see p.10/p.11, No. 15)

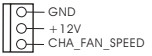


Please connect the chassis speaker to this header.

Chassis Fan Connector

(3-pin CHA_FAN1)

(see p.10/p.11, No. 12)

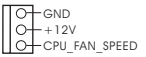


Please connect the chassis fan cable to this connector and match the black wire to the ground pin.

CPU Fan Connector

(3-pin CPU_FAN1)

(see p.10/p.11, No. 5)



Please connect the CPU fan cable to this connector and match the black wire to the ground pin.

ATX Power Header

(20-pin ATXPWR1)

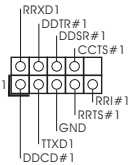
(see p.10/p.11, No. 2)

Please connect the ATX power supply to this header.

COM Port Header

(9-pin COM1)

(see p.10/p.11, No. 17)



This COM port header is used to support a COM port module.

Chapter 3 BIOS Setup

3.1 BIOS Setup Utility

This section explains how to configure your system using the BIOS Setup Utility. The BIOS FWH chip on the motherboard stores the BIOS Setup Utility. When you start up the computer, there is a chance for you to run the BIOS Setup. Press <F2> during the Power-On-Self-Test (POST) to enter the BIOS Setup Utility, otherwise, POST continues with its test routines.

If you wish to enter the BIOS Setup after POST, restart the system by pressing <Ctl> + <Alt> + <Delete>, or by pressing the reset button on the system chassis. You can also restart by turning the system off and then back on.

The BIOS Setup Utility is designed to be user-friendly. It is a menu-driven program, which allows you to scroll through its various sub-menus and select among the predetermined choices.

Because the BIOS software is constantly being updated, the following BIOS setup screens and descriptions are for reference purpose only, and may not exactly match what you see on your screen.

3.1.1 BIOS Menu Bar

The top of the screen has a menu bar with the following selections:

MAIN	Sets up the basic system configuration
ADVANCED	Sets up the advanced features
SECURITY	Sets up the security features
POWER	Configures Power Management features
BOOT	Configures the default system device that is used to locate and load the Operating System
EXIT	Exits the current menu or the BIOS Setup

To access the menu bar items, press the right or left arrow key on the keyboard until the desired item is highlighted.

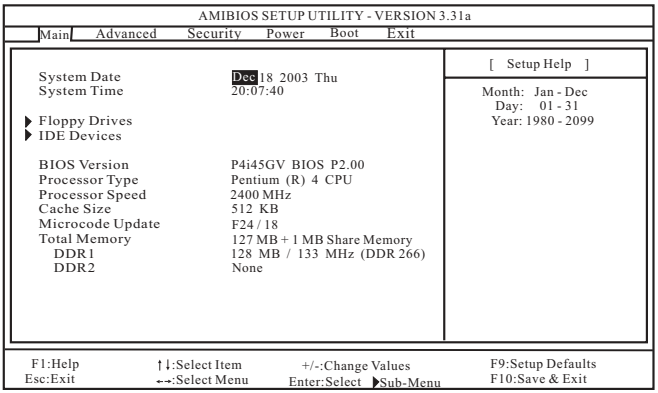
3.1.2 Legend Bar

At the bottom of the Setup Screen is a legend bar. The following table lists the keys in the legend bar with their corresponding functions.

Navigation Key(s)	Function Description
<F1>	Displays the General Help Screen
<ESC>	Jumps to the Exit menu or returns to the upper menu from the current menu
↑ / ↓	Moves cursor up or down between fields
← / →	Selects menu to the left or right
+ / -	Increases or decreases values
<Enter>	Brings up a selected menu for a highlighted field
<F9>	Loads all the setup items to default value
<F10>	Saves changes and exits Setup

3.2 Main Menu

When you enter the BIOS Setup Utility, the following screen appears.



System Date [Month/Day/Year]

Set the system date that you specify. Valid values for month, day, and year are Month: (Jan to Dec), Day: (1 to 31), Year: (up to 2099). Use ↑ ↓ keys to move between the Month, Day and Year fields.

System Time [Hour:Minute:Second]

Set the system to the time that you specify. Use ↑ ↓ keys to move between the Hour, Minute and Second fields.

Floppy Drives

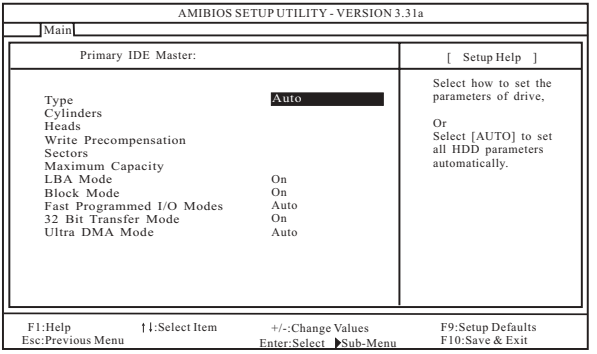
Use this to set the type of floppy drives installed.

IDE Devices

Use this to configure IDE devices.

TYPE

To set the type of the IDE device, first, please select “IDE Devices” on Main menu and press <Enter> to get into the sub-menu. Then, select among “Primary IDE Master”, “Primary IDE Slave”, “Secondary IDE Master”, and “Secondary IDE Slave” to make configuration of its type. Below are the configuration options.



[USER]: It allows user to manually enter the number of cylinders, heads, and sectors per track for the drive.

Before attempting to configure a hard disk drive, make sure you have the correct configuration information supplied by the drive manufacturer. Incorrect settings may cause the system to fail to recognize the installed hard disk.

[Auto]: Select [Auto] to automatically detect hard disk drive. If auto-detection is successful, the BIOS Setup automatically fills in the correct values for the remaining fields on this sub-menu. If the auto-detection fails, it may due to that the hard disk is too old or too new. If the hard disk was already formatted on an older system, the BIOS Setup may detect incorrect parameters. In these cases, select [User] to manually enter the IDE hard disk drive parameters.

After entering the hard disk information into BIOS, use a disk utility, such as FDISK, to partition and format new IDE hard disk drives. This is necessary so that you can write or read data from the hard disk. Make sure to set the partition of the Primary IDE hard disk drives to active.

[CD/DVD]: This is used for IDE CD/DVD drives.

[ARMD]: This is used for IDE ARMD (ATAPI Removable Media Device), such as MO.

Cylinders

This is used to configure the number of cylinders. Refer to the drive documentation to determine the correct value.

Heads

This is used to configure the number of read/write heads. Refer to the drive documentation to determine the correct values.

Write Pre-compensation

Enter Write Pre-compensation sector. Refer to the drive documentation to determine the correct value.

Sectors

This is used to configure the number of sectors per track. Refer to the drive documentation to determine the correct value.

Maximum Capacity

This field shows the drive's maximum capacity as calculated by the BIOS based on the drive information you entered.

LBA Mode

This allows user to select the LBA mode for a hard disk > 512 MB under DOS and Windows; for Netware and UNIX user, select [Off] to disable the LBA mode.

Block Mode

Set the block mode to [On] will enhance hard disk performance by reading or writing more data during each transfer.

Fast Programmed I/O Modes

This allows user to set the PIO mode to enhance hard disk performance by optimizing the hard disk timing.

32 Bit Transfer Mode

It allows user to enable 32-bit access to maximize the IDE hard disk data transfer rate.

Ultra DMA Mode

Ultra DMA capability allows improved transfer speeds and data integrity for compatible IDE devices. Set to [Disabled] to suppress Ultra DMA capability.

3.3 Advanced, Security, Power, Boot, and Exit Menus

Detailed descriptions of these menus are listed in the Appendix. See page 25.

Chapter 4 Software Support

4.1 Install Operating System

This motherboard supports various Microsoft® Windows® operating systems: 98 SE / ME / 2000 / XP. Because motherboard settings and hardware options vary, use the setup procedures in this chapter for general reference only. Refer to your OS documentation for more information.

4.2 Support CD Information

The Support CD that came with the motherboard contains necessary drivers and useful utilities that enhance the motherboard features.

4.2.1 Running The Support CD

To begin using the support CD, insert the CD into your CD-ROM drive. The CD automatically displays the Main Menu if "AUTORUN" is enabled in your computer. If the Main Menu did not appear automatically, locate and double click on the file ASSETUP.EXE from the BIN folder in the Support CD to display the menus.

4.2.2 Drivers Menu

The Drivers Menu shows the available devices drivers if the system detects installed devices. Please install the necessary drivers to activate the devices.

4.2.3 Utilities Menu

The Utilities Menu shows the applications software that the motherboard supports. Click on a specific item then follow the installation wizard to install it.

4.2.4 ASRock PC-DIY Live Demo Program

ASRock presents you a multimedia PC-DIY live demo, which shows you how to install your own PC system step by step. You can find the file through the following path:

..\ MPEGAV \ AVSEQ01.DAT

To see this demo program, you can run Microsoft® Media Player® to play the file.

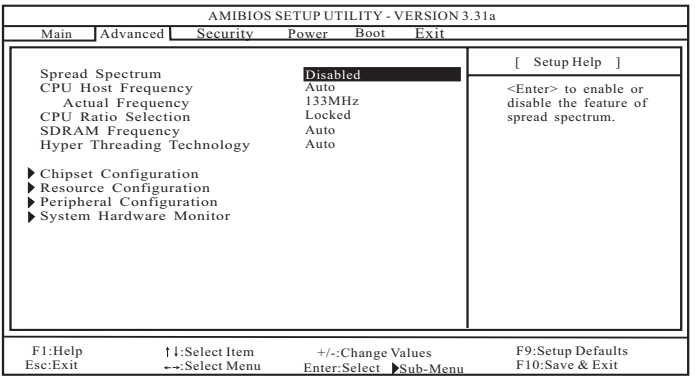
4.2.5 Contact Information

If you need to contact ASRock or want to know more about ASRock, welcome to visit ASRock's website at http://www.asrock.com; or you may contact your dealer for further information.

Appendix: Advanced BIOS Setup

This section will introduce you the following BIOS Setup menus: “Advanced,” “Security,” “Power,” “Boot,” and “Exit.”

1. Advanced BIOS Setup Menu



Spread Spectrum:

This field should always be [Disabled] for better system stability.

CPU Host Frequency:

This shows current CPU host frequency of the installed motherboard.

CPU Ratio Selection:

CPU Ratio is the multiple that times the frontside bus frequency will equal the core speed of the installed processor. Whether the option is open or locked is determined by the installed processor.

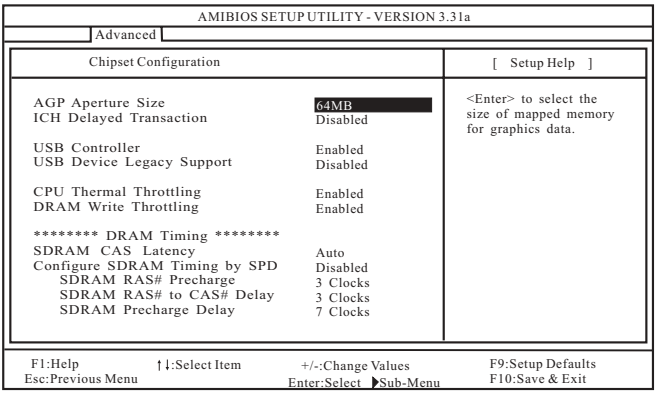
SDRAM Frequency:

If [Auto] is selected, the motherboard will detect the memory module(s) inserted and assigns appropriate frequency automatically.

Hyper-Threading Technology (For P4i45GV Only):

To enable this feature, it requires a computer system with an Intel Pentium®4 processor that supports Hyper-Threading technology and an operating system that includes optimization for this technology, such as Microsoft® Windows® XP. Set to [Auto] if using Microsoft® Windows® XP, or Linux kernel version 2.4.18 or higher. This option will be hidden if the current CPU does not support Hyper-Threading technology.

Chipset Configuration:



AGP Aperture Size: It refers to a section of the PCI memory address range used for graphics memory. We recommend that you leave this field at the default value unless your AGP card requires other sizes.

ICH Delayed Transaction: Select [Enabled] will enable delayed transactions for internal register, FWH, and LPC interface accesses.

USB Controller: Use this to enable or disable the use of USB controller.

USB Device Legacy Support: Use this to enable or disable support to emulate legacy I/O devices such as mouse, keyboard,... etc.

CPU Thermal Throttling: Select [Enabled] will enable P4 thermal control circuit to keep CPU from overheated.

DRAM Write Throttling: Select [Enabled] will enable north bridge thermal management to keep it from overheated.

SDRAM CAS Latency: This parameter controls the latency between the read command and the time the data available.

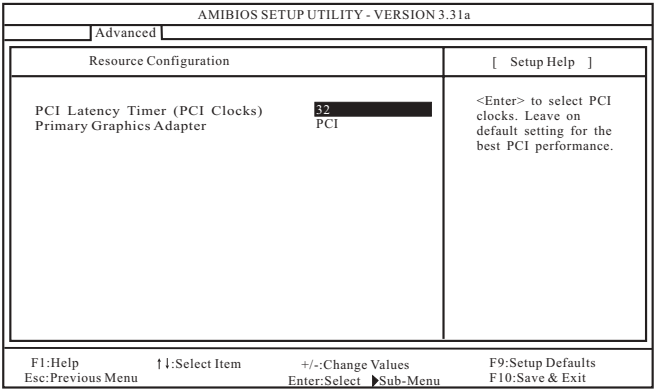
Configure SDRAM Timing by SPD: Select [Enabled] will configure the following 3 items by the contents in the SPD (Serial Presence Detect) device.

SDRAM RAS# Precharge: This controls the idle clocks after a precharge command is issued.

SDRAM RAS# to CAS# Delay: This controls the latency between the SDRAM active command and the read / write command.

SDRAM Precharge Delay: This controls the number of DRAM clocks for RAS minimum.

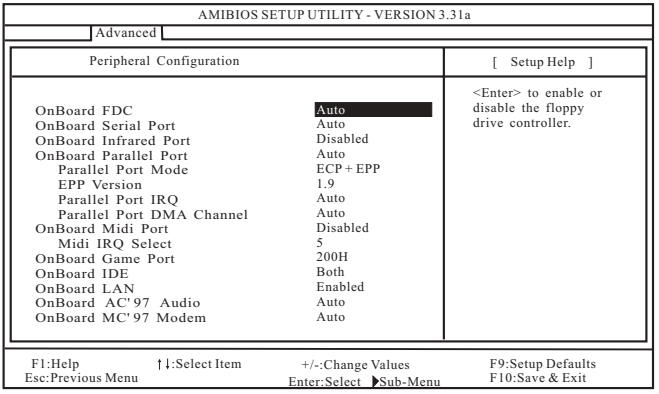
Resource Configuration:



PCI Latency Timer (PCI Clocks): The default is 32. We recommend you to keep the default value unless your PCI expansion cards' specifications require other settings.

Primary Graphics Adapter: This allows you to select [PCI], [Internal VGA], or [AGI] as the primary graphics adapter.

Peripheral Configuration:



OnBoard FDC: Use this to enable or disable floppy drive controller.

OnBoard Serial Port: Use this to set addresses for the onboard serial ports or disable serial ports. Configuration options: [Auto], [Disabled], [3F8 / IRQ4 / COM1], [2F8 / IRQ3 / COM2], [3E8 / IRQ4 / COM3], [2E8 / IRQ3 / COM4].

OnBoard Infrared Port: You may select [Auto] or [Disabled] for this onboard infrared port feature.

OnBoard Parallel Port: Select Parallel Port address or disable Parallel Port. Configuration options: [Auto], [Disabled], [378], [278].

Parallel Port Mode: Set the operation mode of the parallel port. The default value is [ECP+EPP]. If this option is set to [ECP+EPP], it will show the EPP version in the following item, “EPP Version”.

OnBoard Midi Port: Select address for Midi Port or disable Midi Port. Configuration options: [Disabled], [330], [300], [310], [320].

Midi IRQ Select: Use this to select Midi IRQ. Configuration options: [3], [4], [5], [7], [10], [11].

OnBoard Game Port: Select address for Game Port or disable Game Port. Configuration options: [Disabled], [200H], [208H], .

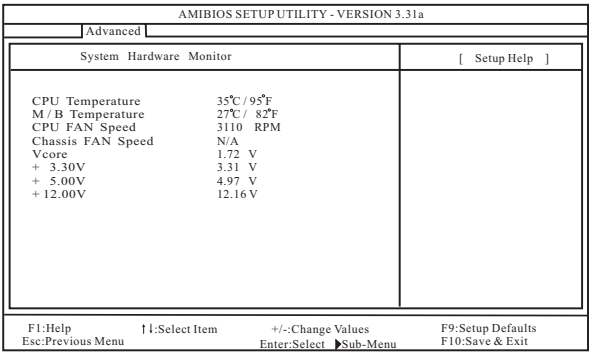
OnBoard IDE: You may enable either the primary IDE channel or the secondary IDE channel. Or you may enable both the primary and the secondary IDE channels by selecting [Both]. Set to [Disabled] will disable the both. Configuration options: [Disabled], [Primary], [Secondary], [Both].

OnBoard LAN: This allows you to enable or disable the “OnBoard LAN” feature.

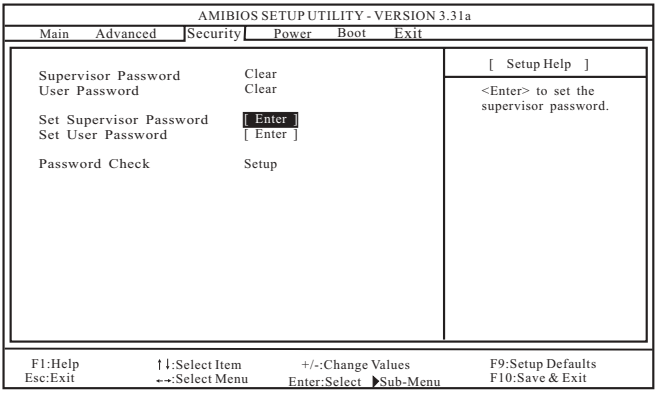
OnBoard AC’97 Audio: Select [Disabled], [Auto] or [Enabled] for the onboard AC’97 Audio feature.

OnBoard MC’97 Modem: Select [Auto] or [Disabled] for the onboard MC’97 Modem feature.

System Hardware Monitor: You can check the status of the hardware on your system. It allows you to monitor the parameters for CPU temperature, Mother-board temperature, CPU fan speed, and critical voltage.



2. Security Setup Menu



Supervisor Password: This field shows the status of the Supervisor Password.

[Clear]: No password has been set.

[Set]: Supervisor password has been set.

User Password: This field shows the status of the User Password.

[Clear]: No password has been set.

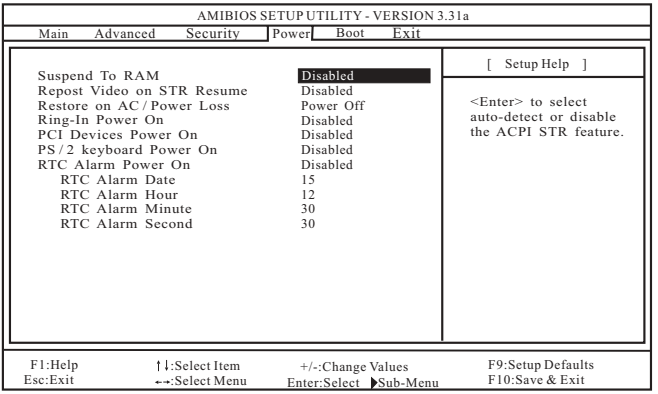
[Set]: User password has been set.

Set Supervisor Password: Press <Enter> to set Supervisor Password. Valid password can be a 1 to 8 alphanumeric characters combination. If you already have a password, you must enter your current password first in order to create a new password.

Set User Password: Press <Enter> to set User Password. Valid password can be a 1 to 8 alphanumeric characters combination. If you already have a password, you must enter your current password first in order to create a new password.

Password Check: Select the check point for “Password Check”. Configuration options: [Setup], [Always]. If [Setup] option is selected, the “Password Check” is performed before BIOS setup. If [Always] option is selected, the “Password Check” is performed before both boot-up and BIOS setup.

3. Power Setup Menu



Suspend to RAM: This field allows you to select whether to auto-detect or disable the Suspend-to-RAM feature. Select [Auto] will enable this feature if the system supports it.

Repost Video on STR Resume: This feature allows you to repost video on STR resume. It is recommended to enable this feature under Microsoft® Windows® 98 / ME.

Restore on AC/Power Loss: This allows you to set the power state after an unexpected AC/power loss. If [Power Off] is selected, the AC/power remains off when the power recovers. If [Power On] is selected, the AC/power resumes and the system starts to boot up when the power recovers.

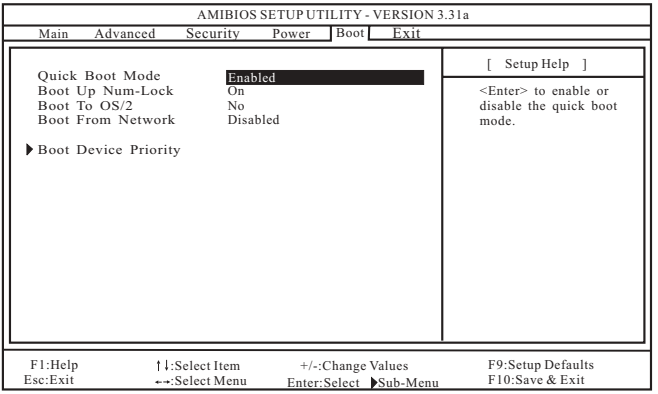
Ring-In Power On: Use this to enable or disable Ring-in signals to turn on the system from the power-soft-off mode.

PCI Devices Power On: Use this to enable or disable PCI devices to turn on the system from the power-soft-off mode.

PS/2 Keyboard Power On: Use this to enable or disable PS/2 keyboard to turn on the system from the power-soft-off mode.

RTC Alarm Power On: Use this to enable or disable RTC (Real Time Clock) to power on the system. If [Enable] is selected, you must fill the RTC Alarm Date / Hour / Minute / Second sub-fields with the actual wake up time you desire.

4. Boot Setup Menu



Quick Boot Mode: Enable this mode will speed up the boot-up routine by skipping memory retestings.

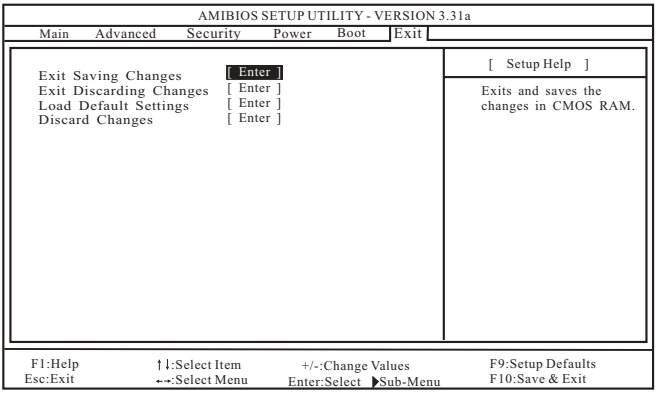
Boot Up Num-Lock: If this is enabled, it will automatically activate the Numeric Lock function after boot-up.

Boot To OS/2: Select [Yes] will enable boot-up to OS/2 operating system.

Boot From Network: Use this to enable or disable “boot from network” feature.

Boot Device Priority: This allows you to set the boot device priority.

5. Exit Menu



Exit Saving Changes: After you enter the sub-menu, the message “Save current settings and exit” will appear. If you press <ENTER>, it will save the current settings and exit the BIOS SETUP Utility.

Exit Discarding Changes: After you enter the submenu, the message “Quit without saving changes” will appear. If you press <ENTER>, you will exit the BIOS Setup Utility without making any changes to the settings.

Load Default Settings: After you enter the submenu, the message “Load default settings” will appear. If you press <Enter>, it will load the default values for all the setup configuration.

Discard Changes: After you enter the sub-menu, the message “Load setup original values” will appear. If you press <ENTER>, original values will be restored and all changes are discarded.