GA-2AIEL1-RH
GA-2AIEL5-RH
AMD® mini-ITX Motherboard

USER'S MANUAL

AMD® mini-ITX Motherboard
Rev. 1001

* The WEEE marking on the product indicates this product must not be disposed of with user's other household waste and must be handed over to a designated collection point for the recycling of waste electrical and electronic equipment!!

* The WEEE marking applies only in European Union's member states.

Copyright

Notice

Product Manual Classification

In order to assist in the use of this product, Gigabyte has categorized the user manual in the following:

- For detailed product information and specifications, please carefully read the "Product User Manual".

- For detailed information related to Gigabyte's unique features, please go to "Technology Guide" section on Gigabyte's website to read or download the information you need.

For more product details, please click onto Gigabyte's website at www.gigabyte.com.tw

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Item Checklist

- ☑ The GA-2AIEL1-RH/GA-2AIEL5-RH motherboard
- ☑ Serial ATA cable x 2
- ☑ I/O Shield Kit
- ☑ CD for motherboard driver & utility
- ☑ GA-2AIEL1-RH/GA-2AIEL5-RH Quick Reference Guide

* The items listed above are for reference only, and are subject to change without notice.

Chapter 1 Introduction

1-1 Considerations Prior to Installation

Preparing Your Computer

The motherboard contains numerous delicate electronic circuits and components which can become damaged as a result of electrostatic discharge (ESD). Thus, prior to installation, please follow the instructions below:

1. Please turn off the computer and unplug its power cord.
2. When handling the motherboard, avoid touching any metal leads or connectors.
3. It is best to wear an electrostatic discharge (ESD) cuff when handling electronic components (CPU, RAM).
4. Prior to installing the electronic components, please have these items on top of an antistatic pad or within a electrostatic shielding container.
5. Please verify that the power supply is switched off before unplugging the power supply connector from the motherboard.

Installation Notices

1. Prior to installation, please do not remove the stickers on the motherboard. These stickers are required for warranty validation.
2. Prior to the installation of the motherboard or any hardware, please first carefully read the information in the provided manual.
3. Before using the product, please verify that all cables and power connectors are connected.
4. To prevent damage to the motherboard, please do not allow screws to come in contact with the motherboard circuit or its components.
5. Please make sure there are no leftover screws or metal components placed on the motherboard or within the computer casing.
6. Please do not place the computer system on an uneven surface.
7. Turning on the computer power during the installation process can lead to damage to system components as well as physical harm to the user.
8. If you are uncertain about any installation steps or have a problem related to the use of the product, please consult a certified computer technician.

Instances of Non-Warranty

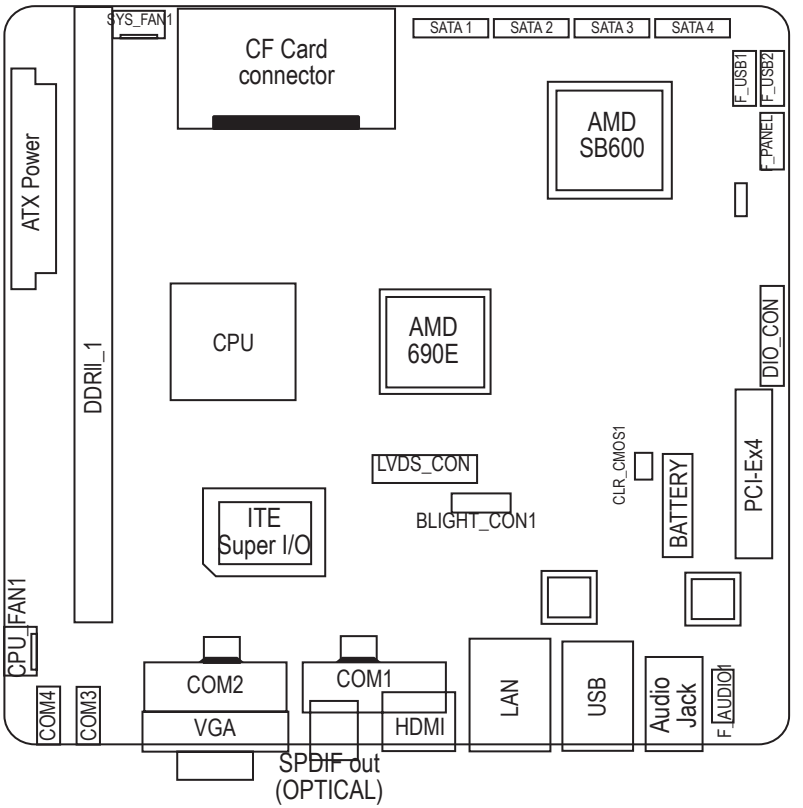
1. Damage due to natural disaster, accident or human cause.
2. Damage as a result of violating the conditions recommended in the user manual.
3. Damage due to improper installation.
4. Damage due to use of uncertified components.
5. Damage due to use exceeding the permitted parameters.
6. Product determined to be an unofficial Gigabyte product.

1.2 Features Summary

Form Factor	• 170mm x 170mm Mini ITX form factor, 4 layers PCB.
CPU	• K8 BGA 1.0GHz (GA-2AIEL1-RH) • K8 BGA 1.5GHz (GA-2AIEL5-RH)
Chipset	• AMD® 690E • AMD® SB600
Memory	• 1 x DDR2 DIMM sockets • Supports up to 2GB 533/667/800 memory • Supports 1.8V DDR2 DIMMs
I/O Control	• ITE IT8720F Super I/O
Expansion Slots	• Supports 1 PCI-E x4 (x1 bandwidth)
SATA Controller	• Built in AMD® SB600 with RAID 0,1,10 • Supports 4 SATA 2 connectors
On-Board Graphic	• Build in AMD® 690E
On-Board Sound	• Relteak® ALC889A
Internal Connector	• 1 x 20-pin ATX power connector • 4 x SATA connectors • 2 x Serial connectors (COM) • 1 x front audio connector • 1 x LVDS connector • 2 x USB 2.0 connectors for additional 4 ports by cable • 1 x front panel connecctor • 1 x System fan cable connector • 1 x CPU fan cable connector • 1 x CF Connector • 1 x Back Light Connector • 2 x Speraker Out Connector • 1 x DIO Connector
Rear Panel I/O	• 1 x SPDIF Out • 1 x HDMI prot • 1 x VGA port • 2 x Serial ports(COM) • 4 x USB 2.0 port • 1 x LAN RJ45 port • 1 HD Audio jack (Line-out / MIC-in / Line-in) can configure 5.1 channel output by utility

Hardware Monitor	• Enhanced features with CPU Vcore, DDR2 1.8V , +3.3V, +12V value viewing • System/CPU temperature value viewing • CPU shutdown when overheat
On-Board LAN	• Realtek RTL8111C GbE coneroller • Supports WOL
BIOS	• Award BIOS on 8Mb SPI Flash ROM
Additional Features	• Supports S1, S3, S4, S5 under Windows Operating System • Supports 4-pin Fan controller

1.3 Motherboard Components (GA-2AIEL1-RH/GA-2AIEL5-RH)



2-1: Install Memory Modules

CAUTION

Before installing the memory modules, please comply with the following conditions:

1. Please make sure the computer power is switched off before installing or removing memory modules.

The motherboard supports DDR2 memory module, whereby BIOS will automatically detect memory capacity and specifications. The memory module only can be inserted in one direction.

Installation Steps:

Step 1. Unlock a DIMM socket by pressing the retaining clips outwards. Aling a DIMM on the socket such that the notch on the DIMM exactly match the notch in the socket.

Step 2. Firmly insert the DIMMinto the socket until the retaining clips snap back in place. Reverse the installation steps if you want to remove the DIMM module.

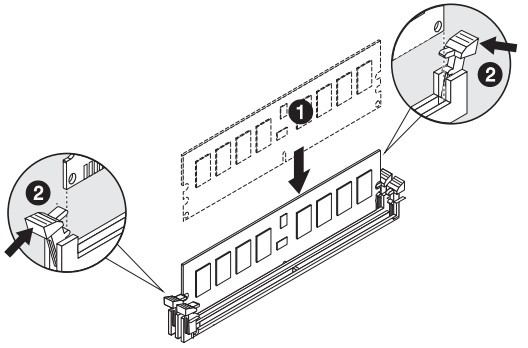
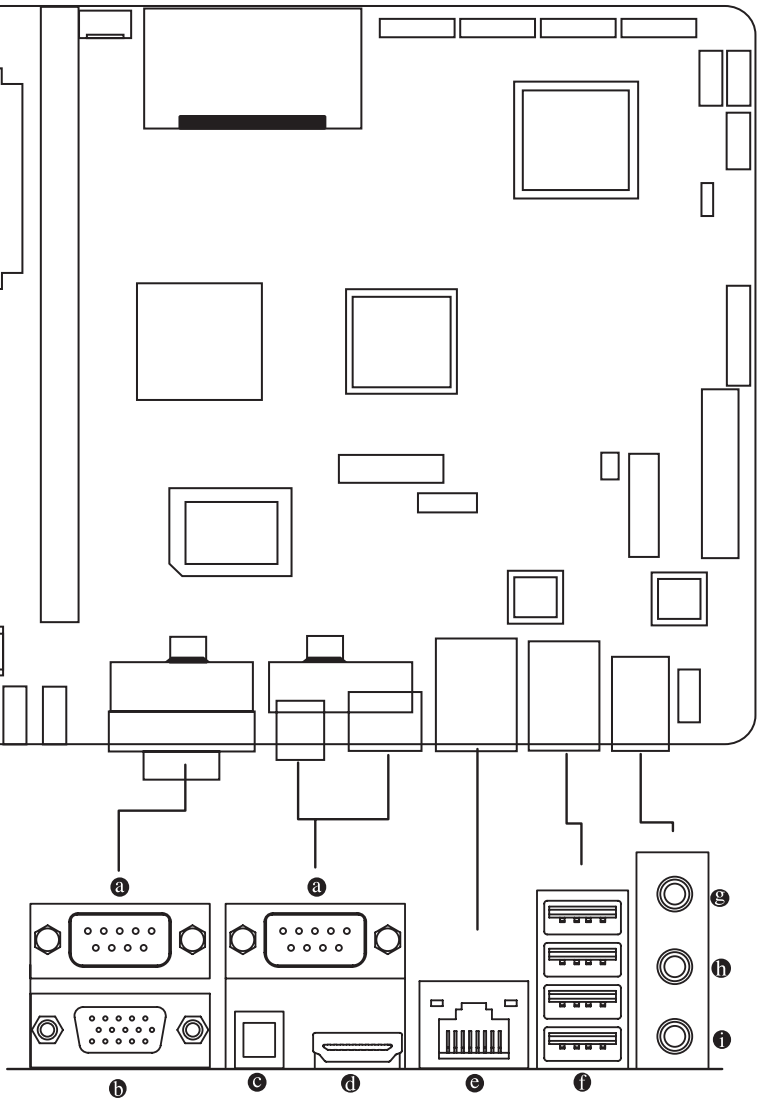


Table 1. Supported DIMM Module Type

Size	Organization	RAM Chips/DIMM
256MB	8MB x 8 x 4 bks	8
	16MB x 16 x 4bks	16
512MB	16MB x 8 x 4bks	8
	132MB x 16 x 4bks	16
1GB	32MB x 8 x 4bks	8
	64MB x 16 x 4bks	16
2GB	32MB x 8 x 4bks	8
	64MB x 16 x 4bks	16

2-2: I/O Back Panel Introduction



ⓐ Serial Port

Modem can be connected to serial port.

ⓑ VGA Port

Connect the monitor cable to this port.

ⓒ SPDIF Out (OPTICAL)

The SPDIF optical output port is capable for providing digital audio to external speakers or compressed AC3 data to an external Dolby Digital Decoder via an optical cable.

ⓓ HDMI Port

The HDMI (High-Definition Multimedia Interface) provides an all-digital audio/video interface to transmit the uncompressed audio/video signals and is HDCP compliant. Connect the HDMI audio/video device to this port. The HDMI Technology can support a maximum resolution of 1920x1080p but the actual resolutions supported depend on the monitor being used.

ⓔ LAN Port

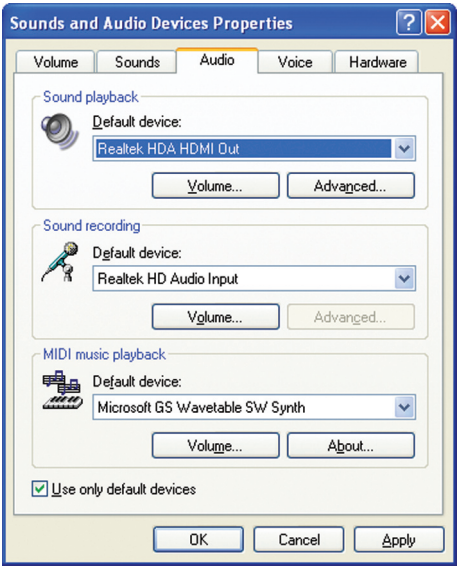
The LAN port provides Internet connection of Gigabit Ethernet with data transfer speeds of 10/100/1000Mbps.

ⓕ USB

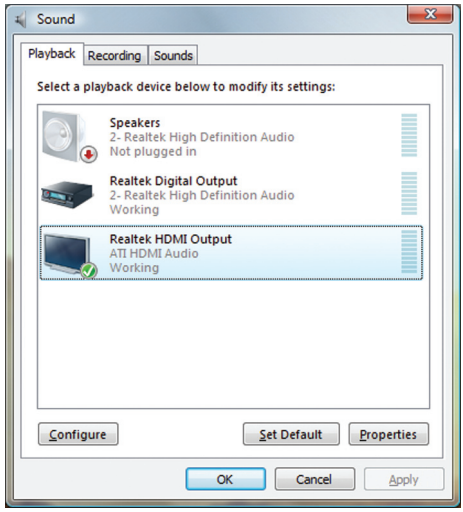
Before you connect your device(s) into USB connector(s), please make sure your device(s) such as USB keyboard, mouse, scanner, zip, speaker...etc. have a standard USB interface. Also make sure your OS supports USB controller. If your OS does not support USB controller,please contact OS vendor for possible patch or driver updated. For more information please contact your OS or device(s) vendors.

NOTE:

- After installing the HDMI device, make sure the default device for sound playback is the HDMI device. (The item name may differ by operating system. Refer the figures below for details.), and enter BIOS Setup, then set Onboard VGA output connect to D-SUB/HDMI under Advanced BIOS Features.
- Please note the HDMI audio output only supports AC3, DTS and 2-channel-LPCM formats. (AC3 and DTS require the use of an external decoder for decoding.)
  In Windows XP, select Start>Control Panel>Sounds and Audio Devices>Audio, set the Default device for sound playback to Realtek HDA HDMI Out.



In Windows Vista, select Start>Control Panel>Sound, select Realtek HDMI Output and then click Set Default.

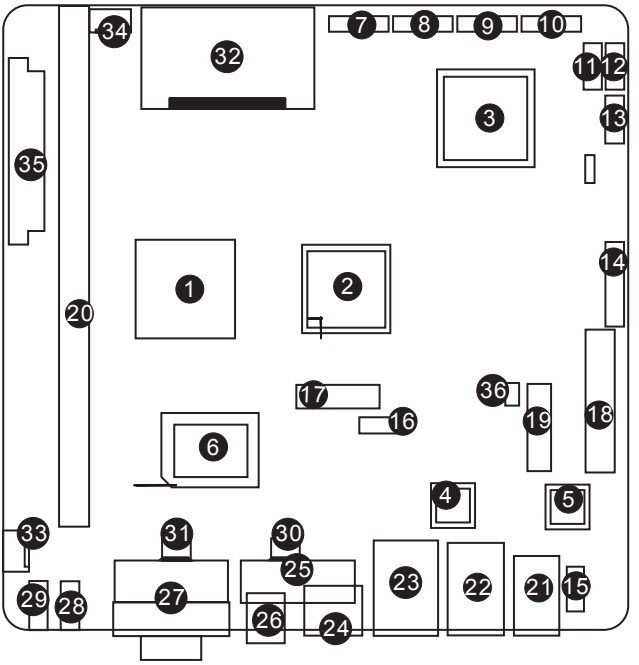


⓰ Line In
The default Line In jack. Devices like CD-ROM, walkman etc. can be connected to Line In jack.

⓱ Line Out (Front Speaker Out)
The default Line Out (Front Speaker Out) jack. Stereo speakers, earphone or front surround speakers can be connected to Line Out (Front Speaker Out) jack.

⓲ MIC In
The default MIC In jack. Microphone must be connected to MIC In jack.

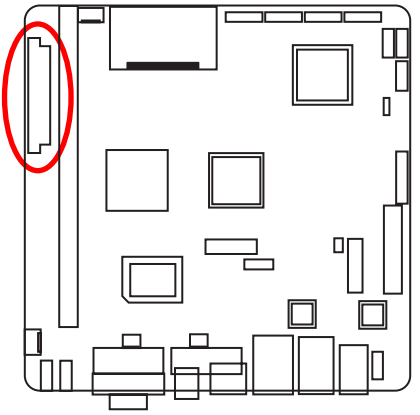
2-3: Connectors Introduction

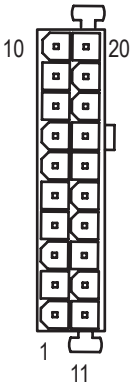


1.	CPU	Processor socket	19.	BATTERY	CMOS Battery
2.	U1	AMD 690E	20.	DDRII_1	DDR2 socket
3.	U2	AMD SB600	21.	AUDIO1	Audio port
4.	LU3	Realtek RTL8111C GbE LAN controlle	22.	R_USB	USB 2.0 ports
5.	CU1	Realtek ALC889A Audio controller	23.	LAN	Gigabit LAN port
6.	U10	ITE IT8720F Super I/O controller	24.	HDMI	HDMI port
7.	SATAII0_1	SATA Data cable connector	25.	COM1	Serial port
8.	SATAII0_2	SATA Data cable connector	26.	OPTICAL	S/PDIF port (Optical)
9.	SATAII0_3	SATA Data cable connector	27.	COM2/VGA	Serial port and VGA port
10.	SATAII0_4	SATA Data cable connector	28.	COM3	Serial port cable connector
11.	F_USB1	Front USB cable connector	29.	COM4	Serial port cable connector
12.	F_USB2	Front USB cable connector	30.	JP6	Power COM select
13.	F_PANEL	Front panel connector	31.	JP8	Power COM select
14.	DIO_CON	GPIO Input/Output connector	32.	CF_CON	CF connector
15.	F_AUDIO1	Front HDA Audio cable connector	33.	CPU_FAN1	CPU fan cable connector
16.	BLIGHT_CON1	LVDS panel control connector	34.	SYS_FAN1	System fan cable connector
17.	LVDS_CON	LVDS connector	35.	ATX	20-pin ATX power connector
18.	PCIEX4	PCI-E x4 slot (Gen2, x1 bandwidth)	36.	CLR_CMOS1	Clear CMOS jumper Close:Clear CMOS Open:Normal CMOS setting (Default)

20-pin ATX power connectors

With the use of the power connector, the power supply can supply enough stable power to all the components on the motherboard. Before connecting the power connector, please make sure that all components and devices are properly installed. Align the power connector with its proper location on the motherboard and connect tightly.

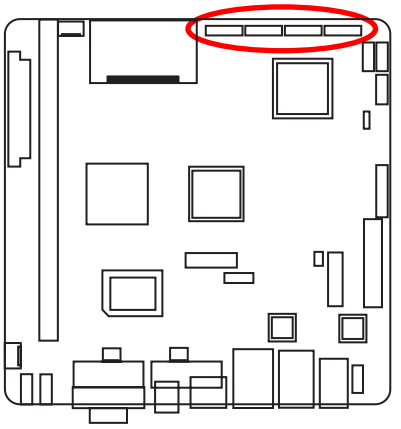


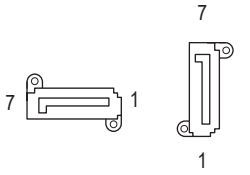


Pin No.	Definition	Pin No.	Definition
1	3.3V	13	3.3V
2	3.3V	14	-12V
3	GND	15	GND
4	+5V	16	PS_ON(soft On/Off)
5	GND	17	GND
6	+5V	18	GND
7	GND	19	GND
8	Power Good	20	-5V
9	5V SB(stand by +5V)		
10 +	12V		
11	+12V(Only for 24-pin ATX)		
12	3.3V(Only for 24-pin ATX)		

SATAII0_1~4 (Serial ATA cable connectors)

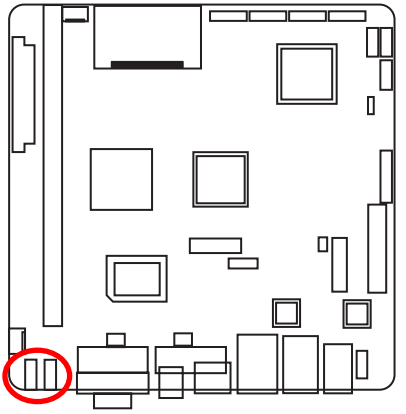
SATA 3Gb/s can provide up to 300MB/s stransfer rate. Please refer to the BIOS setting for the SATA 3Gb/s and install the proper driver in order to work properly.

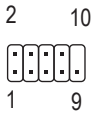




Pin No.	Definition
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND

COM3/COM4

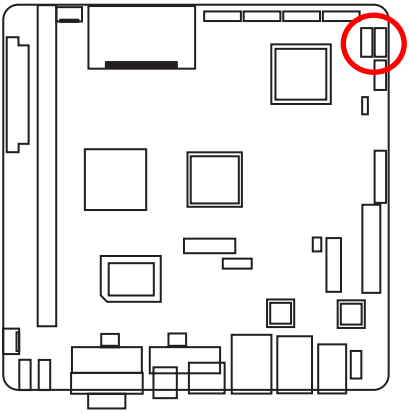




Pin No.	Definition
1	NDCD-
2	NSIN
3	NSOUT
4	NDTR-
5	GND
6	NDSR-
7	NRTS-
8	NCTS-
9	NRI-
10	No Pin

F_USB1/2 (Front USB cable connectors)

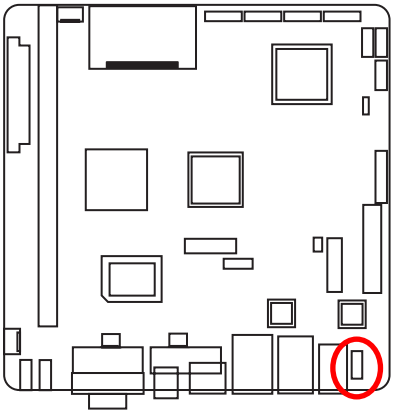
Be careful with the polarity of the front USB connector. Check the pin assignment carefully while you connect the front USB cable, incorrect connection between the cable and connector will make the device unable to work or even damage it. For optional front USB cable, please contact your local dealer.



Pin No.	Definition
1	Power (5V)
2	Power (5V)
3	USB Dx-
4	USB Dy-
5	USB Dx+
6	USB Dy+
7	GND
8	GND
9	No Pin
10	NC

F_AUDIO1 (Front AUDIO connector)

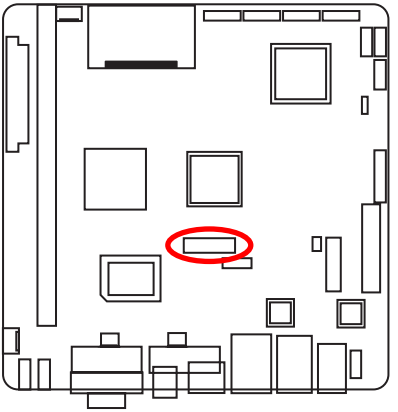
If you want to use Front Audio connector, you must remove 5-6, 9-10 Jumper. In order to utilize the front audio header, your chassis must have front audio connector. Also please make sure the pin assigment on the cable is the same as the pin assigment on the MB header. To find out if the chassis you are buying support front audio connector, please contact your dealer.

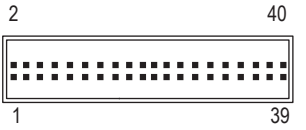


Pin No.	Definition
1	MIC_L
2	GND
3	MIC_R
4	-ACZ_DEC
5	Line_R
6	GND
7	Faudio_JD
8	No Pin
9	Line_L
10	GND

LVDS connector

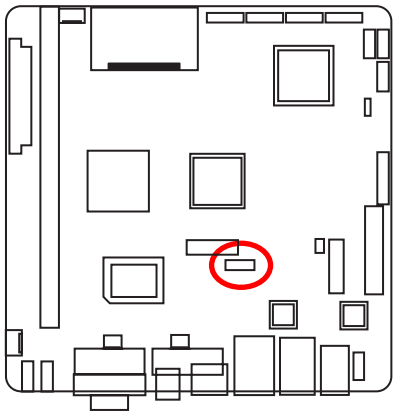
LVDS stands for Low-voltage differential signaling, which uses high-speed analog circuit techniques to provide multigigabit data transfers on copper interconnects and is a generic interface standard for high-speed data transmission.





Pin No.	Definition	Pin No.	Definition
1	GND	21	LVDS_TX_U0-
2	+3.3V	22	LVDS_TX_U0+
3	+3.3V	23	LVDS_TX_U1-
4	+3.3V	24	LVDS_TX_U1+
5	+3.3V	25	LVDS_TX_U2-
6	+3.3V	26	LVDS_TX_U2+
7	NC	27	LVDS_TX_CLKU-
8	EDID CLK	28	LVDS_TX_CLKU+
9	EDID DATA	29	LVDS_TX_U3-
10	NC	30	LVDS_TX_U3+
11	LVDS_TX_L0-	31	NC
12	LVDS_TX_L0+	32	NC
13	LVDS_TX_L1-	33	+5V
14	LVDS_TX_L1+	34	+5V
15	LVDS_TX_L2-	35	+5V
16	LVDS_TX_L2+	36	NC
17	LVDS_TX_CLK-	37	NC
18	LVDS_TX_LK+	38	GND
19	LVDS_TX_L3-	39	GND
20	LVDS_TX_L3+	40	GND

BLIGHT_CON (LVDS panel control connector)



1 6

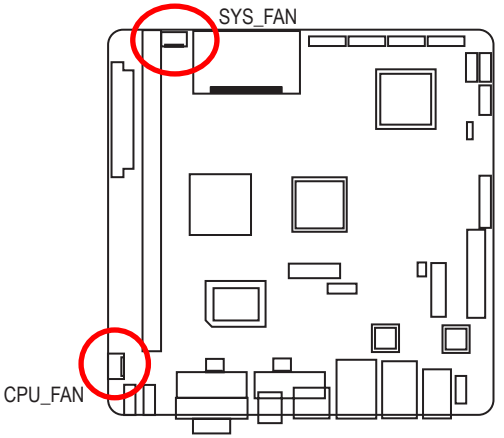
Pin No.	Definition
1	+12V
2	+5V
3	NC
4	BL ADJUST
5	BL ENABLE
6	GND

CPU_FAN1/SYS_FAN1 (CPU fan/System fan cable connectors)

The cooler fan power connector supplies a +12V power voltage via a 3-pin/4-pin(CPU_FAN) power connector and possesses a foolproof connection design.

Most coolers are designed with color-coded power connector wires. A red power connector wire indicates a positive connection and requires a +12V power voltage. The black connector wire is the ground wire (GND).

Remember to connect the CPU/system fan cable to the CPU_FAN/SYS_FAN connector to prevent CPU damage or system hanging caused by overheating.



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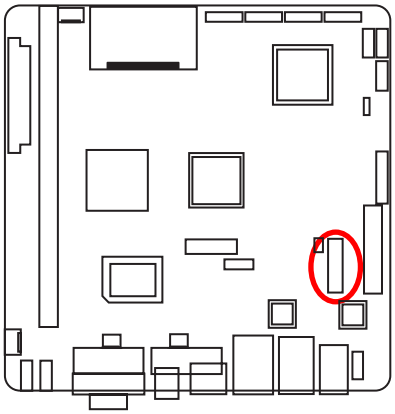
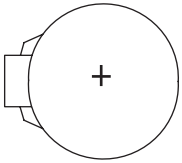
Pin No.	Definition
1	GND
2	12V
3	Sense
4	Control

BATTERY





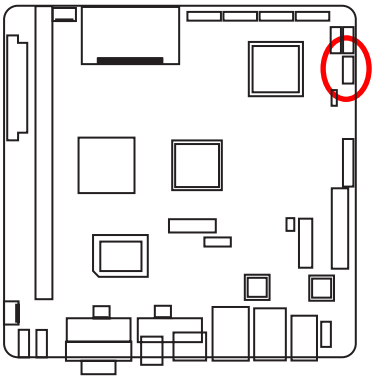
CAUTION

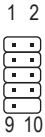
- ❖ Danger of explosion if battery is incorrectly replaced.
- ❖ Replace only with the same or equivalent type recommended by the manufacturer.
- ❖ Dispose of used batteries according to the manufacturer's instructions.

If you want to erase CMOS...
1.Turn OFF the computer and unplug the power cord.
2.Remove the battery, wait for 30 second.
3.Re-install the battery.
4.Plug the power cord and turn ON the computer.

F_Panel (2X5 Pins Front Panel connector)

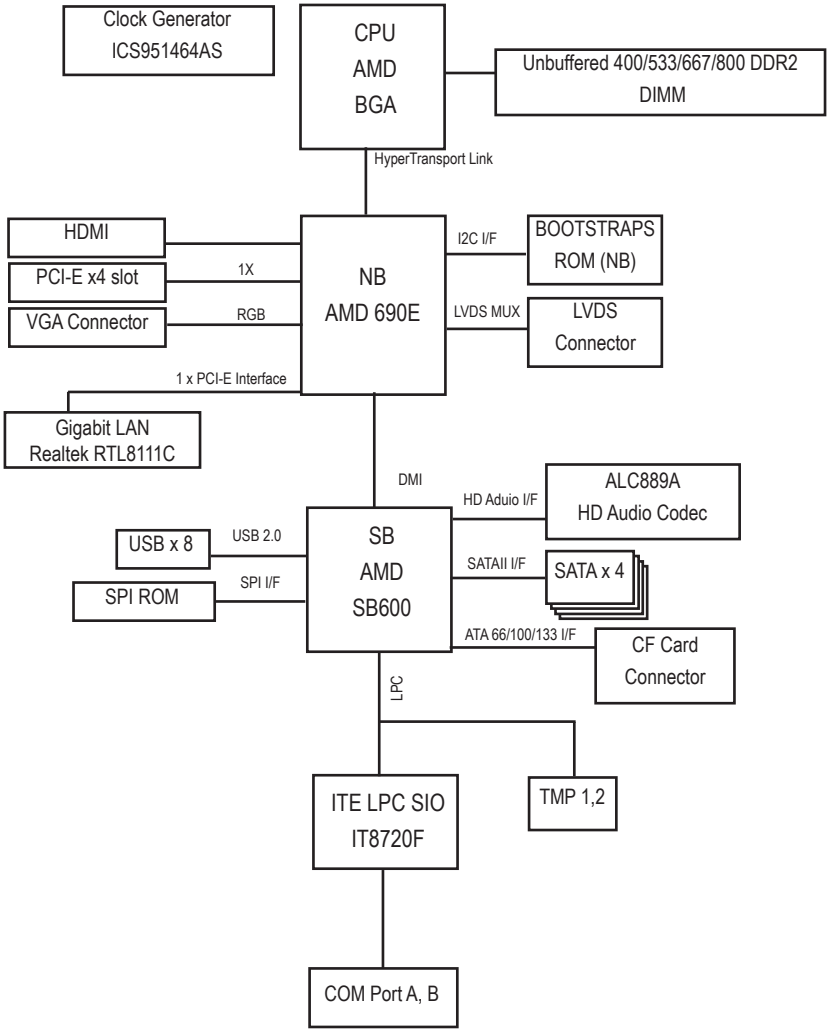
Please connect the power LED, PC speaker, reset switch and power switch of your chassis front panel to the F_PANEL connector according to the pin assignment above.





Pin No.	Signal Name	Description
1.	HDD_LED+	Hard Disk LED Signalanode (+)
2.	POWER LED+	Power LED Signal anode (+)
3.	HD_LED-	Hard Disk LED Signal cathode(-)
4.	POWER LED-	Power LED Signal cathode(-)
5.	GND	Ground
6.	POWER SW+	Power Button Signal anode (+)
7.	RES	Reset Button
8.	GND	Ground
9.	NC	No connect
10.	NC	Pin removed

2-4: Block Diagram



Chapter 3 BIOS Setup

BIOS (Basic Input and Output System) records hardware parameters of the system in the CMOS on the motherboard. Its major functions include conducting the Power-On Self-Test (POST) during system startup, saving system parameters and loading operating system, etc. BIOS includes a BIOS Setup program that allows the user to modify basic system configuration settings or to activate certain system features. When the power is turned off, the battery on the motherboard supplies the necessary power to the CMOS to keep the configuration values in the CMOS.

To access the BIOS Setup program, press the <Delete> key during the POST when the power is turned on. To see more advanced BIOS Setup menu options, you can press <Ctrl> + <F1> in the main menu of the BIOS Setup program.

To upgrade the BIOS, use either the GIGABYTE Q-Flash or @BIOS utility.

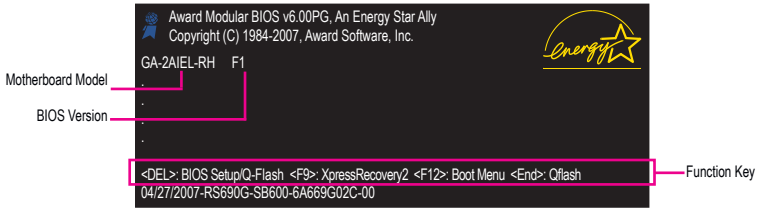
- Q-Flash allows the user to quickly and easily upgrade or back up BIOS without entering the operating system.
- @BIOS is a Windows-based utility that searches and downloads the latest version of BIOS from the Internet and updates the BIOS.

For instructions on using the Q-Flash and @BIOS utilities, refer to Chapter 4, "BIOS Update Utilities."

- Because BIOS flashing is potentially risky, if you do not encounter problems using the current version of BIOS, it is recommended that you not flash the BIOS. To flash the BIOS, do it with caution. Inadequate BIOS flashing may result in system malfunction.
- It is recommended that you not alter the default settings (unless you need to) to prevent system instability or other unexpected results. Inadequately altering the settings may result in system's failure to boot. If this occurs, try to clear the CMOS values and reset the board to default values. (Refer to the "Load Optimized Defaults" section in this chapter or introductions of the battery/ clearing CMOS jumper in Chapter 1 for how to clear the CMOS values.)

3-1 Startup Screen

The following screens may appear when the computer boots.



Function Keys:

<TAB> : POST Screen

Press the <Tab> key to show the BIOS POST screen. To show the BIOS POST screen at system start-up, refer to the instructions on the Full Screen LOGO Show item on page 40.

<DEL> : BIOS Setup/Q-Flash

Press the <Delete> key to enter BIOS Setup or to access the Q-Flash utility in BIOS Setup.

<F9> : Xpress Recovery2

If you have ever entered Xpress Recovery2 to back up hard drive data using the motherboard driver disk, the <F9> key can be used for subsequent access to XpressRecovery2 during the POST. For more information, refer to Chapter 4, "Xpress Recovery2."

<F12> : Boot Menu

Boot Menu allows you to set the first boot device without entering BIOS Setup. In Boot Menu, use the up arrow key <↑> or the down arrow key<↓> to select the first boot device, then press <Enter> to accept. To exit Boot Menu, press <Esc>. The system will directly boot from the device configured in Boot Menu.

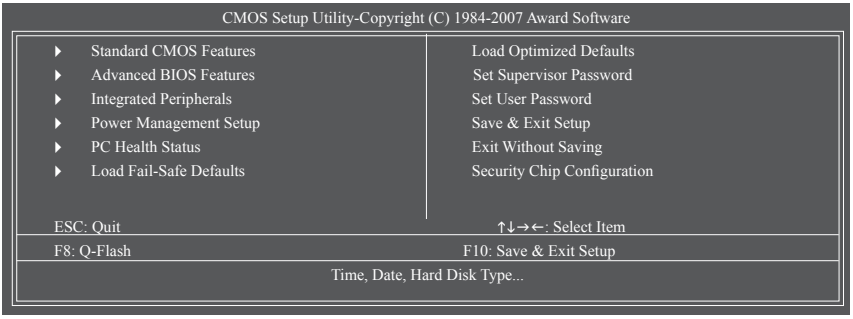
Note: The setting in Boot Menu is effective for one time only. After system restart, the device boot order will still be based on BIOS Setup settings. You can access Boot Menu again to change the first boot device setting as needed.

<End> : Q-Flash

Press the <End> key to access the Q-Flash utility directly without having to enter BIOS Setup first.

3-2 The Main Menu

Once you enter the BIOS Setup program, the Main Menu (as shown below) appears on the screen. Use arrow keys to move among the items and press <Enter> to accept or enter a sub-menu.



BIOS Setup Program Function Keys

<↑><↓><←><→>	Move the selection bar to select an item
<Enter>	Execute command or enter the submenu
<Esc>	Main Menu: Exit the BIOS Setup program Submenus: Exit current submenu
<Page Up>	Increase the numeric value or make changes
<Page Down>	Decrease the numeric value or make changes
<F1>	Show descriptions of the function keys
<F2>	Move cursor to the Item Help block on the right (submenus only)
<F5>	Restore the previous BIOS settings for the current submenus
<F6>	Load the Fail-Safe BIOS default settings for the current submenus
<F7>	Load the Optimized BIOS default settings for the current submenus
<F8>	Access the Q-Flash utility
<F9>	Display system information
<F10>	Save all the changes and exit the BIOS Setup program

Main Menu Help

The onscreen description of a highlighted setup option is displayed on the bottom line of the Main Menu.

Submenu Help

While in a submenu, press <F1> to display a help screen (General Help) of function keys available for the menu. Press <Esc> to exit the help screen. Help for each item is in the Item Help block on the right side of the submenu.

NOTE

- If you do not find the settings you want in the Main Menu or a submenu, press <Ctrl>+<F1>to access more advanced options.
- When the system is not stable as usual, select the Load Optimized Defaults item to set your system to its defaults.
- The BIOS Setup menus described in this chapter are for reference only and may differ by BIOS version.

- Standard CMOS Features

  Use this menu to configure the system time and date, hard drive types, floppy disk drive types, and the type of errors that stop the system boot, etc.
- Advanced BIOS Features

  Use this menu to configure the device boot order, advanced features available on the CPU, and the primary display adapter.
- Integrated Peripherals

  Use this menu to configure all peripheral devices, such as IDE, SATA, USB, integrated audio, and integrated LAN, etc.
- Power Management Setup

  Use this menu to configure all the power-saving functions.
- PnP/PCI Configurations

  Use this menu to configure the system's PCI & PnP resources.
- PC Health Status

  Use this menu to see information about autodetected system/CPU temperature, system voltage and fan speed, etc.
- Load Fail-Safe Defaults

  Fail-Safe defaults are factory settings for the most stable, minimal-performance system operations.
- Load Optimized Defaults

  Optimized defaults are factory settings for optimal-performance system operations.
- Set Supervisor Password

  Change, set, or disable password. It allows you to restrict access to the system and BIOS Setup. A supervisor password allows you to make changes in BIOS Setup.
- Set User Password

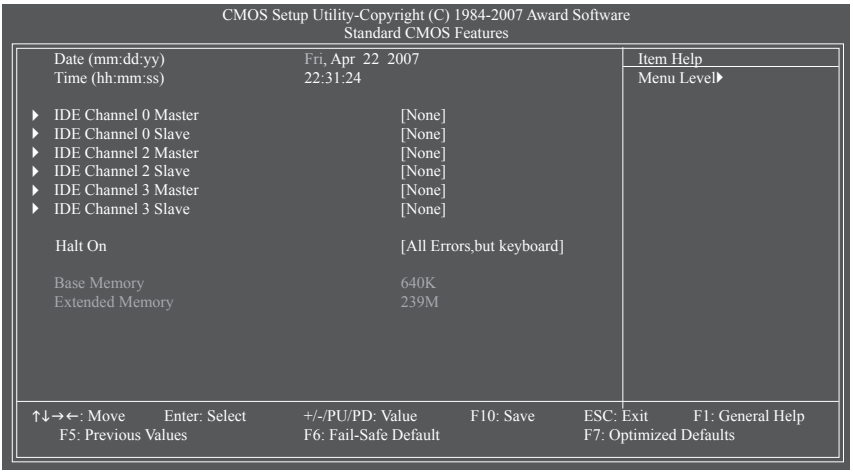
  Change, set, or disable password. It allows you to restrict access to the system and BIOS Setup. An user password only allows you to view the BIOS settings but not to make changes.
- Save & Exit Setup

  Save all the changes made in the BIOS Setup program to the CMOS and exit BIOS Setup. (Pressing <F10> can also carry out this task.)
- Exit Without Saving

  Abandon all changes and the previous settings remain in effect. Pressing <Y> to the confirmation message will exit BIOS Setup. (Pressing <Esc> can also carry out this task.)
- Security Chip Configuration

  Provides function for secure generation of cryptographic keys,the ability to limit use of crytographic keys,as well as hardware pseudo-random number generator

3-3 Standard CMOS Features



☞ Date

Sets the system date. The date format is week (read-only), month, date and year. Select the desired field and use the up arrow or down arrow key to set the date.

☞ Time

Sets the system time. For example, 1 p.m. is 13:0:0. Select the desired field and use the up arrow or down arrow key to set the time.

☞ IDE Channel 0 Master/Slave

⏩ IDE HDD Auto-Detection

Press <Enter> to autodetect the parameters of the IDE/SATA device on this channel.

⏩ IDE Channel 0 Master/Slave

Configure your IDE/SATA devices by using one of the three methods below:

- Auto — Lets BIOS automatically detect IDE/SATA devices during the POST. (Default)
- None — If no IDE/SATA devices are used, set this item to None so the system will skip the detection of the device during the POST for faster system startup.
- Manual — Allows you to manually enter the specifications of the hard drive when the hard drive access mode is set to CHS.

⏩ Access Mode — Sets the hard drive access mode. Options are: Auto (default), CHS, LBA, Large.

☞ IDE Channel 2/3 Master/Slave

⏩ IDE Auto-Detection

Press <Enter> to autodetect the parameters of the IDE/SATA device on this channel.

⏩ Extended IDE Drive — Configure your IDE/SATA devices using one of the two methods below:

- Auto — Lets BIOS automatically detect IDE/SATA devices during the POST. (Default)
- None — If no IDE/SATA devices are used, set this item to None so the system will skip the detection of the device during the POST for faster system startup.

⏩ Access Mode — Sets the hard drive access mode. Options are: Auto (default), Large.

The following fields display your hard drive specifications. If you wish to enter the parameters manually, refer to the information on the hard drive.

- ⏩ Capacity — Approximate capacity of the currently installed hard drive.
- ⏩ Cylinder — Number of cylinders.
- ⏩ Head — Number of heads.
- ⏩ Precomp — Write precompensation cylinder.
- ⏩ Landing Zone — Landing zone.
- ⏩ Sector — Number of sectors.

☞ Halt on

Allows you to determine whether the system will stop for an error during the POST.

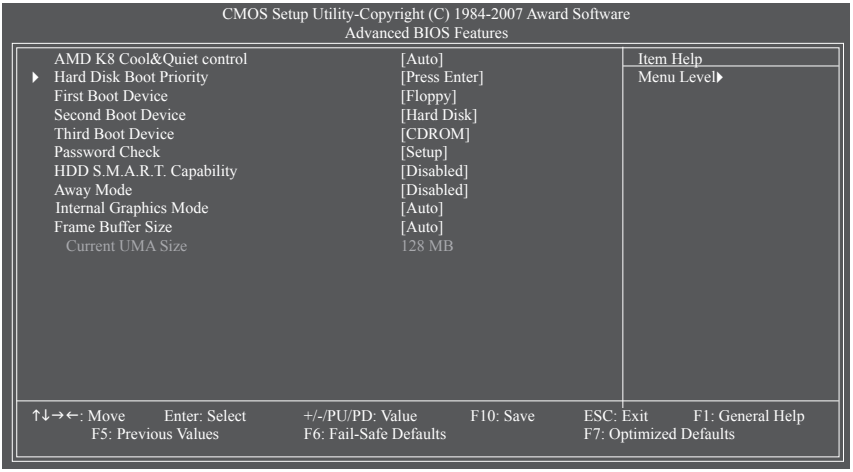
- ⏩ All Errors — Whenever the BIOS detects a non-fatal error the system boot will stop. (Default)
- ⏩ No Errors — The system boot will not stop for any error.
- ⏩ All, But Keyboard — The system boot will not stop for a keyboard error but stop for all other errors.

☞ Memory

These fields are read-only and are determined by the BIOS POST.

- ⏩ Base Memory — Also called conventional memory. Typically, 640 KB will be reserved for the MS-DOS operating system.
- ⏩ Extended Memory — The amount of extended memory.

3-4 Advanced BIOS Features



☞ AMD K8 Cool&Quiet control

- ⏩ Auto — Lets the AMD Cool'n'Quiet driver dynamically adjust the CPU clock and VIA to reduce heat output from your computer and its power consumption. (Default)
- ⏩ Disabled — Disable this function.

☞ Hard Disk Boot Priority

Specifies the sequence of loading the operating system from the installed hard drives. Use the up or down arrow key to select a hard drive, then press the plus key <+> (or <PageUp>) or the minus key <-> (or <PageDown>) to move it up or down on the list. Press <Esc> to exit this menu when finished.

☞ First/Second/Third Boot Device

Specifies the boot order from the available devices. Use the up or down arrow key to select a device and press <Enter> to accept. Options are: Floppy, LS120, Hard Disk, CDROM, ZIP, USB-FDD, USB-ZIP, USB-CDROM, USB-HDD, Legacy LAN, Disabled.

☞ Password Check

Specifies whether a password is required every time the system boots, or only when you enter BIOS Setup. After configuring this item, set the password(s) under the Set Supervisor/User Password item in the BIOS Main Menu.

- ⏩ Setup — A password is only required for entering the BIOS Setup program. (Default)
- ⏩ System — A password is required for booting the system and for entering the BIOS Setup program.

☞ HDD S.M.A.R.T. Capability

Enables or disables the S.M.A.R.T. (Self Monitoring and Reporting Technology) capability of your hard drive. This feature allows your system to report read/write errors of the hard drive and to issue warnings when a third party hardware monitor utility is installed. (Default: Disabled)

☞ Away Mode

Enables or disables Away Mode in Windows XP Media Center operating system. Away Mode allows the system to silently perform unattended tasks while in a low-power mode that appears off (Default: Disabled)

☞ Internal Graphics Mode

- ⏩ Auto — Outputs from the onboard VGA if no PCI Express VGA card is installed. Always outputs from the PCI Express VGA card when a PCI Express VGA card is installed. (Default)
- ⏩ Disabled — Always disables the onboard VGA, whether or not a PCI Express card is installed.

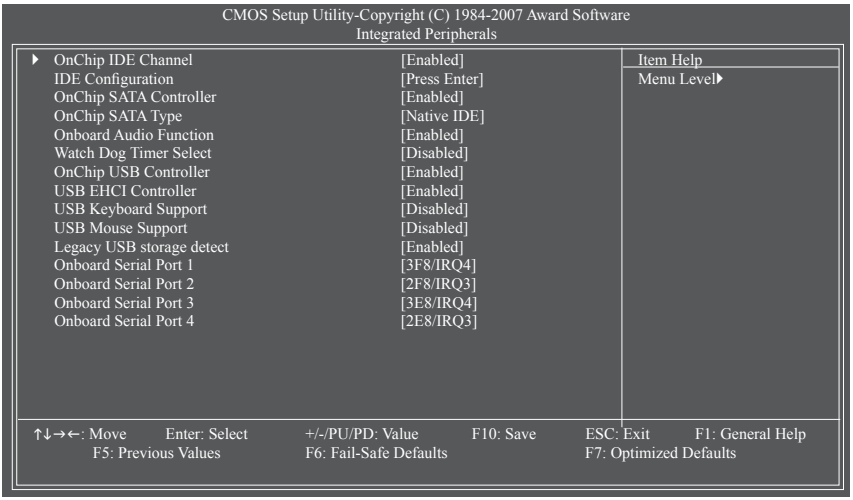
☞ Frame Buffer Size

Frame buffer size is the total amount of system memory allocated solely for the onboard graphics controller. MS-DOS, for example, will use only this memory for display. Options are: Auto (default), 32MB, 64MB, 128MB, 256MB, 512MB, 1024MB.

☞ Current UMA Size

When Frame Buffer Size is set to Auto, this item will show the system memory size automatically allocated for the onboard graphics controller. If you manuanlly change the Frame Buffer Size, this item will show the memory size you set.

3-5 Integrated Peripherals



- OnChip IDE Channel0

  Enables or disables the integrated IDE controller. (Default: Enabled)

- OnChip SATA Controller

  Enables or disables the integrated SATA controller. (Default: Enabled)

- OnChip SATA Type

  Configures the operating mode of the integrated SATA controller.

  - Native IDE: Allows the SATA controller to operate in Native IDE mode. (Default) Enable Native IDE mode if you wish to install operating systems that support Native mode, e.g. Windows XP/2000.
  - RAID: Enables RAID for the SATA controller.
  - Legacy IDE: Allows the SATA controller to operate in Legacy IDE mode. In Legacy mode the SATA controller uses dedicated IRQs that cannot be shared with other device. Set this option to Legacy IDE if you wish to install operating systems that do not support Native mode, e.g. Windows 9X/ME
  - SATA ->AHCI: Configures the SATA controller to AHCI mode. Advanced Host Controller Interface (AHCI) is an interface specification that allows the storage driver to enable advanced Serial ATA features such as Native Command Queuing and hot plug. For more information about AHCI, please visit Intel's website.

- Onboard Audio Function

  Enables or disables the onboard audio function. (Default: Auto)
  If you wish to install a 3rd party add-in audio card instead of using the onboard audio, set this item to Disabled.

- Watch Dog Timer Select

  Set watch dog timer. Options are: Disable (default),20Sec,30Sec,40Sec,1Min,2Min,4Min

- OnChip USB Controller

  Enables or disables the integrated USB 1.1 controller. (Default: Enabled)

- USB EHCI Controller

  Enables or disables the integrated USB 2.0 controller. (Default: Enabled)

- USB Keyboard Support

  Allows USB keyboard to be used in MS-DOS. (Default: Disabled)

- USB Mouse Support

  Allows USB mouse to be used in MS-DOS. (Default: Disabled)

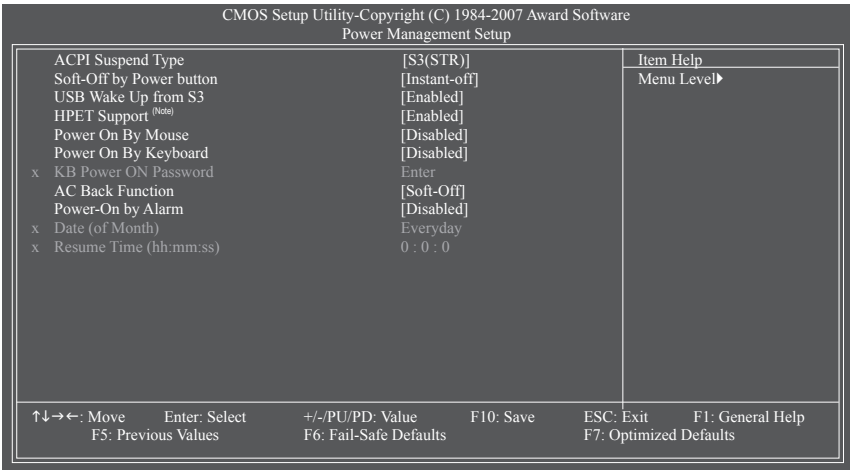
- Legacy USB storage detect

  Determines whether to detect USB storage devices, including USB flash drives and USB hard drives during the POST. (Default: Enabled)

- Onboard Serial Port 1~4

  Enables or disables the first serial port and specifies its base I/O address and corresponding interrupt. Options are: Disable,3F8/IRQ4,2E8/IRQ3,3E8/IRQ4,2E8/IRQ3

3-6 Power Management Setup



☞ ACPI Suspend Type

Specifies the ACPI sleep state when the system enters suspend.

- ⏩ S1(POS) — 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(STR) (default) — Enables the system to enter the ACPI S3 (Suspend to RAM) sleep state. 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.

☞ Soft-Off by Power button

Configures the way to turn off the computer in MS-DOS mode using the power button.

- ⏩ Instant-Off — Press the power button and then the system will be turned off instantly. (Default)
- ⏩ Delay 4 Sec. — Press and hold the power button for 4 seconds to turn off the system. If the power button is pressed for less than 4 seconds, the system will enter suspend mode.

☞ USB Wake Up from S3

Allows the system to be awakened from ACPI S3 sleep state by a wake-up signal from the installed USB device. (Default: Enabled)

(Note) Supported on Windows® Vista® operating system only.

☞ HPET Support (Note)

Enables or disables High Precision Event Timer (HPET) for Windows® Vista® operating system. (Default: Enabled)

☞ Power On By Mouse

Allows the system to be turned on by a PS/2 mouse wake-up event.

Note: To use this function, you need an ATX power supply providing at least 1A on the 5VSB lead.

- ⏩ Disabled — Disables this function. (Default)
- ⏩ Double Click — Double click on left button on the PS/2 mouse to turn on the system.

☞ Power On By Keyboard

Allows the system to be turned on by a PS/2 keyboard wake-up event.

Note: you need an ATX power supply providing at least 1A on the 5VSB lead.

- ⏩ Disabled — Disables this function. (Default)
- ⏩ Password — Set a password with 1~5 characters to turn on the system.
- ⏩ Any KEY — Press any key on the keyboard to turn on the system.
- ⏩ Keyboard 98 — Press POWER button on the Windows 98 keyboard to turn on the system.

☞ KB Power ON Password

Set the password when Power On by Keyboard is set to Password. Press <Enter> on this item and set a password with up to 5 characters and then press <Enter> to accept. To turn on the system, enter the password and press <Enter>.

Note: To cancel the password, press <Enter> on this item. When prompted for the password, press <Enter> again without entering the password to clear the password settings.

☞ AC Back Function

Determines the state of the system after the return of power from an AC power loss.

- ⏩ Soft-Off — The system stays off upon the return of the AC power. (Default)
- ⏩ Full-On — The system is turned on upon the return of the AC power.
- ⏩ Memory — The system returns to its last known awake state upon the return of the AC power.

☞ Power-On by Alarm

Determines whether to power on the system at a desired time. (Default: Disabled)

If enabled, set the date and time as following:

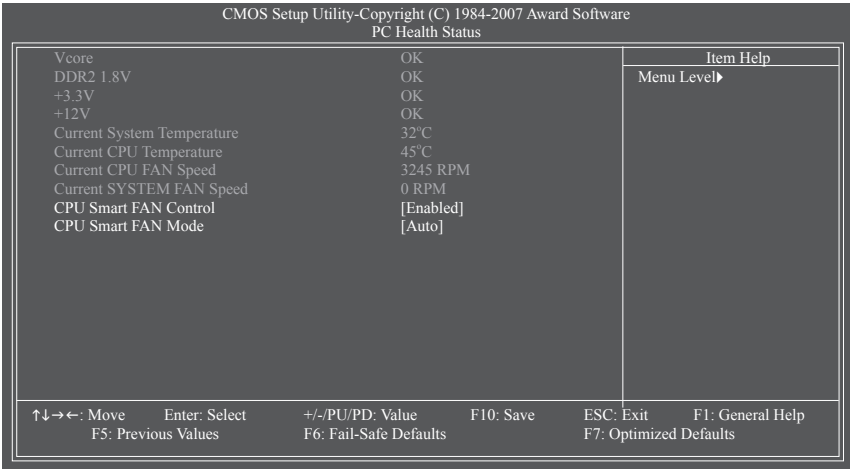
⏩ Date (of Month): Turn on the system at a specific time on each day or on a specific day in a month.

⏩ Resume Time (hh: mm: ss): Set the time at which the system will be powered on automatically.

Note: When using this function, avoid inadequate shutdown from the operating system or removal of the AC power, or the settings may not be effective.

(Note) Supported on Windows® Vista® operating system only.

3-7 PC Health Status



☞ Current Voltage(V) Vcore/DDR2 1.8V/+3.3V/+12V

Displays the current system voltages.

☞ Current System/CPU Temperature

Displays current system/CPU temperature.

☞ Current CPU/SYSTEM FAN Speed (RPM)

Displays current CPU/system fan speed.

☞ CPU Smart FAN Control

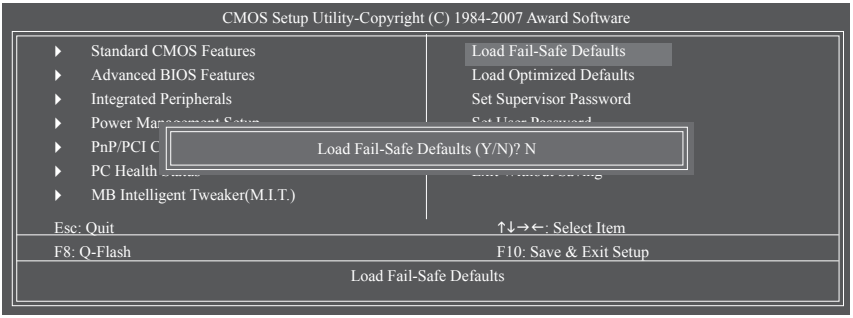
Enables or disables the CPU fan speed control function. Enabled allows the CPU fan to run at different speed according to the CPU temperature. You can adjust the fan speed with EasyTune based on system requirements. If disabled, CPU fan runs at full speed. (Default: Enabled)

☞ CPU Smart FAN Mode

Specifies how to control CPU fan speed. This item is configurable only if CPU Smart FAN Control is set to Enabled.

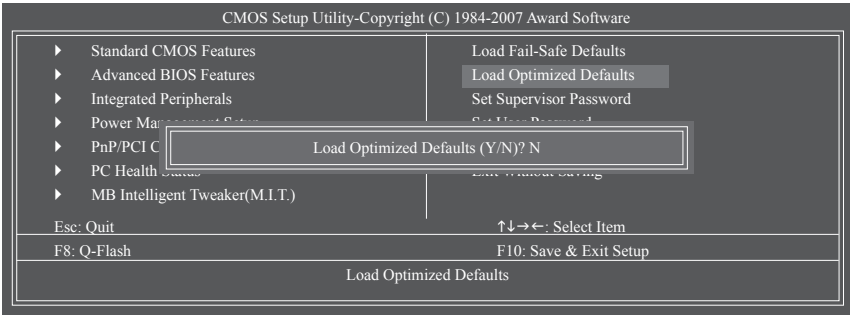
- ⏩ Auto — Lets BIOS autodetect the type of CPU fan installed and sets the optimal CPU fan control mode. (Default)
- ⏩ Voltage — Sets Voltage mode for a 3-pin CPU fan.
- ⏩ PWM — Sets PWM mode for a 4-pin CPU fan.

3-8 Load Fail-Safe Defaults



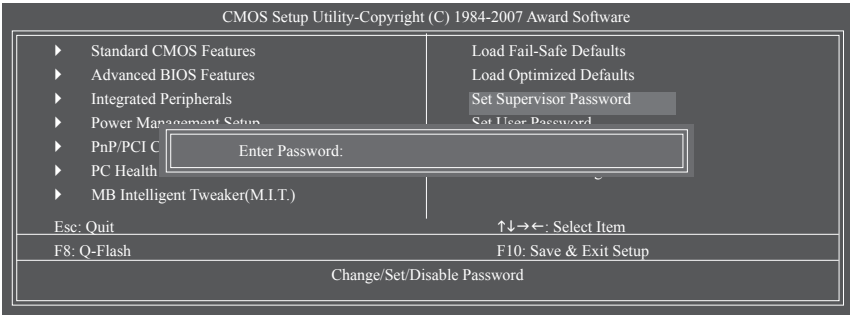
Press <Enter> on this item and then press the <Y> key to load the safest BIOS default settings.
In case system instability occurs, you may try to load Fail-Safe defaults, which are the safest and most stable BIOS settings for the motherboard.

3-9 Load Optimized Defaults



Press <Enter> on this item and then press the <Y> key to load the optimal BIOS default settings. The BIOS defaults settings helps the system to operate in optimum state. Always load the Optimized defaults after updating the BIOS or after clearing the CMOS values.

3-10 Set Supervisor/User Password

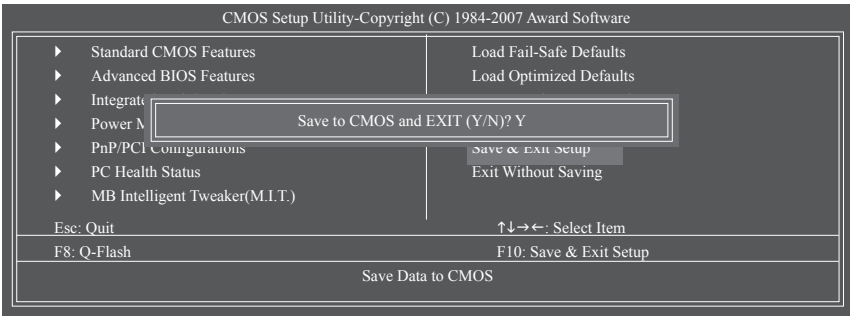


Press <Enter> on this item and type the password with up to 8 characters and then press <Enter>. You will be requested to confirm the password. Type the password again and press <Enter>.
The BIOS Setup program allows you to specify two separate passwords:

- ☞ Supervisor Password
  When a system password is set and the Password Check item in Advanced BIOS Features is set to Setup, you must enter the supervisor password for entering BIOS Setup and making BIOS changes.
  When the Password Check item is set to System, you must enter the supervisor password (or user password) at system startup and when entering BIOS Setup.
- ☞ User Password
  When the Password Check item is set to System, you must enter the supervisor password (or user password) at system startup to continue system boot. In BIOS Setup, you must enter the supervisor password if you wish to make changes to BIOS settings. The user password only allows you to view the BIOS settings but not to make changes.

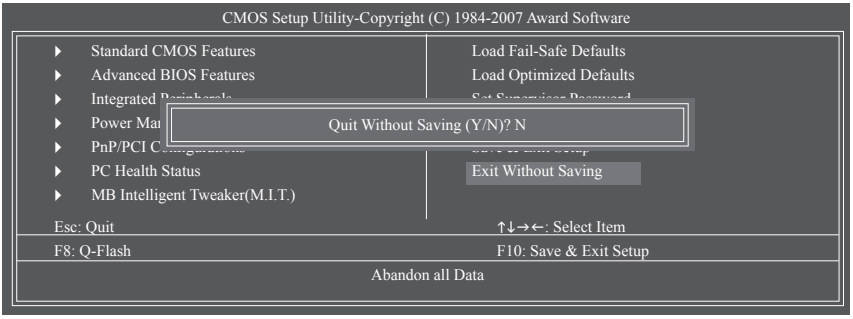
To clear the password, press <Enter> on the password item and when requested for the password, press <Enter> again. The message "PASSWORD DISABLED" will appear, indicating the password has been cancelled.

3-11 Save & Exit Setup



Press <Enter> on this item and press the <Y> key. This saves the changes to the CMOS and exits the BIOS Setup program. Press <N> or <Esc> to return to the BIOS Setup Main Menu.

3-12 Exit Without Saving



Press <Enter> on this item and press the <Y> key. This exits the BIOS Setup without saving the changes made in BIOS Setup to the CMOS. Press <N> or <Esc> to return to the BIOS Setup Main Menu.