Preface

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Version 2.0

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Federal Communications Commission (FCC)

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

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

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

Declaration of Conformity

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

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

Canadian Department of Communications

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

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

About the Manual

The manual consists of the following:

Chapter 1

Introducing the Motherboard

Describes features of the motherboard.

Go to ⇨ page 1

Chapter 2

Installing the Motherboard

Describes installation of motherboard components.

Go to ⇨ page 7

Chapter 3

Using BIOS

Provides information on using the BIOS Setup Utility.

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Chapter 4

Using the Motherboard Software

Describes the motherboard software

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Chapter 5

Trouble Shooting

Provides basic trouble shooting tips

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Chapter 1
Introducing the Motherboard

Introduction

Thank you for choosing the **H61H-G11** motherboard. This motherboard is a high performance, enhanced function motherboard designed to support the LGA1155 socket for latest Intel® Core™ Family/Pentium®/Celeron® processors* for high-end business or personal desktop markets.

This motherboard is based on Intel® H61 Express Chipset for best desktop platform solution. H61 is a single-chip, highly integrated, high performance Hyper-Threading peripheral controller, unmatched by any other single chip-device controller. This motherboard supports up to 8 GB of system memory with dual channel DDR3 1333/ 1066 SO-DIMM. One Mini PCI Express slot is supported, which supports half-card. It implements an EHCI (Enhanced Host Controller Interface) compliant interface that provides six USB 2.0 ports (four USB 2.0 ports at the back panel and one USB 2.0 header support additional two USB 2.0 ports).

The motherboard is equipped with advanced full set of I/O ports in the rear panel, including one HDMI port, one DC-IN port, one Lan port, four USB 2.0 ports, and audio jacks for microphone and line-out.

In addition, this motherboard supports two SATA 3.0Gb/s connectors for expansion.

**When accommodating Intel 3rd Generation CPU, the PCI Express 16X slot can run at Gen3 speed, which accelerates on 32GB/s rate that effectively delivers double of PCI Express Gen2 speed.*

Feature

Processor

The motherboard uses a LGA1155 type of socket that carries the following features:

- Accommodates latest Intel® Core™ Family/Pentium®/Celeron® processors
- Supports “Hyper-Threading” technology CPU

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

Chipset

The Intel® H61 Chipset is a single-chip with proven reliability and performance.

- Support one Mini PCI Express slot (supports half-card)
- Integrated two SATA 3.0Gb/s Host Controller
- Six USB 2.0 ports supported
- Serial Peripheral Interface (SPI) support
- Integrated Graphics Support with PAVP 1.5
- Intel® High Definition Audio Controller

Memory

- Supports DDR3 1333/1066 DDR3 SO-DIMM with Dual-channel architecture
- Accommodates two unbuffered SO-DIMMs
- Up to 4 GB per SO-DIMM with maximum memory size up to 8 GB

Audio

- 5.1+2 Channel High Definition Audio Codec
- Meets Microsoft WLP3.x (Windows Logo Program) audio requirements
- All DACs supports 44.1k/48k/96k/192kHz sample rate
- Software selectable 2.5V/3.2V/4.0V VREFOUT
- Direct Sound 3D. compatible
- Power Support: Digital: 3.3V; Analog: 5.0V

Giga LAN (Optional)

The onboard LAN provides the following features:

- Supports PCI Express™ 1.1
- Integrated 10/100/1000 transceiver
- Wake-on-LAN and remote wake-up support

Expansion Options

The motherboard comes with the following expansion options:

- One Mini PCI Express slot (supports half-card)
- Two SATA 3.0Gb/s connectors

Integrated I/O

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

- One LAN port
- One HDMI port
- Four USB 2.0 ports
- One DC-IN port
- Audio jacks for microphone and line-out

BIOS Firmware

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

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

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

1. Some hardware specifications and software items are subject to change without prior notice.

2. Due to chipset limitation, we recommend that motherboard be operated in the ambiance between 0 and 50 ° C.

Specifications

CPU	• LGA1155 socket for latest Intel® Core™ Family/Pentium®/ Celeron® processors • Supports “Hyper-Threading” technology CPU • DMI 2.0GT/s
Chipset	• Intel® H61 Chipset
Memory	• Dual-channel DDR3 memory architecture • 2 x 204-pin DDR3 SO-DIMM sockets support up to 8 GB • Supports 1333/1066 DDR3 SO-DIMM
Expansion Slot	• 1 x Mini PCI Express slot (supports half-card)
Storage	• Supported by Intel® H61 Express Chipset - SATA * 2 3.0Gb/s devices
Audio	• Realtek ALC662GR High Definition audio CODEC
LAN	• Realtek 8111E Giga Lan
Rear Panel I/O	• 4 x USB 2.0 ports • 1 x DC-IN port • 1 x HDMI port • 1 x RJ45 LAN connector • 2 x Audio port (microphone in, line out)
Internal I/O Connectors & Headers	• 1 x 4-pin CPU_FAN connector • 1 x 4-pin SYS_FAN connector • 1 x Front panel audio header • 1 x Front panel switch/LED header • 1 x Speaker header • 2 x Serial SATA 3.0Gb/s connectors • 1 x USB 2.0 header supports additional two USB 2.0 ports • 1 x Clear CMOS jumper • 1 x ME_DISABLE jumper • 2 x LCD select jumpers • 1 x LVDS connector • 1 x FPD power connector • 1 x Digital microphone header • 1 x HDD power connector • 1 x ODD power connector • 1 x CDD header • 1 x Touch board header • 1 x Card reader header
System BIOS	• AMI BIOS with 64Mb SPI Flash ROM • Supports Plug and Play, STR (S3)/STD (S4) • Hardware monitor, Multi Boot • Supports ACPI & DMI • Audio, LAN, can be disabled in BIOS
Form Factor	• Thin Mini-ITX Size, 170mm x 170mm

Motherboard Components

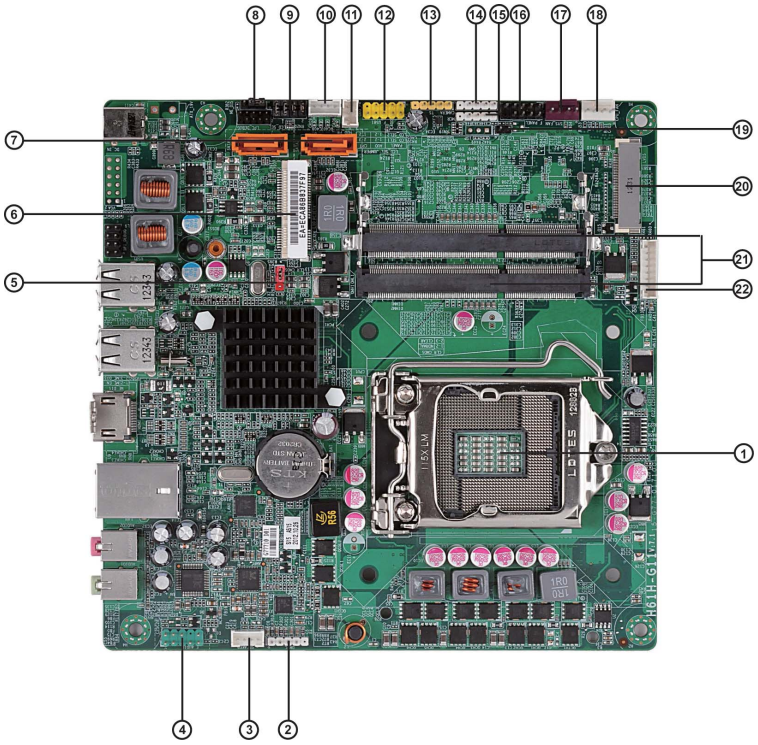


Table of Motherboard Components

LABEL	COMPONENTS
1. CPU Socket	LGA1155 socket for latest Intel® Core™ Family/Pentium® /Celeron® Processors
2. DMIC	Digital microphone header
3. SPEAKER	Speaker header
4. F_AUDIO	Front panel audio header
5. CLR_CMOS	Clear CMOS jumper
6. PCIE1X	Mini PCI Express x1 slot (supports half-card)
7. SATA1~2	Serial ATA 3.0 Gb/s connectors
8. ME_DISABLE	ME disable jumper
9. LCD_SEL1~2	LCD select jumpers
10. HDD_PW	HDD power connector
11. ODD_PW	ODD power connector
12. F_USB1	Front panel USB 2.0 header
13. TS	Touch board header
14. CAMERA	CCD header
15. MCR	Card reader header
16. F_PANEL	Front panel switch/LED header
17. SYS_FAN	4-pin system cooling fan connector
18. CPU_FAN	4-pin CPU cooling fan connector
19. LCD_OFF	Panel switch
20. LVDS	LVDS header (optional)
21. DIMM1~2	204-pin DDR3 SO-DIMM sockets
22. FPD	FPD power connector

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

Chapter 2
Installing the Motherboard

Safety Precautions

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

Choosing a Computer Case

There are many types of computer cases on the market. The motherboard complies with the specifications for the Thin Mini ITX system case. Some features on the motherboard are implemented by cabling connectors on the motherboard to indicators and switches on the system case. Make sure that your case supports all the features required.

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

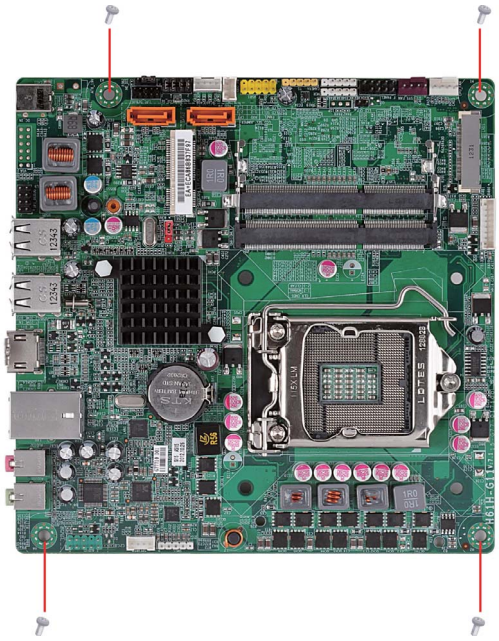
This motherboard carries a Thin Mini ITX form factor of 170 x 170 mm. Choose a case that accommodates this form factor.

Installing the Motherboard in a Case

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

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

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



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

Checking Jumper Settings

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

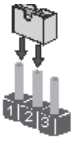
Setting Jumpers

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

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

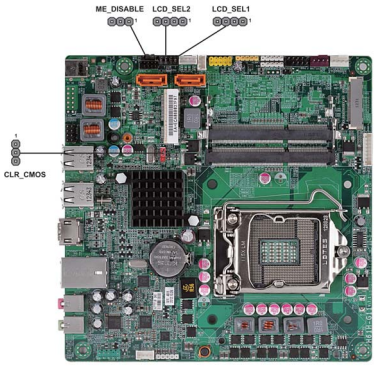
SHORT **OPEN**

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



Checking Jumper Settings

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



Jumper Settings

Jumper	Type	Description	Setting (default)	
CLR_CMOS	3-pin	Clear CMOS	1-2: NORMAL 2-3: CLEAR Before clearing the CMOS, make sure to turn off the system.	1 **CLR_CMOS**
ME_DISABLE	3-pin	Disable ME	1-2: ME ENABLE 2-3: ME DISABLE	1 **ME_ENABLE**
LCD_SEL1	4-pin	SELECT LCD	0: BOE 23.6'' HM236WU1-400	1 **LCD_SEL1**
LCD_SEL2			0: BOE 23.6'' HM236WU1-400	1 **LCD_SEL2**
LCD_SEL1	4-pin	SELECT LCD	4: CMO 23.6'' M236HGE-L20	1 **LCD_SEL1**
LCD_SEL2			4: CMO 23.6'' M236HGE-L20	1 **LCD_SEL2**
LCD_SEL1	4-pin	SELECT LCD	2 & 4: BOE 21.5' B3HT215F01-100	1 **LCD_SEL1**
LCD_SEL2			2 & 4: BOE 21.5' B3HT215F01-100	1 **LCD_SEL2**
LCD_SEL1	4-pin	SELECT LCD	2-3: CPT 21.5'' CLAA215FA04	1 **LCD_SEL1**
LCD_SEL2			2-3: CPT 21.5'' CLAA215FA04	1 **LCD_SEL2**

To avoid the system instability after clearing CMOS, we recommend users to enter the main BIOS setting page to "Load Default Settings" and then "Save and Exit Setup".

Installing Hardware

Installing the Processor

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

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

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

Before installing the Processor

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

Warning:

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

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

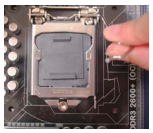
This motherboard has an LGA1155 socket. When choosing a processor, consider the performance requirements of the system. Performance is based on the processor design, the clock speed and system bus frequency of the processor, and the quantity of internal cache memory and external cache memory.

CPU Installation Procedure

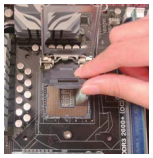
The following illustration shows CPU installation components.

A. Disengaging of the Load Lever
- Press the hook of lever down and pull it to the right side to release it from retention tab.

B. Opening of the Load Plate
- Lift the tail of the load lever.
- Rotate the load plate to fully open position.



C. Removing the Cap
- Be careful not to touch the contact at any time.



D. Inserting the Package
- Grasp the package. Ensure to grasp on the edge of the substrate.
- Make sure pin 1 indicator is on your bottom-left side.
- Aim at the socket and place the package carefully into the socket by purely vertical motion.

E. Closing the Load Plate
- Rotate the load plate onto the package IHS (Intergraded Heat Spreader).
- Engage the load lever while pressing down lightly onto the load plate.
- Secure the load lever with the hook under retention tab.

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

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

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

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

3. Return Material Authorization (RMA) requests will be accepted only if the motherboard comes with the cap on the LGA1155 socket.

Installing Memory Modules

This motherboard accommodates two memory modules. It can support two 204-pin DDR3 1333/1066 SDRAM. The total memory capacity is 8 GB.

DDR3 SDRAM memory module table

Memory module	Memory Bus
DDR3 1066	***533 MHz***
DDR3 1333	***667 MHz***

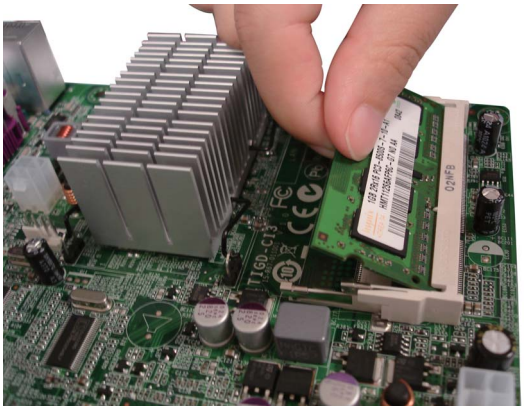
You must install at least one module in any of the two slots.

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

Installation Procedure

Refer to the following to install the memory modules.

1. This motherboard supports unbuffered DDR3 SDRAM .
2. Push the latches on each side of the SO-DIMM slot down.
3. Align the memory module with the slot. The SO-DIMM slots are keyed with notches and the SO-DIMMs are keyed with cutouts so that they can only be installed correctly.
4. Check that the cutouts on the SO-DIMM module edge connector match the notches in the SO-DIMM slot.
5. Install the SO-DIMM module into the slot and press it firmly down until it seats correctly. The slot latches are levered upwards and latch on to the edges of the SO-DIMM.
6. Install any remaining SO-DIMM modules.

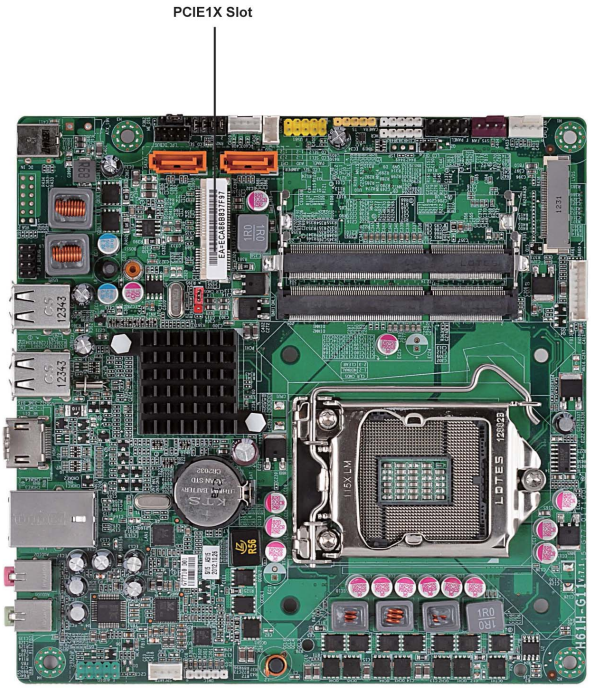


** For reference only*

Expansion Slots

Installing Add-on Cards

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

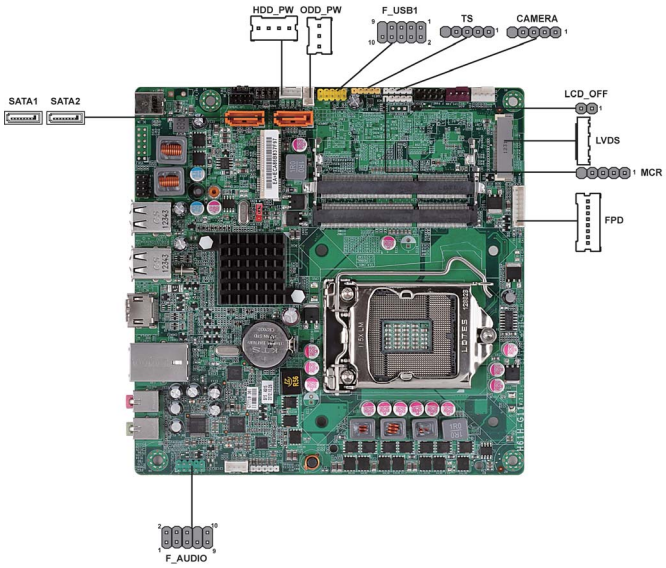


PCIE1X Slot The Mini PCI Express x1 slot is fully compliant to the PCI Express Base Specification revision 2.0, it can support half-card.

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

Connecting Optional Devices

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



F_AUDIO: Front Panel Audio header

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

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

SATA1~2: Serial ATA connectors

These connectors are used to support the Serial ATA 3.0Gb/s device, simpler disk drive cabling and easier PC assembly. It eliminates limitations of the current Parallel ATA interface. But maintains register compatibility and software compatibility with Parallel ATA.

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

F_USB1: Front Panel USB 2.0 header

The motherboard has one USB 2.0 header supporting two USB 2.0 ports. Additionally, some computer cases have USB 2.0 ports at the front of the case. If you have this kind of case, use auxiliary USB 2.0 connector to connect the front-mounted ports to the motherboard.

Pin	Signal Name	Function
1	USBPWR	Front Panel USB Power
2	USBPWR	Front Panel USB Power
3	USB_FP_P0-	USB Port 0 Negative Signal
4	USB_FP_P1-	USB Port 1 Negative Signal
5	USB_FP_P0+	USB Port 0 Positive Signal
6	USB_FP_P1+	USB Port 1 Positive Signal
7	GND	Ground
8	GND	Ground
9	Key	No pin
10	NC	Not connected

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

FPD: FPD power connector

The motherboard must provide additional power for the internal flat panel display (both panel and backlight inverter) via an FPD power connector.

Pin	Signal Name	Function
1	BKLT_EN	Backlight enable
2	BKLT_PWM	Backlight control
3	BKLT_PWR	Backlight inverter power
4	BKLT_PWR	Backlight inverter power
5	BKLT_GND/Brightness_GND	Ground (shared)
6	BKLT_GND/Brightness_GND	Ground (shared)
7	Brightness_UP	Panel brightness increase
8	Brightness_DOWN	Panel brightness decrease

HDD_PW: HDD power connector

This connector is used to provide power for the HDD.

Pin	Signal Name
1	+12V
2	+5V
3	+3.3V
4	GND

ODD_PW: ODD power connector

This connector is used to provide power for the ODD.

Pin	Signal Name
1	+5V
2	+5V
3	GND

TS: Touch board header

Pin	Signal Name
1	+5V
2	USB_N
3	USB_P
4	GND
5	Key

CAMERA: CCD header

Pin	Signal Name
1	+5V
2	USB_N
3	USB_P
4	GND
5	Key

MCR: Card reader header

Pin	Signal Name
1	+5V
2	USB_N
3	USB_P
4	GND
5	Key

LCD_OFF: Panel switch

Pin	Signal Name
1	PWRDN
2	GND

LVDS: LVDS header

Pin	Signal Name	Pin	Signal Name
1	Dual Channels LVDS Signal	21	NC
2	Dual Channels LVDS Signal	22	+3.3V
3	Dual Channels LVDS Signal	23	GND
4	Dual Channels LVDS Signal	24	GND
5	Dual Channels LVDS Signal	25	GND
6	Dual Channels LVDS Signal	26	Dual Channels LVDS clock
7	Dual Channels LVDS Signal	27	Dual Channels LVDS clock
8	Dual Channels LVDS Signal	28	GND
9	Dual Channels LVDS Signal	29	GND
10	Dual Channels LVDS Signal	30	GND
11	Dual Channels LVDS Signal	31	EDID Signal
12	Dual Channels LVDS Signal	32	LCD backlight ON/OFF
13	Dual Channels LVDS Signal	33	LCD backlight adjustment
14	Dual Channels LVDS Signal	34	Dual Channels LVDS clock
15	Dual Channels LVDS Signal	35	Dual Channels LVDS clock
16	Dual Channels LVDS Signal	36	LCD backlight power +19V
17	GND	37	LCD backlight power +19V
18	+5V	38	LCD backlight power +19V
19	+5V	39	NC
20	+5V	40	EDID Signal

Installing a Hard Disk Drive/Optical Disk Drive/SATA Hard Drive

This section describes how to install a Hard Disk Drive/Optical Disk Drive/SATA Hard Drive.

About SATA Connectors

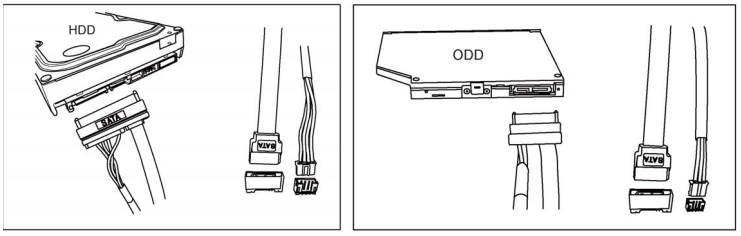
Your motherboard features two SATA connectors supporting a total of two drives. SATA refers to Serial ATA (Advanced Technology Attachment) is the standard interface for the IDE hard drives which are currently used in most PCs. These connectors are well designed and will only fit in one orientation. Locate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

Installing a Hard Disk Drive/Optical Disk Drive/Serial ATA Hard Drives

To install the Hard Disk Drive (HDD)/Optical Disk Drive (ODD)/Serial ATA (SATA) hard drives, use the HDD/ODD/SATA cable that supports the Hard Disk Drive/Optical Disk Drive/Serial ATA protocol. This HDD/ODD/SATA cable comes with a HDD/ODD/SATA power cable. You can connect the comb end of the HDD/ODD/SATA cable to the Hard Disk Drive/Optical Disk Drive and connect the other end to the connectors on the motherboard.

Refer to the illustration below for proper installation:

1 Attach the comb end of the HDD/ODD/SATA cable to the Hard Disk Drive/Optical Disk Drive.
2 Attach the other ends to the connectors on the motherboard.



Connecting I/O Devices

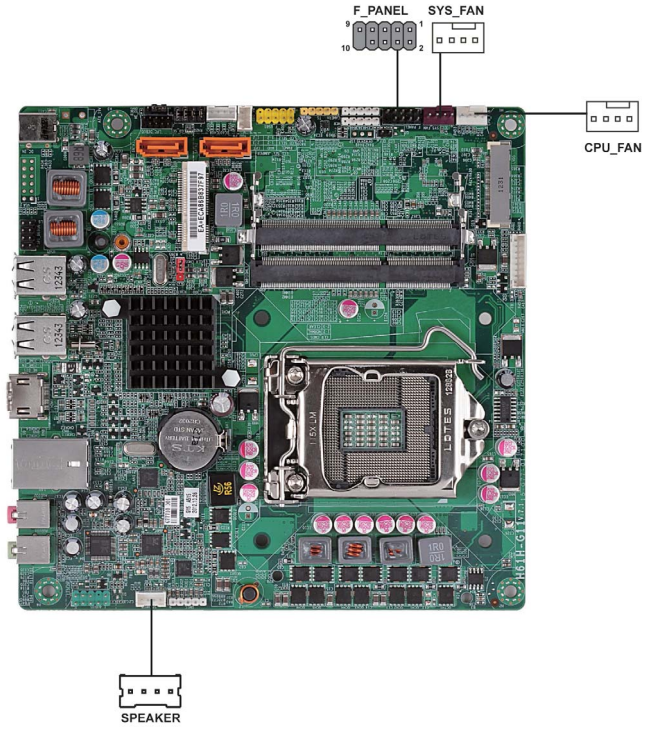
The backplane of the motherboard has the following I/O ports:

DC_IN Port	Connect the DC_IN port to the power adapter.
USB 2.0 Ports	Use the USB 2.0 ports to connect USB 2.0 devices.
HDMI Port	Connect the HDMI port to the HDMI devices.
LAN Port	Connect an RJ-45 jack to the LAN port to connect your computer to the Network.
Audio Ports	Use the two audio ports to connect audio devices. The left jack is for microphone. The right jack is for stereo line-out singal.

Connecting Case Components

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

1. Connect the CPU cooling fan cable to **CPU_FAN**.
2. Connect the case switches and indicator LEDs to the **F_PANEL**.
3. Connect the system cooling fan connector to **SYS_FAN**.
4. Connect the case speaker cable to **SPEAKER**.



CPU_FAN: CPU cooling FAN Power Connector

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

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

SYS_FAN: System Cooling FAN Power Connector

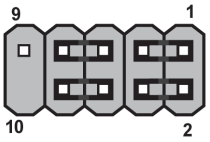
Pin	Signal Name	Function
1	GND	Ground
2	+12V	Power +12V
3	Sense	Sensor
4	PWM	PWM

SPEAKER: Internal speaker header

Pin	Signal Name
1	Front_L-
2	Front_L+
3	Front_R+
4	Front_R-

Front Panel Header

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



F_PANEL

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

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

Hard Drive Activity LED

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

Power/Sleep/Message waiting LED

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

Reset Switch

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

Power Switch

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

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

Memo

Chapter 3
Using BIOS

About the Setup Utility

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

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

The BIOS Setup Utility enables you to configure:

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

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

This chapter provides explanations for Setup Utility options.

The Standard Configuration

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

This Setup Utility should be used:

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

Entering the Setup Utility

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

Press DEL to enter SETUP

Press the delete key to access BIOS Setup Utility.

Resetting the Default CMOS Values

When powering on for the first time, the POST screen may show a "CMOS Settings Wrong" message. This standard message will appear following a clear CMOS data at factory by the manufacturer. You simply need to Load Default Settings to reset the default CMOS values.

Note: Changes to system hardware such as different CPU, memories, etc. may also trigger this message.

Using BIOS

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

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

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

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

The default BIOS setting for this motherboard apply for most conditions with optimum performance. We do not suggest users change the default values in the BIOS setup and take no responsibility to any damage caused by changing the BIOS settings.

BIOS Navigation Keys

The BIOS navigation keys are listed below:

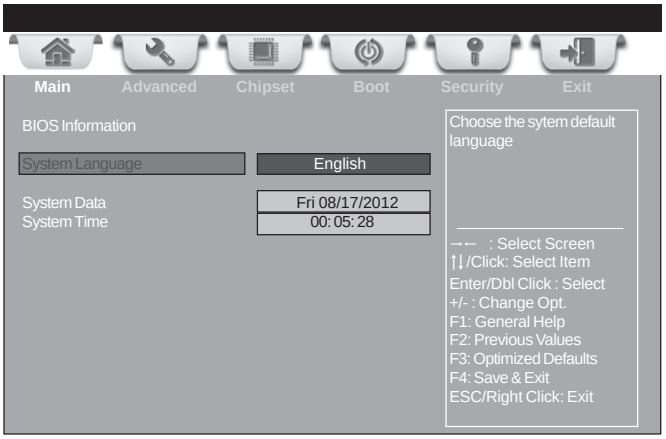
KEY	FUNCTION
ESC	Exits the current menu
⇅→←	Scrolls through the items on a menu
+/-	Modifies the selected field's values
Enter	Select
F1	General Help
F2	Previous Value
F3	Optimized Defaults
F4	Save & Exit

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

2. In this Gui BIOS, you can operate by mouse or keyboard. Click : select item; Double click: enter; Right click: exit.

Main Menu

This menu shows the information of BIOS and enables you to set the system language, date and time.



System Language (English)

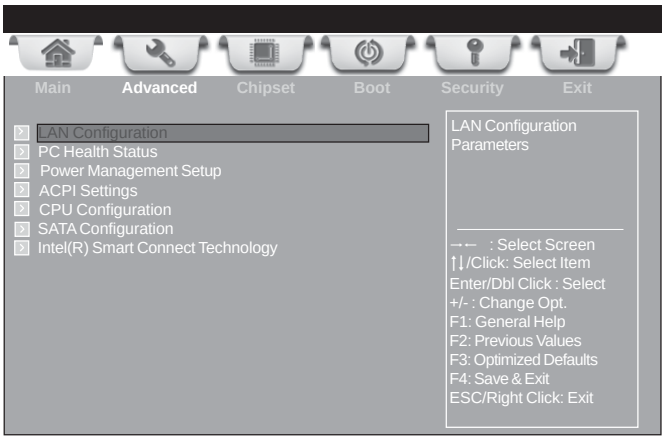
This item is used to set system language.

System Date & Time

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

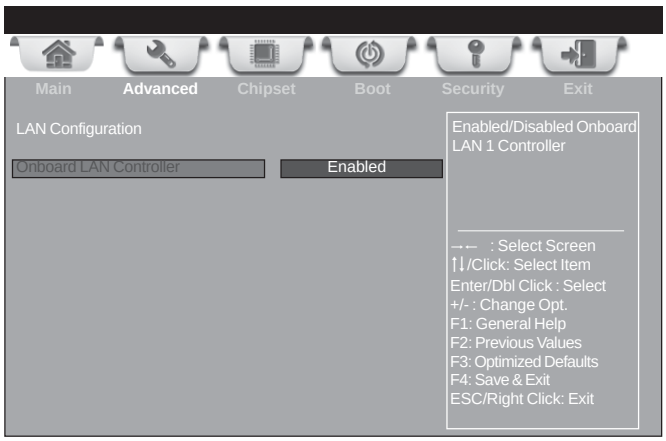
Advaned Menu

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



LAN Configuration

The item in the menu shows the LAN-related information that the BIOS automatically detects.



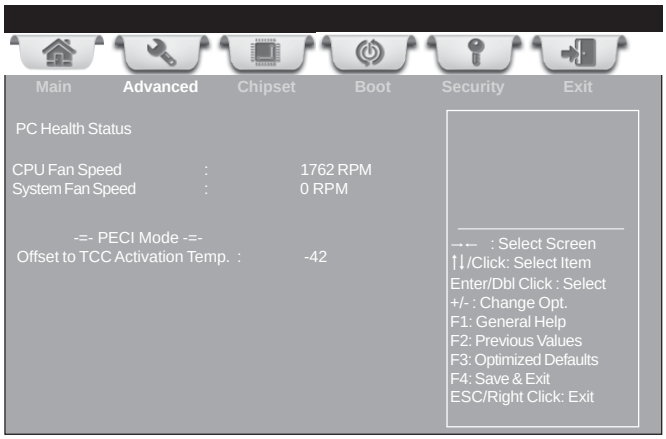
Onboard LAN Controller (Enabled)

Use this item to enable or disable the Onboard LAN.

Press <Esc> to return to the Advanced Menu page.

PC Health Status

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



System Component Characteristics

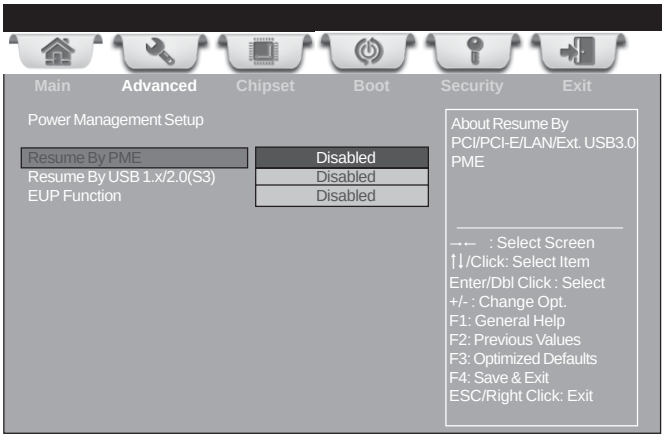
These items display the monitoring of the overall inboard hardware health events, such as System & CPU temperature, CPU & DIMM voltage, CPU & system fan speed,... etc.

- CPU Fan Speed
- System Fan Speed

Press <Esc> to return to the Advanced Menu page.

Power Management Setup

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



Resume By PME (Disabled)

This item specify whether the system will be awakened from power saving modes when activity or input signal of the specified hardware peripheral or components is detected.

Resume By USB 1.x/2.0(S3) (Disabled)

This item allows you to enable/disable the USB device wakeup function from S3 mode.

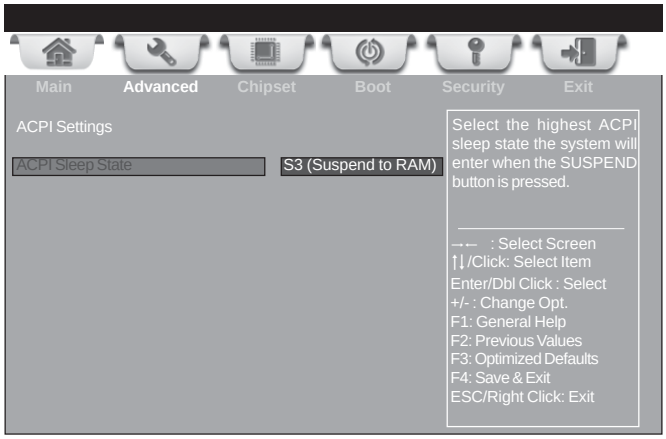
EUP Support (Disabled)

This item allows user to enable or disable EUP support.

Press <Esc> to return to the Advanced Menu page.

ACPI Setting

The item in the menu shows the highest ACPI sleep state when the system enters suspend.



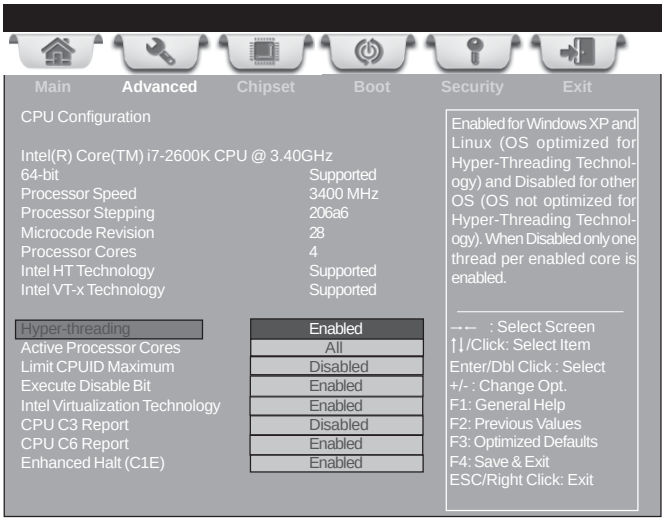
ACPI Sleep State (S3(Suspend to RAM))

This item allows user to enter the ACPI S3 (Suspend toRAM) Sleep State (default).

Press <Esc> to return to the Advanced Menu page.

CPU Configuration

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



Intel(R) Core(TM) i7-2600K CPU @ 3.40GHz

This is display-only field and diaplays the information of the CPU installed in your computer.

64-bit (Supported)

This item shows the computer supports 64-bit.

Processor Speed (3400MHz)

This item shows the current processor speed.

Processor Stepping (206a6)

This item shows the processor stepping version.

Microcode Revision (28)

This item shows the Microcode version.

Processor Cores (4)

This item shows the core number of the processor.

Intel HT Technology (Supported)

This item shows that your computer supports Intel HT technology.

Intel VT-x Technology (Supported)

This item shows that your computer supports Intel VT-x technology.

Hyper-threading (Enabled)

This item is only available when the chipset supports Hyper-threading and you are using a Hyper-threading CPU.

Active Processor Cores (All)

This item shows the number of cores to enable in each processor package.

Limit CPUID Maximum (Disabled)

Use this item to enable or disable the maximum CPUID value limit, you can enable this to prevent the system from “rebooting” when trying to install Windows NT 4.0.

Excute Disable Bit (Enabled)

This item allows the processor to classify areas in memory by where application code can execute and where it cannot. When a malicious worm attempts to insert code in the buffer, the processor disables code execution, preventing damage or worm propagation. Replacing older computers with Execute Disable Bit enabled systems can halt worm attacks, reducing the need for virus related repair.

Intel Virtualization Technology (Enabled)

When disabled, a VMM cannot utilize the additional hardware capabilities provided by Vandor Pool Technology.

CPU C3 Report (Disabled)

Use this item to enable or disable CPU C3 (ACPI C2) report to OS.

CPU C6 report (Enabled)

Use this item to enable or disable the CPU C6 report to OS.

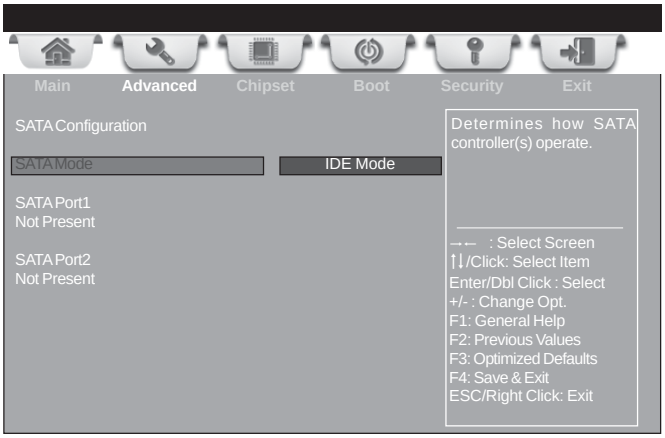
Enhanced Halt (C1E) (Enabled)

Use this item to enable the CPU energy-saving function when the system is not running.

Press <Esc> to return to the Advanced Menu page.

SATA Configuration

Use this item to show the mode of serial SATA configuration options.



SATA Mode (IDE Mode)

Use this item to select SATA mode.

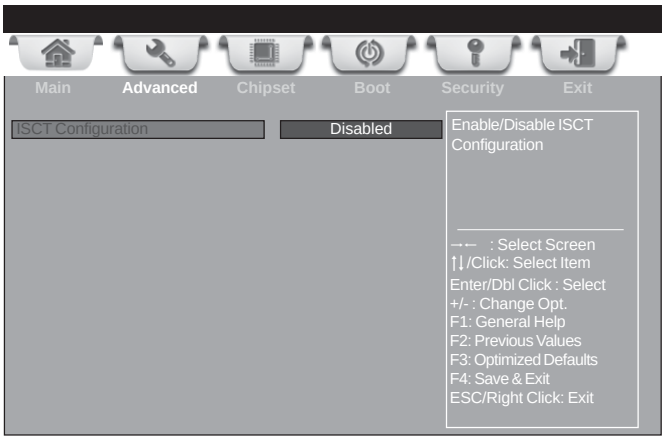
SATA Port 1~2 (Not Present)

This motherboard supports two SATA channel and each channel allows one SATA device to be installed. Use these items to configure each device on the SATA channel.

Press <Esc> to return to the Advanced Menu page.

Intel(R) Smart Connect Technology

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



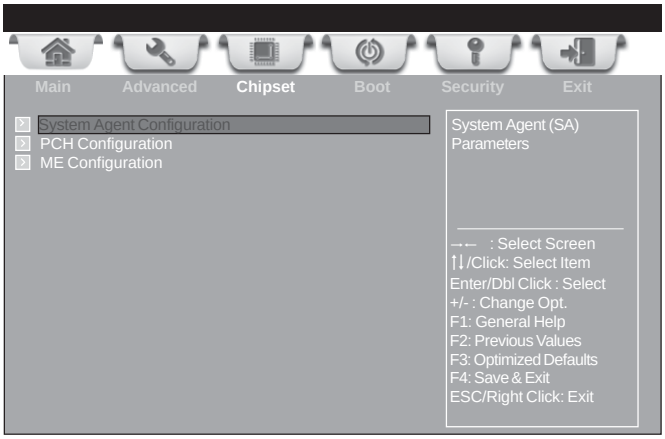
ISCT Configuration (Disabled)

Use this item to enable or disable ISCT configuration.

Press <Esc> to return to the Advanced Menu page.

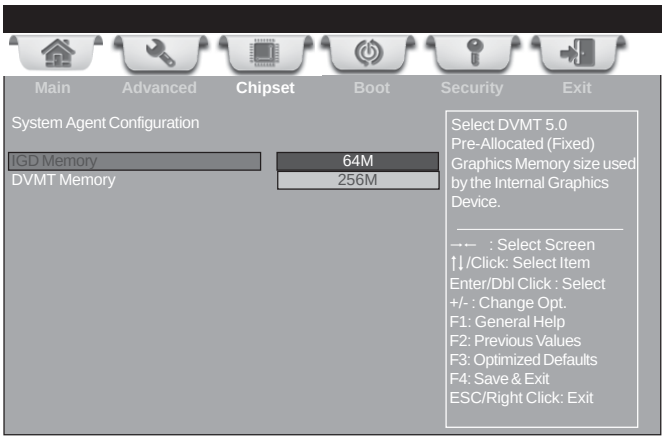
Chipset Menu

The chipset menu items allow you to change the settings for the North Bridge chipset, South Bridge chipset and other system.



System Agent Configuration

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



IGD Memory (64M)

This item shows the information of the IGD(Internal Graphics device) memory.

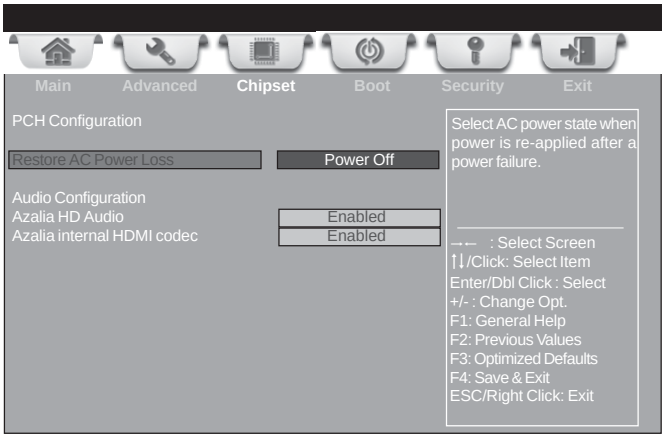
DVMT Memory (256M)

When set to Fixed Mode, the graphics driver will reserve a fixed position of the system memory as graphics memory, according to system and graphics requirements.

Press <Esc> to return to the Chipset Menu page.

PCH Configuration

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



Restore AC Power Loss (Power Off)

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

Audio Configuration

This item shows the information of the audio configuration.

Azalia HD Audio (Enabled)

This item enables or disables Azalia HD audio.

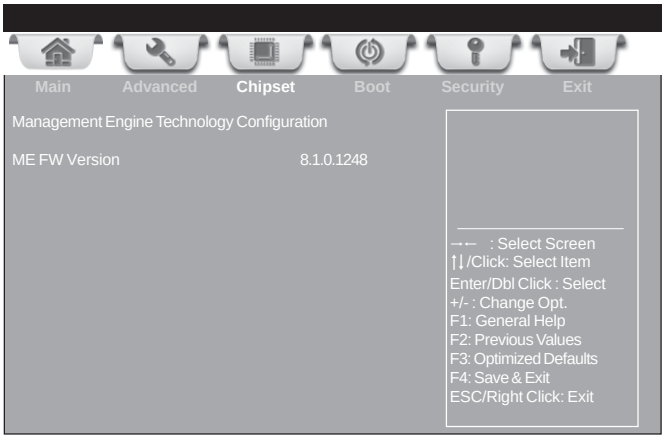
Azalia Internal HDMI codec (Enabled)

This item enables or disables Azaia Internal HDMI codec.

Press <Esc> to return to the Chipset Menu page.

ME Configuration

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



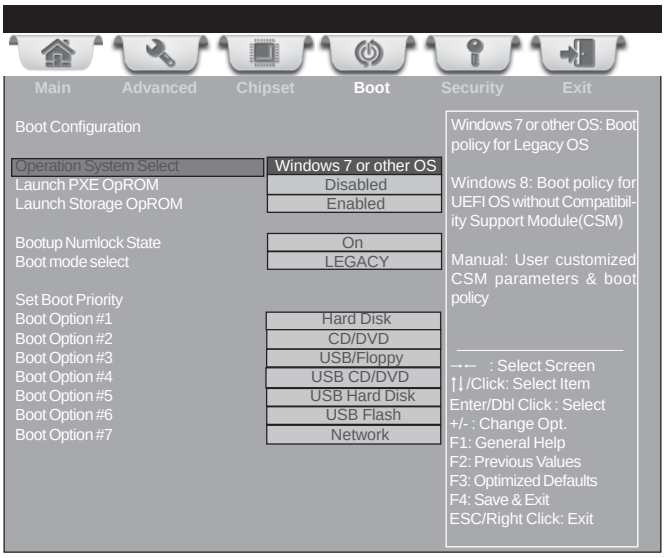
ME FW Version (8.1.0.1248)

This item shows the ME FW version.

Press <Esc> to return to the Chipset Menu page.

Boot Menu

This page enables you to set the keyboard NumLock state.



Boot Configuration

This item shows the information of the boot configuration.

Operation System Select (Windows7 or other OS)

This item is used to select the operation system.

Launch PXE OpROM (Disabled)

The item enables or disables launch PXE Option ROM.

Launch Storage OpROM (Enabled)

The item enables or disables launch Storage Option ROM.

Bootup NumLock State (On)

This item enables you to select NumLock state.

Boot mode select (LEGACY)

Use this item to select boot mode.

Set Boot Priority

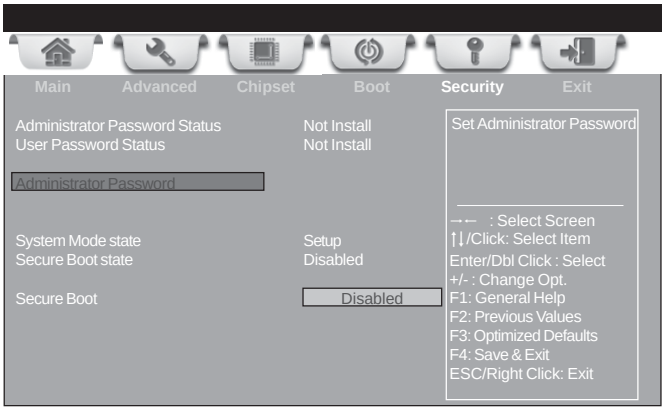
This item enables you to set boot priority for all boot devices.

Boot Option #1/2/3/4/5/6/7

These items show the boot priorities.

Security Menu

This page enables you to set setup administrator and password.



Administrator Password Status (Not Install)

This item shows adiministrator password installed or not.

User Password Status (Not Install)

This item shows user password installed or not.

Administrator Password

This item allows you to set up the administrator password.

System Mode state (Setup)

This item shows system mode setup or not.

Secure Boot state (Disabled)

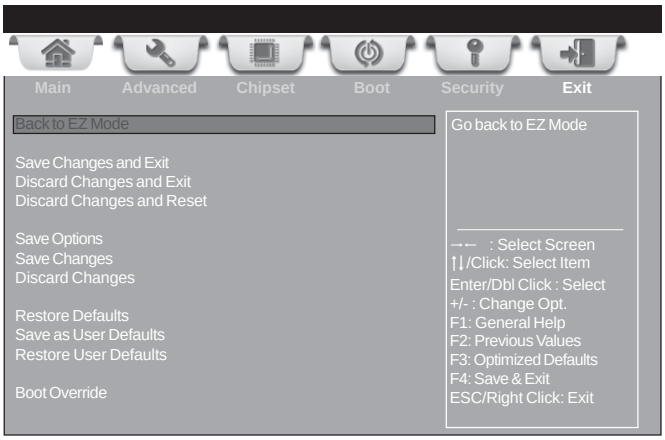
This item allows you to enable or disable the secure boot state.

Secure Boot (Enabled)

This item is used to control the secure boot flow, it is possible only if system runs in User Mode.

Exit Menu

This page enables you to exit system setup after saving or without saving the changes.



Save Changes and Exit

This item enables you to save the changes that you have made and exit.

Discard Changes and Exit

This item enables you to discard any changes that you have made and exit.

Discard Changes and Reset

This item enables you to discard any changes that you have made and reset.

Save Options

This item enables you to save the options that you have made.

Save Changes

This item enables you to save the changes that you have made.

Discard Changes

This item enables you to discard any changes that you have made.

Restore Defaults

This item enables you to restore the system defaults.

Save as User Defaults

This item enables you to save the changes that you have made as user defaults.

Restore User Defaults

This item enables you to restore user defaults.

Boot Override

Use this item to select the boot device.

Updating the BIOS

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

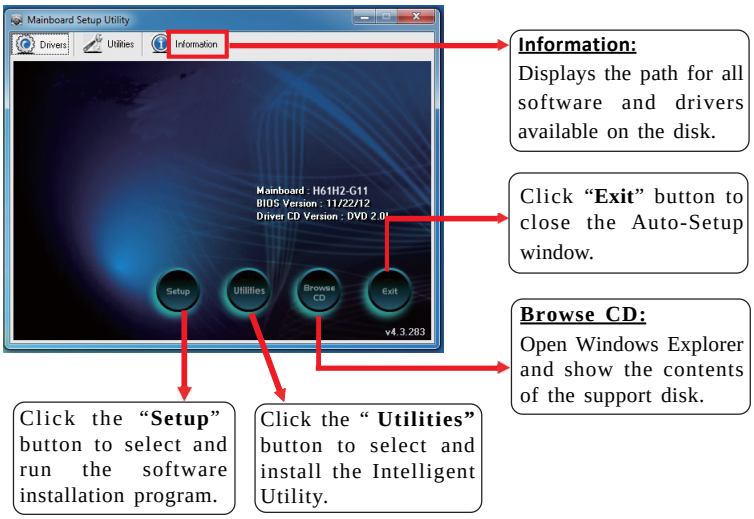
1. If your motherboard has a BIOS protection jumper, change the setting to allow BIOS flashing.
2. If your motherboard has an item called Firmware Write Protect in Advanced BIOS features, disable it. (Firmware Write Protect prevents BIOS from being overwritten.)
3. Prepare a bootable device or create a bootable system disk. (Refer to Windows online help for information on creating a bootable system disk.)
4. Download the Flash Utility and new BIOS file from the manufacturer's Web site. Copy these files to the bootable device.
5. Turn off your computer and insert the bootable device in your computer. (You might need to run the Setup Utility and change the boot priority items on the Advanced BIOS Features Setup page, to force your computer to boot from the bootable device first.)
6. At the C:\ or A:\ prompt, type the Flash Utility program name and the file name of the new BIOS and then press <Enter>. Example: AFUDOS.EXE 040706.ROM
7. When the installation is complete, remove the bootable device from the computer and restart your computer. If your motherboard has a Flash BIOS jumper, reset the jumper to protect the newly installed BIOS from being overwritten. The computer will restart automatically.

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

Chapter 4
Using the Motherboard Software

Auto-installing under Windows XP/7/8

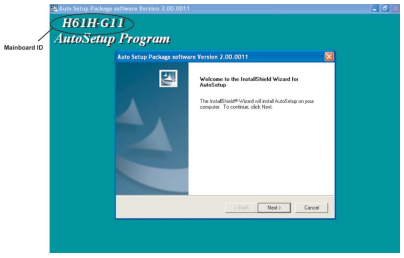
The auto-install DVD-ROM makes it easy for you to install the drivers and software. The support software DVD-ROM disc loads automatically under Windows XP/7/8. When you insert the DVD-ROM disc in the DVD-ROM drive, the auto-run feature will automatically bring up the installation screen. The screen has four buttons on it: **Setup**, **Utilities**, **Browse CD** and **Exit**.



Running Setup

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

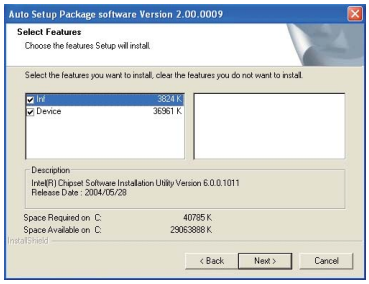
1. Click **Setup**. The installation program begins:



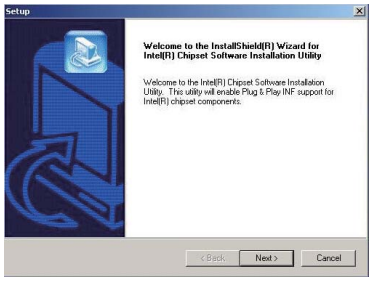
The following screens are examples only. The screens and driver lists will be different according to the motherboard you are installing.

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

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



3. Check the box next to the items you want to install. The default options are recommended.
4. Click **Next** to run the Installation Wizard. An item installation screen appears:

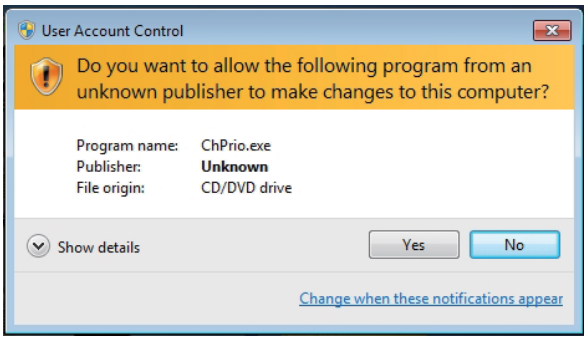


5. Follow the instructions on the screen to install the items.

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

Windows 8 will show the following screen after system restart, you must select "Desktop" in the bottom left to install the next driver.

Windows 7/8 will appear below UAC (User Account Control) message after the system restart. You must select "Yes" to install the next driver. Continue this process to complete the drivers installation.



Manual Installation

If the auto-install DVD-ROM does not work on your system, you can still install drivers through the file manager for your OS (for example, Windows Explorer). Look for the chipset and motherboard model, and then browse to the directory and path to begin installing the drivers. Most drivers have a setup program (SETUP.EXE) that automatically detects your operating system before installation. Other drivers have the setup program located in the operating system subfolder.

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

Memo

Chapter 5
Trouble Shooting

Start up problems during assembly

After assembling the PC for the first time you may experience some start up problems. Before calling for technical support or returning for warranty, this chapter may help to address some of the common questions using some basic troubleshooting tips.

a) System does not power up and the fans are not running.

1.Disassemble the PC to remove the VGA adaptor card, DDR memory, LAN, USB and other peripherals including keyboard and mouse. Leave only the motherboard, CPU with CPU cooler and power supply connected. Turn on again to see if the CPU and power supply fans are running.

2. Make sure to remove any unused screws or other metal objects such as screwdrivers from the inside PC case. This is to prevent damage from short circuit.

3. Check the CPU FAN connector is connected to the motherboard.

4. For Intel platforms check the pins on the CPU socket for damage or bent. A bent pin may cause failure to boot and sometimes permanent damage from short circuit.

5. Check the 12V power connector is connected to the motherboard.

6. Check that the 12V power & ATX connectors are fully inserted into the motherboard connectors. Make sure the latches of the cable and connector are locked into place.

b) Power is on, fans are running but there is no display

1. Make sure the monitor is turned on and the monitor cable is properly connected to the PC.

2. Check the VGA adapter card (if applicable) is inserted properly.

3. Listen for beep sounds. If you are using internal PC speaker make sure it is connected.
   a. continuous 3 short beeps : memory not detected
   b. 1 long beep and 8 short beeps : VGA not detected

c) The PC suddenly shuts down while booting up.

1. The CPU may experience overheating so it will shutdown to protect itself. Ensure the CPU fan is working properly.

2. From the BIOS setting, try to disable the Smartfan function to let the fan run at default speed. Doing a Load Optimised Default will also disable the Smartfan.

Start up problems after prolong use

After a prolong period of use your PC may experience start up problems again. This may be caused by breakdown of devices connected to the motherboard such as HDD, CPU fan, etc. The following tips may help to revive the PC or identify the cause of failure.

1. Clear the CMOS values using the CLR_CMOS jumper. Refer to CLR_CMOS jumper in Chapter 2 for Checking Jumper Settings in this user manual. When completed, follow up with a Load Optimised Default in the BIOS setup.

2. Check the CPU cooler fan for dust. Long term accumulation of dust will reduce its effectiveness to cool the processor. Clean the cooler or replace a new one if necessary.

3. Check that the 12V power & ATX connectors are fully inserted into the motherboard connectors. Make sure the latches of the cable and connector are locked into place.

4. Remove the hard drive, optical drive or DDR memory to determine which of these component may be at fault.

Maintenance and care tips

Your computer, like any electrical appliance, requires proper care and maintenance. Here are some basic PC care tips to help prolong the life of the motherboard and keep it running as best as it can.

1. Keep your computer in a well ventilated area. Leave some space between the PC and the wall for sufficient airflow.

2. Keep your computer in a cool dry place. Avoid dusty areas, direct sunlight and areas of high moisture content.

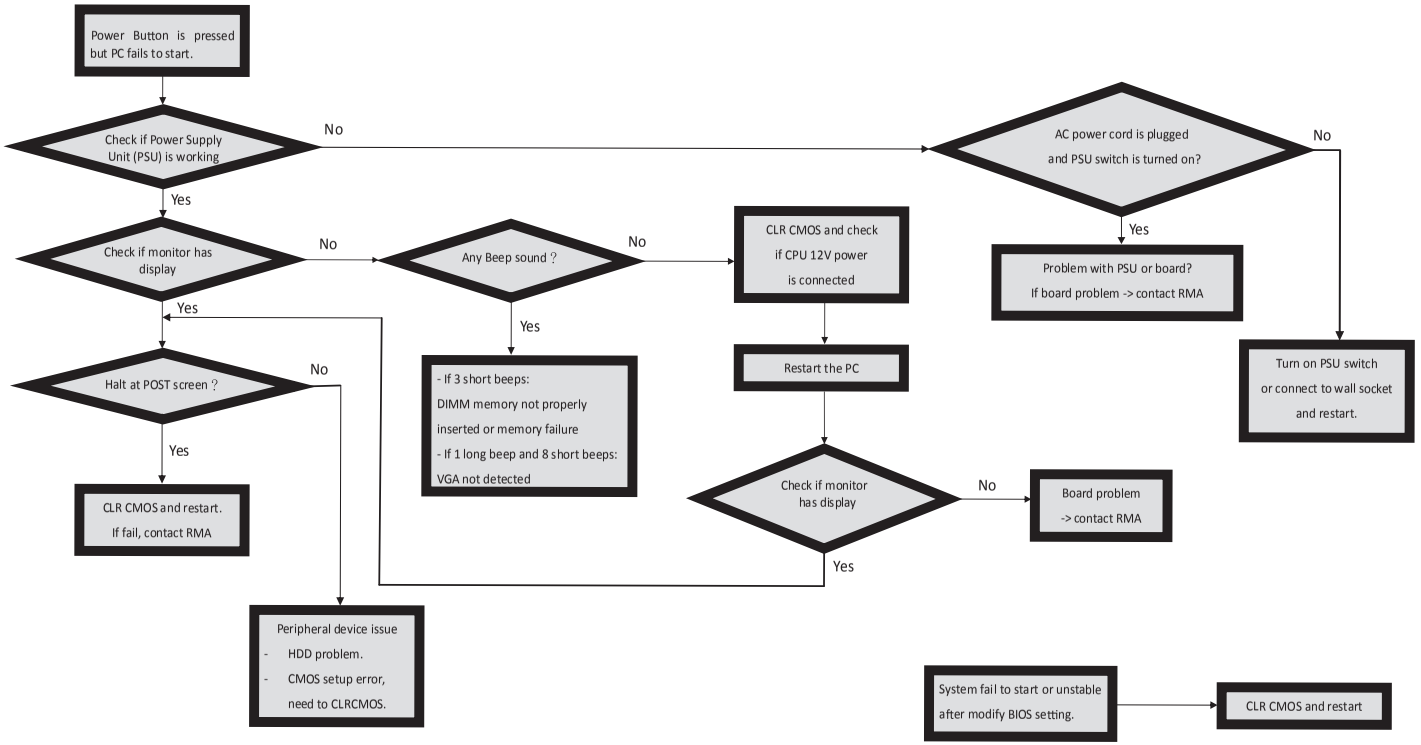
3. Routinely clean the CPU cooler fan to remove dust and hair.

4. In places of hot and humid weather you should turn on your computer once every other week to circulate the air and prevent damage from humidity.

5. Add more memory to your computer if possible. This not only speeds up the system but also reduces the loading of your hard drive to prolong its life span.

6. If possible, ensure the power cord has an earth ground pin directly from the wall outlet. This will reduce voltage fluctuation that may damage sensitive devices.

Basic Troubleshooting Flowchart



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