

SYM76993VGGA

USER MANUAL

Chapter 1

Introducing the Motherboard

Introduction

Thank you for choosing the SYM76993VGGA motherboard. This motherboard is high performance, enhanced function motherboard designed to support the **LGA1155 socket for latest Intel® Core™ Family/Pentium®/Celeron® Processors^{*1}**.

This motherboard is based on **Intel® H61** Express Chipset for best desktop platform solution. It supports up to **16 GB** of system memory with dual channel **DDR3 1600^{*2}/1333/1066 MHz**. One PCI Express x16 slot, intended for Graphics Interface, is supported. In addition, one PCI Express x1 slot and two PCI slots are for extending usage.

It integrates USB 2.0 interface, supporting up to ten USB 2.0 ports (four USB 2.0 ports and three USB 2.0 headers support additional six USB 2.0 ports).

The motherboard is equipped with advanced full set of I/O ports in the rear panel, including PS/2 mouse and PS/2 keyboard connectors, two COM ports, one VGA port, one DVI port, two RJ45 LAN connectors, four USB 2.0 ports, and 6-ch audio jacks for microphone, line-in and line-out.

In addition, this motherboard supports **four SATA 3Gb/s** connectors for expansion.



^{*1} 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.

^{*2} For Ivy Bridge CPU only.

Specifications

CPU	<ul style="list-style-type: none"> LGA1155 socket for latest Intel® Core™ Family/Pentium®/Celeron® Processors Supports “Hyper-Threading” technology CPU Supports CPU up to 95W TDP <p><i>Note: Please go to ECS website for the latest CPU support list.</i></p>
Chipset	<ul style="list-style-type: none"> Intel® H61 Chipset
Memory	<ul style="list-style-type: none"> Dual-channel DDR3 memory architecture 2 x 240-pin DDR3 DIMM sockets support up to 16 GB Supports DDR3 1600*/1333/1066 MHz DDR3 SDRAM <p><i>Note: *For Ivy Bridge CPU only.</i></p> <p><i>Please go to ECS website for the latest Memory support list.</i></p>
Expansion Slots	<ul style="list-style-type: none"> 1 x PCI Express x16 slot (The PCI Express x16 slot conforms to PCI Express 3.0* Standard) 2 x PCI slots 1 x PCI Express x1 slot <p><i>Note: *For Ivy Bridge CPU only.</i></p>
Storage	<ul style="list-style-type: none"> Supported by Intel® H61 Express Chipset - 4 x Serial ATA 3Gb/s devices
Audio	<ul style="list-style-type: none"> Realtek ALC662 - 6 Channel High Definition Audio Codec - Compliant with HD audio specification
LAN	<ul style="list-style-type: none"> Realtek RTL8111E Gigabit Lan - 10/100/1000 Fast Ethernet Controller - Wake-on-LAN and remote wake-up support
Rear Panel I/O	<ul style="list-style-type: none"> 1 x PS/2 keyboard and PS/2 mouse connectors 1 x D-Sub port (VGA) 2 x COM ports 1 x DVI port 4 x USB 2.0 ports 2 x RJ45 LAN connectors 1 x Audio port (1x Line in, 1x Line out, 1x Mic_in Rear)
Internal I/O Connectors & Headers	<ul style="list-style-type: none"> 1 x 24-pin ATX Power Supply connector 1 x 4-pin 12V Power connector 1 x 4-pin CPU_FAN connector 1 x 3-pin SYS_FAN connector 3 x USB 2.0 headers support additional six USB 2.0 ports 4 x Serial ATA 3Gb/s connectors 1 x Front Panel switch/LED header 1 x Front Panel USB power select jumper 1 x Rear USB/PS2 power select jumper 1 x General Purpose Input/Output header 1 x Case open header 1 x ME_UNLOCK header

	<ul style="list-style-type: none"> • 1 x SPDIF out header • 1 x Front Panel audio header • 1 x LPT connector • 1 x Analog audio input connector (CD_IN) • 1 x AC power jumper • 2 x JCOM connectors (support additional eight COM ports) • 1 x SLEW header • 2 x MODE headers
System BIOS	<ul style="list-style-type: none"> • AMI BIOS with 32Mb SPI Flash ROM <ul style="list-style-type: none"> - Supports Plug and Play, STR (S3)/STD (S4) - Supports ACPI 2.0 & DMI - Supports Hardware Monitor - Supports Audio, LAN, can be disabled in BIOS - F7 hot key for boot up devices option - Supports Pgup clear CMOS Hotkey (Has PS2 KB Model only) - Supports Dual Display - Supports Multi-language - Supports AC'97/HD Audio auto detect (default) - 255-level watchdog timer - Supports PS/2 KB/MS, USB wake-up - Supports wake-up on Lan - AC power failure recovery - RTC alarm - AT mode, default: AC ON
Form Factor	<ul style="list-style-type: none"> • Micro-ATX Size, 244mm x 220mm

Motherboard Components

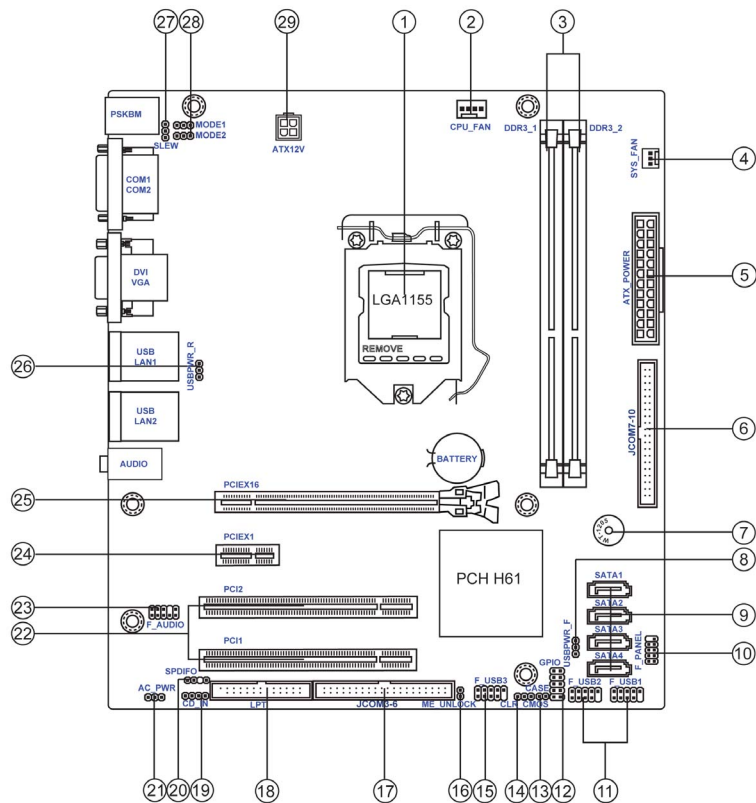
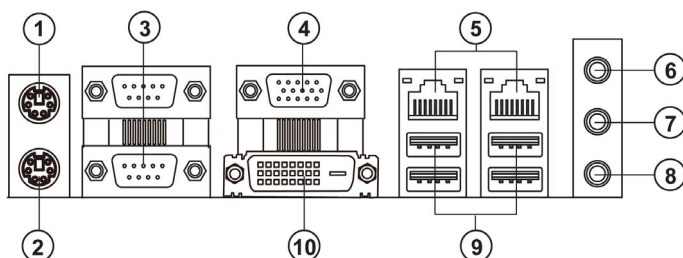


Table of Motherboard Components

LABEL	COMPONENTS
1. CPU Socket	LGA1155 socket for latest Intel® Core™ Family/Pentium®/Celeron® Processors
2. CPU_FAN	4-pin CPU cooling fan connector
3. DDR3_1~2	240-pin DDR3 Module slots
4. SYS_FAN	3-pin system cooling fan connector
5. ATX_POWER	Standard 24-pin ATX power connector
6. JCOM7-10	JCOM connector (supports additional four COM ports)
7. BZ	Buzzer
8. USBPWR_F	Front panel USB power select jumper
9. SATA1~4	Serial ATA 3Gb/s connectors
10. F_PANEL	Front panel switch/LED header
11. F_USB1~2	Front panel USB 2.0 headers
12. GPIO	General purpose Input/Output header
13. CASE	CASE open header
14. CLR_CMOS	Clear CMOS jumper
15. F_USB3	Front panel USB 2.0 header
16. ME_UNLOCK	ME unlock header-for factory use only
17. JCOM3-6	JCOM connector (supports additional four COM ports)
18. LPT	Printer connector
19. CD_IN	Analog audio input connector
20. SPDIFO	SPDIF out header
21. AC_PWR	AC power jumper
22. PCI1~2	32-bit add-on card slots
23. F_AUDIO	Front panel audio header
24. PCIEX1	PCI Express x1 slot
25. PCIEX16	PCI Express slot for graphics interface
26. USBPWR_R	Rear USB/PS2 power select jumper
27. SLEW	Slew header
28. MODE1~2	Mode headers

I/O Ports



1. PS/2 Mouse(green)

Use the upper PS/2 port to connect a PS/2 mouse.

2. PS/2 Keyboard(purple)

Use the lower PS/2 port to connect a PS/2 keyboard.

3. COM1~2 Ports

Use the COM1/2 port to connect the serial devices such as mice or fax/modems.

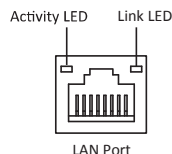
4. VGA Port

Connect your monitor to the VGA port.

5. LAN Ports

Connect a RJ-45 jack to the LAN port to connect your computer to the Network.

LAN LED	Status	Description
Activity LED	OFF	No data
	Orange blinking	Active
Link LED	OFF	No link
	Green	Link



6. Line-in(blue)

It can be connected to an external CD/DVD player, Tape player or other audio devices for audio input.

7. Line-out(lime)

It is used to connect to speakers or headphones.

8. Microphone(pink)

It is used to connect to a microphone.

9. USB 2.0 Ports

Use the USB 2.0 ports to connect USB 2.0 devices.

10. DVI Port

You can connect the display device to the DVI port.

Chapter 2

Installing the Motherboard

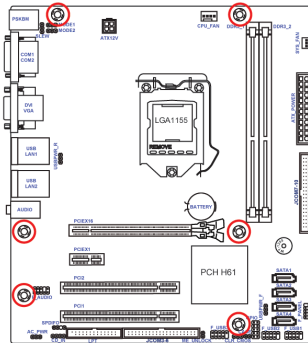
2-1. Safety Precautions

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

2-2. Installing the motherboard in a Chassis

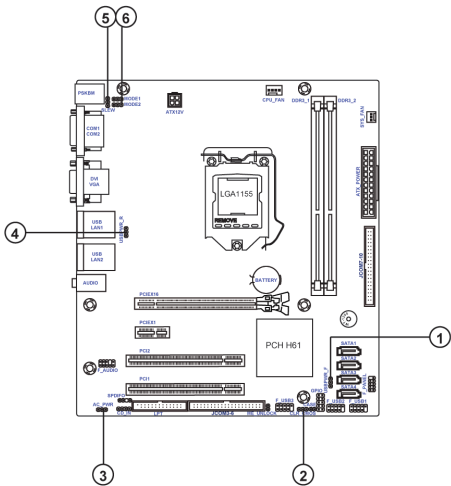
This motherboard carries a Micro ATX form factor of 244 x 220 mm. Choose a chassis that accommodates this form factor. Make sure that the I/O template in the chassis matches the I/O ports installed on the rear edge of the motherboard. Most system chassis have mounting brackets installed in the chassis, which corresponds to the holes in the motherboard. Place the motherboard over the mounting brackets and secure the motherboard onto the mounting brackets with screws.



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

2-3. Checking Jumper Settings

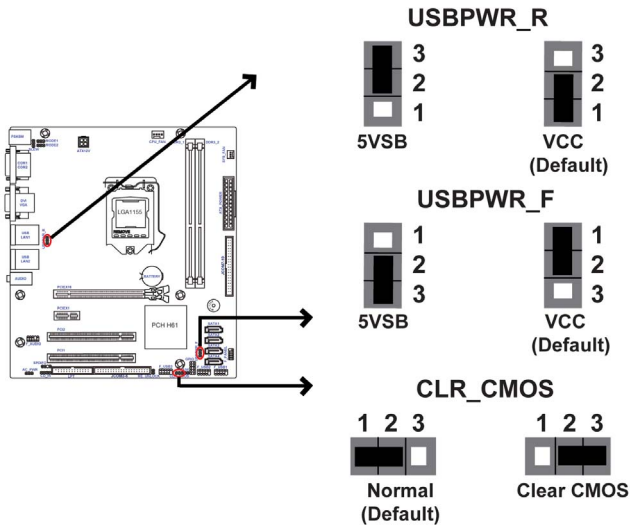
This section explains how to set jumpers for correct configuration of the motherboard.



No.	Components	No.	Components
1	USBPWR_F	4	USBPWR_R
2	CLR_CMOS	5	SLEW
3	AC_PWR	6	MODE1~2

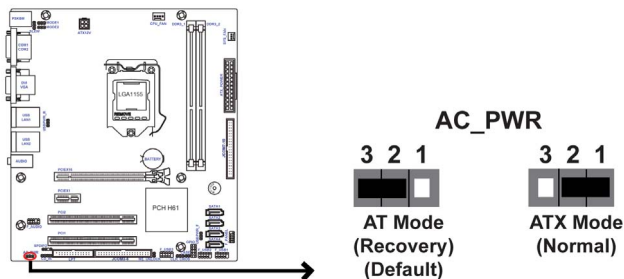
1 & 2 & 4. USBPWR_F (Front panel USB power select jumper) & CLR_CMOS (Clear CMOS jumper) & USBPWR_R (Rear USB/PS2 power select jumper)

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

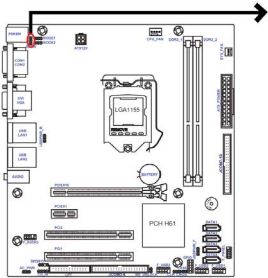


To avoid the system instability after clearing CMOS, we recommend users to enter the main BIOS setting page to “Load Default Settings” and then “Save and Exit Setup”.

3. AC_PWR: AC power jumper



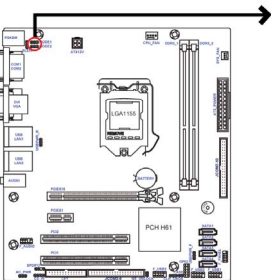
5. SLEW: SLEW header



SLEW



6. MODE1~2: Mode headers



MODE1



MODE2



2-4. Installing Hardware

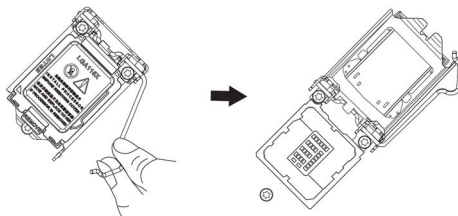
2-4-1. Installing the Processor

- 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.
- You may be able to change the settings in the system Setup Utility. We strongly recommend you do not over-clock processor or other components to run faster than their rated speed.
- The following illustration shows CPU installation components.

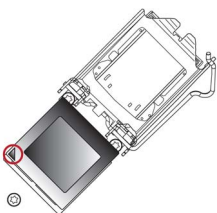
A. Press the hook of lever down with your thumb and pull it to the right side to release it from retention tab.



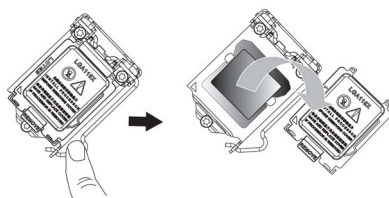
B. Lift the tail of the load lever and rotate the load plate to fully open position.



C. Grasp the edge of the package 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.



D. 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. Then the cover will flick automatically.

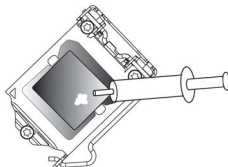


Please save and replace the cover onto the CPU socket if processor is removed.

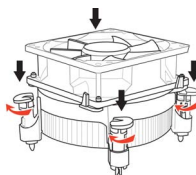
2-4-2. Installing the CPU Cooler

- Install the cooling fan in a well-lit work area so that you can clearly see the motherboard and processor socket.
- Avoid using cooling fans with sharp edges in case the fan casing and the clips cause serious damage to the motherboard or its components.
- 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 heat sink installation procedures may vary with the type of CPU fan/heatsink supplied. The form and size of fan/heatsink may also vary.
- DO NOT remove the CPU cap from the socket before installing a CPU.
- Return Material Authorization (RMA) requests will be accepted only if the motherboard comes with the cap on the LGA1155 socket.
- The following illustration shows how to install CPU fan.

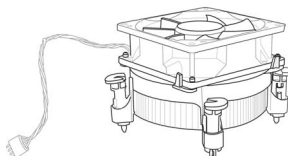
A. Apply some thermal grease onto the contacted area between the heatsink and the CPU, and make it to be a thin layer.



B. Fasten the cooling fan supporting base onto the CPU socket on the motherboard. And make sure the CPU fan is plugged to the CPU fan connector.



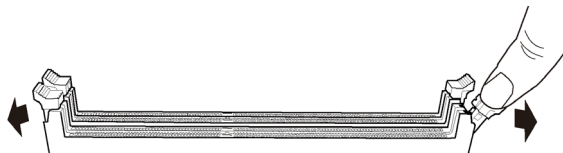
C. Connect the CPU cooler power connector to the CPU_FAN connector.



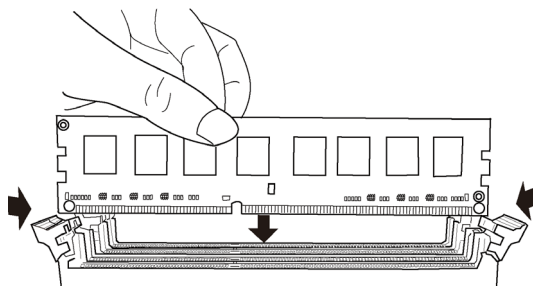
2-4-3. Installing Memory Modules

- This motherboard accommodates two memory modules. It can support two 240-pin DDR3 1600*/1333/1066.
- 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.
- You must install at least one module in any of the two slots. Total memory capacity is 16 GB.
- Refer to the following to install the memory modules.

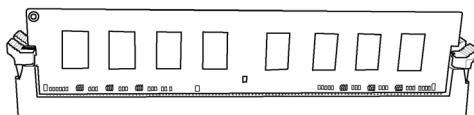
A. Push the latches on each side of the DIMM slot down.



B. Install the DIMM module into the slot and press it firmly down until it fits in place. Check that the cutouts on the DIMM module edge connector match the notches in the DIMM slot.



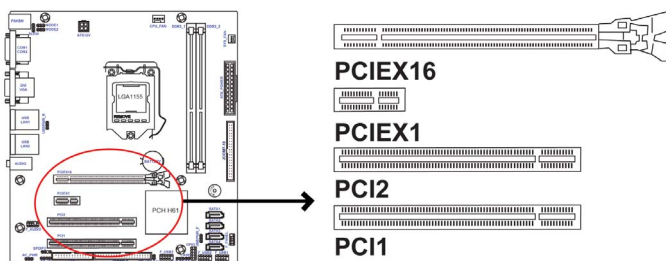
C. The slot latches are levered upwards and latch on to the edges of the DIMM.



* For Ivy Bridge CPU only.

2-4-4. 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.



PCIEX16 Slot

The PCI Express x16 slot is used to install an external PCI Express graphics card that is fully compliant to the PCI Express Base Specification revision 3.0*.

PCIEX1 Slot

The PCI Express x1 slot is fully compliant to the PCI Express Base Specification revision 2.0.

PCI1~2 Slots

This motherboard is equipped with two standard PCI slots. PCI stands for Peripheral Component Interconnect and is a bus standard for expansion cards, which for the most part, is a supplement of the older ISA bus standard. The PCI slots on this board are PCI v2.2 compliant.



**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.*



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.

Follow these instructions to install an add-on card:

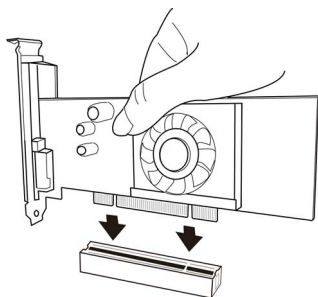
- 1 Remove a blanking plate from the system case corresponding to the slot you are going to use.
- 2 Install the edge connector of the add-on card into the expansion slot. Ensure that the edge connector is correctly seated in the slot.
- 3 Secure the metal bracket of the card to the system case with a screw.



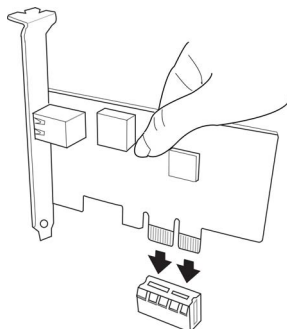
1. For some add-on cards, for example graphics adapters and network adapters, you have to install drivers and software before you can begin using the add-on card.

2. The onboard PCI interface does not support 64-bit SCSI cards.

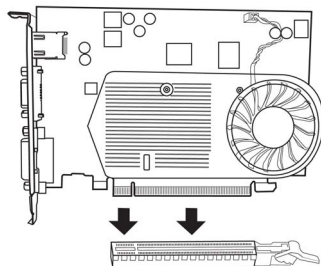
Please refer the following illustrations to install the add-on card:



Install the VGA Card in the PCI slot



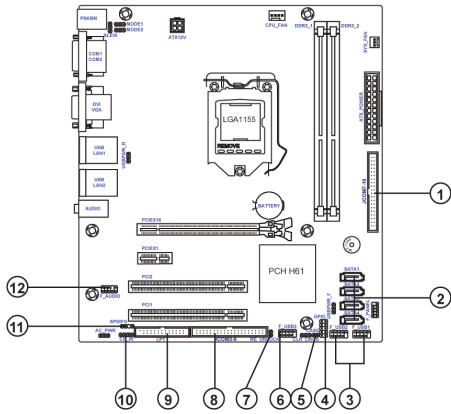
Install the LAN Card in the PCIe X1 slot



Install the VGA Card in the PCIe X16 slot

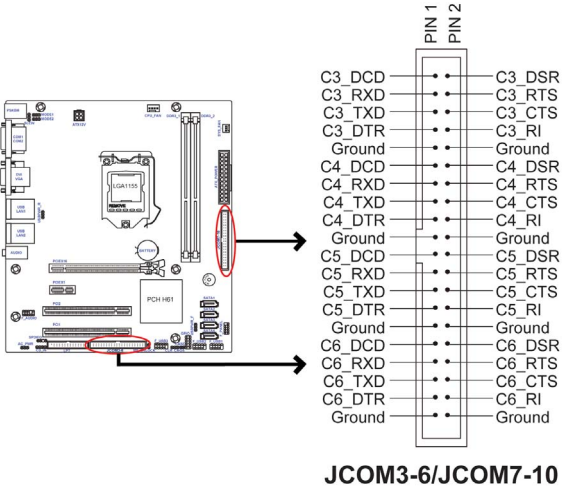
2-4-5. Connecting Optional Devices

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



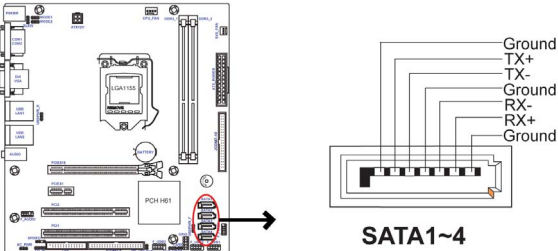
No.	Components	No.	Components
1	JCOM7-10	7	ME_UNLOCK
2	SATA1~4	8	JCOM3-6
3	F_USB1~2	9	LPT
4	GPIO	10	CD_IN
5	CASE	11	SPDIFO
6	F_USB3	12	F_AUDIO

1 & 8. JCOM7-10/JCOM3-6: JCOM connectors (support additional eight COM ports)



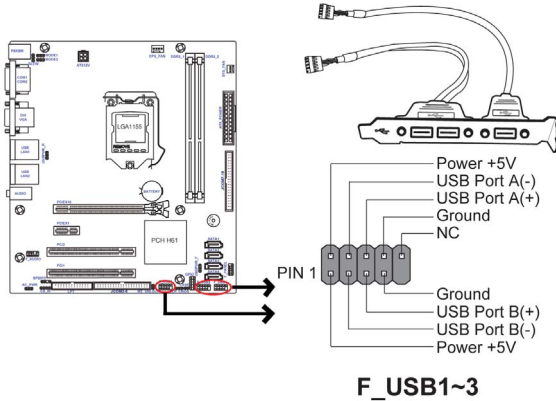
2. SATA1~4: Serial ATA connectors

SATA1~4 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.



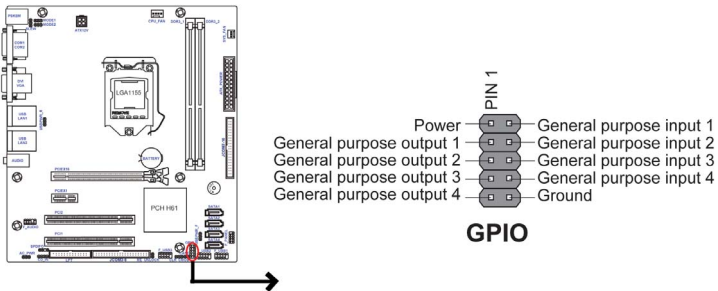
3 & 6. F_USB1~3: Front Panel USB 2.0 headers

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



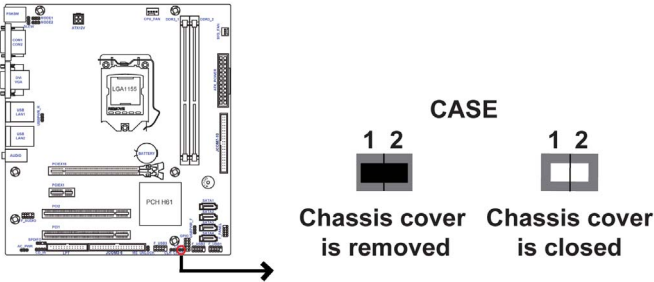
Please make sure that the USB cable has the same pin assignment as indicated above. A different pin assignment may cause damage or system hang-up.

4. GPIO: General purpose Input/Output Header

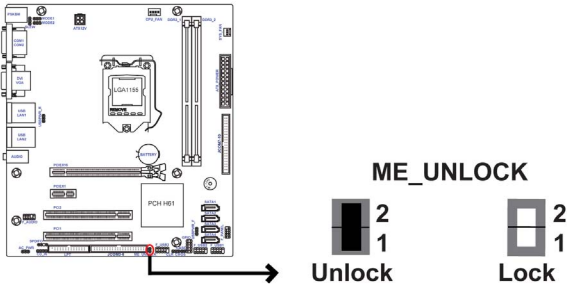


5. CASE: Chassis Intrusion Detect Header

This detects if the chassis cover has been removed. This function needs a chassis equipped with intrusion detection switch and needs to be enabled in BIOS.

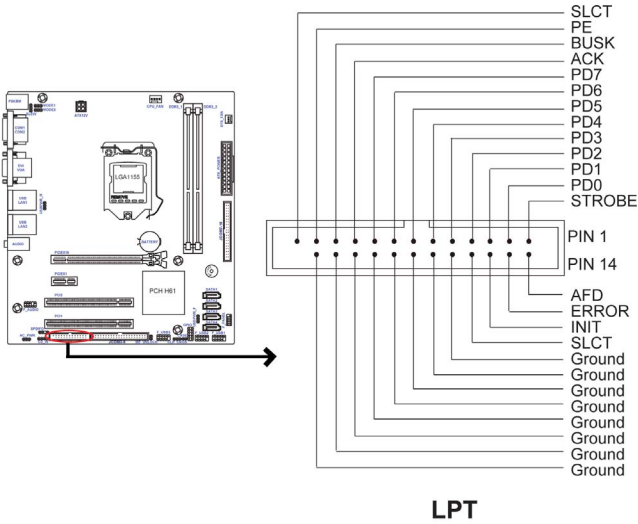


7. ME_UNLOCK: ME Unlock Header

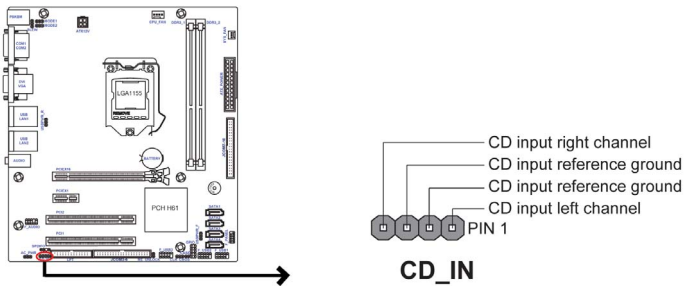


9. LPT: Onboard parallel port header

This is a header that can be used to connect to the printer, scanner or other devices.

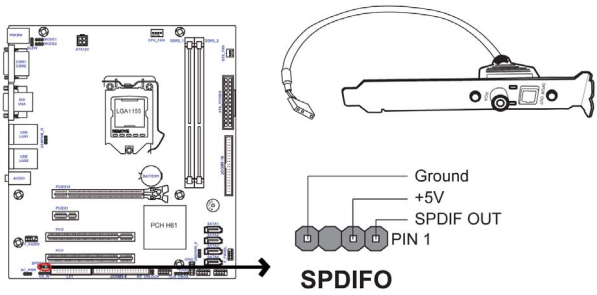


10. CD_IN: Analog audio input connector



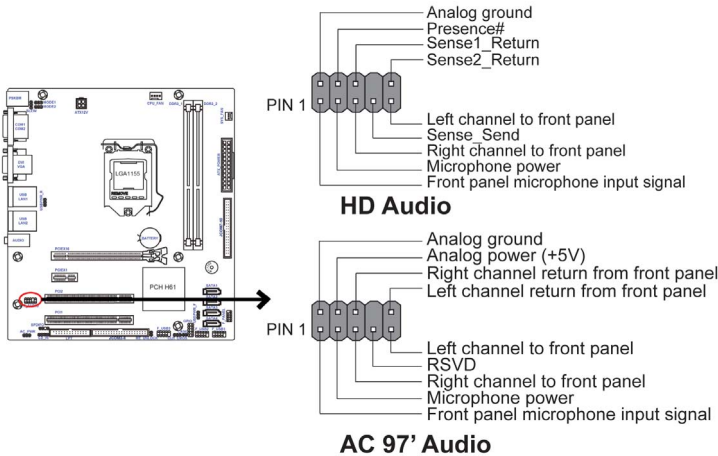
11. SPDIFO: SPDIF out header

This is an optional header that provides an SPDIFO (Sony/Philips Digital Interface) output to digital multimedia device through optical fiber or coaxial connector.



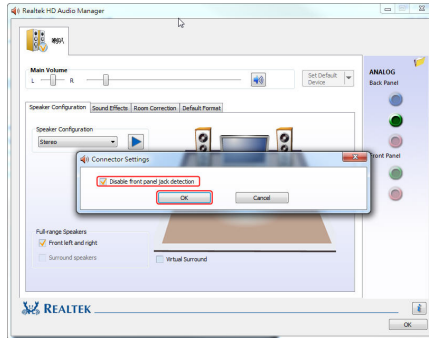
12. F_AUDIO: Front Panel Audio Header

The front panel audio header allows the user to install auxiliary front-oriented microphone and line-out ports for easier access. This header supports HD audio by default. If you want connect an AC' 97 front panel audio to HD onboard headers, please set as below picture.



AC' 97 Audio Configuration: To enable the front panel audio connector to support AC97 Audio mode.

If you use AC' 97 Front Panel, please tick off the option of “Disabled Front Panel Detect”. If you use HD Audio Front Panel, please don't tick off “Disabled Front Panel Detect”.



** For reference only*

If you use AC' 97 Front Panel, please don't tick off “Using Front Jack Detect”. If you use HD Audio Front Panel, please tick off the option of “Using Front Jack Detect”.



** For reference only*

2-4-6. Installing a SATA Hard Drive

This section describes how to install a SATA Hard Drive.

About SATA Connectors

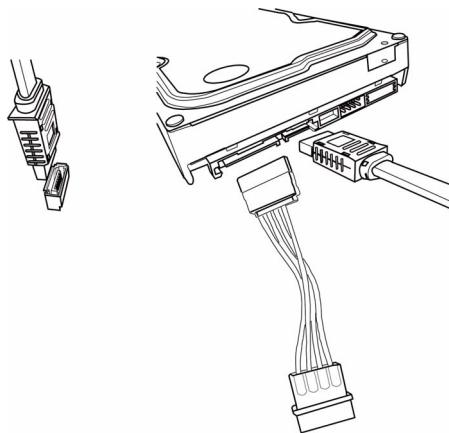
Your motherboard features four SATA connectors supporting a total of four drives. SATA refers to Serial ATA (Advanced Technology Attachment) is the standard interface for the IDE hard drives which are currently used in most PCs. These connectors are well designed and will only fit in one orientation.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

Installing Serial ATA Hard Drives

To install the Serial ATA (SATA) hard drives, use the SATA cable that supports the Serial ATA protocol. This SATA cable comes with a SATA power cable. You can connect either end of the SATA cable to the SATA hard drive or the connector on the motherboard.

Refer to the illustration below for proper installation:

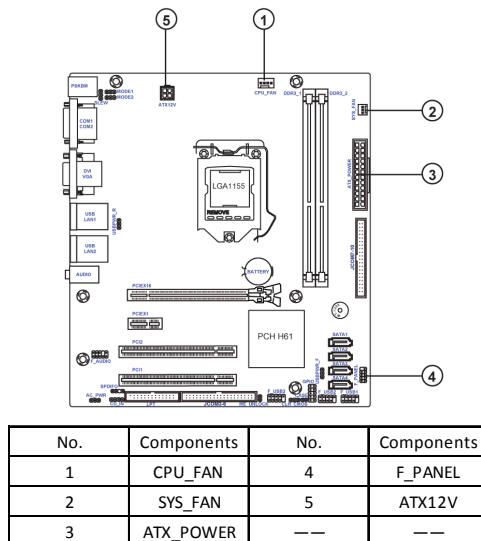
- 1 Attach either cable end to the connector on the motherboard.
- 2 Attach the other cable end to the SATA hard drive.
- 3 Attach the SATA power cable to the SATA hard drive and connect the other end to the power supply.



** For reference only*

2-4-7. Connecting Case Components

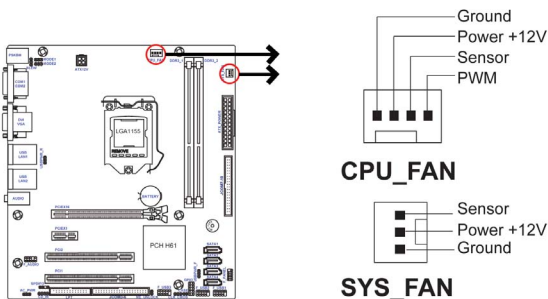
After you have installed the motherboard into a case, you can begin connecting the motherboard components. Refer to the following:



1& 2. CPU_FAN (CPU cooling FAN Power Connector) & SYS_FAN (System Cooling FAN Power Connector)

Connect the CPU cooling fan cable to **CPU_FAN**.

Connect the system cooling fan connector to **SYS_FAN**.

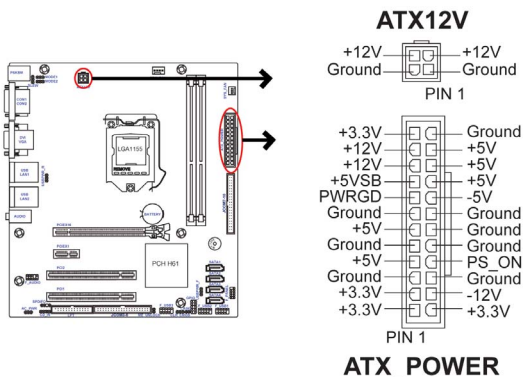


Users please note that the fan connector supports the CPU cooling fan of 1.1A ~ 2.2A (26.4W max) at +12V.

3 & 5. ATX_POWER (ATX 24-pin Power Connector) & ATX12V (ATX 12V Power Connector)

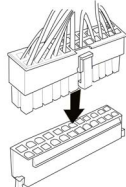
Connect the standard power supply connector to **ATX_POWER**.

Connect the auxiliary case power supply connector to **ATX12V**.



Connecting 24-pin power cable

The ATX 24-pin connector allows you to connect to ATX v2.x power supply.



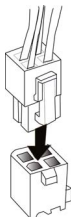
24-pin power cable

With ATX v2.x power supply, users please note that when installing 24-pin power cable, the latches of power cable and the ATX match perfectly.



Connecting 4-pin power cable

The ATX12V4P power connector is used to provide power to the CPU.

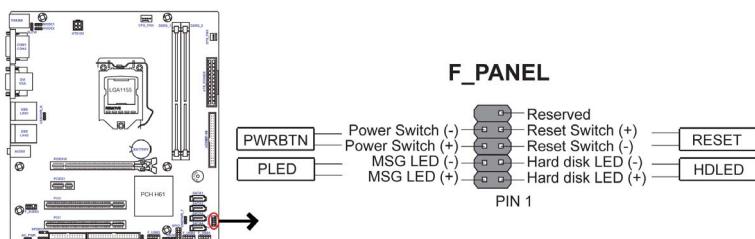


4-pin power cable

When installing 4-pin power cable, the latches of power cable and the ATX12V4P match perfectly.

4. F_PANEL: 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:



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.