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Version 1.0

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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.

This device is in conformity with the following EC/EMC directives:

- ❑ **EN 55022** Limits and methods of mesurement of radio disturbance characteristics of information technology equipment
- ❑ **EN 61000-3-2** Disturbances in supply systems caused
- ❑ **EN 61000-3-3** Disturbances in supply systems caused by household appliances and similar electrical equipment " Voltage fluctuations"
- ❑ **EN 55024** Information technology equipment-Immunity characteristics-Limits and methods of measurement
- ❑ **EN 60950** Safety for information technology equipment including electrical business equipment
- ❑ **CE marking** CE

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. ⇨ page 1

Chapter 2
Installing the Motherboard Describes installation of motherboard components. ⇨ page 9

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Chapter 1
Introducing the Motherboard

Introduction

Thank you for choosing the **86366** motherboard. This motherboard is a high performance, enhanced function. This motherboard has onboard Intel® Bay Trail-D J2900/J1900/J1800 (10W) SoC for high-end business or personal desktop markets.

This motherboard is based on Intel® Bay Trail-D J2900/J1900/J1800 SoC for best desktop platform solution. It supports up to 8 GB of system memory with single channel DDR3L SO-DIMM 1333 MHz. One PCI slot and one full size Mini PCI Express and one half size Mini PCI Express slots are for extending usage.

It implements an EHCI (Enhanced Host Controller Interface) compliant interface that provides five USB 2.0 ports (three USB 2.0 ports at the rear panel and one 10-pin USB 2.0 header supports two USB 2.0 ports) and one USB 3.0 port at the rear panel.

The motherboard is equipped with advanced full set of I/O ports in the rear panel, including one PS/2 keyboard connector, one PS/2 mouse connector, two COM ports, one VGA port, one HDMI port, two RJ45 LAN connectors, three USB 2.0 ports, one USB 3.0 port and one audio jack for line-out and microphone.

In addition, this motherboard supports one SATA 3Gb/s connector for expansion.

Package Contents

Your motherboard package ships with the following items:

- ❑ SYS86366VGGA-10C Motherboard
- ❑ User Manual
- ❑ DVD
- ❑ I/O Shield
- ❑ 1 SATA Cable

Accessories may vary, please refer to actual goods you purchase.

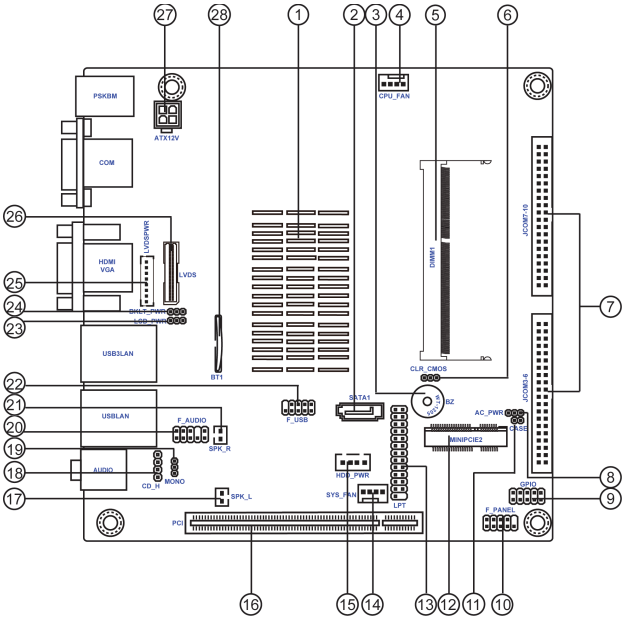
Specifications

CPU	• Onboard Intel® Bay Trail-D J2900/J1900/J1800 (10W) SoC *Note: Please go to Gran tech website for the latest CPU support list.*
Chipset	• Intel® Bay Trail-D J2900/J1900/J1800 SoC
Memory	• Single-channel DDR3L memory architecture • 1 x 204-pin DDR3L SO-DIMM socket supports up to 8 GB • Supports DDR3L SO-DIMM 1333 MHz *Note: Please go to Gran tech website for the latest Memory support list.*
Expansion Slots	• 1 x PCI slot • 1 x Full Size Mini PCIe slot (supports mSATA) • 1 x Half Size Mini PCIe slot (supports WiFi/BT)
Storage	• Supported by Intel® Bay Trail-D J2900/J1900/J1800 SoC - 1 x Serial ATA 3Gb/s devices
Audio	• Realtek ALC662-VD0-GR 48P - 2 Channel High Definition Audio Codec - Compliant with HD audio specification
LAN	• Realtek RTL8111G+Intel I211 - 10/100/1000 Fast Ethernet Controller - wake-on-LAN and remote wake-up support
Rear Panel I/O	• 1 x PS/2 Keyboard connector and PS/2 Mouse connector • 2 x COM ports • 1 x VGA port • 1 x HDMI port • 2 x RJ45 LAN connectors • 3 x USB 2.0 ports • 1 x USB 3.0 port • 1 x Audio jack for line-out and microphone
Internal I/O Connectors & Headers	• 1 x 4-pin 12V Power connector • 1 x 4-pin CPU_FAN connector • 1 x 4-pin SYS_FAN connector • 1 x 10-pin USB 2.0 header supports two USB 2.0 ports • 1 x Serial SATA 3Gb/s connector • 1 x Front Panel switch/LED header • 1 x Front Panel audio header • 1 x Clear CMOS jumper • 1 x Buzzer • 2 x JCOM connectors (supports additional eight COM ports) • 1 x LPT header • 1 x General Purpose Input/Output header • 1 x Analog audio input connector (CD_H) • 1 x HDD Power connector • 1 x SPK_L header • 1 x SPK_R header • 1 x LVDS connector (For All-In-One Specification) • 1 x LVDS Power connector (For All-In-One Specification) • 1 x LCD power jumper(For All-In-One Specification)

	•	1 x Backlight power jumper(For All-In-One Specification) • 1 x AC power jumper • 1 x MONO jumper • 1 x Case open header
System BIOS	•	AMI BIOS with 64Mb SPI Flash ROM - Supports Plug and Play - Supports ACPI & DMI - Supports STR (S3) /STD (S4) - Supports Hardware monitor - 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)
Bundled Software Support	•	Supports Norton Anti Virus/Cyberlink Media Suite/Muzee
Form Factor	•	Mini ITX Size, 170mm x 170mm

Motherboard Components

Top View



Bottom View

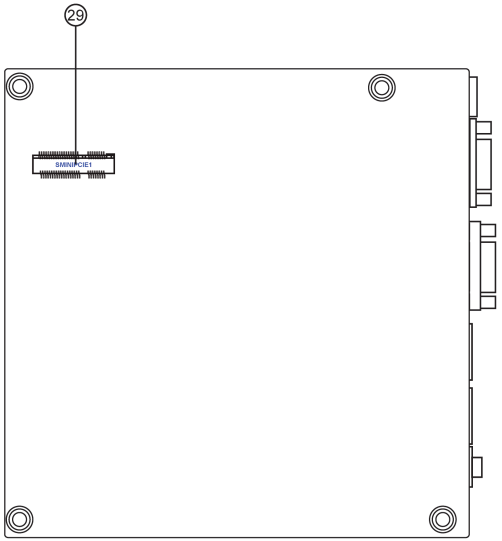
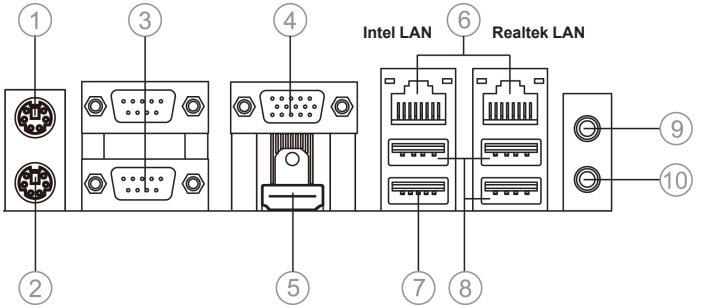


Table of Motherboard Components

LABEL	COMPONENTS
1. CPU	Onboard Intel® Bay Trail-D J2900/J1900/J1800 (10W) SoC
2. SATA1	Serial ATA 3Gb/s connector
3. BZ	Buzzer
4. CPU_FAN	4-pin CPU cooling fan connector
5. DIMM1	204-pin DDR3L SDRAM SO-DIMM
6. CLR_CMOS	Clear CMOS jumper
7. JCOM3-6 & JCOM7-10	JCOM connectors (support additional eight COM ports)
8. AC_PWR	AC power jumper
9. GPIO	General purpose Input/Output header
10. F_PANEL	Front panel switch/LED header
11. CASE	Case open header
12. MINIPCIE2	Half Size Mini PCI Express slot (supports WiFi/BT)
13. LPT	Printer header
14. SYS_FAN	4-pin system cooling fan connector
15. HDD PWR	HDD power connector
16. PCI	32-bit add-on card slot
17. SPK_L	Speaker Left header
18. CD_H	Analog audio input connector
19. MONO	MONO jumper
20. F_AUDIO	Front panel audio header
21. SPK_R	Speaker Right header
22. F_USB	10-pin USB 2.0 header supports two USB 2.0 ports
23. LCD_PWR	LCD power jumper (For All-In-One Specification)
24. BKLT_PWR	Backlight power jumper (For All-In-One Specification)
25. LVDSPWR	LVDS power connector(For All-In-One Specification)
26. LVDS	LVDS connector (For All-In-One Specification)
27. ATX12V	4-pin +12V power connector
28. BT1	Battery
29. SMINIPCIE1	Full Size Mini PCI Express slot (supports mSATA)

I/O Ports



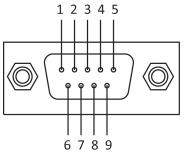
1. PS/2 Mouse (green)
Use the upper PS/2 port to connect a PS/2 mouse.

2. PS/2 Keyboard (purple)
Use the lower PS/2 port to connect a PS/2 keyboard.

3. COM Ports (blue)
Use the COM ports to connect the serial devices such as mice or fax/modems.

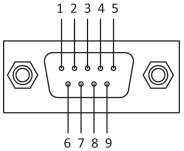
COM RS232 Pin Define

Pin	Define	Pin	Define
1	DCDN	6	DSRN
2	SINN	7	RTSN
3	SOUTN	8	CTSN
4	DTRN	9	RIN
5	GND		



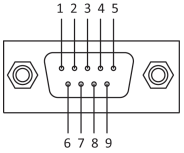
COM RS422 Pin Define

Pin	Define	Pin	Define
1	RS422 TX(B)	6	N/A
2	RS422 TX(A)	7	N/A
3	RS422 RX(A)	8	N/A
4	RS422 RX(B)	9	N/A
5	GND		



COM RS485 Pin Define

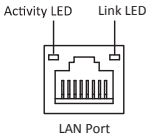
Pin	Define	Pin	Define
1	RS485 D-(B)	6	N/A
2	RS485 D+(A)	7	N/A
3	N/A	8	N/A
4	N/A	9	N/A
5	GND		



4. VGA Port
Connect your monitor to the VGA port.

5. HDMI Port
Connect display device to the HDMI port.

6. LAN Ports
Connect an RJ-45 jack to the LAN port to connect your computer to the Network.



Intel LAN

Transmission Speed	LAN LED	Status	Description
100M	Activity LED	OFF	No data
		Green blinking	Active
	Link LED	OFF	No link
		Green	Link
Giga	Activity LED	OFF	No data
		Green blinking	Active
	Link LED	OFF	No link
		Green	Link

Realtek LAN

Transmission Speed	LAN LED	Status	Description
100M	Activity LED	OFF	No data
		Orange blinking	Active
	Link LED	OFF	No link
		Green	Link
Giga	Activity LED	OFF	No data
		Orange blinking	Active
	Link LED	OFF	No link
		Green	Link

7. USB 3.0 Ports
Use the USB 3.0 ports to connect USB 3.0 devices.

8. USB 2.0 Ports
Use the USB 2.0 ports to connect USB 2.0 devices.

9. Line-out (lime)
It is used to connect to speakers or headphones.

10. Microphone (pink)
It is used to connect to a microphone.

Memo

Chapter 2
Installing the Motherboard

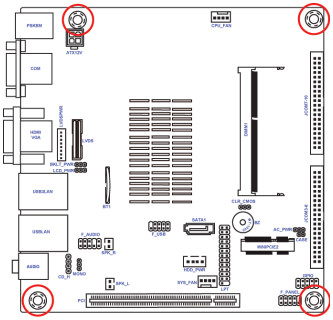
2-1. Safety Precautions

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

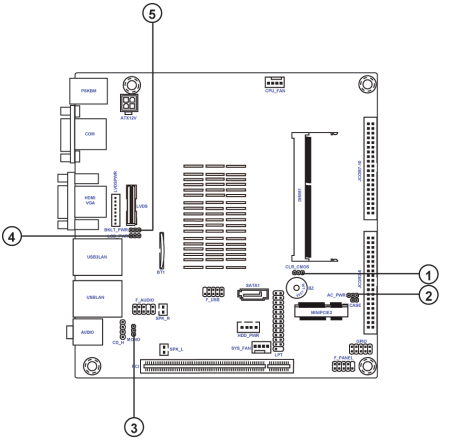
This motherboard carries a Mini ITX form factor of 170 x 170 mm. Choose a chassis that accommodates this from factor. Make sure that the I/O template in the chassis matches the I/O ports installed on the rear edge of the motherboard. Most system chassis have mounting brackets installed in the chassis, 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.

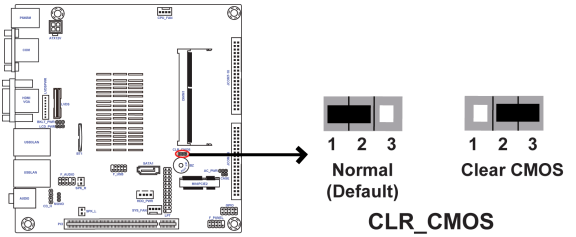
2-3. Checking Jumper Settings

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



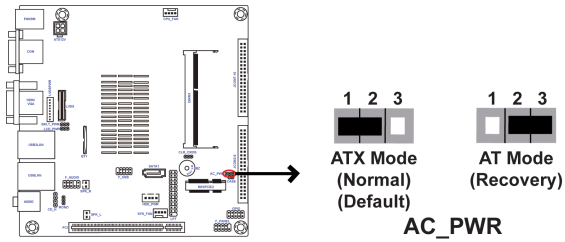
No.	Components	No.	Components
1	CLR_CMOS	4	LCD_PWR
2	AC_PWR	5	BKLT_PWR
3	MONO	~~	~~

1. CLR_CMOS: Clear CMOS jumper

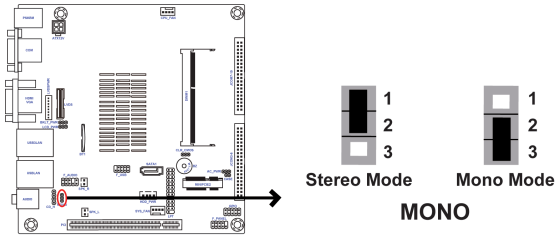


To avoid the system instability after clearing CMOS, we recommend users to enter the main BIOS setting page to "Load Default Settings" and then "Save and Exit Setup".

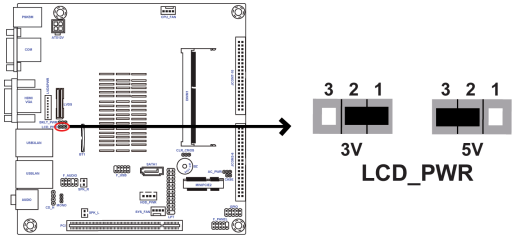
2. AC_PWR: AC power jumper



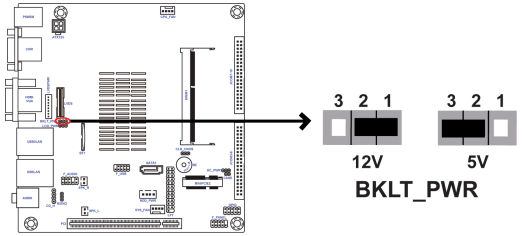
3. MONO: MONO jumper



4. LCD_PWR: LCD power jumper (For All-In-One Specification)



5. BKLT_PWR : Backlight power jumper (For All-In-One Specification)

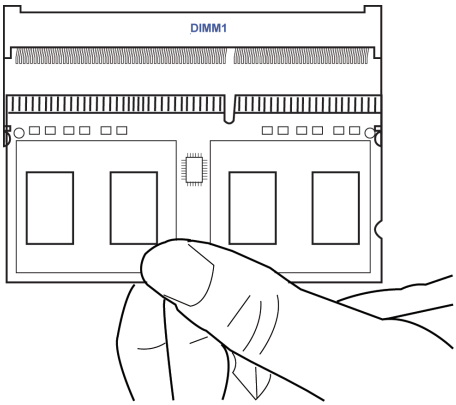


2-4. Installing Hardware

2-4-1. Installing Memory Modules

- This motherboard accommodates one memory module. It can support one 204-pin DDR3L 1333 MHz.
- 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 one module in the slot. Total memory capacity is 8 GB.

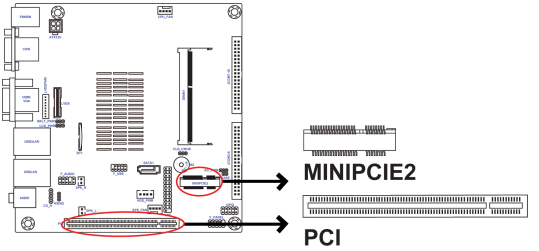
Install the DIMM module into the slot and press it firmly down until it seats correctly. Check that the cutouts on the DIMM module edge connector match the notches in the DIMM slot.



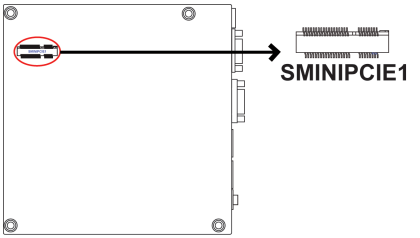
2-4-2. Installing Add-on Cards

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.

Top View



Bottom View



PCI Slot This motherboard is equipped with one standard PCI slot. 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 V3.0.

SMINIPCIE1 Slot The mini PCIE (full-card) supports SATA signal for extending usage of mSATA card.

MINIPCIE2 Slot The mini PCIE (half-card) supports USB signal and PCIe signal for extending usage of BT and Wifi.

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.

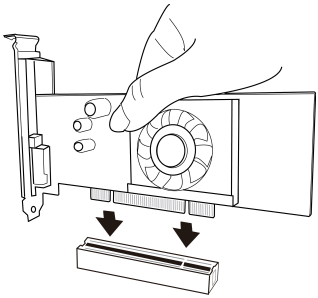
2 Install the edge connector of the add-on card into the expansion slot. Ensure that the edge connector is correctly seated in the slot.

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:

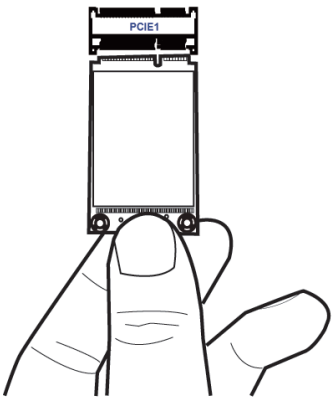


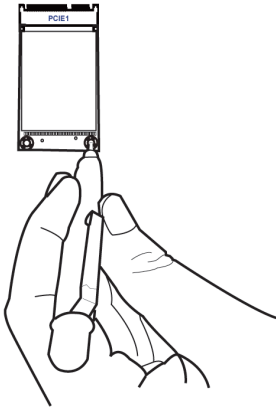
Install the VGA Card in the PCI slot

Follow these instructions to install a mSATA card :

1 Insert a Mini SATA (mSATA) card into the PCIE1 Slot.

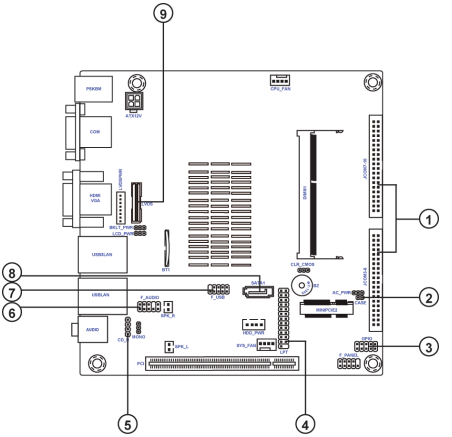
2 Lower the handle and tighten the screws.





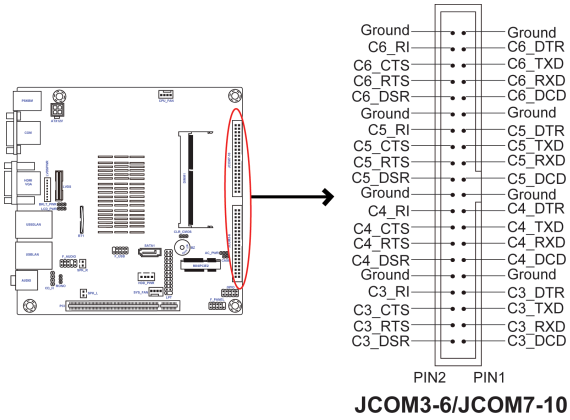
2-4-3. Connecting Optional Devices

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



No.	Components	No.	Components
1	JCOM3-6 & JCOM7-10	6	F_AUDIO
2	CASE	7	F_USB
3	GPIO	8	SATA1
4	LPT	9	LVDS
5	CD_H	~~	~~

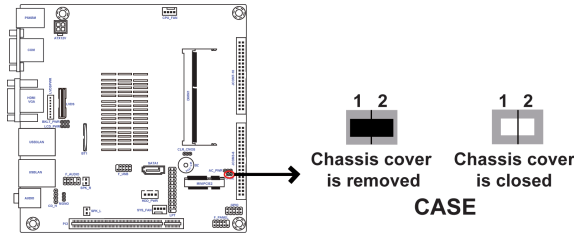
1. JCOM3-6/JCOM7-10: JCOM connectors (support additional eight COM ports)



JCOM3-6/JCOM7-10

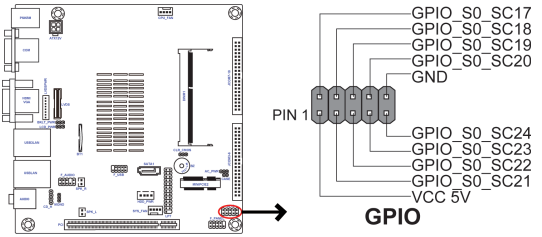
2. CASE: Case open header

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



CASE

3. GPIO: General purpose Input/Output header

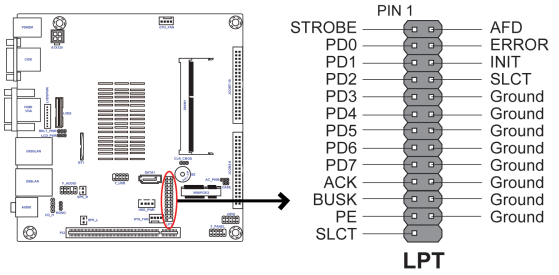


Pin	Define	Address/Bit	Pin	Define	Address/Bit
1	VCC 5V	N/A	2	GPIO_S0_SC17	GPIOBASE + 08h, Bit 17
3	GPIO_S0_SC21	GPIOBASE + 08h, Bit 21	4	GPIO_S0_SC18	GPIOBASE + 08h, Bit 18
5	GPIO_S0_SC22	GPIOBASE + 08h, Bit 22	6	GPIO_S0_SC19	GPIOBASE + 08h, Bit 19
7	GPIO_S0_SC23	GPIOBASE + 08h, Bit 23	8	GPIO_S0_SC20	GPIOBASE + 08h, Bit 20
9	GPIO_S0_SC24	GPIOBASE + 08h, Bit 24	10	GND	N/A

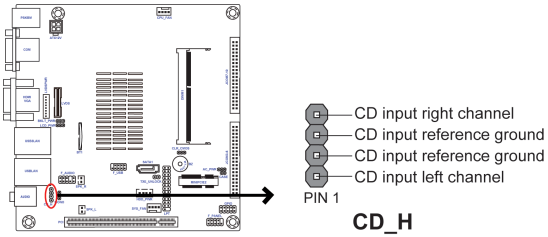
GPIOBASE: 0x500

4. LPT: Onboard parallel port header

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

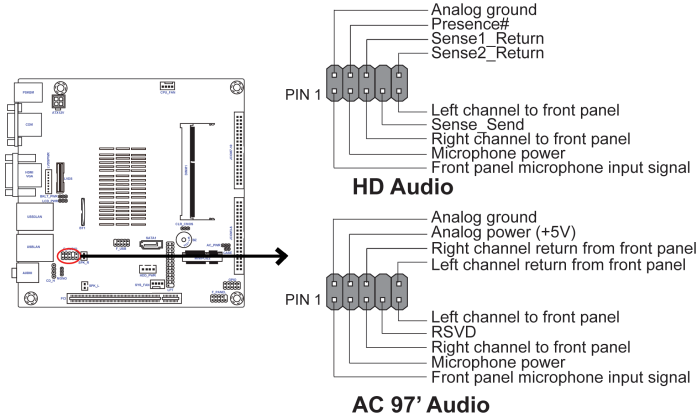


5. CD_H: Analog audio input connector



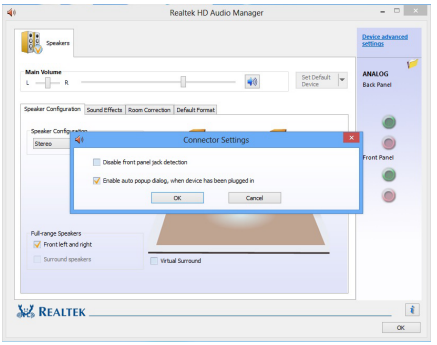
6. F_AUDIO: Front Panel Audio Header

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 ".



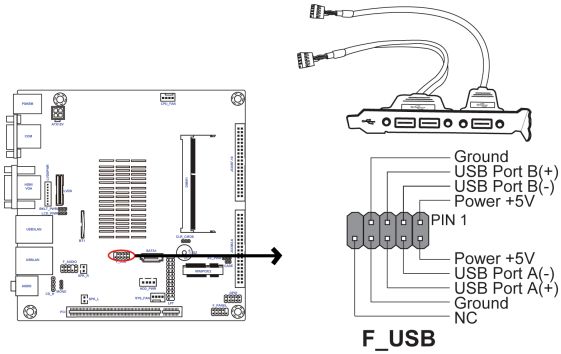
** For reference only*

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*

7. F_USB: Front Panel USB 2.0 header

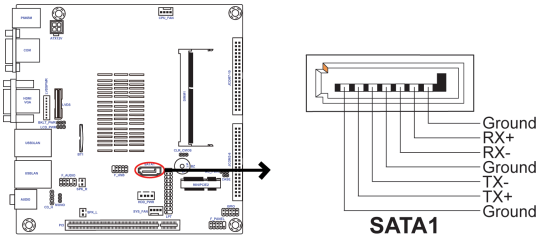
The motherboard has one USB 2.0 header supporting two USB 2.0 ports. Additionally, some computer cases have USB ports at the front of the case. If you have this kind of case, use auxiliary USB connector to connect the front-mounted ports to the motherboard.



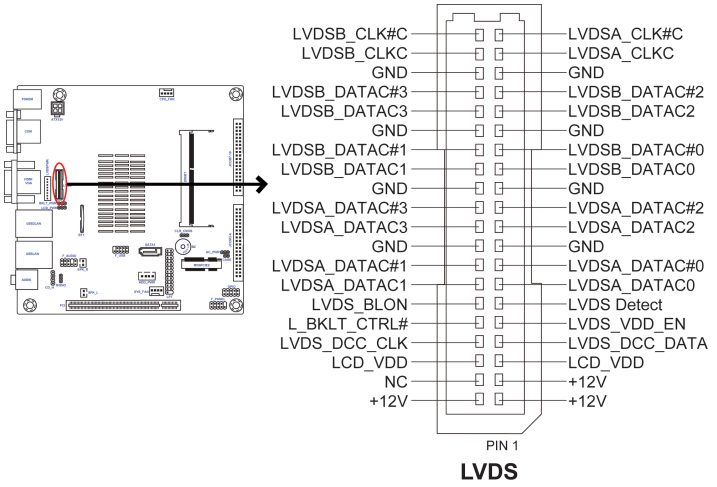
Please make sure that the USB cable has the same pin assignment as indicated above. A different pin assignment may cause damage or system hang-up.

8. SATA1: Serial ATA 3Gb/s connector

SATA1 connector is used to support the Serial ATA 3Gb/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.



9. LVDS: LVDS connector (For All-In-One Specification)



2-4-4. Installing a Hard Disk Drive/SATA Hard Drive

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

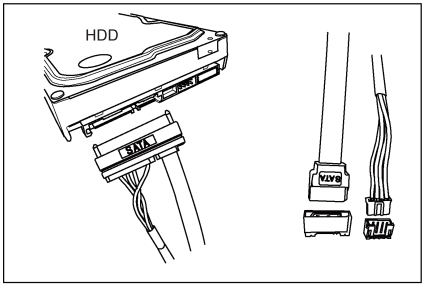
About SATA Connectors

Your motherboard features one SATA connector supporting one drive. 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.

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

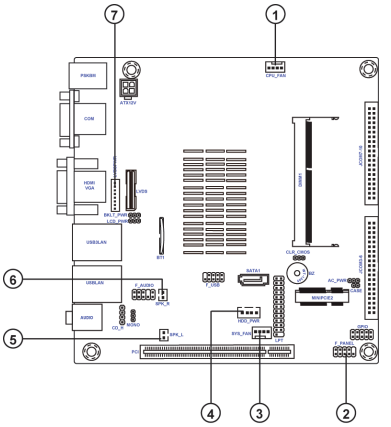
Refer to the illustration below for proper installation:

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



2-4-5. Connecting Case Components

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

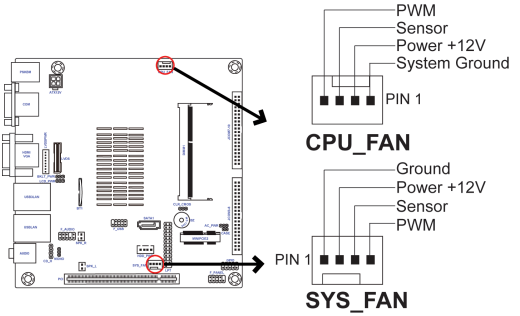


No.	Components	No.	Components
1	CPU_FAN	5	SPK_L
2	F_PANEL	6	SPK_R
3	SYS_FAN	7	LVDSPWR
4	HDD_PWR	~	~

1 & 3. CPU_FAN (CPU cooling FAN connector) & SYS_FAN (System cooling FAN connector)

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

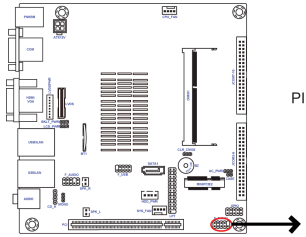
Connect the system cooling fan cable to **SYS_FAN**.

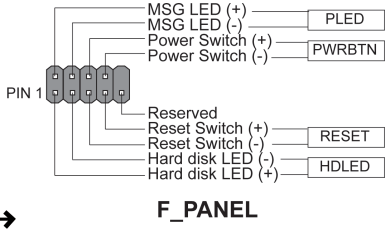


Users please note that the fan connector supports the CPU cooling fan of 1.1A ~ 2.2A (26.4W max) at +12V.

2. F_PANEL: Front Panel switch/LED 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.

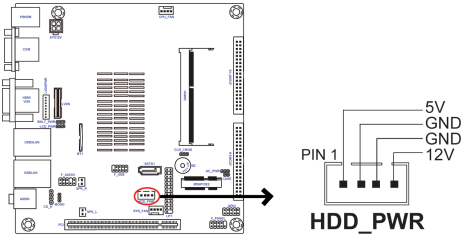
Reset Switch

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

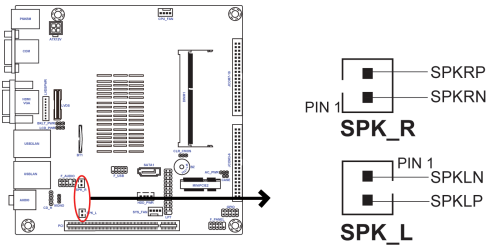
Supporting the power on/off function requires connecting pins 6 and 8 to a momentary-contact switch that is normally open. The switch should maintain contact for at least 50 ms to signal the power supply to switch on or off. The time requirement is due to internal de-bounce circuitry. After receiving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

4. HDD_PWR: HDD power connector



5 & 6. SPK_L & SPK_R: Speaker Left header & Speaker Right header

Connect the case speaker cable to **SPK_L & SPK_R**.



7. LVDSPWR: LVDS power (For-All-In-One Specification)