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Dichiarazione di conformità sintetica

Ai sensi dell'art. 2 comma 3 del D.M. 275 del 30/10/2002

Si dichiara che questo prodotto è conforme alle normative vigenti e soddisfa i requisiti essenziali richiesti dalle direttive 2004/108/CE, 2006/95/CE e 1999/05/CE quando ad esso applicabili

Short Declaration of conformity

We declare this product is complying with the laws in force and meeting all the essential requirements as specified by the directives 2004/108/CE, 2006/95/CE and 1999/05/CE whenever these laws may be applied

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Chapter 1: Introduction

1.1 Before You Start

Thank you for choosing our product. Before you start installing the motherboard, please make sure you follow the instructions below:

- Prepare a dry and stable working environment with sufficient lighting.
- Always disconnect the computer from power outlet before operation.
- Before you take the motherboard out from anti-static bag, ground yourself properly by touching any safely grounded appliance, or use grounded wrist strap to remove the static charge.
- Avoid touching the components on motherboard or the rear side of the board unless necessary. Hold the board on the edge, do not try to bend or flex the board.
- Do not leave any unfastened small parts inside the case after installation. Loose parts will cause short circuits which may damage the equipment.
- Keep the computer from dangerous area, such as heat source, humid air and water.
- The operating temperatures of the computer should be 0 to 45 degrees Celsius.
- To avoid injury, be careful of:
 - Sharp pins on headers and connectors
 - Rough edges and sharp corners on the chassis
 - Damage to wires that could cause a short circuit

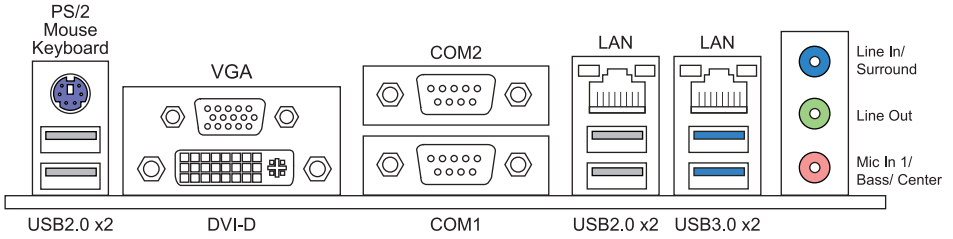
Note

- » *The package contents may be different due to the sales region or models in which it was sold. For more information about the standard package in your region, please contact your dealer or sales representative.*
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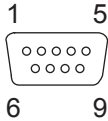
1.2 Specifications

CPU	Socket 1151 for Intel® Core i5 / i3 / Pentium / Celeron processor Maximum CPU TDP (Thermal Design Power): 65 Watt	
Chipset	Intel H110/ Intel H170 Express Chipset	
Graphic	Integrated Intel® HD Graphics engine Dual independent displays as below: - Support D-Sub 15 pin VGA output (Max resolution is 1920 x 1200 @60Hz) - DVI	
Main Memory	Intel H170: 4x DDR4 2133 MHz DIMM slot, Max Supports up to 64 GB Memory Intel H110: 2x DDR4 2133 MHz DIMM slot, Max Supports up to 32 GB Memory	
SATA	Intel H170: 5x SATAIII Port with 7 Pin connector and supports 2.5"/3.5" SATA HDD/SSD Intel H110: 3x SATA connector (Built-in PCIe1 bus to SATA Bridge ASM1061 support 2x SATAII port)	
LAN	Intel I210-AT / Intel I219-V 10 / 100 / 1000 Mb/s auto negotiation, Half / Full duplex capability	
Sound Codec	Realtek ALC892 Audio codec on board (Line-out Port)	
Expansion Slots	Intel H170: 1x PCI-E 3.0 x16 Slot 1x PCI-E 3.0 x4 Slot (x4) 1x PCI-E 3.0 x1 Slot 4x PCI Slot (Built-in IT8892 PCIe to PCI Bridge) 1x M.2 Slot: Support SATAIII (6.0 Gb/s) SSD	Intel H110: 1x PCI-E 3.0 x16 Slot 1x PCI-E 2.0 x4 Slot (x1) - Support 1x PCIe 1x PCI-E 2.0 x1 Slot 4x PCI Slot (Built-in IT8892 PCIe to PCI Bridge) 1x M.2 Slot: Support SATAIII (6.0 Gb/s) SSD
Back Panel I/O	1x PS/2 Keyboard 1x VGA port (D-sub 15 pin) 1x DVI-D port 4x USB 2.0 Port 2x USB 3.0 Port 2x COM (1 x RS-232/ 1 x RS232/RS422/RS485(optional), 5V/12V) 2x LAN port 3x Audio Jack (Line-in/ Line-out / Mic)	
On Board Connectors & Headers	1x 2*10 pins, 2.54 pitch TPM 1.2 box-header 1x 2*5 pins, 2.54 pitch front panel header 1x 2*5 pins, 2.54 pitch Digital I/O connector 1x 2*5 pins, 2.54 pitch front audio (Line-out & Mic-in) 5x 1*7 pins, SATAIII connector supports 2.5"/ 3.5" SATA HDD/SSD 1x M.2 KEY socket for 2242,2260,2280 SATA SSD 1x 2*13 pins, 2.54 pitch Parallel port box-header 1x 2*5 pins, 2.54 pitch 2 USB 2.0 ports wafer connector 1x 2*10 pins, 2.0 pitch 2 USB 3.0 ports wafer connector 4x 2*5 pins, 4 COM box-header (4x RS-232 with jumper select for 5V/12V @ pin 10) 1x 1*4 pins, CPU PWM-Smart Fan header 2x 1*3 pins, system DC-Fan header 1x 24 pins, ATX power connector 1x 2*2 pins, 12V power connector 1 x Buzzer	
Board Size	305 mm (W) x 220 mm (L), ATX	
Operation Temperature	0°C ~ 60°C	
Storage Temperature	-20°C ~ 80°C	
Relative Humidity	10% ~ 90% (non-condensing)	
Other Features	Wake on RPL/PXE LAN boot ROM ACPI/APM Power loss recovery S3 (enable / disable by BIOS) Eup : S5 <0.5W	
Watchdog Timer	Yes (65536 segments)	
RoHS Compliant	Yes	
OS Support	Windows 7 32/64bits, Windows 8.1 64bits, Windows 10 64bits We reserve the right to add or remove support for any OS with or without notice.	

1.3 Rear Panel Connectors

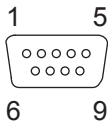


COM1: Serial port Connectors (RS-232/RS422/RS485)



RS-232 (Default)		RS-422*	RS-485*
Pin	Assignment		
1	Carrier detect (DCD)	422 TXD-	485 DATA-
2	Received data (RXD)	422 TXD+	485 DATA+
3	Transmitted data (TXD)	422 RXD+	NC
4	Data terminal ready (DTR)	422 RXD-	NC
5	Signal ground (GND)	GND	GND
6	Data set ready (DSR)	NC	NC
7	Request to send (RTS)	NC	NC
8	Clear to send (CTS)	NC	NC
9	*RI, 5V, 12V selected by (selected by JP1 setting)	NC	NC

COM2: Serial Port Connectors (RS-232)

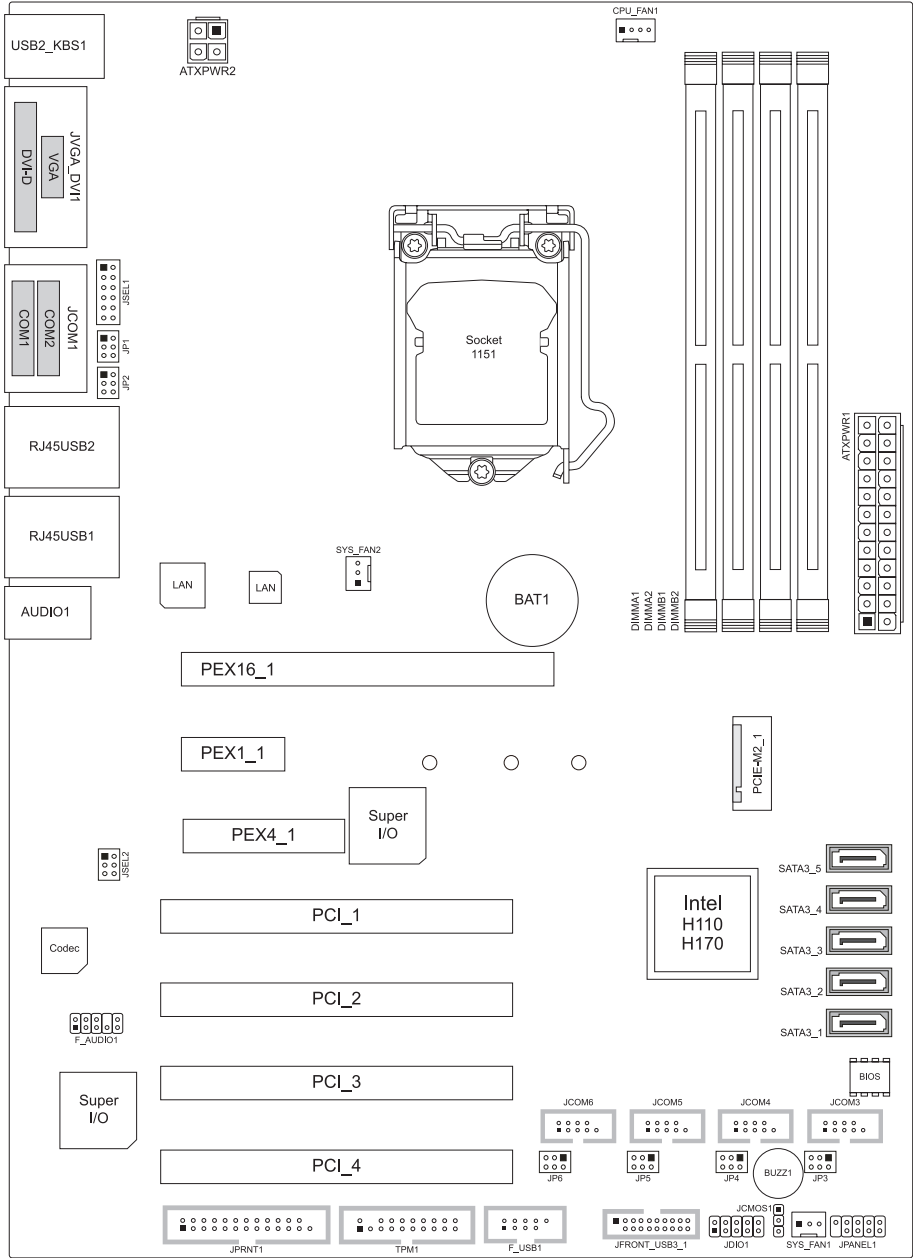


Pin	Assignment	Pin	Assignment
1	DCD	2	RXD
3	TXD	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	*RI, 5V, 12V selected by (selected by JP2 setting)		

Note

- » COM1/2 voltage selection is controlled by JP1/JP2 setup.
- » COM1 (RS-232/422/485) & COM2 (RS-232) selection is controlled by JSEL1/JSEL2.

1.4 Motherboard Layout



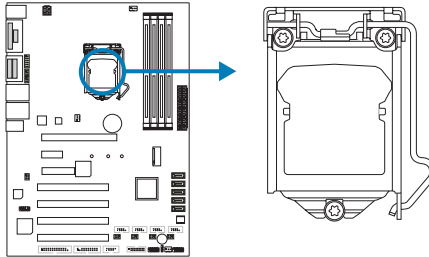
Note

» ■ represents the 1st pin.

Chapter 2: Hardware installation

2.1 Central Processing Unit (CPU)

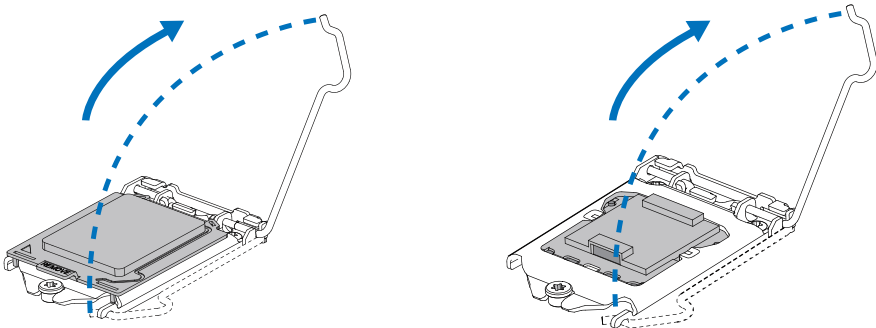
Step 1: Locate the CPU socket on the motherboard



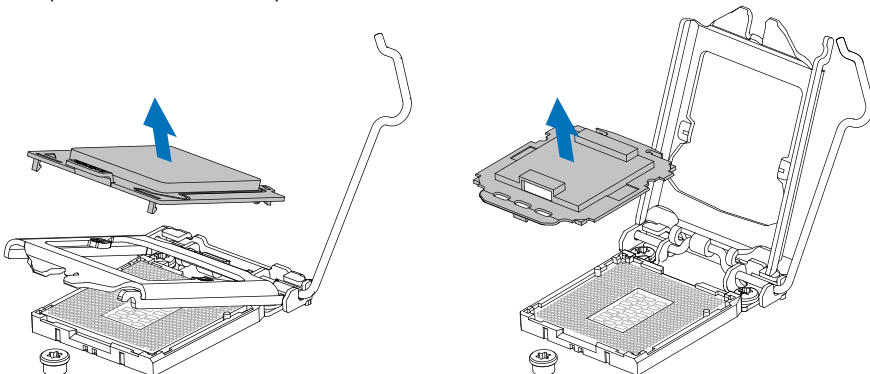
Note

- » Remove Pin Cap before installation, and make good preservation for future use. When the CPU is removed, cover the Pin Cap on the empty socket to ensure pin legs won't be damaged.
- » The motherboard might equip with two different types of pin cap. Please refer below instruction to remove the pin cap.

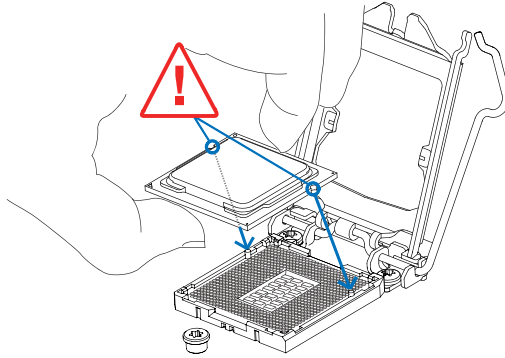
Step 2: Pull the socket locking lever out from the socket and then raise the lever up.



Step 3: Remove the Pin Cap.



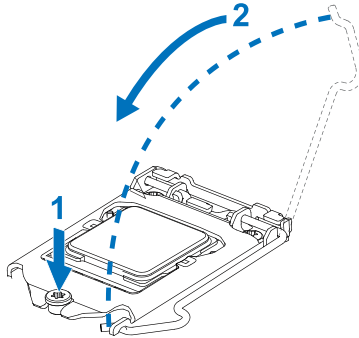
Step 4: Hold processor with your thumb and index fingers, oriented as shown. Align the notches with the socket. Lower the processor straight down without tilting or sliding the processor in the socket.



Note

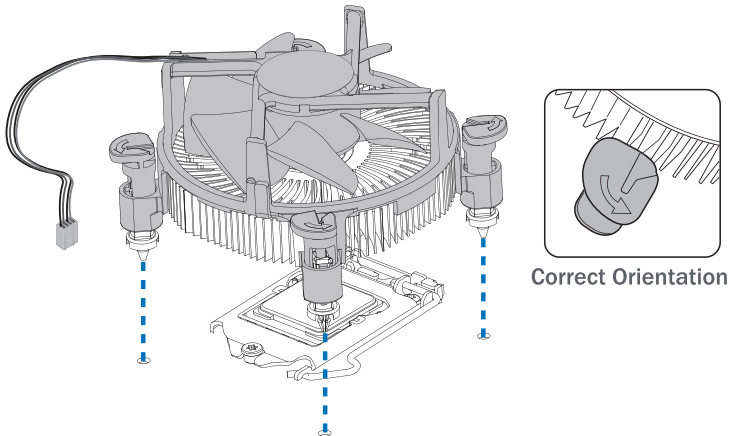
- » Ensure that you install the correct CPU designed for LGA1151 socket.
- » The CPU fits only in one correct orientation. Do not force the CPU into the socket to prevent damaging the CPU.

Step 5: Hold the CPU down firmly, and then lower the lever to locked position to complete the installation.

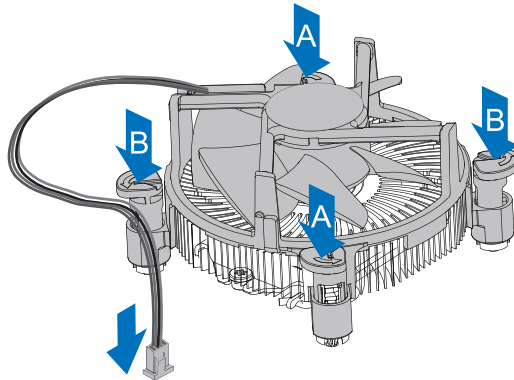


2.2 Install a Heatsink

Step 1: Place the CPU fan assembly on top of the installed CPU and make sure that the four fasteners match the motherboard holes. Orient the assembly and make the fan cable is closest to the CPU fan connector.



Step 2: Press down two fasteners at one time in a diagonal sequence to secure the CPU fan assembly in place. Ensure that all four fasteners are secured.



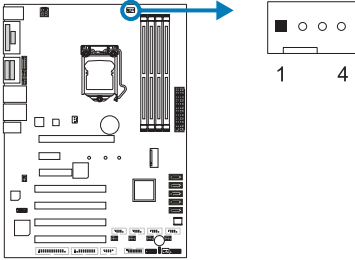
Note

- » Do not forget to connect the CPU fan connector.
- » For proper installation, please kindly refer to the installation manual of your CPU heatsink.

2.3 Connect Cooling Fans

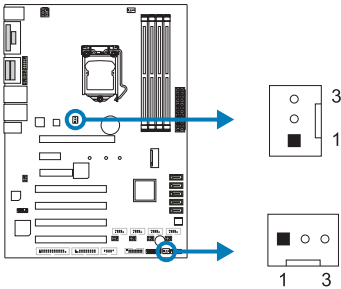
These fan headers support cooling-fans built in the computer. The fan cable and connector may be different according to the fan manufacturer. Connect the fan cable to the connector while matching the black wire to pin#1.

CPU_FAN1: CPU fan header



Pin	Assignment
1	Ground
2	+12V
3	FAN RPM rate sense
4	Smart Fan Control (By Fan)

SYS_FAN1/2: System fan header



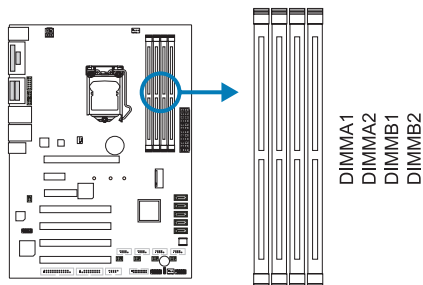
Pin	Assignment
1	Ground
2	+12V
3	FAN RPM rate sense

Note

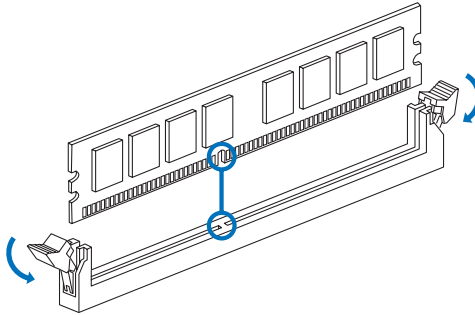
» System Fan Headers support 3-pin head connectors. When connecting with wires onto connectors, please note that the red wire is the positive and should be connected to pin#2, and the black wire is Ground and should be connected to GND.

2.4 Installing System Memory

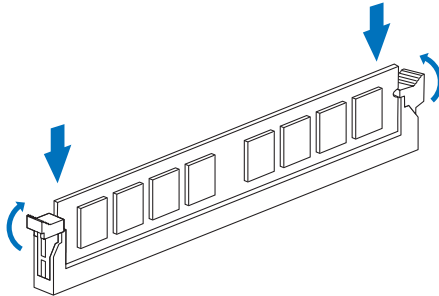
DDR4 Modules



Step 1: Unlock a DIMM slot by pressing the retaining clips outward. Align a DIMM on the slot such that the notch on the DIMM matches the break on the slot.



Step 2: Insert the DIMM vertically and firmly into the slot until the retaining clips snap back in place and the DIMM is properly seated.



Note

» If the DIMM does not go in smoothly, do not force it. Pull it all the way out and try again.

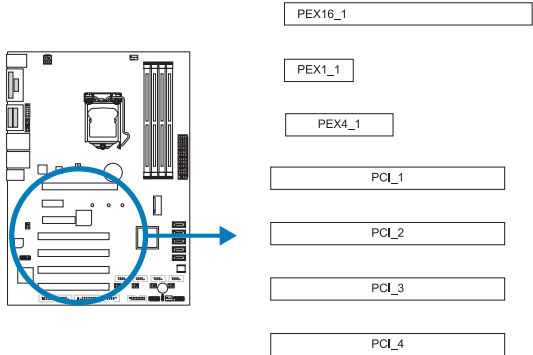
Memory Capacity

DIMM Socket Location	DDR4 Module	Total Memory Size
DIMMA1	4GB/8GB/16GB	Max is 64GB.
DIMMA2	4GB/8GB/16GB	
DIMMB1	4GB/8GB/16GB	
DIMMB2	4GB/8GB/16GB	

Note

» When installing more than one memory module, we recommend to use the same brand and capacity memory on this motherboard.

2.5 Expansion Slots



PEX16_1: PCI-Express x16 Slot (x16 speed)

- PCI-Express 3.0 compliant.
- Theoretical maximum bandwidth using two slots simultaneously is 16GB/s for each slot, a total of 32GB/s.

PEX1_1: PCI-Express x1 Slot

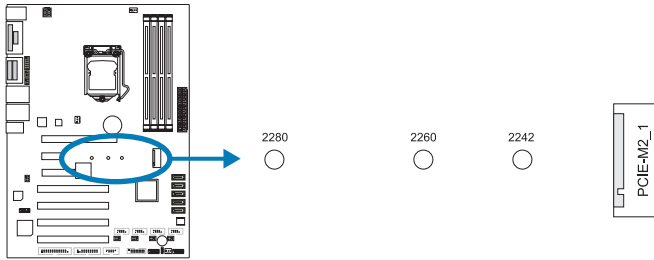
- Intel H170:
 - PCI-Express 3.0 compliant.
 - Data transfer bandwidth up to 1GB/s per direction; 2GB/s in total.
- Intel H110:
 - PCI-Express 2.0 compliant.
 - Data transfer bandwidth up to 500MB/s per direction; 1GB/s in total.

PEX4_1: PCI-Express x4 Slot

- Intel H170 (x4 speed):
 - PCI-Express 3.0 compliant.
 - Data transfer bandwidth up to 2GB/s per direction; 4GB/s in total.
- Intel H110 (x1 speed):
 - PCI-Express 2.0 compliant.
 - Data transfer bandwidth up to 500MB/s per direction; 1GB/s in total.

PCI_1/2/3/4: Peripheral Component Interconnect Slots

The PCI slots support cards used in PCs include: LAN cards, sound cards, modems, TV tuner cards and other cards that comply with PCI standard.



PCIe-M2_1: M.2 (Key M) Slot

- The M.2 slot supports M.2 Type 2242/2260/2280 SSD module. When installing M.2 SSD module, please place the screw and hex pillar to correct position.
- Support M.2 SATA III (6.0 Gb/s) module.

2.6 Jumper & Switch Setting

Jumper Setting

The illustration shows how to set up jumpers. When the jumper cap is placed on pins, the jumper is “close”, if not, that means the jumper is “open”.

Pin opened



Pin closed

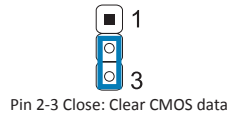
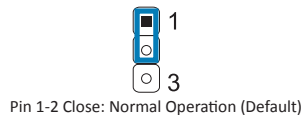
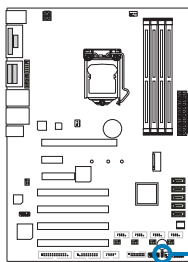


Pin 1-2 closed



JCMOS1: Clear CMOS Jumper

Placing the jumper on pin2-3 allows user to restore the BIOS safe setting and the CMOS data. Please carefully follow the procedures to avoid damaging the motherboard.



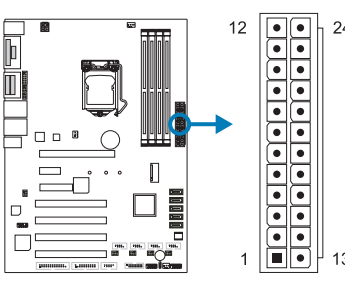
Clear CMOS Procedures:

1. Remove AC power line.
2. Set the jumper to “Pin 2-3 close”.
3. Wait for five seconds.
4. Set the jumper to “Pin 1-2 close”.
5. Power on the AC.
6. Reset your desired password or clear the CMOS data.

2.7 Headers & Connectors

ATXPWR1: ATX Power Source Connector

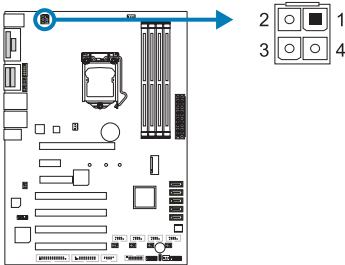
For better compatibility, we recommend to use a standard ATX 24-pin power supply for this connector. Make sure to find the correct orientation before plugging the connector.



Pin	Assignment	Pin	Assignment
13	+3.3V	1	+3.3V
14	-12V	2	+3.3V
15	Ground	3	Ground
16	PS_ON	4	+5V
17	Ground	5	Ground
18	Ground	6	+5V
19	Ground	7	Ground
20	NC	8	PW_OK
21	+5V	9	Standby Voltage+5V
22	+5V	10	+12V
23	+5V	11	+12V
24	Ground	12	+3.3V

ATXPWR2: ATX Power Source Connector

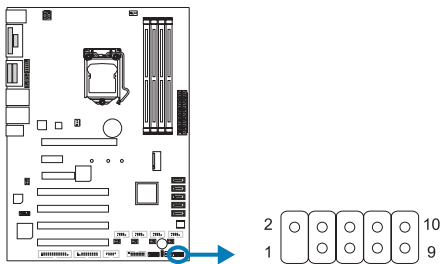
The connector provides +12V to the CPU power circuit.



Pin	Assignment
1	+12V
2	+12V
3	Ground
4	Ground

JPANEL1: Front Panel Header

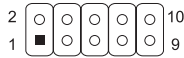
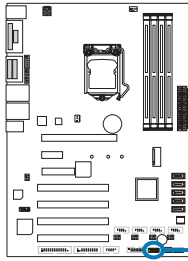
This connector includes Power-on, Reset, HDD LED and Power LED connections. It allows user to connect the PC case's front panel switch functions.



Pin	Assignment	Function	Pin	Assignment	Function
1	N/A	N/A	2	Power LED (+)	Power LED
3	SATA_LED (+)	HDD LED	4	Power LED (-)	
5	SATA LED (-)		6	Power Button	Power-On Button
7	Ground	8	Reset Button		
9	Reset Control	10	Ground		

JDIO1: Digital I/O Connector

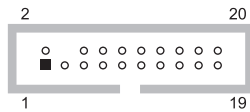
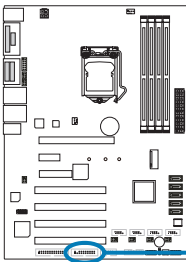
This connector offers digital I/O functions and address is set in BIOS.



Pin	Assignment
1	VCC5
2	DI1
3	DO1
4	DI2
5	DO2
6	DI3
7	DO3
8	DI4
9	DO4
10	GND

TPM1: Trusted Platform Module Header

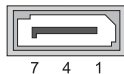
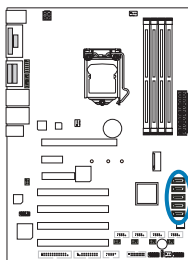
This header allows you to store cryptographic keys that protect information.



Pin	Assignment	Pin	Assignment
1	PCLK_TPM	2	GND
3	L_FRAME_N	4	N/A
5	PCIERST2	6	VCC5
7	LAD3	8	LAD2
9	VCC3_3	10	LAD1
11	LAD0	12	GND
13	SMB_CLK	14	SMB_DATA_RESUME
15	+3V3_DUAL	16	SER_IRQ
17	GND	18	CLK_RUN#
19	SUS_STAT_N	20	LDRQJ1

SATA3_1/2/3/4/5: Serial ATA 3.0 Gb/s Connectors (1*7 Pin)

The connector supports the thin Serial ATA cable for primary internal storage devices.

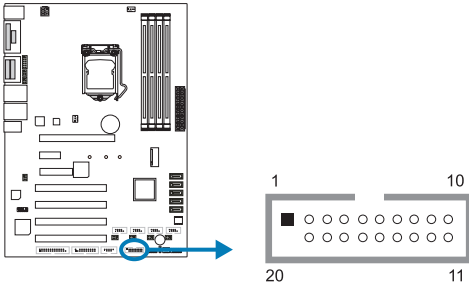


SATA3_1
SATA3_2
SATA3_3
SATA3_4
SATA3_5

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

JFRONT_USB3_1: Header for USB 3.0 Ports at Front Panel

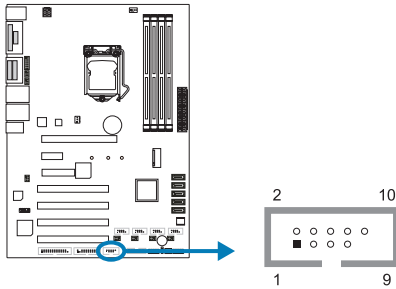
This header allows user to add additional USB ports on the PC front panel, and also can be connected with a wide range of external peripherals.



Pin	Assignment	Pin	Assignment
1	VBUS0	11	D2+
2	SSRX1-	12	D2-
3	SSRX1+	13	Ground
4	Ground	14	SSTX2+
5	SSTX1-	15	SSTX2-
6	SSTX1+	16	Ground
7	Ground	17	SSRX2+
8	D1-	18	SSRX2-
9	D1+	19	VBUS1
10	ID	20	Key

F_USB1: USB 2.0 Header

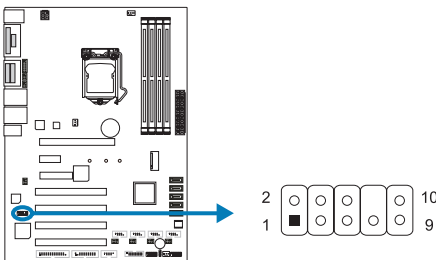
The mainboard provides USB 2.0 pin header. Each header allows you to connect 2 additional USB 2.0 ports.



Pin	Assignment	Pin	Assignment
1	+5V(fused)	2	+5V(fused)
3	USB -	4	USB -
5	USB +	6	USB +
7	Ground	8	Ground

F_AUDIO1: Front Panel Audio Header

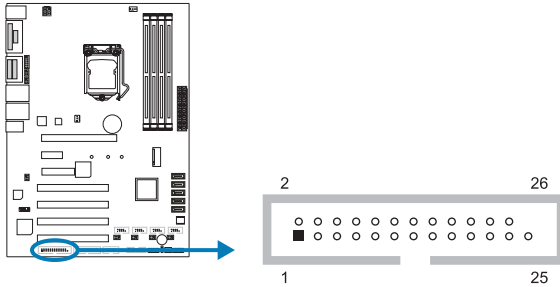
This header allows user to connect the chassis-mount front panel audio I/O which supports HD and AC'97 audio standards.



HD Audio		AC'97	
Pin	Assignment	Pin	Assignment
1	Mic Left in	1	Mic In
2	Ground	2	Ground
3	Mic Right in	3	Mic Power
4	GPIO	4	Audio Power
5	Right line in	5	RT Line Out
6	Jack Sense	6	RT Line Out
7	Front Sense	7	Reserved
8	Key	8	Key
9	Left line in	9	LFT Line Out
10	Jack Sense	10	LFT Line Out

J_PRINT1: Printer Port Connector

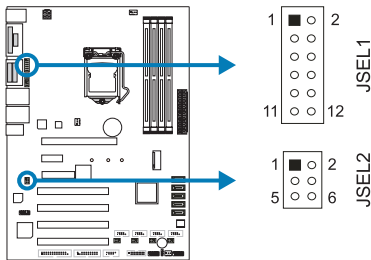
This header allows you to connector printer on the PC.



Pin	Assignment	Pin	Assignment
1	-Strobe	14	Ground
2	-ALF	15	Data 6
3	Data 0	16	Ground
4	-Error	17	Data 7
5	Data 1	18	Ground
6	-Init	19	-ACK
7	Data 2	20	Ground
8	-Scltin	21	Busy
9	Data 3	22	Ground
10	Ground	23	PE
11	Data 4	24	Ground
12	Ground	25	SCLT
13	Data 5	26	Key

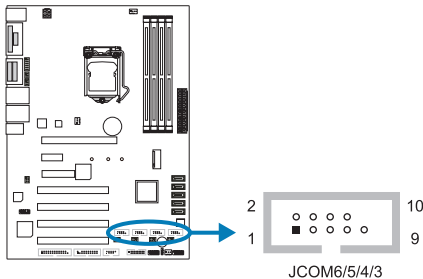
JSEL1/JSEL2: RS-232/422/485 Switch Headers for COM1

The headers determine that COM1 belongs to RS-232 (Default), 422, or 485.



JSEL1(JCOM1A)		
RS-232	RS-422	RS-485
1-3 (Default)	3-5	3-5
2-4 (Default)	4-6	4-6
7-9 (Default)	9-11	9-11
8-10 (Default)	10-12	10-12
JSEL2(JCOM1A)		
1-2 (Default)	RS-232	
3-4	RS-422	
5-6	RS-485	

JCOM1: Serial Port Headers



Pin	Assignment	Pin	Assignment
1	DCD	2	RXD
3	TXD	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	COM_RI_PWR	10	NA

JP1/2/3/4/5/6: Serial Port Voltage Switch Jumper for JCOM1/2/3/4/5/6

