FC

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) this device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.

CALIFORNIA, USA ONLY

The Lithium battery adopted on this motherboard contains Perchlorate, a toxic substance controlled in Perchlorate Best Management Practices (BMP) regulations passed by the California Legislature. When you discard the Lithium battery in California, USA, please follow the related regulations in advance.
"Perchlorate Material-special handling may apply, see www.dtsc.ca.gov/hazardouswaste/ perchlorate"

ASRock Website: http://www.asrock.com

AUSTRALIA ONLY

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage caused by our goods. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure. If you require assistance please call ASRock Tel : +886-2-28965588 ext.123 (Standard International call charges apply)

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HDMI™
HIGH-DEFINITION MULTIMEDIA INTERFACE

Motherboard Layout
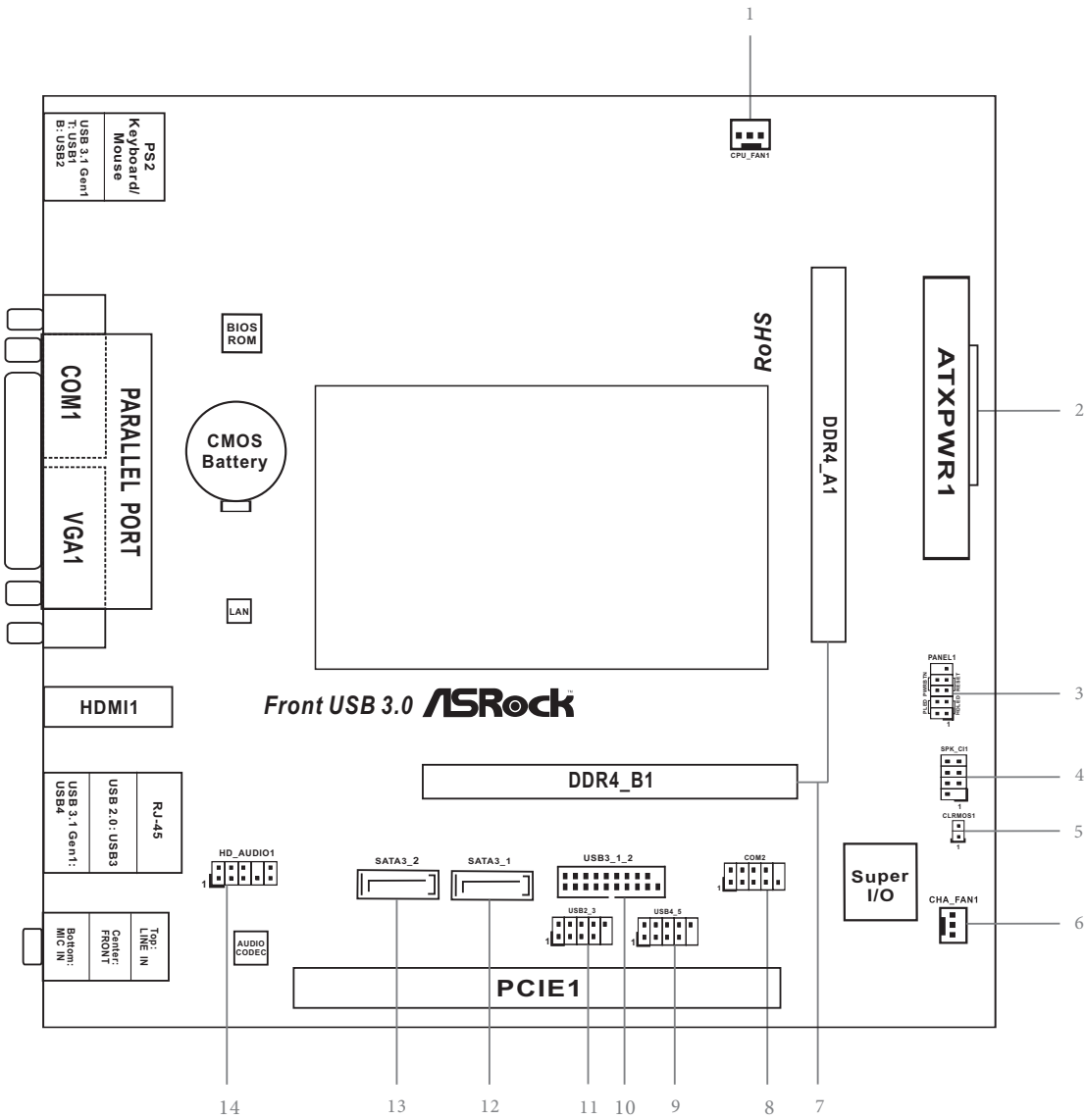
No.	Description
1	CPU Fan Connector (CPU_FAN1)
2	ATX Power Connector (ATXPWR1)
3	System Panel Header (PANEL1)
4	Chassis Intrusion and Speaker Header (SPK_CI1)
5	Clear CMOS Jumper (CLRMOS1)
6	Chassis Fan Connector (CHA_FAN1)
7	2 x 260-pin DDR4 SO-DIMM Slots (DDR4_A1, DDR4_B1)
8	COM Port Header (COM2)
9	USB 2.0 Header (USB4_5)
10	USB 3.1 Gen1 Header (USB3_1_2)
11	USB 2.0 Header (USB2_3)
12	SATA3 Connector (SATA3_1)
13	SATA3 Connector (SATA3_2)
14	Front Panel Audio Header (HD_AUDIO1)

I/O Panel
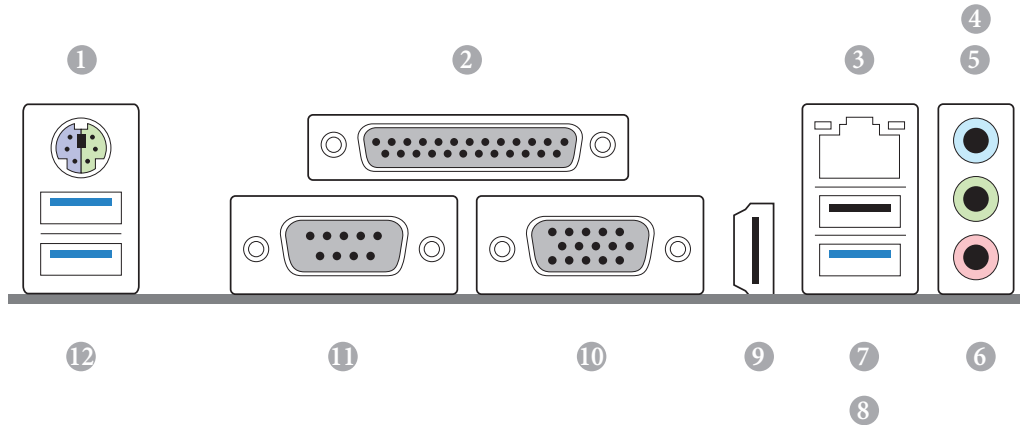
No.	Description	No.	Description
1	PS/2 Mouse/Keyboard Port	7	USB 2.0 Port (USB3_3)
2	Parallel Port	8	USB 3.1 Gen1 Port (USB3_4)
3	LAN RJ-45 Port*	9	HDMI Port
4	Line In (Light Blue)**	10	D-Sub Port
5	Front Speaker (Lime)**	11	COM Port
6	Microphone (Pink)**	12	USB 3.1 Gen1 Ports (USB3_1_2)

There are two LEDs on the LAN port. Please refer to the table below for the LAN port LED indications.

ACT/LINK LED

SPEED LED

LAN Port
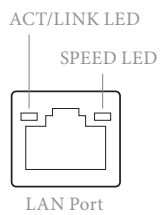
Activity / Link LED		Speed LED	
Status	**Description**	**Status**	**Description**
Off	No Link	Off	10Mbps connection
Blinking	Data Activity	Orange	100Mbps connection
On	Link	Green	1Gbps connection

*** To configure 7.1 CH HD Audio, it is required to use an HD front panel audio module and enable the multi-channel audio feature through the audio driver.*

Please set Speaker Configuration to "7.1 Speaker"in the Realtek HD Audio Manager.
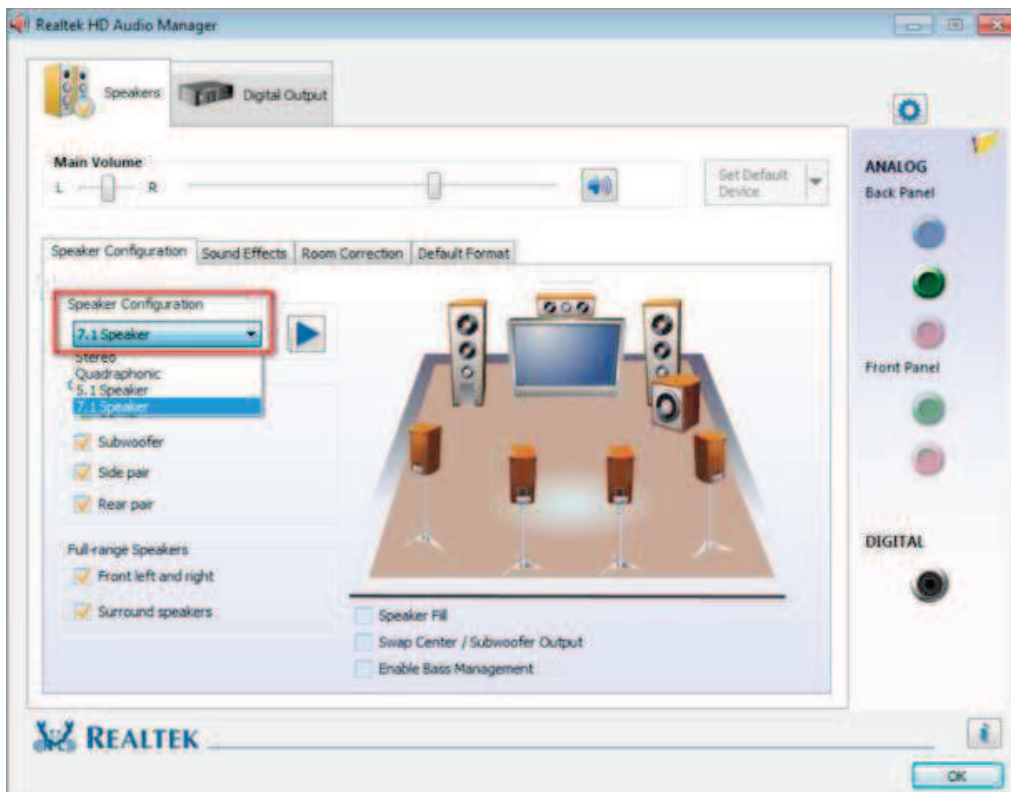
<u>*Function of the Audio Ports in 7.1-channel Configuration*</u>:

Port	Function
Light Blue (Rear panel)	Rear Speaker Out
Lime (Rear panel)	Front Speaker Out
Pink (Rear panel)	Central /Subwoofer Speaker Out
Lime (Front panel)	Side Speaker Out

Chapter 1 Introduction

Thank you for purchasing ASRock J4105B-ITX / J4005B-ITX motherboard, a reliable motherboard produced under ASRock's consistently stringent quality control. It delivers excellent performance with robust design conforming to ASRock's commitment to quality and endurance.

Because the motherboard specifications and the BIOS software might be updated, the content of this documentation will be subject to change without notice. In case any modifications of this documentation occur, the updated version will be available on ASRock's website without further notice. If you require technical support related to this motherboard, please visit our website for specific information about the model you are using. You may find the latest VGA cards and CPU support list on ASRock's website as well. ASRock website http://www.asrock.com.

1.1 Package Contents

- ASRock J4105B-ITX / J4005B-ITX Motherboard (Mini-ITX Form Factor)
- ASRock J4105B-ITX / J4005B-ITX Quick Installation Guide
- ASRock J4105B-ITX / J4005B-ITX Support CD
- 2 x Serial ATA (SATA) Data Cables (Optional)
- 1 x I/O Panel Shield

1.2 Specifications

Platform	• Mini-ITX Form Factor • Solid Capacitor design
CPU	• Intel® Quad-Core Processor J4105 (up to 2.5 GHz) **(for J4105B-ITX)** • Intel® Dual-Core Processor J4005 (up to 2.7 GHz) **(for J4005B-ITX)**
Memory	• Dual Channel DDR4 Memory Technology • 2 x DDR4 SO-DIMM Slots * 2GB DRAM per module is not supported. • Supports DDR4 2400/2133 non-ECC, un-buffered memory • Max. capacity of system memory: 8GB
Expansion Slot	• 1 x PCI Express 2.0 x16 Slot (PCIE1: x2 mode)
Graphics	• Integrated Intel® UHD Graphics 600: 12 EUs inside (Up to 750MHz) **(for J4105B-ITX)** • Integrated Intel® UHD Graphics 600: 12 EUs inside (Up to 700MHz) **(for J4005B-ITX)** • DX12, OpenGL 4.3, OGL ES 3.0, OpenCL 2.0 • HW Acceleration Decode: HEVC (H.265) 8 bit, HEVC (H.265)10 bit, H.264 @ Lvl5.2 (AVC), JPEG/MJPEG, VP8, VP9 8bit, VP9 10 bit • HW Acceleration Encode: HEVC (H.265) 8 bit, HEVC (H.265)10 bit, H.264 @ Lvl5.2 (AVC), JPEG/MJPEG, VP8, VP9 8bit • Dual graphics output: support D-Sub and HDMI ports by independent display controllers • Supports HDMI with max. resolution up to 4K x 2K (4096x2160) @ 30Hz • Supports D-Sub with max. resolution up to 2048x1536 @ 60Hz • Supports Auto Lip Sync, xvYCC and HBR (High Bit Rate Audio) with HDMI Port (Compliant HDMI monitor is required)

- Supports HDCP with HDMI Port
- Supports Full HD 1080p Blu-ray (BD) playback with HDMI Port

Audio	- 7.1 CH HD Audio (Realtek ALC887 Audio Codec) * To configure 7.1 CH HD Audio, it is required to use an HD front panel audio module and enable the multi-channel audio feature through the audio driver. - Supports Surge Protection - ELNA Audio Caps
LAN	- PCIE x1 Gigabit LAN 10/100/1000 Mb/s - Realtek RTL8111H - Supports Wake-On-LAN - Supports Lightning/ESD Protection - Supports Energy Efficient Ethernet 802.3az - Supports PXE
Rear Panel I/O	- 1 x PS/2 Mouse/Keyboard Port - 1 x Parallel Port (ECP/EPP Support) - 1 x Serial Port: COM1 - 1 x D-Sub Port - 1 x HDMI Port - 1 x USB 2.0 Port (Supports ESD Protection) - 3 x USB 3.1 Gen1 Ports (Supports ESD Protection) - 1 x RJ-45 LAN Port with LED (ACT/LINK LED and SPEED LED) - HD Audio Jacks: Line in / Front Speaker / Microphone
Storage	- 2 x SATA3 6.0 Gb/s Connectors, support NCQ, AHCI and Hot Plug
Connector	- 1 x COM Port Header - 1 x Chassis Intrusion and Speaker Header - 1 x CPU Fan Connector (3-pin) - 1 x Chassis Fan Connector (3-pin) - 1 x 24 pin ATX Power Connector - 1 x Front Panel Audio Connector

English

	• 2 x USB 2.0 Headers (Support 4 USB 2.0 ports) (Supports ESD Protection) • 1 x USB 3.1 Gen1 Header (Supports 2 USB 3.1 Gen1 ports) (Supports ESD Protection) * USB3_1_2 is shared with USB2_3.
BIOS Feature	• AMI UEFI Legal BIOS with GUI support • Supports Plug and Play • ACPI 5.0 compliant wake up events • Supports jumperfree • SMBIOS 3.0 support
Hardware Monitor	• CPU/Chassis temperature sensing • CPU/Chassis Fan Tachometer • CPU/Chassis Quiet Fan (Auto adjust chassis fan speed by CPU temperature) • CPU/Chassis Fan multi-speed control • CASE OPEN detection • Voltage monitoring: +12V, +5V, +3.3V, CPU Vcore
OS	• Microsoft® Windows® 10 64-bit
Certifications	• FCC, CE • ErP/EuP ready (ErP/EuP ready power supply is required)

* For detailed product information, please visit our website: http://www.asrock.com

English

8

Chapter 2 Installation

This is a Mini-ITX form factor motherboard. Before you install the motherboard, study the configuration of your chassis to ensure that the motherboard fits into it.

Pre-installation Precautions

Take note of the following precautions before you install motherboard components or change any motherboard settings.

- Make sure to unplug the power cord before installing or removing the motherboard. Failure to do so may cause physical injuries to you and damages to motherboard components.
- In order to avoid damage from static electricity to the motherboard's components, NEVER place your motherboard directly on a carpet. Also remember to use a grounded wrist strap or touch a safety grounded object before you handle the components.
- Hold components by the edges and do not touch the ICs.
- Whenever you uninstall any components, place them on a grounded anti-static pad or in the bag that comes with the components.
- When placing screws to secure the motherboard to the chassis, please do not over-tighten the screws! Doing so may damage the motherboard.

2.1 Installing Memory Modules (SO-DIMM)

This motherboard provides two 260-pin DDR4 (Double Data Rate 4) SO-DIMM slots, and supports Dual Channel Memory Technology.

⚠️ 1. It is not allowed to install a DDR, DDR2 or DDR3 memory module into a DDR4 slot; otherwise, this motherboard and SO-DIMM may be damaged.
2. The SO-DIMM only fits in one correct orientation. It will cause permanent damage to the motherboard and the SO-DIMM if you force the SO-DIMM into the slot at incorrect orientation.

Supported DDR4 Non ECC SODIMM

Raw Card
A (1Rx8)
B (2Rx8)
C (1Rx16)

Dual Channel Memory Configuration

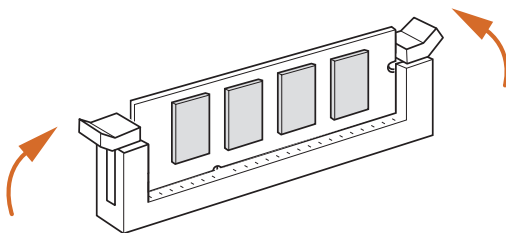|	
DDR4_A1	Populated
DDR4_B1	Populated

1
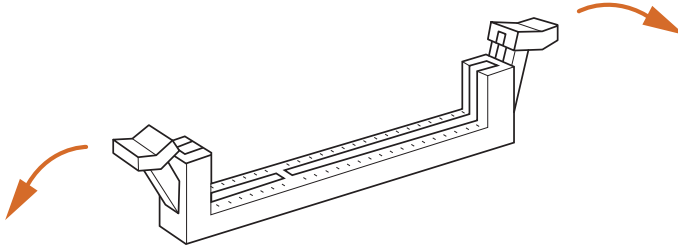
2
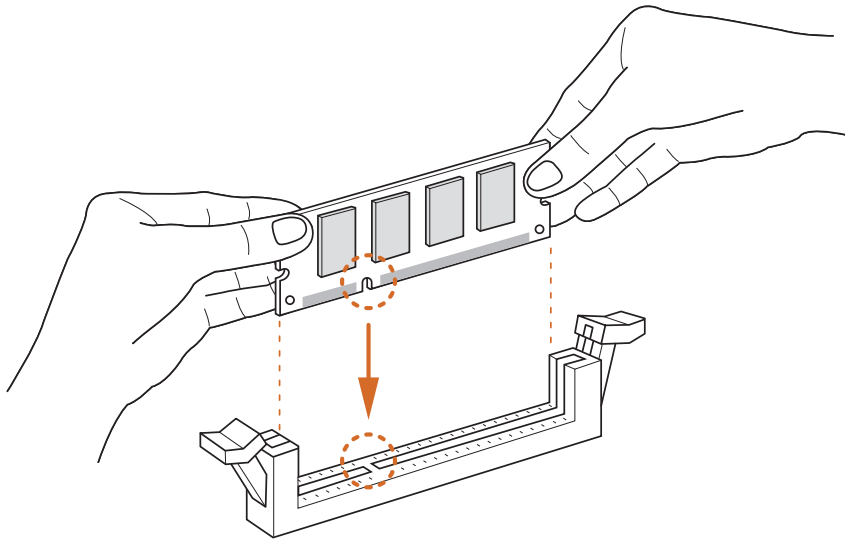
3

2.2 Expansion Slot (PCI Express Slot)

There is 1 PCI Express slot on the motherboard.

> ⚠ *Before installing an expansion card, please make sure that the power supply is switched off or the power cord is unplugged. Please read the documentation of the expansion card and make necessary hardware settings for the card before you start the installation.*

PCIe slot:

PCIE1 (PCIe 2.0 x16 slot) is used for PCI Express x2 lane width cards.

Warning:

To ensure better graphics compability, the BIOS is set to "boot from Onboard VGA" as default even the user install a VGA card on PCIe slot.

2.3 Jumpers Setup

The illustration shows how jumpers are setup. When the jumper cap is placed on the pins, the jumper is "Short". If no jumper cap is placed on the pins, the jumper is "Open".

Short   Open
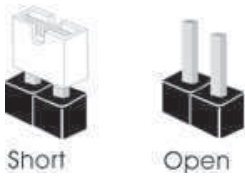
*The jumper cap is not provided.

Clear CMOS Jumper
(CLRMOS1)
(see p.1, No. 5)

2-pin Jumper

Short: Clear CMOS
Open: Default

CLRMOS1 allows you to clear the data in CMOS. The data in CMOS includes system setup information such as system password, date, time, and system setup parameters. There are two ways for you to clear and reset the system parameters to the default setup. Please turn off the computer and unplug the power cord, then you may either short the solder points on CLRMOS1 by using metal material, e.g., a paper clip for 3 seconds; or you may use a jumper cap to short the pin on CLRMOS1 for 3 seconds. Please remember to remove the paper clip or the jumper cap after clearing the CMOS.
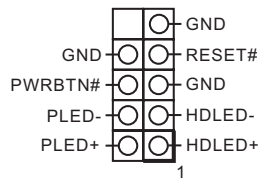
If you clear the CMOS, the case open may be detected. Please adjust the BIOS option "Clear Status" to clear the record of previous chassis intrusion status.

English

2.4 Onboard Headers and Connectors

> ⚠️ *Onboard headers and connectors are NOT jumpers. Do NOT place jumper caps over these headers and connectors. Placing jumper caps over the headers and connectors will cause permanent damage to the motherboard.*

System Panel Header
(9-pin PANEL1)
(see p.1, No. 3)

```
            O— GND
GND   —O  O— RESET#
PWRBTN# —O  O— GND
PLED-  —O  O— HDLED-
PLED+  —O  O— HDLED+
              1
```

Connect the power switch, reset switch and system status indicator on the chassis to this header according to the pin assignments below. Note the positive and negative pins before connecting the cables.

> 🔍 **PWRBTN (Power Switch):**
> *Connect to the power switch on the chassis front panel. You may configure the way to turn off your system using the power switch.*
>
> **RESET (Reset Switch):**
> *Connect to the reset switch on the chassis front panel. Press the reset switch to restart the computer if the computer freezes and fails to perform a normal restart.*
>
> **PLED (System Power LED):**
> *Connect to the power status indicator on the chassis front panel. The LED is on when the system is operating. The LED keeps blinking when the system is in S1/S3 sleep state. The LED is off when the system is in S4 sleep state or powered off (S5).*
>
> **HDLED (Hard Drive Activity LED):**
> *Connect to the hard drive activity LED on the chassis front panel. The LED is on when the hard drive is reading or writing data.*
>
> *The front panel design may differ by chassis. A front panel module mainly consists of power switch, reset switch, power LED, hard drive activity LED, speaker and etc. When connecting your chassis front panel module to this header, make sure the wire assignments and the pin assignments are matched correctly.*

Chassis Intrusion and
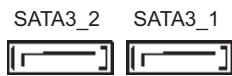Speaker Header
(7-pin SPK_CI1)
(see p.1, No. 4)

```
SPEAKER —O  O— DUMMY
DUMMY  —O  O— GND
DUMMY  —O  O— SIGNAL
+5V    —O
            1
```
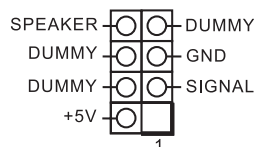
Please connect the chassis intrusion and the chassis speaker to this header.
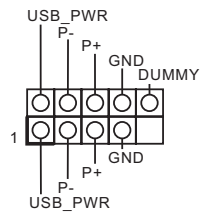
Serial ATA3 Connectors
(SATA3_1:
see p.1, No. 12)
(SATA3_2:
see p.1, No. 13)

SATA3_2   SATA3_1

These two SATA3 connectors support SATA data cables for internal storage devices with up to 6.0 Gb/s data transfer rate.

USB 2.0 Headers
(9-pin USB2_3)
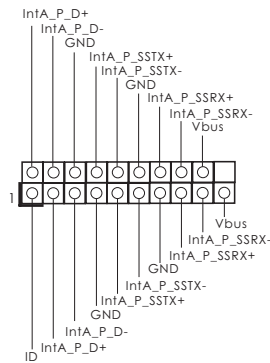(see p.1, No. 11)
(9-pin USB4_5)
(see p.1, No. 9)

USB_PWR
P-
P+
GND
DUMMY

1
GND
P+
P-
USB_PWR

There are two headers on this motherboard. Each USB 2.0 header can support two ports.
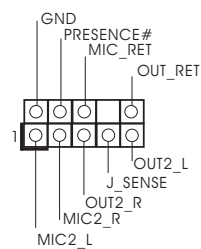
USB 3.1 Gen1 Header
(19-pin USB3_1_2)
(see p.1, No. 10)

IntA_P_D+
IntA_P_D-
GND
IntA_P_SSTX+
IntA_P_SSTX-
GND
IntA_P_SSRX+
IntA_P_SSRX-
Vbus

1

Vbus
IntA_P_SSRX-
IntA_P_SSRX+
GND
IntA_P_SSTX-
IntA_P_SSTX+
GND
IntA_P_D-
ID   IntA_P_D+

There is one header on this motherboard. This USB 3.1 Gen1 header can support two ports.

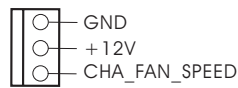Front Panel Audio Header
(9-pin HD_AUDIO1)
(see p.1, No. 14)

GND
PRESENCE#
MIC_RET
OUT_RET

1
OUT2_L
J_SENSE
OUT2_R
MIC2_R
MIC2_L

This header is for connecting audio devices to the front audio panel.

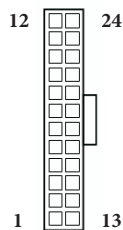|		
Chassis Fan Connector (3-pin CHA_FAN1) (see p.1, No. 6)	GND +12V CHA_FAN_SPEED	Please connect fan cable to the fan connector and match the black wire to the ground pin.
CPU Fan Connector (3-pin CPU_FAN1) (see p.1, No. 1)	GND +12V CPU_FAN_SPEED	Please connect the CPU fan cable to the connector and match the black wire to the ground pin.
ATX Power Connector (24-pin ATXPWR1) (see p.1, No. 2)	12 24 1 13	This motherboard provides a 24-pin ATX power connector. To use a 20-pin ATX power supply, please plug it along Pin 1 and Pin 13.
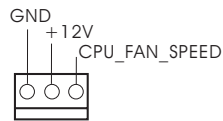
Serial Port Header
(9-pin COM2)
(see p.1, No. 8)

RRXD1
DDTR#1
DDSR#1
CCTS#1

1

RRI#1
RRTS#1
GND
TTXD1
DDCD#1
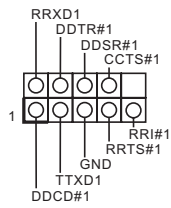
This COM2 header supports a serial port module.