



iBOX-155

User Manual

---

Version 1.0

Published January 2016

Copyright©2016 ASRock Inc. All rights reserved.

## Copyright Notice:

No part of this documentation may be reproduced, transcribed, transmitted, or translated in any language, in any form or by any means, except duplication of documentation by the purchaser for backup purpose, without written consent of ASRock Inc.

Products and corporate names appearing in this documentation may or may not be registered trademarks or copyrights of their respective companies, and are used only for identification or explanation and to the owners' benefit, without intent to infringe.

## Disclaimer:

Specifications and information contained in this documentation are furnished for informational use only and subject to change without notice, and should not be constructed as a commitment by ASRock. ASRock assumes no responsibility for any errors or omissions that may appear in this documentation.

With respect to the contents of this documentation, ASRock does not provide warranty of any kind, either expressed or implied, including but not limited to the implied warranties or conditions of merchantability or fitness for a particular purpose.

In no event shall ASRock, its directors, officers, employees, or agents be liable for any indirect, special, incidental, or consequential damages (including damages for loss of profits, loss of business, loss of data, interruption of business and the like), even if ASRock has been advised of the possibility of such damages arising from any defect or error in the documentation or product.



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](http://www.dtsc.ca.gov/hazardouswaste/perchlorate)”

**ASRock's Website: [www.ASRock.com](http://www.ASRock.com)**

## Replaceable batteries

### CAUTION

**RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE.  
DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS**

## Contact Information

If you need to contact ASRock or want to know more about ASRock, you're welcome to visit ASRock's website at [www.ASRock.com](http://www.ASRock.com); or you may contact your dealer for further information.

### **ASRock Incorporation**

6F., No.37, Sec. 2, Jhongyang S. Rd., Beitou District,  
Taipei City 112, Taiwan (R.O.C.)

The terms HDMI™ and HDMI High-Definition Multimedia Interface, and the HDMI logo are trademarks or registered trademarks of HDMI Licensing LLC in the United States and other countries.



# Contents

<b>Chapter 1 Introduction</b>	<b>1</b>
1.1 Package Contents	1
1.2 Product Specifications	2
1.3 Block Diagram	3
<b>Chapter 2 Product Overview</b>	<b>4</b>
2.1 Inside View	4
2.2 Front View	5
2.3 Rear View	6
<b>Chapter 3 Hardware Installation</b>	<b>7</b>
3.1 Removing the Chassis Bottom Cover	8
3.2 Installing Memory Modules (SO-DIMM)	9
3.3 Installing the 2.5-inch Hard Drive	10
3.4 Installing the WiFi module and the WiFi antennas (Optional)	12
3.5 Replacing the Chassis Bottom Cover	14
<b>Chapter 4 Motherboard</b>	<b>15</b>
4.1 Motherboard Layout	15
4.2 Motherboard Specifications	17
4.3 Jumpers Setup	19
4.4 Onboard Headers and Connectors	21
4.5 Expansion Slots (mini-PCIe and mini-PCIe/mini-SATA Slots)	26

# Chapter 1 Introduction

Thank you for purchasing iBOX-155, a reliable embedded box PC 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 hardware specifications 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 product, please visit our website for specific information about the model you are using.*

*ASRock's Website: [www.asrock.com](http://www.asrock.com)*



*The illustrations shown in this manual are examples only, the actual system may differ slightly.*

## 1.1 Package Contents

- iBOX-155
- IMB-155 (pre-installed motherboard)
- 1 x SATA 1 to 1 Power Cable
- 4 x HDD Screws (M3x4)
- 2 x Screws for mSATA / mini-PCIe slot (M2x3)
- Power Adapter
- User Manual



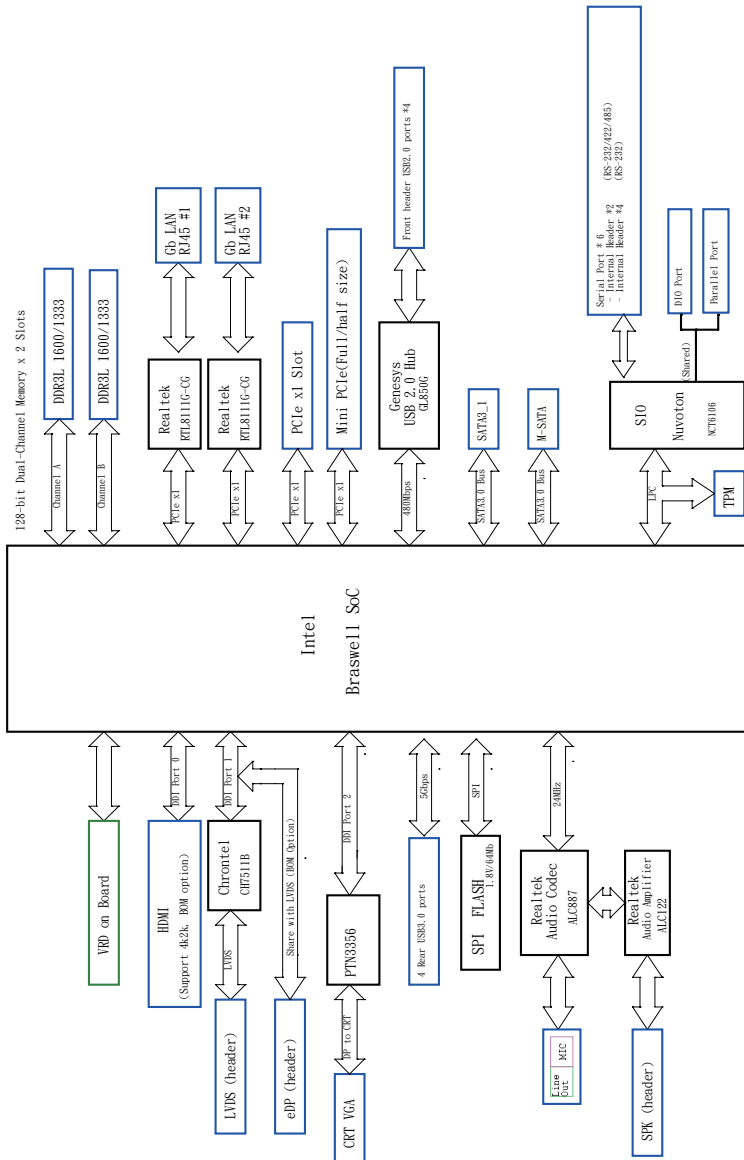
*If any items are missing or appear damaged, contact your authorized dealer.*

## 1.2 Product Specifications

<b>iBOX-155</b>	
<b>Processor System</b>	
CPU	Intel® Pentium/Celeron Braswell SoC Default N3150 Quad core 6W processor
Memory	2 x DDR3L 1333/1600MHz SO-DIMM up to 8GB
Chipset	N/A
Graphic	Intel® Gen8 Graphic
LAN Chipset	Realtek RTL8111G
Watch Dog	256 Segments,0,1,2,...255sec/min
<b>Rear I/O</b>	
Serial Port	1 x RS-232/485/422 / 1 x RS-232
USB	4 USB 3.0 ports / 2 USB2.0 ports
LAN	2 x RJ45 for GbE
Video output	1 x VGA output/1 x HDMI
Audio	1 x Line- out / 1 x MIC-in
Expansion	1 x mini PCIe / 1 x mSATA
<b>Storage</b>	
Type	1 x 2.5" HDD/SSD
<b>OS Support</b>	
Windows 8.1/10, Linux	
<b>Certifications</b>	
CE, FCC, Class A	
<b>Environmental</b>	
Operating Temp	0°C~50°C
Storage Temp	-20°C~80°C
Humidity	10%~90%
<b>Mechanical</b>	
Material	Top cover -aluminum extrusion/ Base- metal
Dimension	200 x 200 x 35mm
Weight	1.8 Kg
Mounting	mounting bracket ( optional)

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

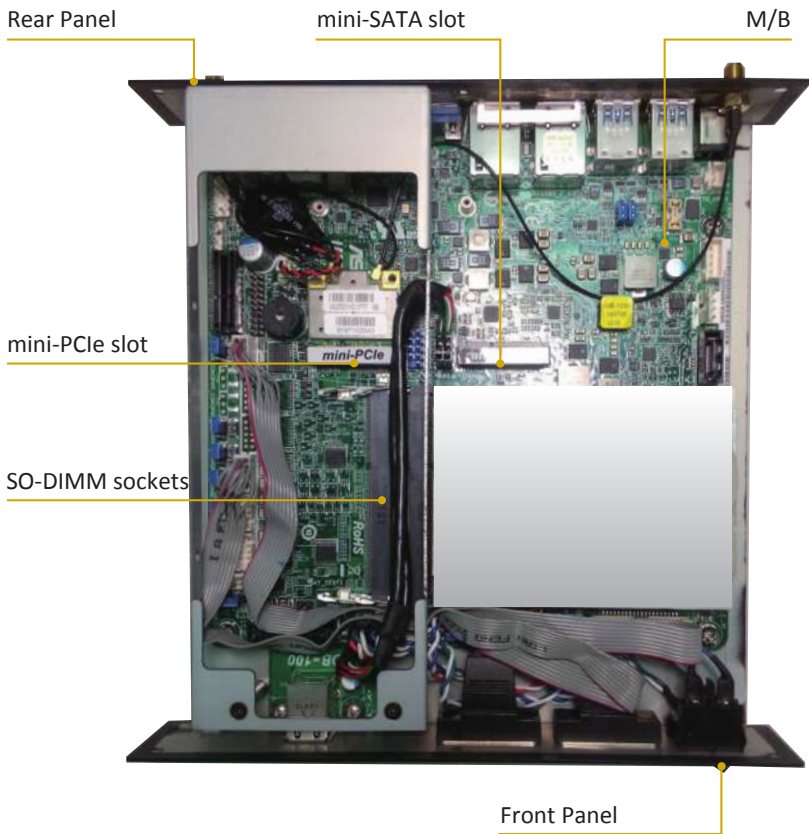
### 1.3 Block Diagram



# Chapter 2 Product Overview

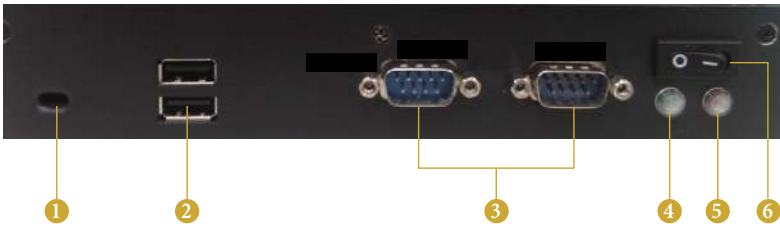
This chapter provides diagrams showing the location of important components of the iBOX-155.

## 2.1 Inside View





## 2.2 Front View



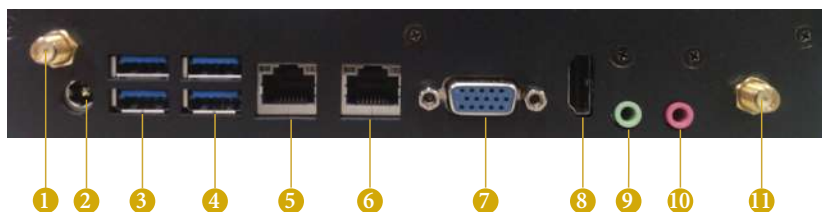
No.	Description
1	Kensington Lock
2	2 x USB 2.0 Ports
3	2 x COM Ports
4	HDD LED
5	Power LED
6	On-/off Switch

### Status LED Definitions

Power LED	
Status	Description
Solid Green	Power on
Off	Power off

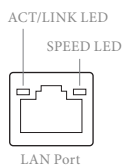
HDD Status LED	
Status	Description
Red	HDD installed
Off	HDD uninstalled

## 2.3 Rear View



No.	Description	No.	Description
1	Antenna Port	7	VGA Port (VGA1)
2	DC Jack (DC IN)	8	HDMI Port (HDMI1)
3	2 x USB 3.0 Ports (USB3_0_1)	9	Line out (Lime)
4	2 x USB 3.0 Ports (USB3_2_3)	10	Microphone (Pink)
5	LAN RJ-45 Port (LAN1)*	11	Antenna Port
6	LAN RJ-45 Port (LAN2)*		

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



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

## Chapter 3 Hardware Installation

This chapter provides step-by-step procedures on how to install components.

### Installation Procedures

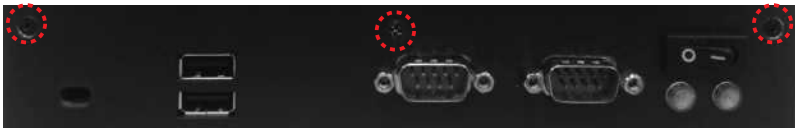
- 1 Removing the chassis top cover
- 2 Installing the memory modules (SO-DIMM)
- 3 Installing the 2.5-inch hard drive
- 4 Installing the WiFi module and the WiFi antennas (**Optional**)
- 5 Replacing the chassis top cover

After making sure that you have properly connected the power supply and all the necessary peripherals, power on the system.

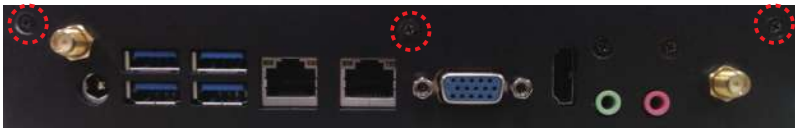
## 3.1 Removing the Chassis Top Cover

1. Remove the three screws on the front panel.
2. Remove the three screws on the rear panel.
3. Lift up and remove the top cover.

1



2



## 3.2 Installing Memory Modules (SO-DIMM)

This motherboard provides two 204-pin DDR3 (Double Data Rate 3) SO-DIMM slots. Please install the SO-DIMM module into the DDR3\_A2 for the first priority.

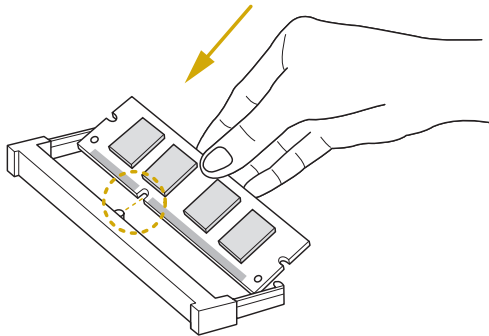


*It is not allowed to install a DDR or DDR2 memory module into a DDR3 slot; otherwise, this motherboard and SO-DIMM may be damaged.*

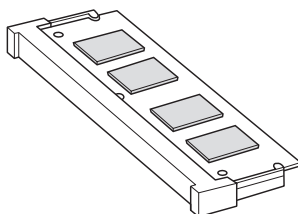


*The SO-DIMM only fits in one correct orientation. It will cause permanent damage to the motherboard and the SO-DIMM if you force the SO-DIMM into the slot at incorrect orientation.*

1



2



### 3.3 Installing the 2.5-inch Hard Drive

1. Release the two screws on the front panel and the two screws in the chassis to remove the hard drive bracket.
2. Place a HDD into the bracket with the printed circuit board side facing down. Carefully align the mounting holes in the hard drive and the bracket.
3. Secure the hard drive to the bracket using the four screws.

1

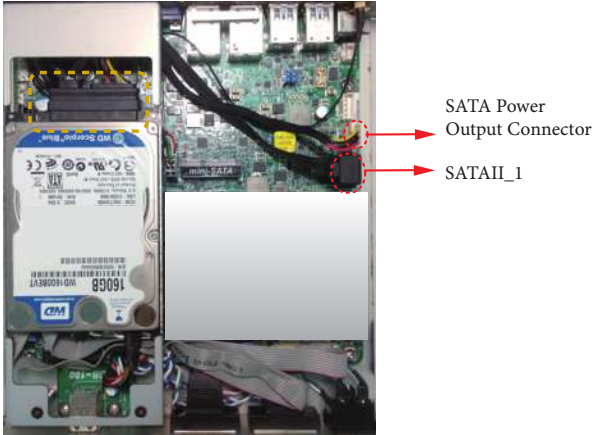


2



4. Attach one end of the SATA 1 to 1 Power Cable to the hard drive.
5. Place the bracket into the chassis. Carefully align the mounting holes on the bracket and the chassis.
6. Secure the bracket to the chassis using the four screws
7. Attach the SATA data cable and power cable to the motherboard.

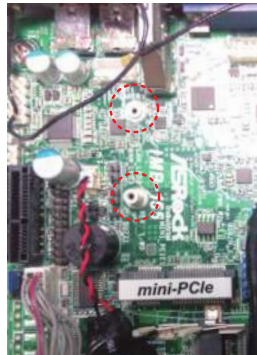
3



## 3.4 Installing the WiFi module and the WiFi antennas (Optional)

1. Based on the length of the WiFi Module Card, release and move the standoff by hand to the nut to be used .
2. Insert the WiFi Module Card into the mini PCI Express slot (MINI\_PCIE1).
3. Tighten the screw that holds the card in place.
4. Attach the SMA Wi-Fi Antenna Cables to the WiFi Module.

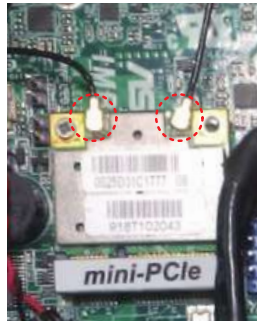
1



2



3





5. Connect the two WiFi 2.4/5 GHz Antennas to the antenna connectors on the rear panel. Turn the antenna clockwise until it is securely connected.
6. Set the WiFi 2.4/5 GHz Antenna at 90-degree angle.  
\*You may need to adjust the direction of the antenna for a stronger signal.

4



5

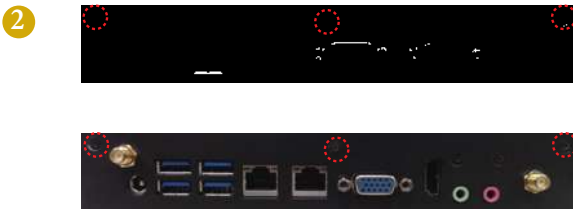


6



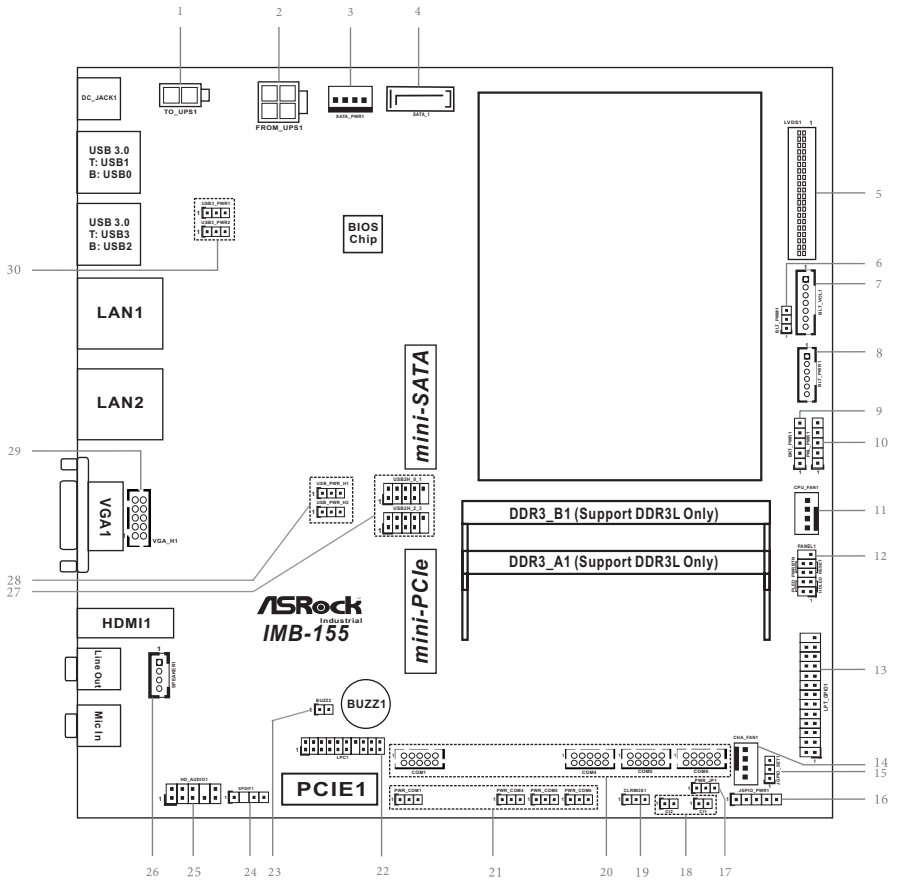
## 3.5 Replacing the Chassis Top Cover

1. Replace the top cover.
2. Secure the three screws on the front panel.
3. Secure the three screws on the rear panel.



# Chapter 4 Motherboard

## 4.1 Motherboard Layout



No.	Description
1	2-pin UPS Module Power Input Connector
2	ATX Power Connector (Input 12V-24V)
3	SATA Power Output Connector
4	SATA3 Connector (SATA_1)
5	LVDS Panel Connector
6	BLT_PWM1
7	Backlight Volume Control (BLT_VOL1)
8	Backlight Power Connector (BLT_PWR1)
9	Backlight Power Select (LCD_BLT_VCC) (BKT_PWR1)
10	Panel Power Selection (LCD_VCC) (PNL_PWR1)
11	4-Pin CPU FAN Connector (+12V)
12	System Panel Header
13	Printer Port / GPIO Header (LPT_GPIO1)
14	4-Pin Chassis FAN Connector (+12V)
15	Digital Input / Output Default Value Setting (JGPIO_SET1)
16	Digital Input / Output Power Select
17	ATX/AT Mode Select
18	Chassis Intrusion Headers
19	Clear CMOS Header
20	COM1, 4, 5, 6 Headers (RS232/422/485)
21	COM Port PWR Setting Jumpers
22	LPC Header
23	Buzzer
24	SPDIF Header
25	Front Panel Audio Header
26	3W Audio AMP Output Wafer
27	USB2.0 Connectors (USB2H_0_1, USB2H_2_3)
28	USB Power Setting Jumpers
29	VGA Header
30	USB3 Power Setting Jumpers

## 4.2 Motherboard Specifications

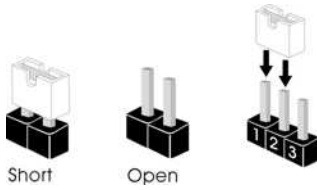
<b>Form Factor</b>	Dimensions	Mini-ITX (6.7-in x 6.7-in)
<b>Processor System</b>	CPU	Intel® Pentium/Celeron Braswell SoC Supports Hyper-Threading Technology Default N3150 Quad core 6W processor
	Core Number	(By CPU, Max 4)
	Max Speed	(By CPU)
	L2 Cache	(By CPU)
	Chipset	(By CPU)
	BIOS	UEFI
<b>Expansion Slot</b>	PCIe x1	1
	Mini-PCIe	1 (full/half size, supports PCIe x1 and USB device; USB device is shared with USB 2.0 header)
	mSATA	1 (full size, supports SATA device)
<b>Memory</b>	Technology	Dual Channel DDR3L 1333/1600 MHz SDRAM
	Max.	8GB
	Socket	2 x SO-DIMM
<b>Graphics</b>	Controller	Intel® Gen8 Intel® Graphics DX 11, OGL3.2
	VRAM	Shared Memory
	VGA	Supports max. resolution 1920 x 1200
	LVDS	Dual channel 24-bit co-lay with eDP, max resolution 1920 x 1200@60Hz
	HDMI	Supports HDMI 1.4a, max resolution 1920x1200
	DVI	No
	DisplayPort	No
	Multi Display	Yes (Triple Display)
<b>Ethernet</b>	Ethernet	10/100/1000 Mbps
	Controller	2 x Realtek RTL8111G
	Connector	2 x RJ-45
<b>SATA</b>	Max Data Transfer Rate	SATA3 (6.0Gb/s)
<b>Rear I/O</b>	VGA	1
	DVI	0
	HDMI	1
	DisplayPort	0
	Ethernet	2

	USB	4 x USB 3.0
	Audio	2 (Mic-in, Line-out)
	Serial	0
	PS/2	0
<b>Internal Connector</b>	USB	4 (2 x 2.0 pitch header USB 2.0 compliant)
	LVDS/ Inverter	1/1
	VGA	0
	Serial	4 x 2.0 pitch header RS-232 (COM1 supports RS-232/422/485)
	SATA	1 x SATA3 (6.0Gb/s)
	mPCIe	1
	Parallel	1 (Co-lay with 8in/8out DIO)
	mSATA	1
	IrDA	0
	GPIO 8-bit	8 x GPI + 8 x GPO
	SATA PWR Output Con	1
	Speaker Header	1
	<b>Watchdog Timer</b>	Output
Interval		256 Segments, 0,1,2...255 Sec/Min
<b>Power Requirements</b>	Input PWR	12V or 19~24V DC-In (DC Jack/ 4-pin PWR Con)
	Power On	AT/ATX Supported -AT : Directly PWR on as power input ready -ATX : Press button to PWR on after power input ready
<b>Environment</b>	Temperature	0°C – 60°C

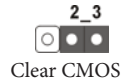
\* For detailed product information, please visit our website: <http://www.asrock.com>

## 4.3 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”. The illustration shows a 3-pin jumper whose pin1 and pin2 are “Short” when a jumper cap is placed on these 2 pins.



Clear CMOS Jumper  
(CLR CMOS1)  
(see p.15, No. 13)



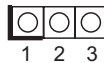
CLR CMOS1 allows you to clear the data in CMOS. To clear and reset the system parameters to default setup, please turn off the computer and unplug the power cord from the power supply. After waiting for 15 seconds, use a jumper cap to short pin2 and pin3 on CLR CMOS1 for 5 seconds. However, please do not clear the CMOS right after you update the BIOS. If you need to clear the CMOS when you just finish updating the BIOS, you must boot up the system first, and then shut it down before you do the clear-CMOS action. Please be noted that the password, date, time, and user default profile will be cleared only if the CMOS battery is removed.

Digital Input/Output  
PWR Select  
(5-pin JGPIO\_  
PWR1)  
(see p.15, No. 16)



1-2 : +12V  
2-3 : +5V  
3-4 : +5V  
4-5 : GND

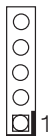
ATX/AT Mode  
Selection  
(3-pin PWR\_JP1)  
(see p.15, No. 17)



1-2: AT Mode  
2-3: ATX Mode

---

Panel Power  
Selection (LCD\_  
VCC)  
(5-pin PNL\_PWR1)  
(see p.15, No. 10)



Use this to set up the VDD  
power of the LVDS connector.  
1-2: +3V  
2-3: +5V  
3-4: +5V  
4-5: +12V

---

Backlight Power Selection  
(LCD\_BLT\_VCC)  
(5-pin BKT\_PWR1)  
(see p.15 No. 9)



Use this to set up the backlight  
power of the LVDS connector  
and the panel backlight power of  
BLT\_PWM1.  
1-2: LCD\_BLT\_VCC: +5V  
2-3: LCD\_BLT\_VCC: +12V  
4-5: LCD\_BLT\_VCC: DC-IN

---

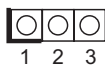
Backlight Control Level  
(CON\_LBKLT\_CTL)  
(3-pin BLT\_PWM1)  
(see p.15 No. 6)



1-2: +3V Level  
2-3: +5V Level

---

COM Port PWR Setting  
Jumpers  
(3-pin PWR\_COM1, for  
COM Port1)  
(3-pin PWR\_COM4, for  
COM Port4)  
(3-pin PWR\_COM5, for  
COM Port5)  
(3-pin PWR\_COM6, for  
COM Port6)  
(see p.15, No. 21)



1-2: +5V  
2-3: +5V  
3-4: +5V  
4-5: N/A



---

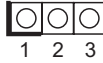
USB2 Power Setting Jumpers

(for USB2H\_0\_1)  
(3-pin USB\_PWR\_H1)  
(see p.15, No. 28)



1-2: +5V  
2-3: +5VSB

(for USB2H\_2\_3)  
(3-pin USB\_PWR\_H2)  
(see p.15, No. 28)



1-2: +5V  
2-3: +5VSB

---

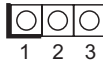
USB3 Power Setting Jumpers

(for USB3\_0\_1)  
(3-pin USB3\_PWR1)  
(see p.15, No. 30)



1-2: +5V  
2-3: +5VSB

(for USB3\_2\_3)  
(3-pin USB3\_PWR2)  
(see p.15, No. 30)



1-2: +5V  
2-3: +5VSB

---

Digital Input / Output  
Default Value Setting  
(3-pin JGPIO\_SET1)  
(see p.15, No. 15)



1-2: Pull-High  
2-3: Pull-Low

## 4.4 Onboard Headers and Connectors



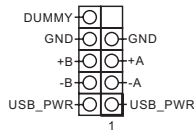
*Onboard headers and connectors are NOT jumpers. Do NOT place jumper caps over these headers and connectors. Placing jumper caps over the headers and connectors will cause permanent damage to the motherboard.*

SATA3 Connector  
(SATA\_1: see p.15, No. 4)



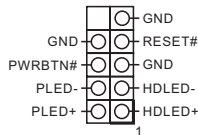
This Serial ATA3 (SATA3) connector supports SATA data cables for internal storage devices. The current SATA3 interface allows up to 6.0 Gb/s data transfer rate.

USB 2.0 Connectors  
(9-pin USB2H\_0\_1)  
(see p.15 No. 27)  
(9-pin USB2H\_2\_3)  
(see p.15 No. 27)



There are two USB 2.0 connectors on this motherboard. Each USB 2.0 connector can support two USB ports.

System Panel Header  
(9-pin PANEL1)  
(see p.15 No. 11)



This header accommodates several system front panel functions.



**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 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.*

### 3W Audio AMP Output Wa- fer

(4-pin SPEAKER1)

(see p.15 No. 26)

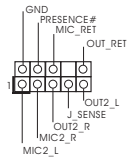


PIN	Signal Name
1	OUTLN
2	OUTLP
3	OUTRP
4	OUTRN

### Front Panel Audio Header

(9-pin HD\_AUDIO1)

(see p.15 No. 25)



This is an interface for front panel audio cable that allows convenient connection and control of audio devices.

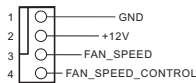


- High Definition Audio supports Jack Sensing, but the panel wire on the chassis must support HDA to function correctly. Please follow the instruction in our manual and chassis manual to install your system.
- If you use AC'97 audio panel, please install it to the front panel audio header as below:
  - Connect Mic\_IN (MIC) to MIC2\_L.
  - Connect Audio\_R (RIN) to OUT2\_R and Audio\_L (LIN) to OUT2\_L.
  - Connect Ground (GND) to Ground (GND).
  - MIC\_RET and OUT\_RET are for HD audio panel only. You don't need to connect them for AC'97 audio panel.
  - To activate the front mic. Go to the "FrontMic" Tab in the Realtek Control panel. Adjust "Recording Volume".

### Chassis Fan Connector

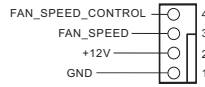
(4-pin CHA\_FAN1)

(see p.15 No. 14)



Please connect the fan cable to the fan connector and match the black wire to the ground pin.

**CPU Fan Connector**  
 (4-pin CPU\_FAN1)  
 (see p.15 No. 11)

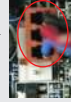


Please connect the CPU fan cable to the connector and match the black wire to the ground pin.

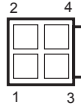


*Though this motherboard provides 4-Pin CPU fan (Quiet Fan) support, the 3-Pin CPU fan still can work successfully even without the fan speed control function.  
 If you plan to connect the 3-Pin CPU fan to the CPU fan connector on this motherboard, please connect it to Pin 1-3.*

Pin 1-3 Connected ←  
 3-Pin Fan Installation



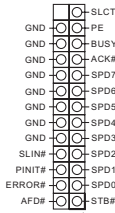
**ATX Power Connector**  
 (Input 12V-24V)  
 (4-pin ATX12V1)  
 (see p.15 No. 2)



Please connect a DC 12V-24V power supply to this connector.  
 1-2: GND  
 3-4: DC Input

**Printer Port / GPIO Header**  
 (25-pin LPT\_GPIO1)  
 (see p.15 No. 13)

Printer Port:

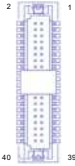


GPIO:

PIN	Signal Name	PIN	Signal Name
26	NC	25	NA
24	GND	23	SIO_GP30
22	GND	21	SIO_GP31
20	GND	19	SIO_GP32
18	GND	17	SIO_GP33
16	GND	15	SIO_GP34
14	GND	13	SIO_GP35
12	JGPIOPWR	11	SIO_GP36
10	JGPIOPWR	9	SIO_GP37
8	SIO_GP43	7	SIO_GP40
6	SIO_GP44	5	SIO_GP41
4	SIO_GP45	3	SIO_GP42
2	SIO_GP46	1	SIO_GP47

\*If you want to use the printer port function, please short pin4 and pin5 on Digital Input / Output Power Select (JGPIO\_PWR1).

LVDS Connector  
(40-pin LVDS1)  
(see p.15 No. 5)



PIN	Signal Name	PIN	Signal Name
2	LCD_VCC	1	LCD_VCC
4	LDDC_CLK	3	+3.3V
6	LVDS_A_DATA0#	5	LDDC_DATA
8	GND	7	LVDS_A_DATA0
10	LVDS_A_DATA1	9	LVDS_A_DATA1#
12	LVDS_A_DATA2#	11	GND
14	GND	13	LVDS_A_DATA2
16	LVDS_A_DATA3	15	LVDS_A_DATA3#
18	LVDS_A_CLK#	17	GND
20	GND	19	LVDS_A_CLK
22	LVDS_B_DATA0	21	LVDS_B_DATA0#
24	LVDS_B_DATA1#	23	GND
26	GND	25	LVDS_B_DATA1
28	LVDS_B_DATA2	27	LVDS_B_DATA2#
30	LVDS_B_DATA3#	29	DPLVDD_EN
32	GND	31	LVDS_B_DATA3
34	LVDS_B_CLK	33	LVDS_B_CLK#
36	CON_LBKLT_EN	35	GND
38	LCD_BLT_VCC	37	CON_LBKLT_CTL
40	LCD_BLT_VCC	39	LCD_BLT_VCC

Backlight Volume  
Control  
(7-pin BLT\_VOL1)  
(see p.15 No. 7)



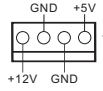
PIN	Signal Name
1	GPIO_VOL_UP
2	GPIO_VOL_DW
3	PWRDN
4	LVDS1 BLUP
5	LVDS1 BLDW
6	GND
7	GND

Backlight Power  
Connector  
(6-pin BLT\_PWR1)  
(see p.15 No. 8)



PIN	Signal Name
1	GND
2	GND
3	BL CTL
4	BL EN
5	LCD_BLT_VCC
6	LCD_BLT_VCC

SATA Power Output  
Connector  
(4-pin SATA\_PWR1)  
(see p.15 No. 3)



Buzzer Header  
(2-pin BUZZ1)  
(see p.15, No. 23)

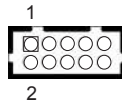


Chassis Intrusion Headers  
(2-pin CI1, CI2)  
(see p.15, No. 18)



This motherboard supports CASE OPEN detection feature that detects if the chassis cover has been removed. This feature requires a chassis with chassis intrusion detection design.

COM1 Header (RS232/422/485)  
(9-pin COM1)  
( see p.15, No. 20)



\*This motherboard supports RS232/422/485 on COM1 port. Please refer to below table for the pin definition. In addition, COM1 port (RS232/422/485) can be adjusted in BIOS setup utility > Advanced Screen > Super IO Configuration. You may refer to page 29 for details.

**COM1 Port Pin Definition**

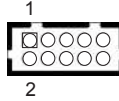
PIN	RS232	RS422	RS485
1	DCD	TX-	RTX-
2	RXD	RX+	N/A
3	TXD	TX+	RTX+
4	DTR	RX-	N/A
5	GND	GND	GND
6	DSR	N/A	N/A
7	RTS	N/A	N/A
8	CTS	N/A	N/A
9	+5V/+12V	+5V/+12V	+5V/+12V
10	NC	NC	NC

COM4, 5, 6 Headers (RS232)

(9-pin COM4/COM5/

COM6)

(see p.15, No. 20)

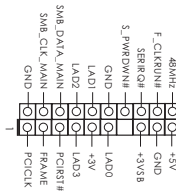


PIN	SIGNAL NAME	PIN	SIGNAL NAME	PIN	SIGNAL NAME	PIN	SIGNAL NAME	PIN	SIGNAL NAME
1	DDCD#	3	TTXD	5	GND	7	RRTS#	9	+5V/+12V
2	RRXD	4	DDTR#	6	DDSR#	8	CCTS#	10	NC

LPC Header

(19-pin LPC1)

(see p.15, No. 22)

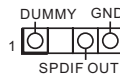


This connector supports Trusted Platform Module (TPM) system, which can securely store keys, digital certificates, passwords, and data. A TPM system also helps enhance network security, protects digital identities, and ensures platform integrity.

SPDIF Header

(3-pin SPDIF1)

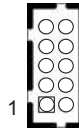
(see p.15, No. 24)



VGA Header

(10-pin VGA1)

(see p.15, No. 29)



PIN	SIGNAL NAME	PIN	SIGNAL NAME	PIN	SIGNAL NAME	PIN	SIGNAL NAME	PIN	SIGNAL NAME
10	DDC_ DATA	8	VSYNC	6	GND	4	GND	2	GND
9	DDC_ CLK	7	HSYNC	5	BLUE	3	GREEN	1	RED

UPS Module Power Input

Connector

(2-pin TO\_UPS1)

(see p.15, No. 1)



Pin1: GND

Pin2: DC Input

## 4.5 Expansion Slots (mini-PCIe/mini-SATA Slots)

There is 1 mini-PCIe slot and 1 mini-SATA slot on this 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.*

### **mini-PCIe slot:**

MINI\_PCIE1 (mini-PCIe slot; half size or full size) is used for WiFi module.

### **mini-SATA slot:**

MINI\_SATA1 (mini-SATA slot; full size) is used for mSATA cards.