IMB-154

User Manual

Version 1.1

Updated May 16, 2025

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.

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HDMI®
HIGH-DEFINITION MULTIMEDIA INTERFACE

WARNING

THIS PRODUCT CONTAINS A BUTTON BATTERY
If swallowed, a button battery can cause serious injury or death.
Please keep batteries out of sight or reach of children.

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"

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 ASRockInd Tel : +886-2-28965588 ext.123 (Standard International call charges apply)

$\mathsf{C}\,\mathsf{\epsilon}$

ASRockInd follows the green design concept to design and manufacture our products, and makes sure that each stage of the product life cycle of ASRockInd product is in line with global environmental regulations. In addition, ASRockInd disclose the relevant information based on regulation requirements.

DO NOT throw the motherboard in municipal waste. This product has been designed to enable proper reuse of parts and recycling. This symbol of the crossed out wheeled bin indicates that the product (electrical and electronic equipment) should not be placed in municipal waste. Check local regulations for disposal of electronic products.

Button Battery Safety Notice

⚠️WARNING

- **INGESTION HAZARD:** This product contains a button cell or coin battery.
- **DEATH** or serious injury can occur if ingested.
- A swallowed button cell or coin battery can cause **Internal Chemical Burns** in as little as **2 hours**.
- **KEEP** new and used batteries **OUT OF REACH of CHILDREN**
- **Seek immediate medical attention** if a battery is suspected to be swallowed or inserted inside any part of the body.

- Remove and immediately recycle or dispose of used batteries according to local regulations and keep away from children. Do NOT dispose of batteries in household trash or incinerate.
- Even used batteries may cause severe injury or death.
- Call a local poison control center for treatment information.
- Battery type: CR2032
- Battery voltage: 3V
- Non-rechargeable batteries are not to be recharged.
- Do not force discharge, recharge, disassemble, heat above (manufacturer's specified temperature rating) or incinerate. Doing so may result in injury due to venting, leakage or explosion resulting in chemical burns.
- This product contains an irreplaceable battery.
- This icon indicates that a swallowed button battery can cause serious injury or death. Please keep batteries out of sight or reach of children.

Contents

Chapter 1: Introduction

Thank you for purchasing ASRockInd *IMB-154* motherboard, a reliable motherboard produced under ASRockInd's consistently stringent quality control. It delivers excellent performance with robust design conforming to ASRockInd's commitment to quality and endurance.

In this manual, chapter 1 and 2 contain introduction of the motherboard and step-by-step guide to the hardware installation. Chapter 3 and 4 contain the configuration guide to BIOS setup and software support.

> Because the motherboard specifications and the BIOS software might be updated, the content of this manual will be subject to change without notice. In case any modifications of this manual occur, the updated version will be available on ASRockInd website without further notice. You may find the latest CPU support lists on ASRockInd website as well.
> ASRockInd website: *https://www.asrockind.com/IMB-154*
> If you require technical support related to this motherboard, please visit our website for specific information about the model you are using.
> *https://www.asrockind.com/technical-support*

1.1 Package Contents

ASRockInd *IMB-154* Motherboard
  (Mini-ITX Form Factor: 6.7-in x 6.7-in, 17.0 cm x 17.0 cm)
ASRockInd *IMB-154* Jumper Setting Instruction
1 x I/O Panel Shield

1.2 Specifications

Form Factor	Dimensions	Mini-ITX (6.7-in x 6.7-in)
Processor System	CPU	Intel® Pentium/Celeron Braswell SoC Supports Hyper-Threading Technology Default N3160 Quad core 6W processor
	Core Number	(By CPU, Max 4)
	Max Speed	(By CPU)
	L2 Cache	(By CPU)
	Chipset	(By CPU)
	BIOS	UEFI
Expansion Slot	PCI	0
	Mini-PCIe	1x full size mini-PCIe slot, PCIE only 1x PCIex1 slot
	mSATA	1
Memory	Technology	Dual Channel DDR3L 1333/1600 MHz SDRAM
	Max.	8GB
	Socket	2 x SO-DIMM
Graphics	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)
Ethernet	Ethernet	10/100/1000 Mbps
	Controller	2 x Realtek RTL8111G
	Connector	2 x RJ-45
SATA	Max Data Transfer Rate	SATA3 (6.0Gb/s)
Rear I/O	VGA	1
	DVI	0
	HDMI	1
	DisplayPort	0
	Ethernet	2

	USB	4 x USB 3.0
	Audio	2 (Mic-in, Line-out)
	Serial	3 x RS-232 (COM1/COM2/COM3 support RS-422/485)
	PS/2	PS2 x2, KB & MS stack
Internal Connector	USB	4 (2 x 2.54 pitch header USB 2.0 compliant)
	LVDS/ Inverter	1/1
	VGA	0
	Serial	3 x 2.0 pitch header RS-232
	SATA	2 x SATA3 (6.0Gb/s)
	mPCIe	1
	Parallel	1 (Co-lay with 8in/8out DIO)
	mSATA	1(Share with SATA3)
	IrDA	0
	GPIO 8-bit	8 x GPI + 8 x GPO
	SATA PWR Output Con	1
	Speaker Header	1
Watchdog Timer	Output	Output from super I/O to drag RESETCON#
	Interval	256 Segments, 0,1,2…255 Sec/Min
Power Requirements	Input PWR	12V or 19~24V DC in (4-pin ATX PWR Con) / ATX
	Power On	AT/ATX Supported -AT : Directly PWR on as power input ready -ATX : Press button to PWR on after power input ready
Environment	Temperature	0ºC – 60ºC

1.3 Motherboard Layout

Labels visible in the figure:

HDMI1

PS2 Keyboard

PS2 Mouse

COM Port 2

COM Port 1

VGA1

COM Port 3

mini-SATA

USB 3.0 T: USB1 B: USB0 | Top: LAN1

USB 3.0 T: USB3 B: USB2 | Top: LAN2

CMOS Battery

Top: Line Out Bottom: Mic In

mini-PCIe

LVDS1

USB2_2_3

USB_PWR_H2

DDR3_B1 (Support DDR3L Only)

DDR3_A1 (Support DDR3L Only)

CPU_FAN1

ATX12V1

BIOS Chip

ATXPWR1

SPEAKER1

HD_AUDIO1

USBH_2_3

PCIE1

CLRMOS1

SPDIF1

LPC1

LPT_GPIO1

PANEL1

CHA_FAN1

BUZZ1

SATA_PWR1

COM4

COM5

COM6

SATA2_2

SATA3_1

PWR_LED1

1 : COM Port PWR Setting Jumpers

2 : 4-Pin CPU FAN Connector (+12V)

3 : USB2 Power Setting Jumper (for USB2_2_3)

4 : USB2.0 Connector (USB2_2_3)

5 : LVDS Panel Connector

6 : ATX Power Connector (Input 12V or 19V~24V)

7 : Backlight Volume Control (BLT_VOL1)

8 : Panel Power Selection (LCD_VCC) (PNL_PWR1)

9 : Chassis Intrusion Headers (CI1, CI2)

10 : BLT_PWM1

11 : 20-pin ATX Power Input Connector

12 : Digital Input / Output Power Select

13 : System Panel Header

14 : COM Port PWR Setting Jumpers

15 : 4-Pin Chassis FAN Connector (+12V)

16 : Power Loss Jumper

17 : 2-Pin Buzzer Header

18 : SATA Power Output Connector

19 : COM4, 5, 6 Headers (RS232)

20 : Digital Input / Output Default Value Setting (JGPIO_SET1)

21 : Printer Port / GPIO Header (LPT_GPIO1)

22 : ATX/AT Mode Select

23 : SATA3 Connectors (SATA3_1, SATA3_2)

24 : LPC Header

25 : SPDIF Header

26 : USB2 Power Setting Jumper (for USB2_0_1)

27 : Clear CMOS Header

28 : USB2.0 Connector (USB2_0_1)

29 : 3W Audio AMP Output Wafer

30 : Front Panel Audio Header

31 : Backlight Power Select (LCD_BLT_VCC) (BKT_PWR1)

32 : Backlight Power Connector (BLT_PWR1)

33 : LAN LED

34 : VGA Header

35 : mSATA Select

1.4 I/O Panel
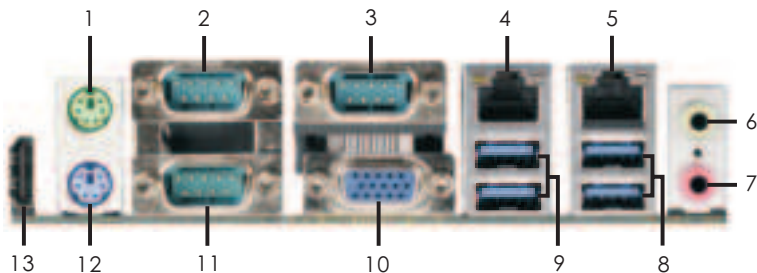
1	PS/2 Mouse Port	8	USB 3.0 Ports (USB3_2_3)
2	COM Port 1 (COM1)*	9	USB 3.0 Ports (USB3_0_1)
3	COM Port 3 (COM3)*	10	VGA Port (VGA1)
4	LAN RJ-45 Port**	11	COM Port 2 (COM2)*
5	LAN RJ-45 Port**	12	PS/2 Keyboard Port
6	Line out (Green)	13	HDMI Port (HDMI1)
7	Microphone (Pink)		

* This motherboard supports RS232/422/485 on COM1~3 ports. Please refer to below table for the pin definition. In addition, COM1~3 ports (RS232/422/485) can be adjusted in BIOS setup utility > Advanced Screen > Super IO Configuration. You may refer to page 29 for details.

COM1~3 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	COM1: +5V/+12V/+5VSB COM2, 3: +5V/+12V	COM1: +5V/+12V/+5VSB COM2, 3: +5V/+12V	COM1: +5V/+12V/+5VSB COM2, 3: +5V/+12V

** There are two LED next to the LAN port. Please refer to the table below for the LAN port LED indications.

LAN Port LED Indications

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

ACT/LINK LED   SPEED LED

LAN Port

Chapter 2: Installation

This is a Mini-ITX form factor (6.7" x 6.7", 17.0 x 17.0 cm) motherboard. Before you install the motherboard, study the configuration of your chassis to ensure that the motherboard fits into it.

> 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.

2.1 Screw Holes

Place screws into the holes to secure the motherboard to the chassis.

> Do not over-tighten the screws! Doing so may damage the motherboard.

2.2 Pre-installation Precautions

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

1. Unplug the power cord from the wall socket before touching any component.
2. To avoid damaging the motherboard components due to static electricity, NEVER place your motherboard directly on the carpet or the like. Also remember to use a grounded wrist strap or touch a safety grounded object before you handle components.
3. Hold components by the edges and do not touch the ICs.
4. Whenever you uninstall any component, place it on a grounded antistatic pad or in the bag that comes with the component.

> Before you install or remove any component, ensure that the power is switched off or the power cord is detached from the power supply.
> Failure to do so may cause severe damage to the motherboard, peripherals, and/or components.

## 2.3 Installation of Memory Modules (SO-DIMM)

IMB-154 motherboard provides two 204-pin DDR3 (Double Data Rate 3) SO-DIMM slots, which support Dual Channel DDR3L (low voltage).

> 1. If you install one memory module only, please install it on DDR3_A1.
> 2. 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.
> 2. Please make sure to disconnect the power supply before adding or removing SO-DIMMs or the system components.
> 3. 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.

Installing a SO-DIMM

Step 1.   Align a SO-DIMM on the slot such that the notch on the SO-DIMM matches the break on the slot.
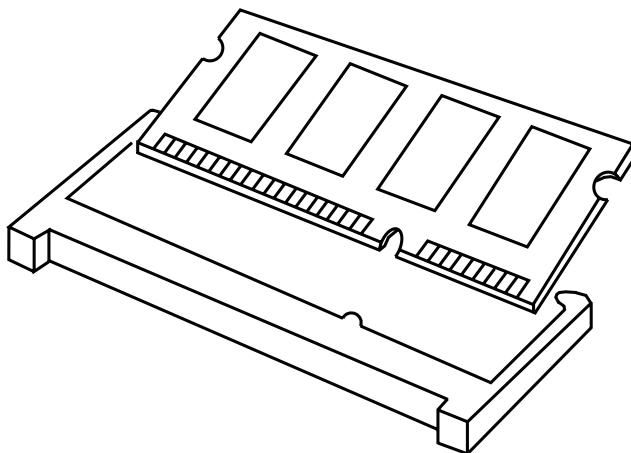
Step 2.   Firmly insert the SO-DIMM into the slot until the retaining clips at both ends fully snap back in place and the SO-DIMM is properly seated.

2.4 Expansion Slots (mini-PCIe, mini-SATA and PCI Express Slots)

There is 1 mini-PCIe slot, 1 mini-SATA slot and 1 PCI Express slot on this motherboard.

mini-PCIe slot:

MINI_PCIE1 (mini-PCIe slot; full size) is used for PCI Express mini cards.

mini-SATA slot:

MINI_SATA1 (mini-SATA slot; full size) is used for mSATA cards. This mini-SATA slot is shared with the SATA3_2 connector.

**PCIE slot:** PCIE1 (PCIE x1 slot) is used for PCI Express x1 lane width cards.

> USB2_2_3 is shared with MINI_SATA1 and MINI_PCIE1. If you use USB2_2_3 connector, the USB device on MINI_SATA1 and MINI_PCIE1 will be disabled.

Installing an expansion card

Step 1.   Before installing the 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.

Step 2.   Remove the system unit cover (if your motherboard is already installed in a chassis).

Step 3.   Remove the bracket facing the slot that you intend to use. Keep the screws for later use.

Step 4.   Align the card connector with the slot and press firmly until the card is completely seated on the slot.

Step 5.   Fasten the card to the chassis with screws.

Step 6.   Replace the system cover.
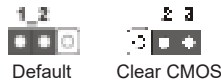
2.5 Jumpers Setup

The illustration shows how jumpers are setup. When the jumper cap is placed on pins, the jumper is "Short". If no jumper cap is placed on pins, the jumper is "Open". The illustration shows a 3-pin jumper whose pin1 and pin2 are "Short" when jumper cap is placed on these 2 pins.

Short   Open
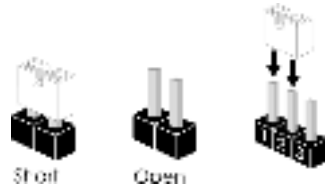
Clear CMOS Jumper
(CLRCMOS1)
(see p.8, No. 27)

Default   Clear CMOS

Note: CLRCMOS1 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 CLRCMOS1 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, user default profile and MAC address will be cleared only if the CMOS battery is removed.

Digital Input / Output Power Select
(5-pin JGPIO_PWR1)
(see p.8 No. 12)

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

ATX/AT Mode Select
(3-pin PWR_JP1)
(see p.8 No. 22)

1 2 3

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

Panel Power Selection (LCD_VCC)
(5-pin PNL_PWR1)
(see p.8 No. 8)

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

Backlight Power Select
(LCD_BLT_VCC)
(5-pin BKT_PWR1)
(see p.8 No. 31)

1 ⬚⬚⬚⬚⬚

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.8, No. 10)

⬚⬚⬚
1 2 3

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

COM Port PWR Setting Jumpers
(5-pin PWR_COM1, for COM Port1)
(see p.8, No. 1)

○
○
○
○
○ 1

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

(3-pin PWR_COM2, for COM Port2)
(3-pin PWR_COM3, for COM Port3)
(see p.8, No. 1)

○ 3
○ 2
⬚ 1

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

(3-pin PWR_COM4, for COM Port4)
(3-pin PWR_COM5, for COM Port5)
(3-pin PWR_COM6, for COM Port6)
(see p.8, No. 14)

⬚○○
1 2 3

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

---

mSATA Select
(2-pin mSATA_SEL1)
(see p.8, No. 35)

1 ⬚○

Open: For SATA3_2
Close: For mSATA

USB2 Power Setting Jumpers
(for USB2_0_1)
(3-pin USB_PWR_H1)
(see p.8, No. 26)

⬚○○
1 2 3

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

(for USB2_2_3)
(3-pin USB_PWR_H2)
(see p.8, No. 3)

○○⬚
3 2 1

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

Power Loss Jumper   Open: Power Loss

(2-pin PWR_LOSS1)   Close: no Power Loss

(see p.8, No. 16)

Digital Input / Output Default Value Setting   1-2: Pull-High

(3-pin JGPIO_SET1)   2-3: Pull-Low

(see p.8, No. 20)

2.6 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 of the motherboard!

SATA3 Connectors
(SATA3_1, SATA3_2: see p.8, No. 23)
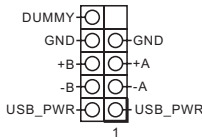
SATA3_2   SATA3_1

These two Serial ATA3 (SATA3) connectors support SATA data cables for internal storage devices. The current SATA3 interface allows up to 6.0 Gb/s data transfer rate.
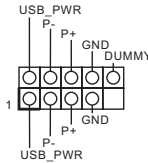
USB 2.0 Connectors
(9-pin USB2_0_1)
(see p.8 No. 28)

DUMMY
GND   GND
+B   +A
-B   -A
USB_PWR   USB_PWR
1

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

(9-pin USB2_2_3)
(see p.8 No. 4)

USB_PWR
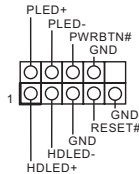P-   P+
GND
DUMMY

1

GND
P+
P-
USB_PWR

USB2_2_3 is shared with MINI_SATA1 and MINI_PCIE1. If you use USB2_2_3 connector, the USB device on MINI_SATA1 and MINI_PCIE1 will be disabled.

System Panel Header
(9-pin PANEL1)
(see p.8 No. 13)

PLED+
PLED-
PWRBTN#
GND

1

GND
RESET#
GND
HDLED-
HDLED+

This header accommodates several system front panel functions.

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.

18

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 sleep state. The LED is off when the system is in S3/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 assign-ments are matched correctly.
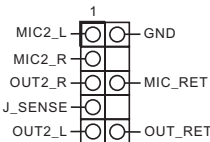

3W Audio AMP Output Wafer

(4-pin SPEAKER1)

(see p.8 No. 29)

PIN	Signal Name
1	OUTLN
2	OUTLP
3	OUTRP
4	OUTRN

Front Panel Audio Header

(9-pin HD_AUDIO1)

(see p.8 No. 30)

MIC2_L — GND
MIC2_R
OUT2_R — MIC_RET
J_SENSE
OUT2_L — OUT_RET

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

1. 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.
2. If you use AC'97 audio panel, please install it to the front panel audio header as below:
   A. Connect Mic_IN (MIC) to MIC2_L.
   B. Connect Audio_R (RIN) to OUT2_R and Audio_L (LIN) to OUT2_L.
   C. Connect Ground (GND) to Ground (GND).
   D. MIC_RET and OUT_RET are for HD audio panel only. You don't need to connect them for AC'97 audio panel.
   E. To activate the front mic.
      Go to the "FrontMic" Tab in the Realtek Control panel. Adjust "Recording Volume".

Chassis Fan Connector
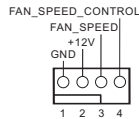
(4-pin CHA_FAN1)

(see p.8 No. 15)

```
1  GND
2  +12V
3  FAN_SPEED
4  FAN_SPEED_CONTROL
```
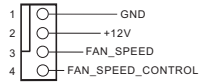
Please connect the fan cable to the fan connector and match the black wire to the ground pin.

CPU Fan Connector

(4-pin CPU_FAN1)

(see p.8 No. 2)

```
FAN_SPEED_CONTROL
FAN_SPEED
+12V
GND

1  2  3  4
```

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.
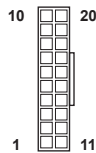
Pin 1-3 Connected ◄——

3-Pin Fan Installation

ATX Power Connector
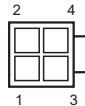
(20-pin ATXPWR1)

(see p.8 No. 11)

```
10  □□  20

1   □□  11
```

Please connect an ATX power supply to this connector.

ATX Power Connector

(Input 12V or 19V~24V)

(4-pin ATX12V1)

(see p.8 No. 6)

```
2     4

1     3
```

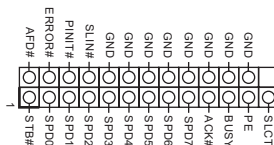Please connect a DC 12V-24V power supply to this connector.

1-2: GND

3-4: DC Input

Printer Port / GPIO Header

(25-pin LPT_GPIO1)

(see p.8 No. 21)

Printer Port:

```
AFD#
ERROR#
PINIT#
SLIN#
GND
GND
GND
GND
GND
GND
GND
GND
GND

STB#
SPD0
SPD1
SPD2
SPD3
SPD4
SPD5
SPD6
SPD7
ACK#
BUSY
PE
SLCT
```

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.8 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.8 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.8 No. 32)

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.8 No. 18)

+12V
GND
GND
+5V
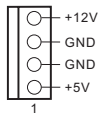
Buzzer Header

(2-pin BUZZ2)

(see p.8, No. 17)

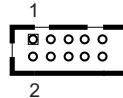SPKR
+5V

Chassis Intrusion Headers

(2-pin CI1, CI2: see p.8, No. 9)

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.

COM4, 5, 6 Headers (RS232)
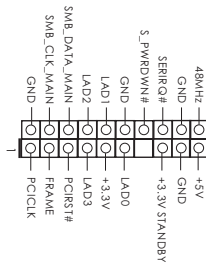
(9-pin COM4/COM5/COM6: see p.8, No. 19)

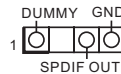| PIN	Signal Name	PIN	Signal Name	PIN	Signal Name	PIN	Signal Name	PIN	Signal Name
1	DDCD#	3	TTXD	5	GND	7	RRTS#	9	+5V or +12V
2	RRXD	4	DDTR#	6	DDSR#	8	CCTS#	10	NC

LPC Header

(19-pin LPC1)

(see p.8, No. 24)

This connector supports a 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.
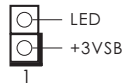
SPDIF Header

(3-pin SPDIF1: see p.8, No. 25)

DUMMY   GND

SPDIF OUT

LAN LED

(2-pin LAN_LED1/LAN_LED2: see p.8, No. 33)

LED

+3VSB

VGA Header

(10-pin VGA1: see p.8, No. 34)
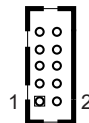
PIN	Signal Name	PIN	Signal Name	PIN	Signal Name	PIN	Signal Name	PIN	Signal Name
10	DDC_DATA	8	VSYNC	6	GND	4	GND	2	GND
9	DDC_CLK	7	HSYNC	5	BLUE	3	GREEN	1	RED

Chapter 3: UEFI SETUP UTILITY

3.1 Introduction

This section explains how to use the UEFI SETUP UTILITY to configure your system. The UEFI chip on the motherboard stores the UEFI SETUP UTILITY. You may run the UEFI SETUP UTILITY when you start up the computer. Please press <F2> or <Del> during the Power-On-Self-Test (POST) to enter the UEFI SETUP UTILITY, otherwise, POST will continue with its test routines.

If you wish to enter the UEFI SETUP UTILITY after POST, restart the system by pressing <Ctl> + <Alt> + <Delete>, or by pressing the reset button on the system chassis. You may also restart by turning the system off and then back on.

> Because the UEFI software is constantly being updated, the following UEFI setup screens and descriptions are for reference purpose only, and they may not exactly match what you see on your screen.

3.1.1 UEFI Menu Bar

The top of the screen has a menu bar with the following selections:

Main	To set up the system time/date information
Advanced	To set up the advanced UEFI features
H/W Monitor	To display current hardware status
Security	To set up the security features
Boot	To set up the default system device to locate and load the Operating System
Exit	To exit the current screen or the UEFI SETUP UTILITY

Use < ← > key or < → > key to choose among the selections on the menu bar, and then press <Enter> to get into the sub screen. You can also use the mouse to click your required item.

3.1.2 Navigation Keys

Please check the following table for the function description of each navigation key.

Navigation Key(s)	Function Description
← / →	Moves cursor left or right to select Screens
↑ / ↓	Moves cursor up or down to select items
+ / -	To change option for the selected items
<Enter>	To bring up the selected screen
<F1>	To display the General Help Screen
<F7>	Discard changes
<F9>	To load optimal default values for all the settings
<F10>	To save changes and exit the UEFI SETUP UTILITY
<F12>	Print screen
<ESC>	To jump to the Exit Screen or exit the current screen

3.2 Main Screen

When you enter the UEFI SETUP UTILITY, the Main screen will appear and display the system overview.
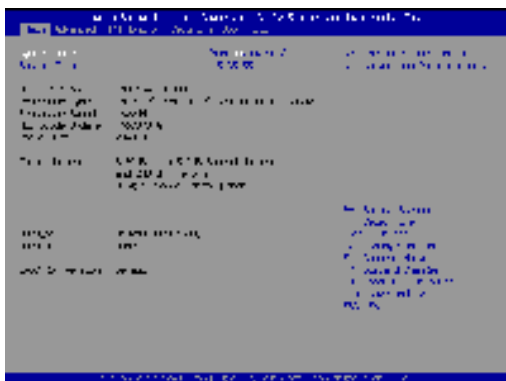
3.3 Advanced Screen

In this section, you may set the configurations for the following items: CPU Configuration, Chipset Configuration, Storage Configuration, Super IO Configuration, ACPI Configuration and USB Configuration.


Setting wrong values in this section may cause the system to malfunction.

Instant Flash

Instant Flash is a UEFI flash utility embedded in Flash ROM. This convenient UEFI update tool allows you to update system UEFI without entering operating systems first like MS-DOS or Windows®. Just launch this tool and save the new UEFI file to your USB flash drive, floppy disk or hard drive, then you can update your UEFI only in a few clicks without preparing an additional floppy diskette or other complicated flash utility. Please be noted that the USB flash drive or hard drive must use FAT32/16/12 file system. If you execute Instant Flash utility, the utility will show the UEFI files and their respective information. Select the proper UEFI file to update your UEFI, and reboot your system after UEFI update process completes.

3.3.1 CPU Configuration
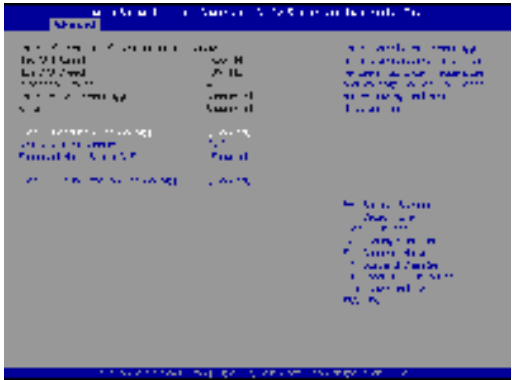
Intel SpeedStep Technology

Intel SpeedStep technology is Intel's new power saving technology. Pro-cessors can switch between multiple frequencies and voltage points to en-able power saving. The default value is [Enabled]. Configuration options: [Enabled] and [Disabled]. If you install Windows® 8 / 8.1 and want to en-able this function, please set this item to [Enabled]. This item will be hid-den if the current CPU does not support Intel SpeedStep technology.

> Please note that enabling this function may reduce CPU voltage and lead to system stability or compatibility issues with some power supplies. Please set this item to [Disabled] if above issues occur.

CPU C States Support

Enable CPU C States Support for power saving. It is recommended to keep C3, C6 and C7 all enabled for better power saving.

Enhanced Halt State (C1E)

Enable Enhanced Halt State (C1E) for lower power consumption.

Intel Virtualization Technology

When this option is set to [Enabled], a VMM (Virtual Machine Architecture) can utilize the additional hardware capabilities provided by Vanderpool Technology. This option will be hidden if the installed CPU does not support Intel Virtualization Technology.

3.3.2 Chipset Configuration

Primary Graphics Adapter

This allows you to select [Onboard] or [PCI Express] as the boot graphic adapter priority. The default value is [PCI Express].

Share Memory

Configure the size of memory that is allocated to the integrated graphics processor when the system boots up.

Active LVDS

Use this to enable or disable the LVDS. The default value is [Enabled].

Panel Type Selection

Use this to select panel type.

Primary IGFX Boot Display

Select a primary VGA.

Onboard HD Audio

Select [Auto], [Enabled] or [Disabled] for the onboard HD Audio feature.

Front Panel

Select [Auto] or [Disabled] for the onboard HD Audio Front Panel.

Onboard HDMI HD Audio

This allows you to enable or disable the Onboard HDMI HD Audio feature.

Onboard LAN 1

This allows you to enable or disable the Onboard LAN 1 feature.

Onboard LAN 2

This allows you to enable or disable the Onboard LAN 2 feature.

**PCIE1 Link Speed**

Select the link speed for PCIE1.

Deep S5

Mobile platforms support Deep S5 in DC only and desktop platforms sup-
port Deep S5 in AC only. The default value is [Disabled].

Restore on AC/Power Loss

This allows you to set the power state after an unexpected AC/power loss.
If [Power Off] is selected, the AC/power remains off when the power
recovers. If [Power On] is selected, the AC/power resumes and the
system starts to boot up when the power recovers. If [LAST STATE] is
selected, the AC/power restores to the last power state when the power
recovers.

3.3.3 Storage Configuration
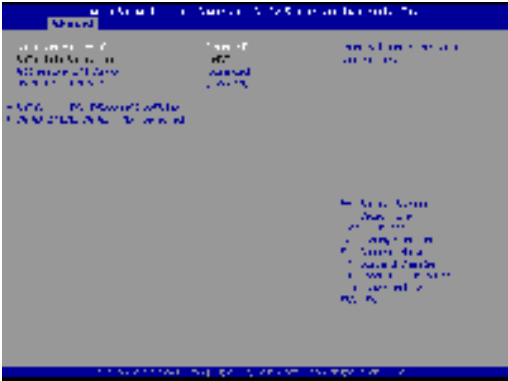
SATA Controller(s)

Use this item to enable or disable the SATA Controller feature.

SATA Mode Selection

Use this to select SATA mode. The default value is [AHCI Mode].

> AHCI (Advanced Host Controller Interface) supports NCQ and other new features that will improve SATA disk performance but IDE mode does not have these advantages.
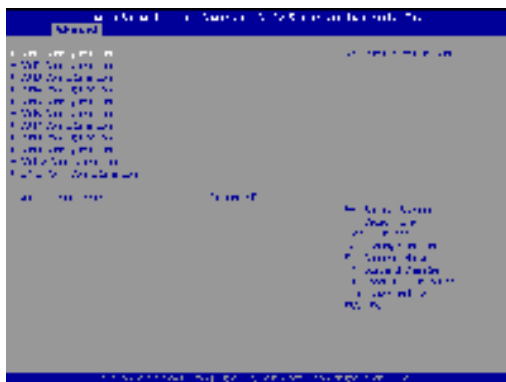
Aggressive Link Power Management

Use this item to configure Aggressive Link Power Management.

Hard Disk S.M.A.R.T.

Use this item to enable or disable the S.M.A.R.T. (Self-Monitoring, Analysis, and Reporting Technology) feature. Configuration options: [Disabled] and [Enabled].

3.3.4 Super IO Configuration

COM1 Configuration

Use this to set parameters of COM1. Select COM1 port type: [RS232], [RS422] or [RS485].

COM2 Configuration

Use this to set parameters of COM2. Select COM2 port type: [RS232], [RS422] or [RS485].

COM3 Configuration

Use this to set parameters of COM3. Select COM3 port type: [RS232], [RS422] or [RS485].

COM4 Configuration

Use this to set parameters of COM4.

COM5 Configuration

Use this to set parameters of COM5.

COM6 Configuration

Use this to set parameters of COM6.

COM7 Configuration

Use this to set parameters of COM7.

COM8 Configuration

Use this to set parameters of COM8.

COM9 Configuration

Use this to set parameters of COM9.

COM10 Configuration

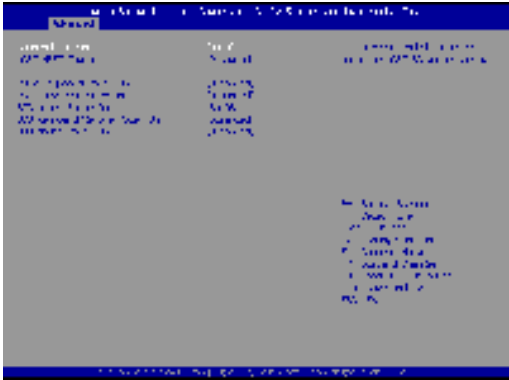Use this to set parameters of COM10.

LPT1 Port Configuration

Use this set parameters of the onboard parallel port.

WDT Timeout Reset

This allows users to enable/disable the Watch Dog Timer timeout to reset system. The default value is [Disabled].

3.3.5 ACPI Configuration

Suspend to RAM

Use this item to select whether to auto-detect or disable the Suspend-to-RAM feature. Select [Auto] will enable this feature if the OS supports it.

ACPI HPET Table

Use this item to enable or disable ACPI HPET Table. The default value is [Enabled]. Please set this option to [Enabled] if you plan to use this motherboard to submit Windows® certification.

PS/2 Keyboard Power On

Use this item to enable or disable PS/2 keyboard to turn on the system from the power-soft-off mode.

PCIE Devices Power On

Use this item to enable or disable PCIE devices to turn on the system from the power-soft-off mode.

RTC Alarm Power On

Use this item to enable or disable RTC (Real Time Clock) to power on the system.

USB Keyboard/Remote Power On

Use this item to enable or disable USB Keyboard/Remote to power on the system.

USB Mouse Power On

Use this item to enable or disable USB Mouse to power on the system.

3.3.6 USB Configuration

Legacy USB Support

Use this option to select legacy support for USB devices. There are four configuration options: [Enabled], [Auto] and [UEFI Setup Only]. The default value is [Auto]. Please refer to below descriptions for the details of these four options:

[Enabled] - Enables support for legacy USB.

[Auto] - Enables legacy support if USB devices are connected.

[UEFI Setup Only] - USB devices are allowed to use only under UEFI setup and Windows / Linux OS.

3.4 Hardware Health Event Monitoring Screen

In this section, it allows you to monitor the status of the hardware on your system, including the parameters of the CPU temperature, motherboard temperature, CPU fan speed, chassis fan speed, and the critical voltage.

CPU_FAN1 Setting

This allows you to set CPU_FAN1's speed. Configuration options: [Full On] and [Automatic Mode]. The default value is [Full On].

CHA_FAN1 Setting

This allows you to set CHA_FAN1's speed. Configuration options: [Full On] and [Automatic Mode]. The default value is [Full On].

Case Open Feature
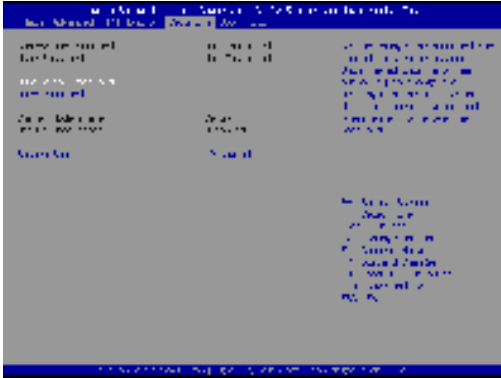
This allows you to enable or disable case open detection feature. The default is value [Disabled].

Clear Status

This option appears only when the case open has been detected. Use this option to keep or clear the record of previous chassis intrusion status.

3.5 Security Screen

In this section, you may set, change or clear the supervisor/user password for the system.

Supervisor Password

Set or change the password for the administrator account. Only the administrator has authority to change the settings in the UEFI Setup Utility. Leave it blank and press enter to remove the password.

User Password

Set or change the password for the user account. Users are unable to change the settings in the UEFI Setup Utility. Leave it blank and press enter to remove the password.

Secure Boot

Enable to support Windows 8 64-bit Secure Boot.

3.6 Boot Screen

In this section, it will display the available devices on your system for you to config-
ure the boot settings and the boot priority.
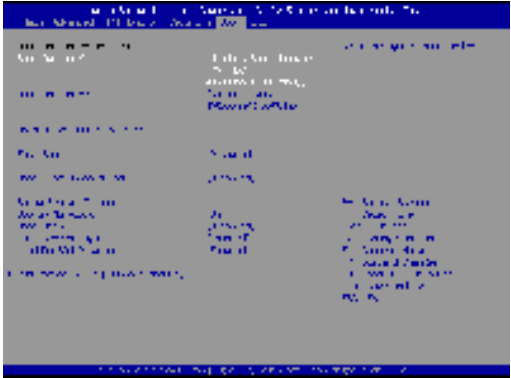
Fast Boot

Fast Boot minimizes your computer's boot time. There are three con-
figuration options: [Disabled], [Fast] and [Ultra Fast]. The default value is
[Disabled]. Please refer to below descriptions for the details of these three
options:

[Disabled] - Disable Fast Boot.

[Fast] - The only restriction is you may not boot by using an USB flash
drive.

[Ultra Fast] - There are a few restrictions.

    1. Only supports Windows® 8 64-bit UEFI operating system.

    2. You will not be able to enter BIOS Setup (Clear CMOS or run utility
       in Widows® to enter BIOS Setup).

    3. If you are using an external graphics card, the VBIOS must support
       UEFI GOP in order to boot.

Boot From Onboard LAN

Use this item to enable or disable the Boot From Onboard LAN feature.

Setup Prompt Timeout

This shows the number of seconds to wait for setup activation key.

Bootup Num-Lock

If this item is set to [On], it will automatically activate the Numeric Lock
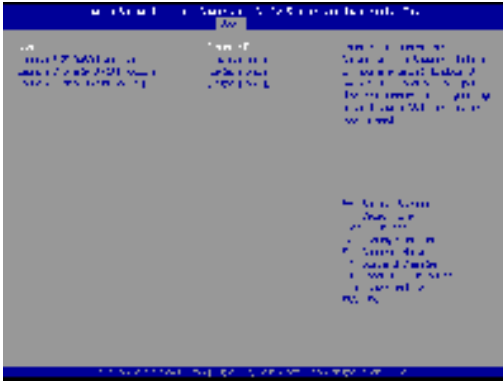function after boot-up.

Boot Beep

Select whether the Boot Beep should be turned on or off when the
system boots up. Please note that a buzzer is needed.

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Full Screen Logo

Use this item to enable or disable OEM Logo. The default value is [Enabled].

CSM (Compatibility Support Module)

CSM

Enable to launch the Compatibility Support Module. Please do not disable unless you're running a WHCK test. If you are using Windows® 8 64-bit and all of your devices support UEFI, you may also disable CSM for faster boot speed.

3.7 Exit Screen

Save Changes and Exit

When you select this option, it will pop-out the following message, "Save configuration changes and exit setup?" Select [OK] to save the changes and exit the UEFI SETUP UTILITY.

Discard Changes and Exit

When you select this option, it will pop-out the following message, "Discard changes and exit setup?" Select [OK] to exit the UEFI SETUP UTILITY without saving any changes.

Discard Changes

When you select this option, it will pop-out the following message, "Discard changes?" Select [OK] to discard all changes.

Load UEFI Defaults

Load UEFI default values for all the setup questions. F9 key can be used for this operation.

Launch EFI Shell from filesystem device

Attempts to Launch EFI Shell application (Shell64.efi) from one of the available filesystem devices.

Chapter 4: Software Support

4.1 Install Operating System

This motherboard supports Microsoft® Windows® operating systems: 8.1 64-bit / 8 64-bit. Because motherboard settings and hardware options vary, use the setup procedures in this chapter for general reference only. Refer to your OS documentation for more information.