/ISRock

IMB-391
IMB-390-D
IMB-390-L

User Manual

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

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HDMI™
HIGH·DEFINITION MULTIMEDIA INTERFACE

CAUTION:

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

Contents

Chapter 1: Introduction

Thank you for purchasing ASRock *IMB-391 / IMB-390-D / IMB-390-L* 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.

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 information of the Support CD.

> 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 ASRock website without further notice. You may find the latest VGA cards and CPU support lists on ASRock website as well.
> ASRock website   http://www.asrock.com
> If you require technical support related to this motherboard, please visit our website for specific information about the model you are using.
> www.asrock.com/support/index.asp

1.1 Package Contents

ASRock *IMB-391 / IMB-390-D / IMB-390-L* Motherboard
    (Micro ATX Form Factor: 9.6-in x 9.6-in, 24.4 cm x 24.4 cm)
ASRock *IMB-391 / IMB-390-D / IMB-390-L* Driver CD
ASRock *IMB-391 / IMB-390-D / IMB-390-L* Jumper setting instruction
1 x I/O Panel Shield

1.2 Specifications (IMB-391)

Form Factor	Dimensions	Micro-ATX (9.6-in x 9.6-in)
Processor System	CPU	Socket LGA1151 for Intel® Core i7/i5/i3/Celeron (Skylake-S)
	Core Number	(By CPU, Max 4)
	Max Speed	(By CPU)
	L2 Cache	(By CPU)
	Chipset	Intel® H110
	BIOS	UEFI
Expansion Slot	Mini-PCIe	0
	mSATA	0
	PCIe	1 x PCIe x16, 2 x PCI, 1 x PCIe x4 slot
Memory	Technology	Dual Channel DDR4 2133MHz
	Max.	64GB
	Socket	2 x Long DIMM
Graphics	Controller	Intel® Gen9 Graphics DX 11/12, OGL4.3/4.4
	VRAM	Shared Memory
	VGA	Supports Max resolution up to 1920 x 1200
	LVDS	Supports Max resolution up to 1920 x 1200@60Hz
	HDMI	Supports HDMI, Max resolution up to 4096 x 2160@60Hz
	DVI	Supports Max resolution up to 1920 x 1200@60Hz
	DisplayPort	Supports DP 1.2, Max resolution up to 4096 x 2160@60Hz
	Multi Display	Yes (Dual Display)
Ethernet	Ethernet	10/100/1000 Mbps
	Controller	1 x Intel® I219V, 1 x Intel® I210
	Connector	2 x RJ-45
SATA	Max Data Transfer Rate	SATA3 (6.0Gb/s)
Rear I/O	VGA	1
	DVI	1
	HDMI	1
	DisplayPort	1
	Ethernet	2

	USB	4 x USB 3.0
	Audio	3 (Mic-in, Line-in, Line-out)
	Serial	1 x COM (RS-232/422/485)
	PS/2	1 x PS/2 combo
Internal Connector	USB	4 x USB 2.0 (2 x 2.54 pitch header)
	LVDS/ Inverter	1/1
	eDP	0
	VGA	0
	Serial	3 x COM (supports RS-232 only)
	SATA	4
	mPCIe	0
	Parallel	1 (shared with GPIO)
	mSATA	0
	IrDA	0
	GPIO 8-bit	8 x GPI + 8 x GPO
	SATA PWR Output Con	0
	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	ATX PWR Con (24+8-pin)
	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 Specifications (IMB-390-D)

Form Factor	Dimensions	Micro-ATX (9.6-in x 9.6-in)
Processor System	CPU	Socket LGA1151 for Intel® Core i7/i5/i3/Celeron (Skylake-S)
	Core Number	(By CPU, Max 4)
	Max Speed	(By CPU)
	L2 Cache	(By CPU)
	Chipset	Intel® Q170
	BIOS	UEFI
Expansion Slot	Mini-PCIe	1 (half/full size, supports PCIe x1 and USB device)
	mSATA	1 (full size, supports SATA and USB device)
	PCIe	1 x PCIe x16, 2 x PCI, 1 x PCIe x4 slot
Memory	Technology	Dual Channel DDR4 2133MHz
	Max.	64GB
	Socket	4 x Long DIMM
Graphics	Controller	Intel® Gen9 Graphics DX 11/12, OGL4.3/4.4
	VRAM	Shared Memory
	VGA	No
	LVDS	No
	HDMI	Supports HDMI, Max resolution up to 4096 x 2160@60Hz
	DVI	Supports Max resolution up to 1920 x 1200@60Hz
	DisplayPort	Supports DP 1.2, Max resolution up to 4096 x 2160@60Hz
	Multi Display	Yes (Triple Display)
Ethernet	Ethernet	10/100/1000 Mbps
	Controller	1 x Intel® I219LM, 1 x Intel® I210
	Connector	2 x RJ-45
SATA	Max Data Transfer Rate	SATA3 (6.0Gb/s)
Rear I/O	VGA	0
	DVI	1
	HDMI	1
	DisplayPort	1
	Ethernet	2

	USB	4 x USB 3.0
	Audio	3 (Mic-in, Line-in, Line-out)
	Serial	1 x COM (RS-232/422/485)
	PS/2	1 x PS/2 combo
Internal Connector	USB	2 x USB 3.0 (1 x USB3.0 header), 6 x USB 2.0 (3 x 2.54 pitch header)
	LVDS/ Inverter	0
	eDP	1 (Optional)
	VGA	0
	Serial	5 x COM (supports RS-232 only)
	SATA	6 (one shared with mSATA)
	mPCIe	1
	Parallel	1 (shared with GPIO)
	mSATA	1
	IrDA	0
	GPIO 8-bit	8 x GPI + 8 x GPO
	SATA PWR Output Con	0
	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	ATX PWR Con (24+8-pin)
	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

1.4 Specifications (IMB-390-L)

Form Factor	Dimensions	Micro-ATX (9.6-in x 9.6-in)
Processor System	CPU	Socket LGA1151 for Intel® Core i7/i5/i3/Celeron (Skylake-S)
	Core Number	(By CPU, Max 4)
	Max Speed	(By CPU)
	L2 Cache	(By CPU)
	Chipset	Intel® Q170
	BIOS	UEFI
Expansion Slot	Mini-PCIe	1 (half/full size, supports PCIe x1 and USB device)
	mSATA	1 (full size, supports SATA and USB device)
	PCIe	1 x PCIe x16, 2 x PCI, 1 x PCIe x4 slot
Memory	Technology	Dual Channel DDR4 2133MHz
	Max.	64GB
	Socket	4 x Long DIMM
Graphics	Controller	Intel® Gen9 Graphics DX 11/12, OGL4.3/4.4
	VRAM	Shared Memory
	VGA	Supports max resolution up to 1920 x 1200 (optional)
	LVDS	Supports max resolution up to 1920 x 1200@60Hz
	HDMI	Supports HDMI, Max resolution up to 4096 x 2160@60Hz
	DVI	Supports Max resolution up to 1920 x 1200@60Hz
	DisplayPort	Supports DP 1.2, Max resolution up to 4096 x 2160@60Hz
	Multi Display	Yes (Triple Display)
Ethernet	Ethernet	10/100/1000 Mbps
	Controller	1 x Intel® I219LM, 1 x Intel® I210
	Connector	2 x RJ-45
SATA	Max Data Transfer Rate	SATA3 (6.0Gb/s)
Rear I/O	VGA	1
	DVI	1
	HDMI	1

	DisplayPort	1
	Ethernet	2
	USB	4 x USB 3.0
	Audio	3 (Mic-in, Line-in, Line-out)
	Serial	1 x COM (RS-232/422/485)
	PS/2	1 x PS/2 combo
Internal Connector	USB	2 x USB 3.0 (1 x USB3.0 header), 6 x USB 2.0 (3 x 2.54 pitch header)
	LVDS/ Inverter	1/1
	eDP	1 (Optional)
	VGA	0
	Serial	5 x COM (supports RS-232 only)
	SATA	6 (one shared with mSATA)
	mPCIe	1
	Parallel	1 (shared with GPIO)
	mSATA	1
	IrDA	0
	GPIO 8-bit	8 x GPI + 8 x GPO
	SATA PWR Output Con	0
	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	ATX PWR Con (24+8-pin)
	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

1.5 Motherboard Layout (IMB-391)

1 : COM Port Pin9 PWR Setting Jumper
   PWR_COM1 (For COM Port1)
2 : Panel Power Select (PNL_PWR1)
3 : BL2
4 : LVDS Panel Connector
5 : Backlight & Amp Volume Control (BLT_VOL1)
6 : Inverter Power Control Wafer (BLT_PWR1)
7 : Backlight Control Level (BLT_PWM1) (CON_LBKLT_CTL)
8 : BL1
9 : Backlight Power Select (LCD_BLT_VCC) (BKT_PWR1)
10 : CPU FAN Connector (+12V)
11 : 24-pin ATX Power Input Connector
12 : PWR LOSS Header (PWR_LOSS1)
13 : Chassis FAN Connector (+12V)
14 : Printer Port / GPIO Header (LPT_GPIO1)
15 : Digital Input / Output Power Select (JGPIO_SET1)
16 : LPC Header
17 : Digital Input / Output Power Select (JGPIOPWR) (JGPIO_PWR1)
18 : Chassis Intrusion Headers (CI1, CI2)
19 : System Panel Header
20 : COM Port Headers (COM2, 3, 4) (RS232)
21 : COM Port Pin9 PWR Setting Jumpers
   PWR_COM2 (For COM Port2)
   PWR_COM3 (For COM Port3)
   PWR_COM4 (For COM Port4)
22 : Clear CMOS Headers
23 : SATA3 Connectors (SATA3_1 ~ SATA3_4)
24 : USB 2.0 Headers (USB2_4_5, USB2_6_7)
25 : USB Power Setting Jumpers
   USB2_PWR1 (For USB2_4_5)
   USB2_PWR2 (For USB2_6_7)
26 : Buzzer (BUZZ2)
27 : Front Panel Audio Header
28 : 3W Audio AMP Output Wafer
29 : ATX/AT Mode Jumper (PWR_JP1)
30 : USB3_PWR1 (For USB3_1_2)
   USB3_PWR2 (For USB3_3_4)
31 : ATX 12V Power Connector

1.6 Motherboard Layout (IMB-390-D / IMB-390-L)
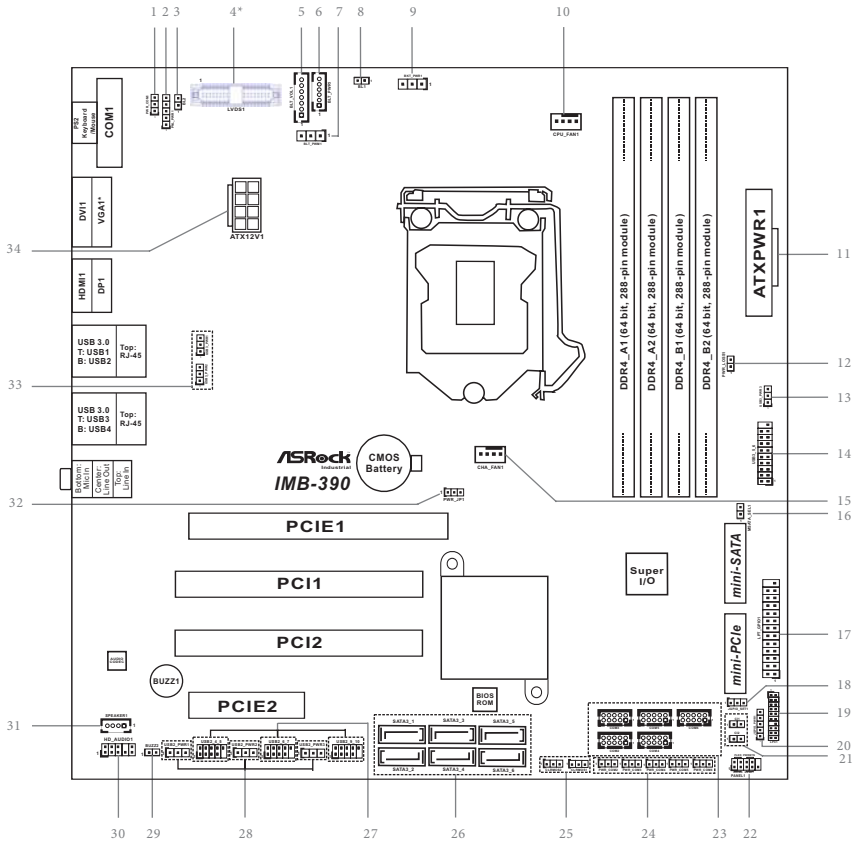
* The VGA port on the rear I/O is for IMB-390-L only.

1 : COM Port Pin9 PWR Setting Jumper
    PWR_COM1 (For COM Port1)
2 : Panel Power Select (PNL_PWR1)
3 : BL2
4* : LVDS Panel Connector (Only for IMB-390-L)
    * eDP Connector (on the Backside of PCB) (Only for IMB-390-D)
5 : Backlight & Amp Volume Control (BLT_VOL1)
6 : Inverter Power Control Wafer (BLT_PWR1)
7 : Backlight Control Level (BLT_PWM1) (CON_LBKLT_CTL)
8 : BL1
9 : Backlight Power Select (LCD_BLT_VCC) (BKT_PWR1)
10 : CPU FAN Connector (+12V)
11 : 24-pin ATX Power Input Connector
12 : PWR LOSS Header (PWR_LOSS1)
13 : USB Power Setting Jumpers
    USB3_PWR3 (For USB3_5_6)
14 : USB 3.0 Header (USB3_5_6)
15 : Chassis FAN Connector (+12V)
16 : MSATA Select (MSATA_SEL1)
17 : Printer Port / GPIO Header (LPT_GPIO1)
18 : Digital Input / Output Power Select (JGPIO_SET1)
19 : LPC Header
20 : Digital Input / Output Power Select (JGPIOPWR) (JGPIO_PWR1)
21 : Chassis Intrusion Headers (CI1, CI2)
22 : System Panel Header
23 : COM Port Headers (COM2, 3, 4, 5, 6) (RS232)
24 : COM Port Pin9 PWR Setting Jumpers
    PWR_COM2 (For COM Port2)
    PWR_COM3 (For COM Port3)
    PWR_COM4 (For COM Port4)
    PWR_COM5 (For COM Port5)
    PWR_COM6 (For COM Port6)
25 : Clear CMOS Headers
26 : SATA3 Connectors (SATA3_1 ~ SATA3_6)
27 : USB 2.0 Headers (USB2_4_5, USB2_6_7, USB2_9_10)
28 : USB2_PWR1 (For USB2_4_5)
    USB2_PWR2 (For USB2_6_7)
    USB2_PWR3 (For USB2_9_10)
29 : Buzzer (BUZZ2)
30 : Front Panel Audio Header
31 : 3W Audio AMP Output Wafer
32 : ATX/AT Mode Jumper (PWR_JP1)
33 : USB3_PWR1 (For USB3_1_2)
    USB3_PWR2 (For USB3_3_4)
34 : ATX 12V Power Connector

1.7 I/O Panel (IMB-390-D)
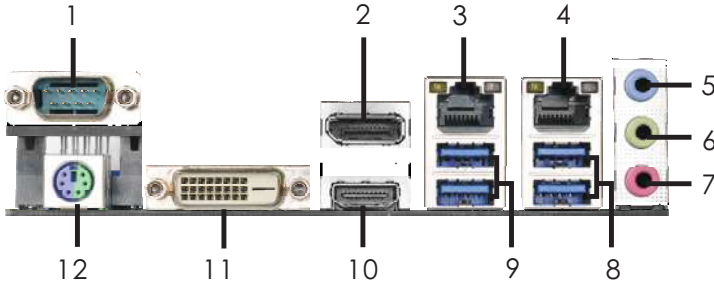
1	**COM Port (COM1)***	**7**	**Microphone (Pink)**
2	**DisplayPort (DP1)**	**8**	**USB 3.0 Ports (USB_34)**
3	**LAN RJ-45 Port****	**9**	**USB 3.0 Ports (USB_12)**
4	**LAN RJ-45 Port****	**10**	**HDMI Port (HDMI1)**
5	**Line In (Light Blue)**	**11**	**DVI Port (DVI1)**
6	**Line out (Lime)**	**12**	**PS/2 Mouse/Keyboard Port**

* 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 42 for details.

COM1 Port Pin Definition

PIN	RS232	RS422	RS485
1	DCD, Data Carrier Detect	TX-	RTX-
2	RXD, Receive Data	RX+	N/A
3	TXD, Transmit Data	TX+	RTX+
4	DTR, Data Terminal Ready	RX-	N/A
5	GND	GND	GND
6	DSR, Data Set Ready	N/A	N/A
7	RTS, Request To Send	N/A	N/A
8	CTS, Clear To Send	N/A	N/A
9	No Power/5V/12V	N/A	N/A

** 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

ACT/LINK SPEED LED LED

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

LAN Port

1.8 I/O Panel (IMB-391 / IMB-390-L)
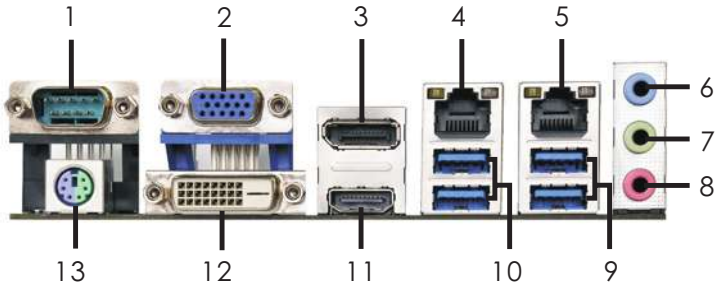
1	COM Port (COM1)*	8	Microphone (Pink)
2	D-Sub Port (VGA1)	9	USB 3.0 Ports (USB_34)
3	DisplayPort (DP1)	10	USB 3.0 Ports (USB_12)
4	LAN RJ-45 Port**	11	HDMI Port (HDMI1)
5	LAN RJ-45 Port**	12	DVI Port (DVI1)
6	Line In (Light Blue)	13	PS/2 Mouse/Keyboard Port
7	Line out (Lime)		

* 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.

COM1 Port Pin Definition

PIN	RS232	RS422	RS485
1	DCD, Data Carrier Detect	TX-	RTX-
2	RXD, Receive Data	RX+	N/A
3	TXD, Transmit Data	TX+	RTX+
4	DTR, Data Terminal Ready	RX-	N/A
5	GND	GND	GND
6	DSR, Data Set Ready	N/A	N/A
7	RTS, Request To Send	N/A	N/A
8	CTS, Clear To Send	N/A	N/A
9	No Power/5V/12V	N/A	N/A

** 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
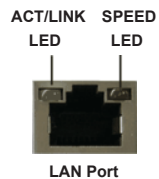
Chapter 2: Installation

This is a Micro ATX form factor (9.6" x 9.6", 24.4 x 24.4 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 (DIMM)

This motherboard provides two 288-pin DDR4 (Double Data Rate 4) DIMM slots, and supports Dual Channel Memory Technology.

1. For dual channel configuration, you always need to install identical (the same brand, speed, size and chip-type) DDR4 DIMM pairs.
2. It is unable to activate Dual Channel Memory Technology with only one memory module installed.
3. It is not allowed to install a DDR, DDR2 or DDR3 memory module into a DDR4 slot; otherwise, this motherboard and DIMM may be damaged.

The DIMM only fits in one correct orientation. It will cause permanent damage to the motherboard and the DIMM if you force the DIMM into the slot at incorrect orientation.
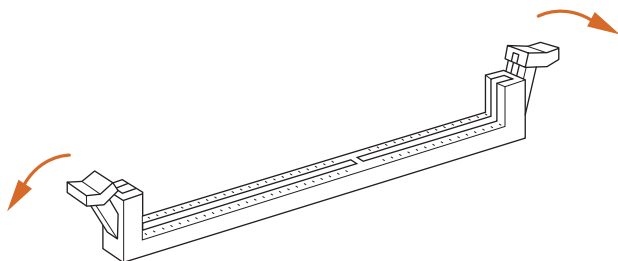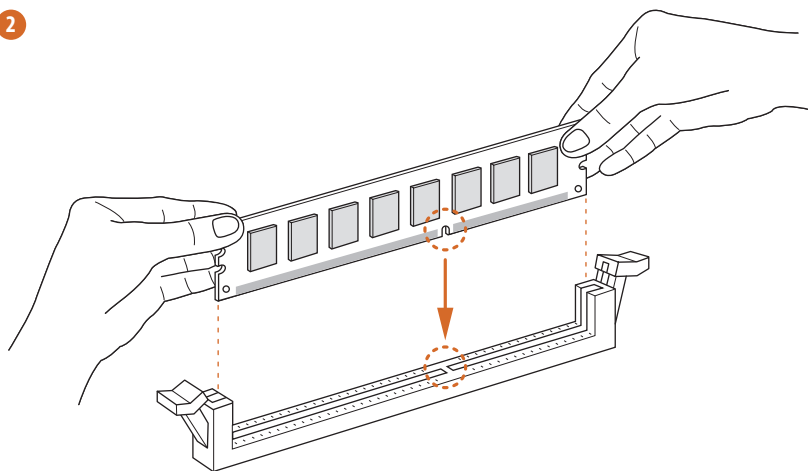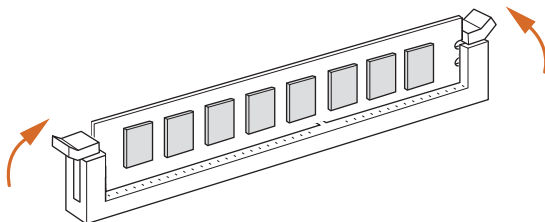
2.4 Expansion Slots (PCI, PCI Express, mini-PCIe and mini-SATA Slots)

There are 2 PCI slots, 2 PCI Express slots, 1 mini-PCIe slot (for IMB-390-D / IMB-390-L only) and 1 mini-SATA slot (for IMB-390-D / IMB-390-L only) on this motherboard.

PCI slots: PCI slots are used to install expansion cards that have the 32-bit PCI interface.

PCIE slots: PCIE1 (PCIE x16 slot) is used for PCI Express x16 lane width graphics cards.

PCIE2 (PCIE x4 slot) is used for PCI Express x4 lane width graphics cards.

mini-PCIe slot (for IMB-390-D / IMB-390-L only):

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

mini-SATA slot (for IMB-390-D / IMB-390-L only):

MSATA1 (mini-SATA slot) is used for mSATA cards.

* mini-SATA slot is shared with SATA3_6.

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
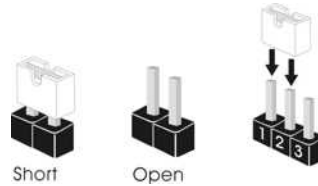
Jumper	Setting	Description
Clear CMOS Jumper (3-pin CLRCMOS1) (see p.15, No. 25 or p.13, No. 22)	1_2 Default 2_3 Clear CMOS	CLRMOS1 : 1-2 : Normal 2-3 : Clear CMOS CLRMOS2 : 1-2 : +BATT 2-3 : +3VSB_A

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.

Panel Power Select (5-pin PNL_PWR1) (see p.15 or P. 13, No. 2)	1	1-2 : +3V 2-3 : +5V 4-5 : +12V
Backlight Power Select (LCD_BLT_VCC) (3-pin BKT_PWR1) (see p.15 or P. 13, No. 9)	3 2 1	1-2 : LCD_BLT_VCC : +5V 2-3 : LCD_BLT_VCC : +12V
ATX/AT Mode Select (3-pin PWR_JP1) (see p.15, No. 32 or p.13, No. 29)	1 2 3	1-2 : AT Mode 2-3 : ATX Mode

Backlight Control Level (CON_LBKLT_CTL)   1-2 : +3V (eDP)
(3-pin BLT_PWM1)   2-3 : +5V (LVDS)
(see p.15 or P. 13, No. 7)
                                    3 2 1

Digital Input / Output Power Select (JGPIOPWR)   1-2 : +12V
(3-pin JGPIO_PWR1)   2-3 : +5V
(see p.15, No. 20 or p.13, No. 17)   3-4 : +5V
                                                 4-5 : GND

                                    1

COM Port Pin9 PWR Setting Jumpers
(3-pin PWR_COM1 (For COM Port1))
(see p.15, No. 1)

(3-pin PWR_COM2 (For COM Port2))
(3-pin PWR_COM3 (For COM Port3))
(3-pin PWR_COM4 (For COM Port4))
(3-pin PWR_COM5 (For COM Port5)) (For IMB-390-D / IMB-390-L only)
(3-pin PWR_COM6 (For COM Port6)) (For IMB-390-D / IMB-390-L only)
(see p.15, No. 24 or p.13, No. 21)

BL Jumpers   Open : Protect LCD_BLT_VCC
(2-pin BL1)   1   Short : No Protect LCD_BLT_VCC
(see p.15 or p.13, No. 8)

(2-pin BL2)   Open : Protect LCD_VCC
(see p.15 or p.13, No. 3)   1   Short : No Protect LCD_VCC

USB Power Setting Jumpers
(3-pin USB3_PWR3 (For USB3_5_6))
(For IMB-390-D / IMB-390-L only)
(see p.15, No. 13)

(3-pin USB2_PWR1 (For USB2_4_5))
(3-pin USB2_PWR2 (For USB2_6_7))
(3-pin USB2_PWR3 (For USB2_9_10)) (For IMB-390-D / IMB-390-L only)
(see p.15, No. 28 or p.13, No. 25)

(3-pin USB3_PWR1 (For USB3_1_2))
(3-pin USB3_PWR2 (For USB3_3_4))
(see p.15, No. 33 or p.13, No. 30)

MSATA Select (Only for IMB-390-D / IMB-390-L)   Short : Use mini-SATA
(2-pin MSATA_SEL1)   Open : Use SATA3_6
(see p.15, No. 16)

                                    1

Digital Input / Output Power Select   1-2 : +5V

(3-pin JGPIO_SET1)   2-3 : GND

(see p.15, No. 18 or P. 13, No. 15)

1 2 3

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!

LVDS Panel Connector
(Only for IMB-391 / IMB-390-L)
(40-pin LVDS1)
(see p.15 or p.13, No. 4)

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

* eDP Connector
(on the Backside of PCB)
(Only for IMB-390-D)

EDP1

PIN	Signal Name
40	NA
39	LCD_BLT_VCC
38	LCD_BLT_VCC
37	LCD_BLT_VCC
36	LCD_BLT_VCC
35	SMB_CLK
34	SMB_DATA
33	CON_LBKLT_CTL
32	CON_LBKLT_EN
31	GND
30	GND
29	GND
28	GND
27	eDP_HPD_CON
26	GND
25	GND
24	GND
23	GND
22	NA
21	LCD_VCC
20	LCD_VCC
19	LCD_VCC
18	LCD_VCC
17	GND
16	eDP_AUX#_CON
15	eDP_AUX_CON
14	GND
13	eDP_TX0_CON
12	eDP_TX0#_CON
11	GND
10	eDP_TX1_CON
9	eDP_TX1#_CON
8	GND
7	eDP_TX2_CON
6	eDP_TX2#_CON
5	GND
4	eDP_TX3_CON
3	eDP_TX3#_CON
2	GND
1	NA

Backlight & Amp Volume Control
(7-pin BLT_VOL1)
(see p.15 or p.13, No. 5)

PIN	Signal Name
7	GND
6	GND
5	GPIO_BLT_DW
4	GPIO_BLT_UP
3	PWRDN
2	GPIO_VOL_DW
1	GPIO_VOL_UP

Inverter Power Control Wafer
(6-pin BLT_PWR1)
(see p.15 or p.13, No. 6)

PIN	Signal Name
1	GND
2	GND
3	CON_LBKLT_CTL
4	CON_LBKLT_EN
5	LCD_BLT_VCC
6	LCD_BLT_VCC

CPU Fan Connector
(4-pin CPU_FAN1)
(see p.15 or p.13, No. 10)

GND
+12V
CPU_FAN_SPEED
FAN_SPEED_CONTROL
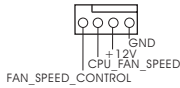
Please connect the CPU fan cable to the connector and match the black wire to the ground pin.

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
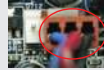
Chassis Fan Connector
(4-pin CHA_FAN1)
(see p.15, No. 15 or p.13, No. 13)

FAN_SPEED_CONTROL
CHA_FAN_SPEED
+12V
GND
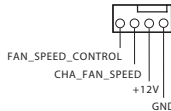
Please connect the fan cable to the fan connector and match the black wire to the ground pin.

ATX Power Input Connector
(24-pin ATXPWR1)
(see p.15 or P.13, No. 11)

12   24

1   13
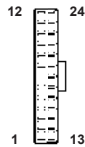
Please connect an ATX power supply to this connector.

Though this motherboard provides 24-pin ATX power connector, it can still work if you adopt a traditional 20-pin ATX power supply. To use the 20-pin ATX power supply, please plug your power supply along with Pin 1 and Pin 13.

12   24

20-Pin ATX Power Supply Installation

1   13
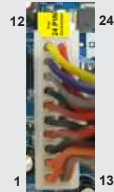
COM Port Headers (RS232)
(10-pin COM2, 3, 4, 5, 6: see p.15, No. 23)
(10-pin COM2, 3, 4: see p.13, No. 20)

2

1
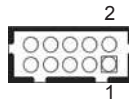
PIN	Signal Name	PIN	Signal Name	PIN	Signal Name	PIN	Signal Name	PIN	Signal Name
10	N/A	8	CCTS#	6	DDSR#	4	DDTR#	2	RRXD
9	+5V	7	RRTS#	5	GND	3	TTXD	1	DDCD#

System Panel Header
(9-pin PANEL1)
(see p.15, No. 22 or p.13, No. 19)

PLED+
PLED-
PWRBTN#
GND
1
GND
RESET#
GND
HDLED-
HDLED+
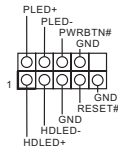
This header accommodates several system front panel functions.

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.

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 assign-ments are matched correctly.

SATA3 Connectors
(SATA3_1~6: see p.15, No. 26)
(SATA3_1~4: see p.13, No. 23)

SATA3_1   SATA3_3   SATA3_5

SATA3_2   SATA3_4   SATA3_6
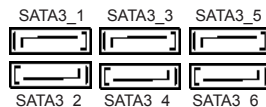
These Serial ATA3 (SATA3) connectors support SATA data cables for internal storage devices. The current SATA3 interface allows up to 6.0 Gb/s data transfer rate.
* SATA3_5 and SATA3_6 are only for IMB-390-D / IMB-390-L.
* SATA3_6 is share with mini-SATA port.

USB 2.0 Headers

(9-pin USB2_4_5, USB2_6_7, USB2_9_10:

see p.15, No. 27)

(9-pin USB2_4_5, USB2_6_7:

see p.13, No. 24)

USB_PWR
P-
P+
GND
DUMMY

1

GND
P+
P-
USB_PWR
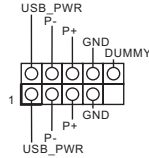
Each USB 2.0 header can support two ports.

USB 3.0 Header (Only for IMB-390-D / IMB-390-L)

(19-pin USB3_5_6: see p.15, No. 14)

Vbus
Vbus
IntA_PA_SSRX-
IntA_PA_SSRX+
GND
IntA_PA_SSTX-
IntA_PA_SSTX+
GND
IntA_PA_D-
IntA_PA_D+

IntA_PB_SSRX-
IntA_PB_SSRX+
GND
IntA_PB_SSTX-
IntA_PB_SSTX+
GND
IntA_PB_D-
IntA_PB_D+
Dummy

1
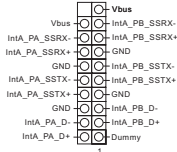
There is one header on this motherboard. Each USB 3.0 header can support two ports.

Chassis Intrusion Headers

(2-pin CI1, CI2: see p.15, No. 21 or p.13, No. 18)

GND
Signal

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.

Front Panel Audio Header

(9-pin HD_AUDIO1)

(see p.15 No. 30 or p.13, No. 27)

GND
PRESENCE#
MIC_RET
OUT_RET

1

OUT2_L
J_SENSE
OUT2_R
MIC2_R
MIC2_L
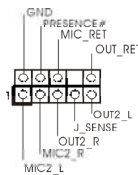
This is an interface for front panel audio cable that allows convenient connection and control of audio devices.

3W Audio Amp Output Wafer

(4-pin SPEAKER1)

(see p.15, No. 31 or p.13, No. 28)

PIN	Signal Name	PIN	Signal Name	PIN	Signal Name	PIN	Signal Name
4	OUTRN	3	OUTRP	2	OUTLP	1	OUTLN

ATX 12V Power Input Connector

(8-pin ATX12V1)

(see p.15, No. 34 or p.13, No. 31)

5   1
8   4

Please connect an ATX 12V power supply to this connector.

Though this motherboard provides 8-pin ATX 12V power connector, it can still work if you adopt a traditional 4-pin ATX 12V power supply. To use the 4-pin ATX power supply, please plug your power supply along with Pin 1 and Pin 5.

4-Pin ATX 12V Power Supply Installation

5   1
8   4

LPC Header

(19-pin LPC1)

(see p.15, No. 19 or p.13, No. 16)

```
                    1
PCICLK    ─○○─ GND
FRAME     ─○○─ SMB_CLK_MAIN
PCIRST#   ─○○─ SMB_DATA_MAIN
LAD3      ─○○─ LAD2
+3.3V     ─○○─ LAD1
LAD0      ─○○─ GND
             ○─ S_PWRDWN#
+3.3V STANDBY ─○○─ SERIRQ#
GND       ─○○─ GND
+5V       ─○○─ 48MHz
```
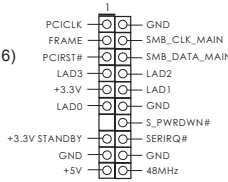
This connector supports a Trusted Platform Module (TPM) system, which can securely store keys, digital certificates, passwords, and data. A TPM system also helps enhance network security, protects digital identities, and ensures platform integrity.

BUZZER

(2-pin BUZZ2)

(see p.15, No. 29 or p.13, No. 26)

PWR LOSS Header

(2-pin PWR_LOSS1)

(see p.15 or P.13, No. 12)

Short : Power Loss
Close : no Power Loss

Print Port / GPIO Header

(25-pin LPT_GPIO1)

(see p.15, No. 17 or p.13, No. 14)

This is an interface for print port cable that allows convenient connection of printer devices.

Printer Port:

```
         ○─ SLCT
GND  ─○○─ PE
GND  ─○○─ BUSY
GND  ─○○─ ACK#
GND  ─○○─ SPD7
GND  ─○○─ SPD6
GND  ─○○─ SPD5
GND  ─○○─ SPD4
GND  ─○○─ SPD3
SLIN# ─○○─ SPD2
PINIT# ─○○─ SPD1
ERROR# ─○○─ SPD0
AFD# ─○○─ STB#
         1
```
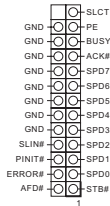
GPIO:

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).

2.7   Driver Installation Guide

To install the drivers to your system, please insert the support CD to your optical drive first. Then, the drivers compatible to your system can be auto-detected and listed on the support CD driver page. Please follow the order from top to bottom to install those required drivers. Therefore, the drivers you install can work properly.

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
Boot	To set up the default system device to locate and load the Operating System
Security	To set up the security features
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.
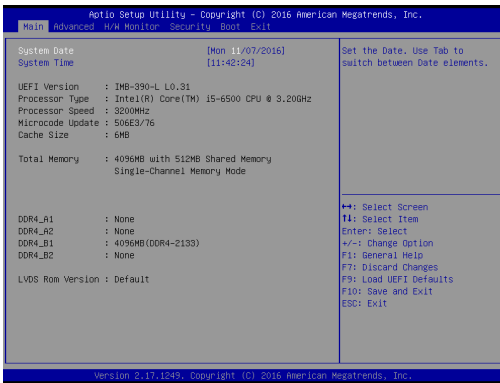
3.3 Advanced Screen

In this section, you may set the configurations for the following items: CPU Configuration, Chipset Configuration, Storage Configuration, AMT Configuration, Super IO Configuration, ACPI Configuration, USB Configuration and Trusted Computing.
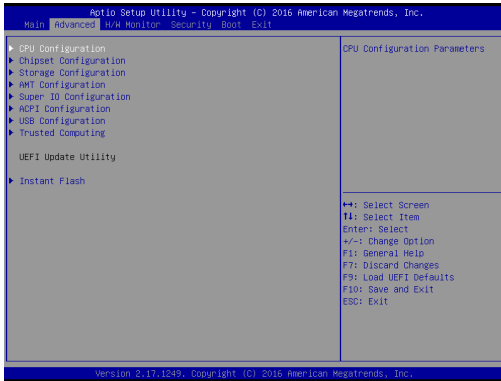
Setting wrong values in this section may cause the system to malfunction.

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


```
              Aptio Setup Utility - Copyright (C) 2016 American Megatrends, Inc.
      Advanced

 Intel(R) Core(TM) i5-6500 CPU @ 3.20GHz                    Select the number of cores to
 Microcode Revision                 506E3 76                enable in each processor
 Max CPU Speed                       3200 MHz               package.
 Min CPU Speed                       800 MHz
 Processor Cores                     4

 Active Processor Cores              [All]
 CPU C States Support                [Enabled]
  Enhanced Halt State(C1E)           [Auto]
  CPU C3 State Support               [Auto]
  CPU C6 State Support               [Auto]
  CPU C7 State Support               [Auto]
  Package C State Support            [Enabled]
                                                           →←: Select Screen
 Intel SpeedStep Technology          [Enabled]             ↑↓: Select Item
 Intel Turbo Boost Technology        [Enabled]             Enter: Select
 CPU Thermal Throttling              [Enabled]             +/-: Change Option
 No-Execute Memory Protection        [Enabled]             F1: General Help
 Intel Virtualization Technology     [Enabled]             F7: Discard Changes
 Hardware Prefetcher                 [Enabled]             F9: Load UEFI Defaults
 Adjacent Cache Line Prefetch        [Enabled]             F10: Save and Exit
                                                           ESC: Exit




              Version 2.17.1249. Copyright (C) 2016 American Megatrends, Inc.
```

Active Processor Cores

Select the number of cores to enable in each processor package.

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.

CPU C3 State Support

Enable C3 sleep state for lower power consumption.

CPU C6 State Support

Enable C6 deep sleep state for lower power consumption.

CPU C7 State Support

Enable C7 deep sleep state for lower power consumption.

Package C State Support

Enable CPU, PCIe, Memory, Graphics C State Support for power saving.

Intel SpeedStep Technology

Intel SpeedStep technology is Intel's new power saving technology. Processors can switch between multiple frequencies and voltage points to enable power saving. The default value is [Enabled]. Configuration options: [Enabled] and [Disabled]. If you install Windows® OS and want to enable this function, please set this item to [Enabled]. This item will be hidden 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.

Intel Turbo Boost Technology

Use this item to enable or disable Intel Turbo Boost Mode Technology. Turbo Boost Mode allows processor cores to run faster than marked frequency in specific conditions. The default value is [Enabled].

CPU Thermal Throttling

You may select [Enabled] to enable CPU internal thermal control mechanism to keep the CPU from overheating.

No-Execute Memory Protection

No-Execution (NX) Memory Protection Technology is an enhancement to the IA-32 Intel Architecture. An IA-32 processor with "No Execute (NX) Memory Protection" can prevent data pages from being used by malicious software to execute codes. This option will be hidden if the current CPU does not support No-Excute Memory Protection.

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.

Hardware Prefetcher

Use this item to turn on/off the MLC streamer prefetcher.

Adjacent Cache Line Prefetch

Use this item to turn on/off prefetching of adjacent cache lines.

3.3.2 Chipset Configuration

Primary Graphics Adapter

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

Top Of Lower Usable Dram

Maximum Value of TOLUD. Dynamic assignment would adjust TOLUD automatically based on largest MMIO length of installed graphic controller.

VT-d

Use this to enable or disable Intel® VT-d technology (Intel® Virtualization Technology for Directed I/O). The default value of this feature is [Disabled].

PCIE1 Link Speed

Select the link speed for PCIE1.

PCIE2 Link Speed

Select the link speed for PCIE2.

Share Memory

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

IGPU Multi-Moniter

Select disable to disable the integrated graphics when an external graphics card is installed. Select enable to keep the integrated graphics enabled at all times.

Onboard LAN1

Enable or disable the onboard network interface controller.

Onboard LAN2

Enable or disable the onboard network interface controller.

Onboard HD Audio

Select [Auto], [Enabled] or [Disabled] for the onboard HD Audio feature. If you select [Auto], the onboard HD Audio will be disabled when PCI Sound Card is plugged.

Front Panel

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

Deep Sleep

Mobile platforms support Deep S4/S5 in DC only and desktop platforms support Deep S4/S5 in AC only. The default value is [Disabled].

Active LVDS

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

Primary IGFX Boot Display

Select the Video Device which will be activated during POST. This has no effect if external graphics present. Secondary boot display selection will appear based on your selection. VGA modes will be supported only on primary display. Configuration options: [VBIOS Default], [CRT], [DVI], [HDMI] and [LVDS]. The default value is [VBIOS Default].

3.3.3 Storage Configuration
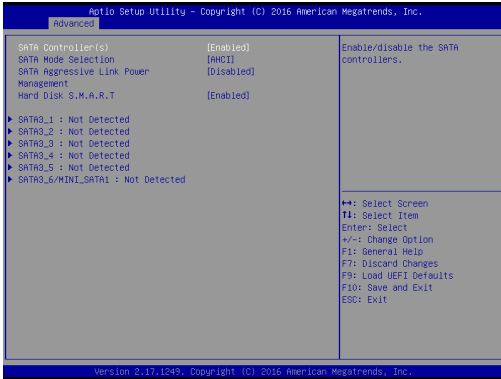
SATA Controller(s)

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

SATA Mode Selection

Use this to select SATA mode. Configuration options: [IDE Mode], [AHCI Mode] and [RAID 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.

SATA Aggressive Link Power Management

Use this item to configure SATA 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 AMT Technology
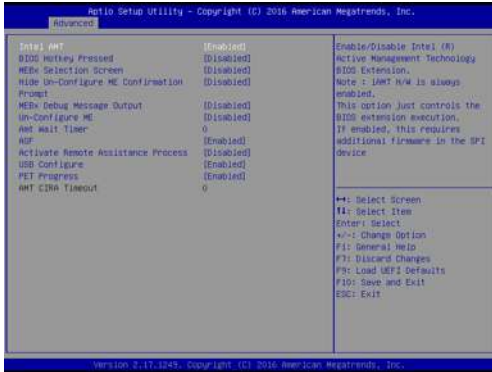
Intel AMT

Use this to enable or disable Intel(R) Active Management Technology BIOS Extension. The default is [Enabled].

BIOS Hotkey Pressed

Use this to enable or disable BIOS hotkey press. The default is [Disabled].

MEBx Selection Screen

Use this to enable or disable MEBx Selection Screen. The default is [Disabled].

Hide Un-Configure ME Confirmation Prompt

Hide Un-Configure ME without password confirmation prompt. The default is [Disabled].

MEBx Debug Message Output

Use this to enable or disable MEBx Debug Message Output. The default is [Disabled].

Un-Configure ME

Un-Configure ME without password. The default is [Disabled].

ASF

Use this to enable or disable Alert Specification Format. The default is [Enabled].

Activate Remote Assistance Process

Trigger CIRA boot. The default is [Disabled].

USB Configure

Use this to enable or disable USB Configure function. The default is [Enabled].

PET Progress

User can enable or disable PET Events progress to receive PET events or not. The default is [Enabled].

Amt Wait Timer

Set timer to wait before sending ASF_GET_BOOT_OPTIONS.

3.3.5 Super IO Configuration
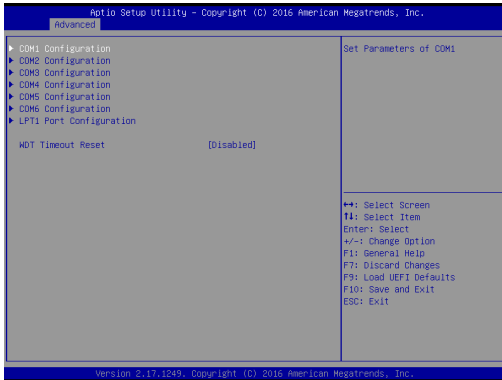
COM1 Configuration

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.

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.

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].

3.3.6 ACPI Configuration

```
                Aptio Setup Utility - Copyright (C) 2016 American Megatrends, Inc.
        Advanced

  Suspend to RAM                        [Auto]                  It is recommended to select
  ACPI HPET Table                       [Enabled]               auto for ACPI S3 power saving.

  PS/2 Keyboard Power On                [Disabled]
  PCIE Devices Power On                 [Disabled]
  RTC Alarm Power On                    [By OS]
  USB Keyboard/Remote Power On          [Disabled]
  USB Mouse Power On                    [Disabled]



                                                                ↔: Select Screen
                                                                ↑↓: Select Item
                                                                Enter: Select
                                                                +/-: Change Option
                                                                F1: General Help
                                                                F7: Discard Changes
                                                                F9: Load UEFI Defaults
                                                                F10: Save and Exit
                                                                ESC: Exit


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```

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.

3.3.7 USB Configuration


```
              Aptio Setup Utility - Copyright (C) 2016 American Megatrends, Inc.
  Advanced

Legacy USB Support                    [Enabled]          Enable or disable Legacy OS
PS/2 Simulator                        [Disabled]         Support for USB 2.0 devices.
                                                         If you encounter USB
                                                         compatibility issues it is
                                                         recommended to disable legacy
                                                         USB support. Select UEFI Setup
                                                         Only to support USB devices
                                                         under the UEFI setup and
                                                         Windows/Linux operating
                                                         systems only.


                                                         ↔: Select Screen
                                                         ↑↓: Select Item
                                                         Enter: Select
                                                         +/-: Change Option
                                                         F1: General Help
                                                         F7: Discard Changes
                                                         F9: Load UEFI Defaults
                                                         F10: Save and Exit
                                                         ESC: Exit


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```

Legacy USB Support

Enable or disable Legacy OS Support for USB 2.0 devices. If you encounter USB compatibility issues it is recommended to disable legacy USB support. Select UEFI Setup Only to support USB devices under the UEFI setup and Windows/Linux operating systems only.

PS/2 Simulator

Enable PS/2 Simulator. This should be enabled for the complete USB keyboard legacy support for non-USB aware OSes.

* Enable this option if you install Windows 7.

3.3.8 Trusted Computing

```
            Aptio Setup Utility - Copyright (C) 2016 American Megatrends, Inc.
      Advanced

 Configuration                                          Enables or Disables BIOS
   Security Device Support          [Enable]            support for security device.
   TPM State                        [Disabled]          O.S. will not show Security
 Pending operation                  [None]              Device. TCG EFI protocol and
   Device Select                    [Auto]              INT1A interface will not be
                                                        available.

 Current Status Information
   TPM Enabled Status:              [Disabled]
   TPM Active Status:               [Deactivated]
   TPM Owner Status:                [Unowned]

                                                        ↔: Select Screen
                                                        ↑↓: Select Item
                                                        Enter: Select
                                                        +/-: Change Option
                                                        F1: General Help
                                                        F7: Discard Changes
                                                        F9: Load UEFI Defaults
                                                        F10: Save and Exit
                                                        ESC: Exit

            Version 2.17.1249. Copyright (C) 2016 American Megatrends, Inc.
```
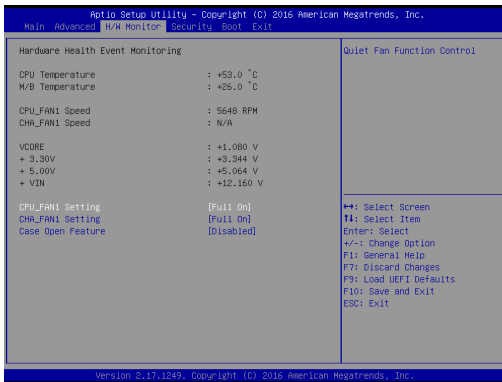
Security Device Support

Enable or disable BIOS support for security device.

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.

```
                Aptio Setup Utility - Copyright (C) 2016 American Megatrends, Inc.
         Main  Advanced  H/W Monitor  Security  Boot  Exit

     Hardware Health Event Monitoring                              Quiet Fan Function Control

     CPU Temperature                       : +53.0 °C
     M/B Temperature                       : +26.0 °C

     CPU_FAN1 Speed                        : 5648 RPM
     CHA_FAN1 Speed                        : N/A

     VCORE                                 : +1.080 V
     + 3.30V                               : +3.344 V
     + 5.00V                               : +5.064 V
     + VIN                                 : +12.160 V

     CPU_FAN1 Setting                      [Full On]              ↔: Select Screen
     CHA_FAN1 Setting                      [Full On]              ↑↓: Select Item
     Case Open Feature                     [Disabled]             Enter: Select
                                                                  +/-: Change Option
                                                                  F1: General Help
                                                                  F7: Discard Changes
                                                                  F9: Load UEFI Defaults
                                                                  F10: Save and Exit
                                                                  ESC: Exit

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```

CPU_FAN1 Setting

This allows you to set CPU fan 1's speed. Configuration options: [Full On] and [Automatic Mode]. The default value is [Full On].

CHA_FAN1 Setting

This allows you to set chassis fan 1's speed. Configuration options: [Full On] and [Automatic Mode]. The default value is [Full On].

Case Open Feature

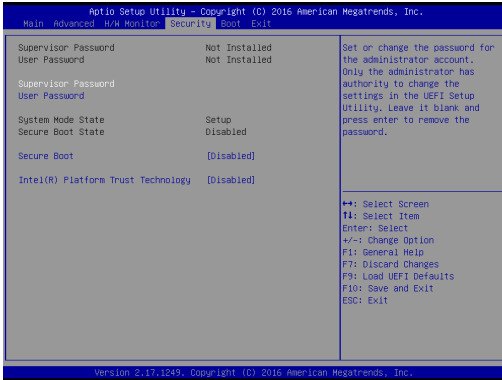This allows you to enable or disable case open detection feature. The default is value [Disabled].

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

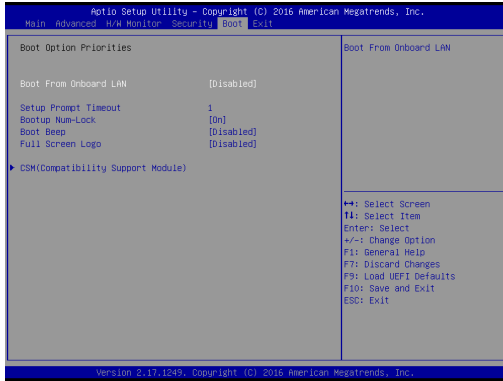In this section, you may set, change or clear the supervisor/user password for the system.

Secure Boot

Use this to enable or disable Secure Boot. The default value is [Disabled].

3.6 Boot Screen

In this section, it will display the available devices on your system for you to configure the boot settings and the boot priority.

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. 65535(0XFFFF) means indefinite waiting.

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.

Full Screen Logo

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

CSM

Please disable CSM when you enable Fast Boot option. The default value is [Enabled].

Boot

CSM	[Enabled]
Launch PXE OpROM Policy	[Legacy only]
Launch Storage OpROM Policy	[Legacy only]
Launch Video OpROM Policy	[Legacy only]

Enable to launch the
Compatibility Support Module.
If you are using Windows 8 or
later versions 64-bit UEFI and
all of your devices support
UEFI, you may also disable CSM
for faster boot speed.

→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Option
F1: General Help
F7: Discard Changes
F9: Load UEFI Defaults
F10: Save and Exit
ESC: Exit

3.7 Exit Screen
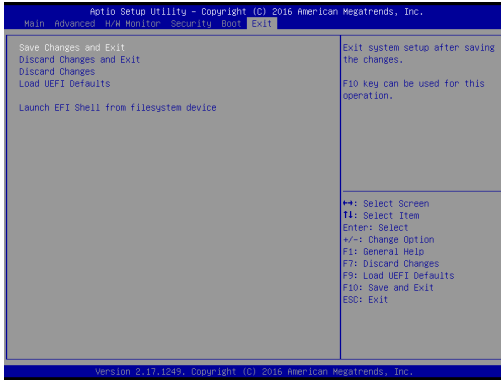
Save Changes and Exit

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 various Microsoft® Windows® operating systems: 10 64-bit / 8.1 64-bit / 7 32-bit / 7 64-bit. Because motherboard settings and hardware options vary, use the setup procedures in this chapter for general reference only. Refer your OS documentation for more information.

4.2 Support CD Information

The Support CD that came with the motherboard contains necessary drivers and useful utilities that enhance the motherboard's features.

4.2.1 Running The Support CD

To begin using the support CD, insert the CD into your CD-ROM drive. The CD automatically displays the Main Menu if "AUTORUN" is enabled in your computer. If the Main Menu did not appear automatically, locate and double click on the file "ASRSETUP.EXE" from the BIN folder in the Support CD to display the menus.

4.2.2 Drivers Menu

The Drivers Menu shows the available device's drivers if the system detects installed devices. Please install the necessary drivers to activate the devices.

4.2.3 Utilities Menu

The Utilities Menu shows the application software that the motherboard supports. Click on a specific item then follow the installation wizard to install it.

4.2.4 Contact Information

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