IMB-792

User Manual

Version 1.0
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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"

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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-792*** 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

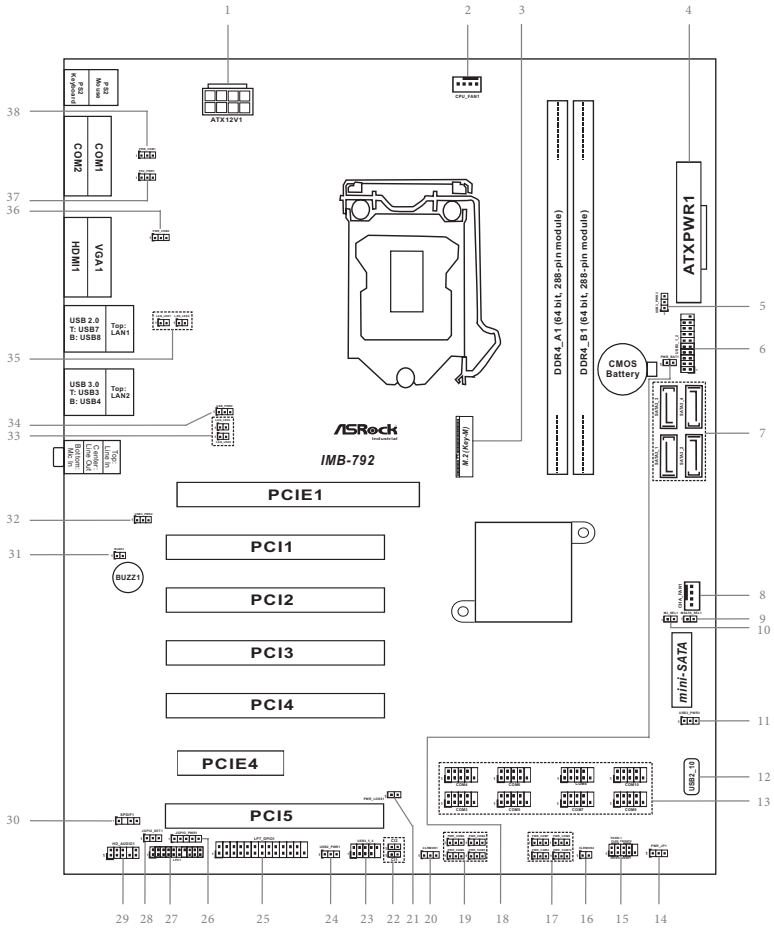
ASRock ***IMB-792*** Motherboard
(ATX Form Factor: 12.0-in x 9.6-in, 30.5 cm x 24.4 cm)
ASRock ***IMB-792*** Driver CD
ASRock ***IMB-792*** Jumper setting instruction
1 x I/O Panel Shield

1.2 Specifications

Form Factor	Dimensions	ATX (12.0-in x 9.6-in)
Processor System	CPU	Supports Intel® 7th/ 6th Gen (Kabylake-S/ Skylake-S) Core i7/i5/i3/ Celeron Processors
	Chipset	Intel® H110
Expansion Slot	PCIe	1 x PCIe x16, 1 x PCIe x4
	PCI	5
	Mini-PCIe	N/A
	mSATA	1 x full size with shared SATA3 and USB 2.0
	M.2	1 x M.2 (Key M, 2242/2260/2280) with shared SATA3 for SSD
Memory	Technology	Dual Channel DDR4 2133 MHz
	Max.	32GB
	Socket	2 x Long-DIMM
Graphics	Controller	Intel® Gen9 Graphics DX 11/12, OGL4.3/4.4
	VGA	Supports max resolution up to 1920x1200@60Hz
	LVDS	N/A
	eDP	N/A
	HDMI	Max resolution up to 4096x2160@30Hz
	DVI	N/A
	DisplayPort	N/A
	MultiDisplay	Dual Display
Ethernet	Ethernet	10/100/1000 Mbps
	Controller	1 x Intel I210, 1 x Intel I219V
Rear I/O	VGA	1
	DVI	N/A
	HDMI	1
	DisplayPort	N/A
	Ethernet	2
	USB	2 x USB3.0, 2 x USB2.0
	Serial	2 x COM (RS-232/422/485)
	Audio	3 (Mic-in/Line-in/Line-out)
	PS/2	2 (1 x keyboard, 1 x mouse)

Internal Connector	USB	2 x USB3.0, 3 x USB2.0
	LVDS / inverter	N/A
	eDP	N/A
	VGA	N/A
	Serial	8 x COM(RS-232)
	SATA	4 x SATA3, SATA3_1 is shared with M.2 Key M, SATA3_2 is shared with mSATA
	Parallel	1 (shared with GPIO)
	GPIO	8 x GPI, 8 x GPO
	SATA PWR Output Con	N/A
	Speaker Header	1
	TPM	1 x Header
Watchdog Timer	Output	From Super I/O to drag RESETCON#
	Interval	256 segments, 0,1,2…255sec
Power Requirements	Input PWR	ATX PWR 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	Operating Temperature	0ºC – 60ºC
	Storage Temperature	-40ºC – 85ºC

1.3 Motherboard Layout



1 : ATX 12V Power Connector
2 : CPU FAN Connector (+12V)
3 : M.2 Key-M Socket
4 : 24-pin ATX Power Input Connector
5 : USB3_PWR3 (For USB3_1_2)
6 : USB 3.0 Header (USB3_1_2)
7 : SATA3 Connectors (SATA3_1 ~ SATA3_4)
8 : Chassis FAN Connector (+12V)
9 : MSATA Select (MSATA_SEL1)
10 : M2 Select (M2_SEL1)
11 : USB2_PWR3 (For USB2_10)
12 : Vertical Type A USB 2.0 Port (USB2_10)
13 : COM Port Headers (COM3~10) (RS232)
14 : ATX/AT Mode Jumper (PWR_JP1)
15 : System Panel Header
16 : Clear CMOS Header (CLRMOS2)
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PWR_COM8 (For COM Port8)
PWR_COM9 (For COM Port9)
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PWR_COM4 (For COM Port4)
PWR_COM5 (For COM Port5)
PWR_COM6 (For COM Port6)
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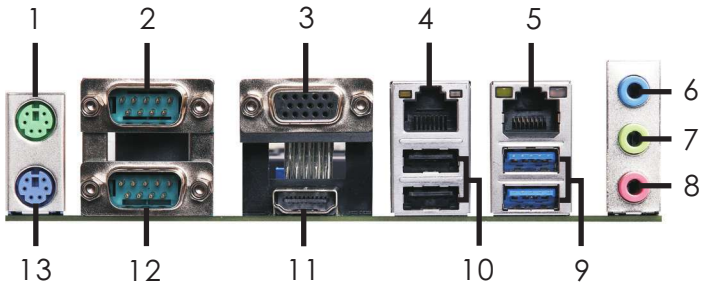
21 : PWR LOSS Header (PWR_LOSS1)
22 : Chassis Intrusion Headers (CI1, CI2)
23 : USB 2.0 Header (USB2_5_6)
24 : USB2_PWR1 (For USB2_5_6)
25 : Printer Port / GPIO Header (LPT_GPIO1)
26 : Digital Input / Output Power Select (JGPIOPWR) (JGPIO_PWR1)
27 : LPC Header
28 : Digital Input / Output Power Select (JGPIO_SET1)
29 : Front Panel Audio Header
30 : SPDIF Header
31 : Buzzer (BUZZ2)
32 : USB3_PWR2 (For USB3_3_4)
33 : LAN2 Speed LED Header (LAN_LED4),
LAN2 ACT/LINK LED Header (LAN_LED3)
34 : USB_PWR2 (For USB2_7_8)
35 : LAN1 Speed LED Header (LAN_LED2),
LAN1 ACT/LINK LED Header (LAN_LED1)
36 : COM Port Pin9 PWR Setting Jumper (PWR_COM2 (For COM Port2))
37 : PS2 Power Setting Jumper (PS2_PWR1 (For PS2 Keyboard/Mouse))
38 : COM Port Pin9 PWR Setting Jumper (PWR_COM1 (For COM Port1))

1.4 I/O Panel



1	PS/2 Mouse Port	8	Microphone (Pink)
2	COM Port (COM1)**	9	USB 3.0 Ports (USB3_3_4)
3	D-Sub Port (VGA1)	10	USB 2.0 Ports (USB_7_8)
4	LAN RJ-45 Port (LAN1)*	11	HDMI Port (HDMI1)
5	LAN RJ-45 Port (LAN2)*	12	COM Port (COM2)**
6	Line In (Light Blue)	13	PS/2 Keyboard Port
7	Line out (Lime)		

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

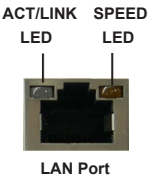
LAN Port LED Indications

Activity/Link LED

Status	Description
Off	No Link
Blinking	Data Activity
On	Link

SPEED LED

Status	Description
Off	10Mbps connection
Orange	100Mbps connection
Green	1Gbps connection



** This motherboard supports RS232/422/485 on COM1, 2 ports. Please refer to below table for the pin definition. In addition, COM1, 2 ports (RS232/422/485) can be adjusted in BIOS setup utility > Advanced Screen > Super IO Configuration. You may refer to page 32 for details.

COM1, 2 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

Chapter 2: Installation

This is an ATX form factor (12.0" x 9.6", 30.5 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.

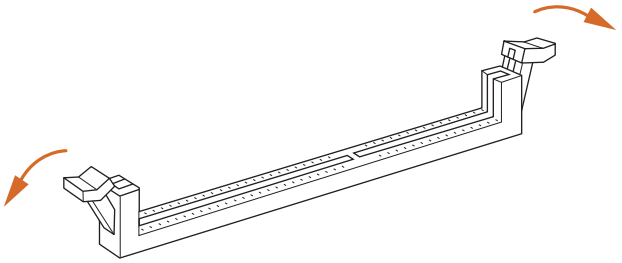
2.3 Installation of Memory Modules (DIMM)

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

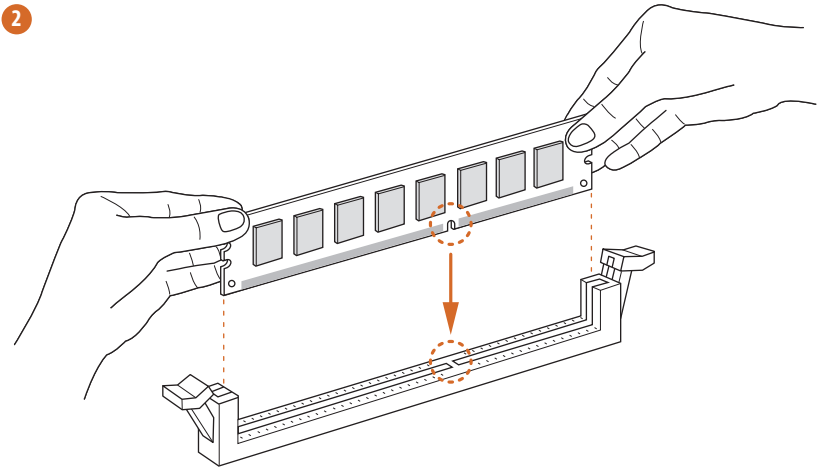
1. For dual channel configuration, you always need to install identical (the same brand, speed, size and chip-type) DDR4 DIMM pairs.
2. It is unable to activate Dual Channel Memory Technology with only one memory module installed.
3. It is not allowed to install a DDR, DDR2 or DDR3 memory module into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

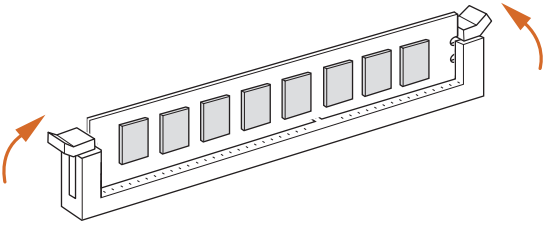
1



2



3



2.4 Expansion Slots (PCI, PCI Express, mini-SATA and M.2 Slots)

There are 5 PCI slots, 2 PCI Express slots, 1 mini-SATA slot and 1 M.2 slot 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.

PCIE4 (PCIE x4 slot) is used for PCI Express x4 lane width graphics cards.

mini-SATA slot:

MINI_SATA1 (mini-SATA slot; full size) is used for mSATA cards.

M.2 slots: M.2 socket (Key M, 2242/2260/2280) is shared with SATA3 for SSD.

Pin	Signal	Signal	Pin
1	GND	+3.3V	2
3	GND	+3.3V	4
5	PERn3	NA	6
7	PERp3	NA	8
9	GND	SATA_LED	10
11	PETn3	+3.3V	12
13	PETp3	+3.3V	14
15	GND	+3.3V	16
17	PERn2	+3.3V	18
19	PERp2	NA	20
21	GND	NA	22
23	PETn2	NA	24
25	PETp2	NA	26
27	GND	NA	28
29	PERn1	NA	30
31	PERp1	NA	32
33	GND	NA	34
35	PETn1	NA	36
37	PETp1	DEVSLP	38
39	GND	SMB_CLK	40
41	PERn0/ SATA-B+	SMB_DATA	42
43	PERp0/ SATA-B-	NA	44
45	GND	NA	46
47	PETn0/ SATA-A-	NA	48
49	PETP0/ SATA-A+	PERST#	50
51	GND	CLKREQ#	52
53	PEFCLKn	WAKE#	54
55	PEFCLKp	NA	56
57	GND	NA	58
67	NA	NA	68
69	PEDET	+3.3V	70
71	GND	+3.3V	72
73	GND	+3.3V	74
75	GND		

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.

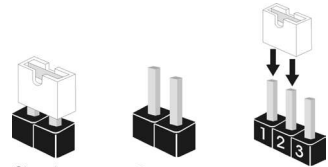
Step 4. Align the card connector with the slot and press firmly until the card is completely seated on the slot.

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.



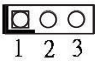
Jumper	Setting	Description
Clear CMOS Jumpers (3-pin CLRMOS1) (see p.8, No. 20)	1_2 Default 2_3 Clear CMOS	CLRMOS1 : 1-2 : Normal 2-3 : Clear CMOS

Note: CLRMOS1 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 CLRMOS1 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.

(2-pin CLRMOS2) (see p.8, No. 16)	1	CLRMOS2 : Open : Normal Short : Auto Clear CMOS (Power Off)
ATX/AT Mode Select (3-pin PWR_JP1) (see p.8, No. 14)	1 2 3	1-2 : AT Mode 2-3 : ATX Mode
Digital Input / Output Power Select (JGPIOPWR) (5-pin JGPIO_PWR1) (see p.8, No. 26)	1	1-2 : +12V 2-3 : +5V 3-4 : +5V 4-5 : GND
Digital Input / Output Power Select (3-pin JGPIO_SET1) (see p.8, No. 28)	1 2 3	1-2 : +5V 2-3 : GND

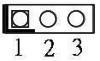
USB Power Setting Jumpers

(3-pin USB2_PWR3 (For USB2_10))
(see p.8, No. 11)

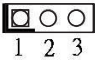


1-2 : +5V
2-3 : +5VSB

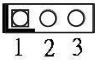
(3-pin USB2_PWR1 (For USB2_5_6))
(see p.8, No. 24)



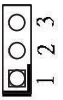
(3-pin USB_PWR2 (For USB2_7_8))
(see p.8, No. 34)



(3-pin USB3_PWR2 (For USB3_3_4))
(see p.8, No. 32)

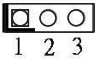


(3-pin USB3_PWR3 (For USB3_1_2))
(see p.8, No. 5)



COM Port Pin9 PWR Setting Jumpers

(3-pin PWR_COM3 (For COM Port3))
(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. 19)
(3-pin PWR_COM7 (For COM Port7))
(3-pin PWR_COM8 (For COM Port8))
(3-pin PWR_COM9 (For COM Port9))
(3-pin PWR_COM10 (For COM Port10))
(see p.8, No. 17)
(3-pin PWR_COM2 (For COM Port2))
(see p.8, No. 36)
(3-pin PWR_COM1 (For COM Port1))
(see p.8, No. 38)



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

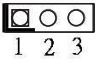
PWR LOSS Header

(2-pin PWR_LOSS1)
(see p.8, No. 21)

Short : Power Loss
Close : no Power Loss

PS2 Power Setting Jumper

(3-pin PS2_PWR1 (For PS2 Keyboard/Mouse))
(see p.8, No. 37)



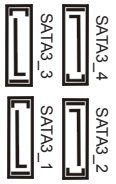
1-2 : +5V
2-3 : +5VSB

PWR_BAT1 (2-pin PWR_BAT1) (see p.8, No. 18)		Open : Normal Close : Charge Battery
M.2 Select (2-pin M2_SEL1) (see p.8, No. 10)		Open : For SATA3_1 Short : For M.2
MSATA Select (2-pin MSATA_SEL1) (see p.8, No. 9)		Open : For SATA3_2 Short : For Mini-SATA
Chassis Intrusion Headers (2-pin CI1, CI2: see p.8, No. 22)		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. CI1 : Close : Active Case Open Open : Normal CI2 : Close : Normal Open : Active Case Open

2.6 Onboard Headers and Connectors

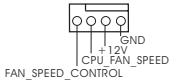
Onboard headers and connectors are NOT jumpers. Do NOT place jumper caps over these headers and connectors. Placing jumper caps over the headers and connectors will cause permanent damage of the motherboard!

SATA3 Connectors
(SATA3_1~SATA3_4:
see p.8, No. 7)



These four 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.

CPU Fan Connector
(4-pin CPU_FAN1)
(see p.8 No. 2)



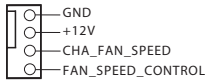
Please connect the CPU fan cable to the connector and match the black wire to the ground pin.

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

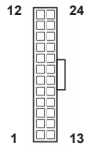
3-Pin Fan Installation

Chassis Fan Connector
(4-pin CHA_FAN1)
(see p.8, No. 8)



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.8 No. 4)



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.

20-Pin ATX Power Supply Installation

ATX 12V Power Input Connector

(8-pin ATX12V1)

(see p.8, No. 1)

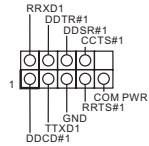
Please connect an ATX 12V power supply to this connector.

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

COM Port Headers (RS232)

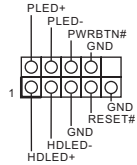
(9-pin COM3~10:
see p.8, No. 13)



System Panel Header

(9-pin PANEL1)

(see p.8, No. 15)



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.

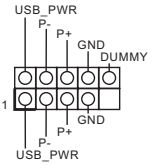
PWRBTN (Power Switch):
Connect to the power switch on the chassis front panel. You may configure the way to turn off your system using the power switch.
RESET (Reset Switch):
Connect to the reset switch on the chassis front panel. Press the reset switch to restart the computer if the computer freezes 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.

USB 2.0 Headers

(9-pin USB2_5_6:

see p.8, No. 23)



(USB2_10:

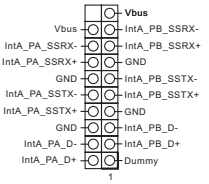
see p.8, No. 12)

There are two headers and one port on this motherboard.

USB 3.0 Header

(19-pin USB3_1_2:

see p.8, No. 6)

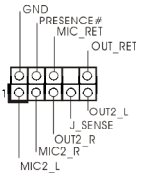


There is one header on this motherboard.

Front Panel Audio Header

(9-pin HD_AUDIO1)

(see p.8 No. 29)

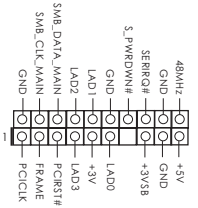


This is an interface for front panel audio cable that allows convenient connection and control of audio devices.

LPC Header

(19-pin LPC1)

(see p.8, No. 27)



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.

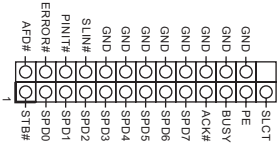
Printer Port / GPIO Header

(25-pin LPT1_GPIO)

(see p.8, No. 25)

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

Printer Port:



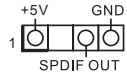
GPIO:

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

* If you want to use the printer port function, please short pin4 and pin5 on Digital Input / Output Power Select (JGPIO_PWR1).

SPDIF Header

(3-pin SPDIF1:
see p.8, No. 30)



Buzzer

(2-pin BUZZ2:
see p.8, No. 31)

LAN LED Headers (LAN_LED1~4)

LAN2 Speed LED Header

(2-pin LAN_LED4)

(see p.8, No. 33)

LAN2 ACT/LINK LED Header

(2-pin LAN_LED3)

(see p.8, No. 33)

LAN1 Speed LED Header

(2-pin LAN_LED2)

(see p.8, No. 35)

LAN1 ACT/LINK LED Header

(2-pin LAN_LED1)

(see p.8, No. 35)

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
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.

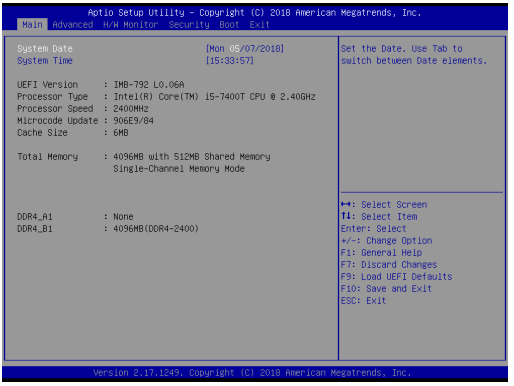
3.1.2 Navigation Keys

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

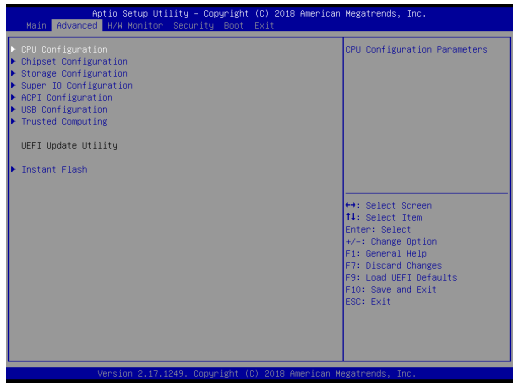
3.2 Main Screen

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, USB Configuration and Trusted Computing.

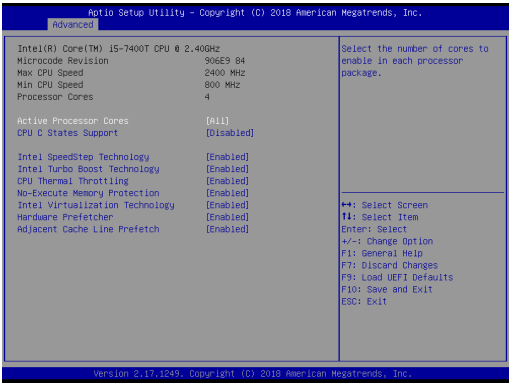


Setting wrong values in this section may cause the system to malfunction.

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



Intel Hyper Threading Technology

Intel Hyper Threading Technology allows multiple threads to run on each core, so that the overall performance on threaded software is improved.

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.

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® 7 / 8.1 / 10 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.

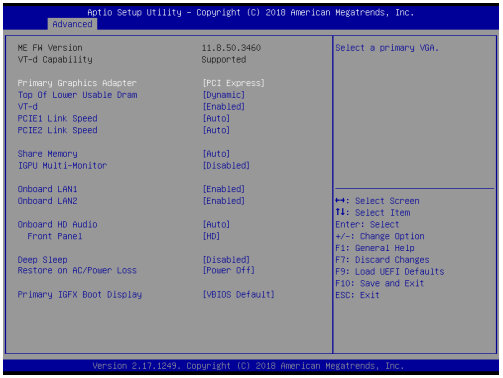
Hardware Prefetcher

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] or [PCI Express] as the boot graphic adapter priority. The default value is [PCI Express].

Top of Lower usable DRAM

Set the maximum value of TOLUD. Set this item to Dynamic to allow TOLUD to adjust automatically based on the largest MMIO length of the 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

This allows you to enable or disable the Onboard LAN1 feature.

Onboard LAN2

This allows you to enable or disable the Onboard LAN2 feature.

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].

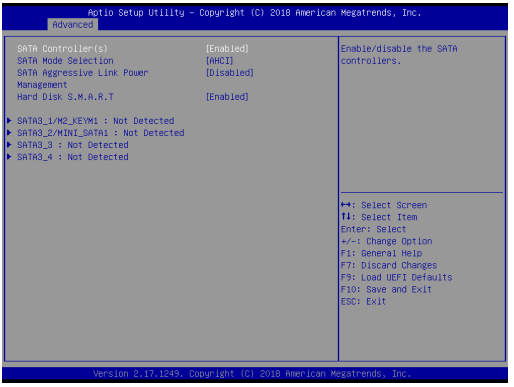
Restore on AC/Power Loss

Select the power state after a power failure. If [Power Off] is selected, the power will remain off when the power recovers. If [Power On] is selected, the system will start to boot up when the power recovers.

Primary IGFX Boot Display

Use this to select primary internal graphics boot display. 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.

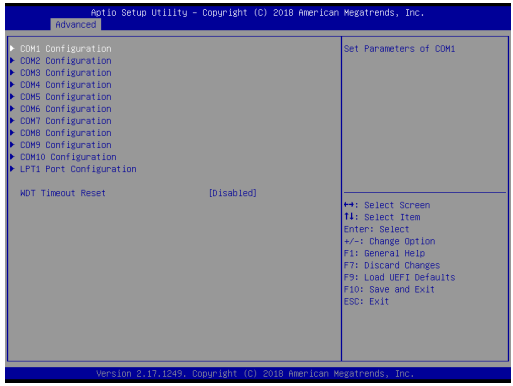
SATA Aggressive Link Power Management

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 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.

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.

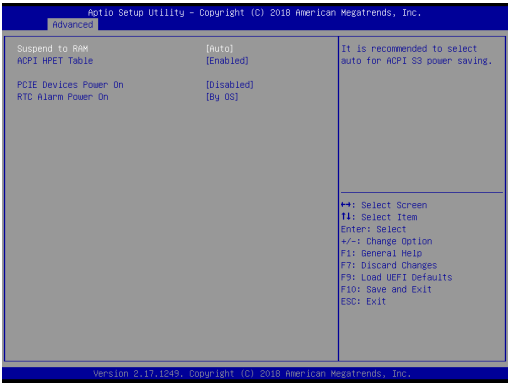
LPT1 Port Configuration

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.

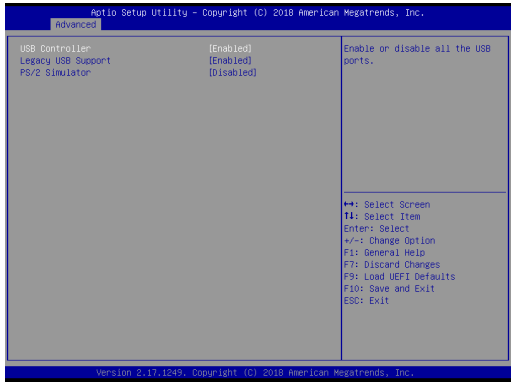
PCIE Devices Power On

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.

3.3.6 USB Configuration



USB Controller

Use this item to enable or disable the use of USB controller.

Legacy USB Support

Use this option to select legacy support for USB devices. There are four configuration options: [Enabled], [Auto], [Disabled] and [UEFI Setup Only]. The default value is [Enabled]. 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.

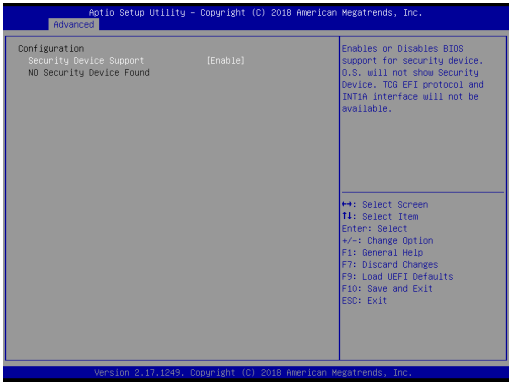
[Disabled] - USB devices are not allowed to use under legacy OS and UEFI setup when [Disabled] is selected. If you have USB compatibility issues, it is recommended to select [Disabled] to enter OS.

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

PS/2 Simulator

Enable this item for the complete USB keyboard legacy support for non-USB aware operating system.

3.3.7 Trusted Computing

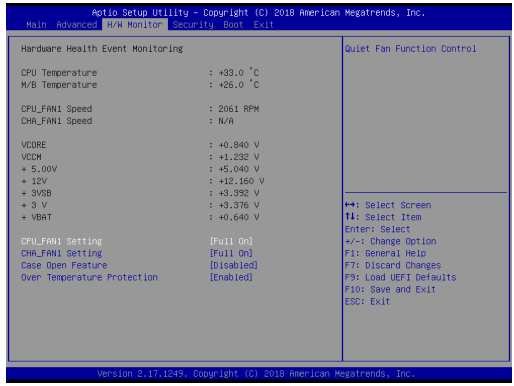


Security Device Support

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.



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.

Over Temperature Protection

Use this to enable or disable Over Temperature Protection. The default value is [Enabled].

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

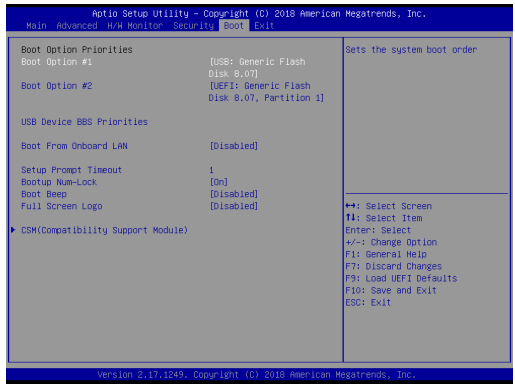
Use this item to enable or disable support for Secure Boot.

Intel(R) Platform Trust Technology

Enable/disable Intel PTT in ME. Disable this option to use discrete TPM Module.

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

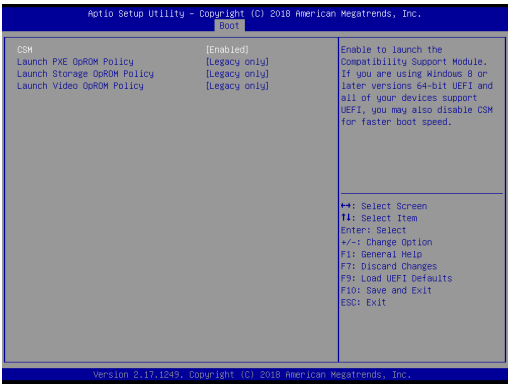
Select whether the Boot Beep should be turned on or off when the system boots up. Please note that a buzzer is needed.

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].



CSM

Enable to launch the Compatibility Support Module. Please do not disable unless you're running a WHCK test. If you are using Windows® 8.1 / 8 64-bit and all of your devices support UEFI, you may also disable CSM for faster boot speed.

Launch PXE OpROM Policy

Select UEFI only to run those that support UEFI option ROM only. Select Legacy only to run those that support legacy option ROM only. Select Do not launch to not execute both legacy and UEFI option ROM.

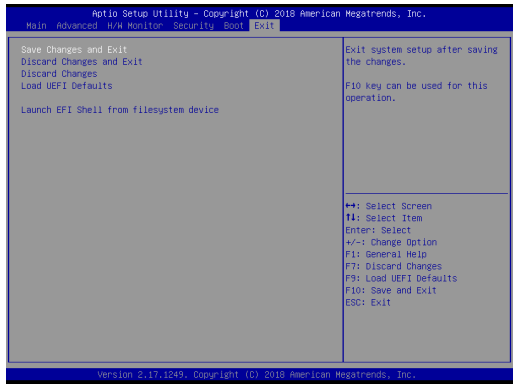
Launch Storage OpROM Policy

Select UEFI only to run those that support UEFI option ROM only. Select Legacy only to run those that support legacy option ROM only. Select Do not launch to not execute both legacy and UEFI option ROM.

Launch Video OpROM Policy

Select UEFI only to run those that support UEFI option ROM only. Select Legacy only to run those that support legacy option ROM only. Select Do not launch to not execute both legacy and UEFI option ROM.

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.