ASRock Industrial

IMB-1711
IMB-X1711

User Manual

Version 1.2
Updated February 7, 2024

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Updated February 2024

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HIGH-DEFINITION MULTIMEDIA INTERFACE

WARNING

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

CALIFORNIA, USA ONLY

The Lithium battery adopted on this motherboard contains Perchlorate, a toxic substance controlled in Perchlorate Best Management Practices (BMP) regulations passed by the California Legislature. When you discard the Lithium battery in California, USA, please follow the related regulations in advance.

"Perchlorate Material-special handling may apply, see www.dtsc.ca.gov/hazardouswaste/perchlorate"

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CE

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

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

Button Battery Safety Notice

⚠WARNING

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

- Remove and immediately recycle or dispose of used batteries according to local regulations and keep away from children. Do NOT dispose of batteries in household trash or incinerate.
- Even used batteries may cause severe injury or death.
- Call a local poison control center for treatment information.
- Battery type: CR2032
- Battery voltage: 3.3V
- Non-rechargeable batteries are not to be recharged.
- Do not force discharge, recharge, disassemble, heat above (manufacturer's specified temperature rating) or incinerate. Doing so may result in injury due to venting, leakage or explosion resulting in chemical burns.
- This product contains an irreplaceable battery.
- This icon indicates that a swallowed button battery can cause serious injury or death. Please keep batteries out of sight or reach of children.

Contents

Chapter 1: Introduction

Thank you for purchasing ASRockInd ***IMB-1711 / IMB-X1711*** motherboard, a reliable motherboard produced under ASRockInd's consistently stringent quality control. It delivers excellent performance with robust design conforming to ASRockInd's commitment to quality and endurance.

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

Because the motherboard specifications and the BIOS software might be updated, the content of this manual will be subject to change without notice. In case any modifications of this manual occur, the updated version will be available on ASRockInd website without further notice. You may find the latest VGA cards and CPU support lists on ASRockInd website as well. ASRockInd website:
https://www.asrockind.com/IMB-1711
https://www.asrockind.com/IMB-X1711
If you require technical support related to this motherboard, please visit our website for specific information about the model you are using.
https://www.asrockind.com/technical-support

1.1 Package Contents

ASRockInd ***IMB-1711 / IMB-X1711*** Motherboard (ATX (12-in x 9.6-in))
1 x I/O Panel Shield

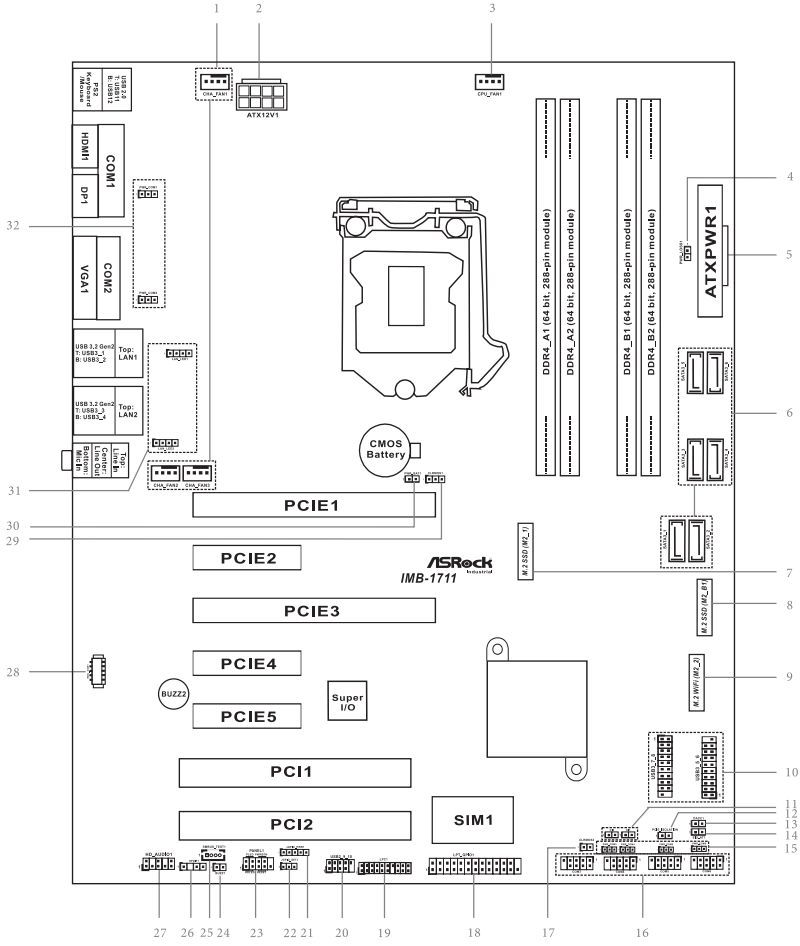
1.2 Specifications

Form Factor	Dimensions	ATX (12-in x 9.6-in)
Processor System	CPU	Intel® 10th Gen (Cometlake-S) Core™ Processors, up to 125 W
	Chipset	Intel® Q470E
	Socket	LGA1200
	BIOS	AMI SPI 256 Mbit
Expansion Slot	PCIe	3 x PCIe Gen3 Slots (PCIE1 / PCIE2 / PCIE3: Single at x16 (PCIE1); Dual at x8 (PCIE1) / x8 (PCIE3); Triple at x8 (PCIE1) / x4 (PCIE2) / x4 (PCIE3)) 2 x PCIe x4 (Gen3)
	PCI	2 x PCI
	M.2	1 x M.2 (Key E, 2230) with PCIe x1, USB 2.0 and CNVi for Wireless 1 x M.2 (Key B, 3042 / 3052) with PCIe x1 / USB 3.0 / USB 2.0 and SIM socket for 4G / 5G
	SIM Socket	1 x SIM socket connected to M.2 Key B
Memory	Technology	Dual Channel DDR4 2933/2666/2400 MHz - Intel® Core™ i9/i7 CPUs support DDR4 up to 2933 MHz - Intel® Core™ i5/i3 CPUs support DDR4 up to 2666 MHz - Intel® Pentium®/Celeron® CPU support DDR4 up to 2400 MHz
	Max.	128GB* * Intel® Core i9/i7/i5 CPUs support up to 128GB (32GB per DIMM) Intel® Core i3/Pentium®/Celeron® CPUs support up to 64GB (16GB per DIMM)
	Socket	4 x 288-pin Long-DIMM
Graphics	Controller	Intel® UHD Graphics
	HDMI	HDMI 2.0a, Max resolution up to 4096 x 2160@60Hz
	DisplayPort	DisplayPort 1.2, DP++ Max resolution up to 4096 x 2160@60Hz
	VGA	Max resolution up to 1920 x 1200@60Hz
	MultiDisplay	Triple Display

Audio	Interface	Realtek ALC887/ALC897 HD, High Definition Audio. Line-out, Mic-in.
Ethernet	Controller/ Speed	LAN1: Intel® I225LM/I225V with 10/100/1000/2500 Mbps LAN2: Intel® I219LM with 10/100/1000 Mbps, support AMT / vPro
	Connector	2 x RJ-45
Rear I/O	HDMI	1 x HDMI 2.0a
	DisplayPort	1 x DP 1.2
	VGA	1
	Ethernet	1 x 1 Gigabit LAN, 1 x 2.5 Gigabit LAN
	USB	4 x USB 3.2 Gen2, 2 x USB 2.0
	Audio	3 (Line-In, Line-Out, Mic-In)
	COM	2 x COM (RS-232/422/485)
	PS2	1
Internal Connector	USB	4 x USB 3.2 Gen1 (2 x USB 3.2 Gen1 header) 2 x USB 2.0 (1 x 2.54 pitch header)
	COM	4 x COM (RS-232)
	Parallel	1
	GPIO	8 x GPI, 8 x GPO (shared with LPT header)
	TPM	TPM 2.0 onboard
	Speaker Header	1
Storage	M.2	1 x M.2 (Key M, 2242 / 2260 / 2280) with SATA3 and PCIe x4 for SSD * Shared with SATA3_5 / SATA3_6 Ports - When using M.2 PCIe x4 SSD, both SATA3_5 and SATA_6 Ports are disabled - When using M.2 SATA SSD, only SATA3_5 Port is disabled, and SATA3_6 Port is available
	SATA	6 x SATA3 (6Gb/s)
Watchdog Timer	Output	From super I/O to drag RESETCON#
	Interval	256 Segments, 0,1, 2…255 Sec
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 Temp	0ºC ~ 60ºC
	Storage Temp	-40°C ~ 85°C
	Operating Humidity	5% ~ 90%
	Storage Humidity	5% ~ 90%

1.3 Motherboard Layout



1 : Chassis FAN Connectors (+12V) (CHA_FAN1~3)
2 : ATX 12V Power Connector
3 : CPU FAN Connector (+12V)
4 : PWR LOSS Jumper (PWR_LOSS1)
5 : 24-pin ATX Power Input Connector
6 : SATA3 Connectors (SATA3_1 ~ SATA3_6)
7 : M.2 Key-M Socket (M2_1)
8 : M.2 Key-B Socket (M2_B1)
9 : M.2 Key-E Socket (M2_2)
10 : USB 3.2 Gen1 Headers (USB3_5_6, USB3_7_8)
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12 : PCIe Isolation Jumper (PCIE_ISOLATION)
13 : DACC1
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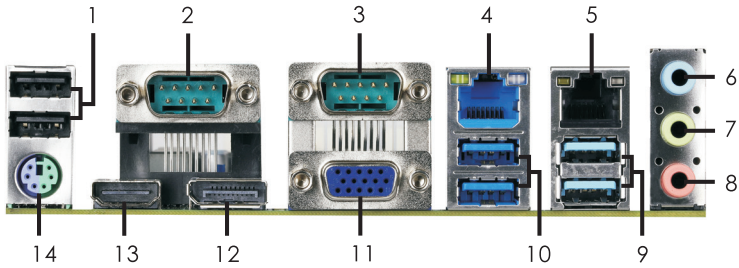
15 : COM Port Pin9 PWR Setting Jumpers
    PWR_COM3 (For COM Port3)
    PWR_COM4 (For COM Port4)
    PWR_COM5 (For COM Port5)
    PWR_COM6 (For COM Port6)
16 : COM Port Headers (COM3~6) (RS232)
17 : Clear CMOS Header (CLRMOS2)
18 : Printer Port / GPIO Header (LPT_GPIO1)
19 : LPC Header
20 : USB 2.0 Header (USB2_9_10)
21 : Digital Input / Output Power Select (JGPIOPWR) (JGPIO_PWR1)
22 : Digital Input / Output Default Value Setting (JGPIO_SET1)
23 : System Panel Header
24 : Buzzer (BUZZ1)
25 : SMBUS_TEST1
26 : SPDIF Header
27 : Front Panel Audio Header
28 : MCU Connector (MCU_CON1)
29 : Clear CMOS Header (CLRMOS1)
30 : PWR_BAT1
31 : LAN LED Headers
    LAN_LED1 (For LAN1 Port)
    LAN_LED2 (For LAN2 Port)
32 : COM Port Pin9 PWR Setting Jumpers
    PWR_COM1 (For COM Port1)
    PWR_COM2 (For COM Port2)

1.4 I/O Panel



1	USB 2.0 Ports (USB11_12)	8	Microphone (Pink)
2	COM Port (COM1) (RS232/422/485)*	9	USB 3.2 Gen2 Ports (USB3_3_4)
3	COM Port (COM2) (RS232/422/485)*	10	USB 3.2 Gen2 Ports (USB3_1_2)
4	LAN RJ-45 Port (LAN1)**	11	D-Sub Port (VGA1)
5	LAN RJ-45 Port (LAN2)***	12	DisplayPort (DP1)
6	Line In (Light Blue)	13	HDMI Port (HDMI1)
7	Line Out (Lime)	14	PS/2 Keyboard/Mouse Port

* 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 35 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

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

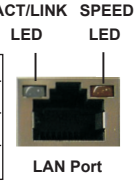
LAN Port LED Indications

Activity/Link LED

Status	Description
Off	No Link
Blinking	Data Activity
On	Link

SPEED LED

Status	Description
Off	10Mbps connection
Orange	100Mbps/1Gbps connection
Green	2.5Gbps connection



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Activity/Link LED

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Off	10Mbps connection
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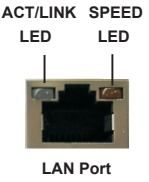


Chapter 2: Installation

This is an ATX form factor (12" x 9.6") 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.

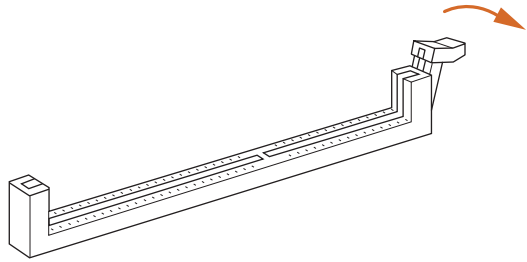
2.3 Installation of Memory Modules (DIMM)

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

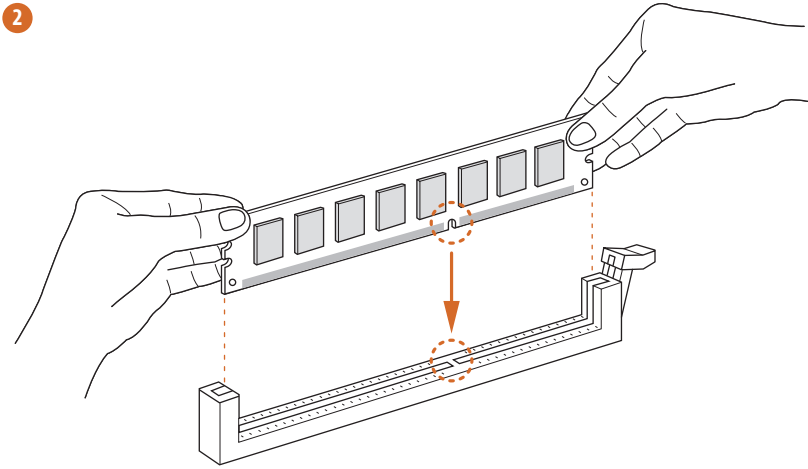
1. *For dual channel configuration, you always need to install identical (the same brand, speed, size and chip-type) DDR4 DIMM pairs.*
2. *It is unable to activate Dual Channel Memory Technology with only one or three memory module installed.*
3. *It is not allowed to install a DDR, DDR2 or DDR3 memory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



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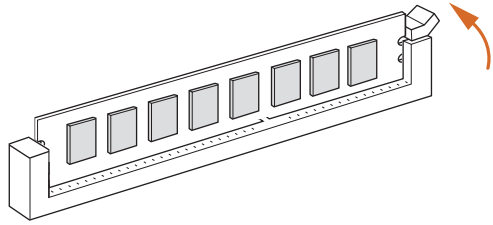


2.4 Expansion Slots

There are 5 PCI Express slots, 2 PCI slots, 3 M.2 sockets and 1 SIM socket on this motherboard.

PCIE slots: PCIE1 (PCIE 3.0 x16 slot) is used for PCI Express x16 lane width cards.
PCIE2 (PCIE 3.0 x4 slot) is used for PCI Express x4 lane width cards.
PCIE3 (PCIE 3.0 x16 slot) is used for PCI Express x8 lane width cards.
PCIE4 (PCIE 3.0 x4 slot) is used for PCI Express x4 lane width cards.
PCIE5 (PCIE 3.0 x4 slot) is used for PCI Express x4 lane width cards.

3 OPTIONS FOR PCIE SLOT 1~3			
Slot1	x16	x8	x8
Slot2	0	0	x4
Slot3	0	x8	x4

PCI slots: The PCI1 and PCI2 slots are used to install expansion cards that have 32-bit PCI interface.

SIM socket:

1 x SIM socket connected to M.2 key B.

M.2 sockets:

1 x M.2 (Key E, 2230) with PCIe x1, USB 2.0 and CNVi for Wireless.

1 x M.2 (Key B, 3042 / 3052) with PCIe x1 / USB 3.0 / USB 2.0 and SIM socket for 4G / 5G.

1 x M.2 (Key M, 2242 / 2260 / 2280) with SATA3 and PCIe x4 for SSD.

* Shared with SATA3_5 / SATA3_6 Ports.

* When using M.2 PCIe x4 SSD, both SATA3_5 and SATA_6 Ports are disabled.

* When using M.2 SATA SSD, only SATA3_5 Port is disabled, and SATA3_6 Port is available.

M.2 Key-M Socket (M2_1)

Pin	Signal Name	Signal Name	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	NA	40
41	PERn0/SATA-B+	NA	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		

M.2 Key-E Socket (M2_2)

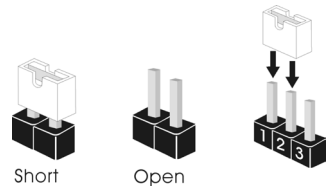
Pin	Signal Name	Signal Name	Pin
1	GND	+3.3V	2
3	USB_D+	+3.3V	4
5	USB_D-	NA	6
7	GND	NA	8
9	CNV_WGR_D1-	CNV_RF_RESET	10
11	CNV_WGR_D1+	NA	12
13	GND	MODEM_CLKREQ	14
15	CNV_WGR_D0-	NA	16
17	CNV_WGR_D0+	GND	18
19	GND	NA	20
21	CNV_WGR_CLK-	CNV_BRI_RSP	22
23	CNV_WGR_CLK+		
33	GND	CNV_BGI_DT	32
35	PETp	CNV_RGI_RSP	34
37	PETn	CNV_BRI_DT	36
39	GND	NA	38
41	PERp	NA	40
43	PERn	NA	42
45	GND	NA	44
47	PEFCLKp	NA	46
49	PEFCLKn	NA	48
51	GND	SUSCLK	50
53	CLKREQ#	PERST0#	52
55	WAKE#	W_DISABLE1#	54
57	GND	W_DISABLE2#	56
59	CNV_WT_D1-	NA	58
61	CNV_WT_D1+	NA	60
63	GND	NA	62
65	CNV_WT_D0-	CLKIN_XTAL_LCP	64
67	CNV_WT_D0+	NA	66
69	GND	NA	68
71	CNV_WT_CLK-	NA	70
73	CNV_WT_CLK+	+3.3V	72
75	GND	+3.3V	74

M.2 Key-B Socket (M2_B1)

Pin	Signal Name	Signal Name	Pin
1	NA	+3.3V	2
3	GND	+3.3V	4
5	GND	FuLL_Card_Power_off	6
7	USB_D+	W_DISABLE	8
9	USB_D-	WWAN_LED#	10
11	GND		
21	GND	NA	20
23	NA	NA	22
25	NA	NA	24
27	GND	NA	26
29	USB3_RX-	NA	28
31	USB3_RX+	UIM_RESET	30
33	GND	UIM_CLK	32
35	USB3_TX-	UIM_DATA	34
37	USB3_TX+	UIM_PWR	36
39	GND	NA	38
41	PERn0	NA	40
43	PERP0	NA	42
45	GND	NA	44
47	PETn0	NA	46
49	PETP0	NA	48
51	GND	PERST#	50
53	PEFCLKn	CLKREQ#	52
55	PEFCLKp	WAKE#	54
57	GND	NA	56
59	NA	NA	58
61	NA	NA	60
63	NA	NA	62
65	NA	NA	64
67	NA	NA	66
69	NA	NA	68
71	GND	+3.3V	70
73	GND	+3.3V	72
75	NA	+3.3V	74

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. 10, No. 29)	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 date, time and user default profile will be cleared only if the CMOS battery is removed.

(2-pin CLRMOS2)
(see p. 10, No. 17)

CLRMOS2 :
Open : Normal
Short : Auto Clear CMOS (Power Off)

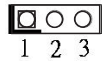
Note: CLRMOS2 allows you to clear the data in CMOS automatically when AC power on. The data in CMOS includes system setup information such as system password, date, time, and system setup parameters. To clear and reset the system parameters to default setup, please turn off the computer and unplug the power cord, then use a jumper cap to short the pins on CLRMOS2.

Digital Input / Output Power Select (JGPIOPWR)
(5-pin JGPIO_PWR1)
(see p. 10, No. 21)

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

COM Port Pin9 PWR Setting Jumpers
(3-pin PWR_COM1, 2 (For COM Port1, 2))
(see p. 10, No. 32)

(3-pin PWR_COM3~6 (For COM Port3~6))
(see p. 10, No. 15)



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

PWR LOSS Header
(2-pin PWR_LOSS1)
(see p. 10, No. 4)

Short : Power Loss
Open : no Power Loss

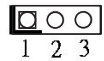
ATX/AT Mode Jumper
(2-pin SIO_AT1)
(see p. 10, No. 14)

Open : ATX Mode
Short : AT Mode

Chassis Intrusion Headers
(2-pin CI1, CI2: see p. 10, No. 11)

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 :
Short : Active Case Open
Open : Normal
CI2 :
Short : Normal
Open : Active Case Open

Digital Input / Output Default Value Setting
(3-pin JGPIO_SET1)
(see p. 10, No. 22)



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

PWR_BAT1
(2-pin PWR_BAT1)
(see p. 10, No. 30)

Open : Normal
Short : Charge Battery

PCIe Isolation Jumper
(2-pin PCIE_ISOLATION1)
(see p. 10, No. 12)

DACC1

(2-pin DACC1)

(see p. 10, No. 13)

Short : ACC

Open : no ACC

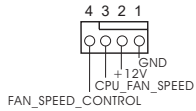
2.6 Onboard Headers and Connectors

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!

CPU Fan Connector (+12V)

(4-pin CPU_FAN1)

(see p. 10 No. 3)



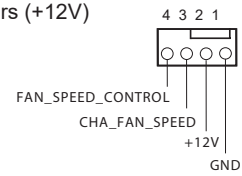
Please connect the CPU fan cable to the connector and match the black wire to the ground pin.

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.

Chassis Fan Connectors (+12V)

(4-pin CHA_FAN1~3)

(see p. 10 No. 1)



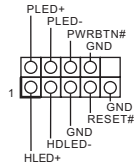
Please connect the fan cable to the fan connector and match the black wire to the ground pin.

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

System Panel Header

(9-pin PANEL1)

(see p. 10, No. 23)



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.

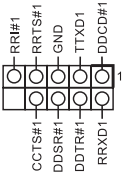
PLED (System Power LED):
Connect to the power status indicator on the chassis front panel. The LED is on when the system is operating. The LED keeps blinking when the system is in S1/S3 sleep state. The LED is off when the system is in S4 sleep state or powered off (S5).

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.

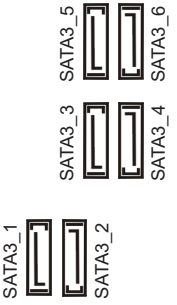
COM Port Headers (RS232)

(9-pin COM3~6: see p. 10, No. 16)



SATA3 Connectors

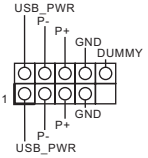
(SATA3_1~6: see p. 10, No. 6)



These six Serial ATA3 (SATA3) connectors support SATA data cables for internal storage devices. The current SATA3 interface allows up to 6.0 Gb/s data transfer rate.

USB 2.0 Header

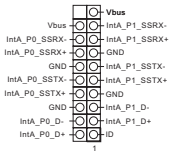
(9-pin USB2_9_10: see p. 10, No. 20)



There is one header on this motherboard. This USB 2.0 header can support two ports.

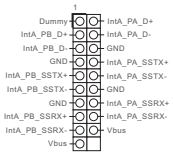
USB 3.2 Gen1 Headers

(19-pin USB3_5_6, see p. 10, No. 10)



There are two headers on this motherboard. Each header can support two ports.

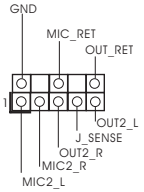
(19-pin USB3_7_8, see p. 10, No. 10)



Front Panel Audio Header

(9-pin HD_AUDIO1)

(see p. 10 No. 27)



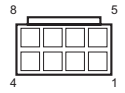
This is an interface for front panel audio cable that allows convenient connection and control of audio devices.

1. High Definition Audio supports Jack Sensing, but the panel wire on the chassis must support HDA to function correctly. Please follow the instruction in our manual and chassis manual to install your system.
2. If you use AC'97 audio panel, please install it to the front panel audio header as below:
   A. Connect Mic_IN (MIC) to MIC2_L.
   B. Connect Audio_R (RIN) to OUT2_R and Audio_L (LIN) to OUT2_L.
   C. Connect Ground (GND) to Ground (GND).
   D. MIC_RET and OUT_RET are for HD audio panel only. You don't need to connect them for AC'97 audio panel.
   E. To activate the front mic.
   Go to the "FrontMic" Tab in the Realtek Control panel. Adjust "Recording Volume".

ATX 12V Power Connector

(8-pin ATX12V1)

(see p. 10 No. 2)

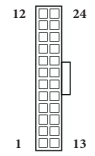


This motherboard provides an 8-pin ATX 12V power connector. To use a 4-pin ATX power supply, please plug it along Pin 1 and Pin 5.

ATX Power Input Connector

(24-pin ATXPWR1)

(see p. 10 No. 5)



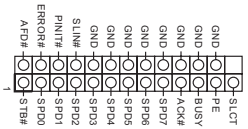
This motherboard provides a 24-pin ATX power connector. To use a 20-pin ATX power supply, please plug it along Pin 1 and Pin 13.

Printer Port / GPIO Header

(25-pin LPT_GPIO1)

(see p. 10 No. 18)

Printer Port:



GPIO:

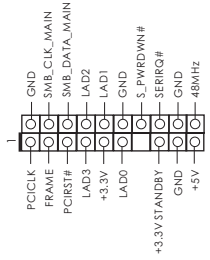
PIN	Signal Name	PIN	Signal Name
26	NC	25	NA
24	GND	23	SIO_GP70
22	GND	21	SIO_GP71
20	GND	19	SIO_GP72
18	GND	17	SIO_GP87
16	GND	15	SIO_GP86
14	GND	13	SIO_GP85
12	JGPIOPWR	11	SIO_GP84
10	JGPIOPWR	9	SIO_GP83
8	SIO_GP73	7	SIO_GP82
6	SIO_GP74	5	SIO_GP81
4	SIO_GP75	3	SIO_GP80
2	SIO_GP76	1	SIO_GP77

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

LPC Header

(19-pin LPC1)

(see p. 10, No. 19)

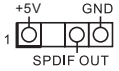


This connector supports a Trusted Platform Module (TPM) system, which can securely store keys, digital certificates, passwords, and data. A TPM system also helps enhance network security, protects digital identities, and ensures platform integrity.

SPDIF Header

(3-pin SPDIF1)

(see p. 10, No. 26)



SPDIF header, providing SPDIF audio output to HDMI VGA card, allows the system to connect HDMI Digital TV/ projector/LCD devices. Please connect the SPDIF connector of HDMI VGA card to this header.

LAN LED Headers

(4-pin LAN_LED1 (For LAN1 Port))

(4-pin LAN_LED2 (For LAN2 Port))

(see p. 10, No. 31)

SMBUS_TEST1

(4-pin SMBUS_TEST1)

(see p. 10, No. 25)

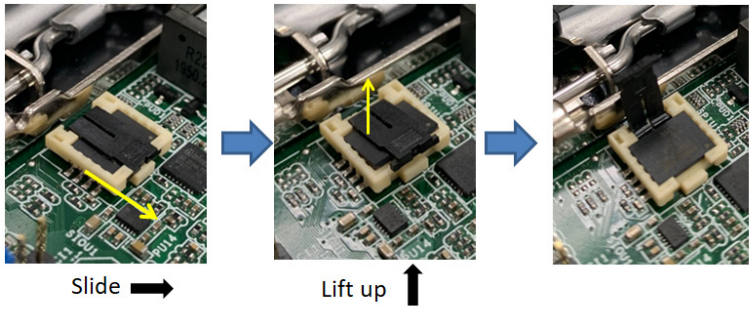
PIN	Signal Name	PIN	Signal Name	PIN	Signal Name	PIN	Signal Name
1	+3V	2	SMB_CLK	3	SMB_DATA	4	GND

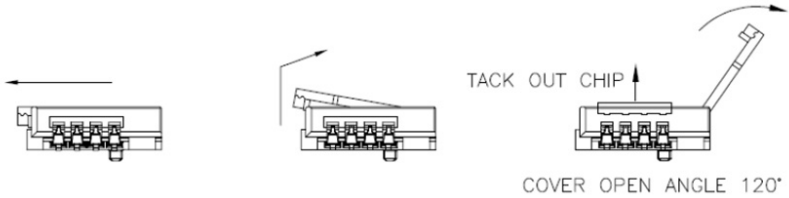
Buzzer

(2-pin BUZZ1)

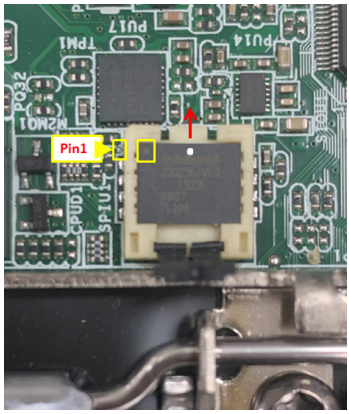
(see p. 10, No. 24)

2.7 Installation of ROM Socket





* Do not apply force to the actuator cover after ic inserted.
* Do not apply force to actuator cover when it is opening over 120 degree, Otherwise, the actuator cover may be broken.



* The yellow dot (Pin1) on the ROM must be installed at pin1 position of the socket (white arrow area).
* Make sure the white dot on the ROM is installed outwards of the socket.
* For further details of how to install ROM, please refer to ASRI website.

Warning: If the installation does not follow as the picture, then it may cause severe damage to chipset & MB.

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.

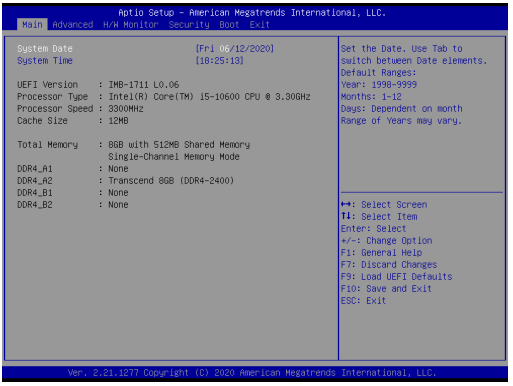
3.1.2 Navigation Keys

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

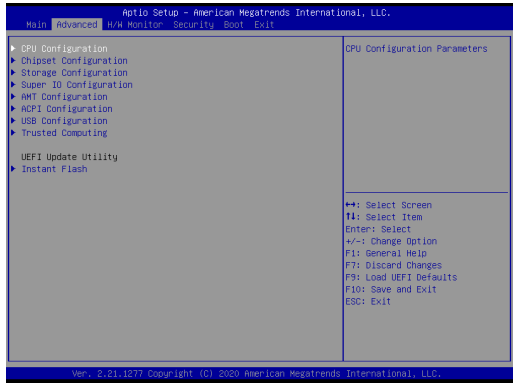
3.2 Main Screen

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, AMT 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 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.

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.

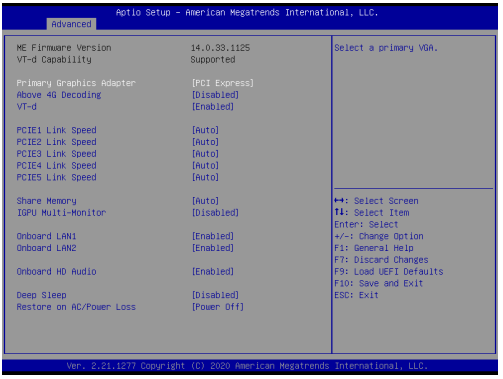
Intel Turbo Boost Technology

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.

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].

Above 4G Decoding

Enable or disable 64bit capable Devices to be decoded in Above 4G Address Space (only if the system supports 64 bit PCI decoding).

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.

PCIE3 Link Speed

Select the link speed for PCIE3.

PCIE4 Link Speed

Select the link speed for PCIE4.

PCIE5 Link Speed

Select the link speed for PCIE5.

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

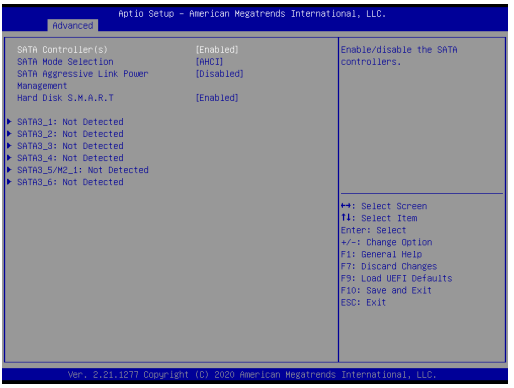
Deep Sleep

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.

3.3.3 Storage Configuration



SATA Controller(s)

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

SATA Mode Selection

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

AHCI (Advanced Host Controller Interface) supports NCQ and other new features that will improve SATA disk performance.

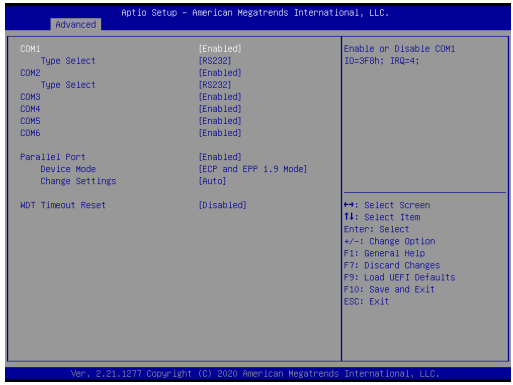
SATA Aggressive Link Power Management

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

Use this to set parameters of COM1.

Type Select

Use this to select COM1 port type: [RS232], [RS422] or [RS485].

COM2

Use this to set parameters of COM2.

Type Select

Use this to select COM2 port type: [RS232], [RS422] or [RS485].

COM3

Use this to set parameters of COM3.

COM4

Use this to set parameters of COM4.

COM5

Use this to set parameters of COM5.

COM6

Use this to set parameters of COM6.

Parallel Port

Enable or disable the Parallel port.

Device Mode

Select the device mode according to your connected device.

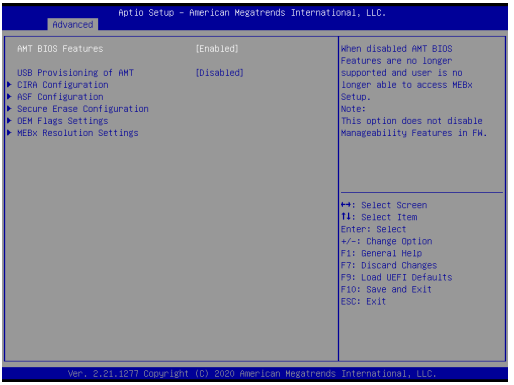
Change Settings

Select the address of the Parallel port.

WDT Timeout Reset

Use this to set the Watch Dog Timer.

3.3.5 AMT Technology



AMT BIOS Features

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

ASF support

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

USB Provisioning of AMT

Use this to enable or disable AMT USB Provisioning. The default is [Disabled].

Secure Erase mode

Change Secure Erase module behavior: Simulated: Performs SE flow without erasing SSD. Real: Erase SSD.

Force Secure Erase

Use this to enable or disable Force Secure Erase on next boot. The default is [Disabled].

MEBx hotkey Pressed

Use this to enable or disable MEBx 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 OEM Debug Menu Enable

Use this to enable or disable MEBx OEM Debug Menu. The default is [Disabled].

Un-Configure ME

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

WatchDog

Use this to enable or disable AMT WatchDog Timer. The default is [Disabled].

Activate Remote Assistance Process

Trigger CIRA boot. The default is [Disabled].

PET Progress

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

ASF Sensors Table

Use this to enable or disable ASF Sensor Table. The default is [Disabled].

Non-UI Mode Resolution

Use this to set resolution for non-UI text mode.

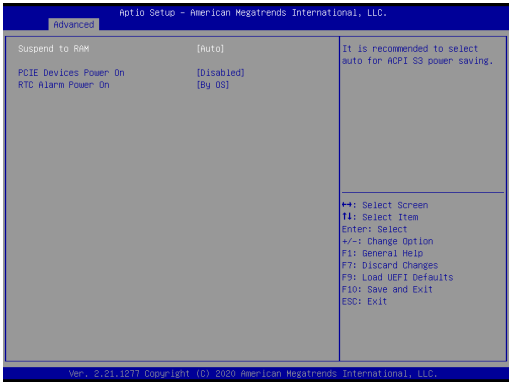
UI Mode Resolution

Use this to set resolution for UI text mode.

Graphics Mode Resolution

Use this to set resolution for graphics mode.

3.3.6 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.

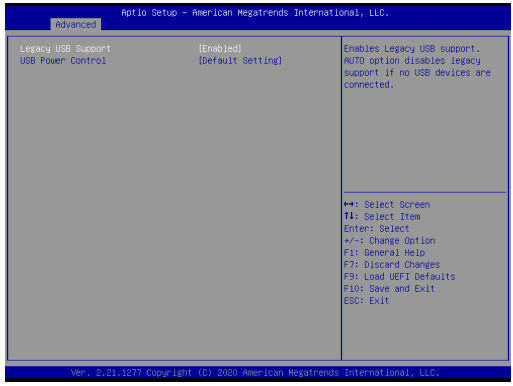
PCIE Devices Power On

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.

3.3.7 USB Configuration



Legacy USB Support

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

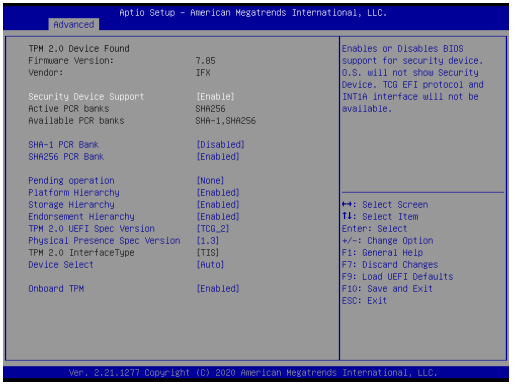
[Enabled] - Enables support for legacy USB.

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

USB Power Control

Use this option to control USB power.

3.3.8 Trusted Computing

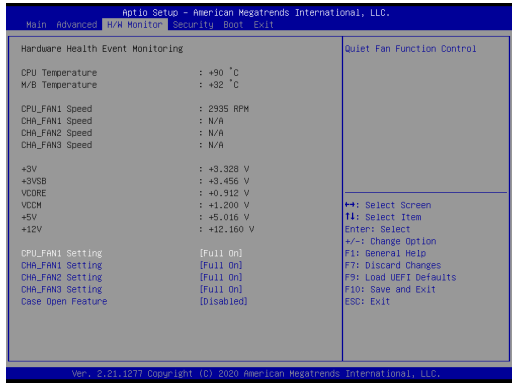


Security Device Support

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].

CHA_FAN2 Setting

This allows you to set chassis fan 2's speed. Configuration options: [Full On] and [Automatic Mode]. The default value is [Full On].

CHA_FAN3 Setting

This allows you to set chassis fan 3's speed. Configuration options: [Full On] and [Automatic Mode]. The default value is [Full On].

Case Open Feature

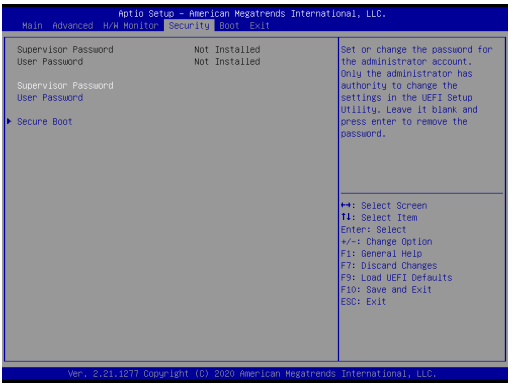
This allows you to enable or disable case open detection feature. The default is value [Disabled].

Clear Status

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

3.5 Security Screen

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



Supervisor Password

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

User Password

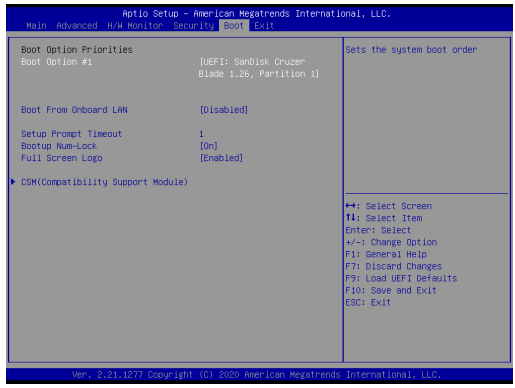
Set or change the password for the user account. Users are unable to change the settings in the UEFI Setup Utility. Leave it blank and press enter to remove the password.

Secure Boot

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

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.

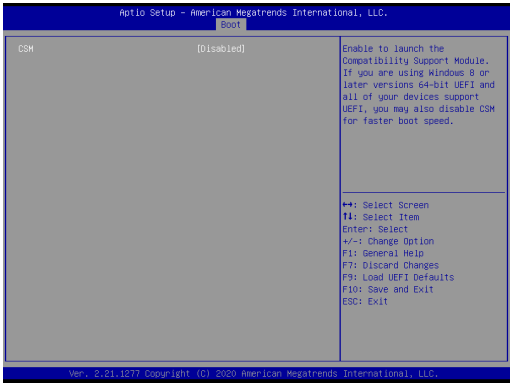
Bootup Num-Lock

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

Full Screen Logo

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

CSM (Compatibility Support Module)



CSM

Use this to enable or disable Compatibility Support Module. The default value is [Disabled].

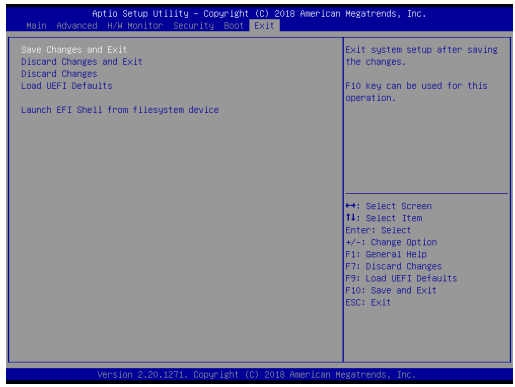
Launch PXE OpROM Policy

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.

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. 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.