

iBOX 260 Series

Version 1.0

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This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

CALIFORNIA, USA ONLY

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

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

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Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage caused by our goods. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure. If you require assistance please call ASRockInd Tel : +886-2-28965588 ext.123 (Standard International call charges apply)

Replaceable batteries

CAUTION



RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE.

DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS

This product is intended to be supplied by a Listed Power Adapter or DC power source marked "L.P.S." (or "Limited Power Source"), rated 19Vdc, 3.42 A minimum, Tma = 40 degree C minimum. If need further assistance, please contact ASRock Industrial for further information.

All interior servicing is to be performed by qualified skilled personnel only, which requires the use of a tool for open the metal enclosure.

Button Battery Safety Notice

 WARNING	
<ul style="list-style-type: none">• INGESTION HAZARD: This product contains a button cell or coin battery.• DEATH or serious injury can occur if ingested.• A swallowed button cell or coin battery can cause Internal Chemical Burns in as little as 2 hours.• KEEP new and used batteries OUT OF REACH OF CHILDREN• Seek immediate medical attention if a battery is suspected to be swallowed or inserted inside any part of the body.	

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

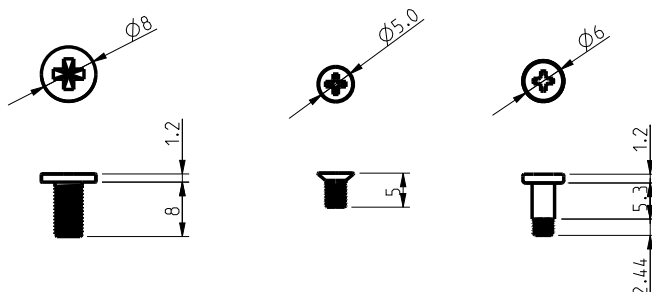


CAUTION (or Warning)

Hot surface
Do not touch

The equipment intended only for use in a Restricted Access Area.

Be sure to turn off the power and then disconnect the power cords from your system before performing any installation or servicing. A sudden surge of power could damage sensitive electronic components.



DIN Rail/Wall Mount: M3x5mm Screws *(for securing the mounting bracket(s) to the chassis)*
VESA Mount: M4x6mm Screws *(for securing the VESA bracket to the monitor)*

This product should be connected by means of a power cord to a socket-outlet with earthing connection.



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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.

Contact Information

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

ASRock Industrial Incorporation

Email: Info_ipc@asrockind.com

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Chapter 1 Introduction



Because the hardware specifications might be updated, the content of this documentation will be subject to change without notice.

1.1 Package Contents

- 1 x iBOX 260 Series
- 1 x 19V/65W power adapter
- 1 x Quick Installation Guide
- 1 x Wall mount kit & screw package



The barebone system does not include memory, hard drive and mSATA SSD.



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

1.2 Product Specifications

Processor System

CPU	Intel® Alder Lake-N SoC Processors iBOX-260J (N97, QC, Max Speed Up to 3.6GHz, 12W)
Chipset	SoC
BIOS	AMI SPI 256 Mbit

Memory

Technology	Single Channel DDR4 3200 MHz
Capacity	32GB
Socket	1 x 260-pin SO-DIMM

Graphics

Controller	Intel® UHD Graphics
HDMI	HDMI 2.0b Max resolution up to 4096 x 2160@60Hz
DisplayPort	DP 1.4a Max resolution up to 4096 x 2160@60Hz
VGA	Max resolution up to 1920 x 1200
MultiDisplay	Triple Display

Audio

Interface	Realtek ALC256 HD, High Definition Audio
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Ethernet

Controller/ Speed	LAN1: Intel® I226V with 10/100/1000/2500 Mbps LAN2: Intel® I210AT with 10/100/1000 Mbps
Connector	2 x RJ-45

Expansion Slot

M.2	1 x M.2 (Key E, 2230) with PCIe Gen3 x1 and USB 2.0 for Wireless 1 x M.2 (Key B, 3042/3052) with PCIe Gen3 x1/USB 3.2/USB 2.0 and SIM for 4G/5G
SIM Socket	1x SIM socket connected to M.2 key B

Front I/O

USB	2 x USB 2.0
COM	2 x COM (RS-232/422/485) 1 x COM (RS-232)

Rear I/O

HDMI	1 x HDMI2.0b
DisplayPort	1 x DP 1.4a
VGA	1
Ethernet	1 x 1 Gigabit LAN, 1 x 2.5 Gigabit LAN
USB	2 x USB 3.2 Gen2

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 Segments, 0, 1, 2, ...255sec

Power Requirements

Input PWR	9~36V DC-In
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	-20°C ~ 50°C (With extended temp. peripherals)
Storage Temp	-40° C – 85° C
Operating Humidity	10% ~ 90%
Storage Humidity	10% ~ 90%

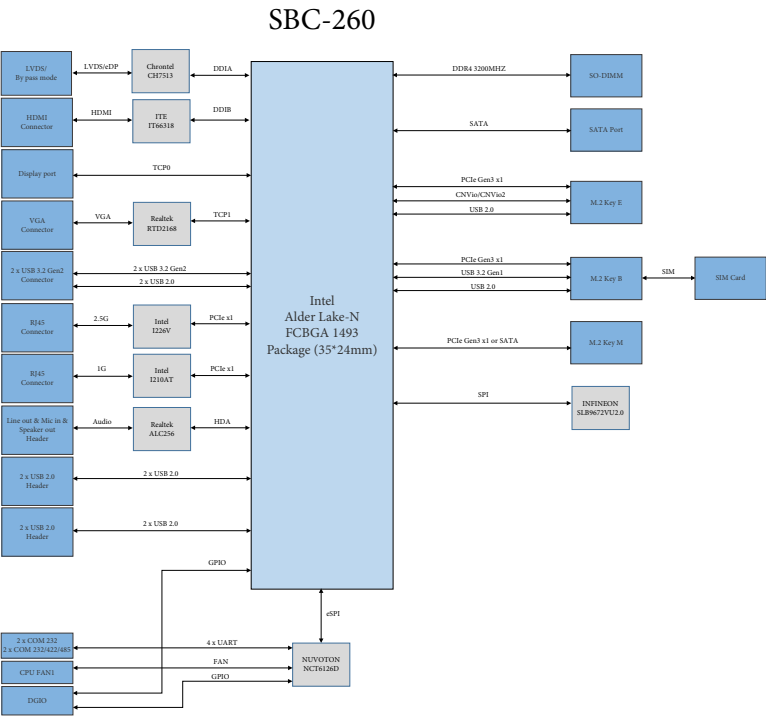
Mechanical

Construction	Aluminum housing
Mounting	VESA mount/Wall mount/Din-rail
Dimensions (L x W x H)	200 x 134.5 x 39mm (7.87" x 5.3" x 1.54")
Weight	Net Weight:1.3kg

Others

OS Support	Windows 10/11
TPM	TPM 2.0 onboard IC
Certifications	CE, FCC
Packing List	1 x 19V/65W Power Adapter 1 x Wall mount kit

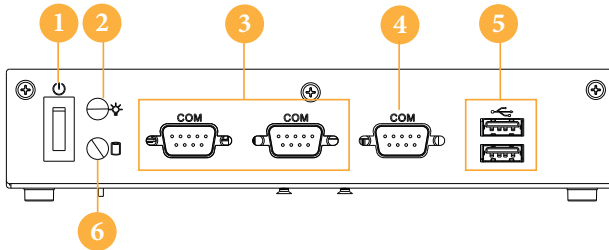
1.3 Block Diagram



Chapter 2 Product Overview

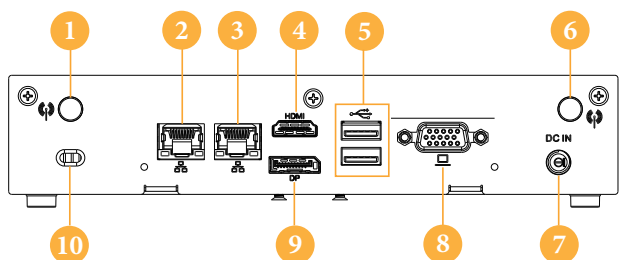
This chapter provides diagrams showing the location of important components of the iBOX 260 Series.

2.1 Front View



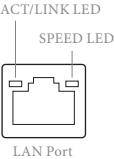
No.	Description
1	Power button
2	Power LED
3	2 x COM Port (RS232/422/485)
4	COM Port (RS232)
5	2 x USB 2.0 (Type-A)
6	HDD LED

2.2 Rear View



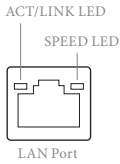
No.	Description
1	Antenna
2	RJ-45 (1G LAN)*
3	RJ-45 (2.5G LAN)**
4	HDMI
5	2 x USB 3.2 Gen2 (Type-A)
6	Antenna
7	DC IN
8	VGA
9	DisplayPort***
10	Kingston Lock Slot

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



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

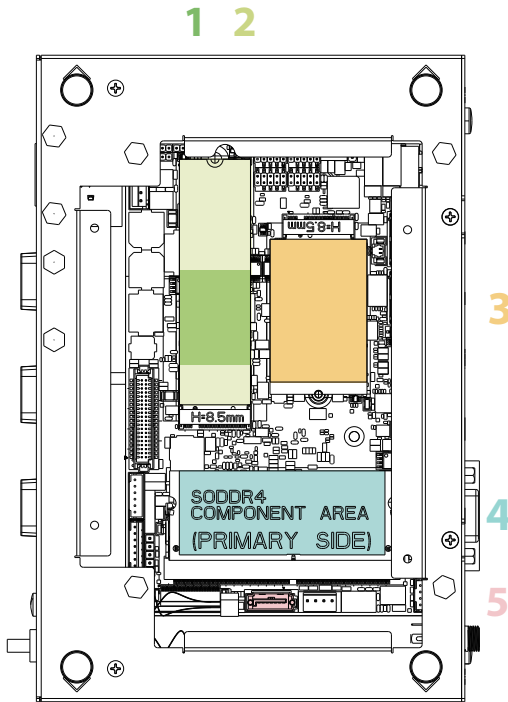
**** There are two LEDs on the LAN port. Please refer to the table below for the LAN port LED indications.**



Activity / Link LED		Speed LED	
Status	Description	Status	Description
Off	No Link	Off	10Mbps/100Mbps connection
Blinking	Data Activity	Orange	1Gbps connection
On	Link	Green	2.5Gbps connection

*****To use DisplayPort as a display output, please connect your monitor/display to HDMI Port when installing OS system. This is DisplayPort only supports DP to D-Sub dongle and does not support DP to HDMI dongle and DP to DVI dongle.**

2.3 Inside View



No.	Description
1	1 x M.2 (Key E, 2230) with PCIe Gen3 x1 and USB 2.0 for Wireless
2	1 x M.2 (Key M, 2242/2260/2280) with PCIe Gen3 x1 or SATA3 for SSD
3	1 x M.2 (Key B, 3042/3052) with PCIe Gen3 x1/USB 3.2/USB 2.0 and SIM for 4G/5G
4	SO-DIMM Slot
5	SATA 3.0 Connector



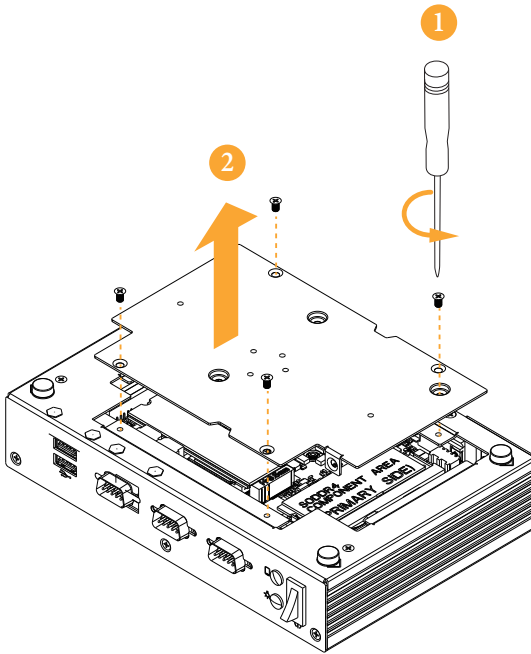
SO-DIMM memory, hard drive and mSATA SSD are not included with this system.

Chapter 3 Hardware Installation

This chapter helps you install or remove important components.

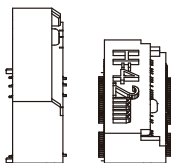
3.1 How to Remove the Bottom Cover

1. Remove the four screws on the bottom cover.
2. Then lift up and remove the bottom cover.

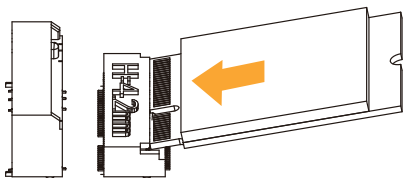


3.2 How to Install the WiFi Module (Type 2230)

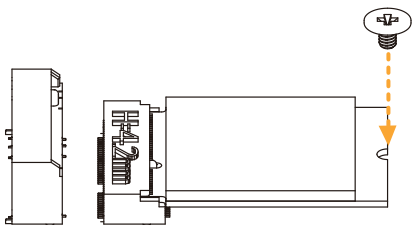
1. Locate the WiFi Module slot on the motherboard.



2. Carefully insert the WiFi Module into the slot at a 30-degree angle.

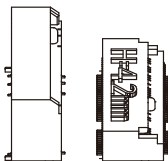


3. Tighten the screw to secure the WiFi Module to the motherboard.

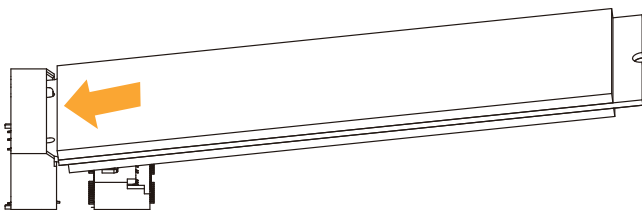


3.3 How to Install the M.2 SSD (Type 2242/2260/2280)

1. Locate the M.2 slot on the motherboard.



2. Carefully insert the M.2 SSD into the slot at a 30-degree angle.

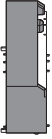


3. Tighten the screw to secure the M.2 SSD to the motherboard.

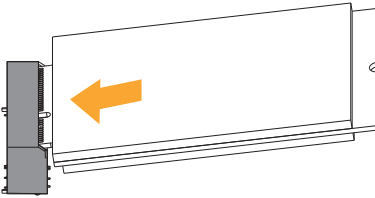


3.4 How to Install the 4G LTE/5G Module (Type 3042)

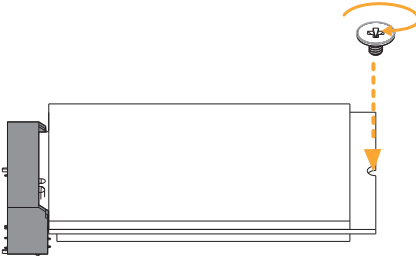
1. Locate the 4G LTE/5G module slot on the motherboard.



2. Carefully insert the 4G LTE/5G Module into the slot at a 30-degree angle.

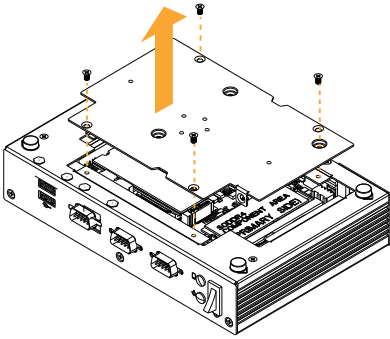


3. Tighten the screw to secure the 4G LTE/5G Module to the motherboard.

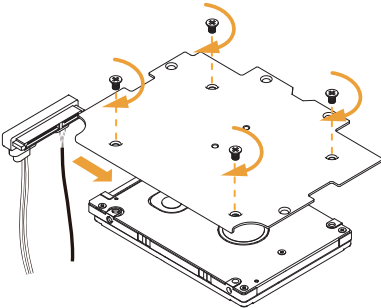


3.5 How to Install the 2.5-inch Hard Drive

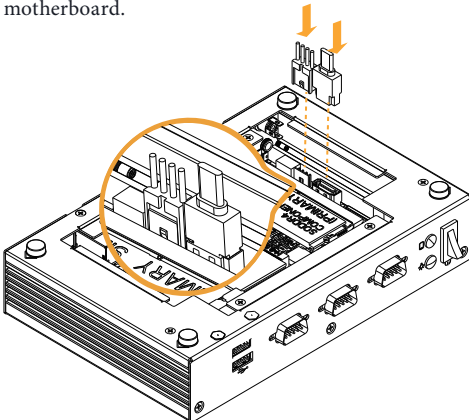
1. Remove the four screws on the bottom cover. Then lift up and remove the bottom cover.



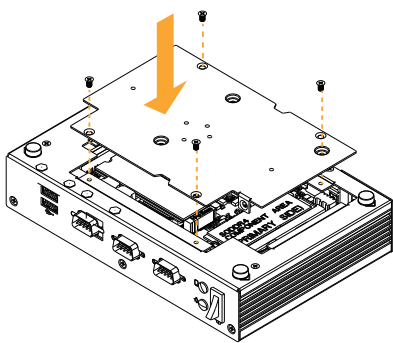
2. Ensure the HDD assembly to attach to the bottom cover in the correct orientation as shown in the picture, and secure it using the four screws. Then connect the SATA Data and Power Cable to the HDD.



3. Connect the SATA Cable and the SATA connector to the connector on the motherboard.



4. Secure four screws and reinstall the bottom cover.



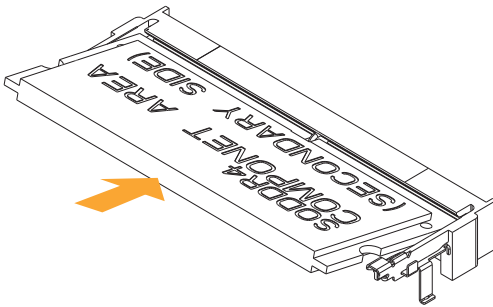
For iBOX 260 Series, it is not recommended to install 2.5" HDD. If you install the 2.5" HDD, please keep the iBOX 260 Series in a vertical position to ensure better cooling performance.

3.6 How to Install the Memory Modules (DDR4 Low Voltage (1.2V))

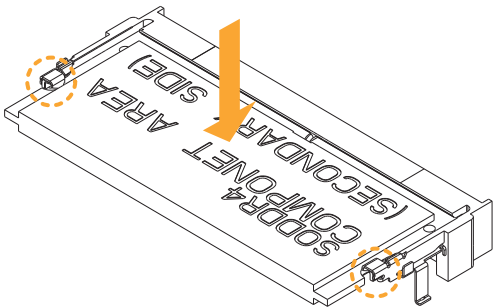


The iBOX 260 Series requires DDR4 SO-DIMM (1.2V).

1. Carefully insert the SO-DIMM memory module into the slot at a 30-degree angle.

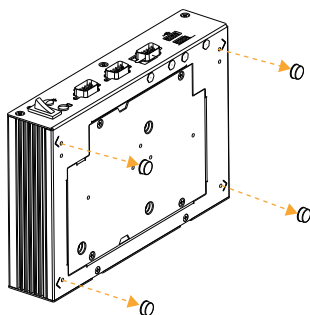


2. Push down until the module snaps into place.

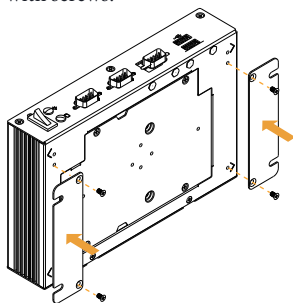


3.7 How to Install the Wall Mounting Brackets

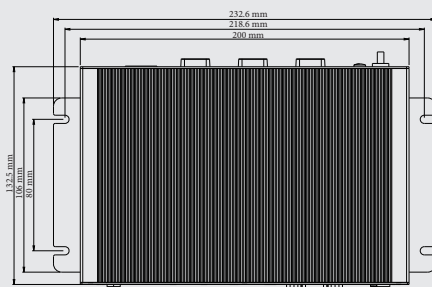
1. Remove the four rubber feet on the base of the iBOX 260 Series.



2. Attach the wall mounting brackets to the base of the iBOX 260 Series and secure them with screws.



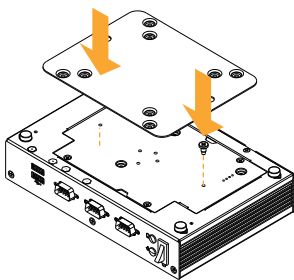
Dimension of the iBOX 260 Series
with Wall Mounting Brackets Installed



Wall Mount Bracket is not provided by default. Please purchase it separately if needed.

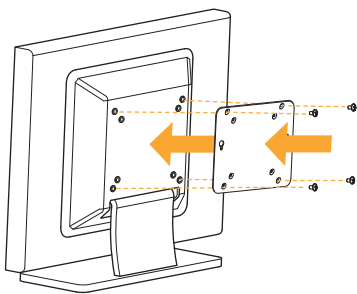
3.8 How to Install the VESA Bracket (Optional)

1. Attach the two screws to the base of the iBOX 260 Series.

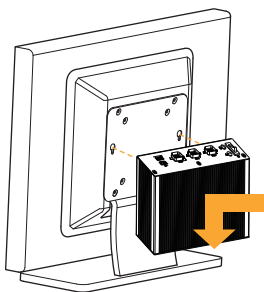


2. Attach the VESA Bracket to the rear of a compatible display using the four screws.

*Choose mounting holes depending on the mounting hole pattern of your LCD screen (75 mm × 75 mm or 100 mm × 100 mm).

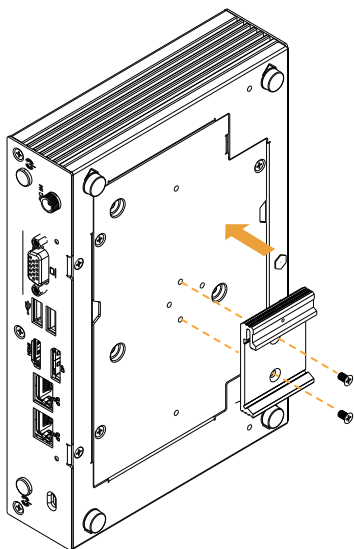


3. Mount the iBOX 260 Series by sliding it into place.



VESA Bracket is not provided by default. Please purchase it separately if needed.

3.9 How to Install the Din Rail Mounting Bracket



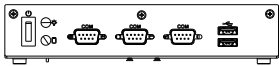
Attach the Din Rail Bracket to the base of the iBOX 260 Series and secure it with screws.



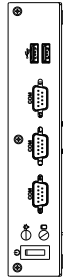
Din Rail Bracket is not provided by default. Please purchase it separately if needed.

3.10 Positions of the iBOX 260 Series

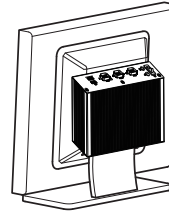
The iBOX 260 Series can be placed in vertical or horizontal position.



Horizontal Position



Vertical Position

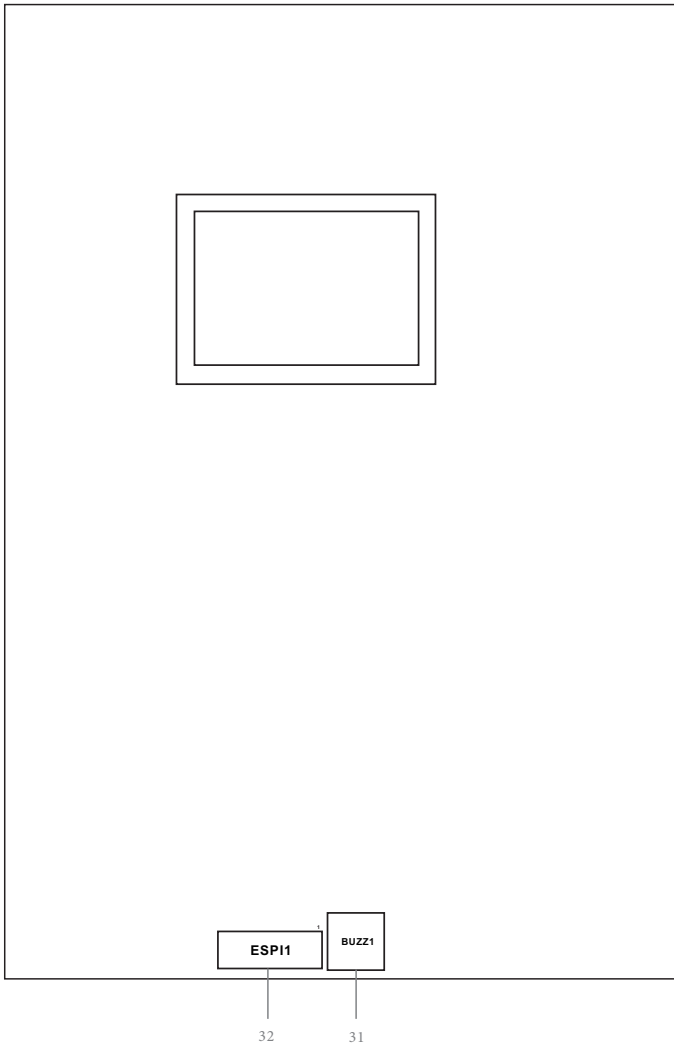


VESA-mounted



Please note that keeping the iBOX 260 Series in a vertical position will ensure better cooling performance.

Bottom:



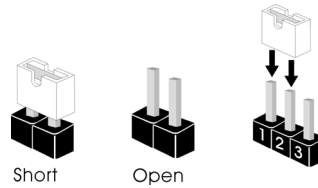
- 1 : 2W Audio AMP Output Wafer (SPEAKER1)
- 2 : Front Panel Audio Header (HD_AUDIO1)
- 3 : CPU FAN Connector (+12V) (CPU_FAN1)
- 4 : SATA Power Output Connector (SATA_PWR1)
- 5 : SATA3 Connector (SATA3_0)
- 6 : MIPI Connector (MIPI1)
- 7 : Panel Power Select (LCD_VCC) (PNL_PWR1)
- 8 : Backlight Volume Control (BLT_VOL1)
- 9 : Backlight Power Select (LCD_BLT_VCC) (BKT_PWR1)
- 10 : Inverter Power Control Wafer (BLT_PWR1)
- 11 : CON_LBKLT_CTL Voltage Level (BLT_PWM2)
- 12 : Brightness Control Mode (BLT_PWM1)
- 13 : LVDS Panel Connector (LVDS1)
- 14 : M.2 Key-M Socket (M2_M1)
- 15 : M.2 Key-E Socket (M2_E1)
- 16 : M.2 Key-B Socket (M2_B1)
- 17 : Chassis Intrusion Header (CI1)
- 18 : 4-pin DC-in PWR Connector (Input +9V~+36V) (DC_IN1)
- 19 : Clear CMOS Header (CLRMOS1)
- 20 : Auto Clear CMOS Header (CLRMOS2)
- 21 : ATX/AT Mode Jumper (SIO_AT1)
- 22 : DACC1
- 23 : GPIO Default Setting (JGPIO_SET1)
- 24 : Internal COM Port Headers
 - COM1, COM2 (RS232/422/485)
 - COM3, COM4 (RS232)
- 25 : COM Port Pin9 PWR Setting Jumpers
 - PWR_COM1 (For COM Port1)
 - PWR_COM2 (For COM Port2)
- 26 : Buzzer Header (BUZZ2)
- 27 : USB 2.0 Connectors (USB2_4_5, USB2_6_7)
- 28 : System Panel Header (PANEL1)
- 29 : Digital Input/Output Power Select (JGPIO_PWR) (JGPIO_PWR1)
- 30 : Digital Input/Output Pin Header (JGPIO1)

Back Side:

- 31 : Buzzer (BUZZ1)
- 32 : ESPI Connector (ESPI1)

4.2 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.



Panel Power Select (LCD_VCC)

(5-pin PNL_PWR1)

(see p. 20, No. 7)



Setting	Description
1-2	+3V (Default)
2-3	+5V
3-4	+5V
4-5	+12V

Use this to set up the VDD power of the LVDS connector.

Backlight Power Select

(LCD_BLT_VCC)

(5-pin BKT_PWR1)

(see p. 20, No. 9)



Setting	Description
1-2	LCD_BLT_VCC : +5V (Default)
2-3	LCD_BLT_VCC : +12V
4-5	LCD_BLT_VCC : DC_IN

Use this header to set up the backlight power of the LVDS connector and the panel backlight power of BLT_PWM1.

CON_LBKLT_CTL Voltage Level

(3-pin BLT_PWM2)

(see p. 20, No. 11)



Setting	Description
1-2	3V Level (Default)
2-3	5V Level

Brightness Control Mode

(3-pin BLT_PWM1)

(see p. 20, No. 12)



Setting	Description
1-2	From eDP PWM to CON_LBKLT_CTL
2-3	From LVDS PWM to CON_LBKLT_CTL (Default)

Please set to 1-2 when adjusting brightness by Brightness Control bar under OS.

Please set to 2-3 when adjusting brightness by BLT_VOL1.

Chassis Intrusion Header

(2-pin C11)

(see p. 20, No. 17)



Setting	Description
Open	Normal (Default)
Short	Active Case Open

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.

Clear CMOS Header

(3-pin CLRMOS1)

(see p. 20, No. 19)



Setting	Description
1-2	Normal (Default)
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, and time will be cleared only if the CMOS battery is removed.

Auto Clear CMOS Header

(2-pin CLRMOS2)

(see p. 20, No. 20)



Setting	Description
1-2	Normal (Default)
2-3	Auto Clear CMOS when AC Power On

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.

ATX/AT Mode Jumper

(2-pin SIO_AT1)

(see p. 20, No. 21)



Setting	Description
Open	ATX Mode (Default)
Short	AT Mode

DACC1

(2-pin DACC1)

(see p. 20, No. 22)



Setting	Description
Open	No ACC
Short	ACC (Default)

Auto clear CMOS when system boot improperly.

GPIO Default Setting

(3-pin JGPIO_SET1)

(see p. 20, No. 23)



Setting	Description
1-2	Pull-High (Default)
2-3	Pull-Low

The header is used for GPIO default value setting for either pull high or pull low. Pulling the header to a high/low value means the voltage is anchored to VCC/GND, in a stable, non-floating state.

COM Port Pin9 PWR Setting Jumpers

(3-pin PWR_COM1 (For COM Port1),

PWR_COM2 (For COM Port2))

(see p. 20, No. 25)



Setting	Description
1-2	+5V (Default)
2-3	+12V

The maximum current for per port is 1A, and the power supply is either 5V or 12V. Use the jumpers to set the power for COM port pin 9.

Digital Input/Output Power Select

(3-pin JGPIO_PWR1)

(see p. 20, No. 29)



Setting	Description
1-2	+12V
2-3	+5V (Default)

The maximum current JGPIO_PWR1 provides is 1A.

4.3 Onboard Headers and Connectors



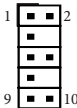
Onboard headers and connectors are NOT jumpers. Do NOT place jumper caps over these headers and connectors. Placing jumper caps over the headers and connectors will cause permanent damage of the motherboard!

2W Audio AMP Output Wafer
(4-pin SPEAKER1)
(see p. 20, No. 1)



Pin	Signal Name
1	SPK L-
2	SPK L+
3	SPK R+
4	SPK R-

Front Panel Audio Header
(8-pin HD_AUDIO1)
(see p. 20, No. 2)



Pin	Signal Name	Signal Name	Pin
1	MIC1_L	GND	2
3	MIC1_R		4
5	OUT2_R	MIC1_RET	6
7	J_SENSE		8
9	OUT2_L	OUT_RET	10

This is line out/microphone interface for front panel audio cable that allows jack detection, convenient connection and control of audio devices.

CPU_Fan Connector (+12V)
(4-pin CPU_FAN1)
(see p. 20, No. 3)



Pin	Signal Name
1	GND
2	+12V
3	CPU_FAN_SPEED
4	FAN_SPEED_CONTROL



The board offers three 4-pin CPU fan (Smart Fan) connectors which are compatible with 3-pin CPU fan. If you connect a 3-pin CPU fan to the CPU fan connector on this motherboard, please connect it to pin 1-3. The maximum current is 1A.

SATA Power Output Connector

(4-pin SATA_PWR1)

(see p. 20, No. 4)



Pin	Signal Name
1	+5V
2	GND
3	GND
4	+12V

Please connect a SATA power cable to this connector.

SATA3 Connector

(7-pin SATA3_0)

(see p. 20, No. 5)



Pin	Signal Name
1	GND
2	SATA-A+
3	SATA-A-
4	GND
5	SATA-B-
6	SATA-B+
7	GND

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

MIPI Connector (BOM Option)

(36-pin MIP11)

(see p. 20, No. 6)

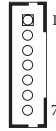


Pin	Signal Name
1	GND
2	CSI_B_DN2
3	CSI_B_DP2
4	GND
5	CSI_B_DN1
6	CSI_B_DP1
7	GND
8	CSI_B_CLK_N
9	CSI_B_CLK_P
10	GND
11	CSI_B_DN0
12	CSI_B_DP0
13	CSI_B_DN3
14	CSI_B_DP3
15	GND
16	GND
17	+2.8V
18	GND
19	+2.8V
20	+1.8V
21	+1.2V
22	GND
23	IMBCLKOUT0
24	GND
25	I2C1_SCL
26	I2C1_SDA
27	N/C
28	BUF_PLT_RST_1.8_R_N
29	N/C
30	GND
31	N/C
32	+1.2V
33	GND
34	GPP_S1
35	GPP_S2
36	GPP_S3

Backlight Volume Control

(7-pin BLT_VOL1)

(see p. 20, No. 8)



Pin	Signal Name
1	GPP_E7
2	GPP_E3
3	PWRDN
4	BRIGHTNESS_UP
5	BRIGHTNESS_DW
6	GND
7	GND

Inverter Power Control Wafer

(6-pin BLT_PWR1)

(see p. 20, No. 10)

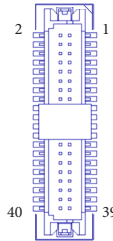


Pin	Signal Name
1	GND
2	GND
3	BL CTL
4	BL EN
5	LCD_BLT_VCC
6	LCD_BLT_VCC

LVDS Panel Connector

(40-pin LVDS1)

(see p. 20, No. 13)



• eDP by pass mode pin definition:

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

Pin	Signal Name	Signal Name	Pin
1	LCD_VCC	LCD_VCC	2
3	NA	NA	4
5	NA	NA	6
7	NA	GND	8
9	EDP_TX1#	EDP_TX1	10
11	GND	EDP_TX0#	12
13	EDP_TX0	GND	14
15	NA	NA	16
17	GND	EDP_AUXN	18
19	EDP_AUXP	GND	20
21	NA	NA	22
23	GND	NA	24
25	NA	GND	26
27	NA	NA	28
29	DPLVDD_EN	NA	30
31	NA	GND	32
33	NA	NA	34
35	GND	CON_LBKLT_EN	36
37	CON_LBKLT_CTL	LCD_BLT_VCC	38
39	LCD_BLT_VCC	LCD_BLT_VCC	40

4-pin DC-in PWR Connector (Input +9V~+36V)

(4-pin DC_IN1)

(see p. 20, No. 18)



Pin	Signal Name
1	GND
2	DC_Input
3	DC_Input
4	GND

Please connect a DC +9V~+36V power supply to this connector.

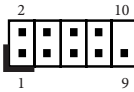
Internal COM Port Headers

COM1, COM2 (RS232/422/485)

COM3, COM4 (RS232)

(9-pin COM1~4)

(see p. 20, No. 24)



Pin	Signal Name	Signal Name	Pin
1	DDCD#1	RRXD1	2
3	TTXD1	DDTR#1	4
5	GND	DDSR#1	6
7	RRTS#1	CCTS#1	8
9	NA		10



This motherboard supports RS232/422/485 on COM1, 2 ports. Please refer to the table below 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 our manual for details.

COM1, 2 Ports Pin Definition

Pin	RS232	RS422	RS485
1	DCD	TX-	RTX-
2	RXD	TX+	RTX+
3	TXD	RX+	NA
4	DTR	RX-	NA
5	GND	GND	GND
6	DSR	NA	NA
7	RTS	NA	NA
8	CTS	NA	NA
9	PWR	PWR	PWR

Buzzer Header

(2-pin BUZZ2)

(see p. 20, No. 26)



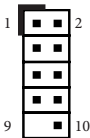
Pin	Signal Name
1	BUZZ+
2	BUZZ-

This header provides additional external Buzzer to boot up debugging.

USB 2.0 Connectors

(9-pin USB2_4_5, USB2_6_7)

(see p. 20, No. 27)



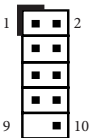
Pin	Signal Name	Signal Name	Pin
1	USB_PWR	USB_PWR	2
3	P-	P-	4
5	P+	P+	6
7	GND	GND	8
9		DUMMY	10

The board provides two USB 2.0 headers and each of them can support two USB 2.0 ports. The maximum current per port is 0.5A.

System Panel Header

(9-pin PANEL1)

(see p. 20, No. 28)



Pin	Signal Name	Signal Name	Pin
1	HDLED+	PLED+	2
3	HDLED-	PLED-	4
5	GND	PWRBTN#	6
7	RESET#	GND	8
9	DUMMY		10

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 sys-tem is in S1 sleep state. The LED is off when the system is in S3/S4 sleep state or powered off (S5).

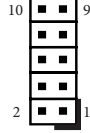
HDLED (Hard Drive Activity LED):

Connect to the hard drive activity LED on the chassis front panel. The LED is on when the hard drive is reading or writing data.

The front panel design may differ by chassis. A front panel module mainly consists of power switch, reset switch, power LED, hard drive activity LED, speaker and etc. When connecting your chassis front panel module to this header, make sure the wire assignments and the pin assign-ments are matched correctly.

Digital Input/Output Pin Header

(10-pin JGPIO1)
(see p. 20, No. 30)



Pin	Signal Name	Signal Name	Pin
1	SIO_GP34	GPP_B15	2
3	SIO_GP35	GPP_E1	4
5	SIO_GP36	GPP_E2	6
7	SIO_GP37	GPP_E13	8
9	JGPIO_PWR	GND	10

Parameter	Range
GPIO input Low voltage	Max: 0.8V
GPIO input High voltage	Low: 2V
GPIO output Low voltage	Max: 0.4V
GPIO output High voltage	Low: 2.4V
Note: Max. load per GPI/O pin:12mA Current Max. 1A per power pin.	

Back Side:**Buzzer**

(BUZZ1)
(see p. 21, No. 31)

**ESPI Connector**

(20-pin ESPI1)
(see p. 21, No. 32)



Pin	Signal Name
1	GND
2	C_ESPI_CLK
3	GND
4	C_ESPI_CS#
5	DEBUG_RESET
6	GND
7	+3V
8	GND
9	SMB_CLK_MAIN
10	SMB_DATA_MAIN
11	C_ESPI_IO0
12	C_ESPI_IO1
13	C_ESPI_IO2
14	C_ESPI_IO3
15	GND
16	+3VSB
17	NA
18	NA
19	C_ESPI_ALERT#
20	GND

4.4 Expansion Slots (M.2 Slots)

There are 3 M.2 sockets and 1 SIM socket on this motherboard.

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

M.2 sockets: 1 x M.2 (Key E, 2230) with PCIe Gen3 x1, USB 2.0 and CNVio/CNVio2 for Wireless

1 x M.2 (Key B, 3042/3052) with PCIe Gen3 x1, USB 3.2 Gen1, USB 2.0 and SIM for 4G/5G

1 x M.2 (Key M, 2242/2260/2280) with PCIe Gen3 x1 or SATA3 for SSD

M.2 Key-E Socket
(M2_E1)

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+		
		CNV_BGL_DT	32
33	GND	CNV_RGI_RSP	34
35	PETp	CNV_BRI_DT	36
37	PETn	NA	38
39	GND	NA	40
41	PERp	NA	42
43	PERn	NA	44
45	GND	NA	46
47	PEFCLKp	NA	48
49	PEFCLKn	SUSCLK	50
51	GND	PERST0#	52
53	CLKREQ#	W_DISABLE1#	54
55	NA	W_DISABLE2#	56
57	GND	SMB_DATA	58
59	CNV_WT_D1-	SMB_CLK	60
61	CNV_WT_D1+	NA	62
63	GND	NA	64
65	CNV_WT_D0-	NA	66
67	CNV_WT_D0+	NA	68
69	GND	NA	70
71	CNV_WT_CLK-	+3.3V	72
73	CNV_WT_CLK+	+3.3V	74
75	GND		

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_DISABLE1#	8
9	USB_D-	WWAN_LED#	10
11	GND		
		NA	20
21	GND	NA	22
23	NA	NA	24
25	NA	W_DISABLE2#	26
27	GND	NA	28
29	USB3_RX-	UIM_RESET	30
31	USB3_RX+	UIM_CLK	32
33	GND	UIM_DATA	34
35	USB3_TX-	UIM_PWR	36
37	USB3_TX+	NA	38
39	GND	NA	40
41	PERn0	NA	42
43	PERP0	NA	44
45	GND	NA	46
47	PETn0	NA	48
49	PETP0	PERST#	50
51	GND	CLKREQ#	52
53	PEFCLKn	NA	54
55	PEFCLKp	NA	56
57	GND	NA	58
59	NA	NA	60
61	NA	NA	62
63	NA	NA	64
65	NA	NA	66
67	NA	NA	68
69	PEDET	+3.3V	70
71	GND	+3.3V	72
73	GND	+3.3V	74
75	NA		

M.2 Key-M Socket
(M2_M1)

Pin	Signal Name	Signal Name	Pin
1	GND	+3.3V	2
3	GND	+3.3V	4
5	NA	NA	6
7	NA	NA	8
9	GND	SATA_LED	10
11	NA	+3.3V	12
13	NA	+3.3V	14
15	GND	+3.3V	16
17	NA	+3.3V	18
19	NA	NA	20
21	GND	NA	22
23	NA	NA	24
25	NA	NA	26
27	GND	NA	28
29	NA	NA	30
31	NA	NA	32
33	GND	NA	34
35	NA	NA	36
37	NA	NA	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	NA	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		

Chapter 5 UEFI Setup Utility

5.1 Introduction

ASRock Industrial UEFI (Unified Extensible Firmware Interface) is a BIOS utility which offers tweak-friendly options in an advanced viewing interface. The UEFI system works with a USB mouse and offers users a faster, sleeker experience.

This BIOS utility can perform the Power-On Self-Test (POST) during system startup, record hardware parameters of the system, load operating system, and so on. The battery on the motherboard supplies the power needed to the CMOS when the system power is turned off, and the values configured in the UEFI utility are kept in the CMOS.

Please note that inadequate BIOS settings may cause system instability, malfunction or boot failure. We strongly recommend that you do not alter the UEFI default configurations or change the settings only with the assistance of a trained service person.

If the system becomes unstable or fails to boot after you change the setting, try to clear the CMOS values and reset the board to default values. See your motherboard manual for instructions.

5.1.1 Entering BIOS Setup

You may run the UEFI Setup Utility by pressing <F2> or <Delete> right after you power on the computer; otherwise, the Power-On-Self-Test (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.

This setup guide explains how to use the UEFI Setup Utility to configure all the supported system. The screenshots in this manual are for reference only. UEFI Settings and options may vary owing to different BIOS release versions or CPU installed. Please refer to the actual BIOS version of the motherboard you purchased for detailed screens, settings and options.

5.1.2 UEFI Menu Bar

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

Main	For setting system time/date information
Advanced	For advanced system configurations
H/W Monitor	Displays current hardware status
Security	For security settings
Boot	For configuring boot settings and boot priority
Exit	Exit the current screen or the UEFI Setup Utility



Because the UEFI software is constantly being updated, the following UEFI setup screens and descriptions for reference purpose only, and may vary from the latest BIOS and do not exactly match what you see on your screen.

5.1.3 Navigation Keys

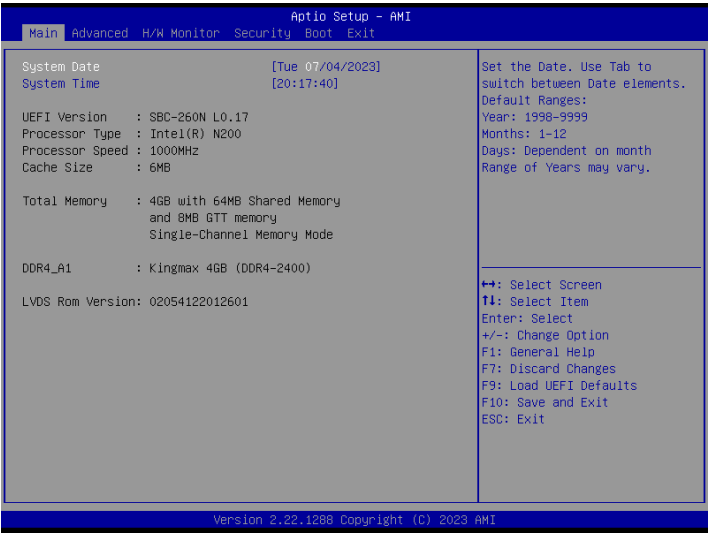
Use <←> key or <→> key to choose among the selections on the menu bar, and use <↑> key or <↓> key to move the cursor up or down to select items, then press <Enter> to get into the sub screen. You can also use the mouse to click your required item.

Please check the following table for the descriptions of each navigation key.

Navigation Key(s)	Description
+ / -	To change option for the selected items
<Tab>	Switch to next function
<PGUP>	Go to the previous page
<PGDN>	Go to the next page
<HOME>	Go to the top of the screen
<END>	Go to the bottom of the screen
<F1>	To display the General Help Screen
<F7>	Discard changes and exit the SETUP UTILITY
<F9>	Load optimal default values for all the settings
<F10>	Save changes and exit the SETUP UTILITY
<F12>	Print screen
<ESC>	Jump to the Exit Screen or exit the current screen

5.2 Main Screen

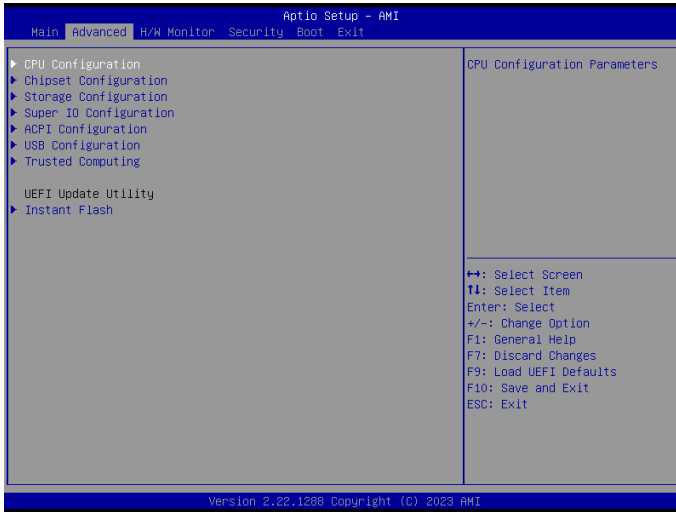
When you enter the UEFI Setup Utility, the Main screen will appear and display the system overview.



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. Options may also vary depending on the features of your motherboard.

5.3 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.

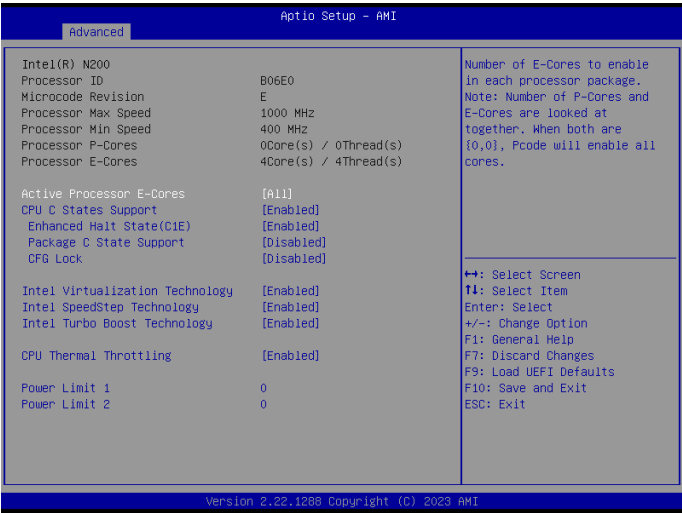


Setting wrong values in this section may cause the system to malfunction.

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, and then you can update your UEFI in only 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.

5.3.1 CPU Configuration



Active Processor E-Cores

Allows you to select the number of E-Cores to enable in each processor package. NOTE: Number of P-Cores and E-Cores are looked at together. When both are {0,0}, Pcode will enable all cores.

CPU C States Support

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

Configuration options: [Enabled] [Disabled]

Enhanced Halt State (C1E)

The option allows you to enable Enhanced Halt State (C1E) for lower power consumption.

Configuration options: [Enabled] [Disabled]

Package C State Support

The option allows you to enable CPU, PCIe, Memory, Graphics C State Support for power saving.

CFG Lock

The option allows you to enable or disable the CFG Lock.

Configuration options: [Enabled] [Disabled]

Intel Virtualization Technology

Intel Virtualization Technology allows a platform to run multiple operating systems and applications in independent partitions, so that one computer system can function as multiple virtual systems.

Configuration options: [Enabled] [Disabled]

Intel SpeedStep Technology

Intel SpeedStep technology allows processors to switch between multiple frequencies and voltage points for better power saving and heat dissipation. CPU turbo ratio can be fixed when Intel SpeedStep Technology is set to [Disabled] and Intel Turbo Boost Technology is set to [Enabled].

Configuration options: [Enabled] [Disabled].

If you install Windows® 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

Intel Turbo Boost Technology enables the processor to run above its base operating frequency when the operating system requests the highest performance state. The default value is [Enabled].

Configuration options: [Enabled] [Disabled]

CPU Thermal Throttling

CPU Thermal Throttling allows you to enable CPU internal thermal control mechanisms to keep the CPU from overheating.

Configuration options: [Enabled] [Disabled]

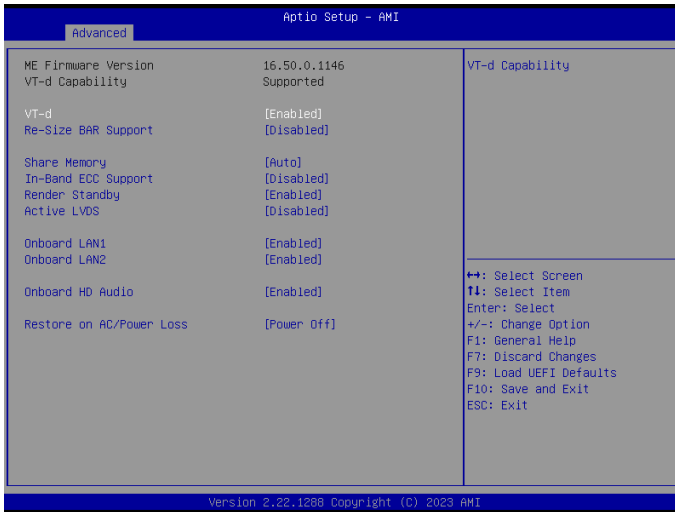
Power Limit 1

Power Limit 1 in Milli Watts. BIOS will round to the nearest 1/8W when programming. 0 = no custom override. For 12.50W, enter 12500. Overclocking SKU: Value must be between Max and Min Power Limits (specified by PACKAGE_POWER_SKU_MSR). Other SKUs: This value must be between Min Power Limit and Processor Base Power (TDP) Limit. If value is 0, BIOS will program Processor Base Power (TDP) value.

Power Limit 2

Power Limit 2 value in Milli Watts. BIOS will round to the nearest 1/8W when programming. If the value is 0, BIOS will program this value as $1.25 \times \text{Processor Base Power (TDP)}$. For 12.50W, enter 12500. Processor applies control policies such that the package power does not exceed this limit.

5.3.2 Chipset Configuration



VT-d

Intel® Virtualization Technology for Directed I/O helps your virtual machine monitor better utilize hardware by improving application compatibility and reliability, and providing additional levels of manageability, security, isolation, and I/O performance.

Configuration options: [Enabled] [Disabled]

Re-Size BAR Support

If system has Resizable BAR capable PCIe Devices, this option enables or disables Resizable BAR Support.

Share Memory

Share memory allows you to configure the size of memory that is allocated to the integrated graphics processor when the system boots up.

Configuration options: [Auto] [32M] [64M] [128M] [256M] [512M] [1024M]

Options vary depending on the memory you use on your motherboard.

In-Band ECC Support

This allows you to enable or disable In-Band ECC.

Configuration options: [Enabled] [Disabled]

Render Standby

Power down the render unit when the GPU is idle for lower power consumption.

Active LVDS

Use this to enable or disable the LVDS. The default value is [Disabled]. Set the item to [Enabled]. Then press <F10> to save the setting and restart the system. Now the default value of Active LVDS is changed to [Enabled] (F9 load default is also set to [Enabled]).

Change the setting from [Enabled] to [Disabled], and then press <F10> to save the setting and restart the system. Likewise, the default value of Active LVDS is changed to [Disabled] (F9 load default is also set to [Disabled]).

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

Onboard HD Audio allows you to enable or disable the onboard HD audio controller. Set this item to [Auto] to enable the onboard HD and automatically disable it when a sound card is installed.

Configuration options: [Auto] [Enabled] [Disabled]

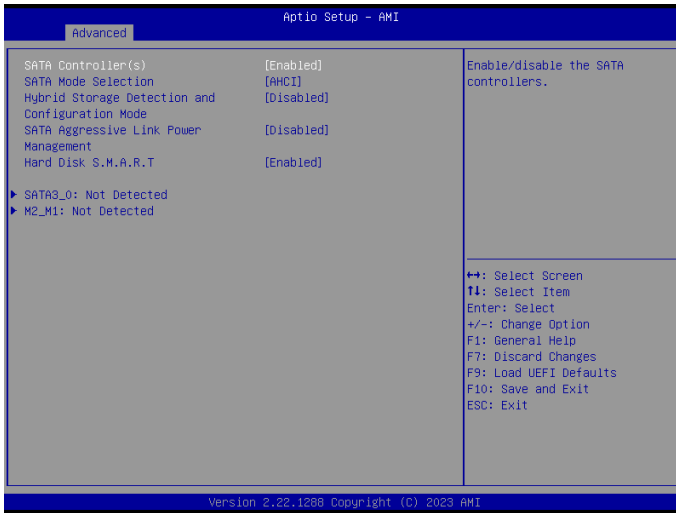
Restore on AC/Power Loss

Allows you to select the power state after a power failure.

[Power Off] sets the power to remain off when the power recovers.

[Power On] sets the system to start to boot up when the power recovers.

5.3.3 Storage Configuration



SATA Controller(s)

Allows you to enable or disable the SATA controllers.

Configuration options: [Enabled] [Disabled]

SATA Mode Selection

AHCI: Supports new features that improve performance.

Configuration option: [AHCI]

Hybrid Storage Detection and Configuration Mode

Hybrid Storage Detection and Configuration Mode allows you to select Hybrid Storage Detection and Configuration Mode.

Configuration options: [Dynamic Configuration for Hybrid Storage Enable] [Disabled]

SATA Aggressive Link Power Management

SATA Aggressive Link Power Management allows SATA devices to enter a low power state during periods of inactivity to save power. It is supported only by AHCI mode.

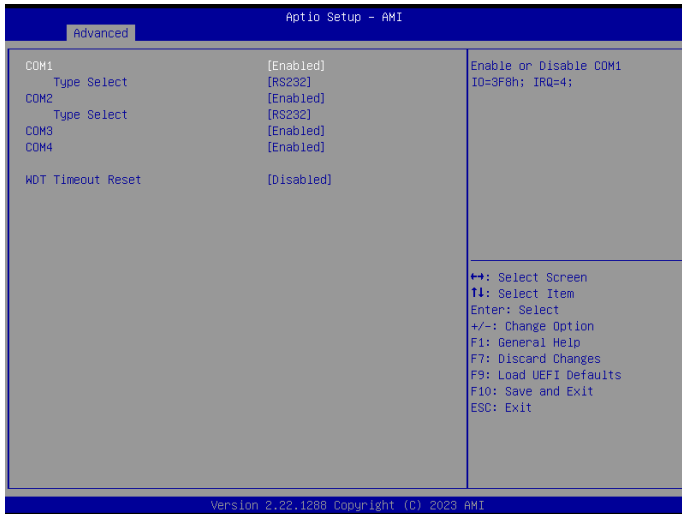
Configuration options: [Enabled] [Disabled]

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

S.M.A.R.T stands for Self-Monitoring, Analysis, and Reporting Technology. It is a monitoring system for computer hard disk drives to detect and report on various indicators of reliability.

Configuration options: [Enabled] [Disabled]

5.3.4 Super IO Configuration



COM1 Configuration

Use this to set parameters of COM1.

Type Select

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

COM2 Configuration

Use this to set parameters of COM2.

Type Select

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

COM3 Configuration

Use this to set parameters of COM3.

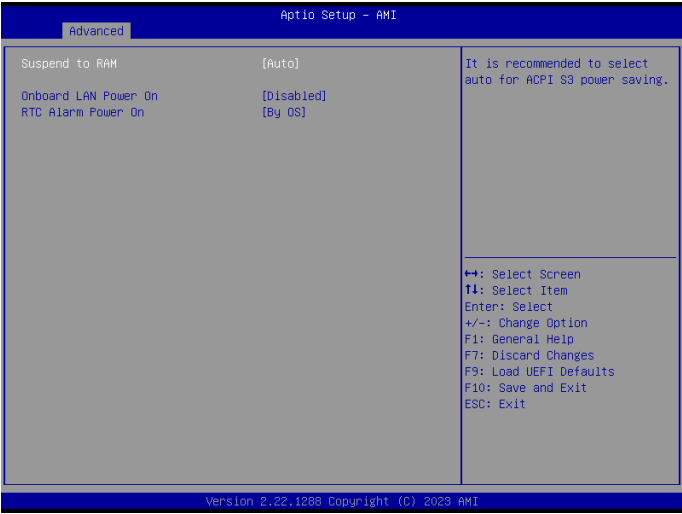
COM4 Configuration

Use this to set parameters of COM4.

WDT Timeout Reset

Use this to set the Watch Dog Timer.

5.3.5 ACPI Configuration



Suspend to RAM

Suspend to RAM allows you to select [Disabled] for ACPI suspend type S1. It is recommended to select [Auto] for ACPI S3 power saving.

Configuration options: [Auto] [Disabled]

Onboard LAN Power On

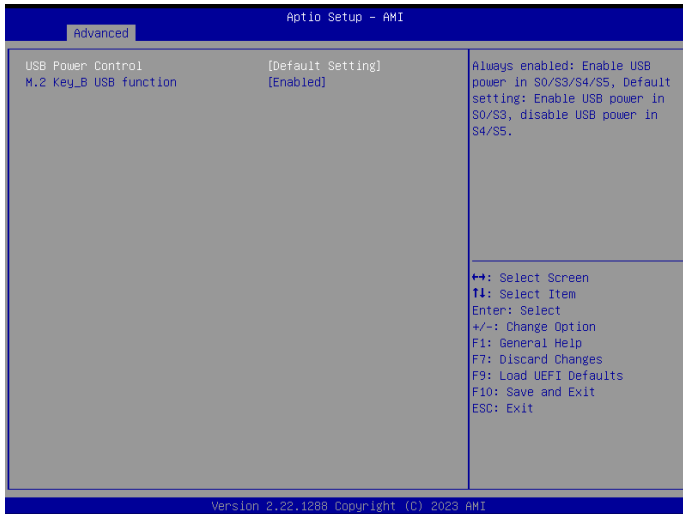
Use this item to enable or disable onboard LAN to turn on the system from the power-soft-off mode.

RTC Alarm Power On

RTC Alarm Power On allows the system to be waked up by the real time clock alarm. Set it to By OS to let it be handled by your operating system.

Configuration options: [Enabled] [Disabled] [By OS]

5.3.6 USB Configuration



USB Power Control

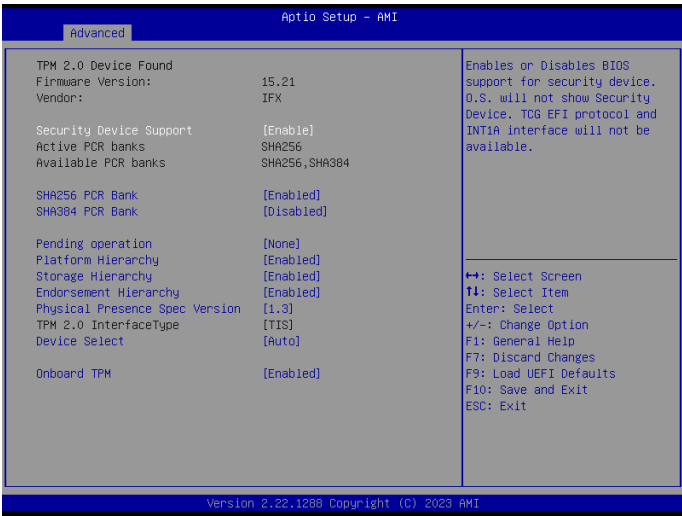
Use this option to control USB power.

M.2 Key_B USB Function

Use this item to enable or disable M.2 Key_B USB Configuration.

Configuration options: [Enabled] [Disabled]

5.3.7 Trusted Computing



NOTE: Options vary depending on the version of your connected TPM module.

Security Device Support

Security Device Support allows you to enable or disable BIOS support for security device. O.S. will not show Security Device. TCG EFI protocol and INT1A interface will not be available.

Configuration options: [Enabled] [Disabled]

Active PCR banks

This item displays active PCR Banks.

Available PCR Banks

This item displays available PCR Banks.

SHA256 PCR Bank

SHA256 PCR Bank allows you to enable or disable SHA256 PCR Bank.

Configuration options: [Enabled] [Disabled]

SHA384 PCR Bank

SHA384 PCR Bank allows you to enable or disable SHA384 PCR Bank.

Configuration options: [Enabled] [Disabled]

Pending Operation

Pending Operation allows you to schedule an Operation for the Security Device.

NOTE: Your computer will reboot during restart in order to change State of the Device.

Configuration options: [None] [TPM Clear]

Platform Hierarchy

This item allows you to enable or disable Platform Hierarchy.

Configuration options: [Enabled] [Disabled]

Storage Hierarchy

This item allows you to enable or disable Storage Hierarchy.

Configuration options: [Enabled] [Disabled]

Endorsement Hierarchy

This item allows you to enable or disable Endorsement Hierarchy.

Configuration options: [Enabled] [Disabled]

Physical Presence Spec Version

Select this item to tell OS to support PPI spec version 1.2 or 1.3. Please note that some HCK tests might not support version 1.3.

Configuration options: [1.2] [1.3]

TPM 2.0 InterfaceType

This item allows you to view the Communication Interface to TPM 2.0 Device: CRB or ITS.

Device Select

This item allows you to select the TPM device to be supported.

[TPM 1.2] restricts support to TPM 1.2 devices.

[TPM 2.0] restricts support to TPM 2.0 devices.

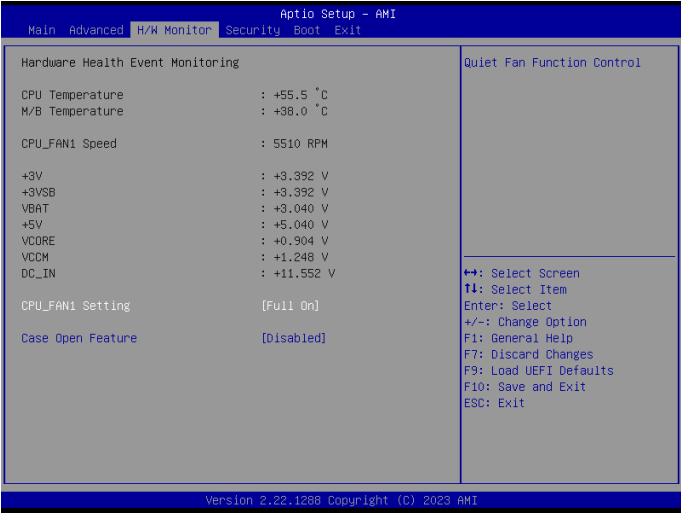
[Auto] supports both TPM 1.2 and TPM 2.0 devices with the default set to TPM 2.0 devices. If TPM 2.0 devices are not found, TPM 1.2 devices will be enumerated.

Onboard TPM

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

5.4 Hardware Health Event Monitoring Screen

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



NOTE: Options vary depending on the features of your motherboard.

CPU_Fan 1 Setting

This item allows you to select a fan mode for CPU Fan 1. The default value is [Full On].

Configuration options: [Full On] [Automatic Mode]

Case Open Feature

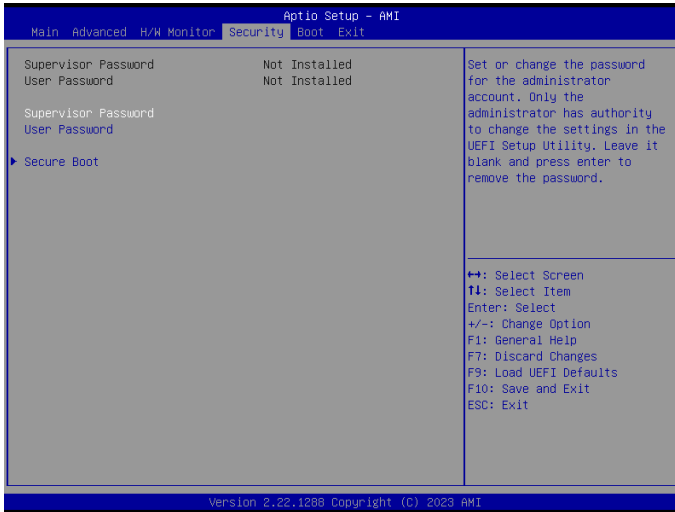
This item allows you to enable or disable case open detection feature. The default is value [Disabled].

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.

5.5 Security Screen

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



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

Press [Enter] to configure the Secure Boot Settings. The feature protects the system from unauthorized access and malwares during POST.



Secure Boot Mode

[Standard] Select this item and the system will automatically load the Secure Boot keys from the BIOS database.

[Custom] Select this item and Secure Boot Policy variables can be configured by a physically present user without full authentication.

Install Default Secure Boot Keys

Please install default secure boot keys if it's the first time you use secure boot.

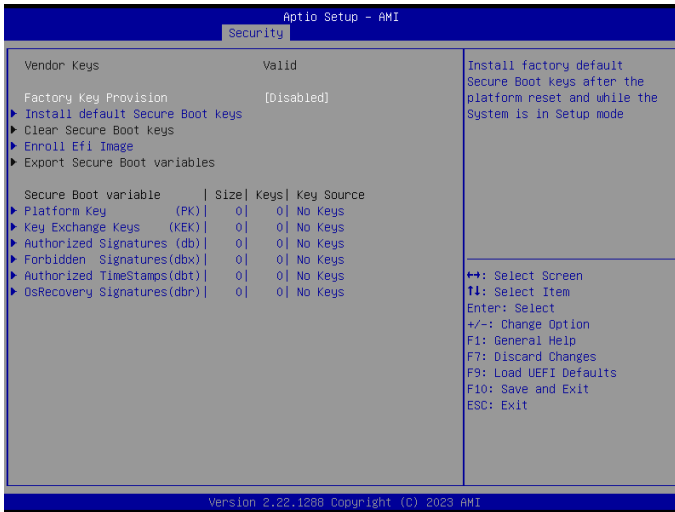
Clear Secure Boot Keys

This item appears only when you load the default Secure Boot keys. Use this item to clear all default Secure Boot keys.

Key Management

This item enables expert users to modify Secure Boot Policy variables without full authentication.

This appears only when you set Secure Boot Mode to [Custom].



Platform Key(PK)

Enroll Factory Defaults or load certificates from a file:

1. Public Key Certificate:

- a) EFI_SIGNATURE_LIST
- b) EFI_CERT_X509 (DER)
- c) EFI_CERT_RSA2048 (bin)
- d) EFI_CERT_SHAXXX

2. Authenticated UEFI Variable

3. EFI PE/COFF Image(SHA256)

Key Source: Factory, Modified, Mixed

Key Exchange Keys

Enroll Factory Defaults or load certificates from a file:

1. Public Key Certificate:

- a) EFI_SIGNATURE_LIST
- b) EFI_CERT_X509 (DER)
- c) EFI_CERT_RSA2048 (bin)
- d) EFI_CERT_SHAXXX

2. Authenticated UEFI Variable
3. EFI PE/COFF Image(SHA256)

Key Source: Factory, Modified, Mixed

Authorized Signatures

Enroll Factory Defaults or load certificates from a file:

1. Public Key Certificate:
 - a) EFI_SIGNATURE_LIST
 - b) EFI_CERT_X509 (DER)
 - c) EFI_CERT_RSA2048 (bin)
 - d) EFI_CERT_SHAXXX

2. Authenticated UEFI Variable
3. EFI PE/COFF Image(SHA256)

Key Source: Factory, Modified, Mixed

Forbidden Signatures

Enroll Factory Defaults or load certificates from a file:

1. Public Key Certificate:
 - a) EFI_SIGNATURE_LIST
 - b) EFI_CERT_X509 (DER)
 - c) EFI_CERT_RSA2048 (bin)
 - d) EFI_CERT_SHAXXX

2. Authenticated UEFI Variable
3. EFI PE/COFF Image(SHA256)

Key Source: Factory, Modified, Mixed

Authorized TimeStamps

Enroll Factory Defaults or load certificates from a file:

1. Public Key Certificate:
 - a) EFI_SIGNATURE_LIST
 - b) EFI_CERT_X509 (DER)

c) EFI_CERT_RSA2048 (bin)

d) EFI_CERT_SHAXXX

2. Authenticated UEFI Variable

3. EFI PE/COFF Image(SHA256)

Key Source: Factory, Modified, Mixed

OsRecovery Signatures

Enroll Factory Defaults or load certificates from a file:

1. Public Key Certificate:

a) EFI_SIGNATURE_LIST

b) EFI_CERT_X509 (DER)

c) EFI_CERT_RSA2048 (bin)

d) EFI_CERT_SHAXXX

2. Authenticated UEFI Variable

3. EFI PE/COFF Image(SHA256)

Key Source: Factory, Modified, Mixed

5.6 Boot Screen

This section displays the available devices on your system for you to configure the boot settings and the boot priority.



Boot Option #1

The item allows you to set the system boot order.

Boot From Onboard LAN

The item allows the system to be waked up by the onboard LAN.

Configuration options: [Enabled] [Disabled]

Setup Prompt Timeout

The item allows you to configure the number of seconds to wait for the UEFI setup utility.

Configuration options: [1] - [65535]

Bootup Num-Lock

The item allows you to select whether Num Lock should be turned on or off when the system boots up.

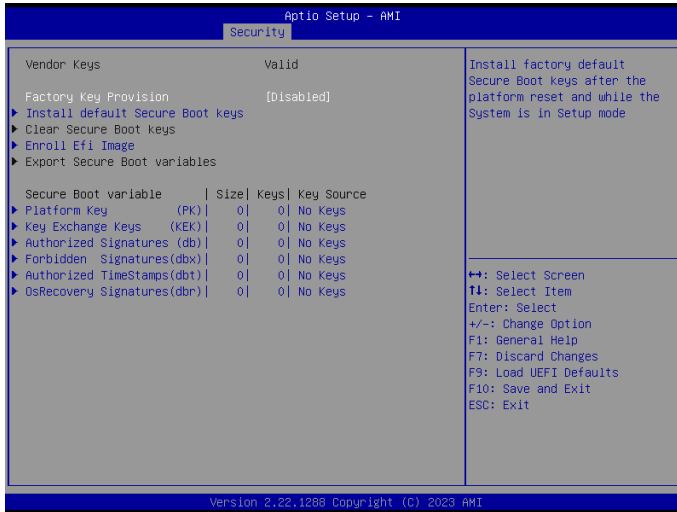
Configuration options: [On] [Off]

Full Screen Logo

[Enabled] Select this item to display the boot logo.

[Disabled] Select this item to show normal POST messages.

5.7 Exit Screen



Save Changes and Exit

When you select this option, the following message “Save configuration changes and exit setup?” will pop out. Press <F10> key or select [Yes] to save the changes and exit the UEFI SETUP UTILITY.

Discard Changes and Exit

When you select this option, the following message “Discard changes and exit setup?” will pop out. Press <ESC> key or select [Yes] to exit the UEFI SETUP UTILITY without saving any changes.

Discard Changes

When you select this option, the following message “Discard changes?” will pop out. Press <F7> key or select [Yes] to discard all changes.

Load UEFI Defaults

Allows you to load UEFI default values for all options. The F9 key can be used for this operation.

Launch EFI Shell from filesystem device

The item allows you to copy shellx64.efi to the root directory to launch EFI Shell.

Chapter 6 Software Support

6.1 Install Operating System

This motherboard supports various Microsoft® Windows® operating systems: 10 64-bit / 11 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.