AiTRON-9XXE

10.1"/12.1"/15"/15.6"/21.5"
Intel® Core™ Ultra processors (Series 1)
Fanless Industrial Narrow Edge Touch Panel PC

User Manual

Release Date	Revision
Jan.2026	**V1.0**

Revision History

Reversion	Date	Description
1.0	2026/1/13	Initiation

Warning!_____

This equipment generates uses and can radiate radio frequency energy and if not installed and used in accordance with the instructions manual, it may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

Electric Shock Hazard – Do not operate the machine with its back cover removed. There are dangerous high voltages inside.

Caution
Risk of explosion if the battery is replaced with an incorrect type.
Batteries should be recycled where possible. Disposal of used batteries must be in accordance with local environmental regulations.

Disclaimer
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Safety Precautions

Follow the messages below to prevent your systems from damage:

◆ Avoid your system from static electricity on all occasions.

◆ Prevent electric shock. Don't touch any components of this card when the card is power-on. Always disconnect power when the system is not in use.

◆ Disconnect power when you change any hardware devices. For instance, when you connect a jumper or install any cards, a surge of power may damage the electronic components or the whole system.

Table of Contents

List of Figures

Figures

Chapter 1   System Product

1.1 Features

- Intel® Core™ Ultra processors (Series 1)，formerly Meteor Lake
- 10.1"/12.1"/15"/15.6"/21.5" Industrial Narrow Edge Touch Panel PC
- IP66 Compliant Aluminum Front Bezel
- 1 x 262-pin SO-DIMM slot, DDR5-5600MHz (non-ECC) up to 48GB
- 2 x 2.5GbE LAN Ports
- Support Projected Capacitive Multi-Touch Screen
- LCD up to 1000nits and Auto-Dimming (TB-49/50) (for option)
- Support Multiple I/O Change
- Wide Range DC 9~36V Power Input
- Fanless Design

1.2 Specifications

	AiTRON-9XXE Series
System	
CPU	Intel® Core™ Ultra processors (Series 1)，formerly Meteor Lake : Intel® Core Ultra 5 125U (2 P-Cores x 1.3 GHz, 8 E-Cores x 0.8 GHz, 12MB cache, 15W) Intel® Core Ultra 7 155U (2 P-Cores x 1.7 GHz, 8 E-Cores x 1.2 GHz, 12MB cache, 15W)
Chipset	Integrated with SoC
BIOS	AMI UEFI BIOS
Memory	1 x 262-pin SO-DIMM slot, DDR5-5600MHz (non-ECC) up to 48GB
Graphic	Intel® Graphics for Ultra 5 125U(1.85 GHz) Intel® Graphics for Ultra 7 155U(1.95 GHz)
IO Port	
USB	4 x USB 3.2 Gen1 Type-A connectors；2 x optional USB 2.0 Type-A (By cable via pin header)
Serial	1 x DB9, supports RS-232/422/485(COM1, BIOS selection, RS-232 is default) 1 x DB9, supports RS-232/422/485 (COM2, BIOS selection, RS-232 is default) (By cable via pin header COM 2), optional
LAN	2 x RJ45 Type Intel® I226V/IT 2.5GbE LAN
Display	1 x DisplayPort 1.4: Up to 7680 x 4320 @60Hz
Power	1 x 3-Pin Terminal Block Type, DC 9-36V Power input
Storage Space	
Storage	1 x M.2 M-Key 2280 for SSD (PCIe4.0x4), must come with SSD heatsink kit

Expansion	
Expansion Slot	1 x M.2 2230 E-Key (USB2.0 + PCIe x1) for optional Wi-Fi/BT module
	1 x M.2 3042/3052 B-Key (USB3.2 Gen1, PCIe x1) for optional LTE/5G module
Others	
TPM	Onboard TPM2.0 SPI I/F TPM IC
Watchdog Timer	1 ~ 255 sec (system)
Wake on LAN	Support WOL
Antenna	
Antenna	2 x SMA-female connectors' holes for external antenna (2 for Wi-Fi 6e+BT5.3/LTE/5G)
Power	
Power Input	1 x Terminal Block Type, 9-36Vdc Power input,
	Power on AT/ATX supported, default AT mode
Mechanical	
Mechanical Construction	Aluminum die-casting chassis
Mounting	Panel Mount
	VESA 100 x 100 mm
IP Rating	IP66 Front Bezel Design
Operating System Support	
OS Support	Windows 10 IoT Enterprise 2021 LTSC or later
	Windows 11 IoT Enterprise 2024 LTSC or later
	Linux 24.04 or later
Environmental	
Operating Temperature	10.1" ~15.6" LCD : Standard: -20~60°C (ambient w/ air flow and WT RAM/SSD)； High Brightness: 0~50°C(ambient w/ air flow) 21.5" LCD : 0°C to 50°C(ambient w/ air flow)
Storage Temperature	-30~70°C
Humidity	10 to 95% @ 40°C, non-condensing
Certification	CE / FCC Class A

1.3 Display

1.3.1 Standard LCD

	AiTRON-910EP	AiTRON-912EP	AiTRON-915EP	AiTRON-916EP	AiTRON-921EP
Display Type	10.1" TFT LCD	12.1" TFT LCD	15" TFT LCD	15.6" TFT LCD	21.5" TFT LCD
Max. Resolution	1280 x 800	1024x768	1024x768	1920x1080	1920x1080
Max. Color	16.7M	16.2M	16.7M	16.7M	16.7M
Luminance(cd/m²)	350	450	350	500	250
Contrast Ratio	800:1	1500:1	1000:1	1000:1	1000:1
Viewing angle(H/V)	170/170	178 /178	178 /178	178 /178	178/178
MTBF(Hrs)	30,000	50,000	50,000	50,000	50,000

1.3.2 High Brightness LCD

	AiTRON-910EPH	AiTRON-912EPH	AiTRON-915EPH	AiTRON-916EPH	AiTRON-921EPH
Display Type	10.1" TFT LCD	12.1" TFT LCD	15" TFT LCD	15.6" TFT LCD	21.5" TFT LCD
Max. Resolution	1280 x 800	1024x768	1024x768	1920x1080	1920 x 1080
Max. Color	16.7M	16.7M	16.7M	16.7M	16.7M
Luminance(cd/m²)	800	1,000	1,000	1,000	1,000
Contrast Ratio	1200 : 1	1,000:1	1,000:1	1,000:1	1,000:1
Viewing angle(H/V)	178/178	178/178	176/176	170/170	178/178
MTBF(Hrs)	50,000	70,000	70,000	50,000	50,000

All product specifications are subject to change without notice, * identify as optional function

1.4   Mechanical

	AiTRON-910EP(H)	AiTRON-912EP(H)	AiTRON-915EP(H)	AiTRON-916EP(H)	AiTRON-921EP(H)
Mounting	VESA Mount: 100 x 100 mm				
Dimensions(mm)	270x184.9x66	291x230x64	359.6x283.6x65.5	396.3x245.7x64	529.6x321.3x65.5
Net Weight(Kg)	2.37	2.74	3.75	3.49	5.5

1.5 Power Consumption

Max power consumption of each model under Window 10

Model	Max Power Consumption(W)
AiTRON-910E	48.23
AiTRON-912E	35.7
AiTRON-915E	53.9
AiTRON-916E	61.56
AiTRON-921E	50.29

* To record power consumed when system has full loading with external devices attached.
* Power consumption may have 10% tolerance difference due to different MB, parts, test instrument, and so on.
* We suggest to use the adapter that APLEX approved. If you would like to adopt your own power supply or adapter, please add another 20-30% from the above power consumption to make sure the system can work stable.

1.6 Dimensions
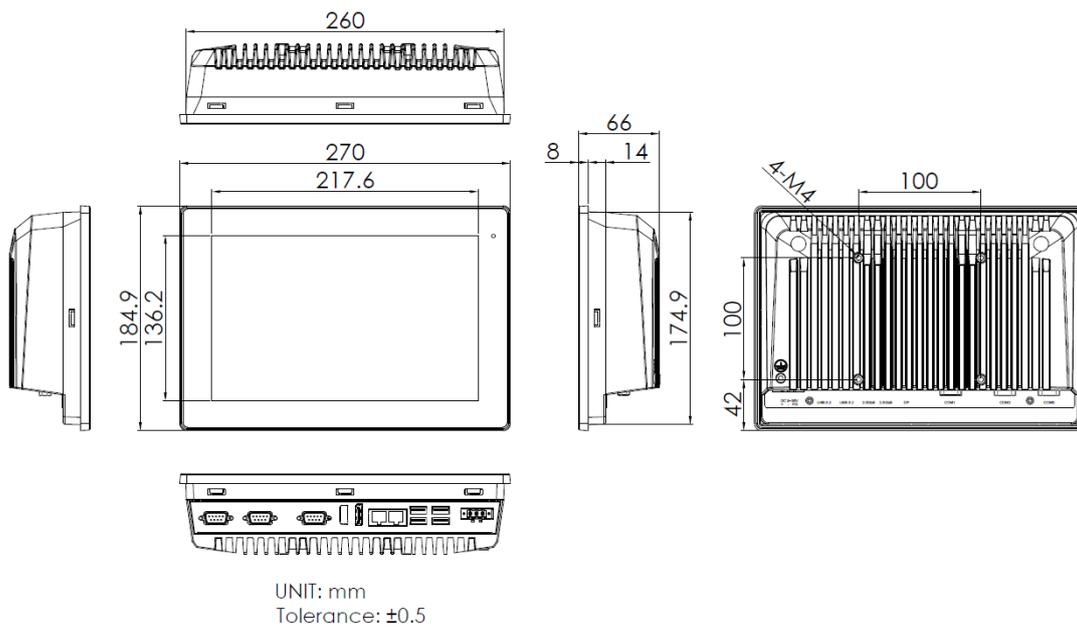
Figure 1 Dimensions of AiTRON-910EP(H)
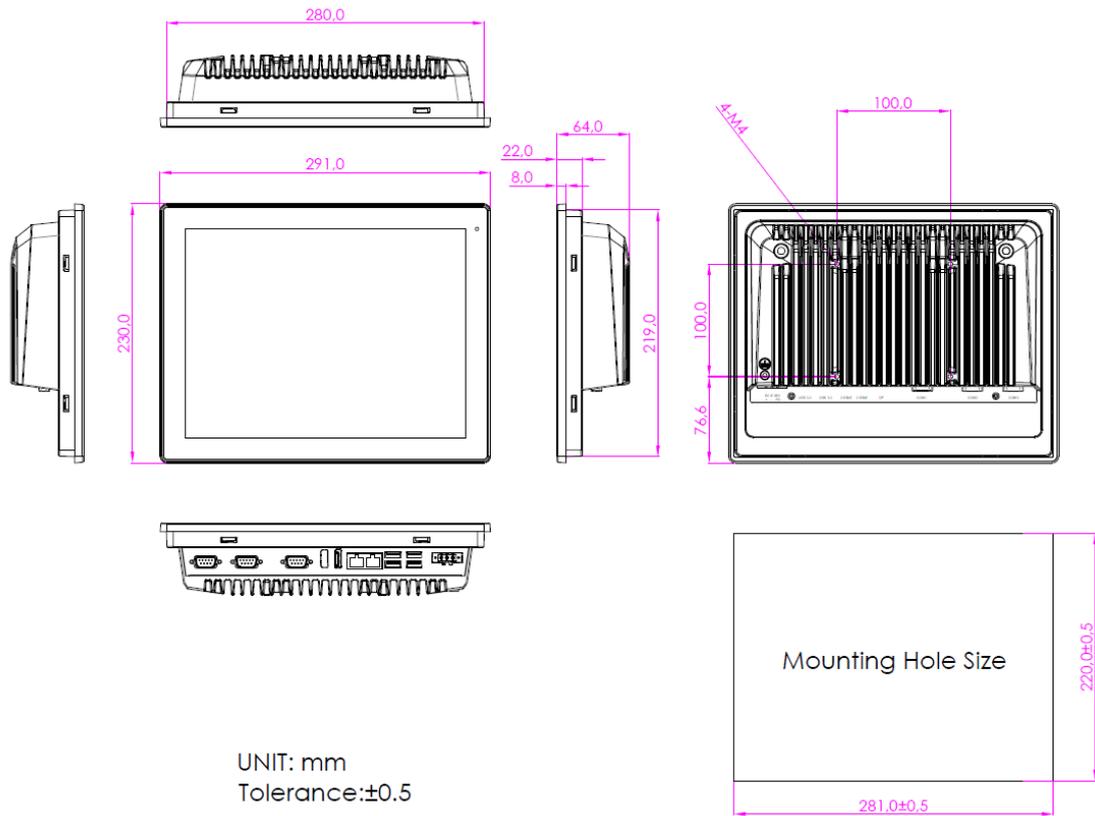
Figure 2 Dimensions of AiTRON-912EP(H)
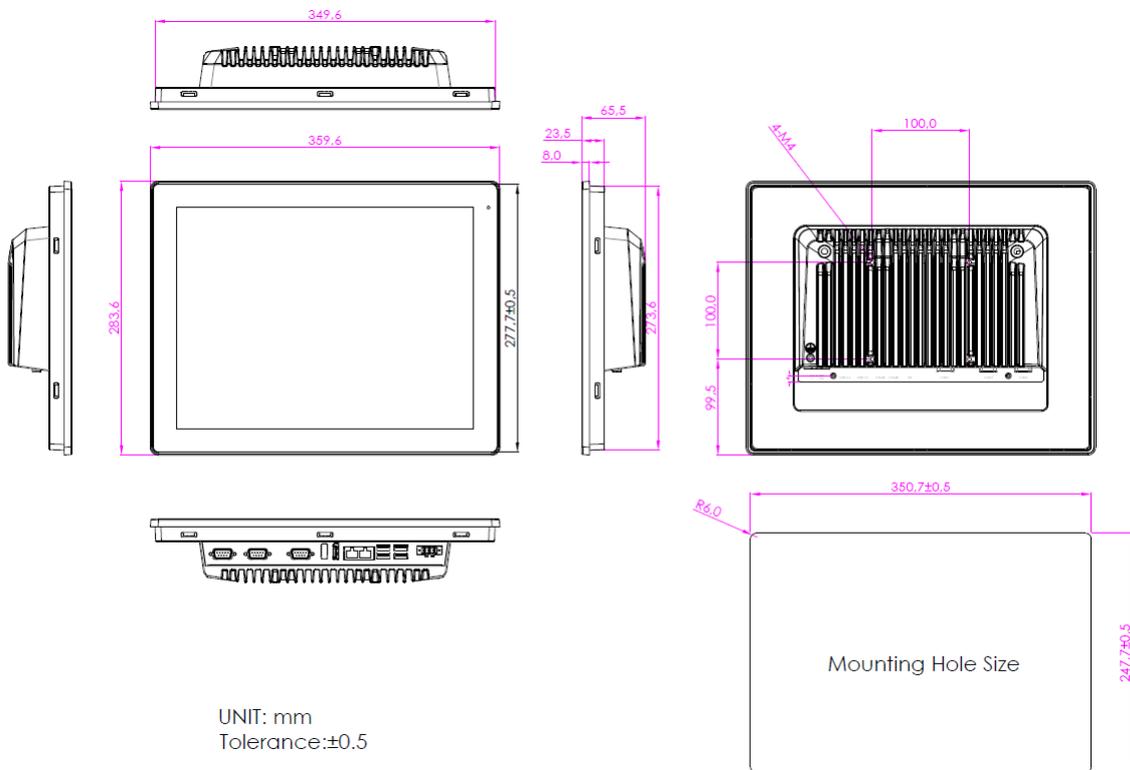
Figure 3 Dimensions of AiTRON-915EP(H)
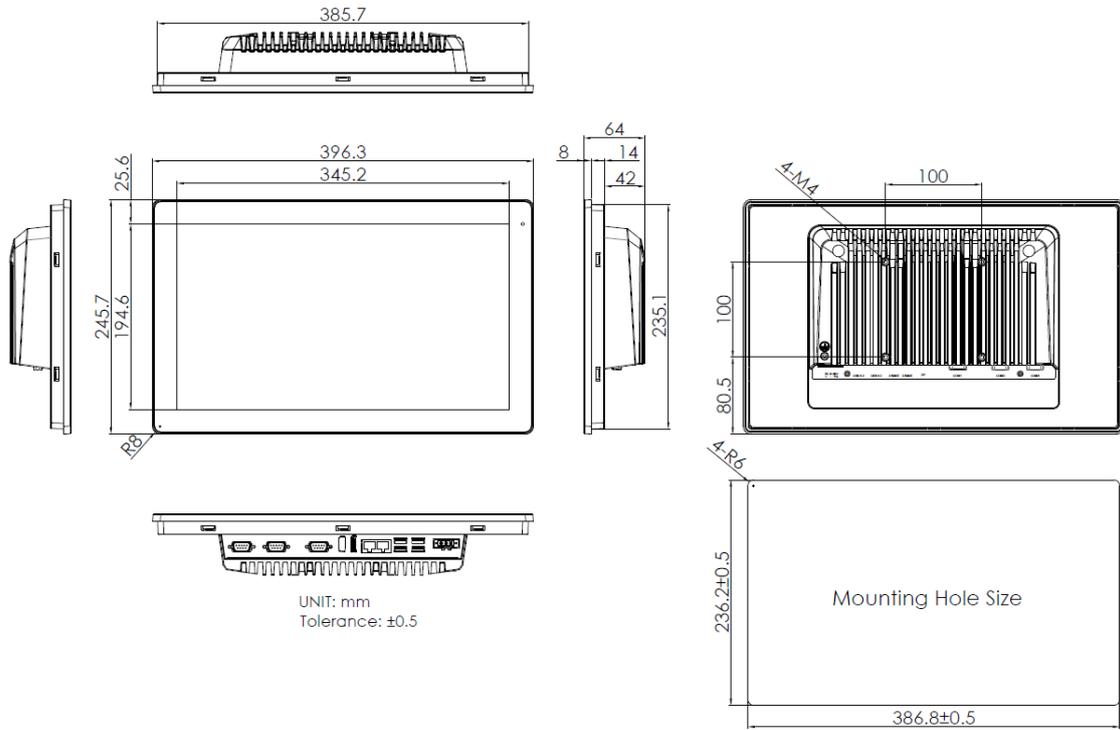
Figure 4 Dimensions of AiTRON-916EP(H)
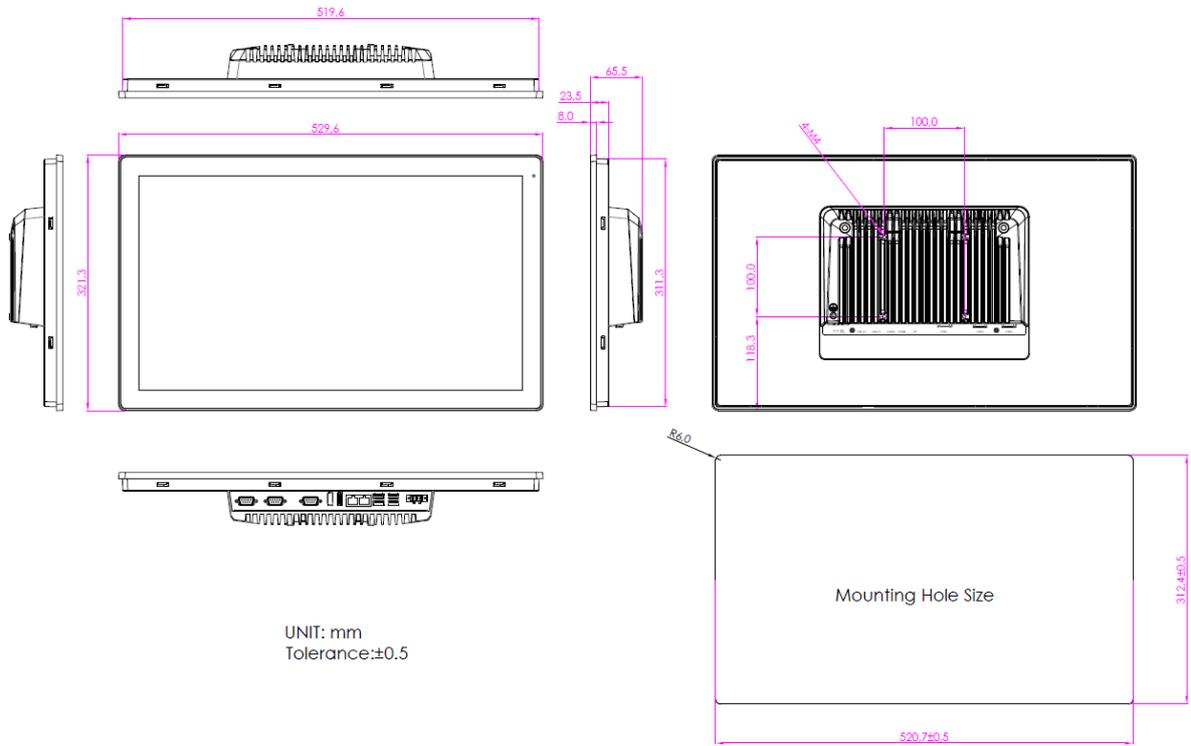
Figure 5 Dimensions of AiTRON-921EP(H)

1.7 Brief Description of AiTRON-9XXE Series

AiTRON-9XXE series products are a newly launched product line, ranging in size from 10.1" to 21.5". They feature a fanless, low-power, and compact design, making them suitable for use as HMI and control panels in smart production lines and self-service kiosks. With a protective aluminum enclosure, full-plane projected capacitive multi-touchscreen technology, wireless capabilities, and multiple I/O options, the high-performance AiTRON-9XXE series devices can also be integrated with a wide range of optional peripherals and accessories according to specific application requirements.
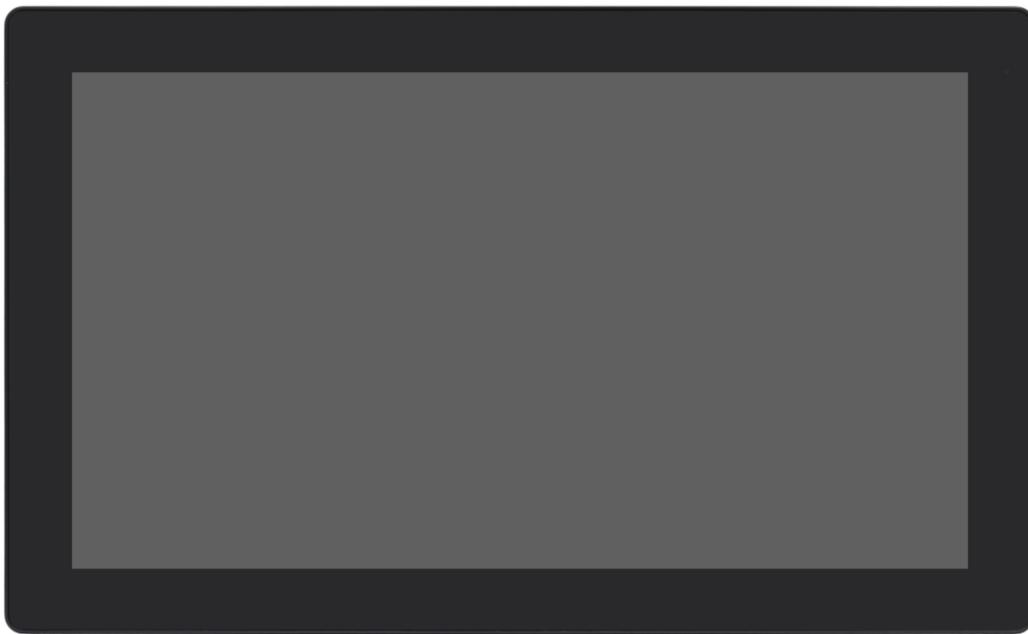
Figure 6 Front View of AiTRON-916E

Figure 7 Rear View of AiTRON-916E

1.8 Installation of Memory and Storage

Step 1: Loosen and remove two screws on bottom side of the back cover.
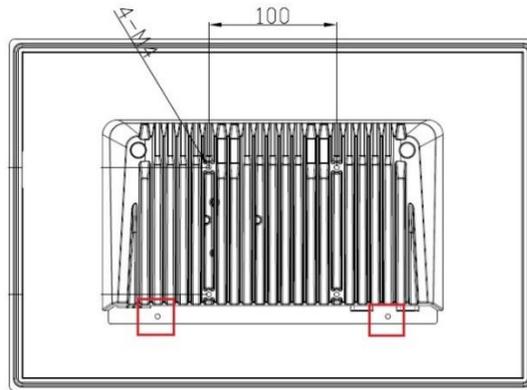
Step 2: Push down back cover from the rear chassis of Panel PC to open the back cover.
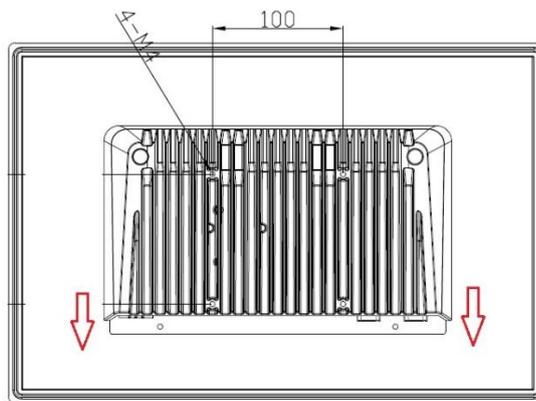
Step 3: After opening back cover, you can see the motherboard.
You can install memory module(DDR5 SO-DIMM) and M.2 M-Key 2280 for SSD (PCIe4.0x4) onto motherboard while you buy barebone.
Please refer to 1.12 for the assembly steps to attach the heatsink to the M.2 2280 SSD.
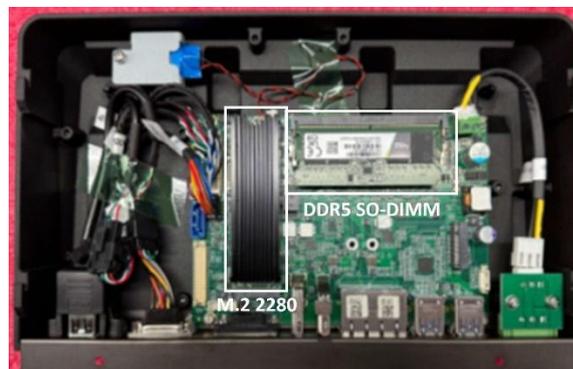
Step 4 : Push the back cover latch into the sliding rail of rear chassis.
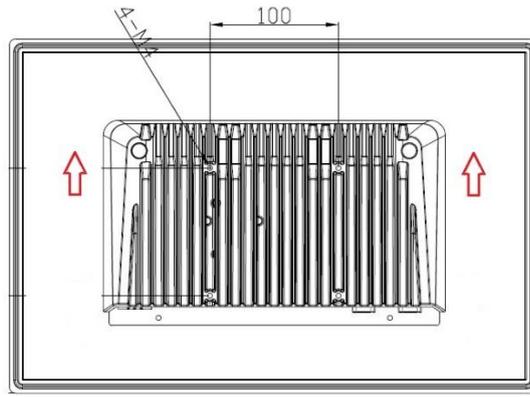
Step 5 : Tighten two screws of back cover to fix onto rear chassis .
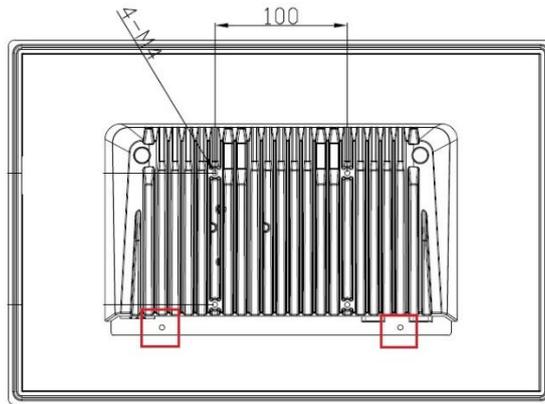
1.9 VESA Mounting

AiTRON-910E/912E/916E/921E : VESA 100, M3x4L screw x 4 PCs
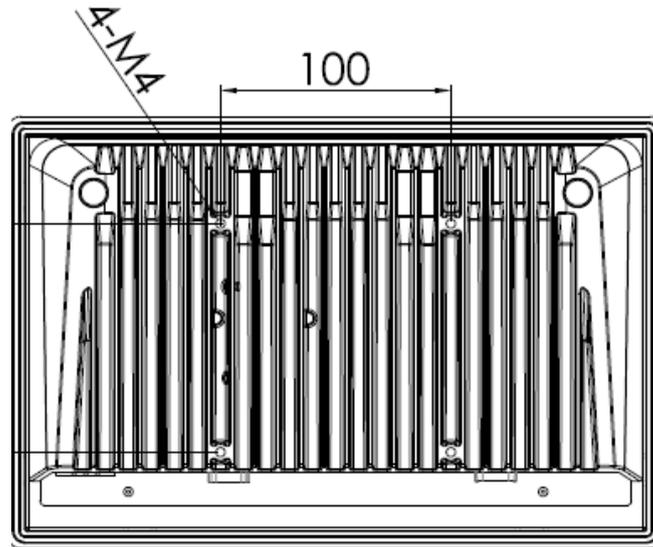
Figure 8 AiTRON-910E/912E/915E/916E/921E VESA Mounting

1.10   Panel Mounting

There are mounting holes located along the four sides of the HMI. Position the AiTRON panel pc against the panel mount and insert the mounting kit from the four sides and tighten them with screws.

Description	Qty	Unit
Panel mounting kit for 10.1", 12.1"	8	PCS
Panel mounting kit for 15", 15.6"	10	PCS
Panel mounting kit for 21.5"	12	PCS

1. The front panel is equipped with a waterproof gasket strip with adhesive on it. Before installing the AiTRON-9XXE into the panel opening cover, please make sure that the waterproof gasket is fixed correctly.
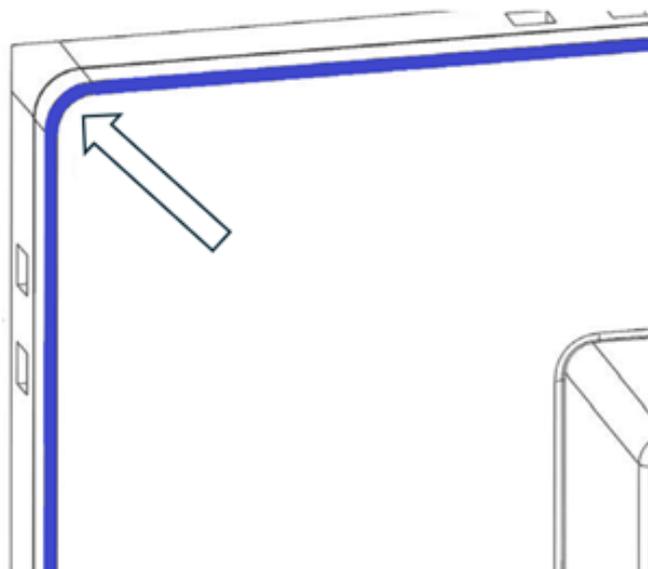
2. Place the AiTRON-9XXE into the panel opening cover.

Step1
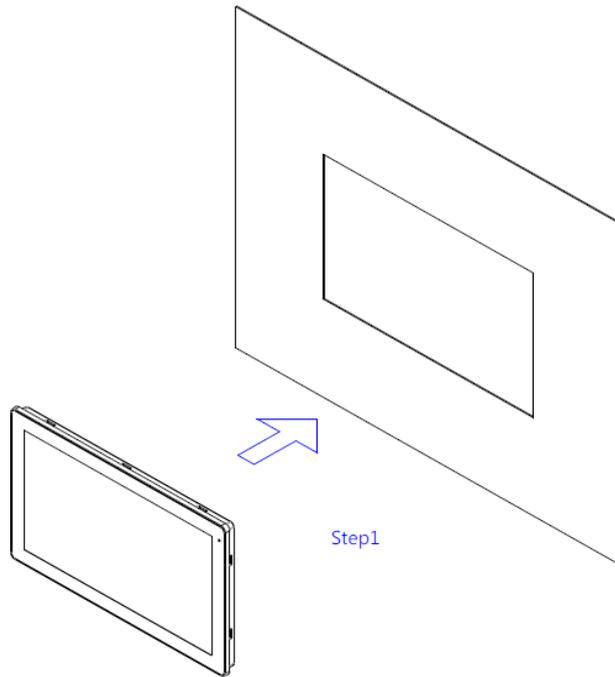
3. Take out the panel mounting kits from the accessory partition and then attach them to the fixed holes around the rear chassis of AiTRON-9XXE. Tighten the screws of each fastening hook into position to clamp and secure the panel.

Step2~3

Step4
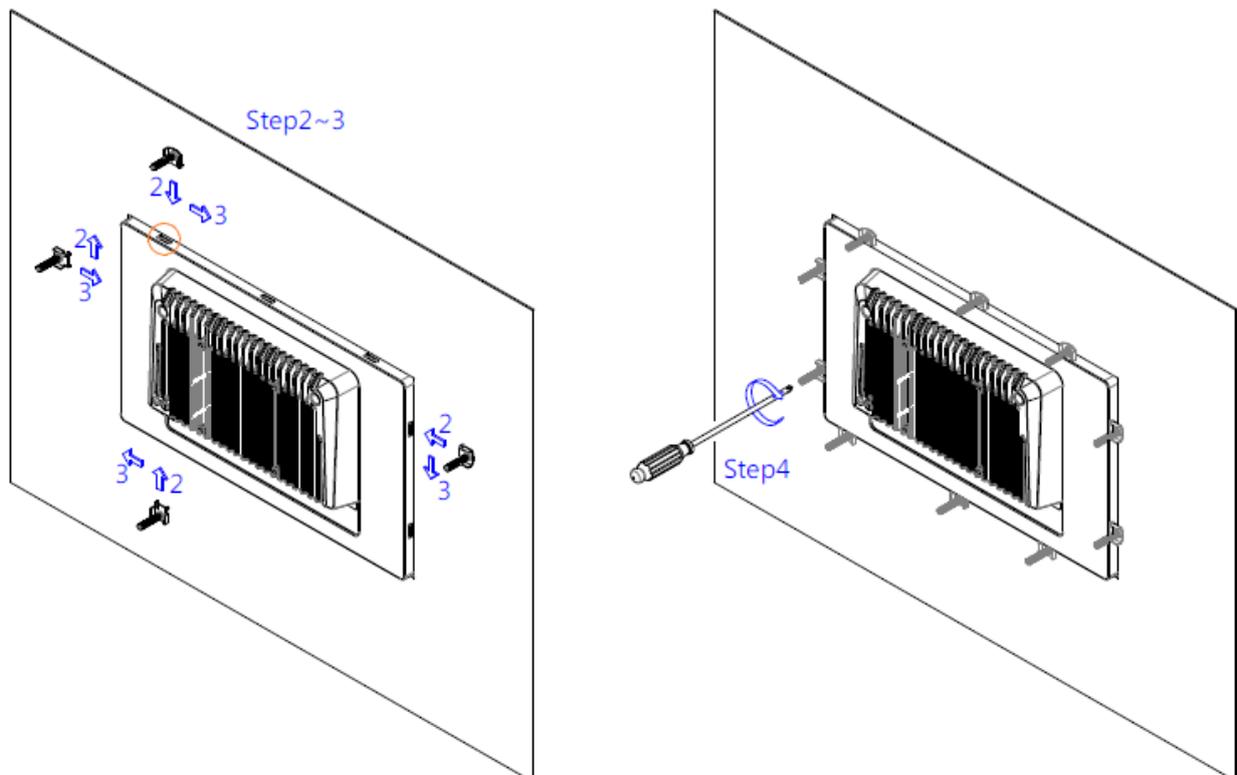
1.11 Optional Panel Mount Dustproof Covers

If the Panel PC is mounted using a VESA bracket and dust protection is required, dustproof covers can be installed over the rear panel mounting holes to protect the system.

Description	Qty	Unit
Panel Mount Dustproof Covers for 10.1", 12.1"	8	PCS
Panel Mount Dustproof Covers for 15", 15.6"	10	PCS
Panel Mount Dustproof Covers for 21.5"	12	PCS
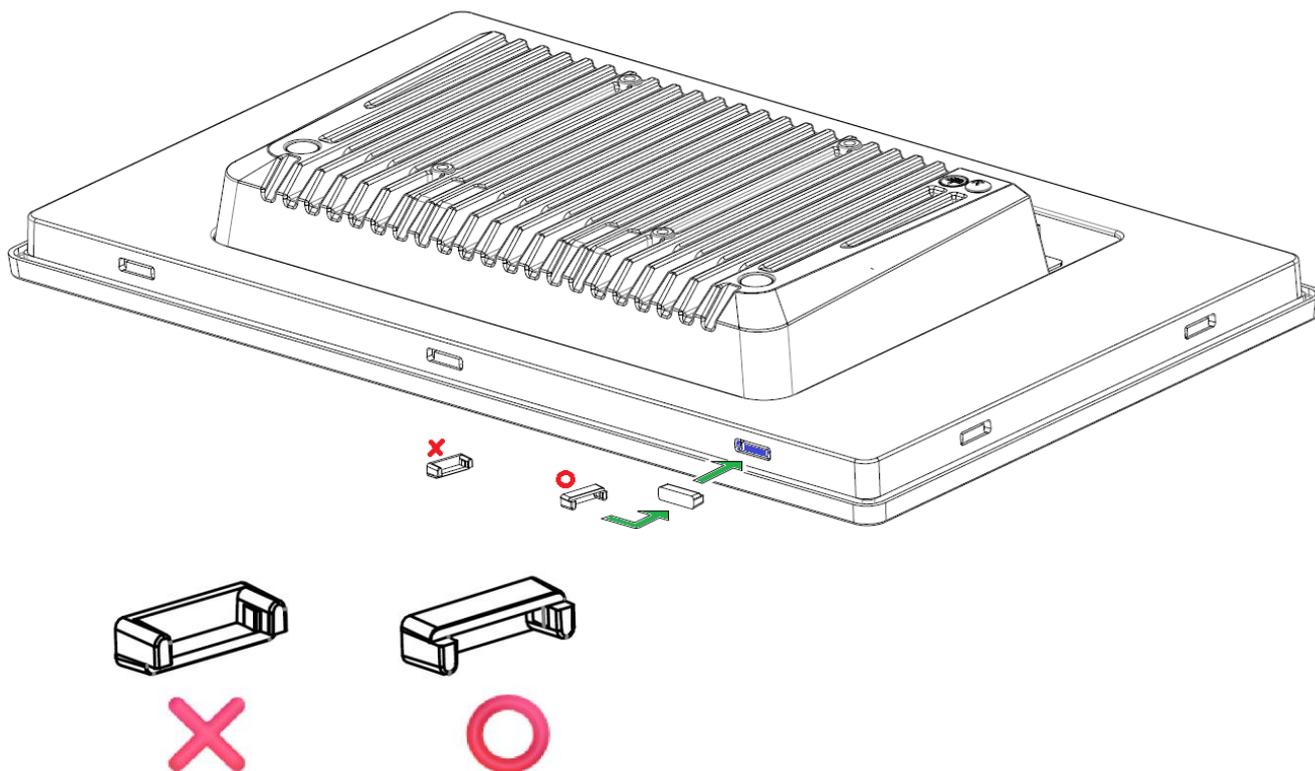
Figure 9   AiTRON-9XXE PANEL Mount Dustproof Cover

1.12   SSD heatsink kit installation guide

M.2 2280 heatsink dimension: 76 x 24 x 6.3mm

Notice:

It is recommended to install an SSD heatsink to prevent the M.2 SSD from overheating during high-speed operations, which could lead to reduced performance or instability.

Step 1 :

Disassemble the SSD heatsink kit, then apply the thermal pad to both the top and bottom sides of the SSD. Secure the SSD to the thermal kit and tighten the screws.
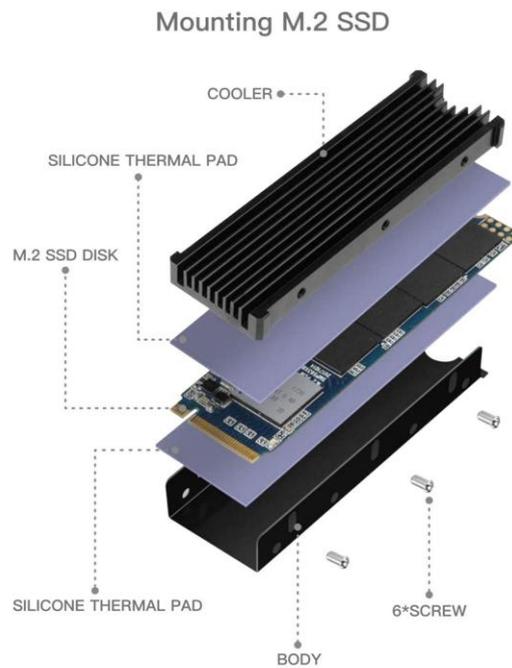
Step 2：

Install the SSD with the thermal kit into the M.2 2280 slot on the motherboard.

Chapter 2   Hardware
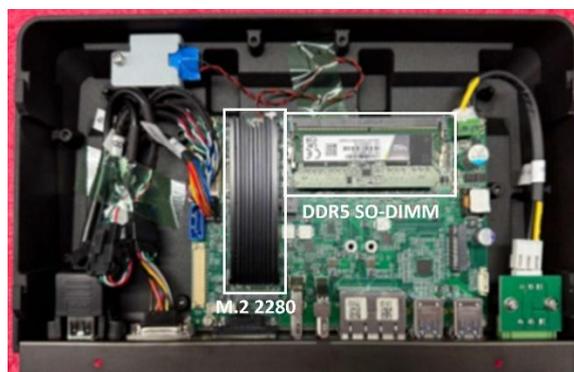
2.1   Motherboard Introduction

SBC-7133 is a 3.5" industrial motherboard developed on the basis of Intel Meteor Lake U, which provides abundant peripheral interfaces to meet the needs of different customers.

2.2   Specifications

Specifications	
Board Size	146mm x 101.6mm
CPU Support	Intel® Core™ Ultra 7 Processor 155U, 12C, up to 4.8GHz(P-Core) 3.8GHz(E-Core),15W-57W Intel® Core™ Ultra 5 Processor 125U, 12C, up to 4.3GHz(P-Core) 3.6GHz(E-Core),15W-57W
Chipset	SOC
Memory Support	1x SO-DIMM (260pins), up to 48GB DDR5 3200MT/s
Graphics	Integrated Intel Graphics
Display Mode	1 x HDMI 2.1b via HDMI Port 1 x DP 1.4, DP++ via DP port 1 x LVDS (18/24-bit dual LVDS) / eDP (option by BOM selection)
Support Resolution	HDMI: support up to 7680 x 4320 @60Hz DP: support up to 7680 x 4320 @60Hz DP: support up to 38400 x 2160 @120Hz LVDS: support up to 1920x1080 @60Hz eDP: support up to 7680 x 4320 @60Hz Noted: Up to 3 synchronous displays
Super I/O	ITE IT8786E-I/HX
BIOS	AMI/UEFI BIOS
Storage	1 x SATAIII via SATA connector 1 x M.2 M-Key(PCIe Gen4 x4) 2280 for Storage
Ethernet	1 x 2.5 GbE LAN via intel® I226LM controller (PXE/WOL) 1 x 2.5 GbE LAN via intel® I226LM controller (PXE/WOL)
USB	4 x USB3.2 gen1/USB2.0,Type-A stack ports 2 x USB2.0 via SHD 1.25mm 2x20pin header (CN5)
Serial	1 x RS-232(default)/422/485 select via BIOS, pin9 Rear I/O (default) 5V/12V select via jumper, DB9 (COM1) 1 x RS-232(default)/422/485 select via BIOS, pin header (COM2)

	2 x RS-232 via pin header/TX, RX only (COM3/COM4)
GPIO	8-bit digital I/O by SHD 1.25mm 2x20pin header (CN5)
Audio	Support Audio via Realtek ALC888S HD audio codec Support Line-in,Line-out,MIC by SHD 2.0mm 2x6pin header
Expansion Slots	1 x M.2 B-Key 2242/3042/3052 for SSD and 4G / 5G module (USB3.2 Gen1x1, PCIe2.0x1 / SATA, USB2.0), w/pin header for SIM slot 1 x M.2 E-Key 2230 for WiFi / BT module (USB2.0, PCIe4.0x1)
Watchdog Timer	Software programmable 1–255 level
TPM	Onboard TPM IC Infineon_ SLB 9672VU2.0 Support TPM, select via BIOS
Switches and LED Indicators	Power button/reset button/power LED/HDD LED via SHD 1.25mm 2x20pin header (CN5)
Battery	Support 3V RTC Li-battery via 2pin wafer (BAT1)
Power Management	Wide range DC 9~36V±10% power input via 2pin terminal block
Temperature	Operating: -30℃ to 70℃ Storage: -40℃ to 85℃
Humidity	10% - 90%, non-condensing, operating
Certifications	Meet CE/FCC class A UL RoHS2.0

Dimensions: 146mm x 101.6mm

Figure 2.1: Motherboard Dimensions

2.3 Jumpers and Connectors Location
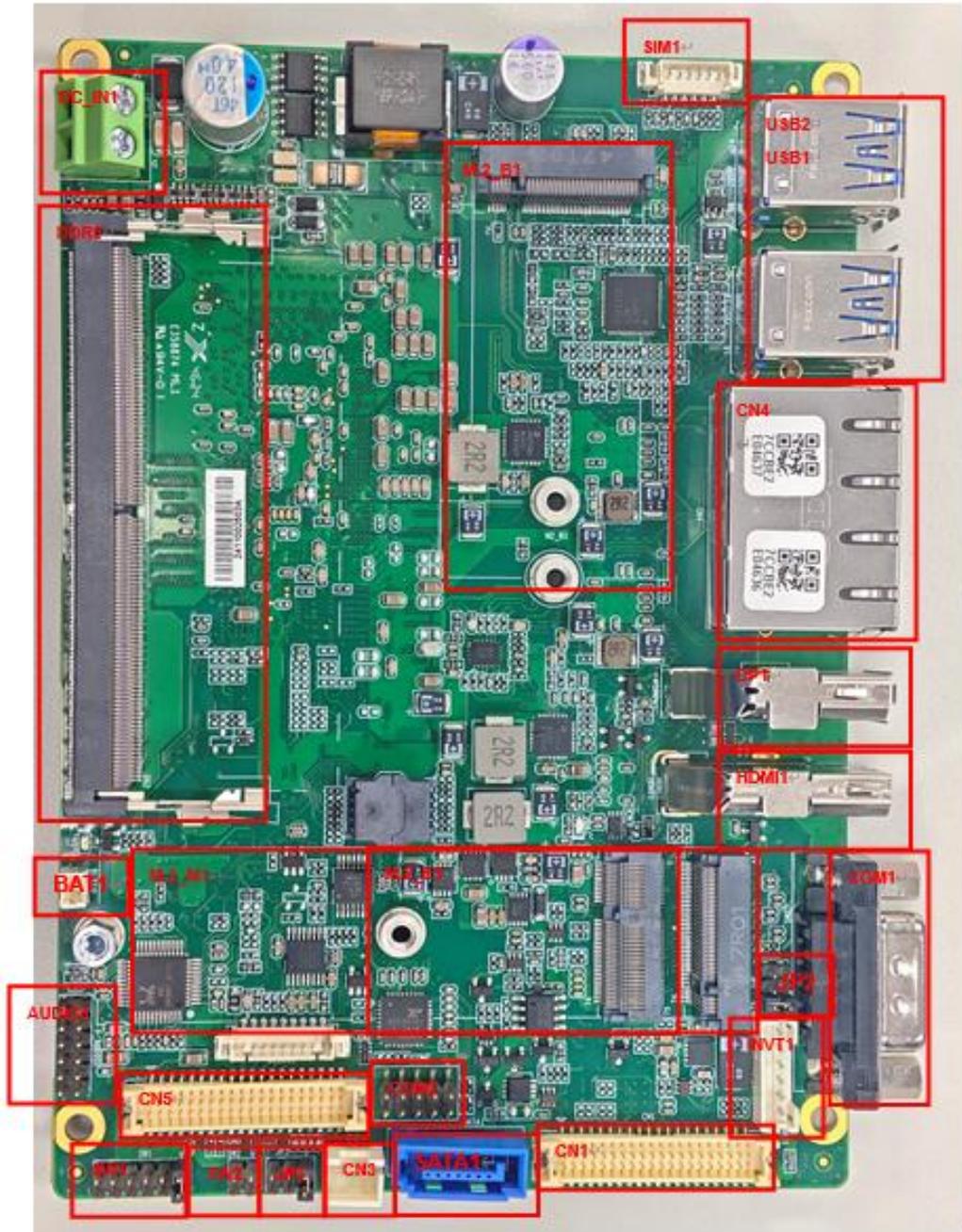
Figure 2.2: Jumpers and Connectors Location- Board Top
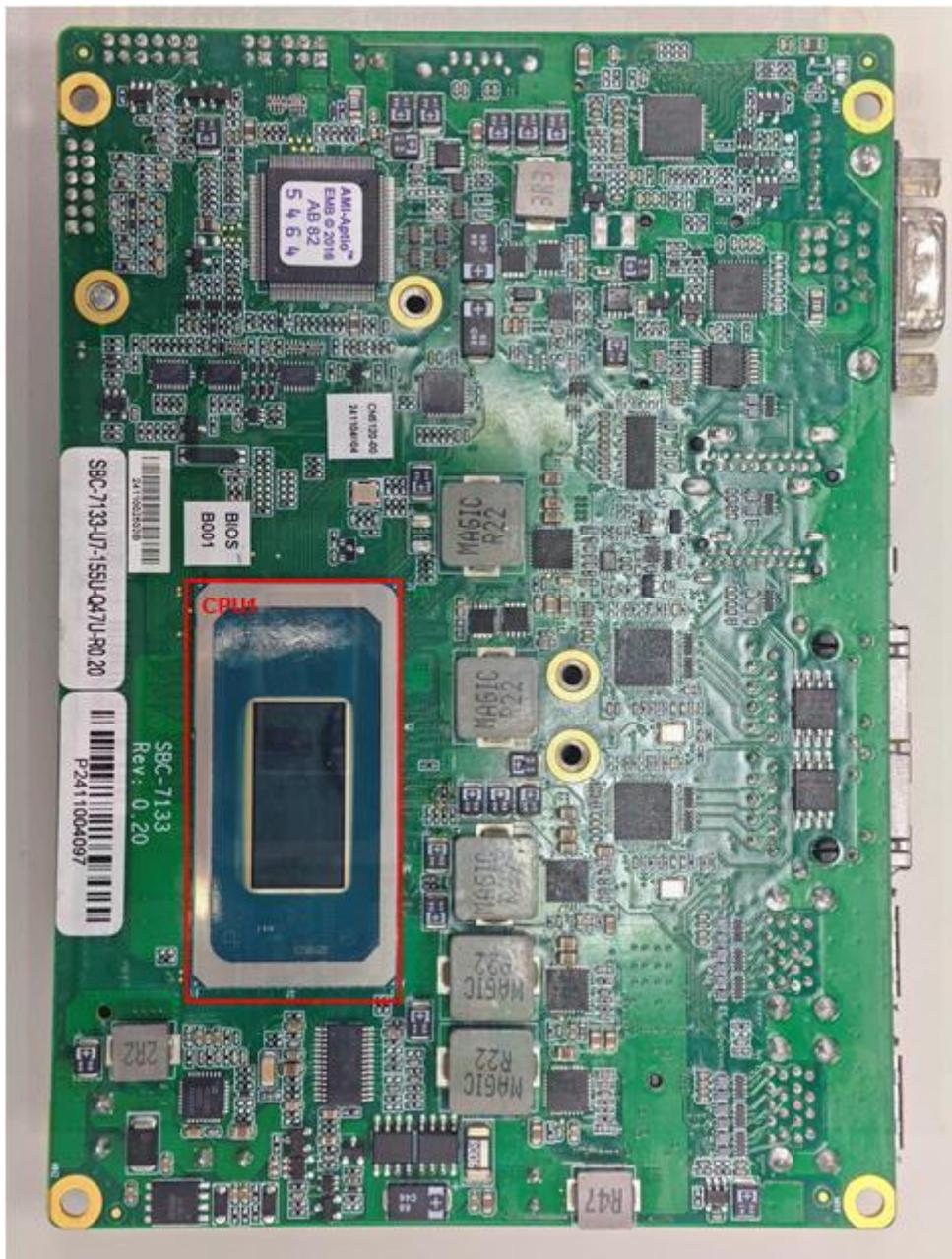
Figure 2.3: Jumpers and Connectors Location- Board Bottom

2.4 Jumpers Setting and Connectors

1. **CPU1:**

(FCBGA1744) Onboard Intel Meteor Lake SoC

Model	SoC				
	Number	PBF	Cores/ Threads	TDP	Remarks
SBC-7133-I5 125U	125U	Up to 4.3GHz(P-Core) 3.6GHz(E-Core)	2C+8A / 12	15W-55W	Default
SBC-7133-I7 155U	155U	Up to 4.8GHz(P-Core) 3.8GHz(E-Core)	2C+8A / 14	15W-55W	Default

2. **DDR5:**

top of the board and supports 260Pin DDR5 SO-DIMM memory module up to 32GB.
Max Memory Size (dependent on memory type).

3. **BAT1:**

(1.25mm Pitch 1x2 wafer Pin Header) 3.0V Li battery is embedded to provide power for CMOS.

Pin#	Signal Name
Pin1	VCC_RTC
Pin2	GND

4. **SW1:**

HEADER2X6,2mm
PH2X6_79_TH_P15
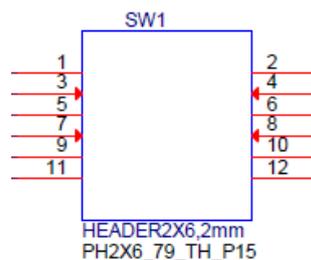
(2.00mm Pitch 2x6 Pin Header) Power mode and LVDS setting.

Switch	Open	Close
Pin1-2	Default, PWRBTN-ON	Auto-PSON
Pin3-4	ATX Mode	Default, AT Mode
Pin5-6	Default, Normal	Close 1sec to Clear CMOS
Pin7-8	Default, LVDS 5V	LVDS 3.3V
Pin9-10	Default, LVDS Dual CH.	LVDS Single CH.
Pin11-12	Default, LVDS 6 bit	LVDS 8 bit Signal

	Signal	

CMOS clear switch, CMOS clear operation will permanently reset old BIOS settings to factory defaults.

Procedures of CMOS clear:

a) Turn off the system and unplug the power cord from the power outlet.

b) To clear the CMOS settings, close Pin5-6 for 1 second

c) Power on the system again.

d) When entering the POST screen, press the <DEL> key to enter CMOS Setup Utility to load optimal defaults.

e) After the above operations, save changes and exit BIOS Setup.

5. SW2:

(2.0mm Pitch 2x2 wafer Pin Header) EDID eeprom program header

Pin#	Signal Name
Pin1	3P3V_S5_EDID
Pin2	PANEL_CLK
Pin3	GND
Pin4	PANEL_DATA

6. DC_IN1:

(5.08mm Pitch DINKLE_ ELK508S-02P) DC9~36V system power input connector.

Pin#	Signal Name
Pin1	DC_IN+ (DC+9V~36V)
Pin2	DC_IN-

7. CN1:

(1.25mm Pitch 2x20 DF13-40DP Female Header) LVDS connector

Signal Name	Pin#	Signal Name

12V_S0	1	2	12V_S0
BKLT_CTRL	3	4	BKLT_EN_OUT
GND	5	6	GND
LVDS_VCC	7	8	LVDS_VCC
LVDS_VCC	9	10	LVDS_VCC
GND	11	12	GND
LA_D0_N	13	14	LA_D0_P
LA_D1_N	15	16	LA_D1_P
LA_D2_N	17	18	LA_D2_P
LA_D3_N	19	20	LA_D3_P
LA_CLKN	21	22	LA_CLKP
LB_D0_N	23	24	LB_D0_P
LB_D1_N	25	26	LB_D1_P
LB_D2_N	27	28	LB_D2_P
LB_D3_N	29	30	LB_D3_P
LB_CLKN	31	32	LB_CLKP
NC	33	34	GND
USB7_N	35	36	USB7_P
PANEL_DATA	37	38	USB_5V
PANEL_CLK	39	40	PWR_LED+

8. CN5:

(1.25mm Pitch 2x20 DF13-40DP Female Header)

Signal Name	Pin#	Pin#	Signal Name
PWR_LED+	2	1	HD_LED+
PWR_LED-	4	3	HD_LED-
PWR_BTN+	6	5	SYS_RST-
PWR_BTN-	8	7	SYS_RST+
BUZZER-	10	9	BUZZER+
USB_5V	12	11	USB_5V
USB_D2-	14	13	USB_D1-
USB_D2+	16	15	USB_D1+
GND	18	17	GND
GND	20	19	GPIO_5V
GPIO_OUT1	22	21	GPIO_IN1
GPIO_OUT2	24	23	GPIO_IN2
GPIO_OUT3	26	25	GPIO_IN3
GPIO_OUT4	28	27	GPIO_IN4

GND	30	29	GND
COM3_TX	32	31	GND
COM3_RX	34	33	GND
GND	36	35	SMBCLK
COM4_TX	38	37	SMBDATA
COM4_RX	40	39	3P3V_S5

9. HDMI1:

HDMI 2.1

10. DP1:

(DP Connector) DisplayPort Interface connector.

DisplayPort 1.4, DP++ support resolution up to 4096x2160@60Hz.

11. CN4:
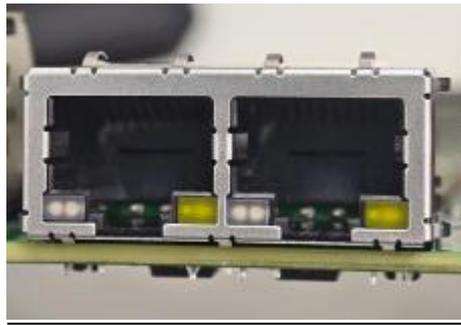
(2 x RJ45 Connector) Provide 2.5GbE LAN via Intel® I226-LM.

12. F_AUDIO1:

(2.0mm Pitch 2x6 Pin Header) Provide line-in/line-out/mic-in via onboard Realtek ALC888S codec.

Signal Name	Pin#	Pin#	Signal Name
5V_S5	1	2	GND_AUD
LINE-OUT-L	3	4	LINE-OUT-R
FRONT_JD	5	6	LINE_JD
LINE-IN-L	7	8	LINE-IN-R
MIC-IN-L	9	10	MIC-IN-R
GND_AUD	11	12	MIC1_JD

15. USB3,USB4:

(Double stack USB Type-A) Rear USB3.2 connector, provides up to 4 USB3.2 gen1/USB2.0 ports, USB3.2 gen1 allows data transfers up to 5.0Gbps.
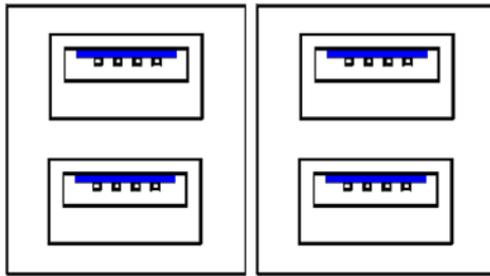
18. COM1:

(DB9 connector) Provide serial RS232/422/485 via standard DB9 male connector. Default is set to RS232, RS422/485 can be selected via BIOS. Pin 9 RI/5V/12V select via JP1.

RS232 (Default):	
Pin#	Signal Name
1	DCD# (Data Carrier Detect)
2	RXD (Received Data)
3	TXD (Transmit Data)
4	DTR (Data Terminal Ready)
5	GND
6	DSR (Data Set Ready)
7	RTS (Request To Send)
8	CTS (Clear To Send)
9	JP2 select Setting (RI/5V/12V)
BIOS Setup：Serial Port 1 Configuration【RS-232】	

RS422 (option):	
Pin#	Signal Name
1	422_TX-
2	422_TX+
3	422_RX+
4	422_RX-
5	GND
6	NC
7	NC

8	NC
9	NC
BIOS Setup：Serial Port 1 Configuration【RS-422】	

RS485 (option):	
Pin#	Signal Name
1	485-
2	485+
3	NC
4	NC
5	GND
6	NC
7	NC
8	NC
9	NC
BIOS Setup：Serial Port 1 Configuration【RS-485】	

19. JP2:

(2.0mm Pitch 2x3 Pin Header) For COM1 pin9 signal setting.

JP1 Pin#	Function
Close 1-2	**COM1 Pin9 RI (Ring Indicator, Default)**
Close 3-4	COM1 Pin9 = +5V
Close 5-6	COM1 Pin9 = +12V

20. COM2:

(2.0mm Pitch 2x5 Pin Header) Provide RS232, pin 9 RI/5V/12V select via JP3.

RS232 (Default):	
Pin#	Signal Name
1	DCD# (Data Carrier Detect)
2	RXD (Received Data)
3	TXD (Transmit Data)
4	DTR (Data Terminal Ready)
5	GND
6	DSR (Data Set Ready)
7	RTS (Request To Send)
8	CTS (Clear To Send)

9	JP3 select Setting (RI/5V/12V)
BIOS Setup：Serial Port 2 Configuration【RS-232】	

RS422 (option):	
Pin#	Signal Name
1	422_TX-
2	422_TX+
3	422_RX+
4	422_RX-
5	GND
6	NC
7	NC
8	NC
9	NC
BIOS Setup：Serial Port 2 Configuration【RS-422】	

RS485 (option):	
Pin#	Signal Name
1	485-
2	485+
3	NC
4	NC
5	GND
6	NC
7	NC
8	NC
9	NC
BIOS Setup：Serial Port 2 Configuration【RS-485】	

21. JP3:

_____(2.0mm Pitch 2x3 Pin Header) For COM2 pin9 signal setting.

JP1 Pin#	Function
Close 1-2	**COM2 Pin9 RI (Ring Indicator, Default)**
Close 3-4	COM2 Pin9 = +5V
Close 5-6	COM2 Pin9 = +12V

22. INVT:

_____(2.0mm Pitch 1x6 Pin Header ,WTB-3001E1-064N5) For LVDS Inverter

Pin#	Function
1	12V_S0
2	12V_S0
3	GND
4	GND
5	BKLT_EN_OUT
6	BKLT_CTRL

26. **M2_B1:**

(M.2 B-Key Socket) Support 2242/3052 wireless communication cards.

27. **SIM1:**

(1.25mm Pitch 1x6 Pin Header WTB-2021N-062NA) Support SIM card for M2_B1.

Pin#	Signal Name
1	SIMVCC
2	GND
3	SIM_RST
4	NC
5	SIM_CLK
6	SIM_DATA

28. **M2-M1:**

(M.2 M-Key Socket) Support 2280 PCIE interface SSD.

29. **M2_E1:**

(M.2 E-Key Socket) Provide USB2.0/PCIex1, support E-key 2230 Wi-Fi/BT expansion cards.

30. **SATA1:**

(SATA 7Pin) SATA connector provide SATA III signal for storages.

31. **CN3:**

(2.5mm Pitch 1x2 Wafer Pin Header) 5V power supply for SATA1 port device.

Pin#	Signal Name
1	5V_S0
2	GND

Note:

Output current of the connector must not be above 1A.

Chapter 3 BIOS Setup Description

3.1 Setup Menu

The BIOS shall have a set of default settings. These default settings are subject to change during the life of the project. Those default settings are specified in the BIOS Setup menu spec.

3.2 BIOS Boot Messages

BIOS shall show the messages when boot up.

Version X.XX.XXXX. Copyright (C) XXXX AMI

<BIOS Part Number>

Press <DEL> or <ESC> to enter setup.

3.3   Features

3.3.1 Function Key

AMI UEFI BIOS shall provide those function keys for project design, it also can be removed for customizable product.

3.3.1.1 Entry BIOS Setup Menu

During system POST, users can press the <Del> or <Esc> key when the Sign-On Message appears to access the BIOS Setup Menu.

※ Press <DEL> or <ESC> key enter UEFI BIOS Setup utility.

3.3.1.2 Choice Boot Menu

During the BIOS POST screen, users can press the <F12> key to enter the Boot Menu for selecting a temporary boot device.

3.3.1.3 Entry BIOS Setup Menu Engineer Mode

Within the BIOS Setup Menu, users can press <Ctrl> + <F1> to toggle the visibility of Engineer Mode options. This mode allows access to advanced Intel or AMI original configuration items intended for engineering and development purposes.

※ It is not recommended to include this in the System User Manual for end-user reference.

3.4   Password Support

To ensure security, BIOS settings shall be protected to prevent modification by end-users. All passwords must be stored in NVRAM so that BIOS settings remain secure even during flash updates, except when the system is forcibly reflash through BIOS recovery mode (e.g., full SPI ROM overwrite). In the event of an RTC (Real-Time Clock) loss, all BIOS passwords will be automatically restored to their default values.

※ If an incorrect password is entered three consecutive times, the system will halt.

※ If password restoration is not desired in the event of RTC loss, please submit a separate request for exemption.

3.5   BIOS Setup

3.5.1 Main

```
                        Aptio Setup – AMI
   Main  Advanced  Chipset  Security  Boot  Save & Exit
 ┌─────────────────────────────────────────────┬──────────────────────────┐
 │ BIOS Information                            ▲│ Choose the system default│
 │                                             │ language                 │
 │ BIOS Vendor                American Megatrends                          │
 │ Core Version               5.32                                         │
 │ BIOS Version               B1.02.00.7133                                │
 │ Build Date and Time        08/21/2025  9:06:17                          │
 │ Access Level               Administrator                                │
 │ Silicon Version            0D.E0.98.10                                  │
 │                                                                         │
 │ Processor Information                                                   │
 │                                                                         │
 │ Name                       MeteorLake ULT                               │
 │ Type                       Intel(R) CoreTM Ultra 7                      │
 │                            155U               →←: Select Screen         │
 │ Speed                      1700 MHz           ↑↓: Select Item           │
 │ Total Memory               32768 MB           Enter: Select             │
 │ Memory Frequency            4800 MHz          +/-: Change Opt.          │
 │                                               F1: General Help          │
 │ TPM 2.0                                       F8: Previous Values       │
 │   Firmware Version:        15.22              F3: Optimized Defaults    │
 │   Vendor:                  IFX                F4: Save & Reset          │
 │                                               ESC: Reset                │
 │ System Language            [English]                                    │
 │ System Date                [Tue 08/26/2025]                             │
 │ System Time                [01:23:20]       ▼                           │
 └─────────────────────────────────────────────┴──────────────────────────┘
              Version 2.22.1293 Copyright (C) 2025 AMI
```

Parameter	Option	Description
BIOS Information		
BIOS Vendor	American Megatrends	BIOS Vendor
Core Version	5.32 (Dynamically Updated)	Core Version
BIOS Version	B1.02.00.7133 (Dynamically Updated)	BIOS version
Build Date and Time	08/21/2025 09:06:17 (Dynamically Updated)	Build Date and Time
Access Level	Administrator (Dynamically Updated)	Access Level
Silicon Version	0D.E0.98.10	Silicon Version

Processor Information		
Name	MeteorLake ULT	Displays the Processor Details
Type	Intel(R) Core(TM) Ultra 7 155U (Dynamically Updated)	Displays the Processor Type
Speed	1700 MHz (Dynamically Updated)	Displays the Processor Speed
Total Memory	32768 MB (Dynamically Updated)	Total Memory in the System
Memory Frequency	4800 MHz (Dynamically Updated)	Displays the Frequency of Memory
TPM 2.0		
Firmware Version:	15.22	Firmware Version
Vendor:	IFX	Vendor
System Language	English (Default)	Choose the system default language
System Date	Tue 08/26/2025	Set the Date. Use Tab to switch between Date elements. Default Ranges: Year: 1998-9999 Months: 1-12 Days: Dependent on month Range of Years may vary.
System Time	01:23:20	Set the Time. Use Tab to switch between Time elements.

3.5.2 Advanced
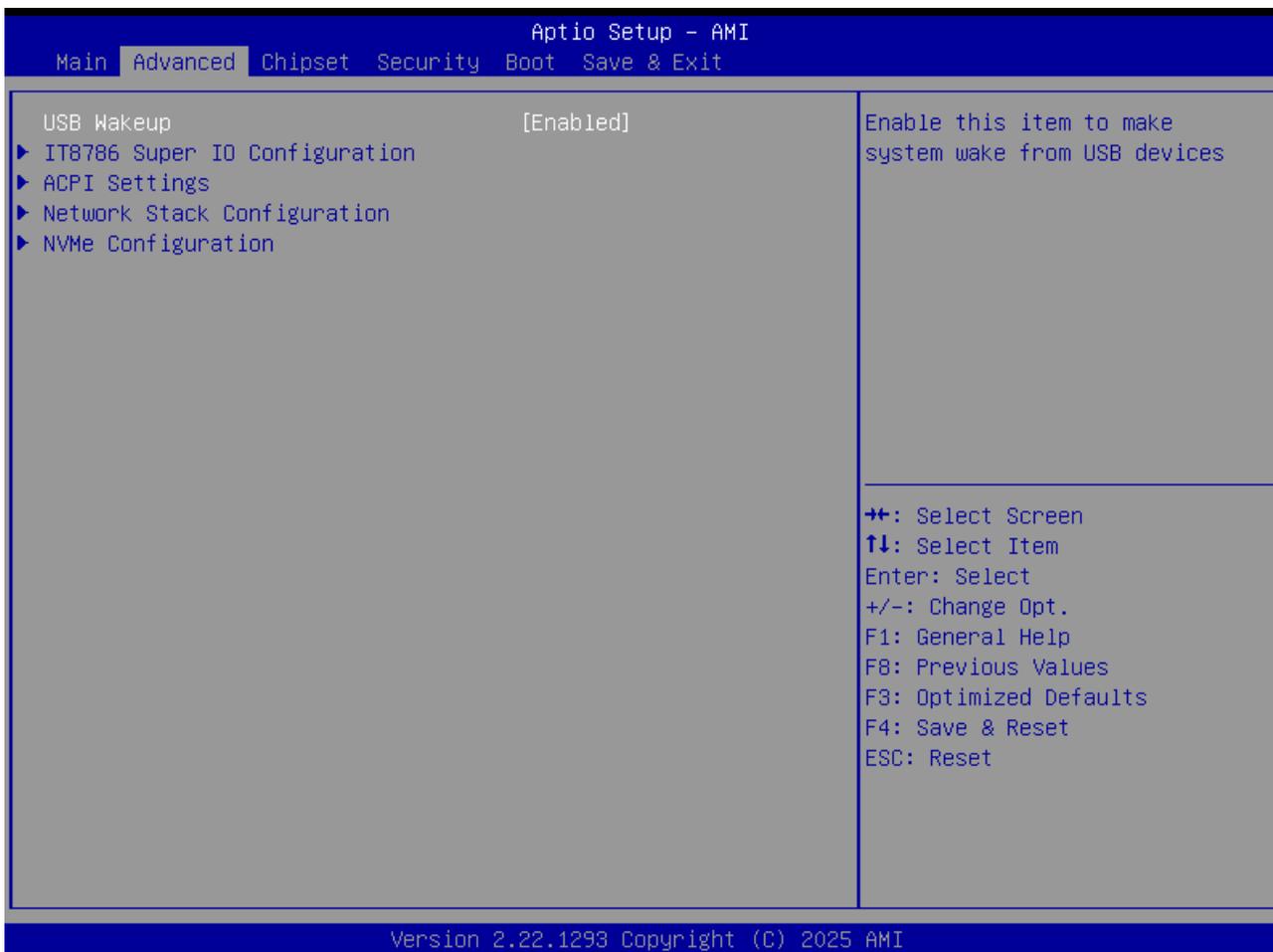
Parameter	Option	Description
USB Wakeup	Disabled Enabled (Default)	Enable this item to make system wake from USB devices
IT8786 Super IO Configuration	↵	System Super IO Chip Parameters
ACPI Settings	↵	System ACPI Parameters
Network Stack Configuration	↵	Network Stack Settings
NVMe Configuration	↵	NVMe Device Options Settings

3.5.2.1 IT8786 Super IO Configuration

```
                          Aptio Setup - AMI
   Advanced

   IT8786 Super IO Configuration                    AUTO: UART settings follow
                                                    config strings, Manual: User
   Super IO Chip                   IT8786           define
   UART Mode Control               [Auto]
 ▶ Serial Port 1 Configuration
 ▶ Serial Port 2 Configuration
 ▶ Serial Port 3 Configuration
 ▶ Serial Port 4 Configuration




                                                    ↔: Select Screen
                                                    ↑↓: Select Item
                                                    Enter: Select
                                                    +/-: Change Opt.
                                                    F1: General Help
                                                    F8: Previous Values
                                                    F3: Optimized Defaults
                                                    F4: Save & Reset
                                                    ESC: Reset



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```

Parameter	Option	Description
IT8786 Super IO Configuration	↵	↵
Super IO Chip	IT8786	Show Super I/O Chip
UART Mode Control	Manual Auto (Default)	AUTO: UART settings follow config strings, Manual: User define
Serial Port 1 Configuration	↵	Set Parameters of Serial Port 1 (COMA)
Serial Port 2 Configuration	↵	Set Parameters of Serial Port 2 (COMB)
Serial Port 3 Configuration	↵	Set Parameters of Serial Port 3 (COMC)
Serial Port 4 Configuration	↵	Set Parameters of Serial Port 4 (COMD)

3.5.2.2 Serial Port 1 Configuration

```
                              Aptio Setup - AMI
         Advanced

  Serial Port 1 Configuration                              Enable or Disable Serial Port
                                                           (COM)
  Serial Port                     [Enabled]
  Device Settings                 IO=3F8h; IRQ=4;

  COM Mode                        [RS232]



                                                           →←: Select Screen
                                                           ↑↓: Select Item
                                                           Enter: Select
                                                           +/-: Change Opt.
                                                           F1: General Help
                                                           F8: Previous Values
                                                           F3: Optimized Defaults
                                                           F4: Save & Reset
                                                           ESC: Reset



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```

Parameter	Option	Description
Serial Port 1 Configuration		
Serial Port	Disabled Enabled (Default)	Enable or Disable Serial Port (COM)
Device Settings	IO=3F8h; IRQ=4;	Show Device Settings
COM Mode Select	RS232 (Default) RS422 RS485	Select Function Mode

3.5.2.3 Serial Port 2 Configuration

```
                            Aptio Setup - AMI
   Advanced

  Serial Port 2 Configuration                        Enable or Disable Serial Port
                                                      (COM)
  Serial Port                    [Enabled]
  Device Settings                IO=2F8h; IRQ=3;

  COM Mode                       [RS232]

                                                      →←: Select Screen
                                                      ↑↓: Select Item
                                                      Enter: Select
                                                      +/-: Change Opt.
                                                      F1: General Help
                                                      F8: Previous Values
                                                      F3: Optimized Defaults
                                                      F4: Save & Reset
                                                      ESC: Reset

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```

Parameter	Option	Description
Serial Port 2 Configuration		
Serial Port	Disabled Enabled (Default)	Enable or Disable Serial Port (COM)
Device Settings	IO=2F8h; IRQ=3;	Show Device Settings
COM Mode Select	RS232 (Default) RS422 RS485	Select Function Mode

3.5.2.4 Serial Port 3 Configuration

```
                              Aptio Setup - AMI
    Advanced

 Serial Port 3 Configuration                            Enable or Disable Serial Port
                                                        (COM)
 Serial Port                        [Enabled]
 Device Settings                    IO=2F0h; IRQ=3;




                                                        →←: Select Screen
                                                        ↑↓: Select Item
                                                        Enter: Select
                                                        +/-: Change Opt.
                                                        F1: General Help
                                                        F8: Previous Values
                                                        F3: Optimized Defaults
                                                        F4: Save & Reset
                                                        ESC: Reset



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```
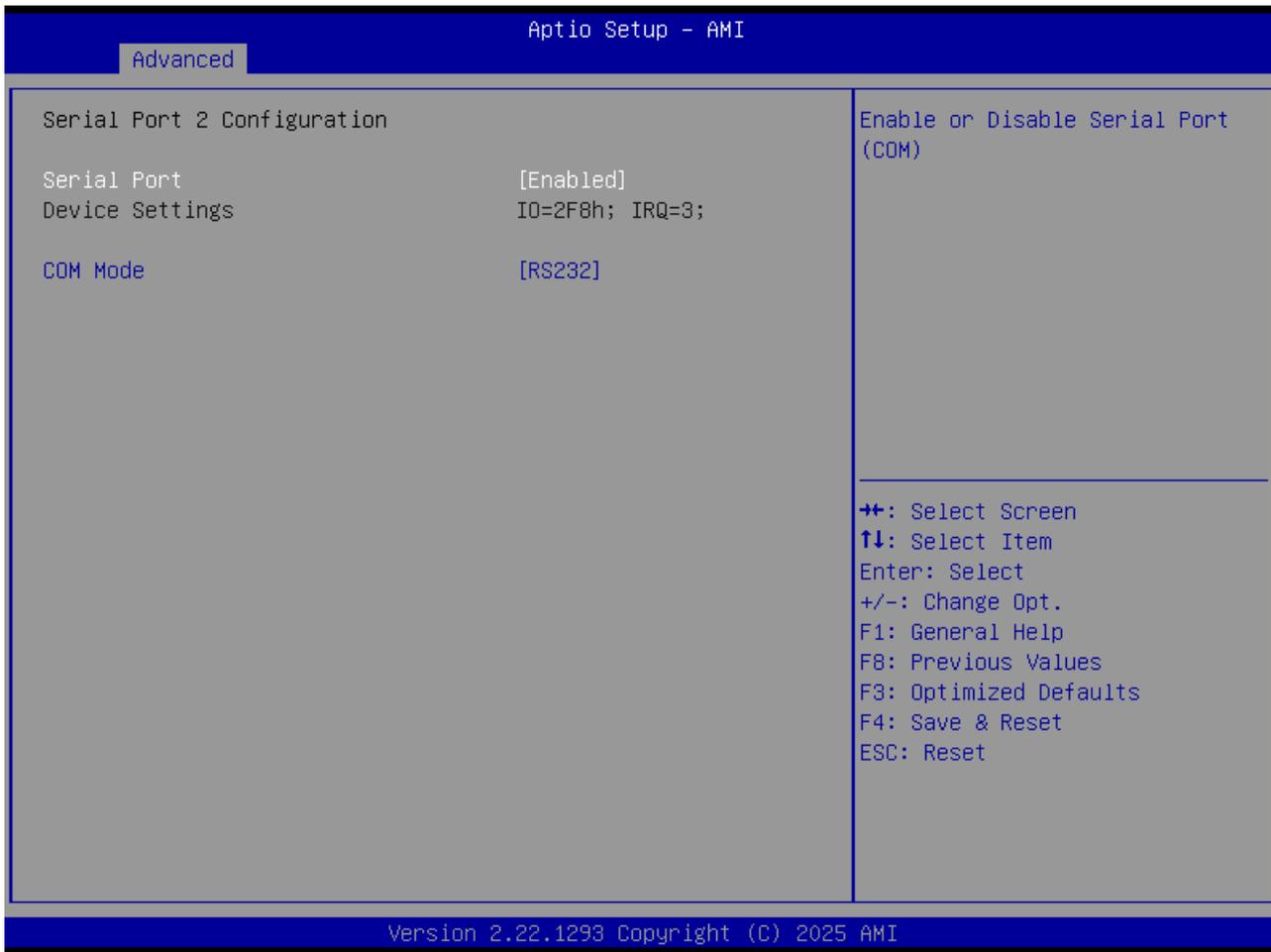
Parameter	Option	Description
Serial Port 3 Configuration		
Serial Port	Disabled Enabled (Default)	Enable or Disable Serial Port (COM)
Device Settings	IO=2F0h; IRQ=3;	Show Device Settings

3.5.2.5 Serial Port 4 Configuration

```
                                 Aptio Setup - AMI
       Advanced

  Serial Port 4 Configuration                                Enable or Disable Serial Port
                                                             (COM)
  Serial Port                          [Enabled]
  Device Settings                      IO=2E8h; IRQ=3;




                                                             →←: Select Screen
                                                             ↑↓: Select Item
                                                             Enter: Select
                                                             +/-: Change Opt.
                                                             F1: General Help
                                                             F8: Previous Values
                                                             F3: Optimized Defaults
                                                             F4: Save & Reset
                                                             ESC: Reset



                          Version 2.22.1293 Copyright (C) 2025 AMI
```
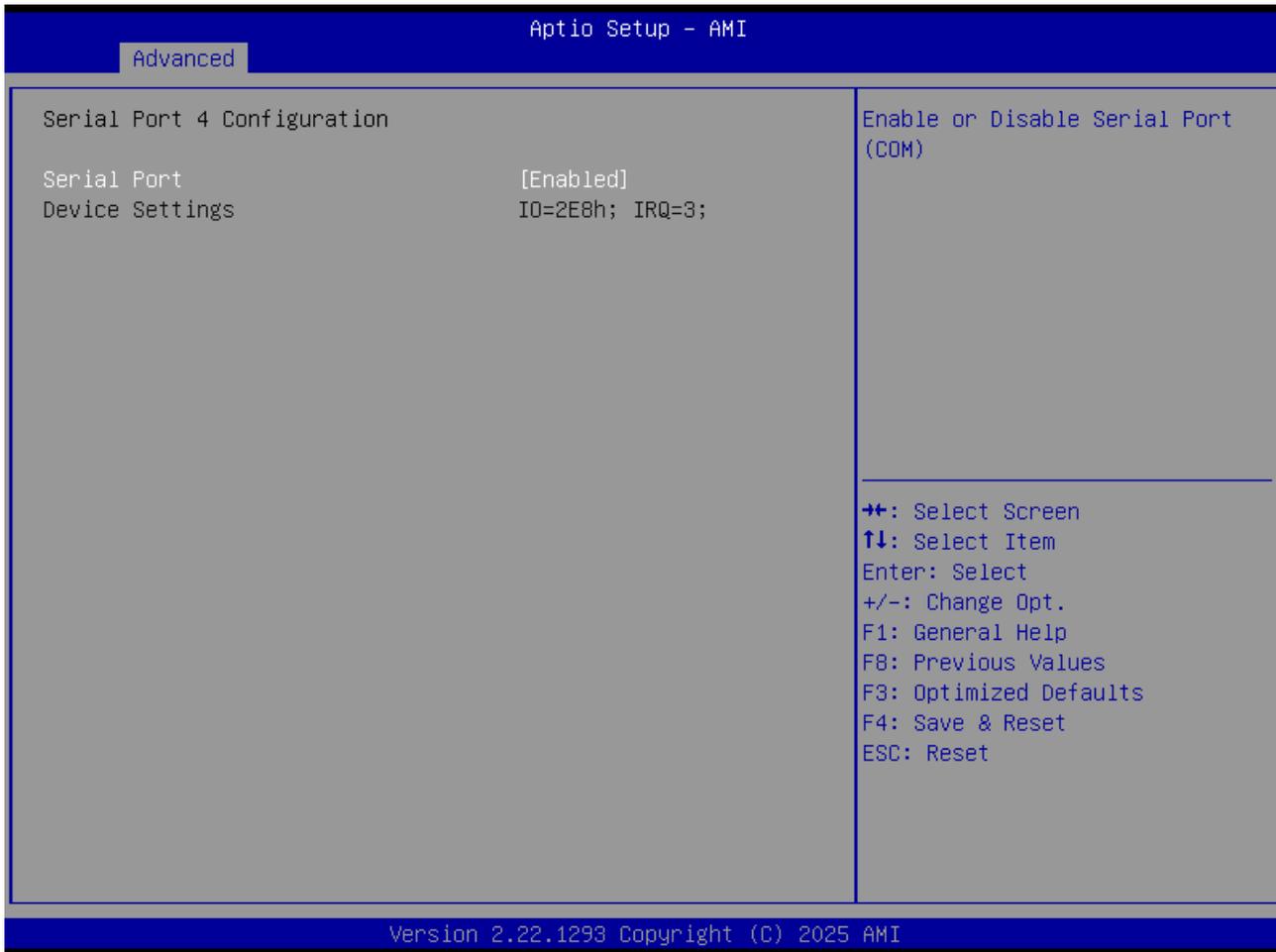
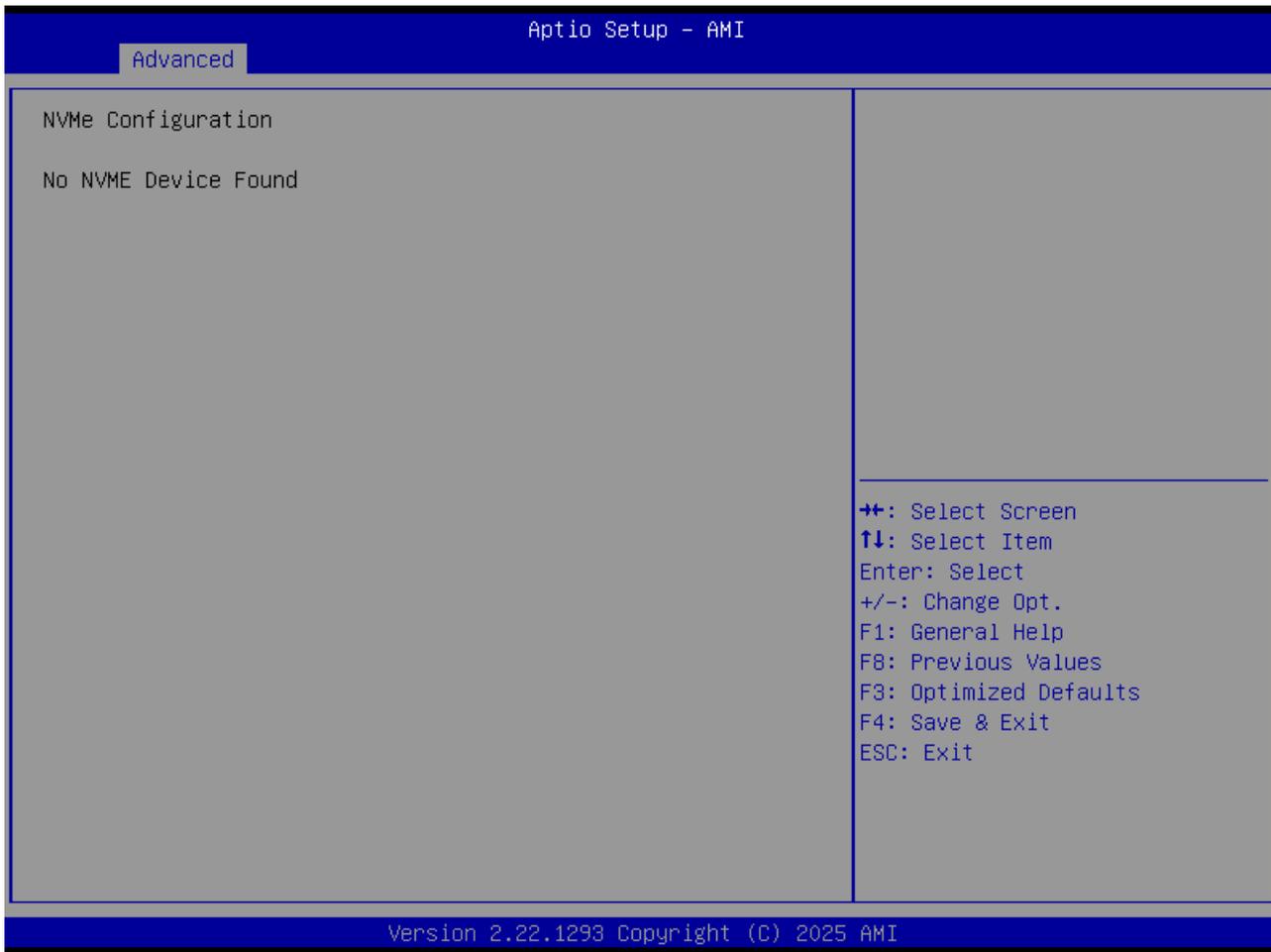| Parameter	Option	Description
Serial Port 4 Configuration		
Serial Port	Disabled Enabled (Default)	Enable or Disable Serial Port (COM)
Device Settings	IO=2E8h; IRQ=3;	Show Device Settings

3.5.3.6 ACPI Settings

```
                        Aptio Setup — AMI
   Advanced

 ACPI Settings                                      Enables or Disables BIOS ACPI
                                                    Auto Configuration.
 Enable ACPI Auto Configuration     [Disabled]

 Enable Hibernation                 [Disabled]




                                                    →←: Select Screen
                                                    ↑↓: Select Item
                                                    Enter: Select
                                                    +/-: Change Opt.
                                                    F1: General Help
                                                    F8: Previous Values
                                                    F3: Optimized Defaults
                                                    F4: Save & Reset
                                                    ESC: Reset



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```
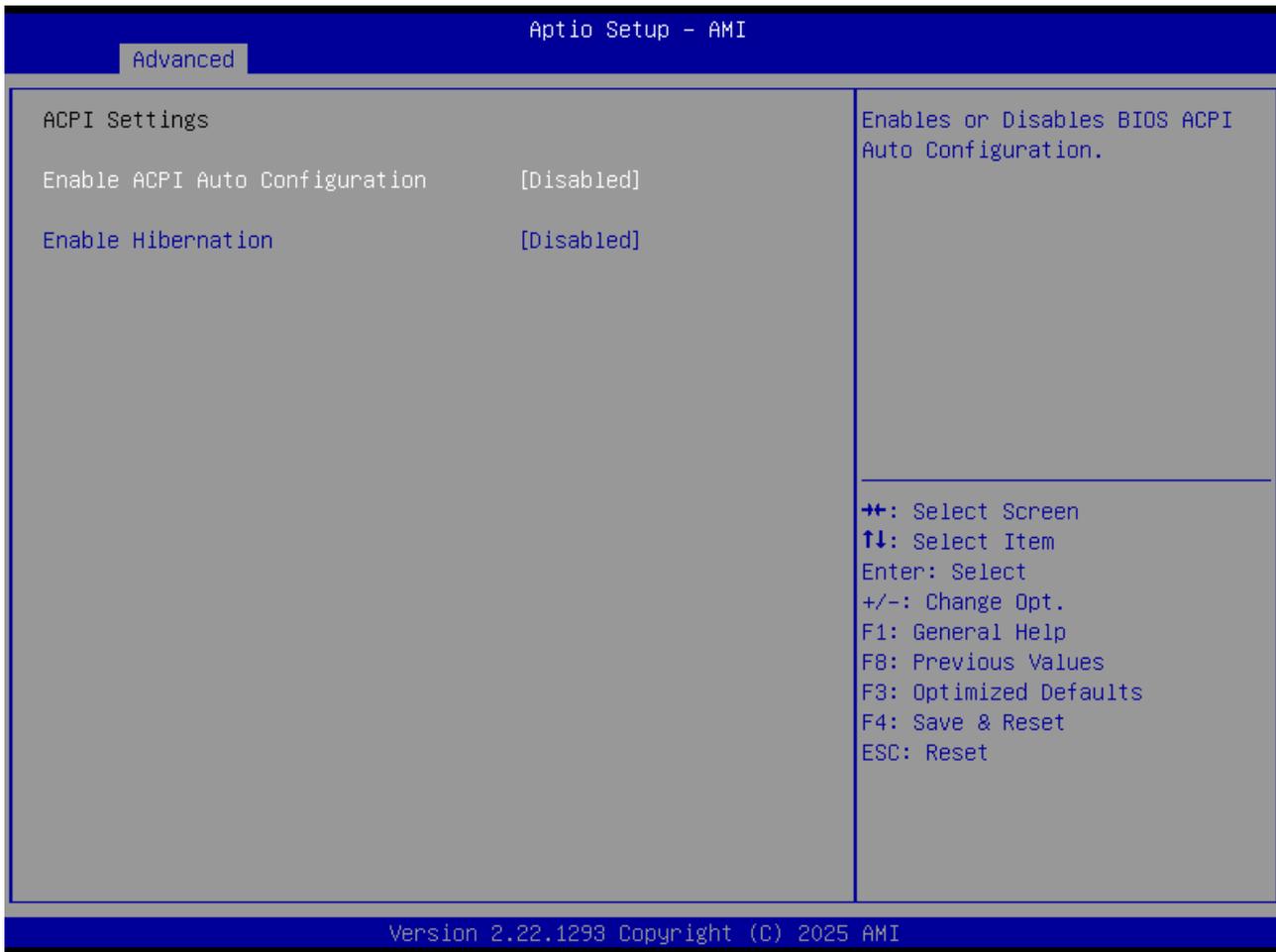
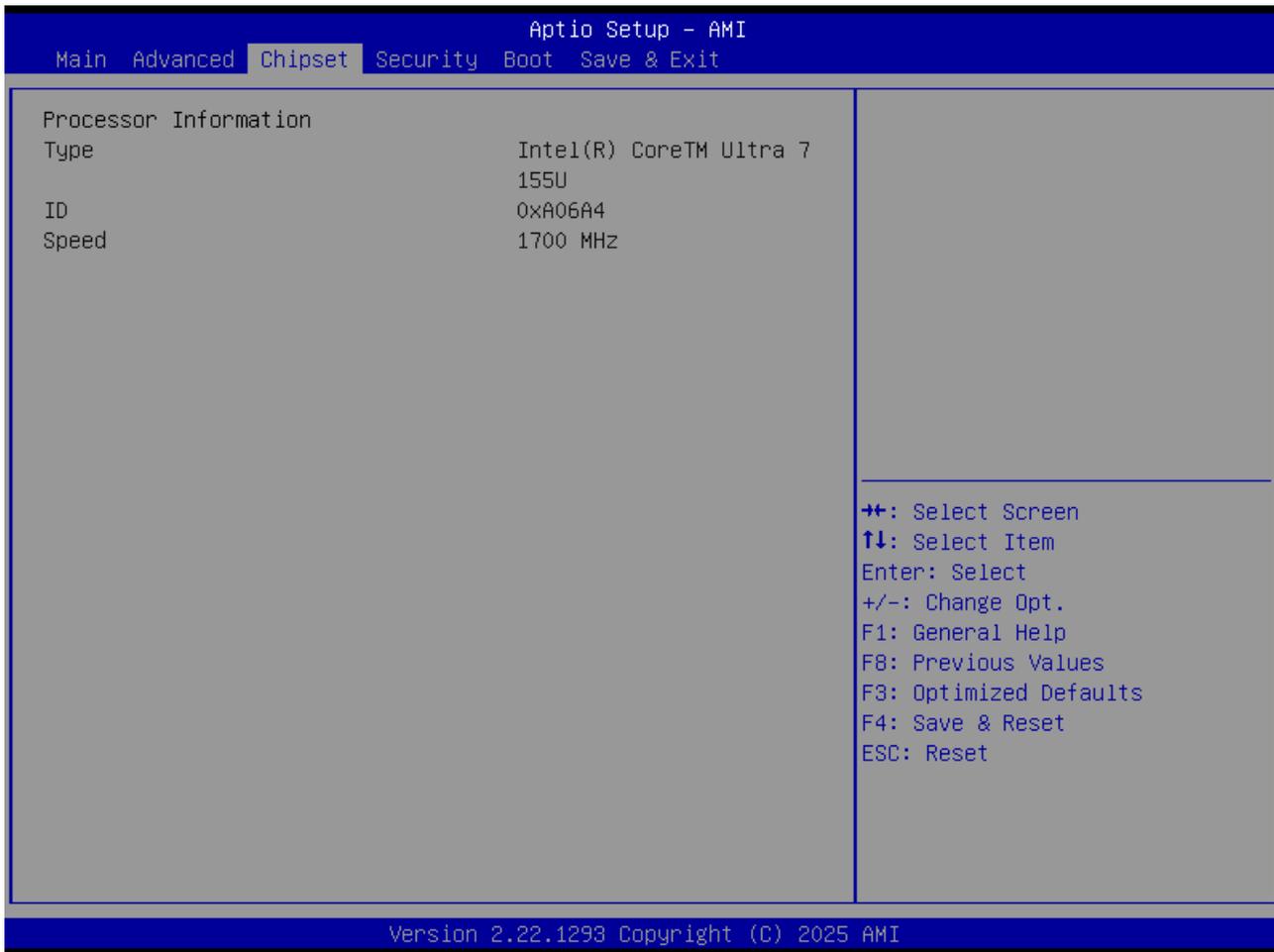| Parameter	Option	Description
ACPI Settings		
Enable ACPI Auto Configuration	Disabled (Default) Enabled	Enables orDisables BIOS ACPI Auto Configuration
Enable Hibernation	Disabled (Default) Enabled	Enables or Disables System ability to Hibernate (OS/S4 Sleep State). This option may not be effective with some operating systems

3.5.3.7 Network Stack Configuration

```
                              Aptio Setup - AMI
       Advanced

   Network Stack                         [Disabled]              Enable/Disable UEFI Network
                                                                 Stack




                                                                 _____

                                                                 →←: Select Screen
                                                                 ↑↓: Select Item
                                                                 Enter: Select
                                                                 +/-: Change Opt.
                                                                 F1: General Help
                                                                 F8: Previous Values
                                                                 F3: Optimized Defaults
                                                                 F4: Save & Exit
                                                                 ESC: Exit


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```

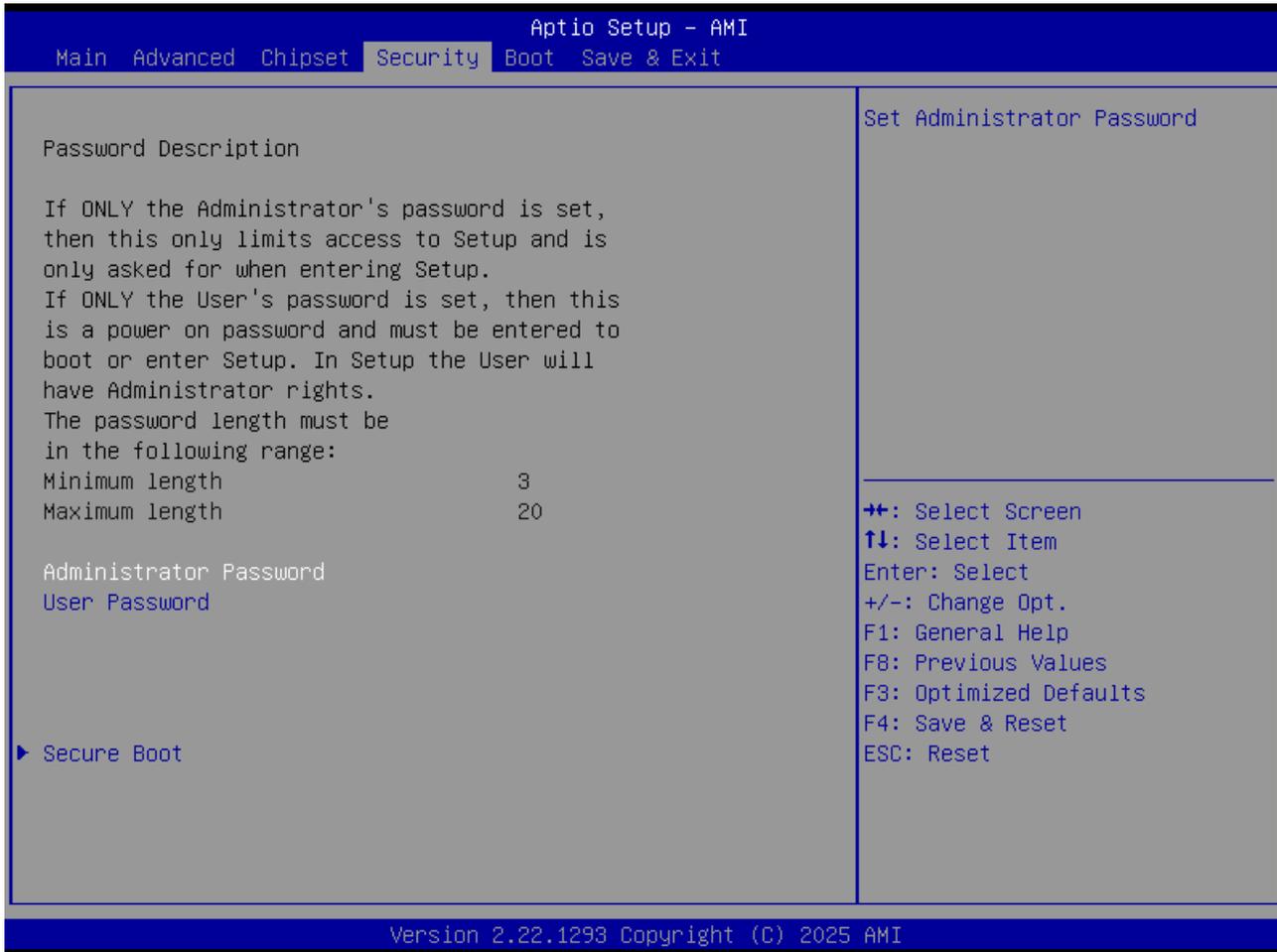| Parameter	Option	Description
Network Stack	Disabled (Default) Enabled	Enable/Disable UEFI Network Stack
IPv4 PXE Support	Disabled Enabled (Default)	Enable/Disable IPv4 PXE boot support. If disabled, IPv4 PXE boot support will not be available
IPv4 HTTP Support	Disabled (Default) Enabled	Enable/Disable IPv4 HTTP boot support. If disabled, IPv4 HTTP boot support will not be available
IPv6 PXE Support	Disabled (Default) Enabled	Enable/Disable IPv6 PXE boot support. If disabled, IPv6 PXE boot support will not be available
IPv6 HTTP Support	Disabled (Default) Enabled	Enable/Disable IPv6 HTTP boot support. If disabled, IPv6 HTTP boot support will not be available
PXE boot wait time	0 (Default)	Wait time in seconds to press ESC key to abort the PXE boot. Use either +/- or numeric keys to set the value
Media detect count	1 (Default)	Number of times the presence of media will be checked. Use either +/- or numeric keys to set the value

3.5.3.8 NVMe Configuration

```
                            Aptio Setup - AMI
     Advanced

  NVMe Configuration

  No NVME Device Found

                                                   →←: Select Screen
                                                   ↑↓: Select Item
                                                   Enter: Select
                                                   +/-: Change Opt.
                                                   F1: General Help
                                                   F8: Previous Values
                                                   F3: Optimized Defaults
                                                   F4: Save & Exit
                                                   ESC: Exit

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```

Parameter	Description
NVMe Configuration	NVMe Device Options Settings
(Devices)	Show NVMe device

3.6   Chipset

```
                          Aptio Setup - AMI
     Main  Advanced  Chipset  Security  Boot  Save & Exit

    Processor Information
    Type                        Intel(R) CoreTM Ultra 7
                                155U
    ID                          0xA06A4
    Speed                       1700 MHz




                                            →←: Select Screen
                                            ↑↓: Select Item
                                            Enter: Select
                                            +/-: Change Opt.
                                            F1: General Help
                                            F8: Previous Values
                                            F3: Optimized Defaults
                                            F4: Save & Reset
                                            ESC: Reset




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```

Parameter	Option	Description
Processor Information		
Type	Intel(R) Core(TM) Ultra 7 155U (Dynamically Updated)	Displays the Processor Type
ID	0xA06A4 (Dynamically Updated)	Displays the Processor ID
Speed	1700 MHz (Dynamically Updated)	Displays the Processor Speed

3.7 Security

```
                         Aptio Setup - AMI
     Main  Advanced  Chipset  Security  Boot  Save & Exit
┌─────────────────────────────────────────────────┬──────────────────────────┐
│                                                   │ Set Administrator Password│
│   Password Description                            │                          │
│                                                   │                          │
│   If ONLY the Administrator's password is set,    │                          │
│   then this only limits access to Setup and is    │                          │
│   only asked for when entering Setup.             │                          │
│   If ONLY the User's password is set, then this   │                          │
│   is a power on password and must be entered to   │                          │
│   boot or enter Setup. In Setup the User will     │                          │
│   have Administrator rights.                      │                          │
│   The password length must be                     │                          │
│   in the following range:                         │                          │
│   Minimum length                3                 ├──────────────────────────│
│   Maximum length                20                │ ←→: Select Screen        │
│                                                   │ ↑↓: Select Item          │
│   Administrator Password                          │ Enter: Select            │
│   User Password                                   │ +/-: Change Opt.         │
│                                                   │ F1: General Help         │
│                                                   │ F8: Previous Values      │
│                                                   │ F3: Optimized Defaults   │
│ ▶ Secure Boot                                     │ F4: Save & Reset         │
│                                                   │ ESC: Reset               │
│                                                   │                          │
│                                                   │                          │
│                                                   │                          │
└─────────────────────────────────────────────────┴──────────────────────────┘
                 Version 2.22.1293 Copyright (C) 2025 AMI
```

Parameter	Description
Administrator Password	Set Administrator Password
User Password	Set User Password
Secure Boot	Secure Boot configuration

3.7.1 Secure Boot

```
                          Aptio Setup — AMI
            Security

  System Mode                  Setup                  Secure Boot feature is Active
                                                      if Secure Boot is Enabled,
  Secure Boot                  [Enabled]              Platform Key(PK) is enrolled
                               Not Active             and the System is in User mode.
                                                      The mode change requires
  Secure Boot Mode             [Standard]             platform reset
▶ Restore Factory Keys
▶ Reset To Setup Mode
▶ Expert Key Management
                                                      ─────────────────────────────

                                                      →←: Select Screen
                                                      ↑↓: Select Item
                                                      Enter: Select
                                                      +/-: Change Opt.
                                                      F1: General Help
                                                      F8: Previous Values
                                                      F3: Optimized Defaults
                                                      F4: Save & Reset
                                                      ESC: Reset




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```

Parameter	Option	Description
Secure Boot	Disabled Enabled (Default)	Secure Boot feature is Active if Secure Boot is Enabled, Platform Key(PK) is enrolled and the System is in User mode. The mode change requires platform reset
Secure Boot Mode	Standard (Default) Custom	Secure Boot mode options: Standard or Custom. In Custom mode, Secure Boot Policy variables can be configured by a physically present user without full authentication
Restore Factory Keys		Force System to User Mode. Install factory default Secure Boot key databases
Reset To Setup Mode		Delete all Secure Boot key databases from NVRAM
Expert Key Management		Enables expert users to modify Secure Boot Policy variables without variable authentication

3.8   Boot

```
                           Aptio Setup - AMI
      Main  Advanced  Chipset  Security  Boot  Save & Exit

  Boot Configuration                                    Number of seconds to wait for
  Setup Prompt Timeout              1                   setup activation key.
  Bootup NumLock State              [On]                65535(0xFFFF) means indefinite
                                                        waiting.
  FIXED BOOT ORDER Priorities
  Boot Option #1                    [Hard Disk]
  Boot Option #2                    [NVME]
  Boot Option #3                    [CD/DVD]
  Boot Option #4                    [SD]
  Boot Option #5                    [USB Hard Disk]
  Boot Option #6                    [USB CD/DVD]
  Boot Option #7                    [USB Key]
  Boot Option #8                    [USB Floppy]
  Boot Option #9                    [USB Lan]           ↔: Select Screen
  Boot Option #10                   [Network]           ↕: Select Item
  Boot Option #11                   [UEFI AP:UEFI:       Enter: Select
                                    Built-in EFI Shell]  +/-: Change Opt.
                                                        F1: General Help
▶ UEFI Application Boot Priorities                      F8: Previous Values
                                                        F3: Optimized Defaults
                                                        F4: Save & Reset
                                                        ESC: Reset


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```

Parameter	Option	Description
Boot Configuration		
Setup Prompt Timeout	1 (Default)	Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting
FIXED BOOT ORDER Priorities		
Boot Option #1	Hard Disk (Default) NVME CD/DVD SD USB Hard Disk USB CD/DVD USB Key USB Floppy USB Lan Network	Sets the system boot order

	UEFI AP:UEFI: Built-in EFI Shell Disabled		
Boot Option #2	Hard Disk NVME (Default) CD/DVD SD USB Hard Disk USB CD/DVD USB Key USB Floppy USB Lan Network UEFI AP:UEFI: Built-in EFI Shell Disabled	Sets the system boot order	
Boot Option #3	Hard Disk NVME CD/DVD (Default) SD USB Hard Disk USB CD/DVD USB Key USB Floppy USB Lan Network UEFI AP:UEFI: Built-in EFI Shell Disabled	Sets the system boot order	
Boot Option #4	Hard Disk NVME CD/DVD SD (Default) USB Hard Disk USB CD/DVD USB Key USB Floppy USB Lan Network UEFI AP:UEFI: Built-in EFI Shell Disabled	Sets the system boot order	
Boot Option #5	Hard Disk NVME CD/DVD SD USB Hard Disk (Default) USB CD/DVD USB Key USB Floppy USB Lan	Sets the system boot order	

	Network UEFI AP:UEFI: Built-in EFI Shell Disabled	
Boot Option #6	Hard Disk NVME CD/DVD SD USB Hard Disk USB CD/DVD (Default) USB Key USB Floppy USB Lan Network UEFI AP:UEFI: Built-in EFI Shell Disabled	Sets the system boot order
Boot Option #7	Hard Disk NVME CD/DVD SD USB Hard Disk USB CD/DVD USB Key (Default) USB Floppy USB Lan Network UEFI AP:UEFI: Built-in EFI Shell Disabled	Sets the system boot order
Boot Option #8	Hard Disk NVME CD/DVD SD USB Hard Disk USB CD/DVD USB Key USB Floppy (Default) USB Lan Network UEFI AP:UEFI: Built-in EFI Shell Disabled	Sets the system boot order
Boot Option #9	Hard Disk NVME CD/DVD SD USB Hard Disk USB CD/DVD USB Key USB Floppy	Sets the system boot order

	USB Lan (Default) Network UEFI AP:UEFI: Built-in EFI Shell Disabled	
Boot Option #10	Hard Disk NVME CD/DVD SD USB Hard Disk USB CD/DVD USB Key USB Floppy USB Lan Network (Default) UEFI AP:UEFI: Built-in EFI Shell Disabled	Sets the system boot order
Boot Option #11	Hard Disk NVME CD/DVD SD USB Hard Disk USB CD/DVD USB Key USB Floppy USB Lan Network UEFI AP:UEFI: Built-in EFI Shell (Default) Disabled	Sets the system boot order
UEFI Application Boot Priorities		Specifies the Boot Device Priority sequence from available UEFI Application

3.8.1 UEFI Application Boot Priorities

```
                        Aptio Setup – AMI
                          Boot

  Boot Option #1                 [UEFI: Built-in EFI     Sets the system boot order
                                  Shell]




                                                         →←: Select Screen
                                                         ↑↓: Select Item
                                                         Enter: Select
                                                         +/−: Change Opt.
                                                         F1: General Help
                                                         F8: Previous Values
                                                         F3: Optimized Defaults
                                                         F4: Save & Reset
                                                         ESC: Reset




                    Version 2.22.1293 Copyright (C) 2025 AMI
```
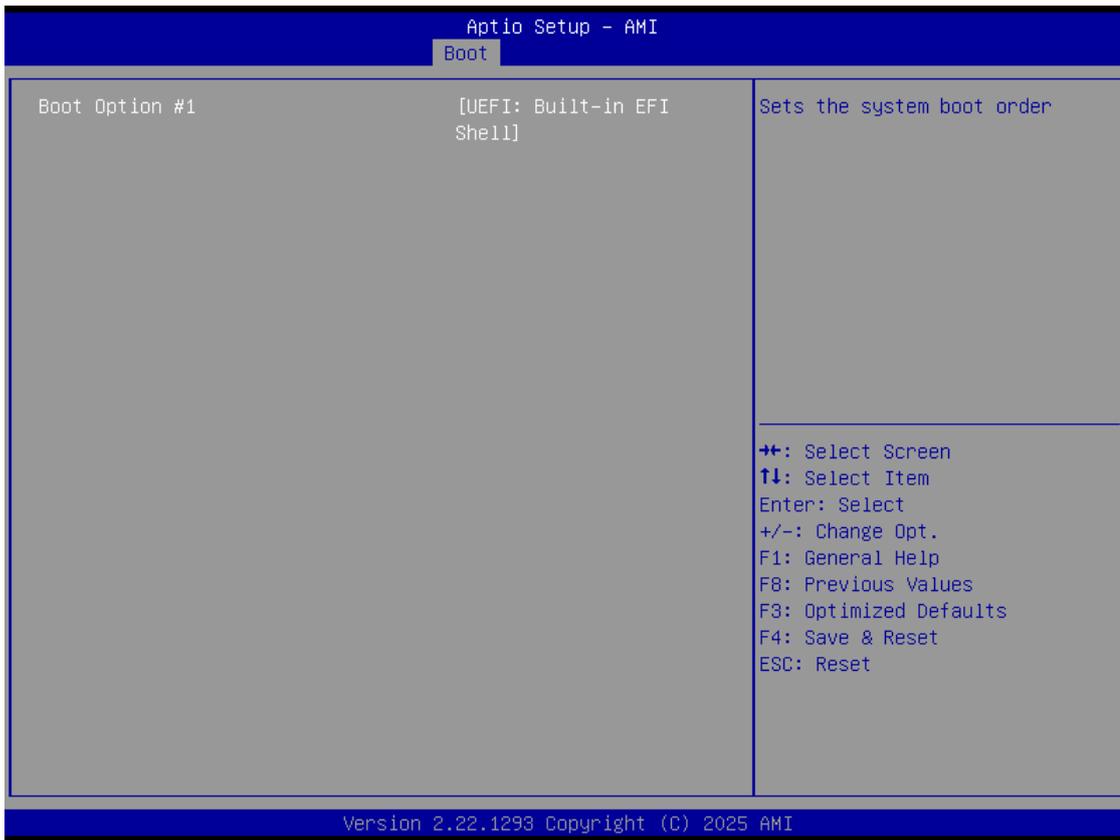
Parameter	Option	Description
Boot Option #1	UEFI: Built-in EFI Shell (Default) Disabled	Sets the system boot order

3.9 Save & Exit

```
                        Aptio Setup - AMI
     Main   Advanced   Chipset   Security   Boot   Save & Exit

   Save Options                                Exit system setup after saving
   Save Changes and Exit                       the changes.
   Discard Changes and Exit

   Save Changes and Reset
   Discard Changes and Reset

   Save Changes
   Discard Changes

   Default Options
   Restore Defaults
   Save as User Defaults                       →←: Select Screen
   Restore User Defaults                       ↑↓: Select Item
                                               Enter: Select
   Boot Override                               +/-: Change Opt.
   UEFI: Built-in EFI Shell                    F1: General Help
   Launch EFI Shell from filesystem device     F8: Previous Values
                                               F3: Optimized Defaults
                                               F4: Save & Reset
                                               ESC: Reset


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```

Parameter	Description
Save Changes and Exit	Exit system setup after saving the changes
Discard Changes and Exit	Exit system setup without saving any changes
Save Changes and Reset	Reset the system after saving the changes
Discard Changes and Reset	Reset system setup without saving any changes
Save Changes	Save Changes done so far to any of the setup options
Discard Changes	Discard Changes done so far to any of the setup options
Default Options	
Restore Defaults	Restore/Load Default values for all the setup options
Save as User Defaults	Save the changes done so far as User Defaults
Restore User Defaults	Restore the User Defaults to all the setup options
Boot Override	
UEFI: Built-in EFI Shell	

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

3.10 Secure Boot Keys

How to Enroll Secure Boot Keys (PK, KEK, db) in BIOS/UEFI.

This document explains how to import Secure Boot keys into a UEFI firmware (BIOS). Procedures may vary slightly depending on the motherboard vendor, but the overall process is the same across most platforms supporting UEFI Secure Boot.

1. You must first obtain the Secure Keys (PK, KEK, db) from Microsoft.

After that, prepare a FAT32-formatted USB drive, UEFI firmware typically only reads key files from FAT32 file systems. Copy your secure keys (PK, KEK, db) to the root directory of the USB drive.

2. When boot up the unit, press DEL on the keyboard. Enter the BIOS menu and select the option shown in the image below.

Path: Security/Secure Boot Mode, and select "Custom"
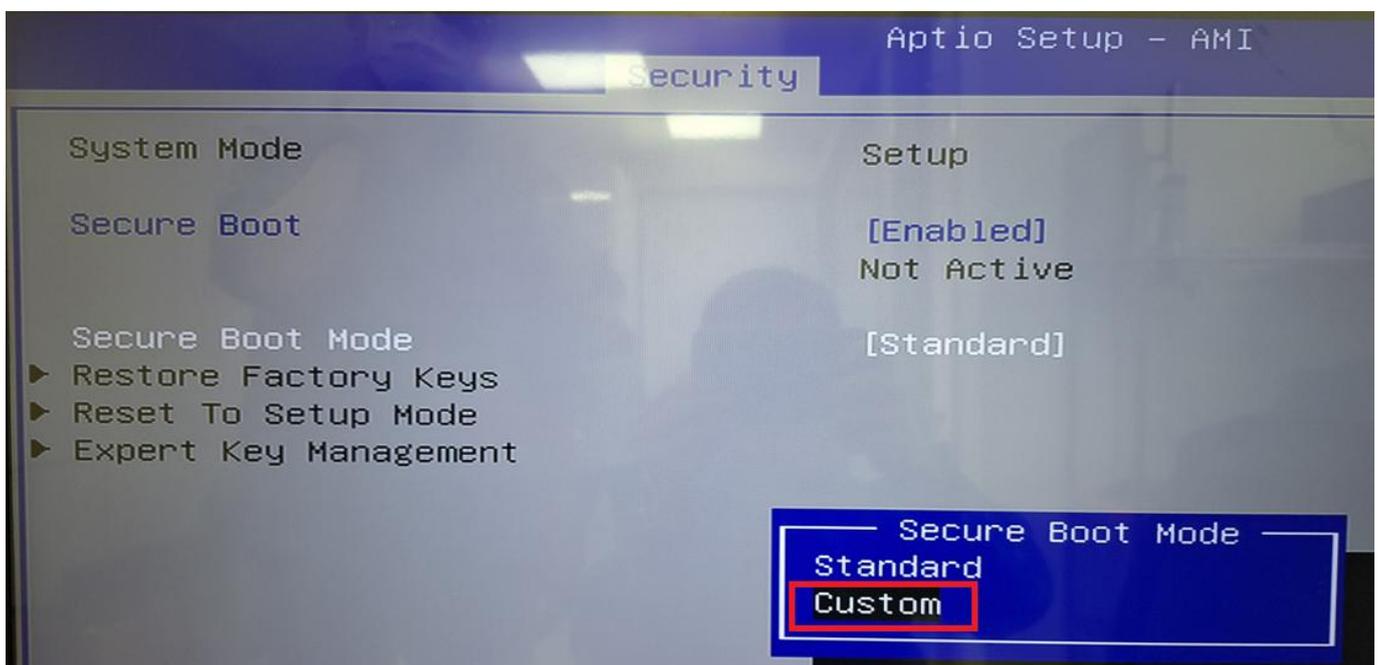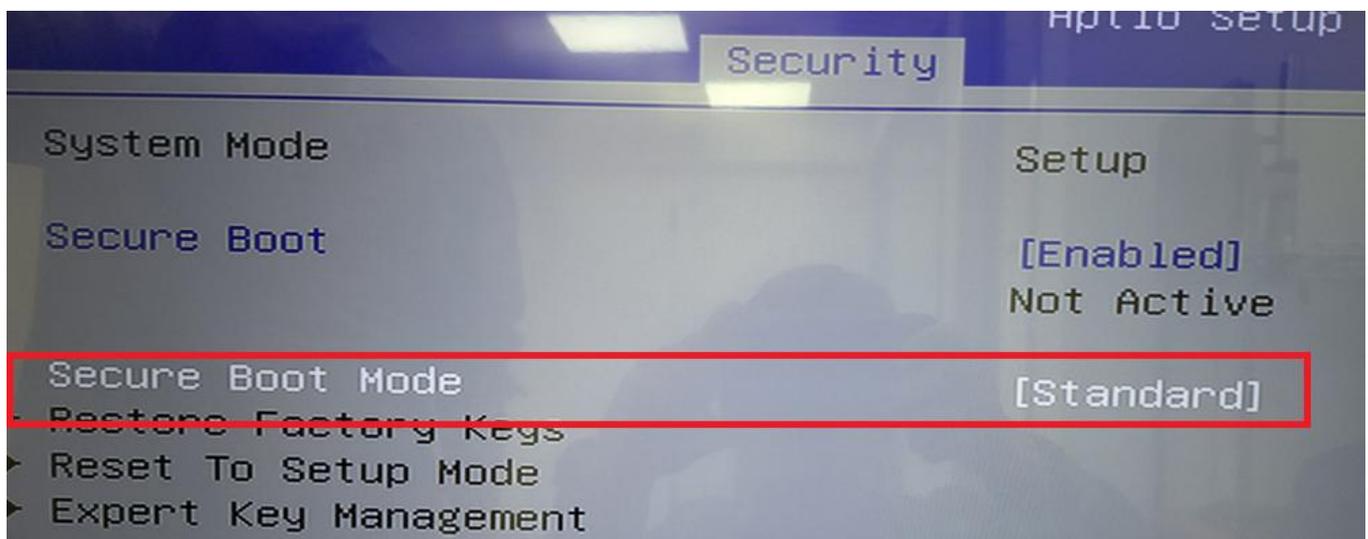
3. Then select "Expert Key Management"

4. Select "Platform Key (PK)" , enter
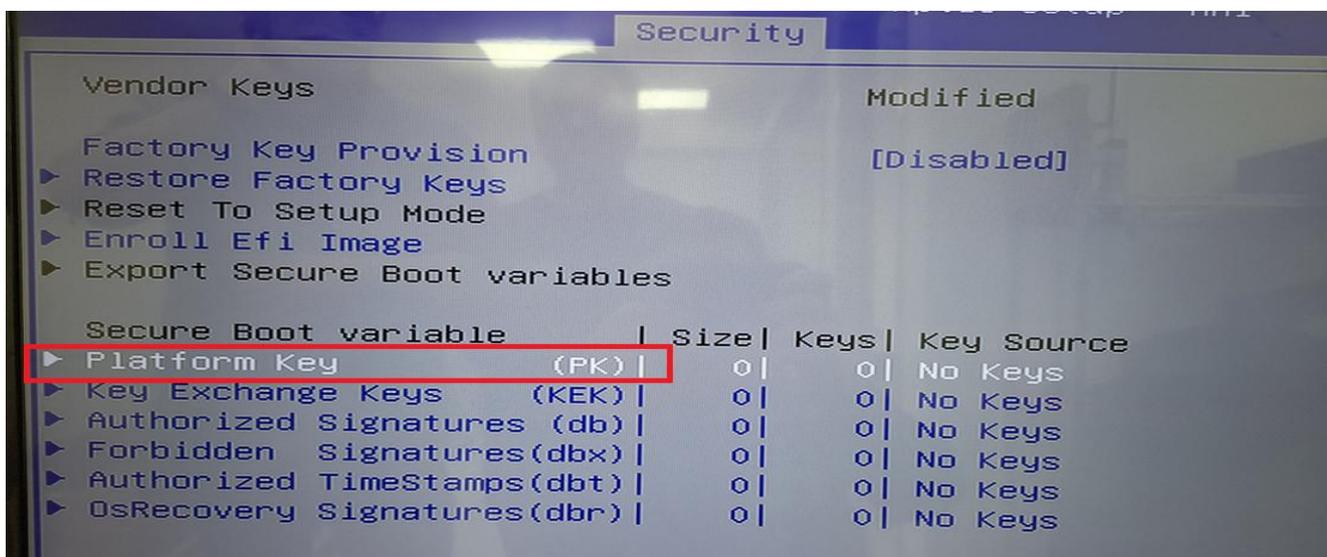
3.10.1 Select "Update"
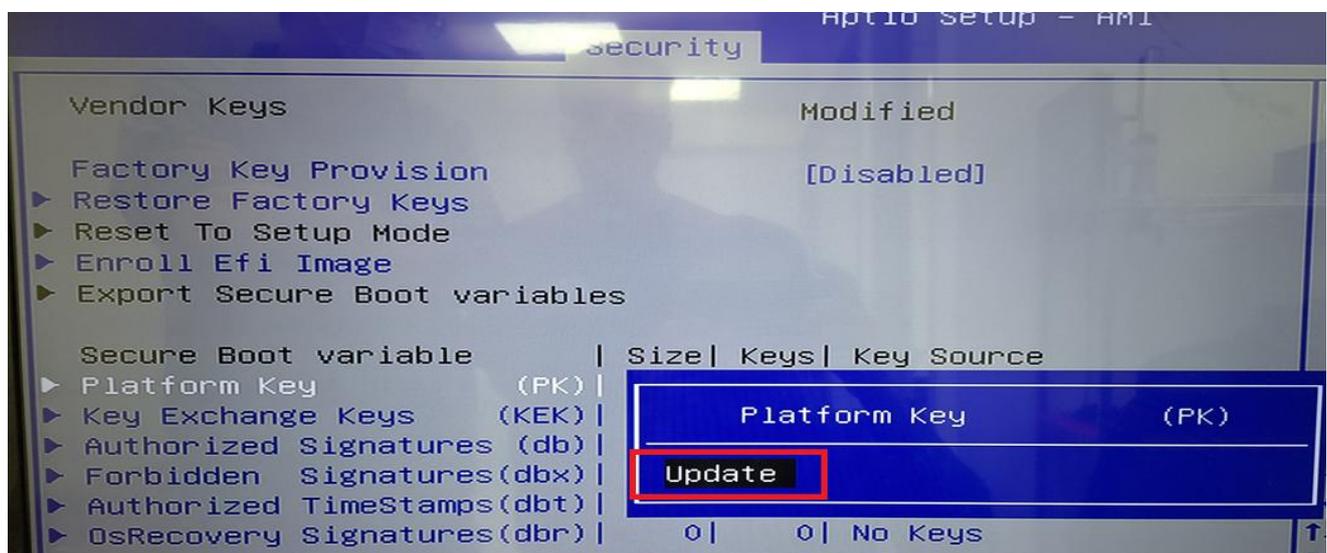
3.10.2 Select "No"
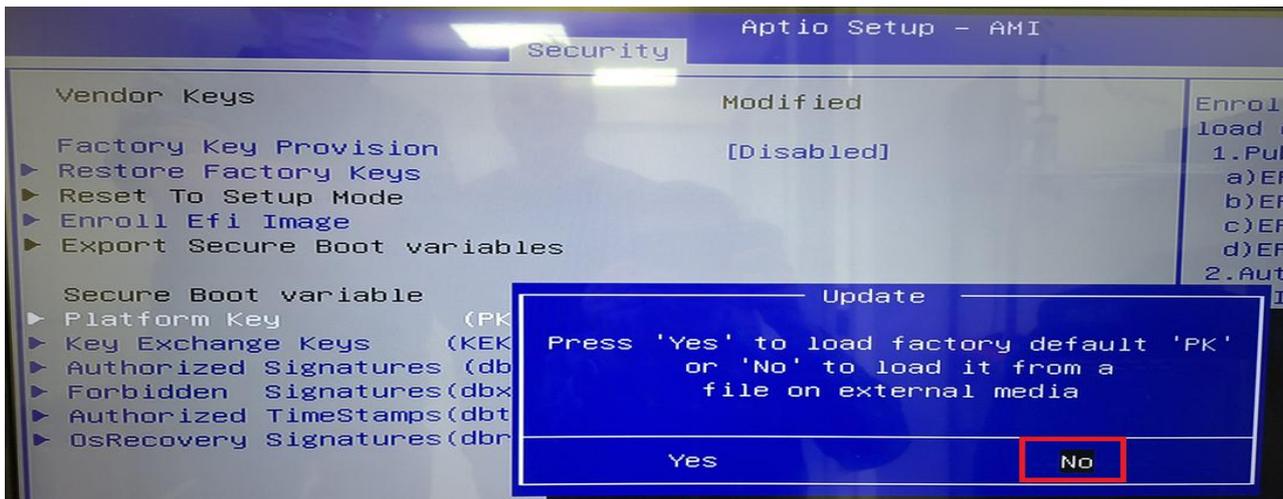
3.10.3 Find your USB drive to select your Keys (PK).
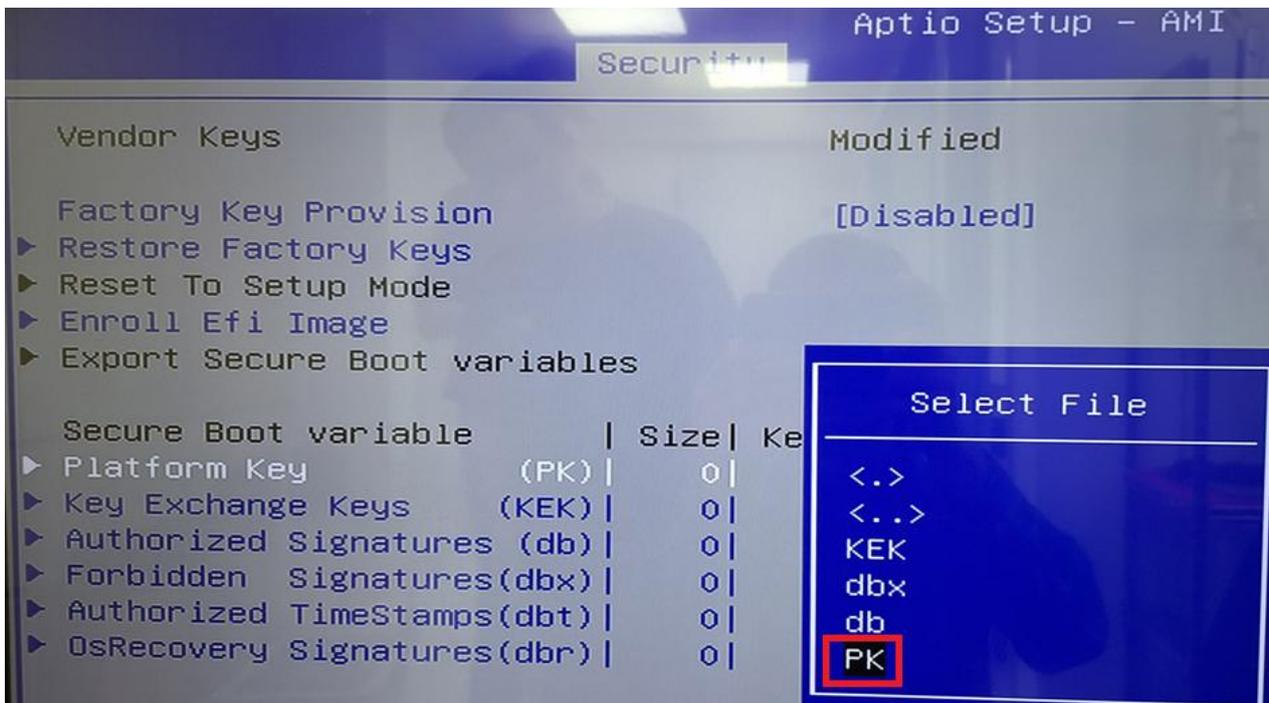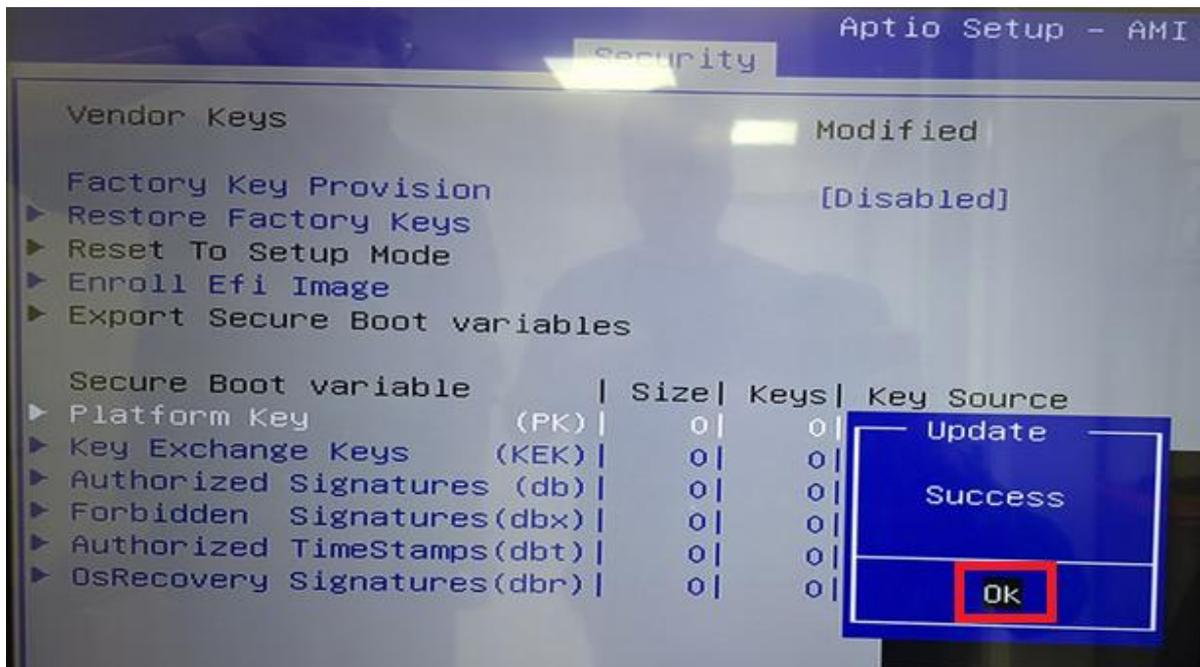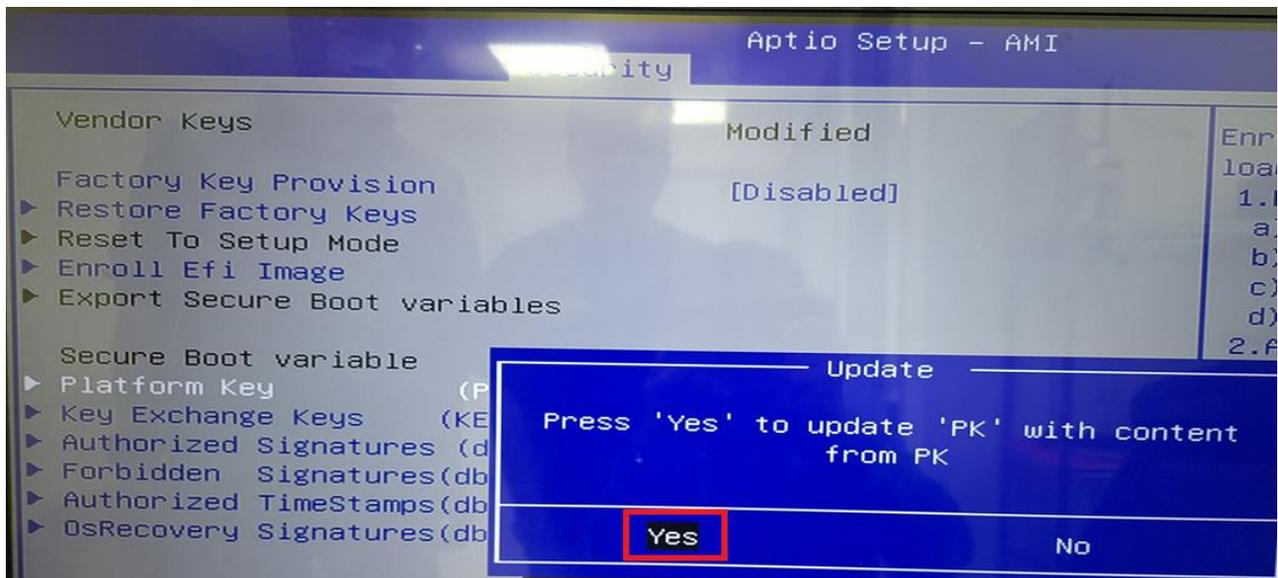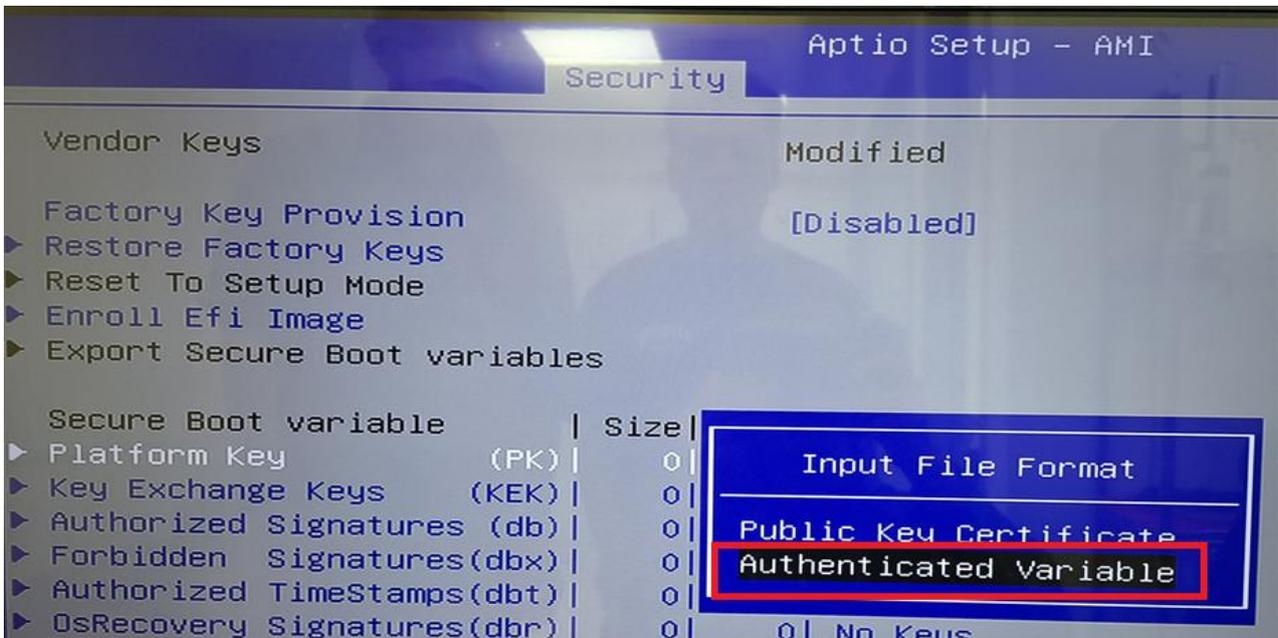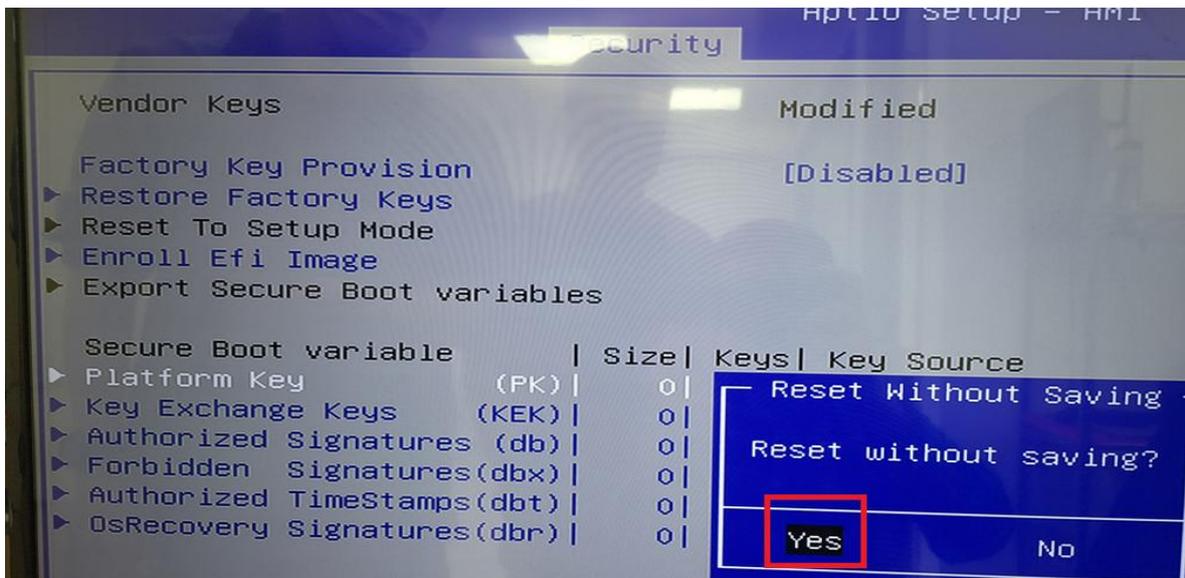
3.10.4 The image below shows that the Platform Key (PK) has already been successfully enrolled.
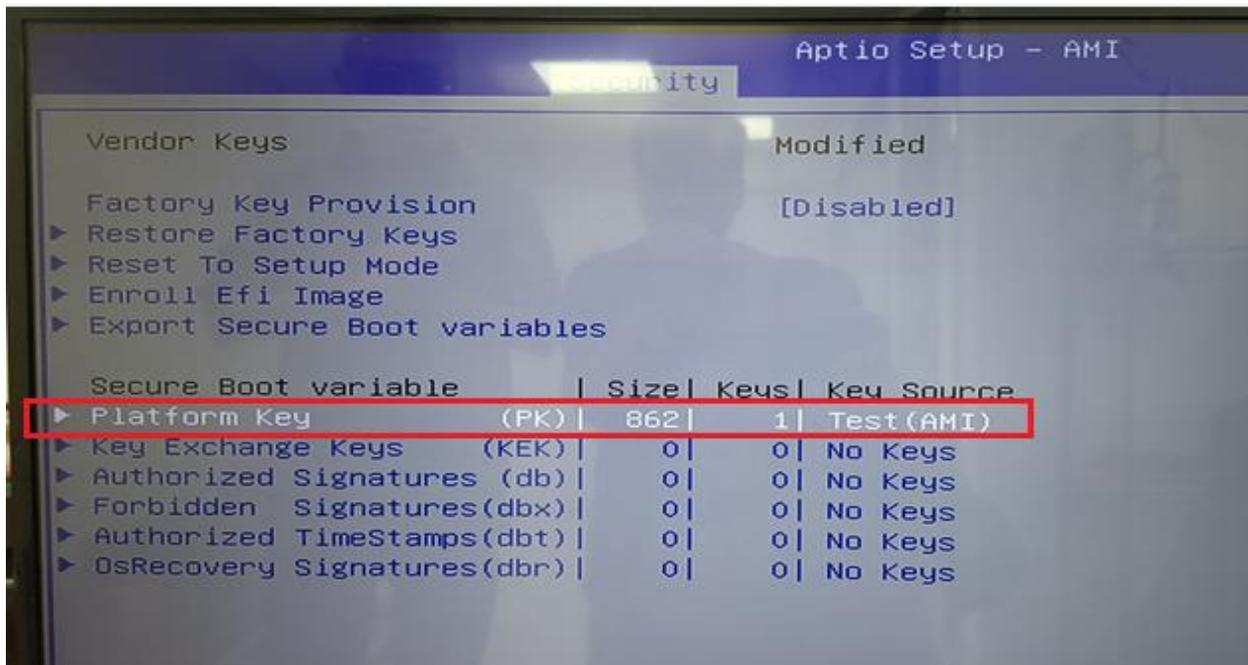
5. Select "Key Exchange Keys (KEK)" , enter
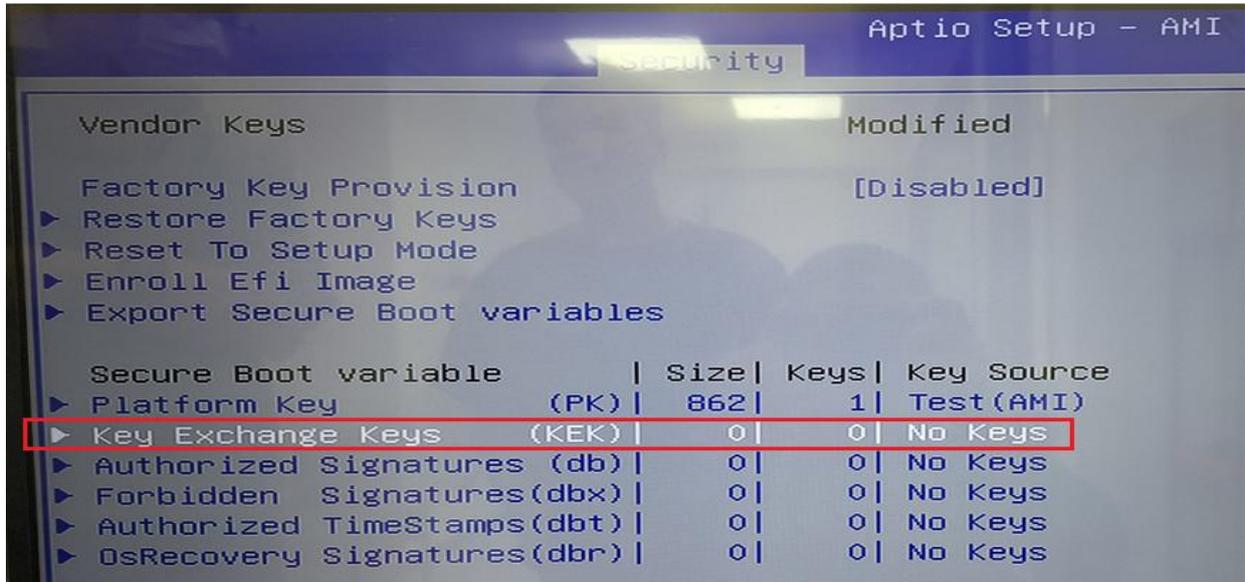
3.10.5 Select "Update"
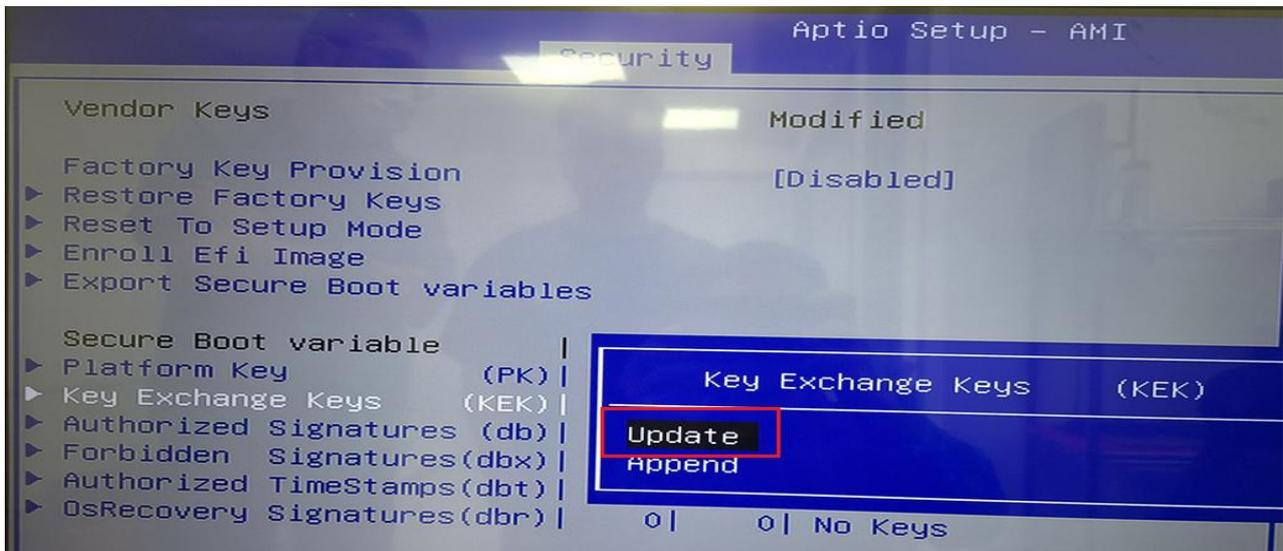
3.10.6 Select "No"
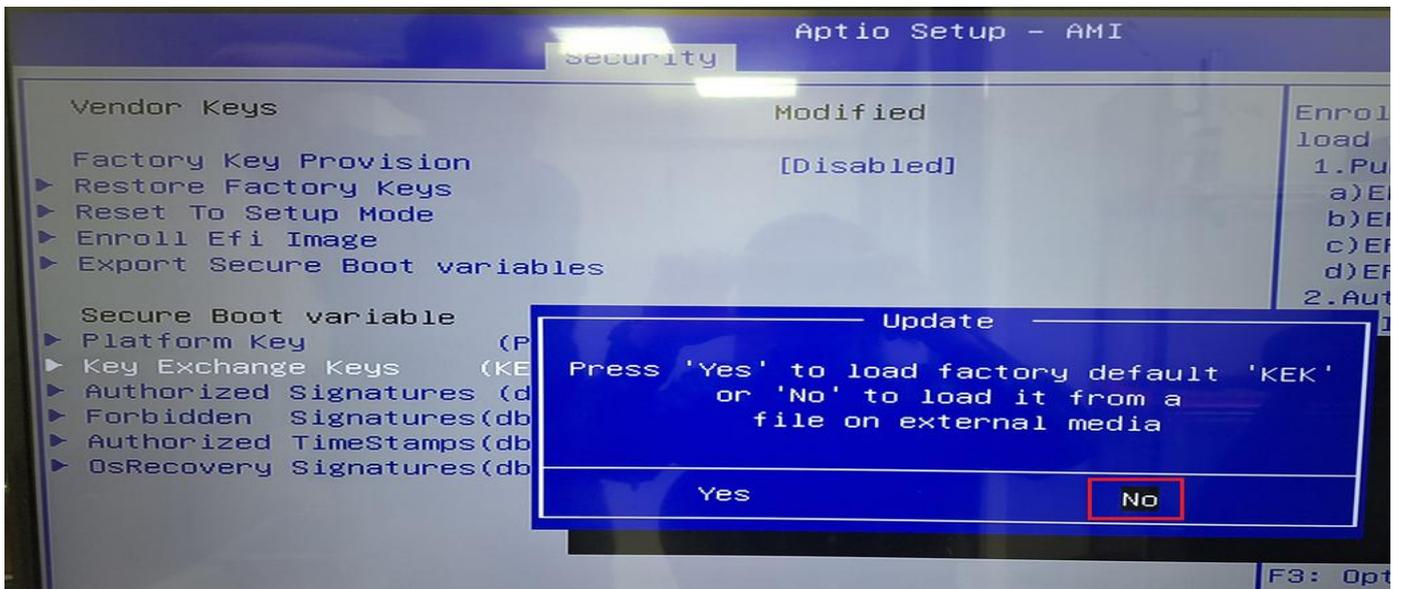
3.10.7 Find your USB drive to select your Key Exchange Keys (KEK).
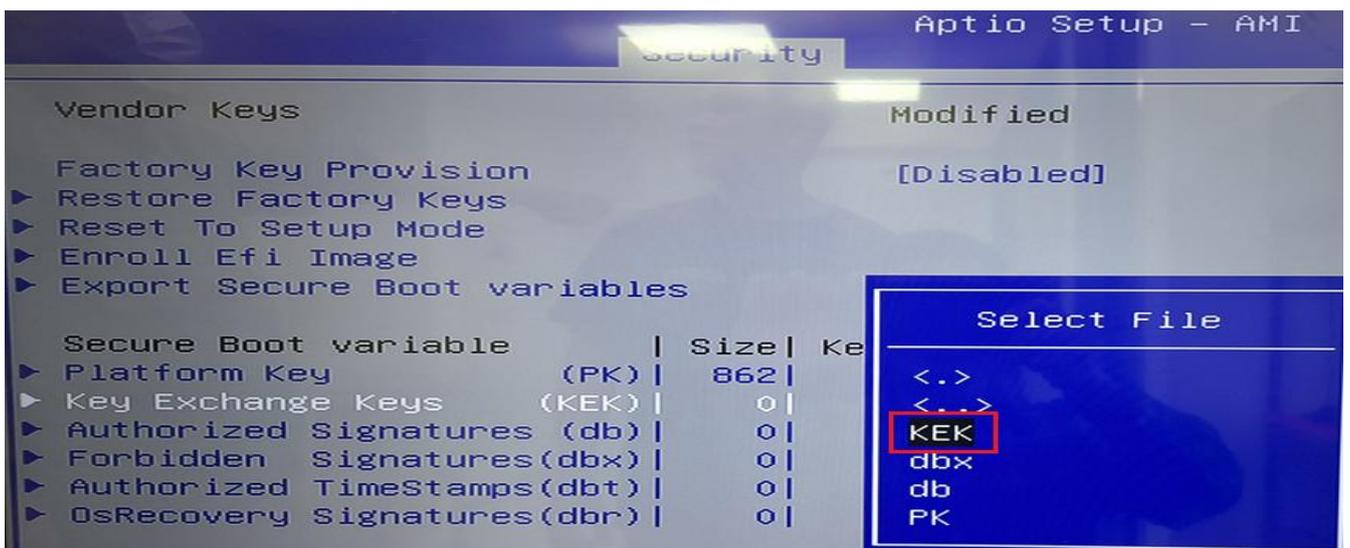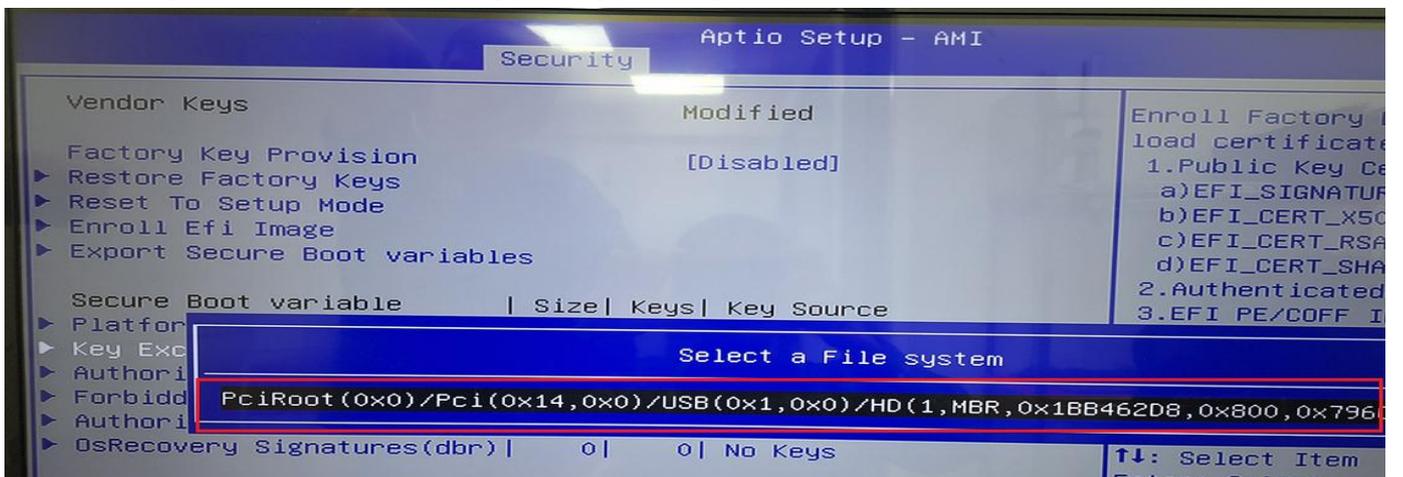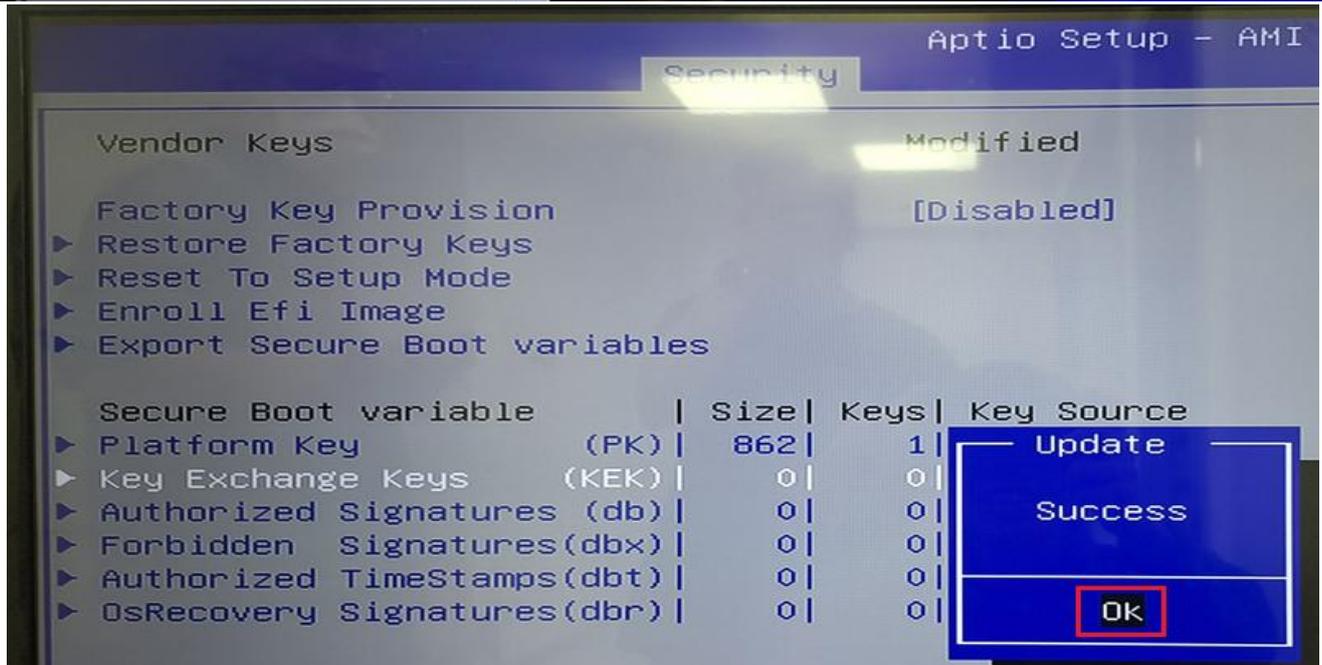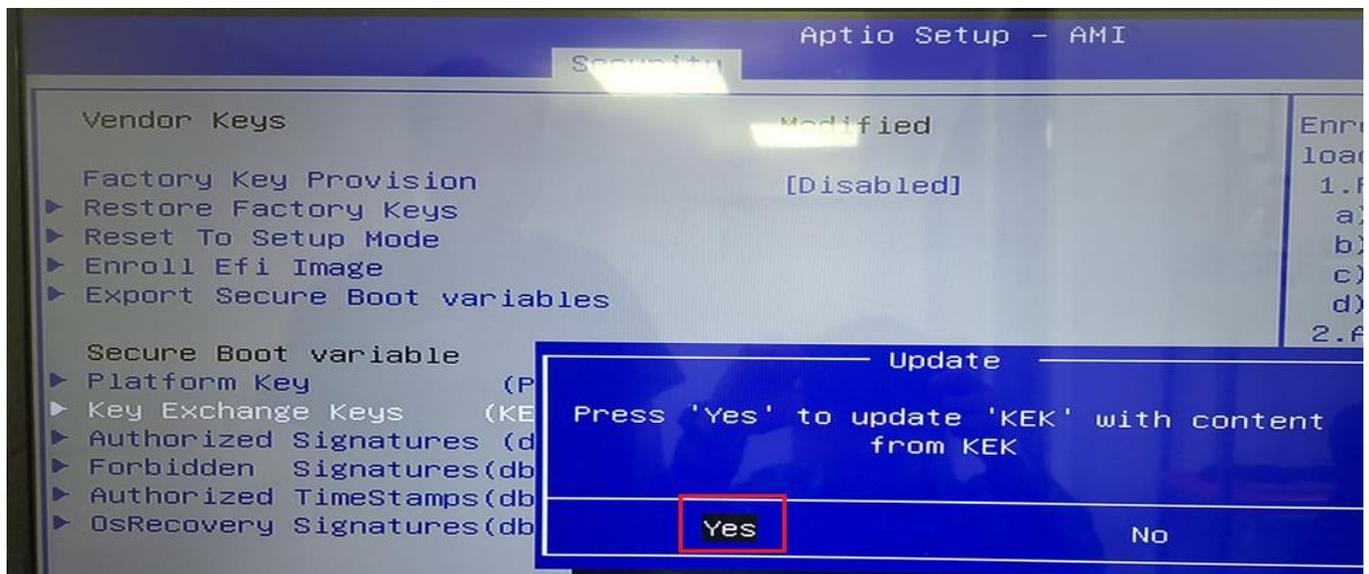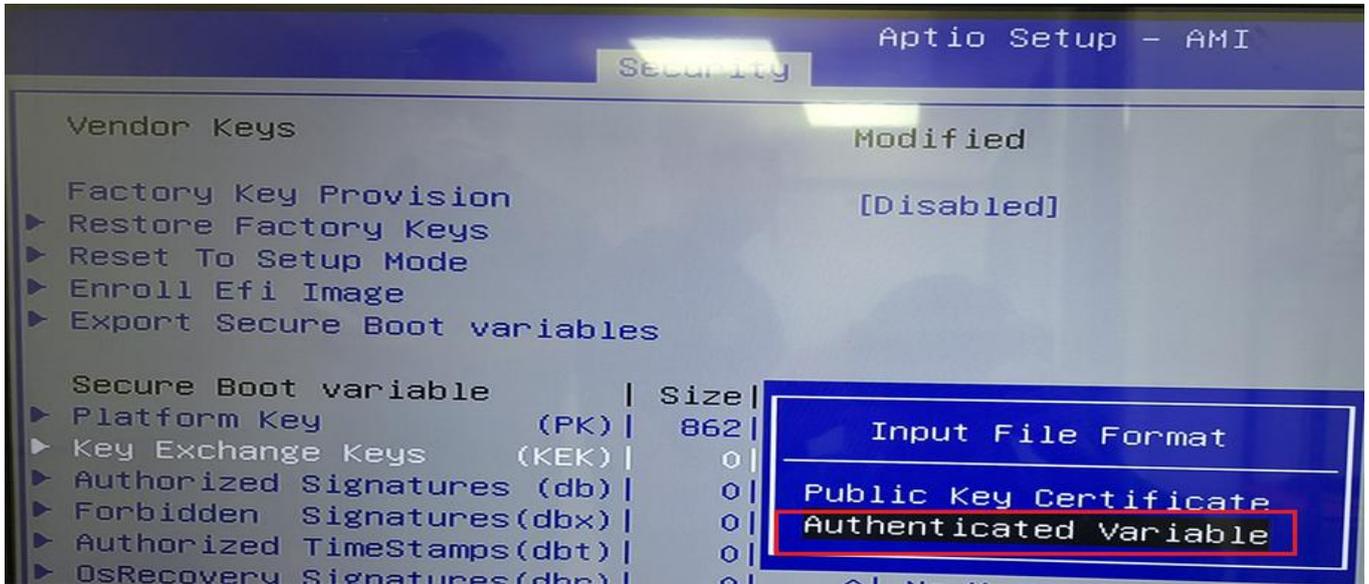
3.10.8 The image below shows that the Key Exchange Keys (KEK) has already been successfully enrolled.
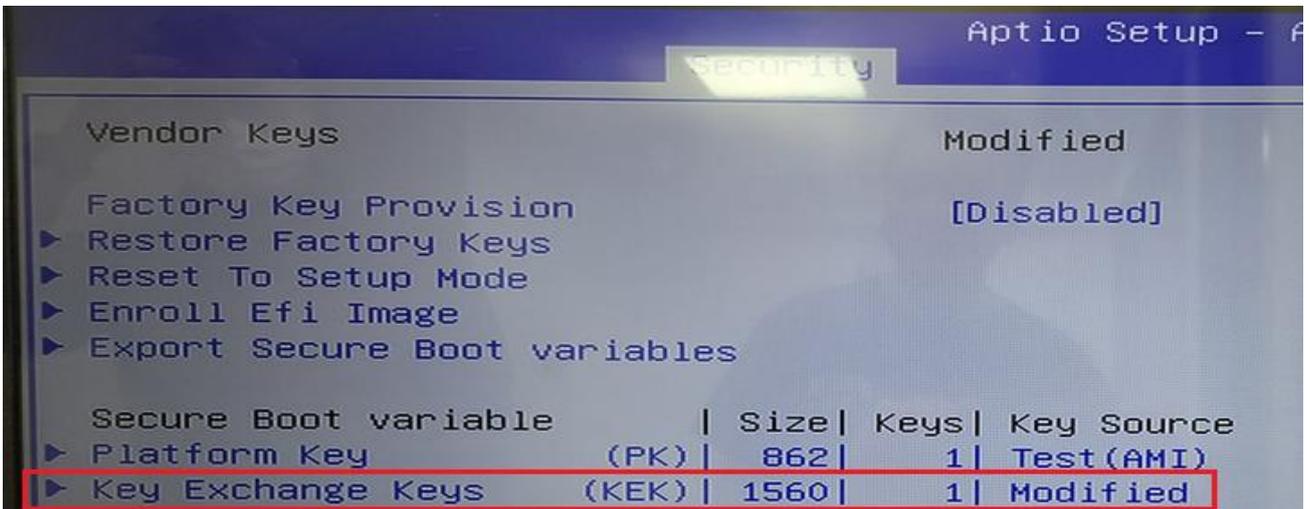
6. Select "Authorized Signatures (db)" , enter
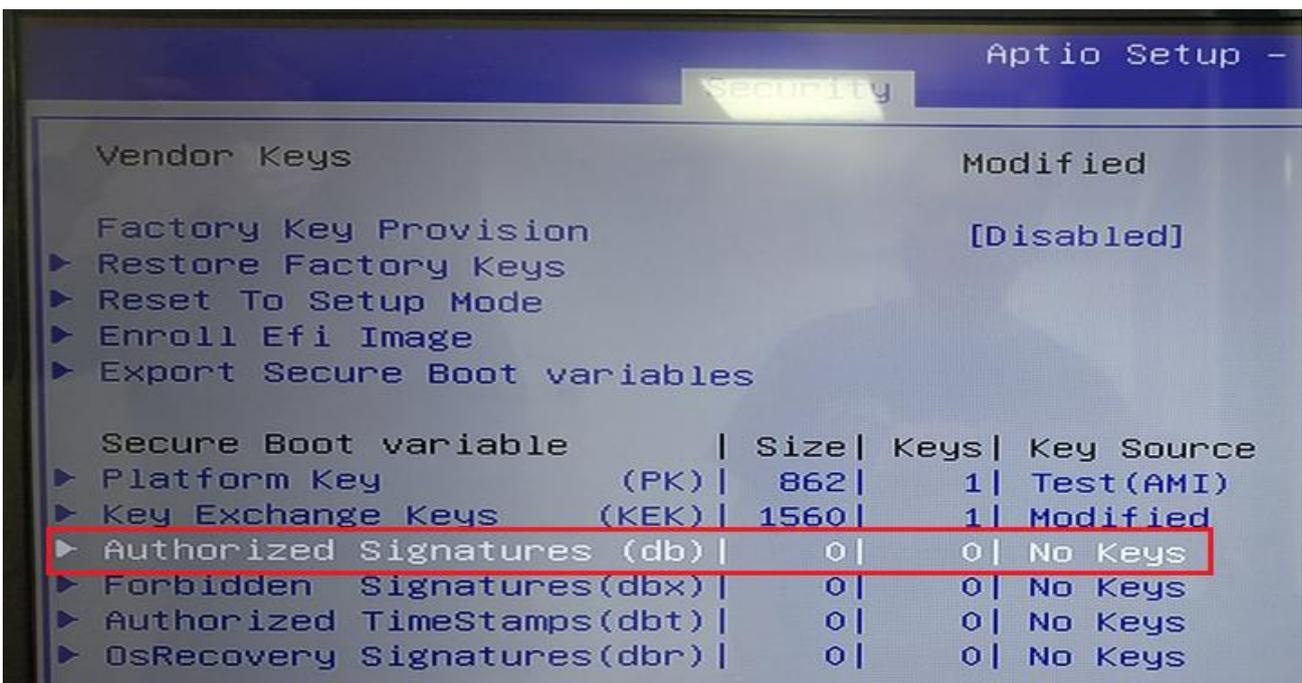
3.10.9 Select "Update"
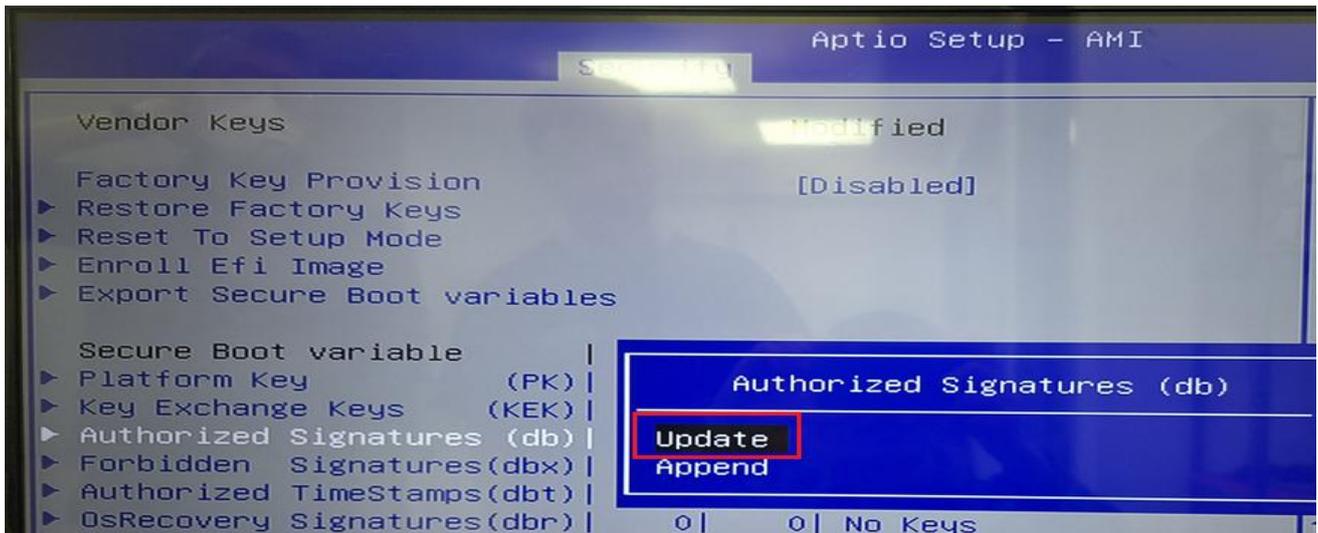
3.10.10 Select "No"
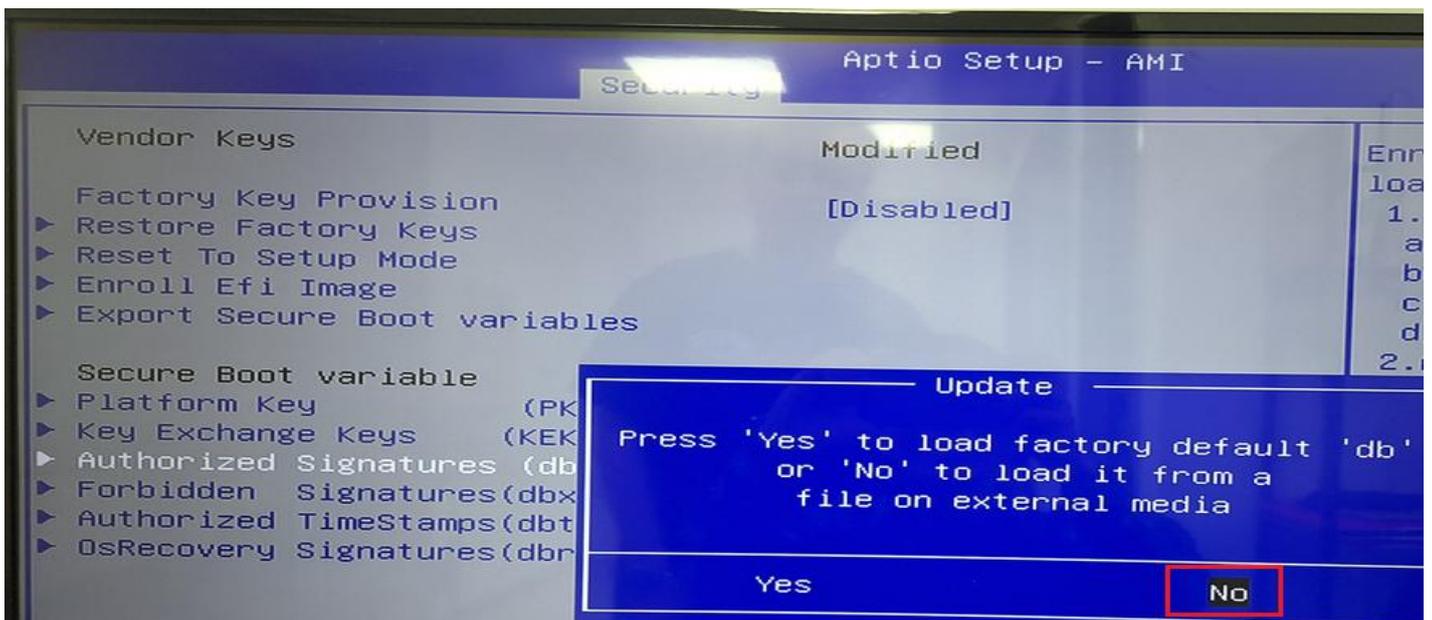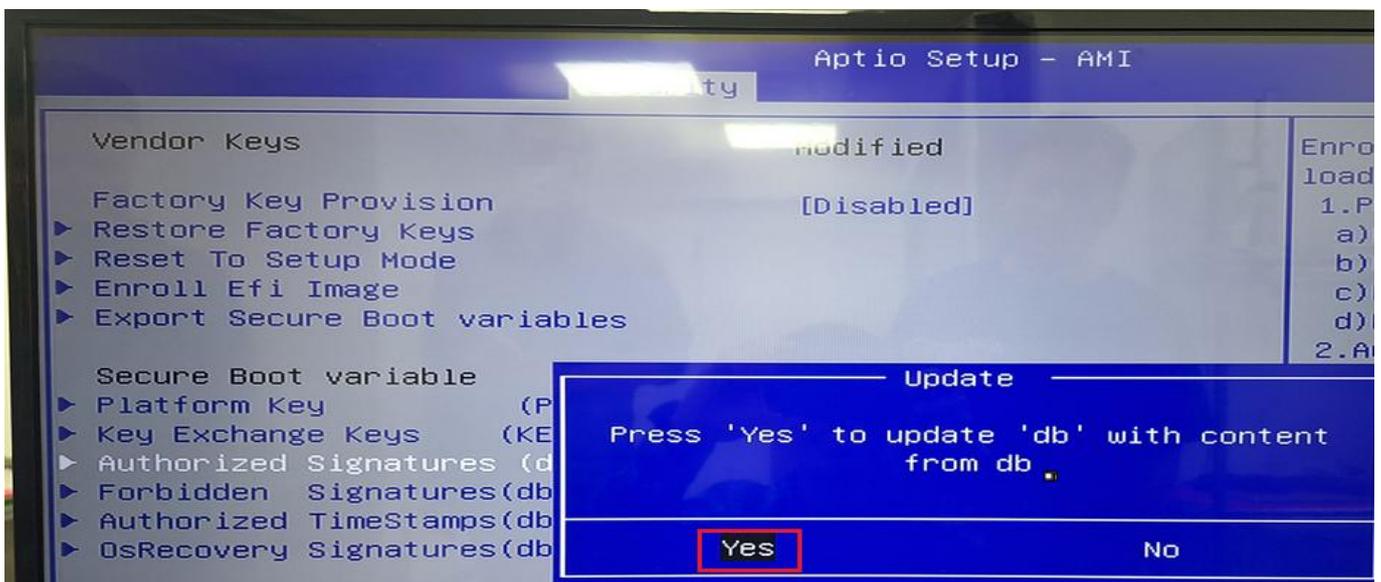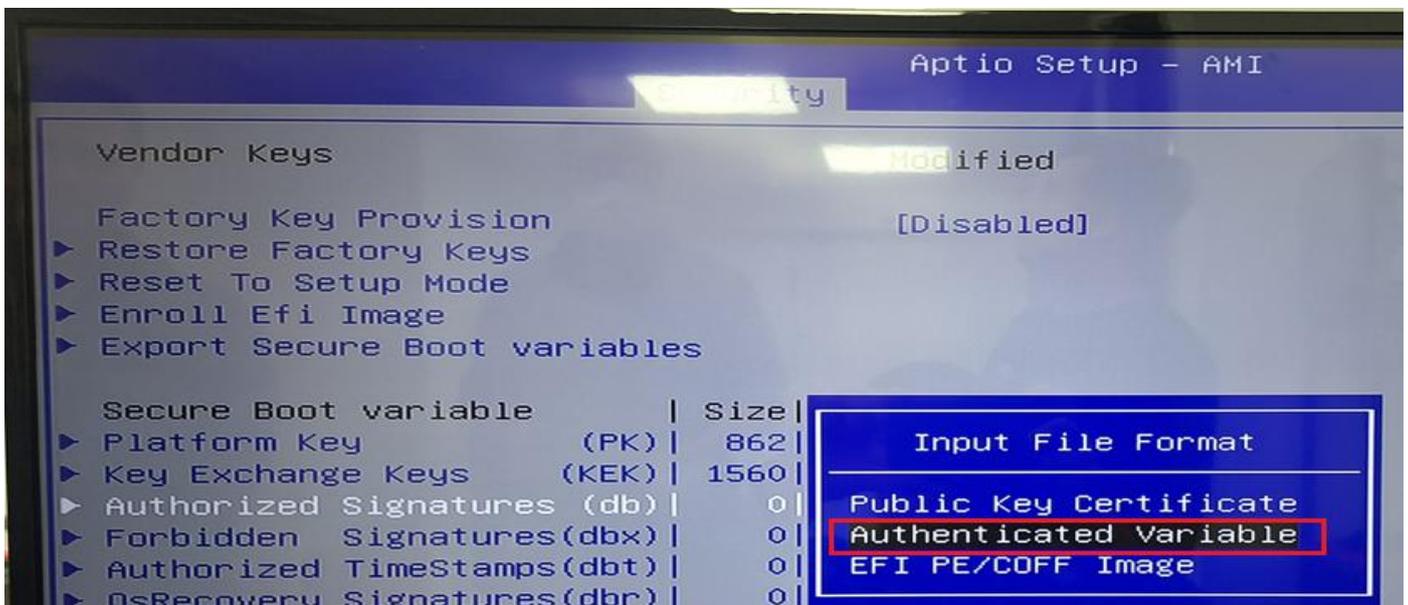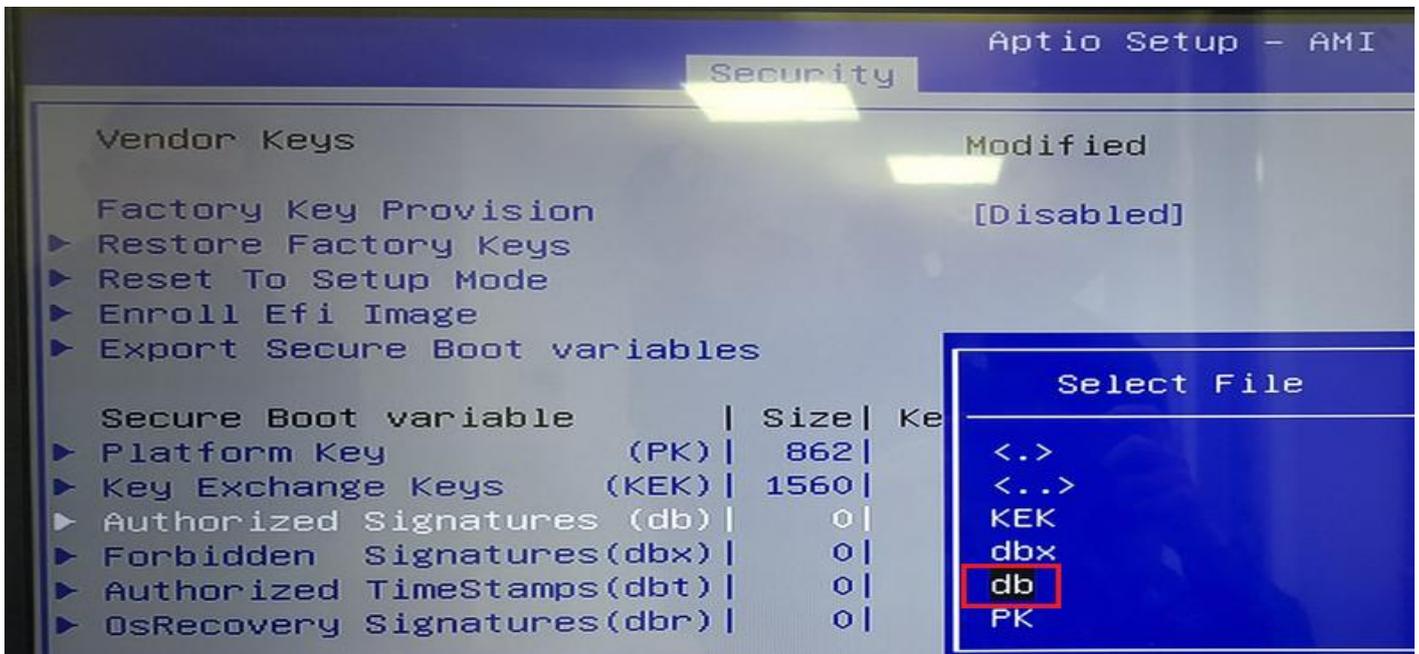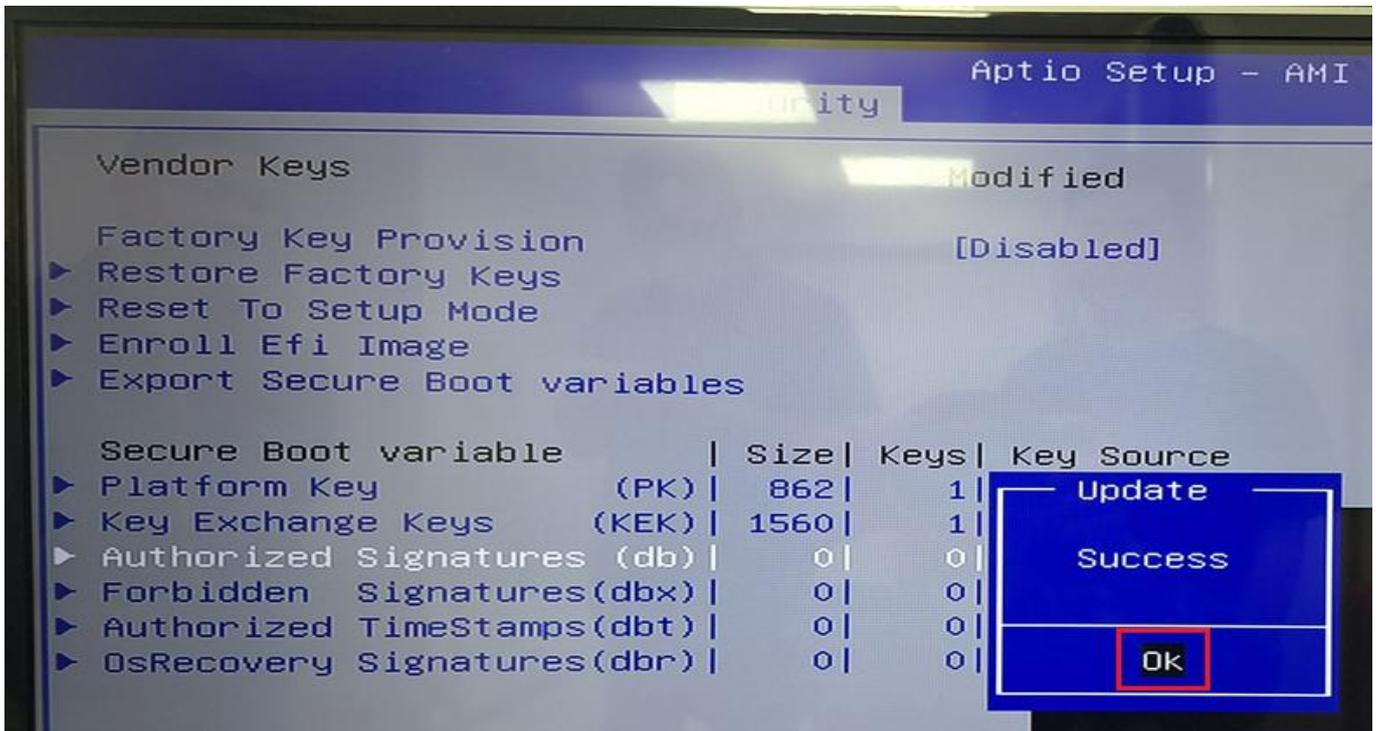
3.10.11 **Once the above steps are completed, the key enrollment process is finished.**

7. To verify that Secure Boot is functioning properly in the Windows environment.

Search "System information" in Windows.
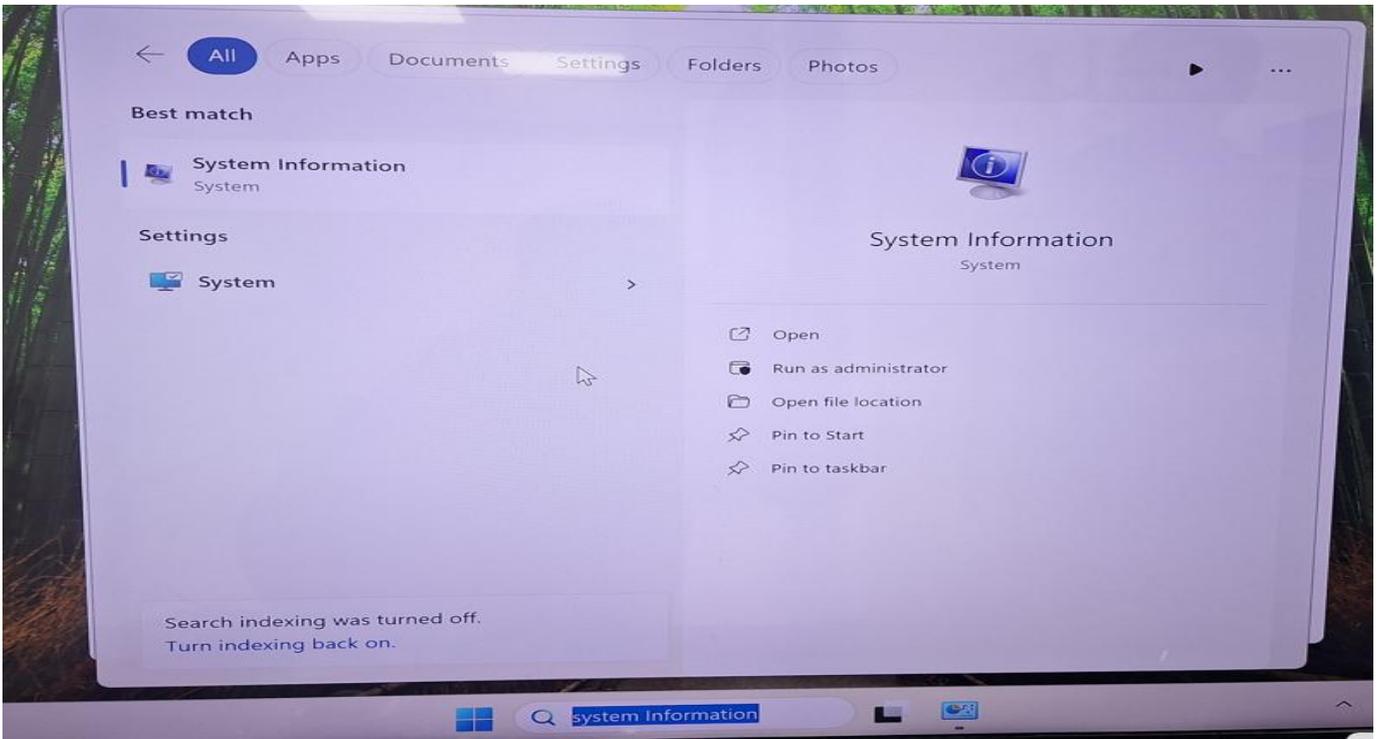
3.10.12 Right-click, and then select "Run as administrator"
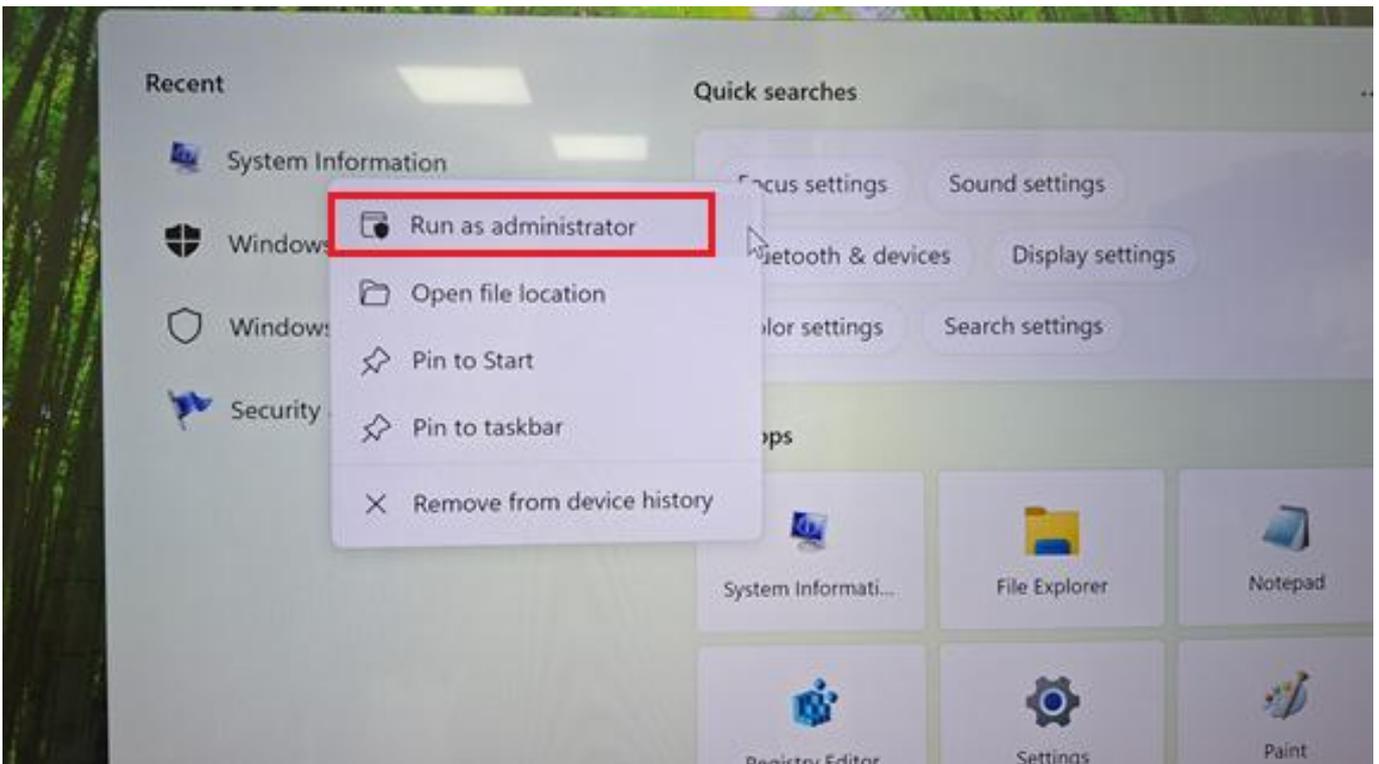
3.10.13 Verify that Secure Boot State is shown as On, and PCR7 Configuration is listed as Binding Possible.
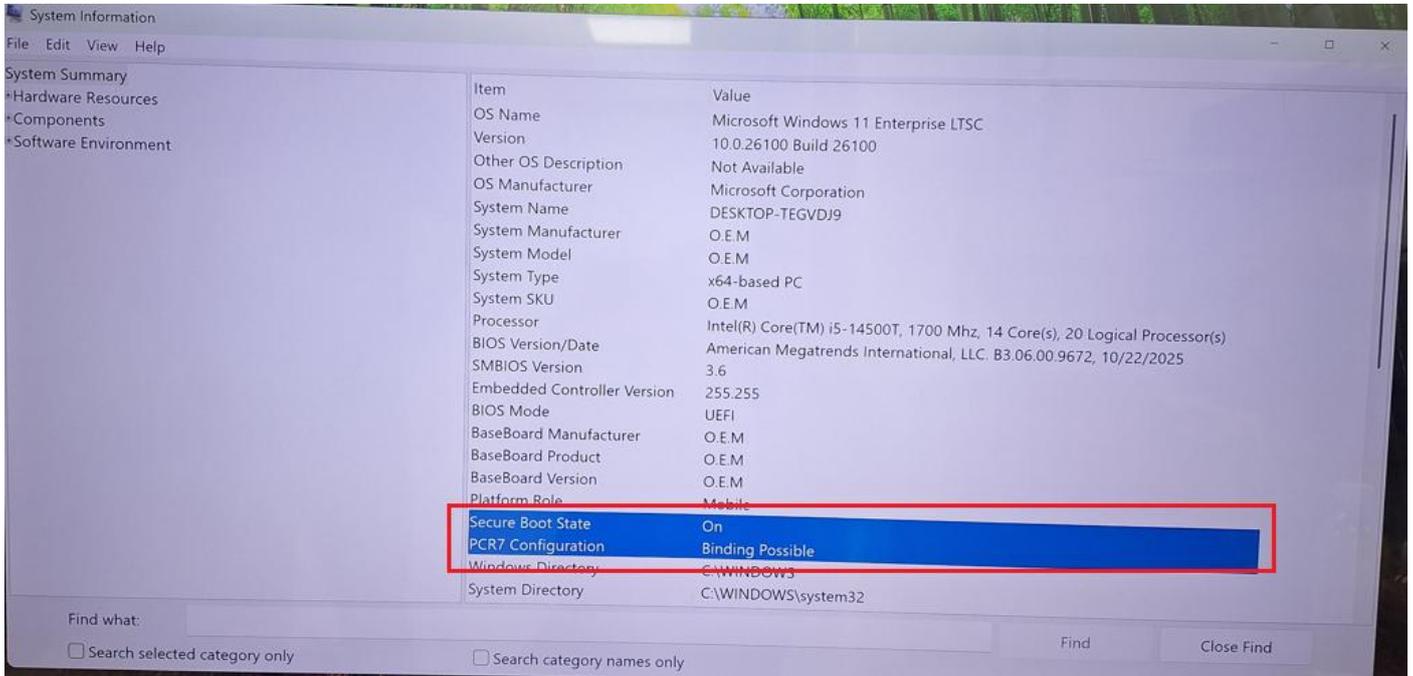
Thank you for **going** through this instruction. Following it will help you complete the setup smoothly

Chapter 4   Installation of Drivers

This chapter describes the installation procedures for software and drivers under the windows 10. The software and drivers are included with the motherboard. The contents include Intel Chipset, Graphics chipset driver, Audio driver, LAN driver and Intel® management engine interface. The instructions are as below.

Important Note:

After installing your Windows operating system, you must install first the Intel Chipset Software Installation Utility before proceeding with the installation of drivers.

7.1 Intel Chipset

To install the Intel chipset driver, please follow the steps below.

Step 1. Here is welcome page. Please make sure you save and exit all programs before install. Click **Next**.
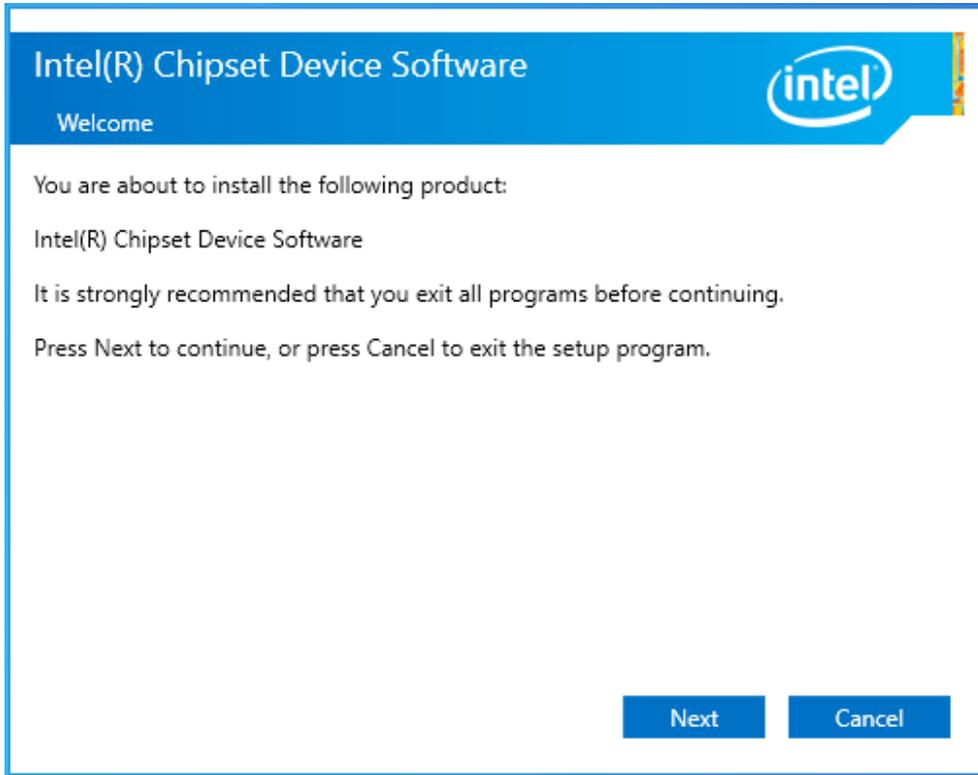
Step 2. Read the license agreement. Click **Accept** to accept all of the terms of the license agreement.

Step 3. Click **Install** to begin the installation.
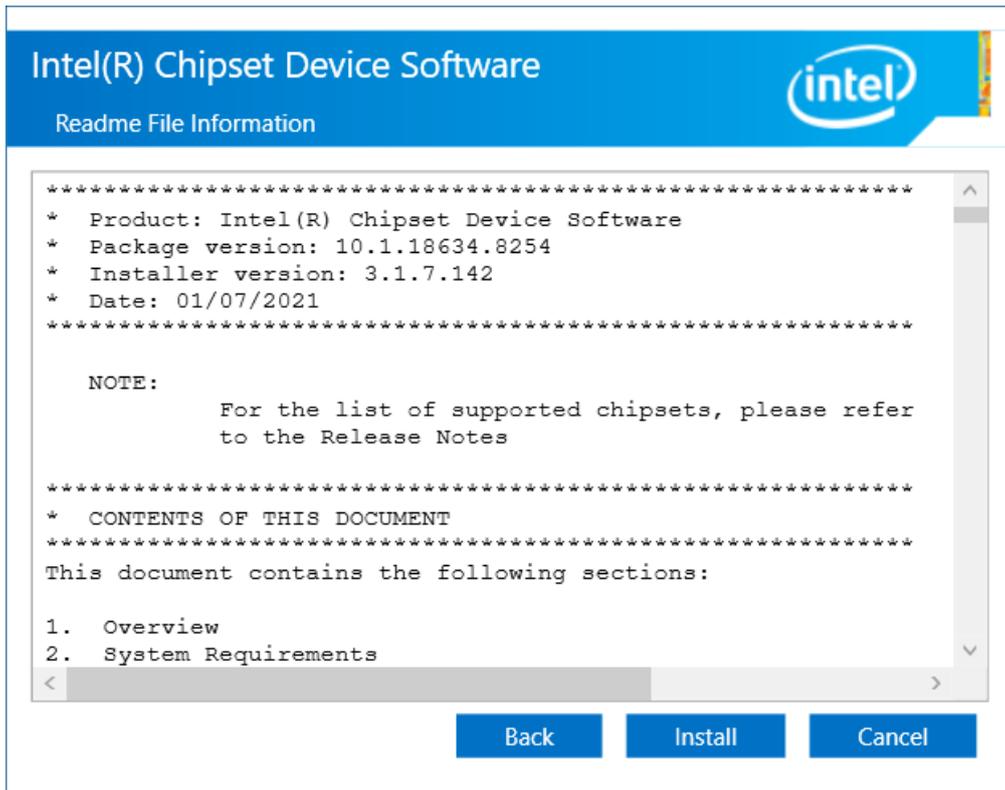
Step 4. Select **Restart Now** to reboot your computer for the changes to take effect.
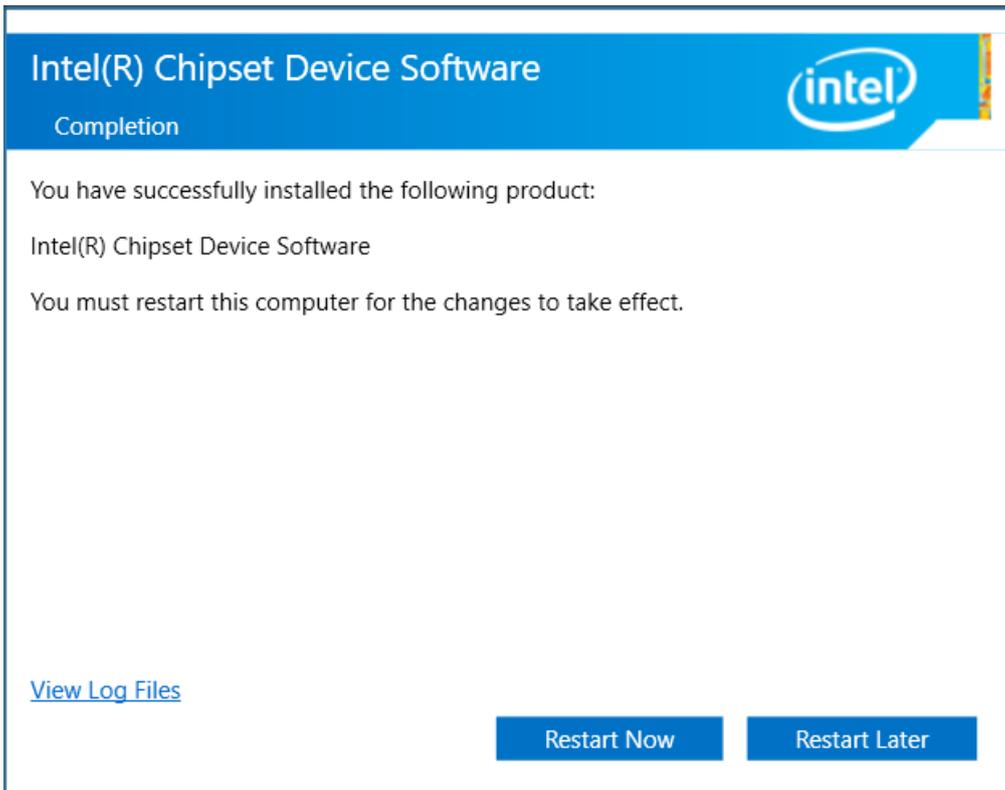
7.2 Intel® HD Graphics Chipset

To install the Intel® HD Graphics Chipset, please follow the steps below.

Step 1. Click **Begin installation.**

Step 2. Read the license agreement. Click **I agree** to accept all the terms of the license agreement.
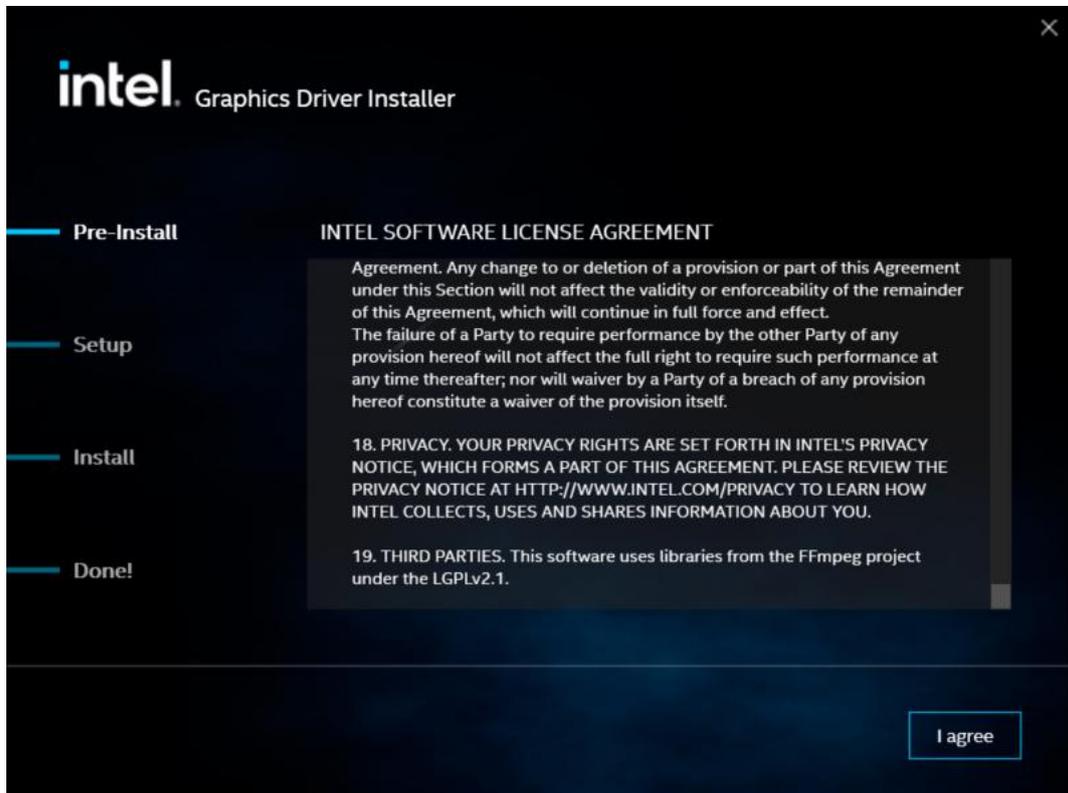
Step 3. Choose **Install** function and Click **Start** to setup program.
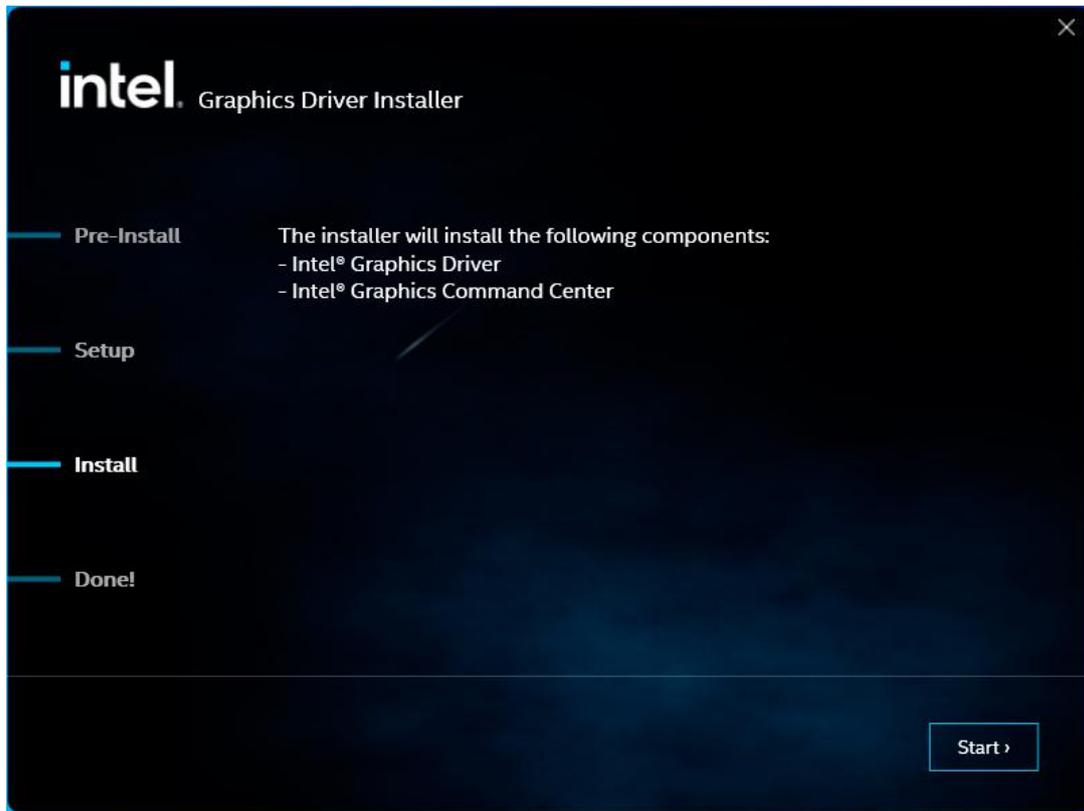
Step 4. Click **Finish** to complete installation.
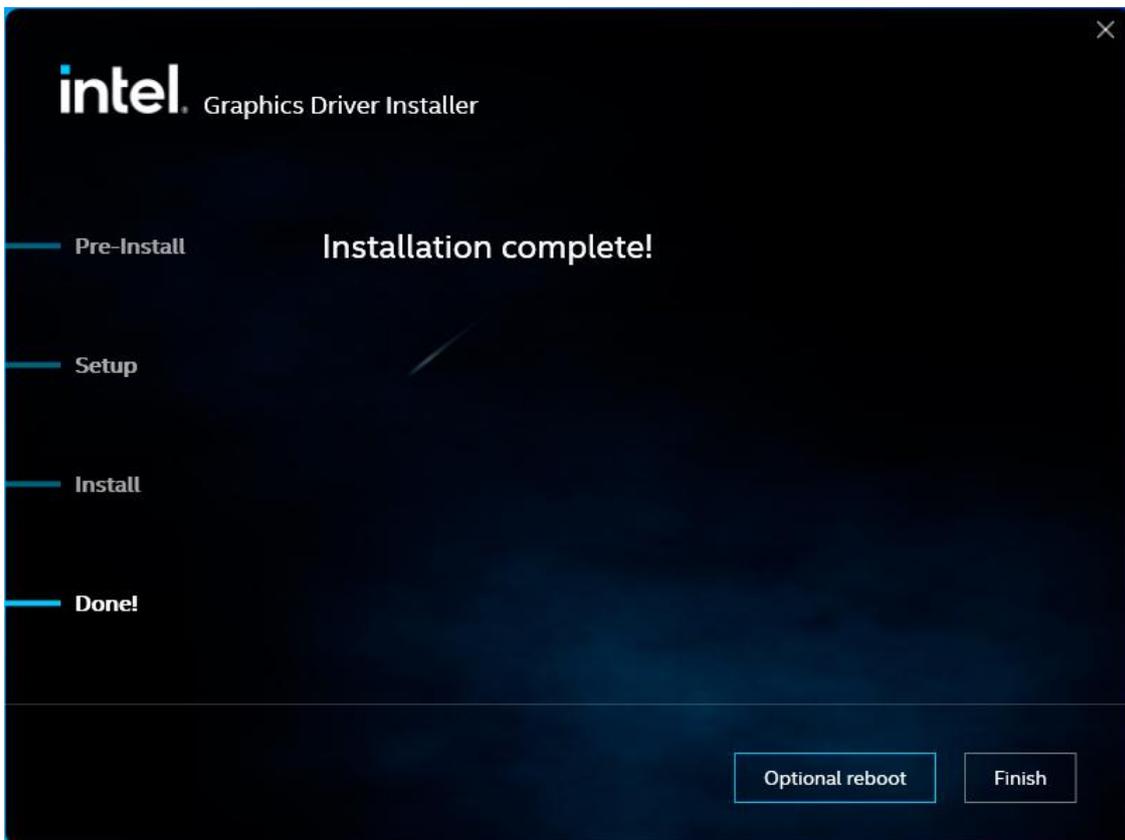
7.3 Intel® HD Graphics Chipset

To install the Realtek HD Audio Driver, please follow the steps below.

Step 1. Click **Next** to continue.
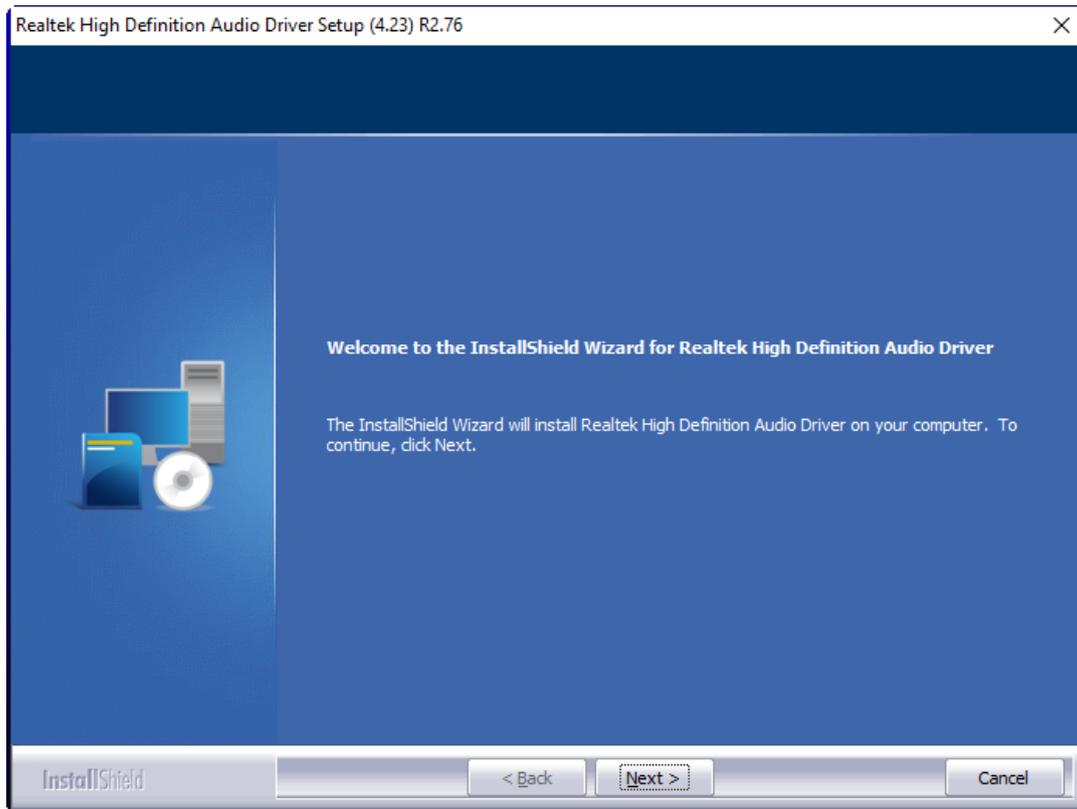
Step 2. Click **Yes, I want to restart my computer now**.　Click **Finish** to complete the installation.
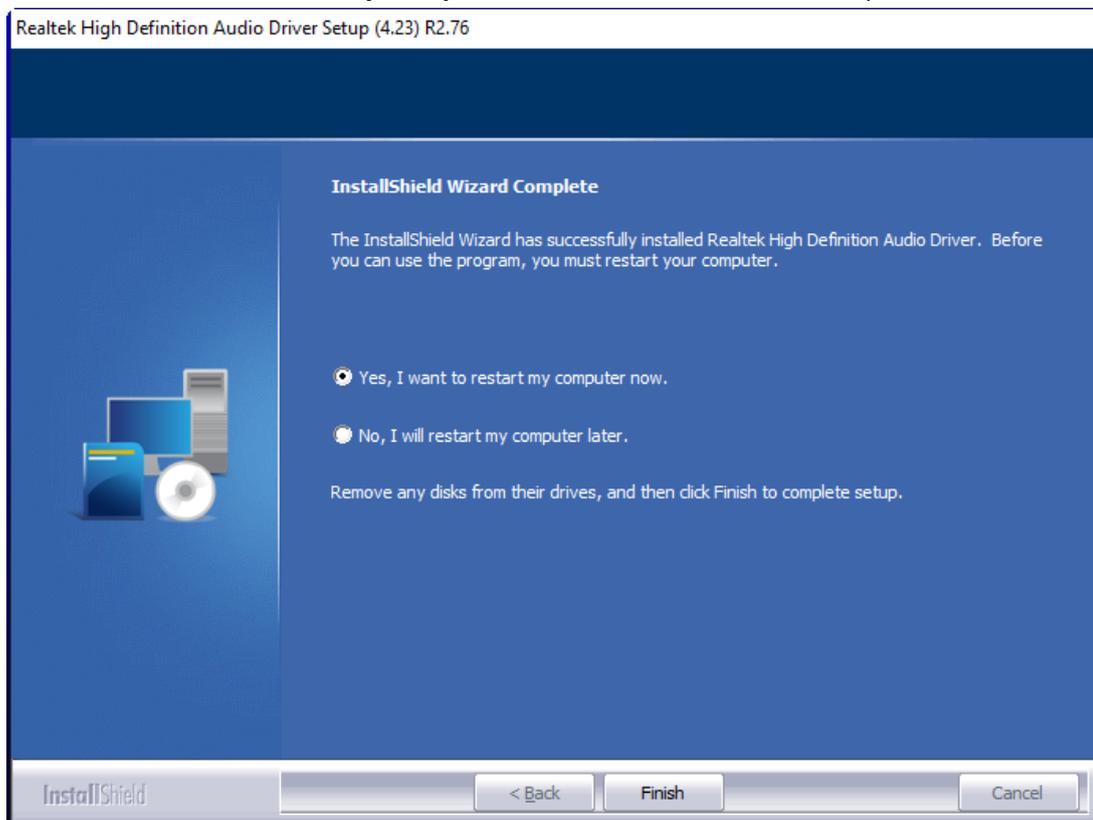
7.4 I LAN Driver

To install the LAN driver, please follow the steps below.

Step 1. Click **Zip File** to continue.

WinZip Self-Extractor - Wired_driver_27.8_x64.exe

Setup

Cancel

About
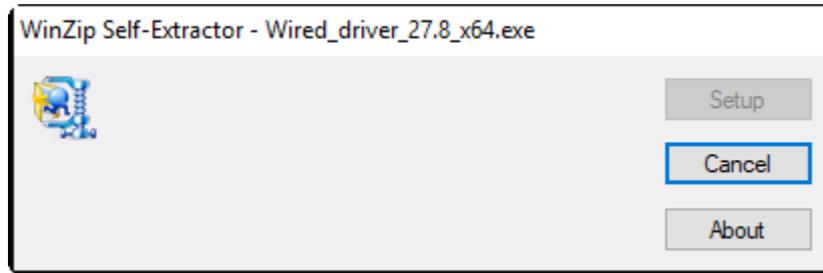
Step 3. Click **OK** to begin the installation.

Installing Drivers

Install or update drivers for Intel® Network Connections.

OK   Cancel

Step 4. Click **Close** to finish installation.

Installing Drivers

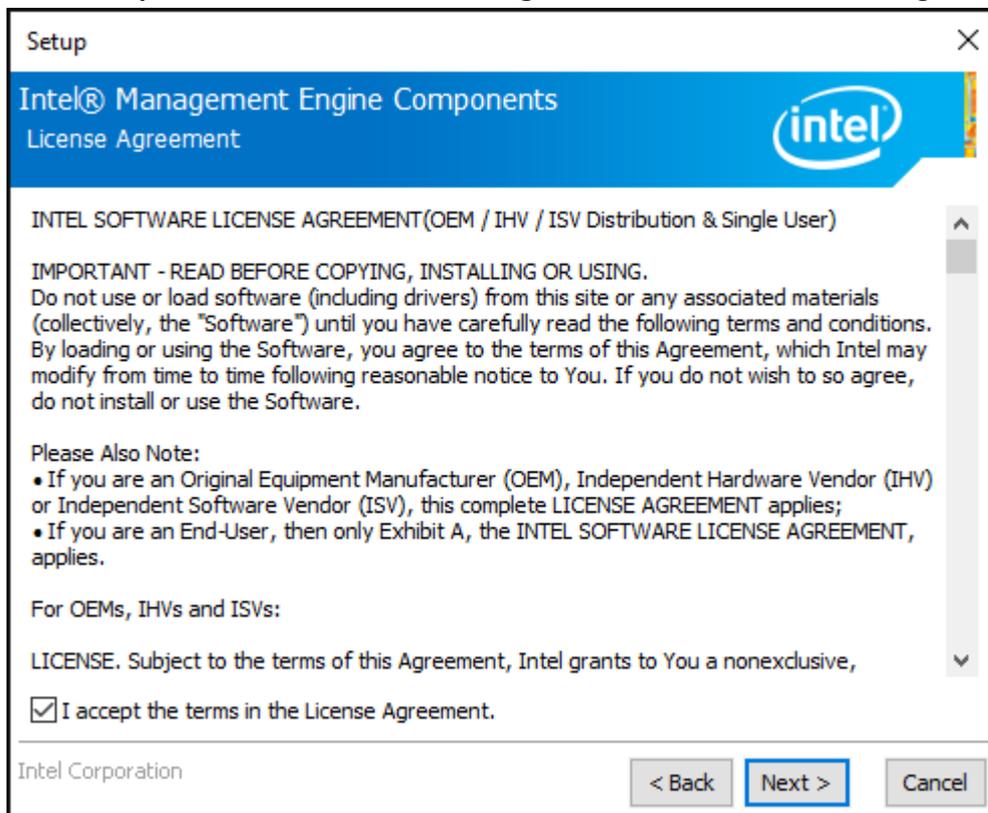Drivers for Intel® Network Connections were successfully installed.

Close

7.5 Intel® Management Engine Interface

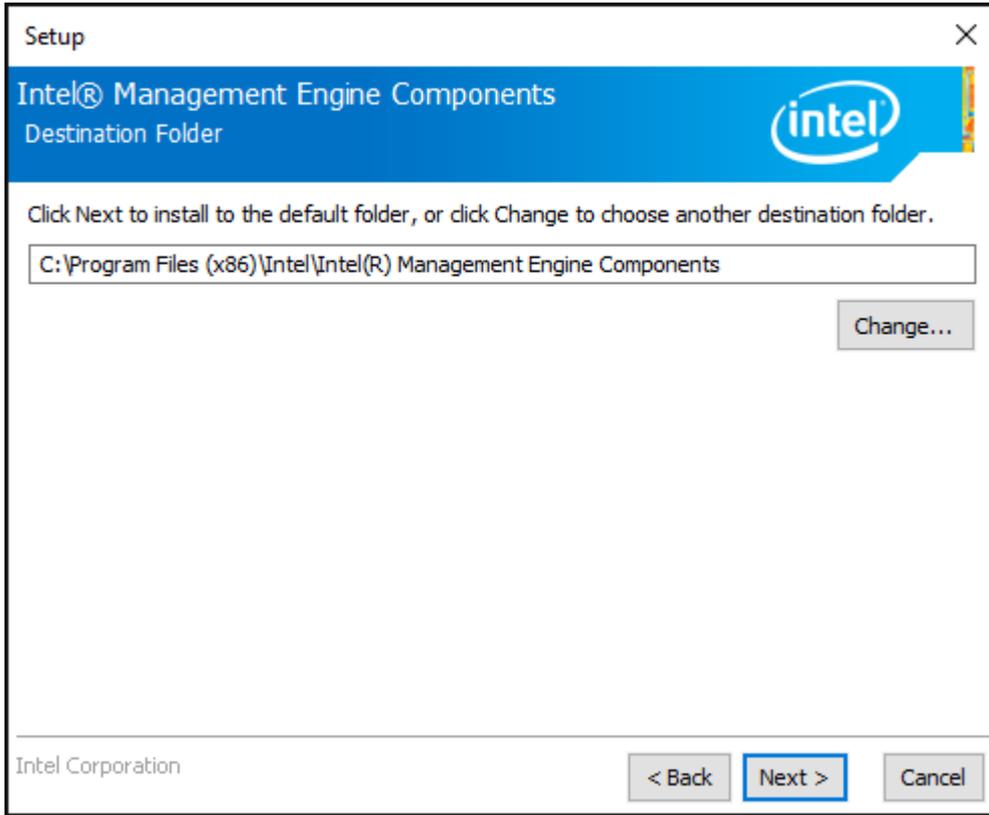To install the Intel® Management Engine Interface, please follow the steps below.

Step 1. Select setup language you need. Click **Next** to continue.
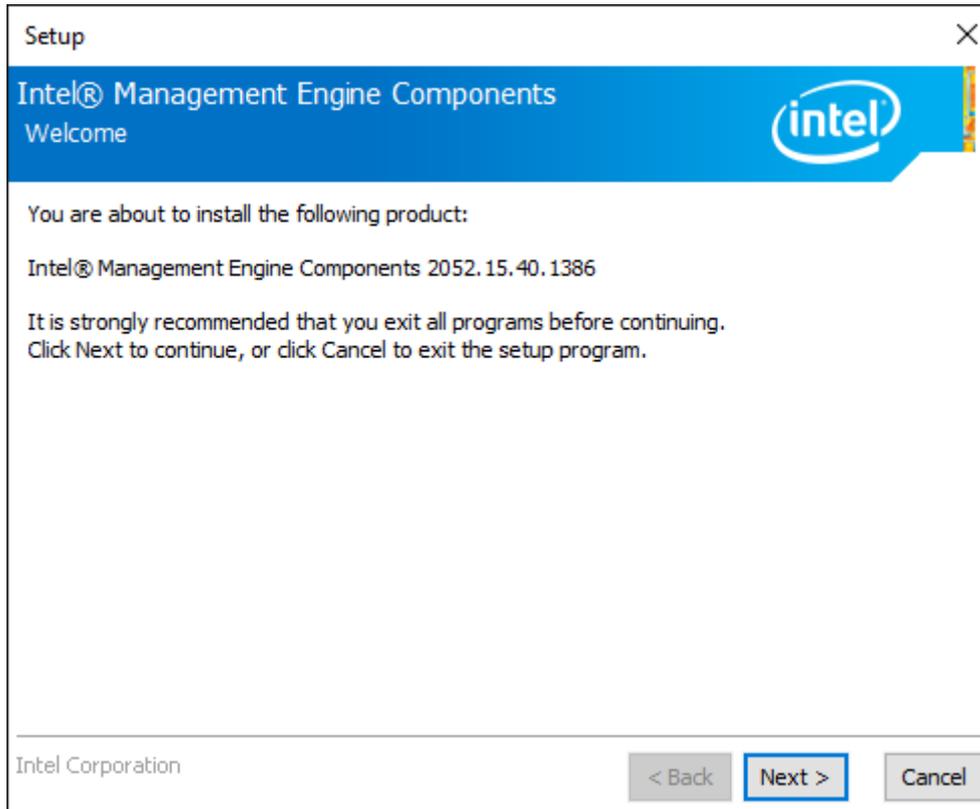
Step 2. Choose **I accept the terms in the License Agreement** and click **Next** to begin the installation.

Step 3. Click **Next** to continue.

Step 4. Click **Finish** to complete the installation.