ASRock Industrial

IMB-1230

User Manual

Version 1.2
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The Lithium battery adopted on this motherboard contains Perchlorate, a toxic substance controlled in Perchlorate Best Management Practices (BMP) regulations passed by the California Legislature. When you discard the Lithium battery in California, USA, please follow the related regulations in advance.
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CAUTION:

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

Contents

Chapter 1: Introduction

Thank you for purchasing ASRockInd ***IMB-1230*** motherboard, a reliable motherboard produced under ASRockInd's consistently stringent quality control. It delivers excellent performance with robust design conforming to ASRockInd's commitment to quality and endurance.

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

Because the motherboard specifications and the BIOS software might be updated, the content of this manual will be subject to change without notice. In case any modifications of this manual occur, the updated version will be available on ASRockInd website without further notice. You may find the latest VGA cards and CPU support lists on ASRockInd website as well. ASRockInd website http://www.asrockind.com

If you require technical support related to this motherboard, please visit our website for specific information about the model you are using.
www.asrockind.com/support/index.asp

1.1 Package Contents

ASRockInd ***IMB-1230*** Motherboard (Mini-ITX (6.7-in x 6.7-in))

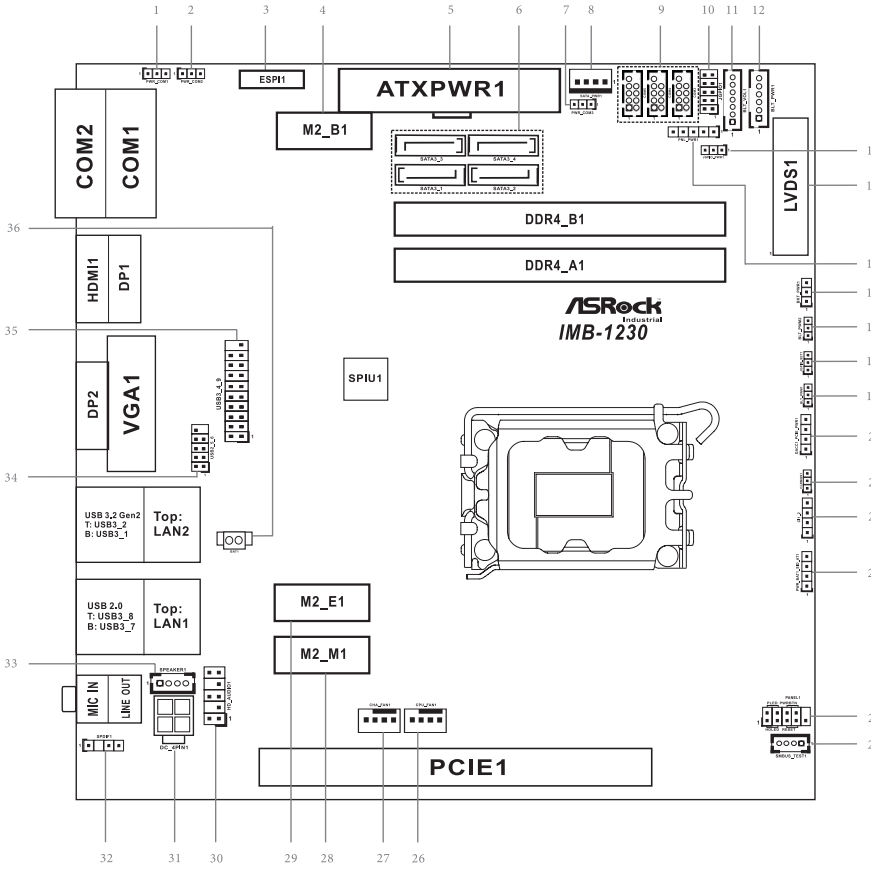
1 x I/O Panel Shield

1.2 Specifications

Form Factor	Dimensions	Mini-ITX (6.7-in x 6.7-in x 1.5-in, 17.0 cm x 17.0 cm x 3.8 cm)
Processor System	CPU	Intel® 13th/12th Gen (Raptor Lake-S/Alder Lake-S) Core™ Processors, up to 65W
	Chipset	Intel® H610
	Socket	LGA1700
	BIOS	AMI SPI 256 Mbit
Memory	Technology	Dual Channel DDR4 3200 MHz
	Capacity	64GB (32 GB per DIMM)
	Socket	2 x 260-pin SO-DIMM
Graphics	Controller	Intel® UHD Graphics
	DisplayPort	DisplayPort 1.4a, DP++ Max resolution up to 4096x2160@60Hz
	HDMI	HDMI 2.0b Max resolution up to 4096x2160@60Hz
	eDP	eDP1.4b Max resolution up to 1920 x 1200@60Hz
	LVDS	Dual channel 24 bit up to 1920x1200@60Hz
	VGA	Max resolution up to 1920 x 1200@60Hz
	MultiDisplay	Triple Display
Expansion Slot	PCIe	1 x PCIe x16 (Gen4)
	M.2	1 x M.2 (Key E, 2230) with PCIe x1, USB 2.0 and CNVi for Wireless 1 x M.2 (Key B, 3042/3052) with PCIe x1/USB 3.2 Gen1/USB 2.0 and SIM for 4G
	SIM Socket	1 x Socket connected to M.2 Key B
Audio	Interface	Realtek ALC897, High Definition Audio. Line-out, Mic-in
Ethernet	Controller/ Speed	LAN1: Intel® I225LM with 10/100/1000/2500 Mbps LAN2: Intel® I225LM with 10/100/1000/2500 Mbps
	Connector	2 x RJ-45

Rear I/O	HDMI	1 x HDMI 2.0b
	DisplayPort	2 x DP 1.4a++
	VGA	1
	Ethernet	2 x 2.5 Gigabit LAN
	USB	2 x USB 3.2 (Gen2) , 2 x USB 2.0
	Audio	2 (Mic-in, Line-out)
	COM	2 x COM (RS-232/422/485)
Internal Connector	USB	1 x USB 3.2 Gen1 (1 x USB 3.2 header) 3 x USB 2.0 (1 x 2.54 pitch header)
	COM	COM3, COM4, COM5 (RS-232)
	GPIO	4 x GPI, 4 x GPO
	TPM	TPM 2.0 onboard IC
	LVDS	1
	eDP	1
	SATA PWR Output	1
	Speaker Header	1
Storage	M.2	1 x M.2 (Key M, 2242/2260/2280) with PCIe Gen3 x4 for SSD
	SATA	4 x SATA3 (6Gb/s)
Watchdog Timer	Output	From Super I/O to drag RESETCON#
	Interval	256 Segments, 0, 1, 2, ...255sec
Power Requirements	Input PWR	ATX PWR (24+4-pin) and +12V DC-In co-design
	Power On	AT/ATX Supported - AT: Directly PWR on as power input ready - ATX: Press button to PWR on after power input ready
Environment	Operating Temp	0ºC ~ 70ºC
	Storage Temp	-40°C ~ 85°C
	Operating Humidity	5% ~ 90%
	Storage Humidity	5% ~ 90%

1.3 Motherboard Layout



1 : COM Port PWR Setting Jumper
PWR_COM1 (For COM Port1)
2 : COM Port PWR Setting Jumper
PWR_COM2 (For COM Port2)
3 : ESPI Header (ESPI1)
4 : M.2 Key-B Socket (M2_B1)
5 : 24-pin ATX Power Input Connector
6 : SATA3 Connectors (SATA3_1~4)
7 : COM Port PWR Setting Jumper
PWR_COM3 (For COM Port3)
8 : SATA Power Output Connector
9 : COM Port Headers (COM5, 4, 3) (RS232)
10 : Digital Input/Output Pin Header (JGPIO1)
11 : Backlight Volume Control (BLT_VOL1)
12 : Inverter Power Control Wafer (BLT_PWR1)
13 : Digital Input / Output Power Select (JGPIO_PWR1)
14 : LVDS Panel Connector
15 : Panel Power Select (LCD_VCC) (PNL_PWR1)
16 : Backlight Power Select (LCD_BLT_VCC) (BKT_PWR1)
17 : CON_LBKLT_CTL Voltage Level (BLT_PWM2)
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19 : Brightness Control Mode (BLT_PWM1)
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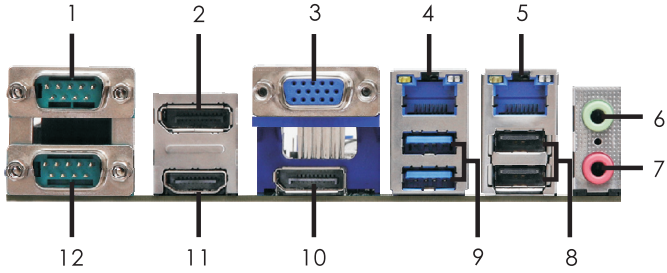
27 : Chassis FAN Connector (+12V)
28 : M.2 Key-M Socket (M2_M1)
29 : M.2 Key-E Socket (M2_E1)
30 : Front Panel Audio Header
31 : 4-pin ATX PWR Connector
32 : SPDIF Header
33 : 3W Audio AMP Output Wafer
34 : USB2.0 Header (USB2_5_6)
35 : USB3.2 Gen1 Header (USB3_4_9)
36 : Battery Connector

Back Side:
SIM Card Socket (SIM1)

1.4 I/O Panel



1	COM Port (COM1)*	7	Microphone (Pink)
2	DisplayPort (DP1)	8	USB2.0 Ports (USB3_7_8)
3	D-Sub Port (VGA1)	9	USB3.2 Gen2 Ports (USB3_1_2)
4	RJ45 LAN Port (LAN2)**	10	DisplayPort (DP2)
5	RJ45 LAN Port (LAN1)**	11	HDMI Port (HDMI1)
6	Line out (Lime)	12	COM Port (COM2)*

* This motherboard supports RS232/422/485 on COM1, 2 ports. Please refer to below table for the pin definition. In addition, COM1, 2 ports (RS232/422/485) can be adjusted in BIOS setup utility > Advanced Screen > Super IO Configuration. You may refer to page 31 for details.

COM1, 2 Port Pin Definition

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

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

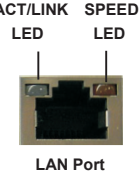
LAN Port LED Indications

Activity/Link LED

Status	Description
Off	No Link
Blinking	Data Activity
On	Link

SPEED LED

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



Chapter 2: Installation

This is a Mini-ITX form factor (6.7" x 6.7") motherboard. Before you install the motherboard, study the configuration of your chassis to ensure that the motherboard fits into it.

Make sure to unplug the power cord before installing or removing the motherboard. Failure to do so may cause physical injuries to you and damages to motherboard components.

2.1 Screw Holes

Place screws into the holes to secure the motherboard to the chassis.

Do not over-tighten the screws! Doing so may damage the motherboard.

2.2 Pre-installation Precautions

Take note of the following precautions before you install motherboard components or change any motherboard settings.

1. Unplug the power cord from the wall socket before touching any component.
2. To avoid damaging the motherboard components due to static electricity, NEVER place your motherboard directly on the carpet or the like. Also remember to use a grounded wrist strap or touch a safety grounded object before you handle components.
3. Hold components by the edges and do not touch the ICs.
4. Whenever you uninstall any component, place it on a grounded antistatic pad or in the bag that comes with the component.

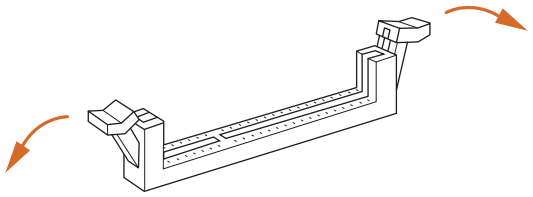
Before you install or remove any component, ensure that the power is switched off or the power cord is detached from the power supply.
Failure to do so may cause severe damage to the motherboard, peripherals, and/or components.

2.3 Installation of Memory Modules (SO-DIMM)

This motherboard provides two 260-pin DDR4 (Double Data Rate 4) SO-DIMM slots.

1. The SO-DIMM only fits in one correct orientation. It will cause permanent damage to the motherboard and the SO-DIMM if you force the SO-DIMM into the slot at incorrect orientation.
2. Please do not intermix different voltage SO-DIMMs on this motherboard.

1



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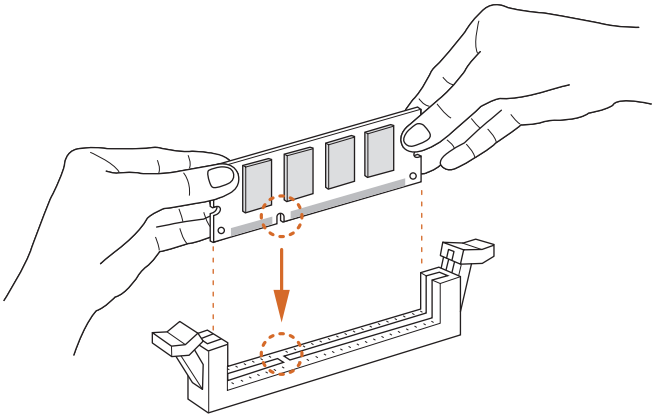

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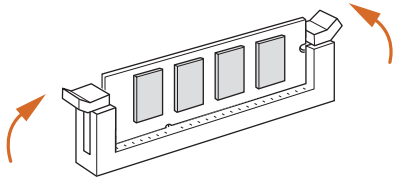


2.4 Expansion Slots

There is 1 PCI Express slot, 4 M.2 sockets and 1 SIM socket on this motherboard.

PCIE slot: PCIE1 (PCIE 4.0 x16 slot) is used for PCI Express x16 lane width cards.

M.2 sockets:

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

1 x M.2 (Key B, 3042/3052) with PCIe x1/USB3.2 Gen1/USB 2.0 and SIM for 4G.

1 x M.2 (Key M, 2242/2260/2280) with PCIe Gen3 x4 for SSD.

SIM socket:

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

M.2 Key-E Socket (M2_E1):

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

M.2 Key-M Socket (M2_M1):

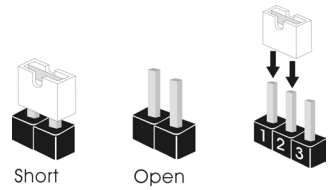
PIN	Signal	Signal	PIN
1	GND	+3.3V	2
3	GND	+3.3V	4
5	PERn3	NA	6
7	PERp3	NA	8
9	GND	SATA_LED	10
11	PETn3	+3.3V	12
13	PETp3	+3.3V	14
15	GND	+3.3V	16
17	PERn2	+3.3V	18
19	PERp2	NA	20
21	GND	NA	22
23	PETn2	NA	24
25	PETp2	NA	26
27	GND	NA	28
29	PERn1	NA	30
31	PERp1	NA	32
33	GND	NA	34
35	PETn1	NA	36
37	PETp1	NA	38
39	GND	SMB_CLK	40
41	PERn0	SMB_DATA	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
67	NA	NA	68
69	PEDET	+3.3V	70
71	GND	+3.3V	72
73	GND	+3.3V	74
75	GND		

M.2 Key-B Socket (M2_B1):

PIN	Signal	Signal	PIN
1	NA	+3.3V	2
3	GND	+3.3V	4
5	GND	FuLL_Card_Power_off	6
7	USB_D+	W_DISABLE	8
9	USB_D-	WWAN_LED#	10
11	GND		
21	GND	NA	20
23	NA	NA	22
25	NA	NA	24
27	GND	NA	26
29	USB3_RX-	NA	28
31	USB3_RX+	UIM_RESET	30
33	GND	UIM_CLK	32
35	USB3_TX-	UIM_DATA	34
37	USB3_TX+	UIM_PWR	36
39	GND	NA	38
41	PERn0	NA	40
43	PERp0	NA	42
45	GND	NA	44
47	PETn0	NA	46
49	PETP0	NA	48
51	GND	PERST#	50
53	PEFCLKn	CLKREQ#	52
55	PEFCLKp	NA	54
57	GND	NA	56
59	NA	NA	58
61	NA	NA	60
63	NA	NA	62
65	NA	NA	64
67	NA	NA	66
69	PEDET	NA	68
71	GND	+3.3V	70
73	GND	+3.3V	72
75	NA	+3.3V	74

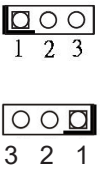
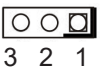
2.5 Jumpers Setup

The illustration shows how jumpers are setup. When the jumper cap is placed on pins, the jumper is “Short”. If no jumper cap is placed on pins, the jumper is “Open”. The illustration shows a 3-pin jumper whose pin1 and pin2 are “Short” when jumper cap is placed on these 2 pins.



Jumper	Setting	Description
Clear CMOS Jumper (3-pin CLRMOS1) (see p.8, No. 21)		1-2 : Normal 2-3 : Clear CMOS

Note: CLRMOS1 allows you to clear the data in CMOS. To clear and reset the system parameters to default setup, please turn off the computer and unplug the power cord from the power supply. After waiting for 15 seconds, use a jumper cap to short pin2 and pin3 on CLRMOS1 for 5 seconds. However, please do not clear the CMOS right after you update the BIOS. If you need to clear the CMOS when you just finish updating the BIOS, you must boot up the system first, and then shut it down before you do the clear-CMOS action. Please be noted that the date, time and user default profile will be cleared only if the CMOS battery is removed.

COM Port PWR Setting Jumpers (3-pin PWR_COM1 (For COM Port1)) (see p.8, No. 1) (3-pin PWR_COM2 (For COM Port2)) (see p.8, No. 2) (3-pin PWR_COM3 (For COM Port3)) (see p.8, No. 7)		1-2 : +5V 2-3 : +12V
Digital Input / Output Power Select (3-pin JGPIO_PWR1) (see p.8, No. 13)		1-2 : +12V 2-3 : +5V
Backlight Power Select (LCD_BLT_VCC) (3-pin BKT_PWR1) (see p.8, No. 16)		1-2 : LCD_BLT_VCC: +5V 2-3 : LCD_BLT_VCC: +12V

CON_LBKLT_CTL Voltage Level
(3-pin BLT_PWM2)
(see p.8, No. 17)

1-2 : 3V Level
2-3 : 5V Level

Panel Power Select (LCD_VCC)
(5-pin PNL_PWR1)
(see p.8, No. 15)

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

Digital Input / Output Default Value Setting
(3-pin JGPIO_SET1)
(see p.8, No. 18)

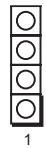
1-2 : Pull-High
2-3 : Pull-Low

Brightness Control Mode
(3-pin BLT_PWM1)
(see p.8, No. 19)

1-2 : From eDP PWM to CON_ LBKLT_CTL
2-3 : From LVDS PWM to CON_ LBKLT_CTL

Note: 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.

DACC1_PCIE_PWR1
(4-pin DACC1_PCIE_PWR1)
(see p.8, No. 20)



PIN1-2 Open : No ACC
PIN1-2 Short : ACC
PIN3 : PSON#
PIN4 : GND

Note: Auto clear CMOS when system boot improperly.

Chassis Intrusion Header
(4-pin CI1_2)
(see p.8, No. 22)

PIN1-2 Open : Normal
PIN1-2 Short : Active Case Open
PIN3-4 Open : Active Case Open
PIN3-4 Short : Normal

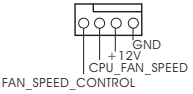
PWR_BAT1_SIO_AT1
(4-pin PWR_BAT1_SIO_AT1)
(see p.8, No. 23)

PIN1-2 Open : Normal
PIN1-2 Short : Charge Battery
PIN3-4 Open : ATX Mode
PIN3-4 Short : AT Mode

2.6 Onboard Headers and Connectors

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

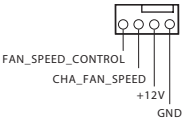
CPU Fan Connector
(4-pin CPU_FAN1)
(see p.8 No. 26)



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

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

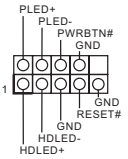
Chassis Fan Connector
(4-pin CHA_FAN1)
(see p.8 No. 27)



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

Though this motherboard provides 4-Pin chassis fan (Quiet Fan) support, the 3-Pin chassis fan still can work successfully even with the fan speed control function. If you plan to connect the 3-Pin chassis fan to the chassis fan connector on this motherboard, please connect it to Pin 1-3.

System Panel Header
(9-pin PANEL1)
(see p.8, No. 24)



This header accommodates several system front panel functions.

Connect the power switch, reset switch and system status indicator on the chassis to this header according to the pin assignments below. Note the positive and negative pins before connecting the cables.

PWRBTN (Power Switch):
Connect to the power switch on the chassis front panel. You may configure the way to turn off your system using the power switch.

RESET (Reset Switch):
Connect to the reset switch on the chassis front panel. Press the reset switch to restart the computer if the computer freezes and fails to perform a normal restart.

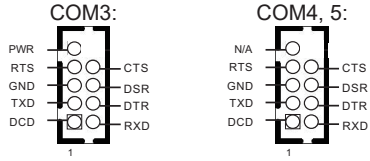
PLED (System Power LED):
Connect to the power status indicator on the chassis front panel. The LED is on when the system is operating. The LED keeps blinking when the system is in S1/S3 sleep state. The LED is off when the system is in S4 sleep state or powered off (S5).

HDLED (Hard Drive Activity LED):
Connect to the hard drive activity LED on the chassis front panel. The LED is on when the hard drive is reading or writing data.

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

COM Port Headers (RS232)

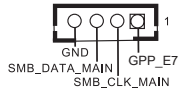
(9-pin COM5, 4, 3: see p.8, No. 9)



SMBUS_TEST1

(4-pin SMBUS_TEST1)

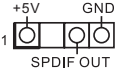
(see p.8 No. 25)



SPDIF Header

(3-pin SPDIF1)

(see p.8, No. 32)

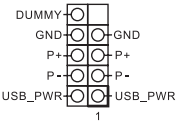


SPDIF header, providing SPDIF audio output to HDMI VGA card, allows the system to connect HDMI Digital TV/ projector/LCD devices. Please connect the SPDIF connector of HDMI VGA card to this header.

USB 2.0 Header

(9-pin USB2_5_6:

see p.8, No. 34)

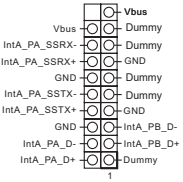


There is one header on this motherboard. This USB 2.0 header can support two ports.

USB 3.2 Gen1 Header

(19-pin USB3_4_9)

(see p.8, No. 35)



There is one header on this motherboard. This USB 3.2 Gen1 header can support one port USB3.2 Gen1 and one port USB2.0.

SATA3 Connectors

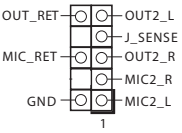
(SATA3_1~4: see p.8, No. 6)

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

Front Panel Audio Header

(9-pin HD_AUDIO1)

(see p.8 No. 30)



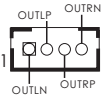
This is an interface for front panel audio cable that allows convenient connection and control of audio devices.

High Definition Audio supports Jack Sensing, but the panel wire on the chassis must support HDA to function correctly. Please follow the instruction in our manual and chassis manual to install your system.

3W Audio AMP Output Wafer

(4-pin SPEAKER1)

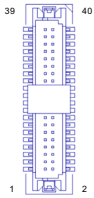
(see p.8 No. 33)



LVDS Panel Connector*

(40-pin LVDS1)

(see p.8 No. 14)



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

* PD (Panel Detection): Connect this pin to LVDS Panel's Ground pin to detect Panel detection.

*eDP by pass mode pin definition (switch by BIOS):

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

Battery Connector

(2-pin BAT1)

(see p.8 No. 36)

ESPI Header

(20-pin ESPI1)

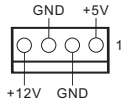
(see p.8 No. 3)

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	N/A
18	N/A
19	C_ESPI_ALERT#
20	GND

SATA Power Connector

(SATA_PWR1)

(see p.8 No. 8)

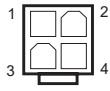


Please connect a SATA power cable to this connector.

4-Pin ATX Power Connector

(4-pin DC_4PIN1)

(see p.8 No. 31)



Please connect a DC power supply to this connector, or connect the 4-pin ATX 12V Power to this connector when using ATX power supply.

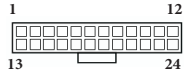
1-2 : GND

3-4 : DC Input

ATX Power Input Connector

(24-pin ATXPWR1)

(see p.8 No. 5)

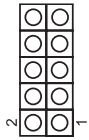


This motherboard provides a 24-pin ATX power connector. To use a 20-pin ATX power supply, please plug it along Pin 1 and Pin 13.

Digital Input/Output Pin Header

(10-pin JGPIO1)

(see p.8 No. 10)



PIN	Signal Name	PIN	Signal Name
10	GND	9	JGPIOPWR_R
8	GPP_E6	7	SIO_GP74
6	GPP_E5	5	SIO_GP73
4	GPP_I10	3	SIO_GP72
2	GPP_H23	1	SIO_GP71

Inverter Power Control Wafer

(6-pin BLT_PWR1)

(see p.8 No. 12)

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

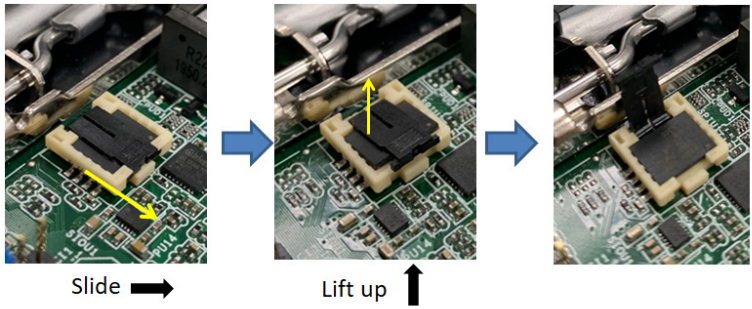
Backlight Volume Control

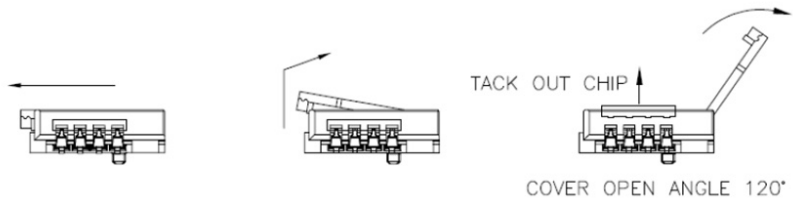
(7-pin BLT_VOL1)

(see p.8 No. 11)

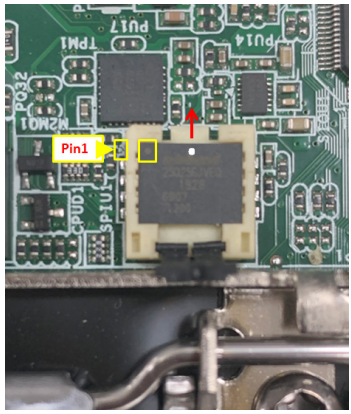
PIN	Signal Name
7	GND
6	GND
5	BLT_DW
4	BLT_UP
3	PWRDN
2	GPIO_VOL_DW
1	GPIO_VOL_UP

2.7 Installation of ROM Socket





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



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

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

Chapter 3: UEFI SETUP UTILITY

3.1 Introduction

This section explains how to use the UEFI SETUP UTILITY to configure your system. The UEFI chip on the motherboard stores the UEFI SETUP UTILITY. You may run the UEFI SETUP UTILITY when you start up the computer. Please press <F2> or <Del> during the Power-On-Self-Test (POST) to enter the UEFI SETUP UTILITY, otherwise, POST will continue with its test routines.

If you wish to enter the UEFI SETUP UTILITY after POST, restart the system by pressing <Ctl> + <Alt> + <Delete>, or by pressing the reset button on the system chassis. You may also restart by turning the system off and then back on.

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

3.1.1 UEFI Menu Bar

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

Main	To set up the system time/date information
Advanced	To set up the advanced UEFI features
H/W Monitor	To display current hardware status
Security	To set up the security features
Boot	To set up the default system device to locate and load the Operating System
Exit	To exit the current screen or the UEFI SETUP UTILITY

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

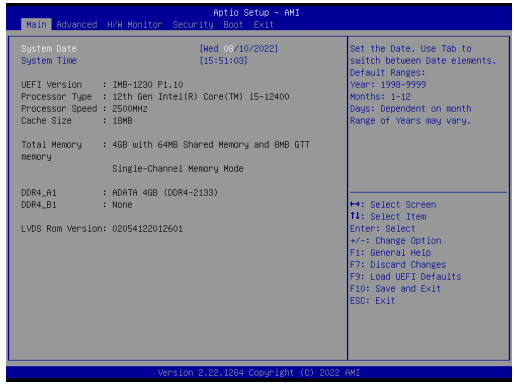
3.1.2 Navigation Keys

Please check the following table for the function description of each navigation key.

Navigation Key(s)	Function Description
← / →	Moves cursor left or right to select Screens
↑ / ↓	Moves cursor up or down to select items
+ / -	To change option for the selected items
<Enter>	To bring up the selected screen
<F1>	To display the General Help Screen
<F7>	Discard changes
<F9>	To load optimal default values for all the settings
<F10>	To save changes and exit the UEFI SETUP UTILITY
<F12>	Print screen
<ESC>	To jump to the Exit Screen or exit the current screen

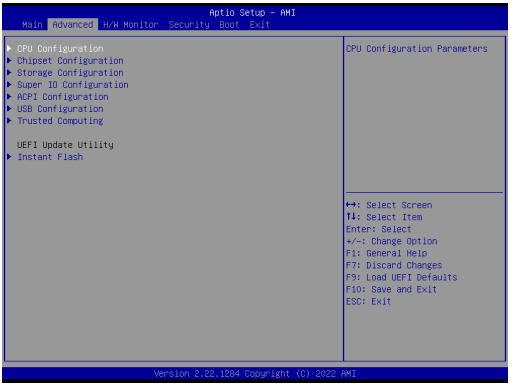
3.2 Main Screen

When you enter the UEFI SETUP UTILITY, the Main screen will appear and display the system overview.



3.3 Advanced Screen

In this section, you may set the configurations for the following items: CPU Configuration, Chipset Configuration, Storage Configuration, Super IO Configuration, ACPI Configuration, USB Configuration and Trusted Computing.

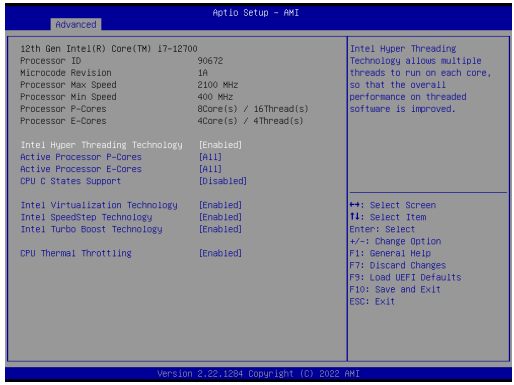


Setting wrong values in this section may cause the system to malfunction.

Instant Flash

Instant Flash is a UEFI flash utility embedded in Flash ROM. This convenient UEFI update tool allows you to update system UEFI without entering operating systems first like MS-DOS or Windows®. Just launch this tool and save the new UEFI file to your USB flash drive, floppy disk or hard drive, then you can update your UEFI only in a few clicks without preparing an additional floppy diskette or other complicated flash utility. Please be noted that the USB flash drive or hard drive must use FAT32/16/12 file system. If you execute Instant Flash utility, the utility will show the UEFI files and their respective information. Select the proper UEFI file to update your UEFI, and reboot your system after UEFI update process completes.

3.3.1 CPU Configuration



Intel Hyper Threading Technology

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

Active Processor P-Cores

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

Active Processor E-Cores

Select the number of E-Cores to enable in each processor package.

CPU C States Support

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

Intel Virtualization Technology

When this option is set to [Enabled], a VMM (Virtual Machine Architecture) can utilize the additional hardware capabilities provided by Vanderpool Technology. This option will be hidden if the installed CPU does not support Intel Virtualization Technology.

Intel SpeedStep Technology

Intel SpeedStep technology is Intel's new power saving technology. Processors can switch between multiple frequencies and voltage points to enable power saving. The default value is [Enabled]. Configuration options: [Enabled] and [Disabled]. If you install Windows® OS and want to enable this function, please set this item to [Enabled]. This item will be hidden if the current CPU does not support Intel SpeedStep technology.

Please note that enabling this function may reduce CPU voltage and lead to system stability or compatibility issues with some power supplies. Please set this item to [Disabled] if above issues occur.

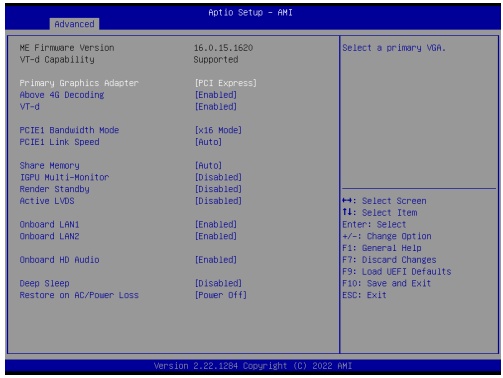
Intel Turbo Boost Technology

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

CPU Thermal Throttling

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

3.3.2 Chipset Configuration



Primary Graphics Adapter

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

Above 4G Decoding

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

VT-d

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

PCIE1 Bandwidth Mode

Select the bandwidth mode for PCIE1.

PCIE1 Link Speed

Select the link speed for PCIE1.

Share Memory

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

IGPU Multi-Moniter

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

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 [enable]. Then press <F10> to save the setting and restart the system. Now the default value of Active LVDS is changed to ENABLE

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

Onboard LAN1

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

Onboard LAN2

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

Onboard HD Audio

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

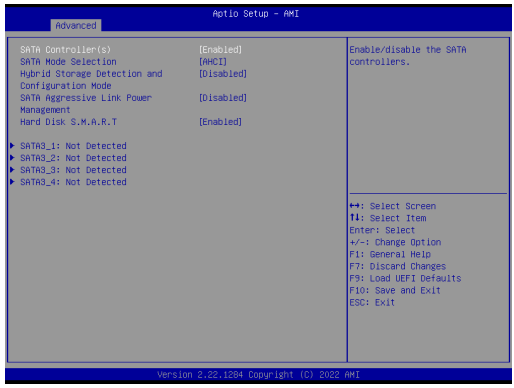
Deep Sleep

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

Restore on AC/Power Loss

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

3.3.3 Storage Configuration



SATA Controller(s)

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

SATA Mode Selection

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

AHCI (Advanced Host Controller Interface) supports NCQ and other new features that will improve SATA disk performance but IDE mode does not have these advantages.

Hybrid Storage Detection and Configuration Mode

Use this item to enable or disable Hybrid Storage Detection and Configuration Mode.

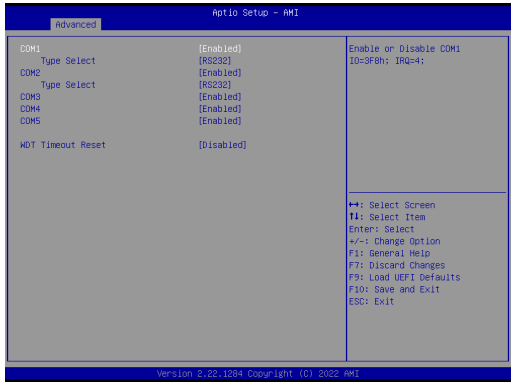
SATA Aggressive Link Power Management

Use this item to configure SATA Aggressive Link Power Management.

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

Use this item to enable or disable the S.M.A.R.T. (Self-Monitoring, Analysis, and Reporting Technology) feature. Configuration options: [Disabled] and [Enabled].

3.3.4 Super IO Configuration



COM1 Configuration

Use this to set parameters of COM1.

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.

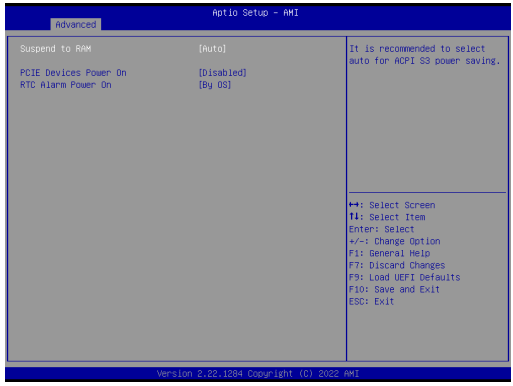
COM5 Configuration

Use this to set parameters of COM5.

WDT Timeout Reset

Use this to set the Watch Dog Timer.

3.3.5 ACPI Configuration



Suspend to RAM

Use this item to select whether to auto-detect or disable the Suspend-to-RAM feature. Select [Auto] will enable this feature if the OS supports it.

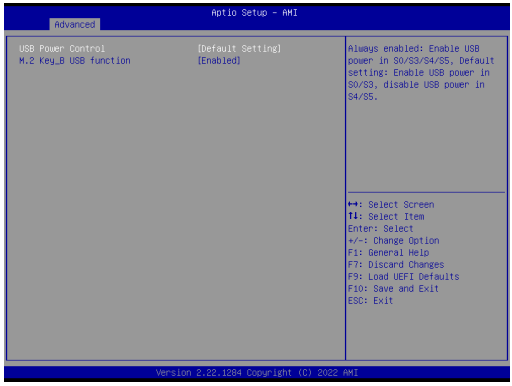
PCIE Devices Power On

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

RTC Alarm Power On

Use this item to enable or disable RTC (Real Time Clock) to power on the system.

3.3.6 USB Configuration



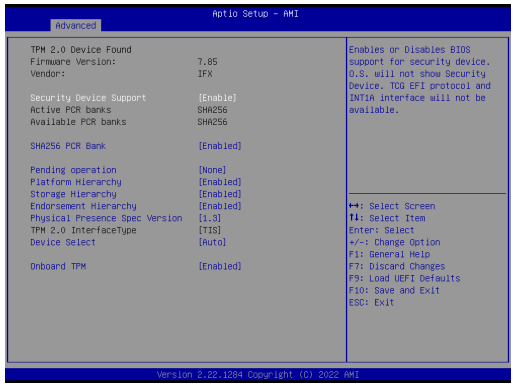
USB Power Control

Use this option to control USB power.

M.2 Key_B USB Configuration

Enable or disable M.2 Key_B USB Configuration.

3.3.7 Trusted Computing

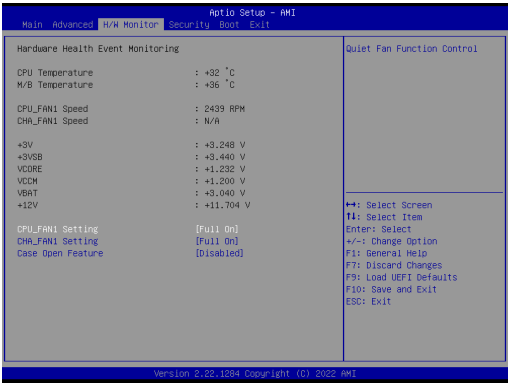


Security Device Support

Enable or disable BIOS support for security device.

3.4 Hardware Health Event Monitoring Screen

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



CPU_FAN1 Setting

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

CHA_FAN1 Setting

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

Case Open Feature

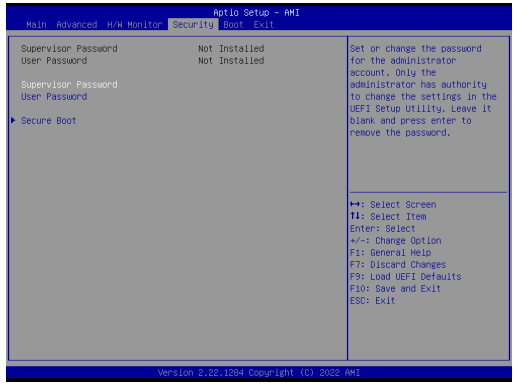
This allows you to enable or disable case open detection feature. The default is value [Disabled].

Clear Status

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

3.5 Security Screen

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



Supervisor Password

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

User Password

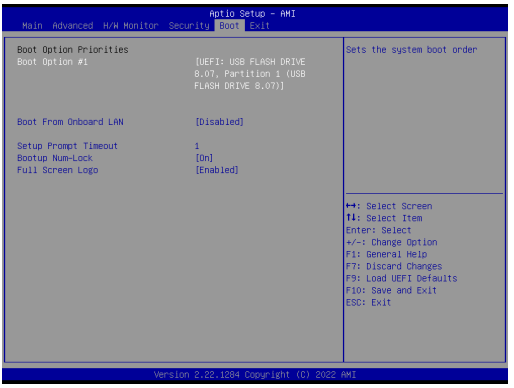
Set or change the password for the user account. Users are unable to change the settings in the UEFI Setup Utility. Leave it blank and press enter to remove the password.

Secure Boot

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

3.6 Boot Screen

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



Boot From Onboard LAN

Use this item to enable or disable the Boot From Onboard LAN feature.

Setup Prompt Timeout

This shows the number of seconds to wait for setup activation key. 65535(0XFFFF) means indefinite waiting.

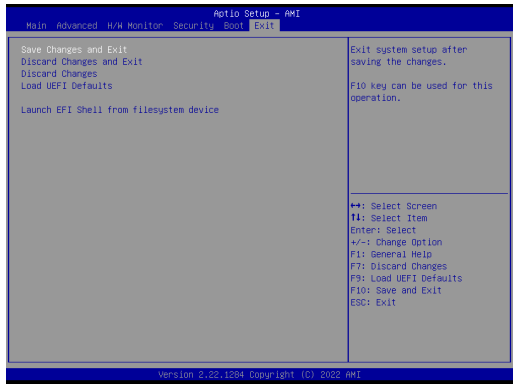
Bootup Num-Lock

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

Full Screen Logo

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

3.7 Exit Screen



Save Changes and Exit

When you select this option, it will pop-out the following message, “Save configuration changes and exit setup?” Select [OK] to save the changes and exit the UEFI SETUP UTILITY.

Discard Changes and Exit

When you select this option, it will pop-out the following message, “Discard changes and exit setup?” Select [OK] to exit the UEFI SETUP UTILITY without saving any changes.

Discard Changes

When you select this option, it will pop-out the following message, “Discard changes?” Select [OK] to discard all changes.

Load UEFI Defaults

Load UEFI default values for all the setup questions. F9 key can be used for this operation.

Launch EFI Shell from filesystem device

Attempts to Launch EFI Shell application (Shell64.efi) from one of the available filesystem devices.