

NA348 Series

Network Appliances

User's Manual



USER'S MANUAL

www.axiomtek.com

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Safety Approvals

- ✓ CE
- ✓ FCC Class A
- ✓ FCC Compliance

This equipment has been tested and complies with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. If not installed and used in accordance with proper instructions, this equipment might generate or radiate radio frequency energy and cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.
- Shielded interface cables must be used in order to comply with emission limits.

Safety Precautions

Before getting started, read the following important cautions.

1. Be sure to ground yourself to prevent static charge when installing the internal components. Use a grounding wrist strap and place all electronic components in any static-shielded devices. Most electronic components are sensitive to static electrical charge.
2. Disconnect the power cords from the NA348 before making any installation. Be sure both the system and the external devices are turned OFF. A sudden surge of power could ruin sensitive components. Make sure the NA348 is properly grounded.
3. Do not open the system's top cover. If opening the cover for maintenance is a must, only a trained technician is allowed to do so. Integrated circuits on computer boards are sensitive to static electricity. To avoid damaging chips from electrostatic discharge, observe the following precautions:
 - Before handling a board or integrated circuit, touch an unpainted portion of the system unit chassis for a few seconds. This will help to discharge any static electricity in your body.
 - When handling boards and components, wear a wrist-grounding strap, available from most electronic component stores.

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SECTION 1 INTRODUCTION



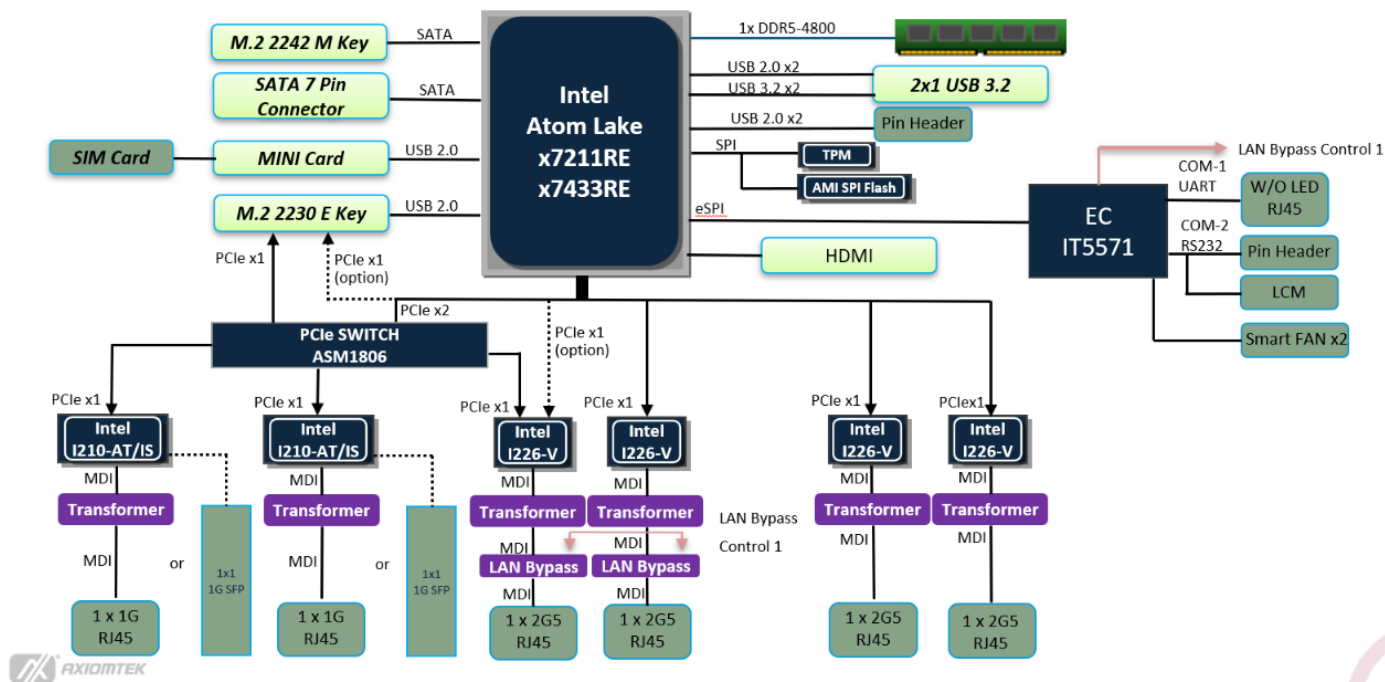
1.1 General Description

The NA348 is a 1U desktop network hardware platform designed for VPN, SD-WAN, firewall, and other network security applications, powered by the Intel® Atom® processor. Depending on the CPU SKU, the system supports up to one DDR5-4800 SO-DIMM sockets with a maximum memory capacity of 16 GB. The platform features four 2.5GbE RJ45 ports and two 1GbE RJ45 ports (or two 1GbE SFP ports), providing optimal throughput and flexible connectivity options. It also includes one M.2 SATA SSD slot and one 2.5" SATA connector for storage expansion. For additional connectivity, optional support for Wi-Fi, LTE, and a SIM socket is available to ensure reliable communication. Sample code is provided to help users easily integrate and optimize security software appliances on the platform.

1.2 Features

- Intel® Atom® x7211RE/x7433RE/x7425E SoC onboard
- Maximum 16GB DDR5-4800 SO-DIMM memory
- Supports 4 x 2.5GbE RJ45, 2 x 1G RJ45 (or 2 x 1G SFP), with 1-pair LAN bypass
- Support 1 x HDMI 1.4 and 2 x USB 3.2 Gen2x1(10Gbps)
- 1 x 2.5" SATA HDD/SSD drive bay (Max. up 9.5 mm height)
- 1 x Half-size PCI Express Mini Card slot support USB2
- 1 x M.2 Key E 2230 slot support USB2 and PCIe1 Gen3
- 1 x M.2 2242 Key M slot for M.2 SSD support SATA3
- On board TPM 2.0 supported
- 0°C to +40°C operating temperature range
- 12V/5A 60W screw type power adapter input

1.3 Block Diagram



1.4 Product Specification

Model	NA348
SBCs	NAB348
Form Factor	Desktop
Chipset	4 x I226-V + 2 x I210-AT (or 2 x I210-IS)
CPU	Intel® Atom® x7211RE 3.2GHz/2C/6W Intel® Atom® x7433RE 3.4GHz/4C/9W Intel® Atom® x7425E 3.4GHz/4C/12W
System Memory	1 x DDR5L SO-DIMM socket, up to 16GB, up to 4800MHz
Front I/O	3 x (2x1) LEDs (Up: Storage, Down: PWR), (Up: LBP1, Down: GPO4), (Up: GPO1, Down: GPO2) 6 x (2x1) LEDs for LAN status
Rear I/O	1 x DC jack w/ screw type 1 x (2x1) Tact switch for GPI and Reset 1 x power switch (optional) 1 x Console RJ-type (COM1 follow Cisco pin define) 2 x USB 3.2 Gen2x1(10Gbps) 4 x I226-V + 2 x I210-AT (Optional: Intel 4 x I226-V + 2 x I210-IS) (4 x (1x1) RJ-45 + 2 x (1x1) SFP) 3 x Antenna hole
Storage	1 x SATA 3.0 7 pin for 2.5" HDD/SSD 1 x M.2 Key M 2242 slot for SSD (SATA3)
Expansion slot	1 x mini card for LTE (USB2) 1 x M.2 Key E 2230 for Wi-Fi (PCIe x1 Gen3+ USB2.0) 1 x nano SIM slot
Power	60W Adaptor with screw type
System Dimensions	231.9(W) x 152(D) x 44(H) mm
Weight (Net/ Gross)	1.598 kg (3.52 lb)/2.45 kg (5.4 lb)
Mounting	1U Rackmount kit (optional)
HDMI	1 x HDMI 1.4
LEDs	3 x (2x1) LEDs for Power, Storage, and LBP 6 x (2x1) LEDs for LAN status
Chassis	Color: Black Printing: White Material: SECC

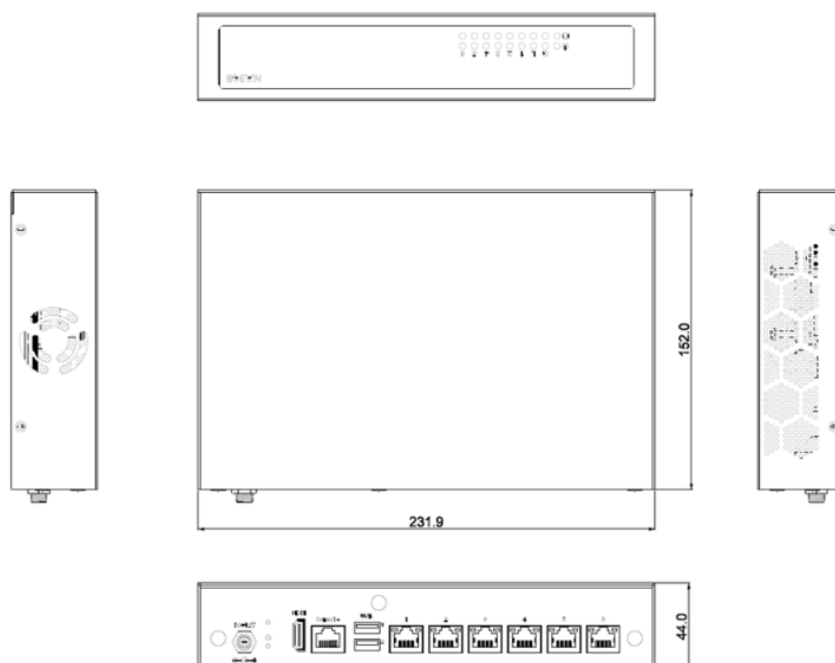
Other	3 x Antenna hole for Wi-Fi/LTE
Cooling	1 x System Fan + 1 x CPU Cooler
Certifications	CE/FCC Class A
Accessory List	4 x Rubber Feet Pad 1 x Power Adapter 1 x US power cord 1 x SATA power cable 1 x SATA cable Screws: 4pcs for 2.5" HDD, 3pcs for M.2
Environmental	Operating temperature: 0°C to +40°C (+32°F to +104°F) Storage temperature: -20°C to +70°C (-4°F to +158°F) 10% to 95% RH, non-condensing

1.5 Dimensions and Outlines

The following diagram shows you dimensions and outlines of NA348 series.

Unit: mm

NA348 System
231.9(W)x152(D)x44(H)mm
Chassis : BLACK



1.6 I/O Outlets

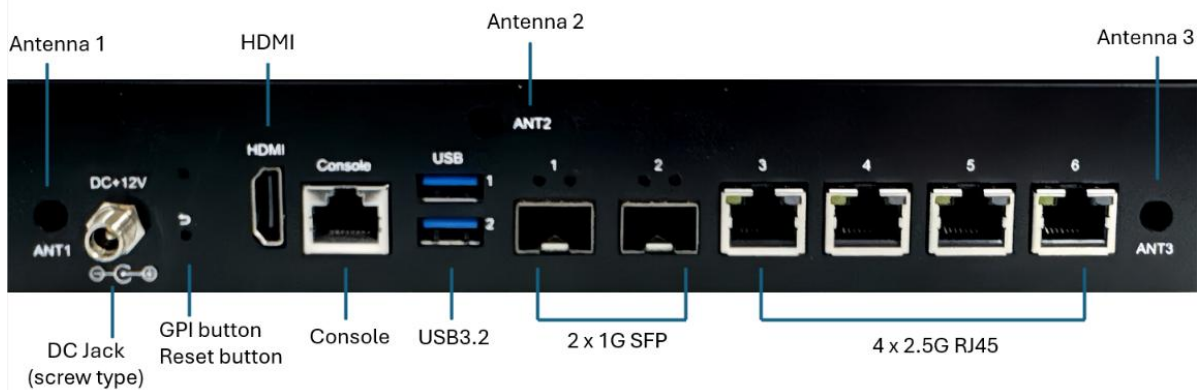
Locate front and rear panel I/O outlets on the NA348 Series server to connect serial and Ethernet interface devices.

1.6.1 SKU.A

Front Side

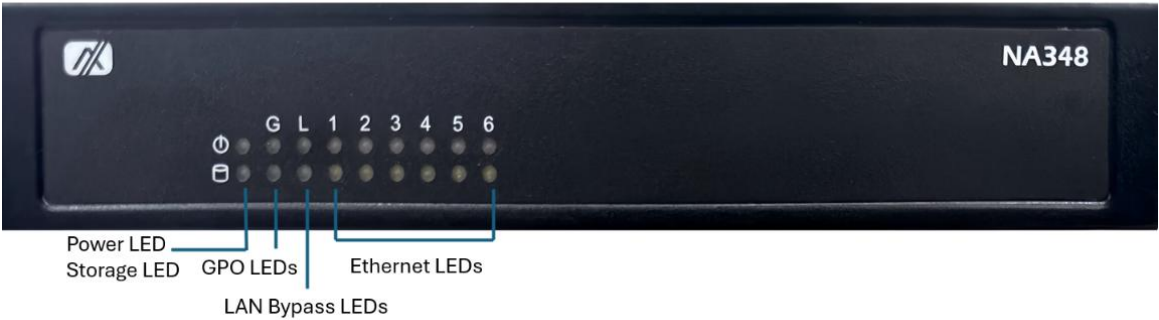


Rear Side

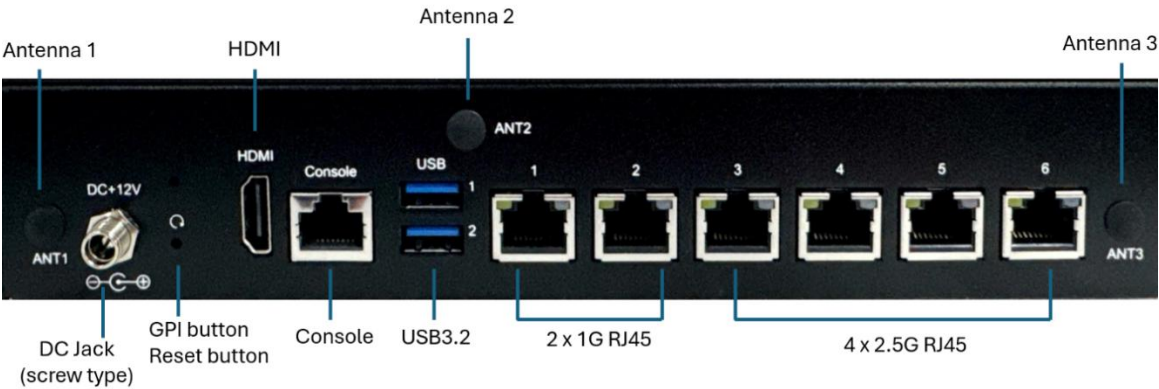


1.6.2 SKU.B

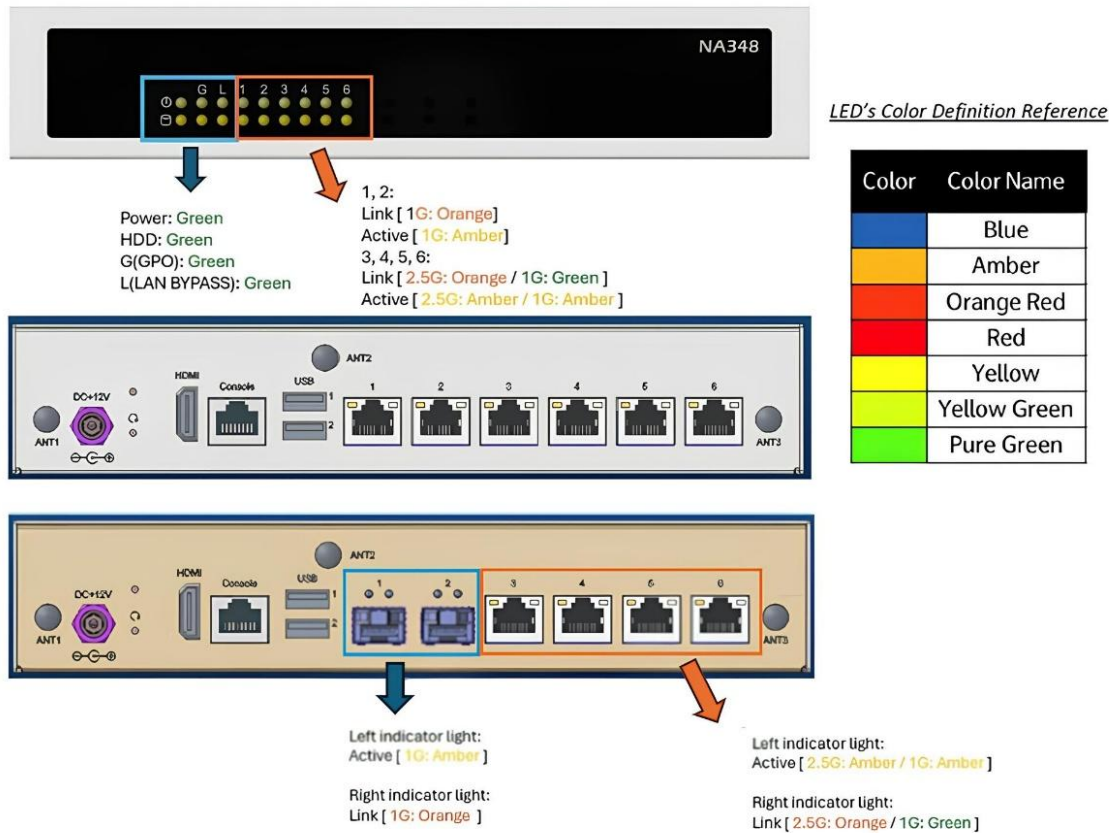
Front Side



Rear Side



1.7 LED Behavior



1.8 Packing List

The package bundled with your NA348 should contain the following items:

- NA348 System Unit x 1
- Power adapter x 1
- US Power Cord x 1
- 7P SATA Cable x 1
- SATA Power Cable x 1
- Rubber Feet Pad x 4
- Screws for 2.5" SSD and M.2

If you cannot find this package or any items are missing, please contact Axiomtek distributors immediately.

1.9 Model List

NA348-x7211RE-A (P/N: TBD)	1U desktop with Intel Atom® x7211RE processor (2C 3.2 GHz 6W), two 1G SFP, four 2.5GbE RJ-45 LAN, supporting 1 LBP, and TPM 2.0
NA348-x7211RE-B (P/N: E26E348100)	1U desktop with Intel Atom® x7211RE processor (2C 3.2 GHz 6W), two 1G RJ-45, four 2.5GbE RJ-45 LAN, supporting 1 LBP, and TPM 2.0
NA348-x7433RE-C (P/N: TBD)	1U desktop with Intel Atom® x7433RE processor (4C 3.4 GHz 9W), two 1G RJ-45, four 2.5GbE RJ-45 LAN, supporting 1 LBP, and TPM 2.0
NA348-x7433RE-D (P/N: E26E348101)	1U desktop with Intel Atom® x7433RE processor (4C 3.4 GHz 9W), two 1G SFP, four 2.5GbE RJ-45 LAN, supporting 1 LBP, and TPM 2.0
NA348-x7425E-E (P/N: TBD)	1U desktop with Intel Atom® x7425E processor (4C 3.4 GHz 12W), two 1G RJ-45, four 2.5GbE RJ-45 LAN, supporting 1 LBP, and TPM 2.0

SECTION 2 HARDWARE INSTALLATION

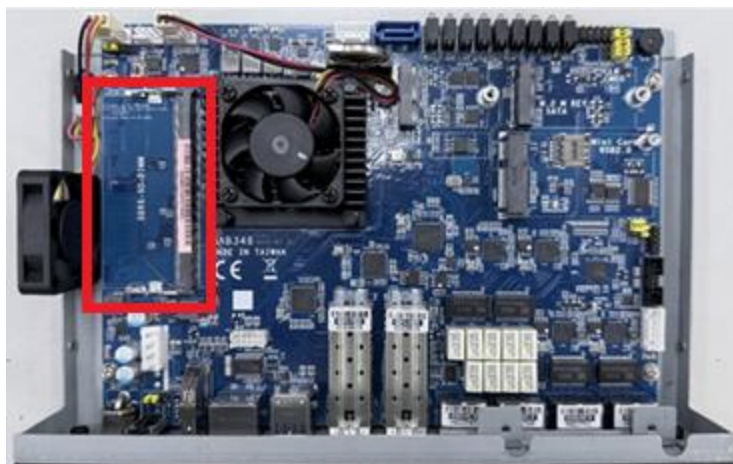
The NA348 is convenient for your various hardware configurations, such as Memory Module, HDD (Hard Disk Drive), SSD (Solid State Drive) and mini card slot. Chapter 2 will show you how to install the hardware.

2.1 Installing of the Memory module

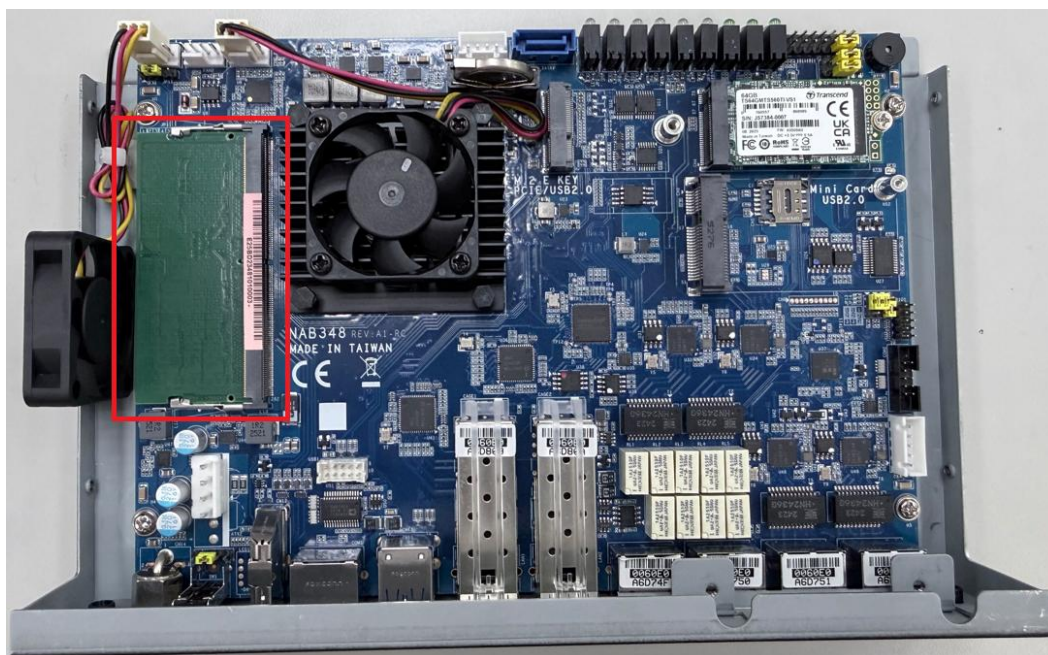
- Step 1 Turn off the system and unplug the power cord.
- Step 2 Turn the system upside down to locate screws at the side of the system, and then loosen six screws and hex nut.
- Step 3 Remove the top cover.



- Step 4 Holding the DDR5 SO-DIMM at a 30-degree angle up from horizontal; slowly insert the golden fingers into the DDR5 SO-DIMM slot until it is fully inserted in.



Step 5 Press it down gently, until it is firmly seated by locking two latches on the sides.



Step 6 Put the top cover back and fasten all screws.

2.2 Installing of the M.2 SSD Card

Step 1 Turn off the system and unplug the power cord.

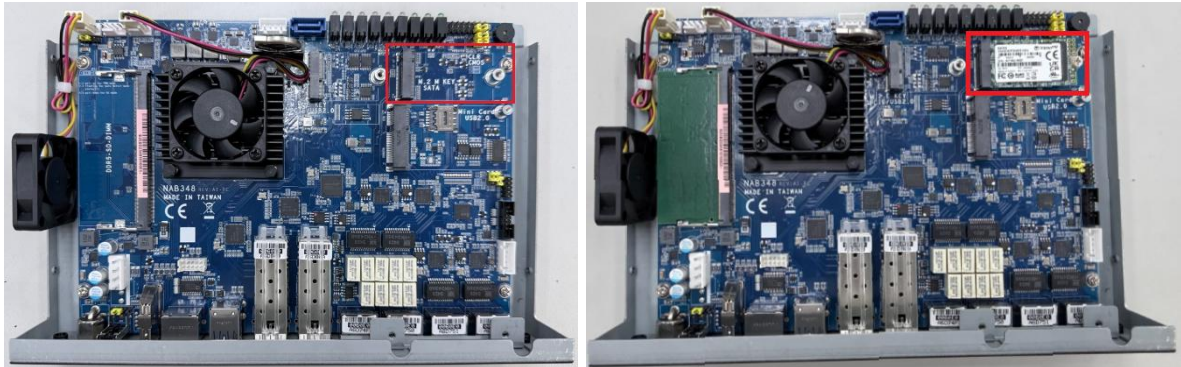
Step 2 Turn the system upside down to locate screws at the side of the system, and then loosen six screws and hex nut.

Step 3 Remove the top cover.



Step 4 Locate M.2 SSD card slot on the board.

- Step 5 Holding the M.2 SSD card at a 45-degree angle up from horizontal; slowly insert the golden fingers into the slot until it is fully inserted in and fasten screws.



- Step 6 Put the bottom cover back and fasten all screws.

2.3 Installing of the 2.5"SATA Device

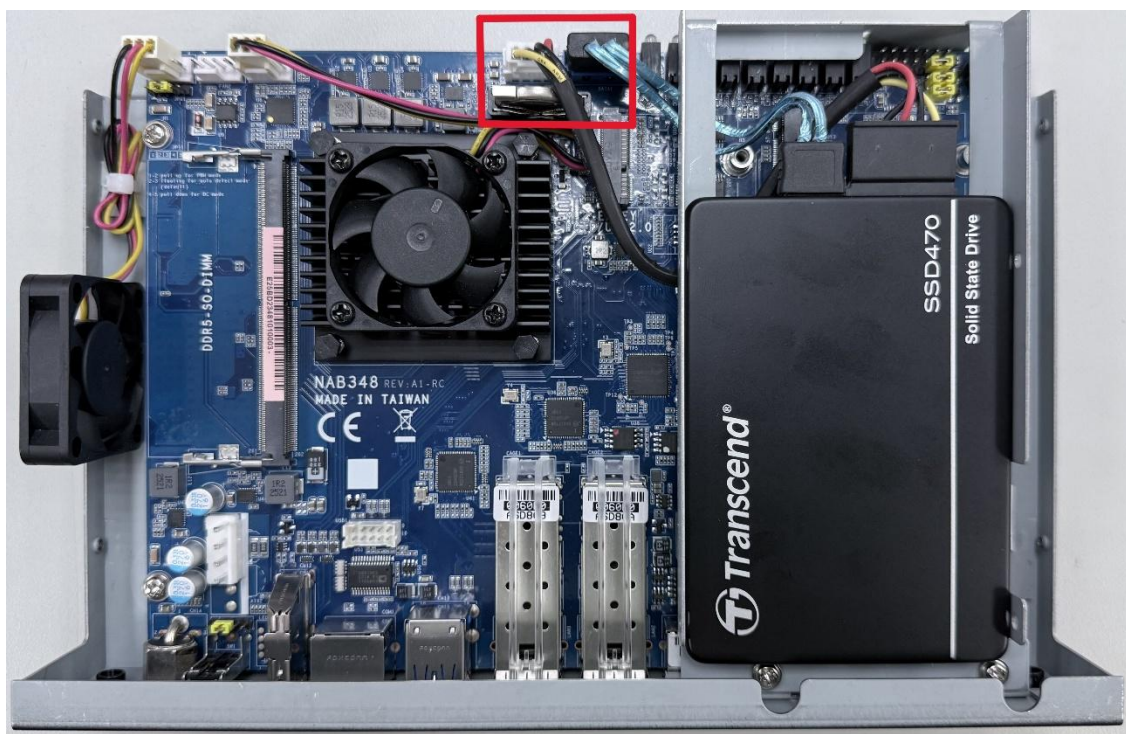
- Step 1 Turn off the system and unplug the power cord.
- Step 2 Turn the system upside down to locate screws at the side of the system, and then loosen ten screws and hex nut.
- Step 3 Remove the top cover.



Step 4 Assemble the HDD/SSD with the bracket by two M3*4L screws.



Step 5 Connect the power cable and SATA cable with HDD/SSD, and affix it with four M3*4L screws.



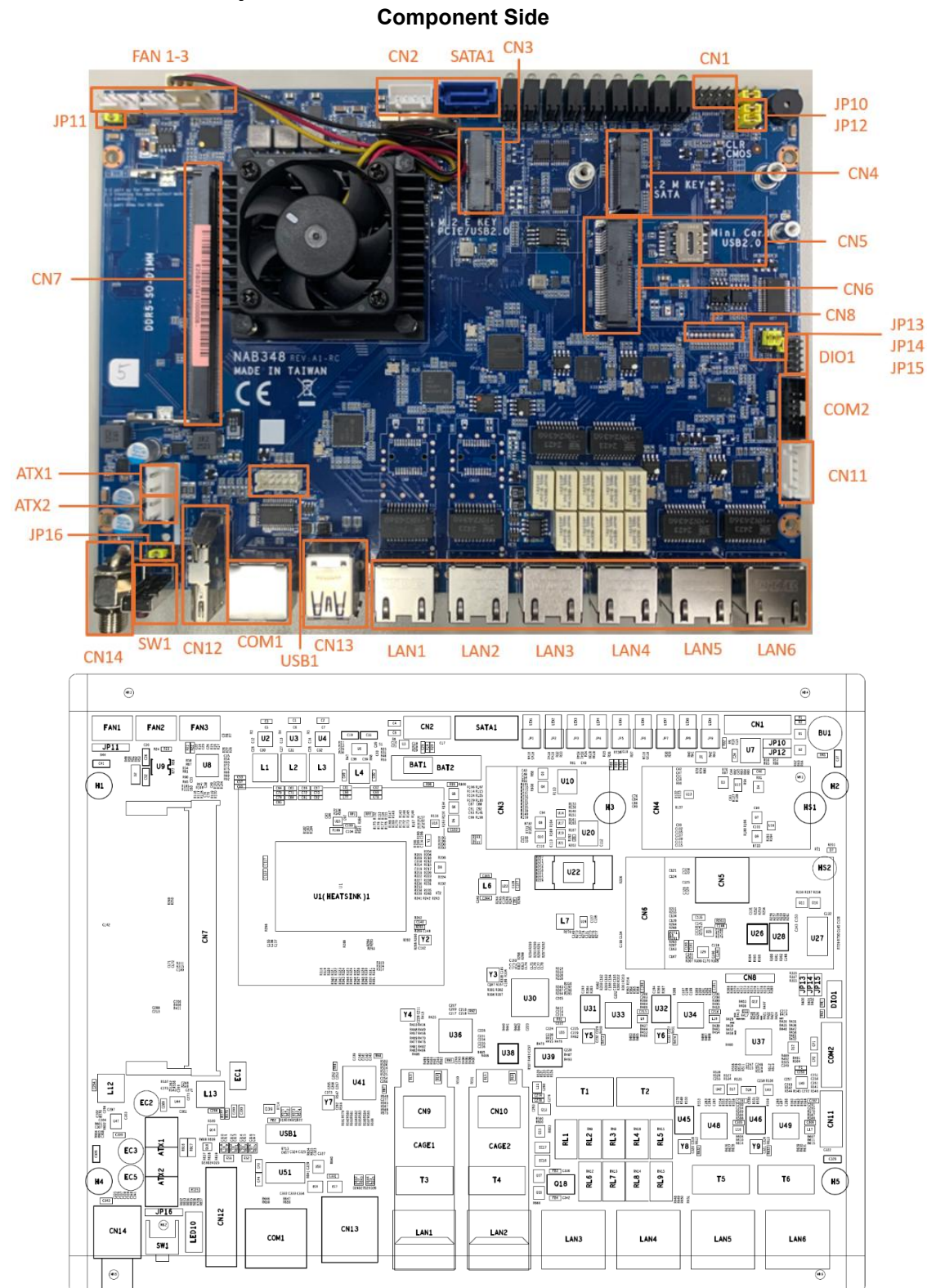
Note: Please notice the direction of connector and locating pins for HDD/SSD.

Step 6 Put the top cover back and fasten all screws.

SECTION 3 JUMPER SETTING & CONNECTOR

Proper jumper settings configure the **NA348** to meet your application purpose. We are herewith listing a summary table of all jumpers and default settings for onboard devices, respectively.

3.1 NAB348 layout

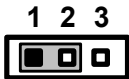
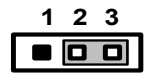


3.2 Jumper Setting

This section provides information about jumpers and connectors of NA348 Series. Proper jumper settings configure the main board in this appliance to meet your application purpose. We are herewith listing a summary table of all jumpers and default settings for onboard devices, respectively.

Jumper	Definition	Jumper Settings	Function
JP10	Auto Power Button Mode Selection	Short (1-2)	Auto Power On (Default)
		Short (2-3)	Reserved
JP12	RTC Well Reset & Restore BIOS optional defaults	Short (1-2)	Normal (Default)
		Short (2-3)	RTC Well Reset & Restore BIOS optional defaults
JP13 JP14 JP15	LAN By-Pass Trigger when Power On	JP13 Short (1-2) JP14 short (1-2) JP15 short (1-2)	All SEG. Bypass as same as Power Off status
		JP13 Short (1-2) JP14 short (2-3) JP15 short (2-3)	All SEG Bypass Enable
		JP13 Short (1-2) JP14 short (1-2) JP15 short (2-3)	All SEG Bypass Disable (Default)
JP11	FAN Mode	Short (1-2)	PWM Mode
		Short (2-3)	auto detect mode(default)
		Short (4-5)	DC Mode
JP16	TACT SW1 Lower Button Function Selection	Short (1-2)	Power On/Off
		Short (2-3)	Reset (Default)
		Short (4-5)	GPI

3.2.1 Auto Power Button Mode Selection (JP10)

Description	Function	Jumper Setting
Auto Power Button Mode Selection	Auto Power On (Default)	
	Reserved	

3.2.2 RTC Well Rest Selection & Restore BIOS Optimal Defaults Jumper (JP12)

Description	Function	Jumper Setting
RTC Well Rest Selection	Normal (Default)	1 2 3 
	RTC Well Rest & Restore BIOS defaults	1 2 3 

3.2.3 LAN Bypass Control Jumper (JP13, JP14, JP15)

Use these jumpers to select the LAN Bypass Function.

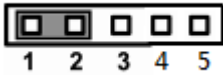
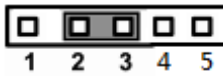
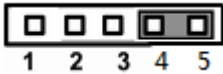
Description	Function	Jumper Setting
LAN Bypass Trigger When Power On	All SEG. Bypass as same as Power Off status	JP13 1 2 3  JP14 1 2 3  JP15 1 2 3 
	All SEG Bypass Enable	JP13 1 2 3  JP14 1 2 3  JP15 1 2 3 
	All SEG Bypass Disable (Default)	JP13 1 2 3  JP14 1 2 3  JP15 1 2 3 



NOTE: When the system is turned on, you can select the LAN bypass function by jumper and BIOS when power on state, when enter the OS, you can select LAN Bypass function at power on/ off state by software, the detail information please refer to the appendix A.

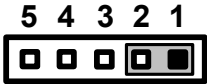
3.2.4 FAN mode Function Selection Jumper (JP11)

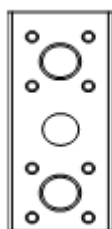
Use this jumper to select the FAN Mode Function.

Description	Function	Jumper Setting
FAN mode	PWM mode	
	auto detect mode (default)	
	DC mode	

3.2.5 TACT SW1 Selection (JP16)

Use this jumper to select the TACT SW1 Function.

Description	Function	Jumper Setting
TACT SW1 Lower Button Function Selection	Power On/Off	
	Reset (Default)	
	GPI	



NOTE: If you need GPI sample codes, please contact our FAE directly, and they are for reference purposes only.

3.3 Connectors

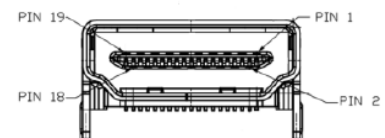
Connectors connect the board with other parts of the system. Loose or improper connection might cause problems. Make sure all connectors are properly and firmly connected. Here is a summary table shows you all connectors on the main board.

Connectors	Label
HDMI Connector	CN12
USB 3.2 Gen2x1 Port	CN13
SIM Card	CN5
MINI PCIe Full	CN6
LCM Connector (optional)	CN11
SATA Power connector	CN2
DC IN Power Jack	CN14
Internal USB2.0 box (optional)	USB1
System FAN	FAN1
AUX FAN (optional)	FAN2
CPU FAN	FAN3
Front panel	CN1
SATA port	SATA1
Console Port	COM1
COM Port (optional)	COM2
Digital IO (optional)	DIO1
LAN port	LAN1~6
DC power switch (optional)	ATX1
DC power in (optional)	ATX2
M.2 E Key 2230	CN3
M.2 M Key 2242	CN4

3.3.1 HDMI Connector (CN12)

The HDMI (High-Definition Multimedia Interface) is a compact digital interface which is capable of transmitting high-definition video and high-resolution audio over a single cable.

Pin	Signal	Pin	Signal
1	HDMI_DATA2+	2	GND
3	HDMI_DATA2-	4	HDMI_DATA1+
5	GND	6	HDMI_DATA1-
7	HDMI_DATA0+	8	GND
9	HDMI_DATA0-	10	HDMI_CLK+
11	GND	12	HDMI_CLK-

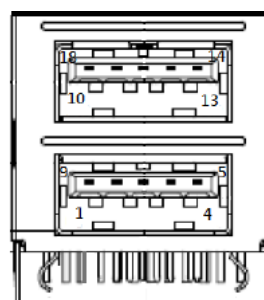


13	NC	14	NC
15	HDMI_SPC	16	HDMI_SPD
17	GND	18	+5V
19	HDMI_HTPLG		

3.3.2 USB 3.2 Gen2x1 Port (CN13)

The Universal Serial Bus connectors are compliant with USB 3.2 Gen2x1 and ideal for installing USB peripherals such as keyboard, mouse, cameras and USB devices.

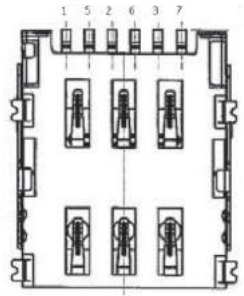
Pin	Signal	Pin	Signal
1	+VBUS	2	USBD0-
3	USBD0+	4	GND
5	SSRX0-	6	SSRX0+
7	GND	8	SSTX0-
9	SSTX0+	10	+VBUS
11	USBD1-	12	USBD1+
13	GND	14	SSRX1-
15	SSRX1+	16	GND
17	SSTX1-	18	SSTX1+



3.3.3 SIM Card (CN5)

In order to work properly, the SIM card must be used together with Mini Card (CN6) which is inserted to socket CN5. It is mainly used in LTE wireless network applications.

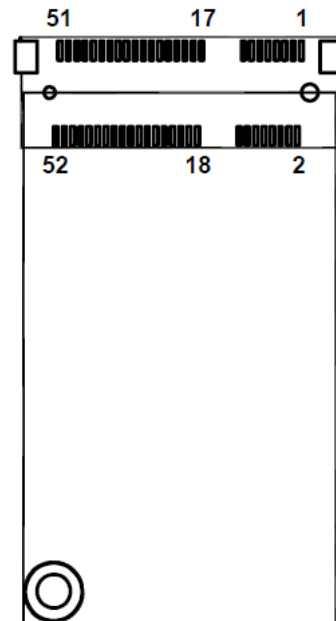
Pin	Signal
1	SIM_PWR
2	SIM_REST
3	SIM_CLK
5	Ground (GND)
6	SIM_VPP
7	SIM_DATA



3.3.4 MINI PCIe Full (CN6)

The CN6 is mini PCIe full, it supports USB2.0 single only, with SIM slot CN5.

Pin	Signal	Pin	Signal
1	WAKE#	2	+3.3VSB
3	No use	4	GND
5	No use	6	+1.5V
7	CLKREQ#	8	SIM_PWR
9	GND	10	SIM_DATA
11	No use	12	SIM_CLK
13	No use	14	SIM_REST
15	GND	16	SIM_VPP
17	No use	18	GND
19	No use	20	W_DISABLE#
21	GND	22	PERST#
23	No use	24	+3.3VSB
25	No use	26	GND
27	GND	28	+1.5V
29	GND	30	SMB_CLK
31	No use	32	SMB_DATA
33	No use	34	GND
35	GND	36	USB_D-
37	GND	38	USB_D+
39	+3.3VSB	40	GND
41	+3.3VSB	42	LED_WWAN#
43	GND	44	LED_WAN#

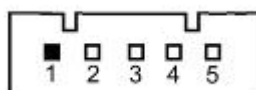


45	No use	46	LED_WPAN#
47	No use	48	+1.5V
49	No use	50	GND
51	No use	52	+3.3VSB

3.3.5 LCM Connector (CN11) (Optional)

This is a 5-pin connector for LCM control board (Co-lay RX/TX/RTS of COM2).

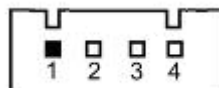
Pin	Signal
1	+5V
2	NRXD
3	NRTS
4	NTXD
5	GND



3.3.6 SATA Power Connector (CN2)

The SATA power connector is for providing power to HDD/SSD devices.

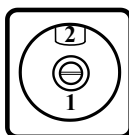
Pin	Signal
1	+5V
2	GND
3	GND
4	+12V



3.3.7 DC IN Power Jack (CN14)

DC (+12V) power supplied to system by connecting the power jack. Please make sure all components and devices are properly installed before connecting the power jack.

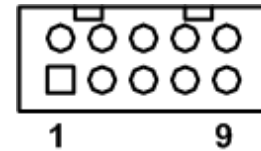
Pin	Signal
1	+12V
2	Ground (GND)



3.3.8 Internal USB2.0 box (USB1) (Optional)

The 10-pin standard Universal Serial Bus 2.0(USB2.0) connector on this board is for installing versatile USB interface peripherals.

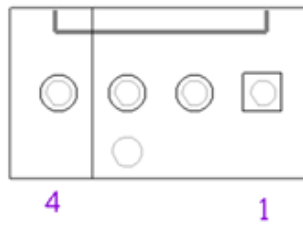
Pin	Signal	Pin	Signal
1	VBUS0	2	VBUS1
3	USB4-	4	USB3-
5	USB4+	6	USB3+
7	GND	8	GND
9	GND	10	GND



3.3.9 Fan Connectors (FAN1, FAN2, FAN3)

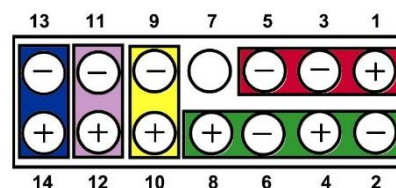
These fans are always needed to cool down CPU and system temperature. FAN1~FAN3 connectors provide power to these system fans. These fan connectors have a Smart Fan feature; they automatically adjust the fan speed based on CPU or system temperature. FAN1 and FAN2 connectors are controlled by the system temperature. FAN3 connector is controlled by the CPU temperature.

Pin	Signal
1	GND
2	+12V level
3	Sensor
4	PWM



3.3.10 Front Panel (CN1)

Pin	Signal	Pin	Signal
1	PWRLED+	2	EXT SPEAKER-
3	GND	4	Buzzer
5	PWRLED-	6	N.C.
7	N.C.	8	EXT SPK+
9	PWRSW-	10	PWRSW+
11	HW RST-	12	HW RST+
13	HDDLED-	14	HDDLED+



Power LED :

This 3-pin connector (Pin 1, 3, 5) connects an LED indicator to the system power switch on the case. Pin 1 is assigned as +, and Pin 3, Pin 5 as -. The Power LED lights up when the system is powered ON.

External Speaker and Internal Buzzer Connector :

This 4-pin connector (Pin 2, 4, 6, 8) can be connected to the case-mounted speaker unit or internal buzzer. While connecting the CPU card to an internal buzzer, please short pins 2-4; while connecting to an external speaker, you need to set pins 2-4 to Open and connect the speaker cable to pin 8 (+) and pin 2 (-).

ATX Power On/Off Button :

This 2-pin connector (Pin 9, 10) connects the front panel's ATX power button to the CPU card, which allows users to control ATX power supply to be power on/off.

System Reset Switch :

This 2-pin connector (Pin 11, 12) can be connected to the case-mounted reset switch that reboots your computer instead of turning OFF the power switch. It is a better way to reboot your system for a longer life of the system's power supply.

HDD Activity LED :

This connection is linked to hard drive activity LED on the control panel. LED flashes when HDD is being accessed. The 2-pin connector (Pin 13, 14) connects the hard disk drive to the front panel HDD LED, Pin 13 assigned as -, and Pin 14 as +.

3.3.11 SATA Connector (SATA1)

These Serial Advanced Technology Attachment (SATA) connectors are for high-speed SATA interface ports. They are computer bus interfaces for connecting to devices such as serial ATA hard disk drives. Each SATA connector supports a single SATA device.

Pin	Signal
1	GND
2	TX+
3	TX-
4	GND
5	RX-
6	RX+

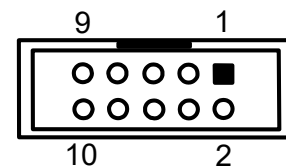


7	GND
---	-----

3.3.12 COM2 Port (COM2) (Optional)

The COM port pin assignments are listed on the following table. (Co-lay RX/TX/RTS of LCM connector/CN11)

Pin	Signal	Pin	Signal
1	DCD2	2	DSR2
3	RXD2	4	RTS2
5	TXD2	6	CTS2
7	DTR2	8	NRI2
9	GND	10	NC



3.3.13 Console Port (COM1)

The COM1 Port connector is an RJ-type connector.

For initial setup, connect to the device using the RJ-45 console port with a standard cable and terminal emulator. The default rate is 115200.

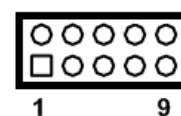
Pin	Signal	Pin	Signal
1	RTS1	2	DTR1
3	TXD1	4	GND
5	GND	6	RXD1
7	DSR1	8	CTS1



3.3.14 Digital IO (DIO1) (Optional)

The board is equipped with an 8-channel (4 inputs and 4 outputs) digital I/O connector that meets requirements for a system customary automation control. The digital I/O can be configured to control cash drawers and sense warning signals from an Uninterrupted Power System (UPS) or perform store security control. You may use software programming to control these digital signals.

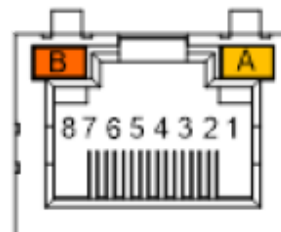
Pin	Signal	Pin	Signal
1	GND	2	GND
3	GPO3	4	GPI3
5	GPO2	6	GPI2



7	GPO1	8	GPI1
9	GPO0	10	GPI0

3.3.15 LAN Port (LAN1-LAN2)

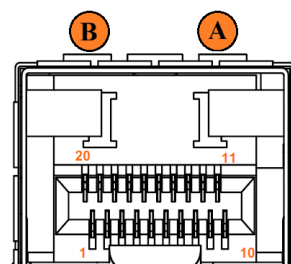
Pin	Signal	Pin	Signal
1	MDI0+	2	MDI0-
3	MDI1+	4	MDI2+
5	MDI2-	6	MDI1-
7	MDI3+	8	MDI3-
A	100 LAN LED (Green)/ 1000 LAN LED (Amber)		
B	Active LED (Orange)		



LAN Port (LAN1-LAN2)(Fiber)

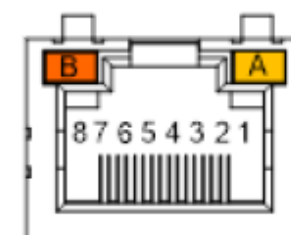
Copper and Fiber Co-lay.

Pin	Signal	Pin	Signal
1	Ground (GND)	2	TX Fault
3	TX Disable	4	SDA
5	SCL	6	MOD_ABS
7	RS0	8	RX_LOS
9	Ground (GND)	10	Ground (GND)
11	Ground (GND)	12	RD-
13	RD+	14	Ground (GND)
15	VCCR (+3.3V Level)	16	VCCR (+3.3V Level)
17	Ground (GND)	18	TD+
19	TD-	20	Ground (GND)
A	1000 LAN LED (Amber)		
B	Active LED (Orange)		



LAN Port (LAN3-LAN6)

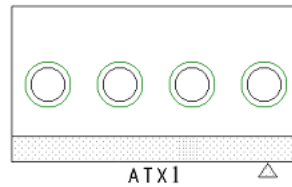
Pin	Signal	Pin	Signal
1	MDI0+	2	MDI0-
3	MDI1+	4	MDI2+
5	MDI2-	6	MDI1-
7	MDI3+	8	MDI3-
A	1000 LAN LED (Green)/ 2500LAN LED (Amber)		
B	Active LED (Orange)		



3.3.16 DC Power Switch (ATX1) (Optional)

This connector can be connected to a power switch to turn the power supply input on and off.

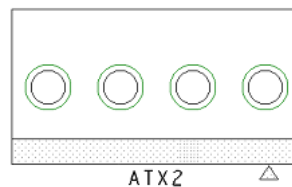
Pin	Signal
1	+12V
2	+12V
3	+12V_SYS
4	+12V_SYS



3.3.17 DC Power In (ATX2) (Optional)

+12V power supplied on the board by connecting the power connector. (Reserved For Rack Mount system)

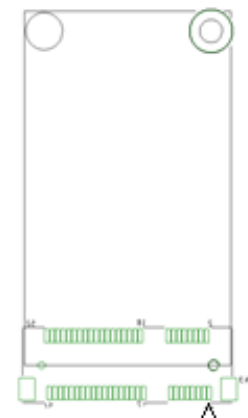
Pin	Signal
1	+12V
2	+12V
3	GND
4	GND



3.3.18 M.2 E Key 2230 (CN3)

The CN3 is M.2 E-Key socket, it supports USB 2.0 single and PCIe1 Gen3 signal

1	GND	2	+V3.3_SBY
3	USB_D+	4	+V3.3_SBY
5	USB_D-	6	No use
7	GND	8	No use
9	No use	10	No use
11	No use	12	No use
13	No use	14	No use
15	No use	16	No use
17	No use	18	GND
19	No use	20	No use
21	No use	22	No use
23	No use		
		32	No use

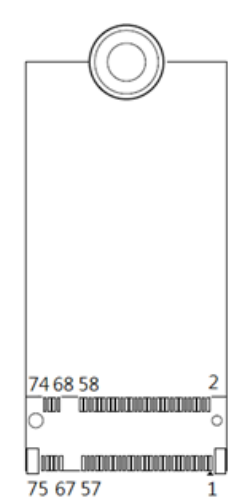


33	GND	34	No use
35	PET_P0	36	No use
37	PET_N0	38	CL_RST
39	GND	40	CL_DATA
41	PER_P0	42	CL_CLK
43	PER_N0	44	No use
45	GND	46	No use
47	REFCLK_P0	48	No use
49	REFCLK_N0	50	SUSCLK
51	GND	52	PERST
53	CLKREQ	54	W_DIS2
55	PEWAKE	56	W_DIS1
57	GND	58	I2C_DATA
59	No use	60	I2C_CLK
61	No use	62	No use
63	GND	64	No use
65	No use	66	No use
67	No use	68	No use
69	GND	70	No use
71	No use	72	+V3.3_SBY
73	No use	74	+V3.3_SBY
75	GND		

3.3.19 M.2 M Key 2242 (CN4)

The CN4 is M.2 M-Key socket, it supports SATA interface for Storage.

1	GND	2	+V3.3_SBY
3	GND	4	+V3.3_SBY
5	No use	6	No use
7	No use	8	No use
9	GND	10	LED
11	No use	12	+V3.3_SBY
13	No use	14	+V3.3_SBY
15	GND	16	+V3.3_SBY
17	No use	18	+V3.3_SBY
19	No use	20	No use
21	GND	22	No use



23	No use	24	No use
25	No use	26	No use
27	GND	28	No use
29	No use	30	No use
31	No use	32	No use
33	GND	34	No use
35	No use	36	No use
37	No use	38	DEVSLP
39	GND	40	No use
41	SATA0_RX_DP	42	No use
43	SATA0_RX_DN	44	No use
45	GND	46	No use
47	SATA0_TX_DN	48	No use
49	SATA0_TX_DP	50	PERST
51	GND	52	No use
53	No use	54	No use
55	No use	56	No use
57	GND	58	No use
67	No use	68	No use
69	No use	70	+V3.3_SBY
71	GND	72	+V3.3_SBY
73	GND	74	+V3.3_SBY
75	GND		

SECTION 4 BIOS SETUP UTILITY

This chapter provides users with detailed description how to set up basic system configuration through the BIOS setup utility.

4.1 Starting

To enter the setup screens, follow the steps below:

1. Turn on the computer and press the key immediately.
2. After you press the key, the main BIOS setup menu displays. You can access the other setup screens from the main BIOS setup menu, such as the Advanced and Chipset menus.

4.2 Navigation Keys

The BIOS setup/utility uses a key-based navigation system called hot keys. Most of the BIOS setup utility hot keys can be used at any time during the setup navigation process.

These keys include <F1>, <F10>, <Enter>, <ESC>, <Arrow> keys, and so on.



NOTE: *Some of the navigation keys differ from one screen to another.*

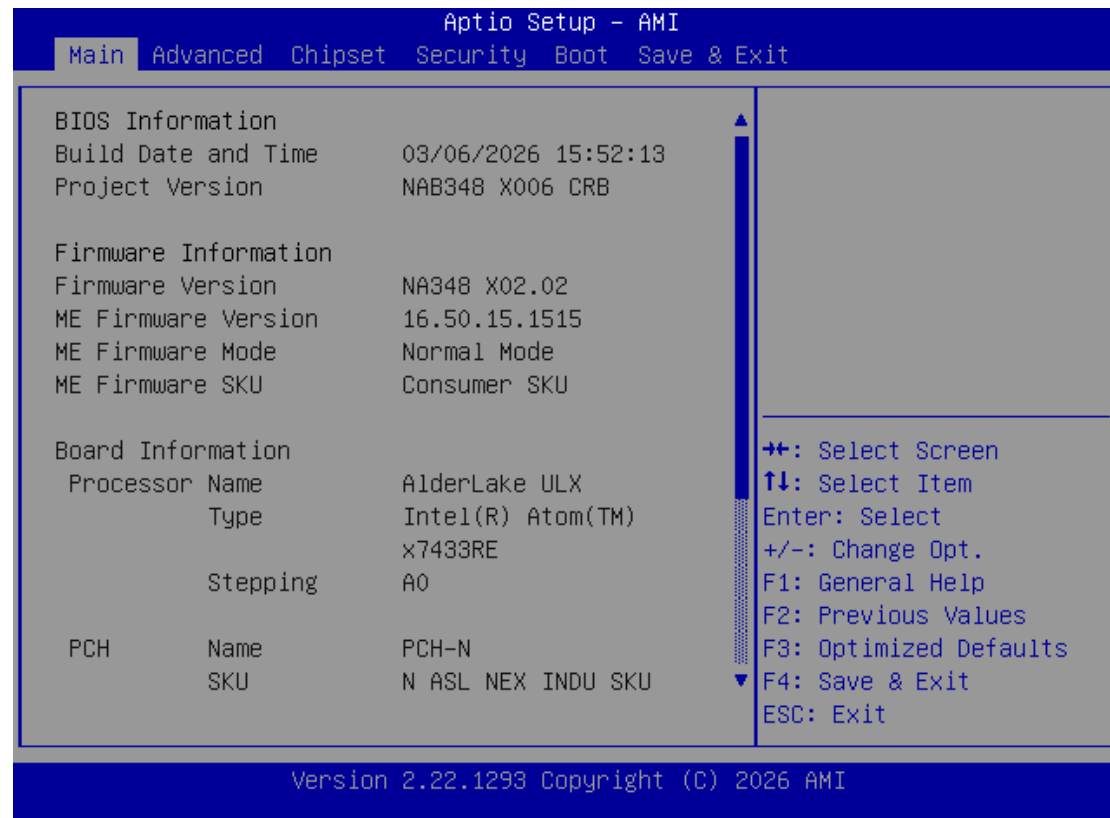
← Left/Right	The Left and Right <Arrow> keys allow you to select a setup screen.
↑↓ Up/Down	The Up and Down <Arrow> keys allow you to select a setup screen or sub-screen.
+– Plus/Minus	The Plus and Minus <Arrow> keys allow you to change the field value of a particular setup item.
Tab	The <Tab> key allows you to select setup fields.
F1	The <F1> key allows you to display the General Help screen.
F10	The <F10> key allows you to save any changes you have made and exit Setup. Press the <F10> key to save your changes.
Esc	The <Esc> key allows you to discard any changes you have made and exit the Setup. Press the <Esc> key to exit the setup without saving your changes.
Enter	The <Enter> key allows you to display or change the setup option listed for a particular setup item. The <Enter> key can also allow you to display the setup sub- screens.

4.3 Main Menu

When you first enter the Setup Utility, you will enter the Main setup screen. You can always return to the Main setup screen by selecting the Main tab. There are two Main Setup options. They are described in this section. The Main BIOS Setup screen is shown below.

System Time/Date

Use this option to change the system time and date. Highlight *System Time* or *System Date* using the <Arrow> keys. Enter new values through the keyboard. Press the <Tab> key or the <Arrow> keys to move between fields. The date must be entered in MM/DD/YY format. The time is entered in HH:MM:SS format.



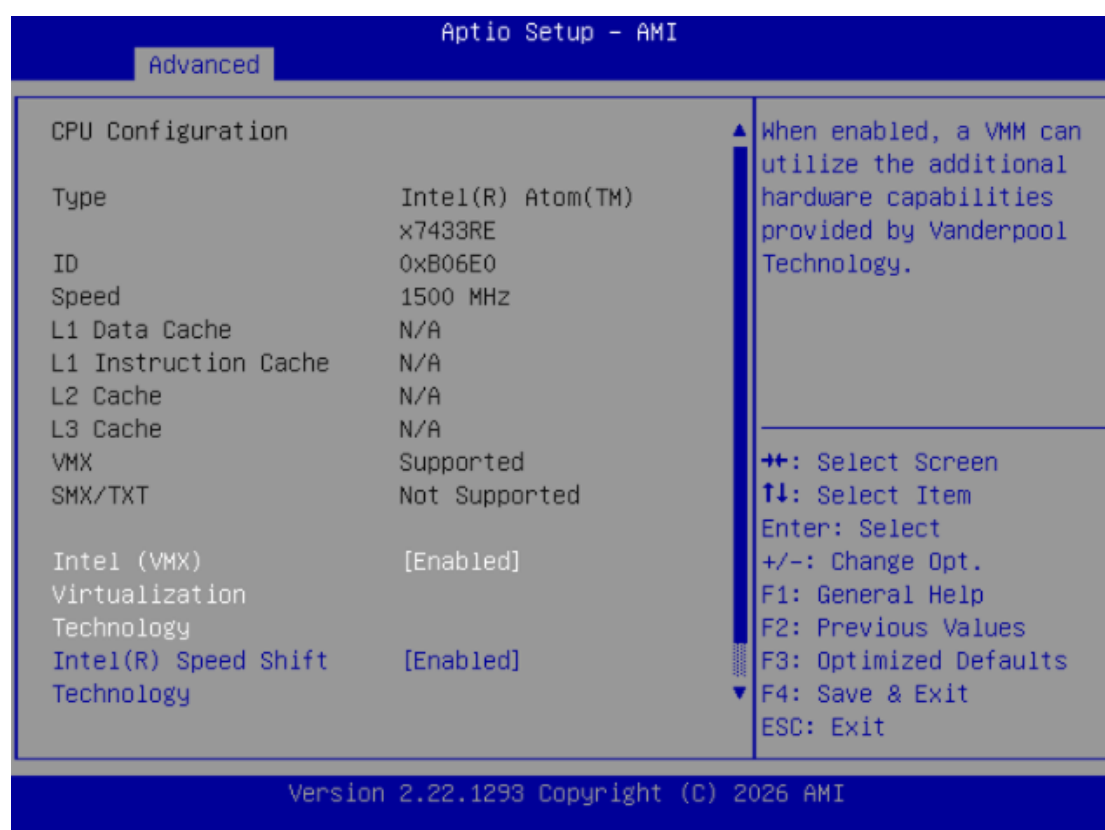
4.4 Advanced Menu

The Advanced menu also allows users to set configuration of the CPU and other system devices. You can select any of the items in the left frame of the screen to go to the sub menus:

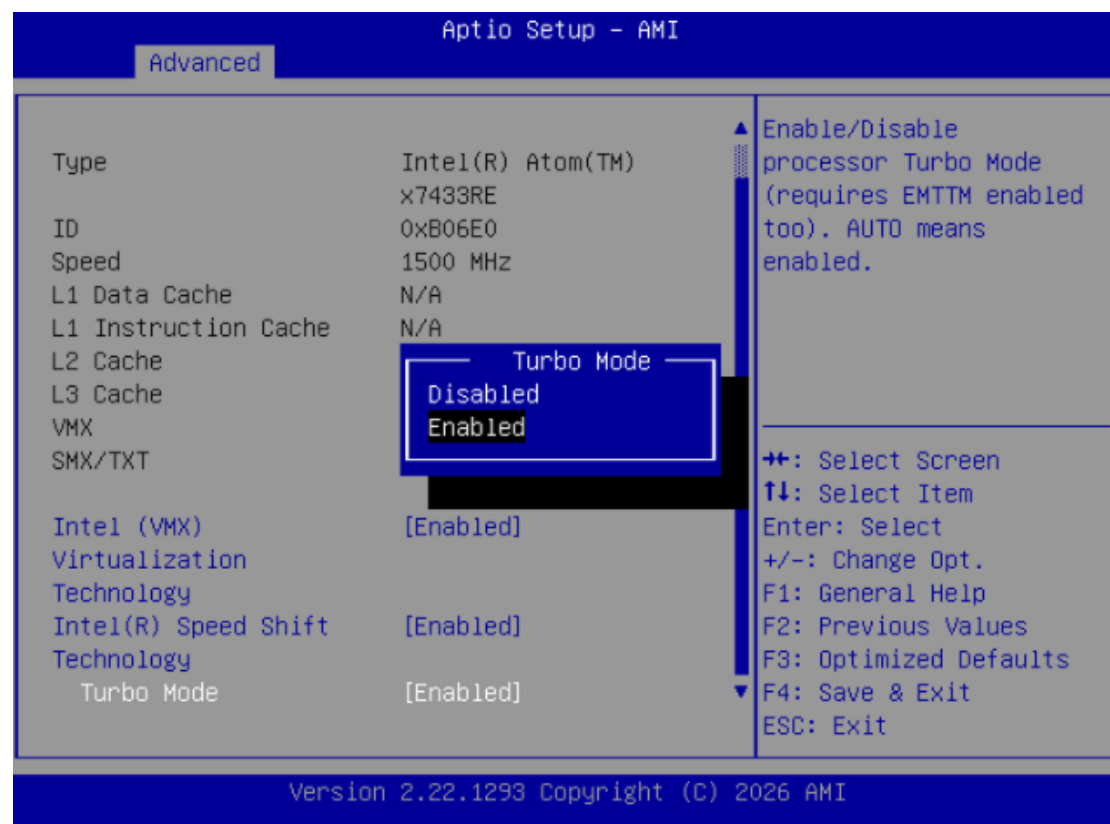
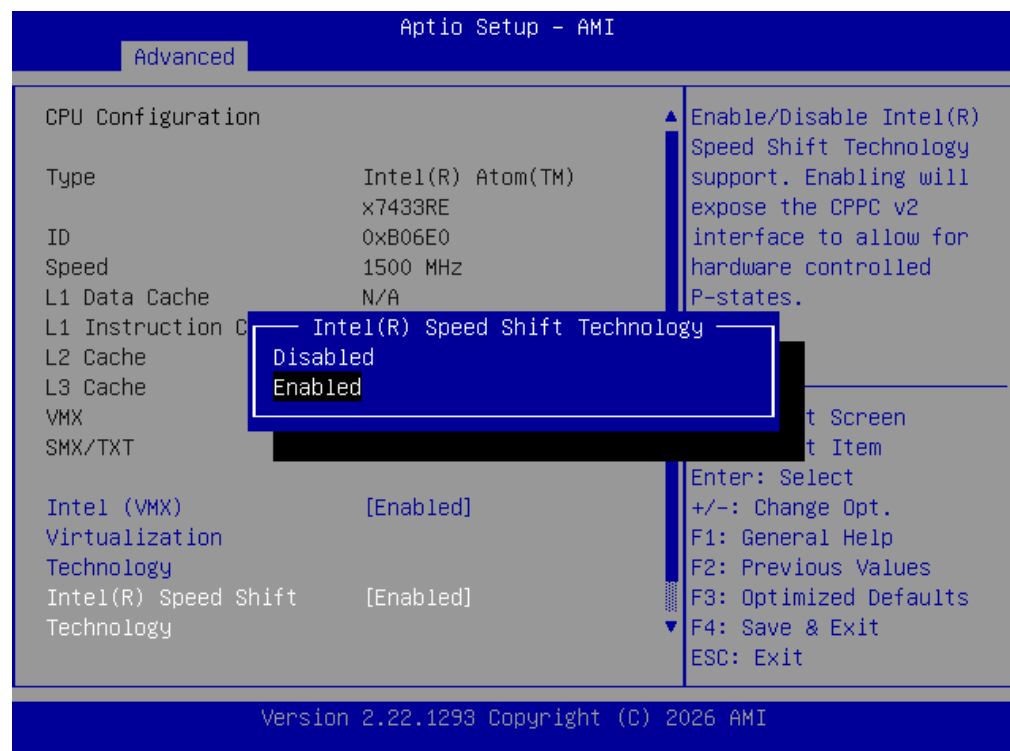
- ▶ CPU Configuration
- ▶ Trusted Computing
- ▶ Ec DIO Configuration
- ▶ Hardware Monitor
- ▶ LAN Bypass Configuration
- ▶ Serial Port Configuration
- ▶ Serial Port Console Redirection
- ▶ Storage Configuration
- ▶ USB Configuration

- **CPU Configuration**

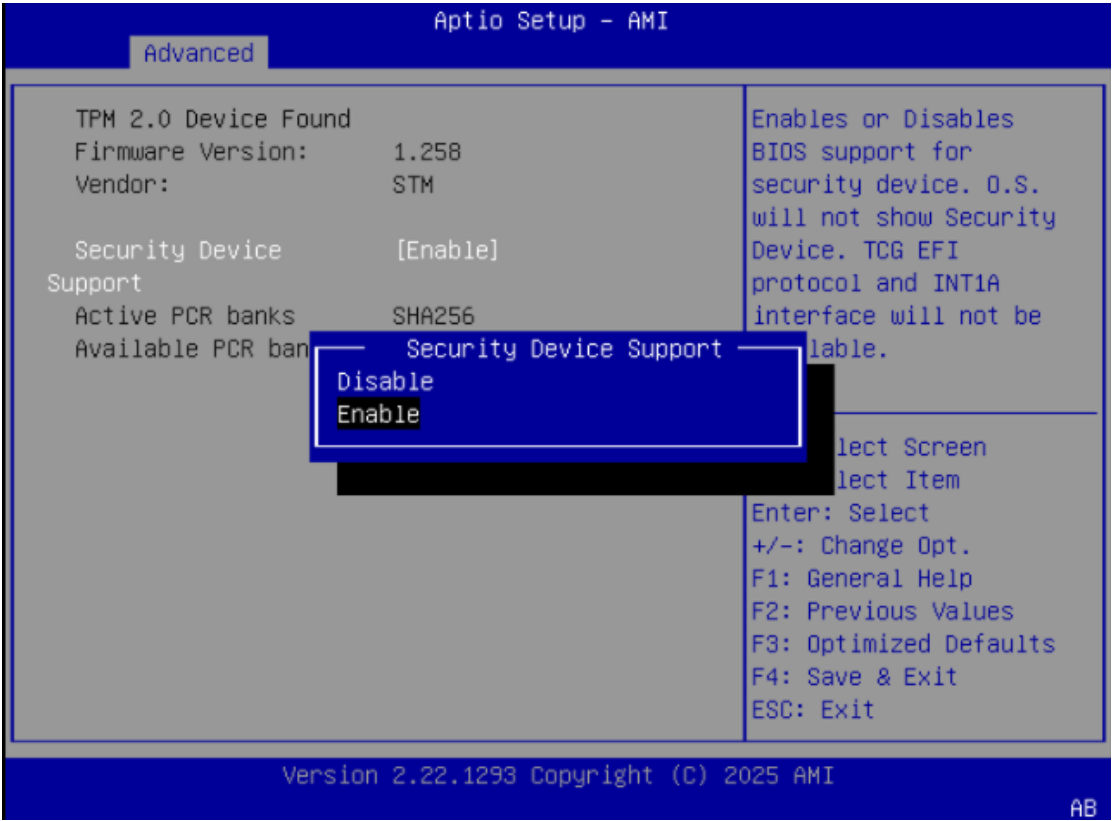
This screen shows the CPU Configuration.



Active Processor Cores setting

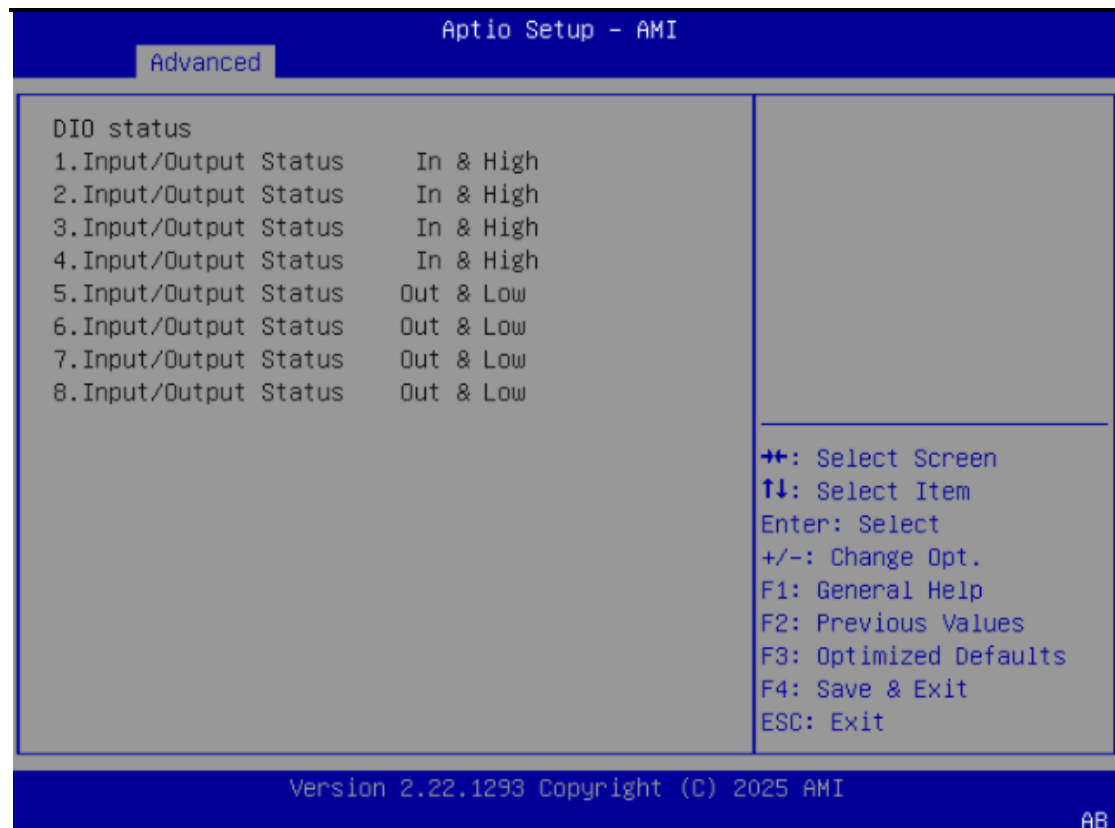


● Trusted Computing

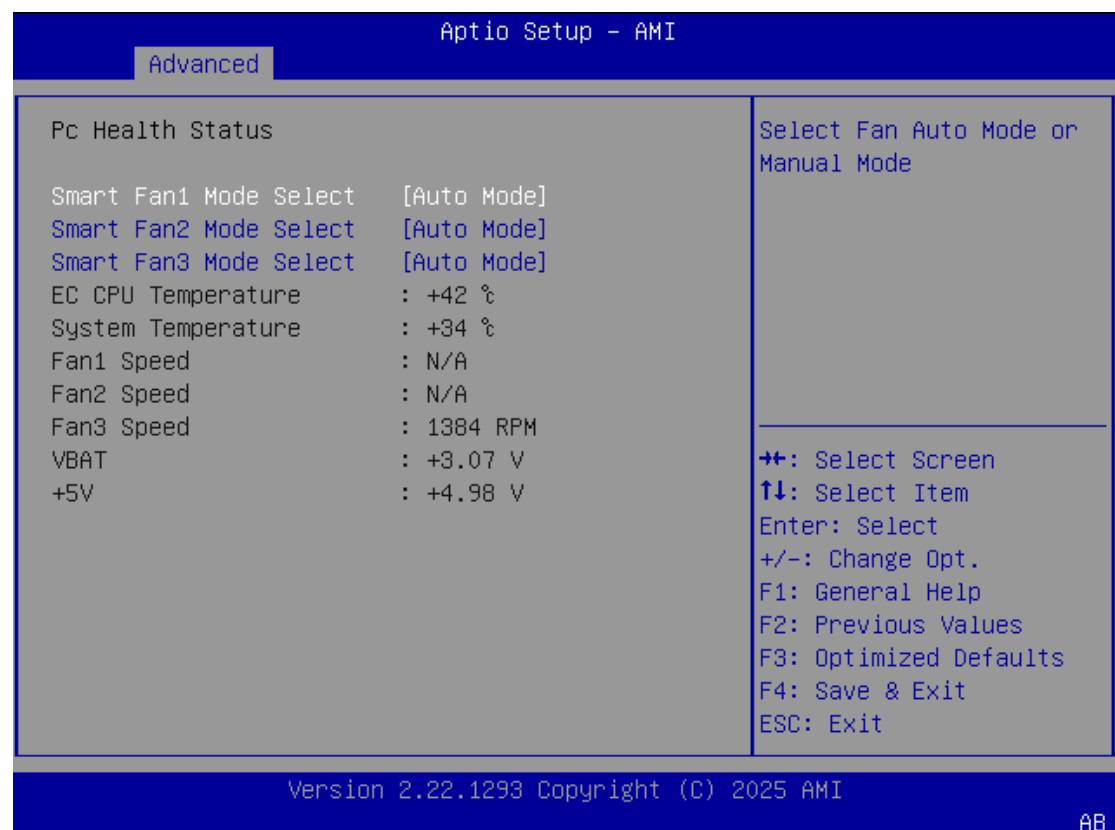


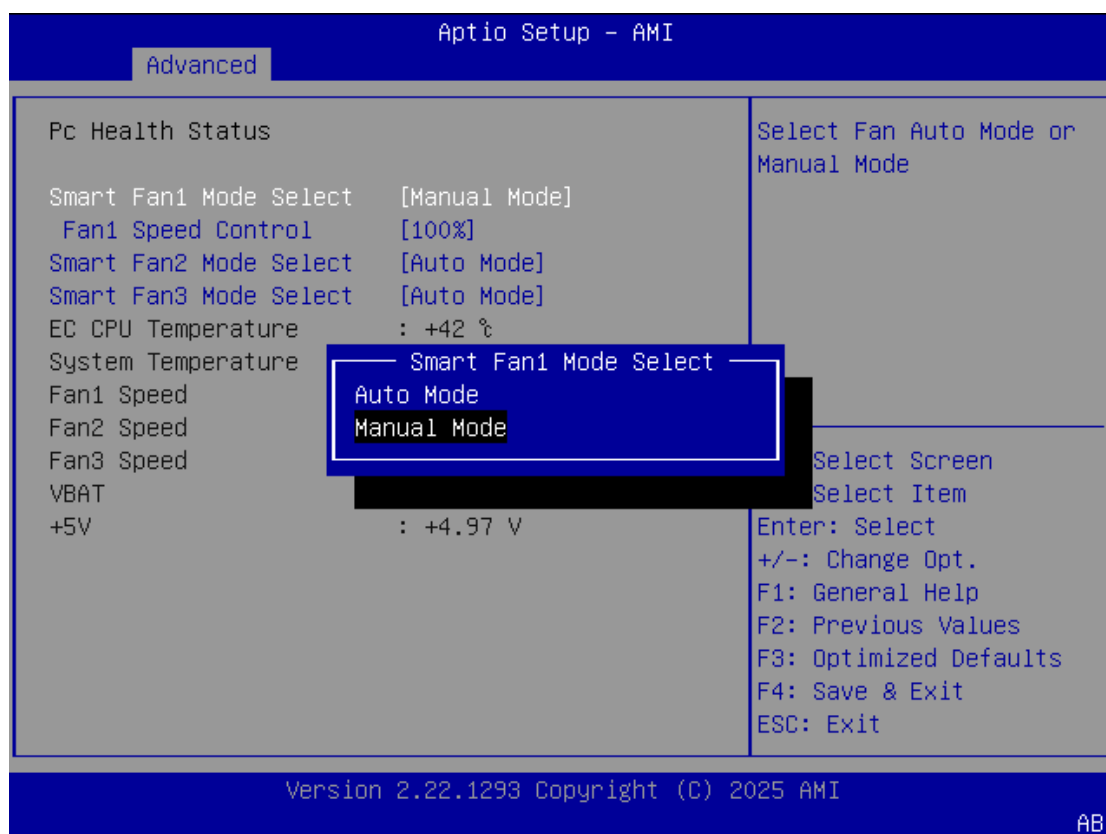
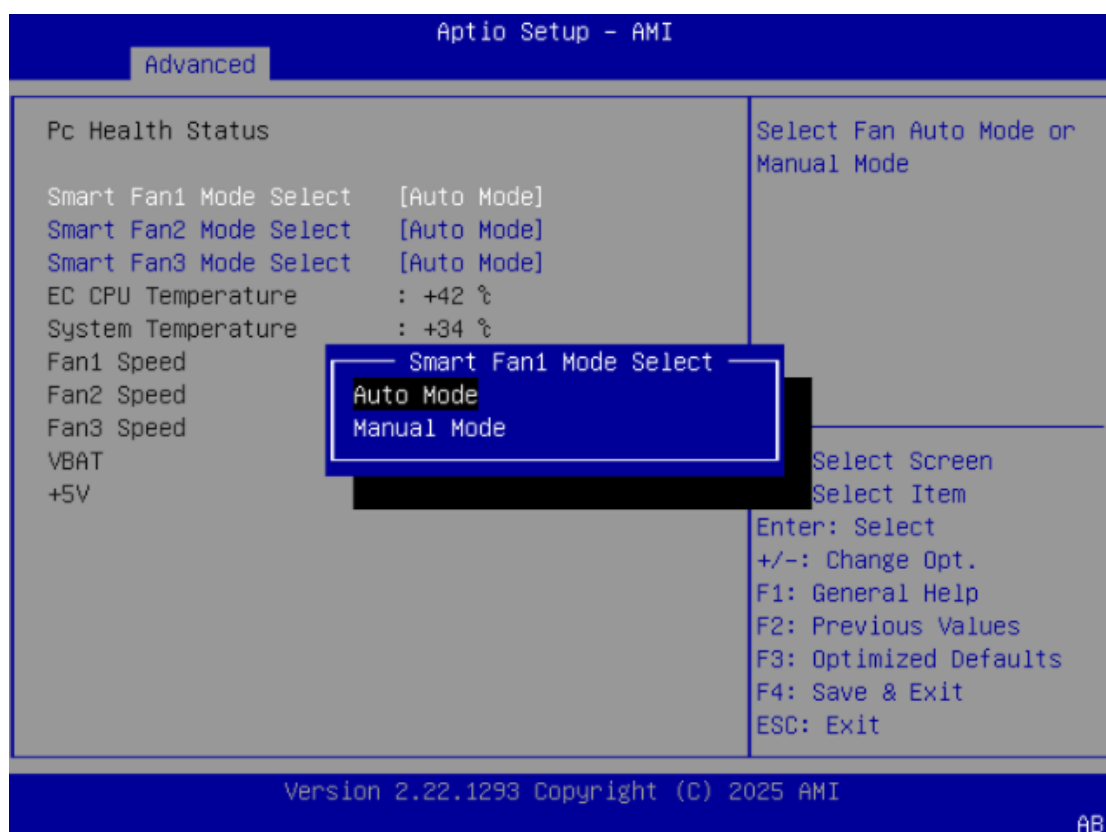
● Ec DIO Configuration



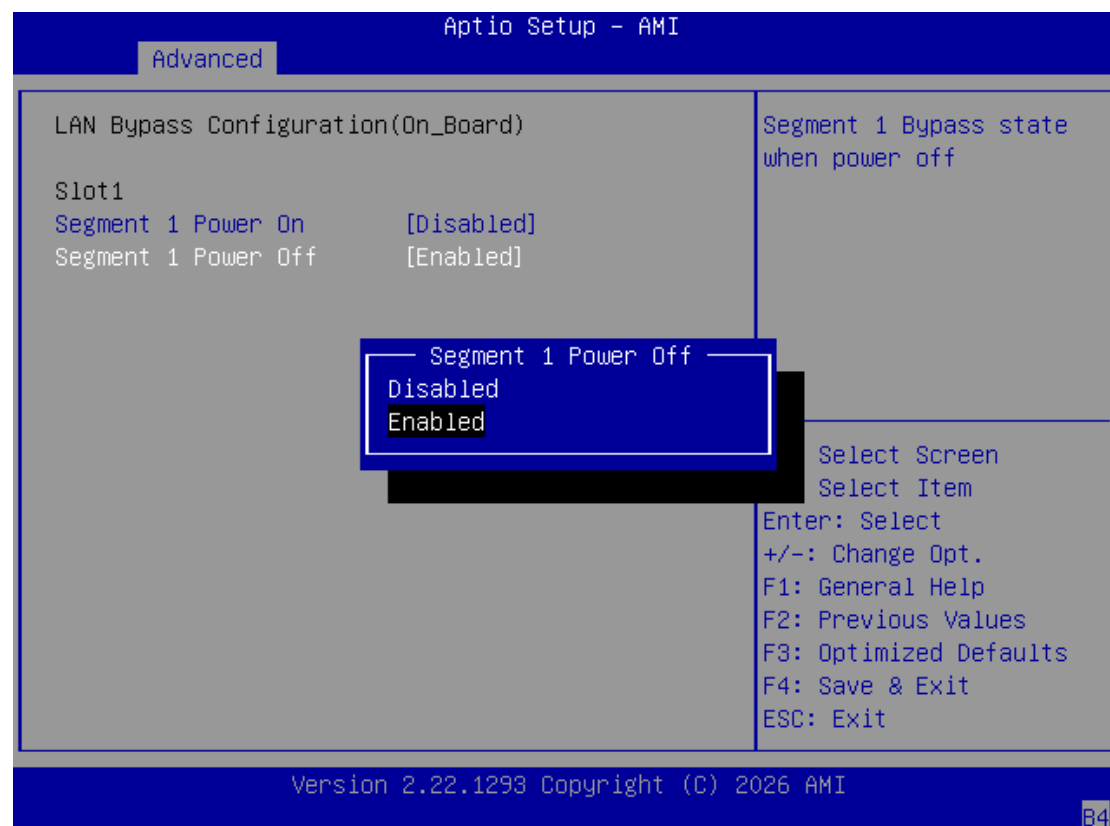
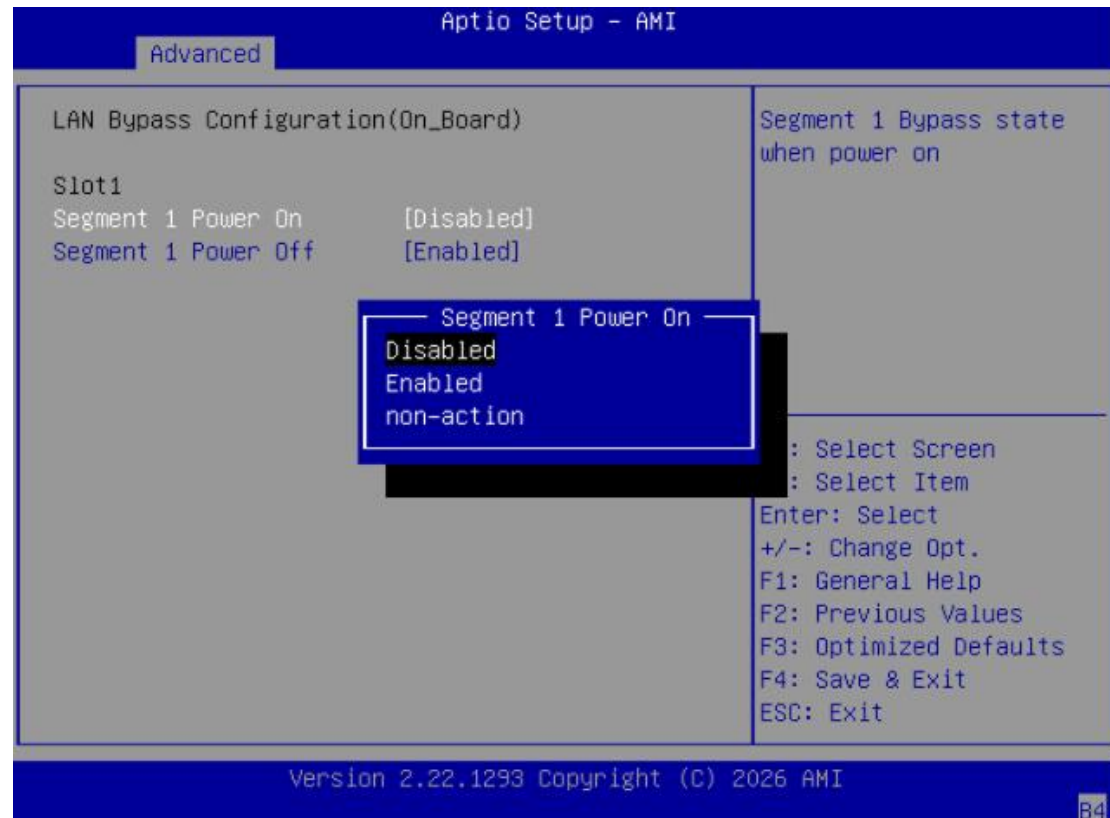


- **Hardware Monitor**





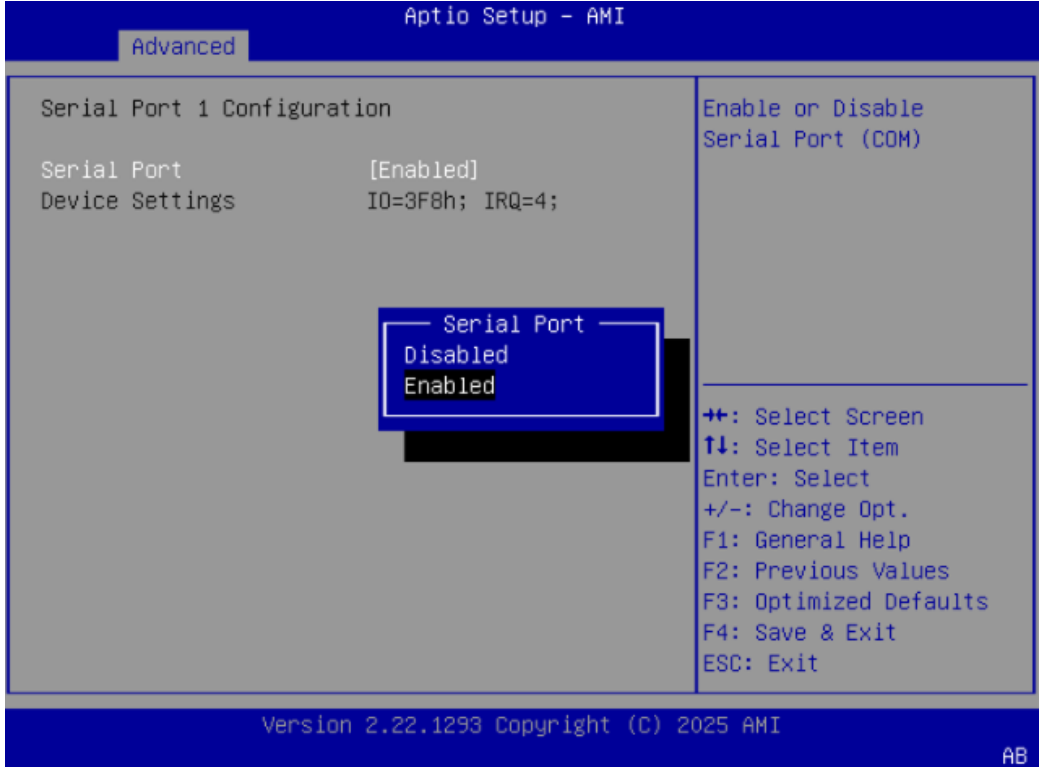
- LAN Bypass Configuration



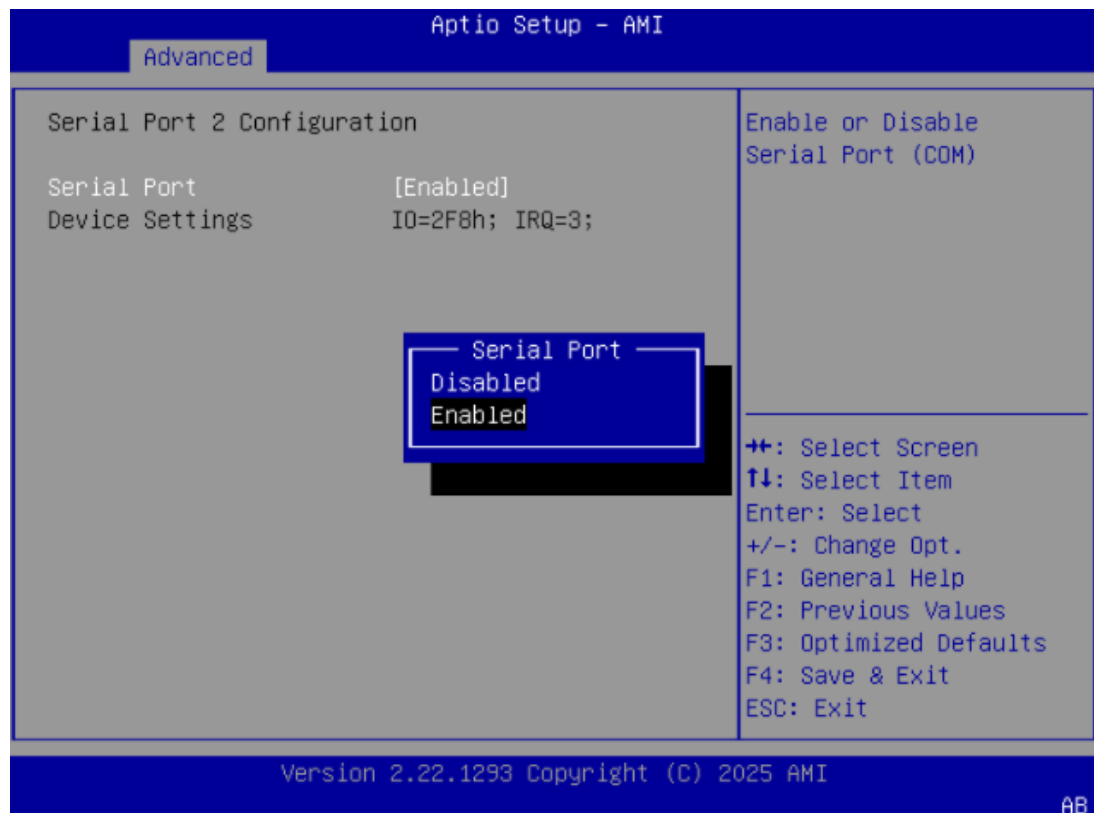
● Serial Port Configuration



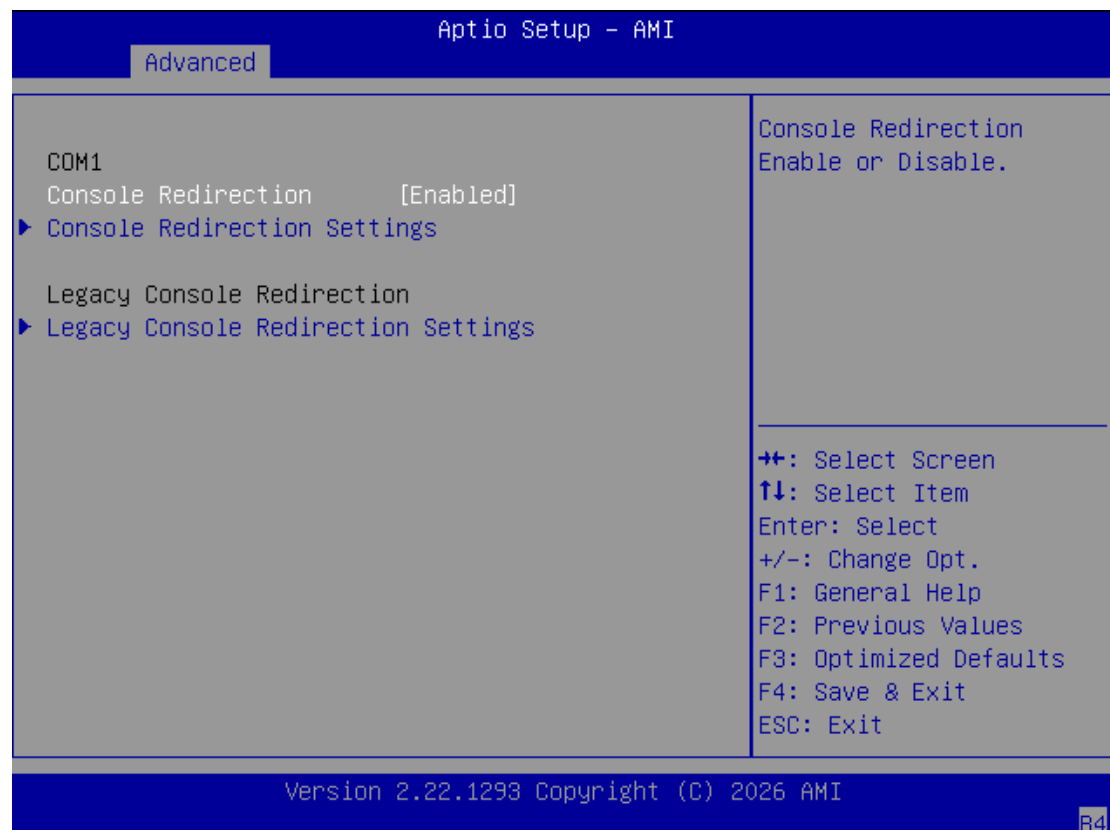
Serial Port 1 Configuration



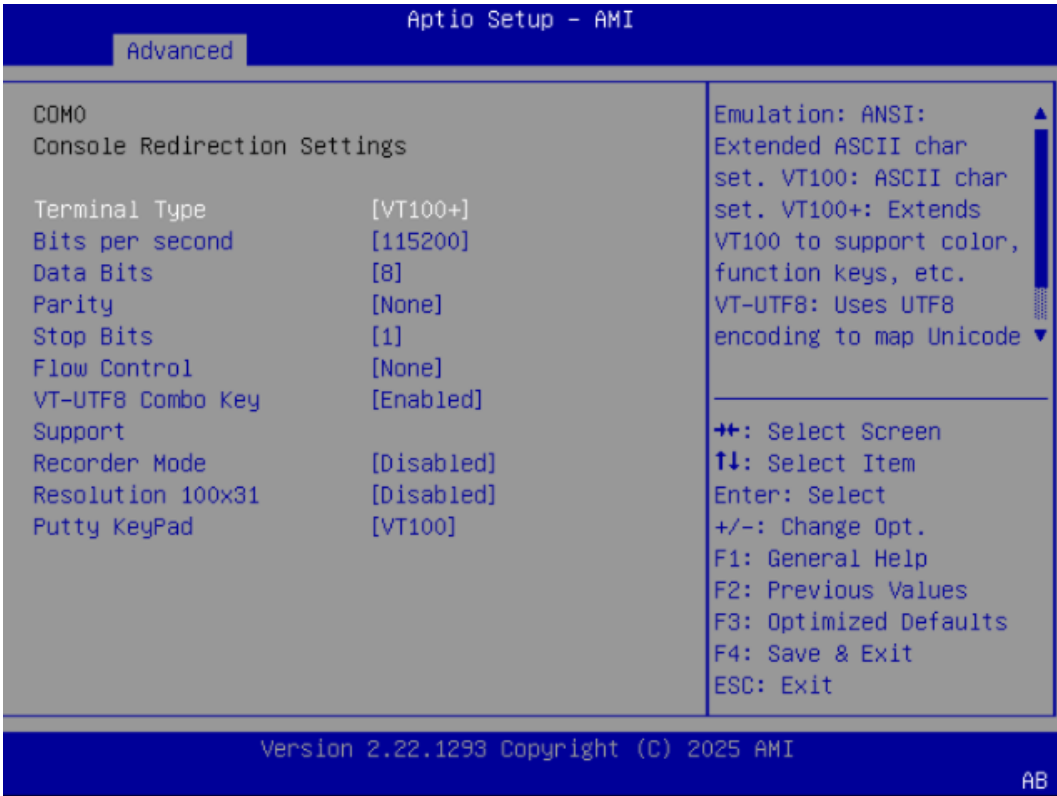
Serial Port 2 Configuration



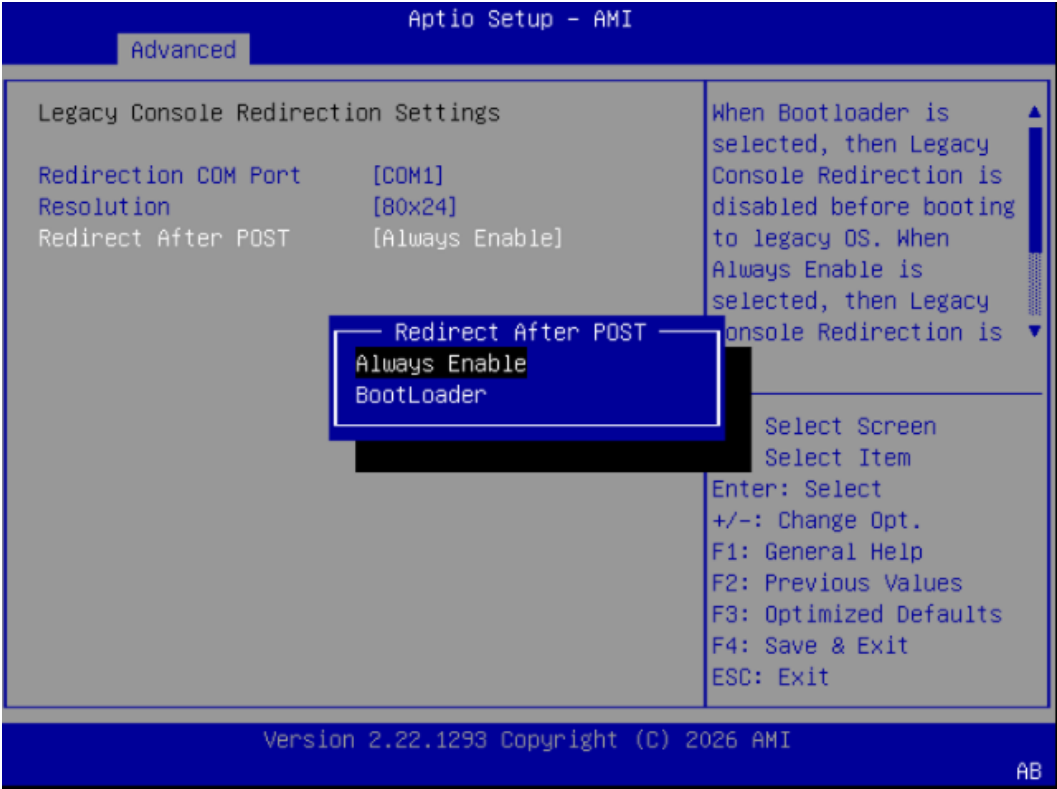
Serial Port Console Redirection

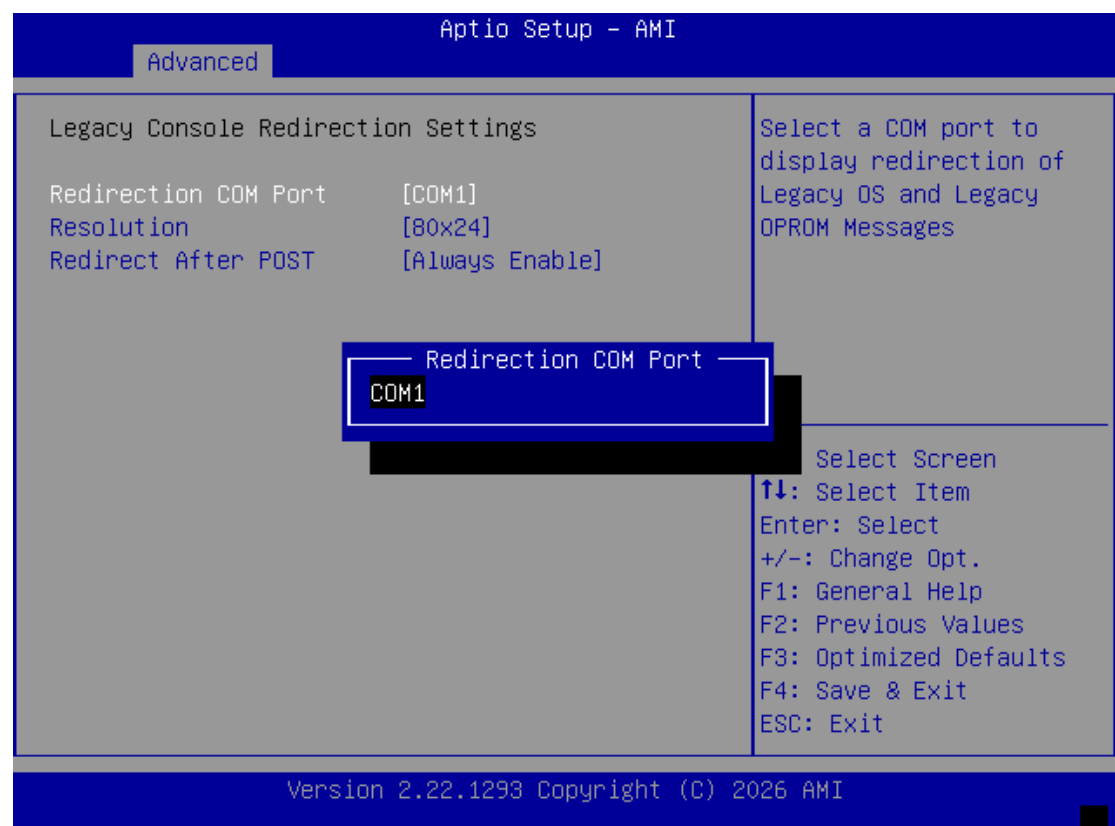
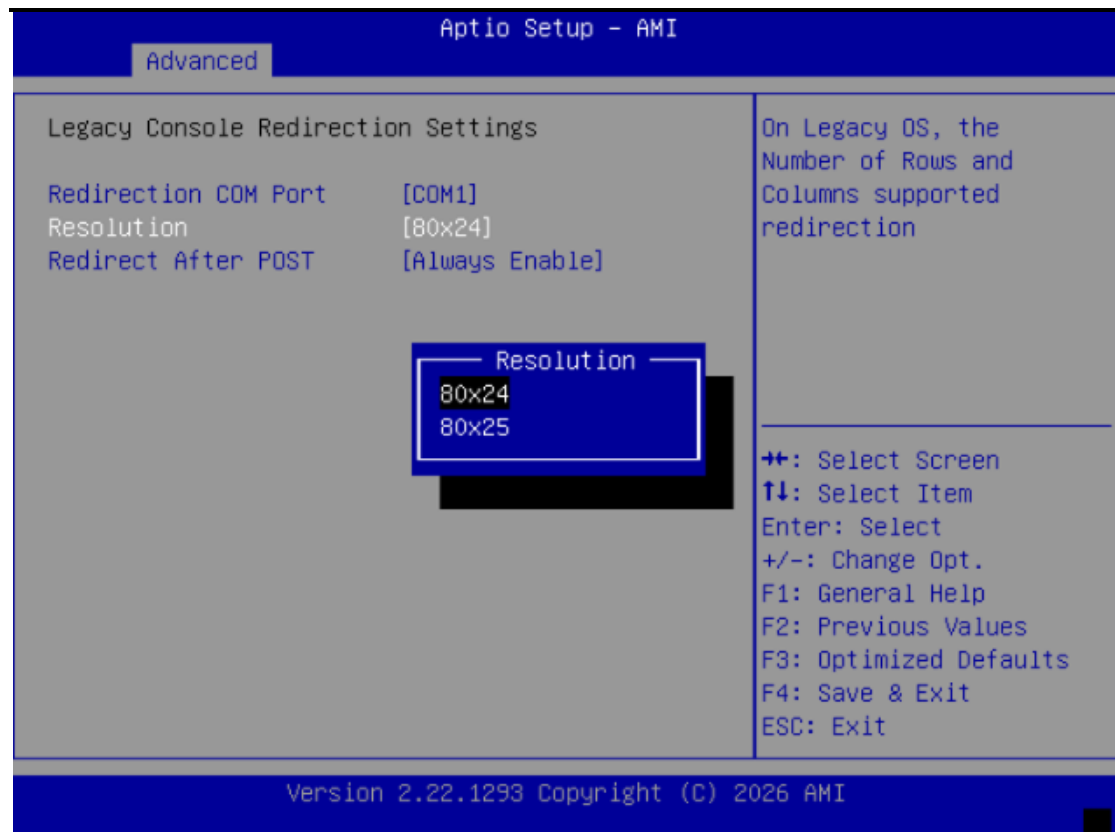


Console Redirection Settings

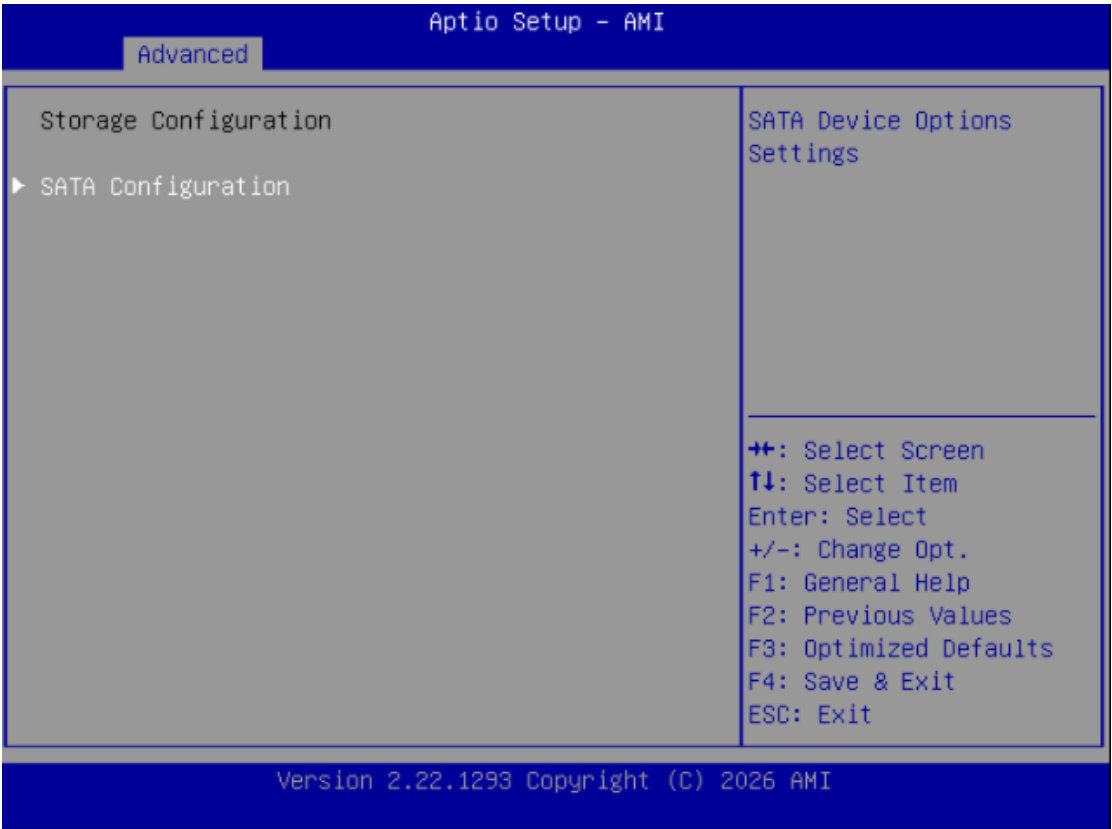


Legacy Console Redirection Setting

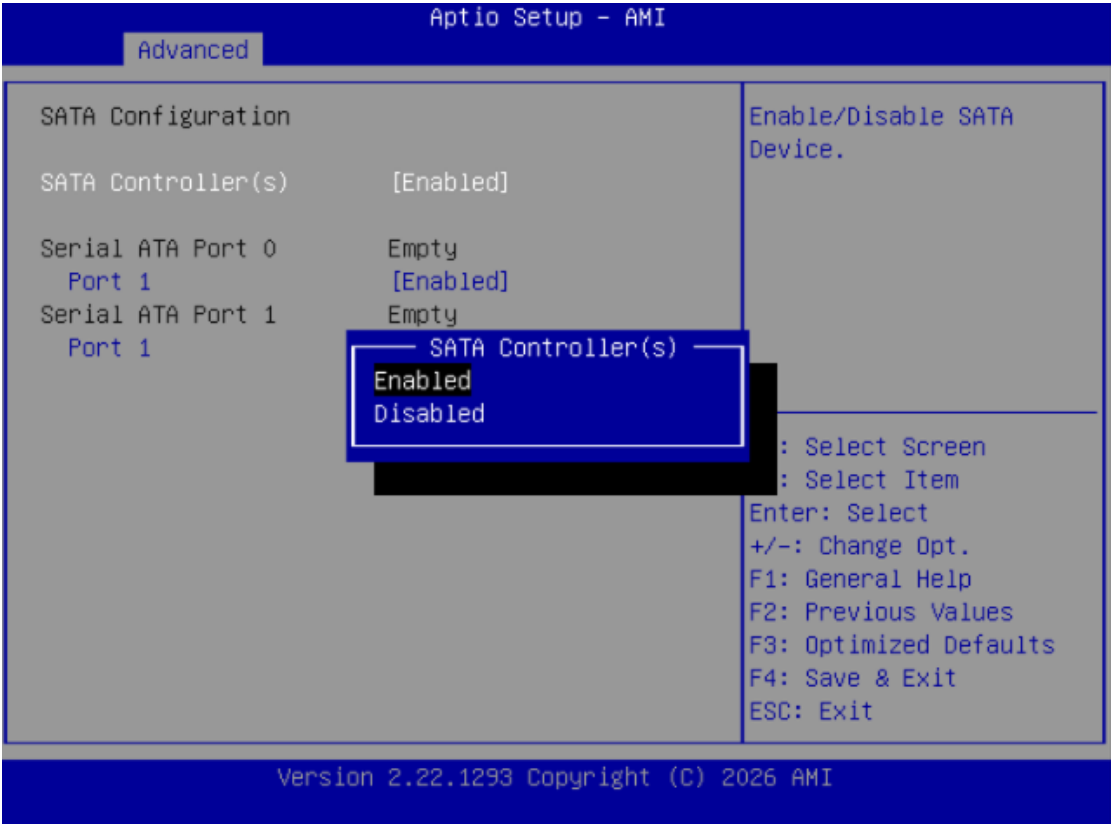


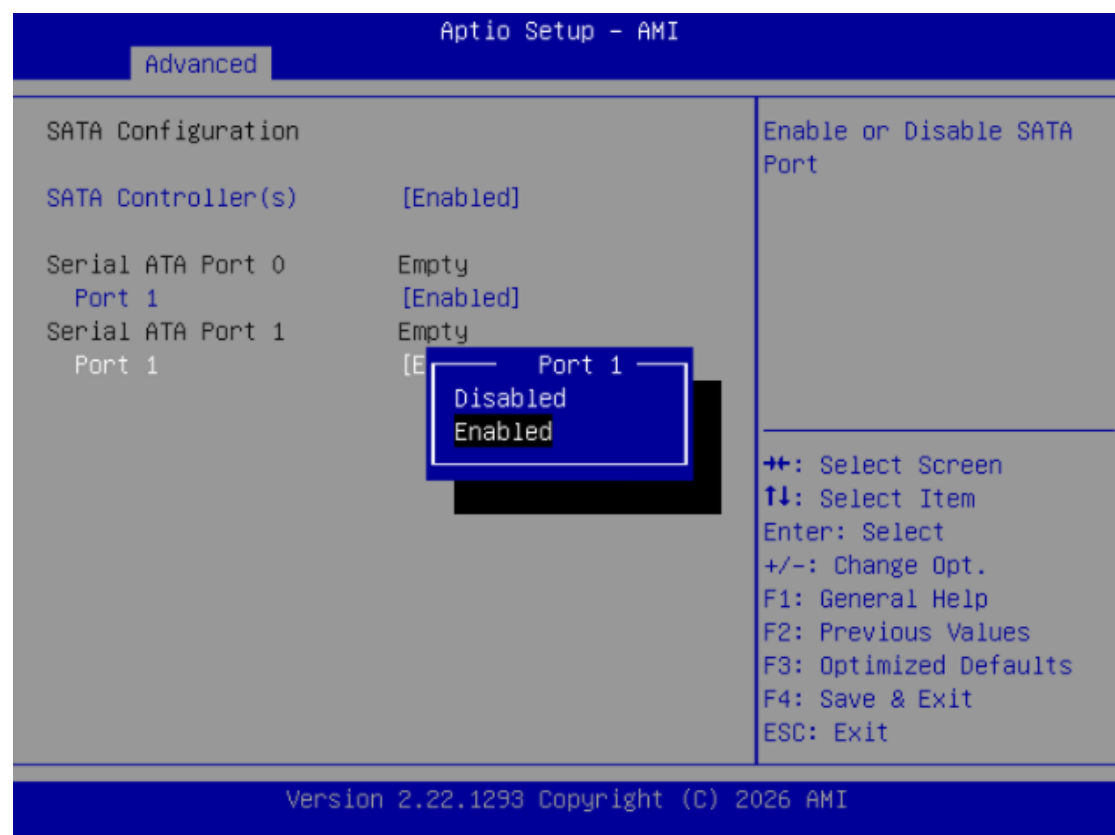
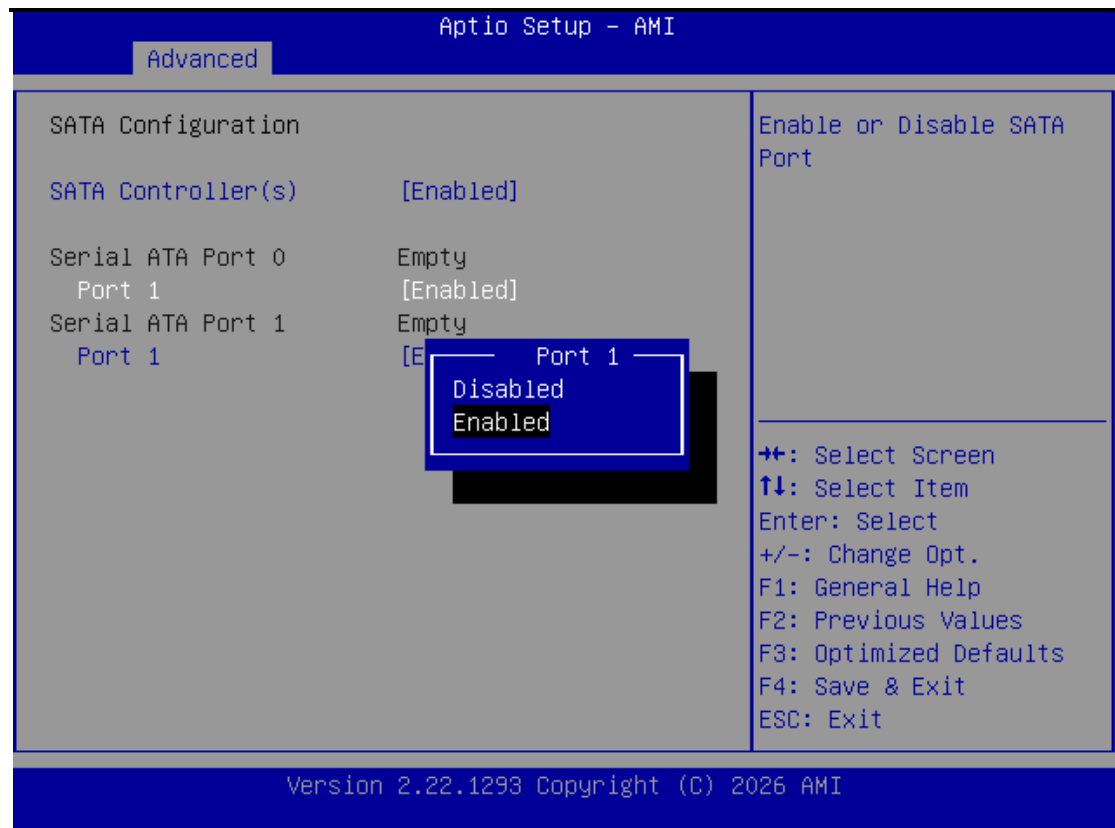


● Storage Configuration

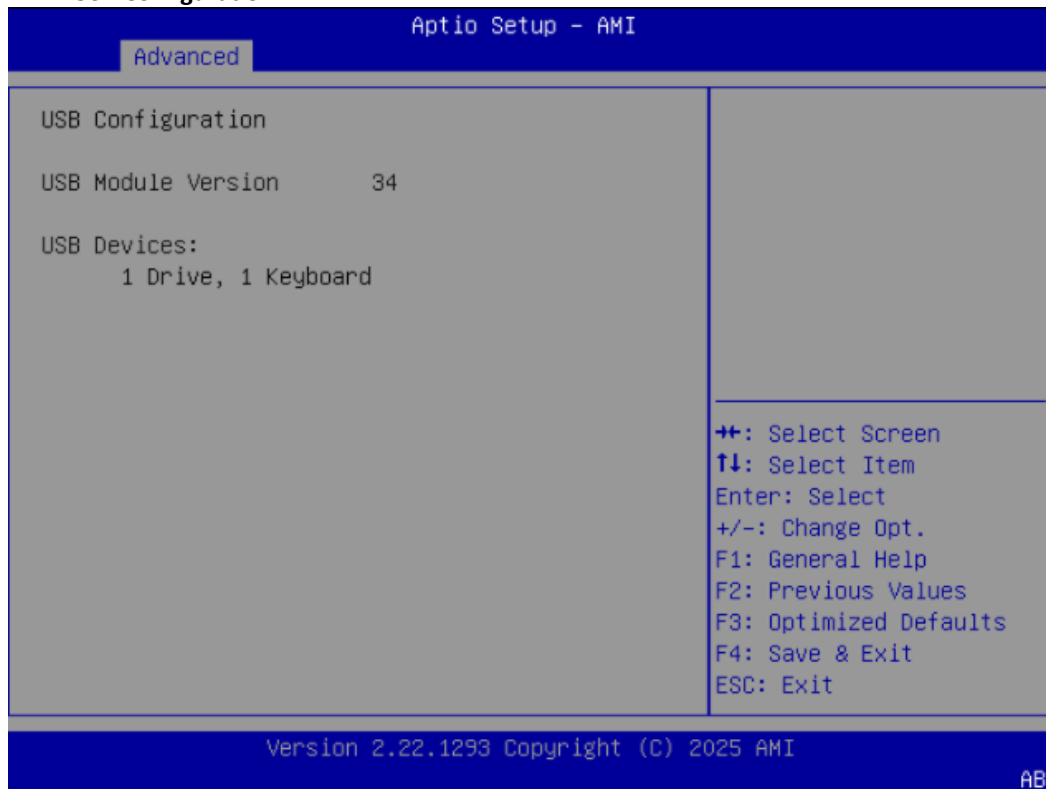


SATA Configuration





- **USB Configuration**

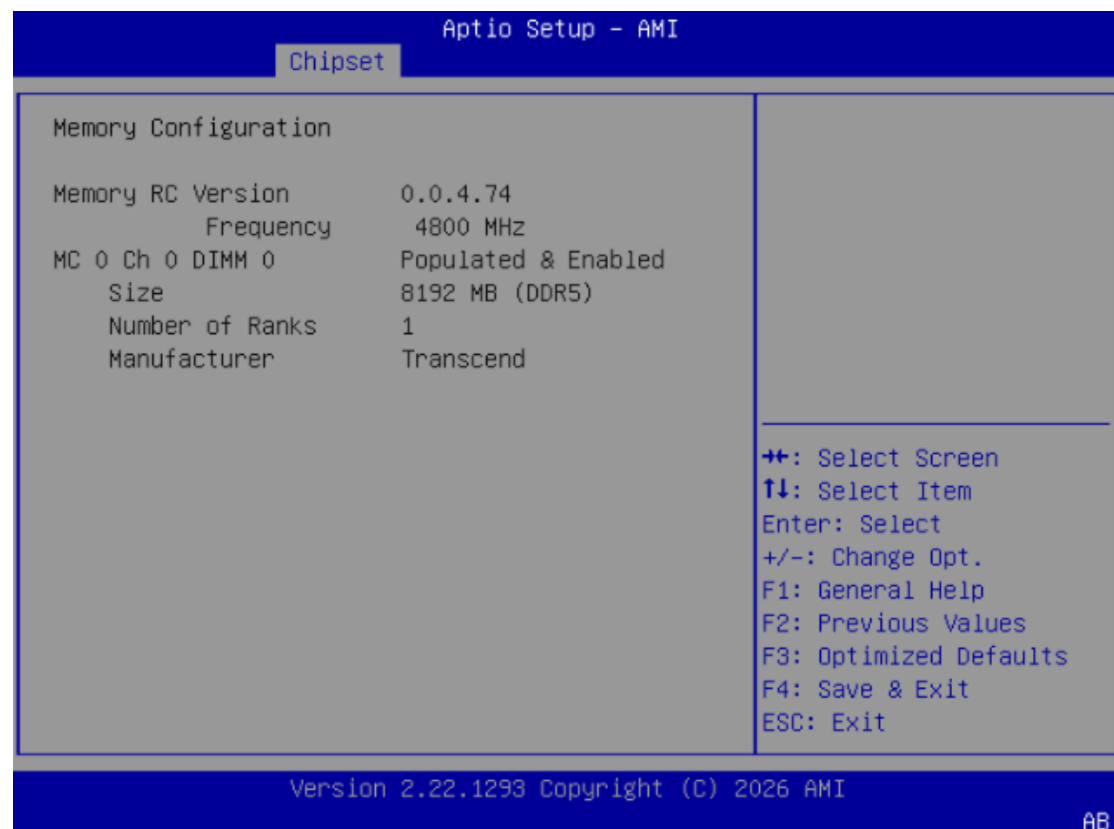


4.5 Chipset Menu





Memory Configuration



4.6 Security Menu

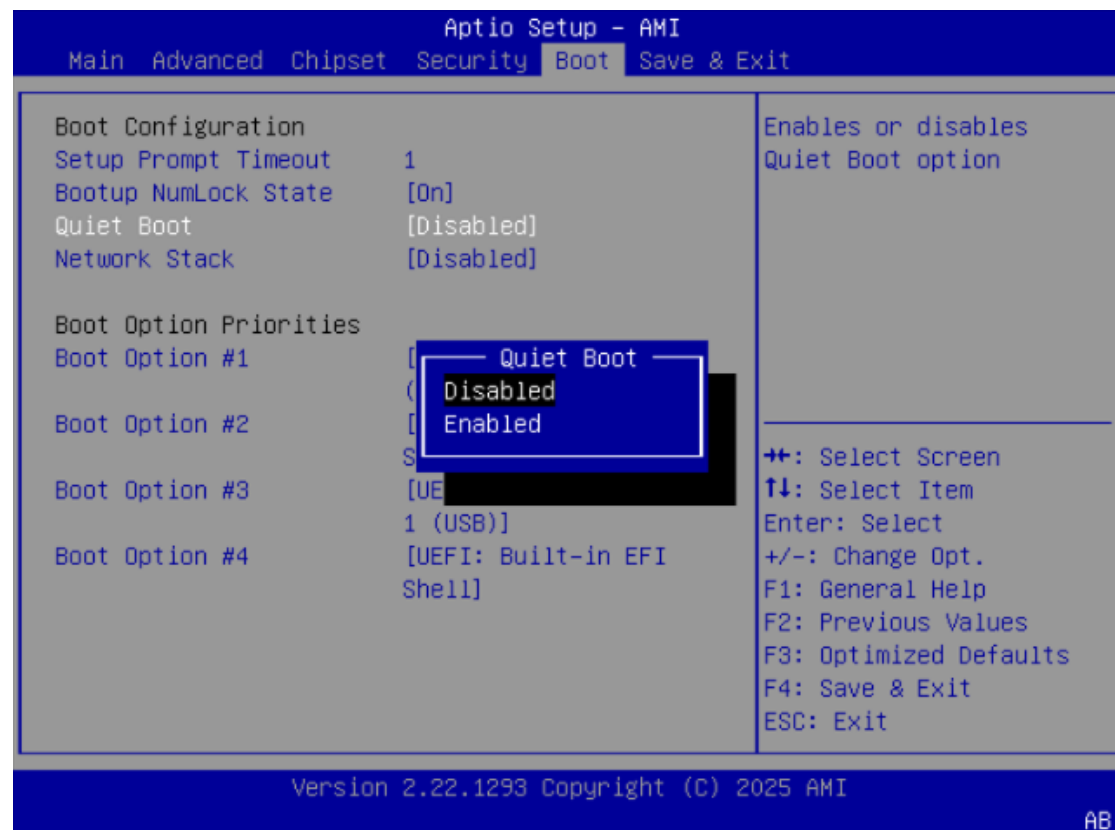
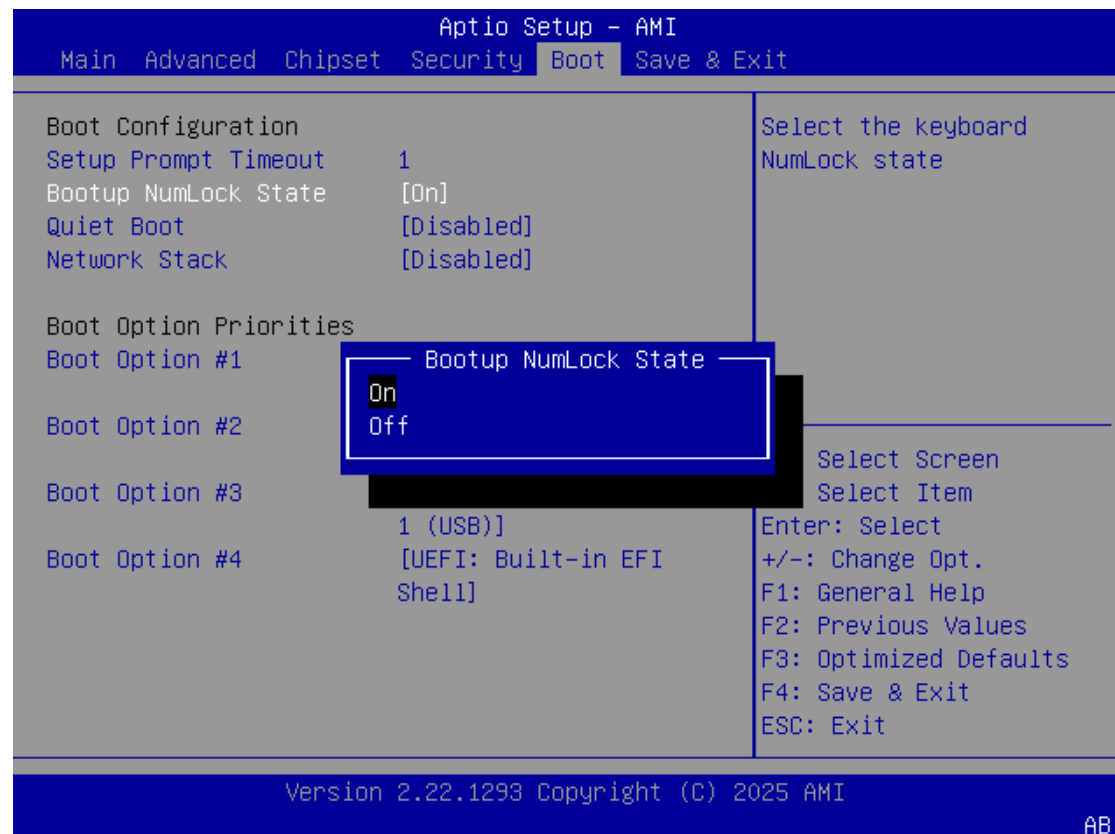
The Security menu allows users to change the security settings for the system.

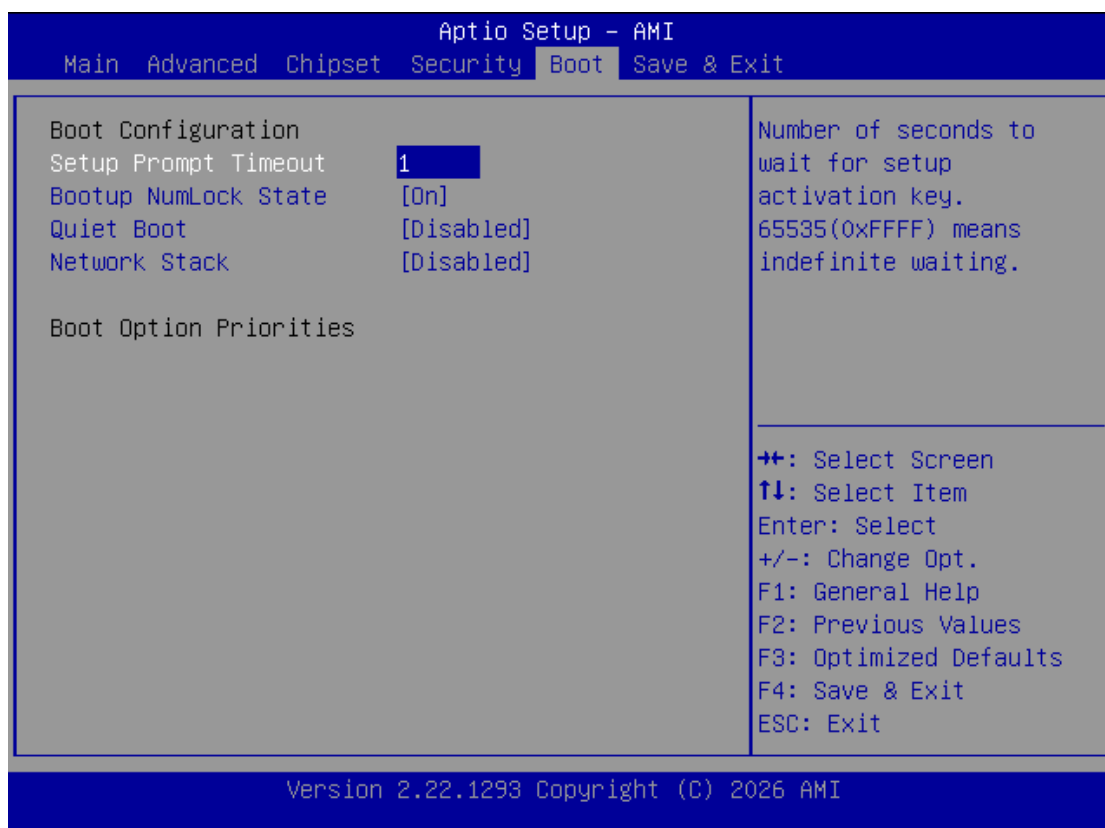
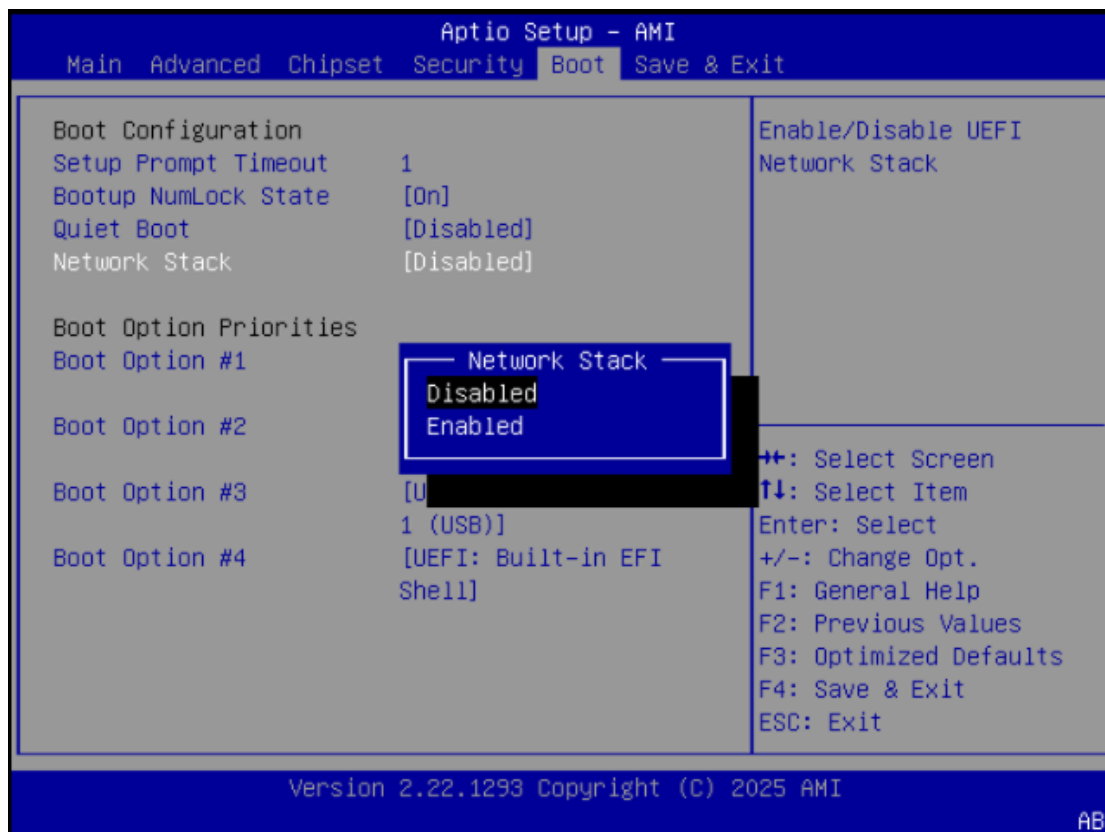
Aptio Setup - AMI	
Main Advanced Chipset Security Boot Save & Exit	
Password Description If ONLY the Administrator's password is set, then this only limits access to Setup and is only asked for when entering Setup. If ONLY the User's password is set, then this is a power on password and must be entered 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 Administrator Password User Password ► Secure Boot	Secure Boot configuration ↔: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.22.1293 Copyright (C) 2025 AMI	
AB	

Secure Boot

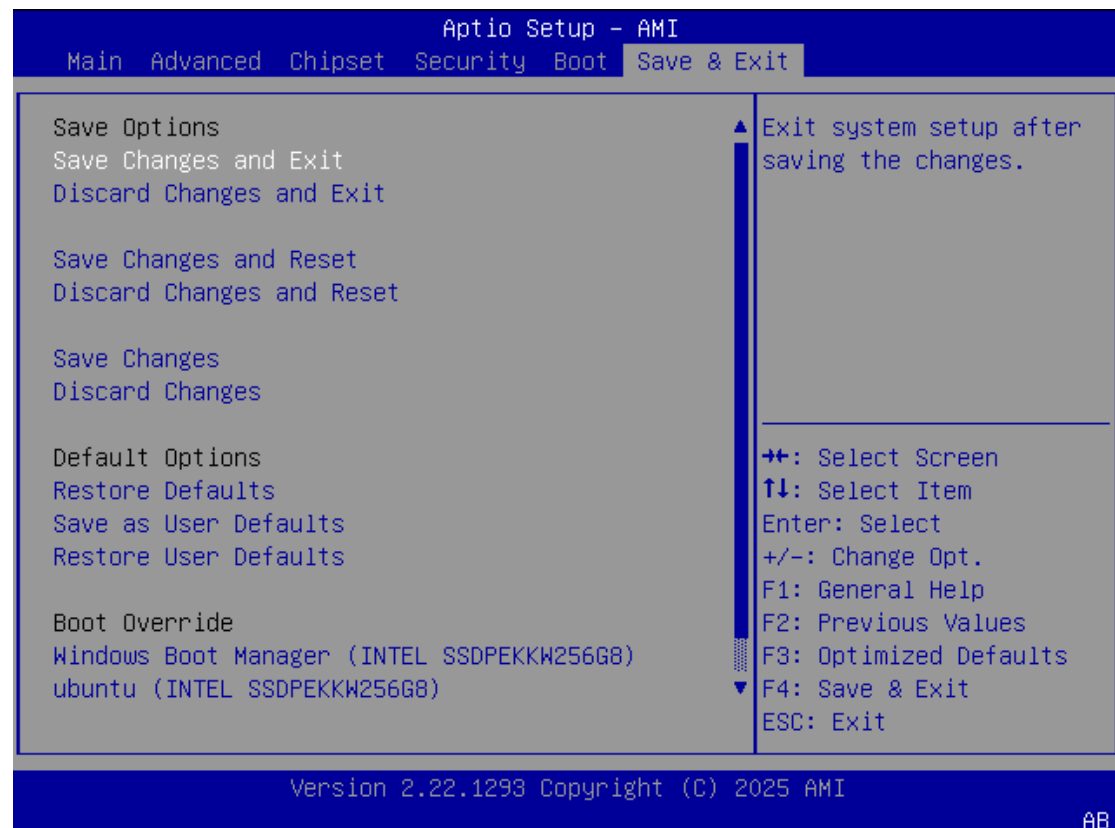
Aptio Setup - AMI	
Security	
System Mode	Setup
Secure Boot	[Disabled] Not Active
Secure Boot Mode	[Custom]
► Restore Factory Keys	
► Reset To Setup Mode	
► Key Management	
Secure Boot feature is Active if Secure Boot is Enabled, Platform Key(PK) is enrolled and the System is in User mode. The mode change requires platform reset ↔: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit	
Version 2.22.1293 Copyright (C) 2025 AMI	
AB	

4.7 Boot Menu





4.8 Save & Exit Menu



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APPENDIX A

LAN Bypass Configuration

About LAN Bypass

In network security application, it is very important to ensure that network traffic to continue passing through the device even if hardware failure occurs or operating system crashes. LAN bypass gives us a solution for this problem.

The NA348 series LAN bypass function is very flexible. It can be selected at any time and any stage. You can enable LAN bypass for power on state by BIOS, or by software program when entering into the OS.

Moreover, for power off state, you can set up LAN Bypass through BIOS, or use software program when entering into the OS. If you don't do any change, the state will keep the previous power off state.

The NA348 has LAN bypass capability with the special designed latch relay circuitry. When LAN bypass function is enabled, a relay closes to act as a bridge to route network data flow between module's LAN port 3 and LAN port 4. The bypass feature can be activated immediately or according to timer which is configurable from 1 up to 64 seconds. You can write a software program to control bypass operation behavior to fit your requirement.



Note: *If you need sample codes, please contact our FAE directly. And they are for reference purposes only.*

Slot & I2C Switch Address of SMBus

Slot Number	Slot 1
Bus Number	0
Slot Address	0x67

LAN Bypass Register Configuration

- Power ON Bypass Control Register

Address : 0x43 (Write) 、 0x13 (Read)

7	6	5	4	3	2	1	0
BYM1	BYM0	X	X	X	X	X	SEGN1
W	W	--	--	--	--	--	W

Default value: 00000000

Bit 7~6 BYM1~0

These bits are used to set bypass mode.

00 Not used.

01 Force bypass enable
Relay closes immediately to form LAN bypass on selected segment when power on.

10 Force bypass disable
LAN bypass is disabled immediately on selected segment when power on.

11 Timer enable
When power on, the selected segments are controlled by the setting of LAN bypass Timer Control register.

Bit 5~1 Not used.

Bits 0 SEGN1

Select each segment by setting the corresponding bit to 1. When the bit is set to 0, no action happens upon the segment.

Data read back from this register is not defined and therefore must be ignored. Reading from this register makes no effect on LAN bypass function. All data in this register will be cleared when system is turned off. If you still want to use power on LAN bypass function, turn on the system and make sure to rewrite the register. Otherwise, if you don't rewrite the register, the status will be kept on power off bypass state.

- **Power OFF Bypass Control Register**

Address: 0x44 (Write) 、 0x14 (Read)

7	6	5	4	3	2	1	0
X	X	X	X	X	X	X	SEGF1
--	--	--	--	--	--	--	W

Default value: 00000000

Bit 7~1 Not used.

Bits 0 SEGF1

Use the corresponding bit to configure each segment. Setting the bit to 1 enables LAN bypass on the segment when power off. Clearing the bit to 0 disables LAN bypass on the segment when power off.

Data read back from this register is not defined and therefore must be ignored. Reading from this register makes no effect on LAN bypass function. When system is turned off, last data written onto this register will be kept. If you want to make any change, turn on the system and make sure to reconfigure the register.

- **LAN Bypass Timer Control Register**

Address: 0x42 (Write) 、 0x12 (Read)

7	6	5	4	3	2	1	0
TEXP	X	X	X	X	TVAL2	TVAL1	TVAL0
R	--	--	--	--	W	W	W

Default value: 00000000

Bit 7 TEXP (Read Only)

This bit indicates status of hardware timer.

0 Timer has not expired

1 Timer has expired

Bits 6~3 Not used.

Bits 2~0 TVAL2~0

These bits determine the amount of count value in second(s).

001 1 (sec)

010 2 (sec)

011 4 (sec)

100 8 (sec)

101 16 (sec)

110 32 (sec)

111 64 (sec)

000 Timer is not activated.

Writing a value to these bits will reset the hardware timer. The counting process begins again according to the new written value. Software must write count value periodically to ensure that timer will never expire. If timer timeout occurs, relay(s) automatically close to form LAN bypass on selected segment(s) based on the setting of Power On Bypass Control register (SEGN1).

Data (bits 6~0) read back from this register is not defined and therefore must be ignored. A read operation upon this register should not refresh the hardware timer.

- **LAN Bypass Status / Firmware Version Register**

Address: 0x15 (Read)

7	6	5	4	3	2	1	0
VER3	VER2	VER1	VER0	BY4	BY3	BY2	BY1
R	R	R	R	R	R	R	R

Bit 0 Lan Bypass Seg.1 status → Disable=0; Enable=1

Bit 3~1 Not used.

Bit 7~4 Firmware version

Without Lan bypass function=1111

How to write power on bypass control register via I2C-tools

- **For example:**

Select slot and Write a value 0x41 into Power ON Bypass Control Register(0x43)

➤ Slot 1

i2cset -y 0 0x67 0x43 0x41

How to read LAN Bypass Status / Firmware Version Register via i2c-tools

- **For example:**

Select slot and read value from LAN Bypass Status/Firmware Version Register(0x15)

➤ Slot 1

i2cget -y 0 0x67 0x15

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APPENDIX B

Watch Dog Timer for System Reset

WDT(Watchdog Timer)

The hardware supports the WDT (Watchdog Timer) function. While time-out happens after a default period, the WDT will reset the system.



Note: *If you need sample codes, please contact our FAE directly. And they are for reference purposes only.*

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