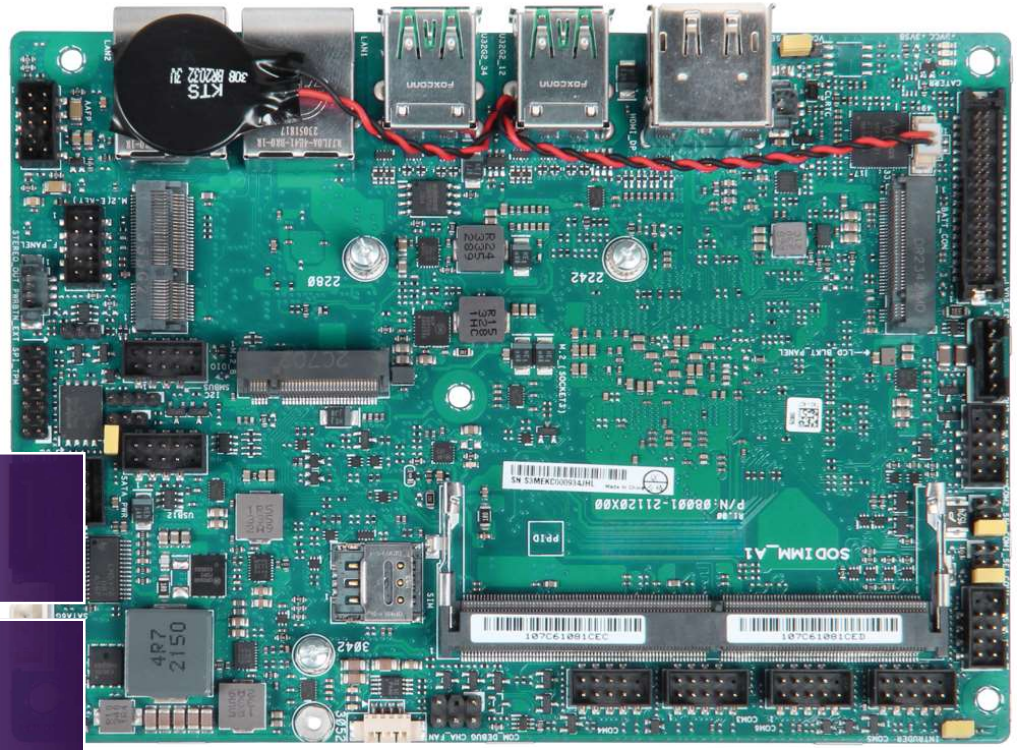

PEB-2274

3.5" Embedded Motherboard Board

Version 1.2

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Revision History

R1.0	Preliminary
R1.1	Modify the page numbers.
R1.2	Modify the typo

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Preface

This user's guide provides information about the components, features, connectors and BIOS Setup menus available on the PEB-2274. This document should be referred to when designing 3.5" Embedded board application. The other reference documents that should be used include the following:

- ✧ Intel Elkhart Lake Design Guide
- ✧ Inte Elkhart Lake Specification

Please contact Portwell Sales Representative for above documents.

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1 Introduction

Portwell Inc., a world-leading innovator in the Industrial PC (IPC) market and a member of the Intel® Embedded and Communications Alliance (Intel ECA), announced today the Portwell PEB-2274 utilizing the Intel® ECX form factor based on the Elkhart Lake Intel® Atom x6425E, includes integrated, enhanced graphics and memory controllers on 10nm process technology, delivering significant power reduction and performance improvements. The PEB-2274 can provide the low power consumption for low profile fanless applications such as POS, Print Imaging, ATM, Kiosk, Medical, Panel PC, Digital Security and Digital Signage.

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2 Specifications

Main Processor	◆ Intel® Elkhart lake SoC
System BIOS	◆ AMI UEFI BIOS
Main Memory	◆ Up to 32GB in 1 slot DDR4 SO-DIMM socket.
Graphics	◆ Controller: Intel® UHD Graphics ◆ LVDS: Supports resolution up to 1920x1200 ◆ DP: Supports DP ++1.2 4096x2160 @60Hz ◆ HDMI: Supports HDMI 2.0 4K x 2K @ 60 Hz
Expansion Interface	◆1 x M.2 E key, type 2230 for WIFI/BT device ◆1 x M.2 M key, type 2280 (SATA mode & PCIe x2 mode) ◆1 x M.2 B key (USB 2.0)
SATA Interface	◆ One SATA port(SATA Gen3.0 6Gb/s)
Input/Output	◆ Serial Ports: 6 (2 x RS-232/422/485, 4 x RS 232) ◆ USB Port: 4x USB 3.2 Gen2 ports on rear I/O, 1x USB 2.0 Header support additional 2 x USB2.0 connectors ◆ Audio Interface: Mic-In and Line-Out
Ethernet	◆ Supports 2 x Intel® i210IT with 2 x RJ-45
High Drive GPIO	◆ One pin-header for GPIO(8bit in / out)

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Mechanical and environmental specifications	◆ Operating temperature: -40 ~ 85° C ◆ Storage temperature: -40 ~85°C ◆ Humidity: 10 ~ 95% non-condensing ◆ Power supply voltage: 9V-36V DC in ◆ Board size: 146 x 105 mm
Safety	◆ CE, FCC

2.1 Supported Operating Systems

The PEB-2274 supports the following operating systems.

- ✧ Windows 10* (64 bit), IoT Enterprise
- ✧ Ubuntu

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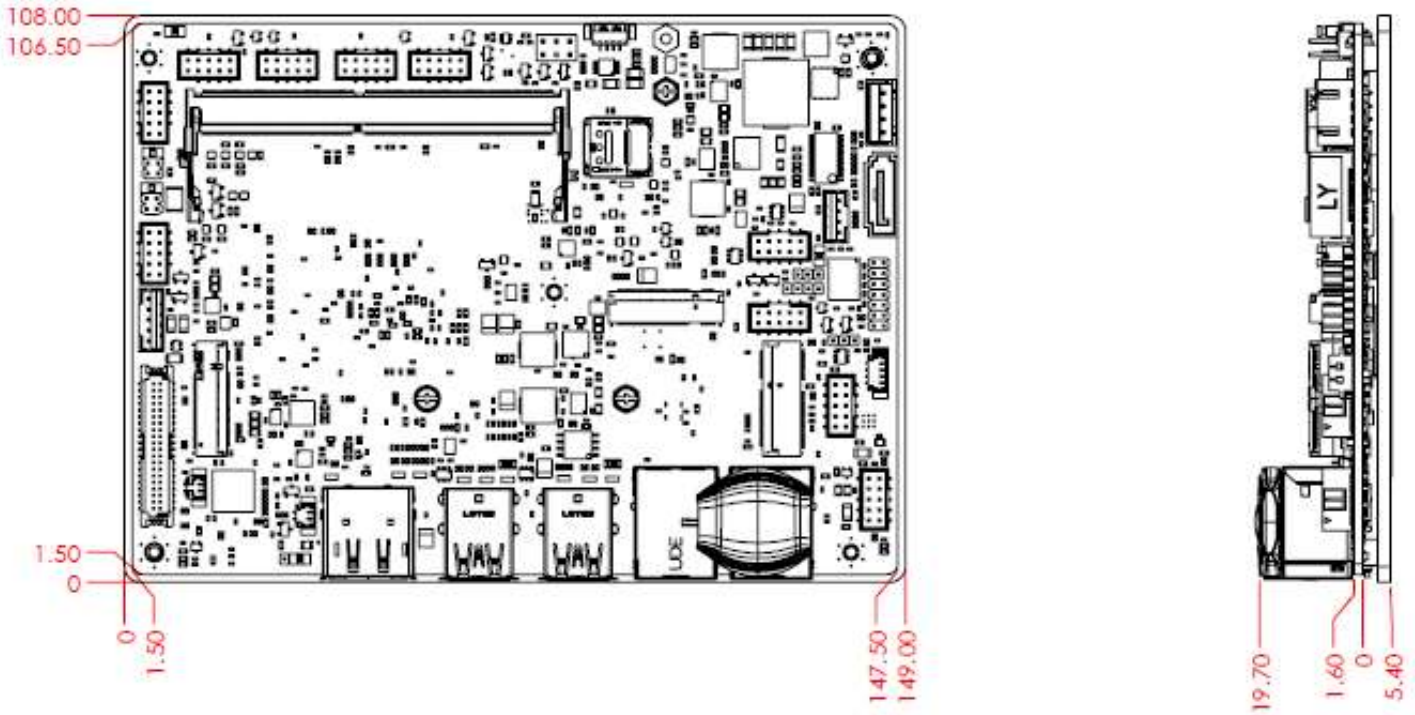
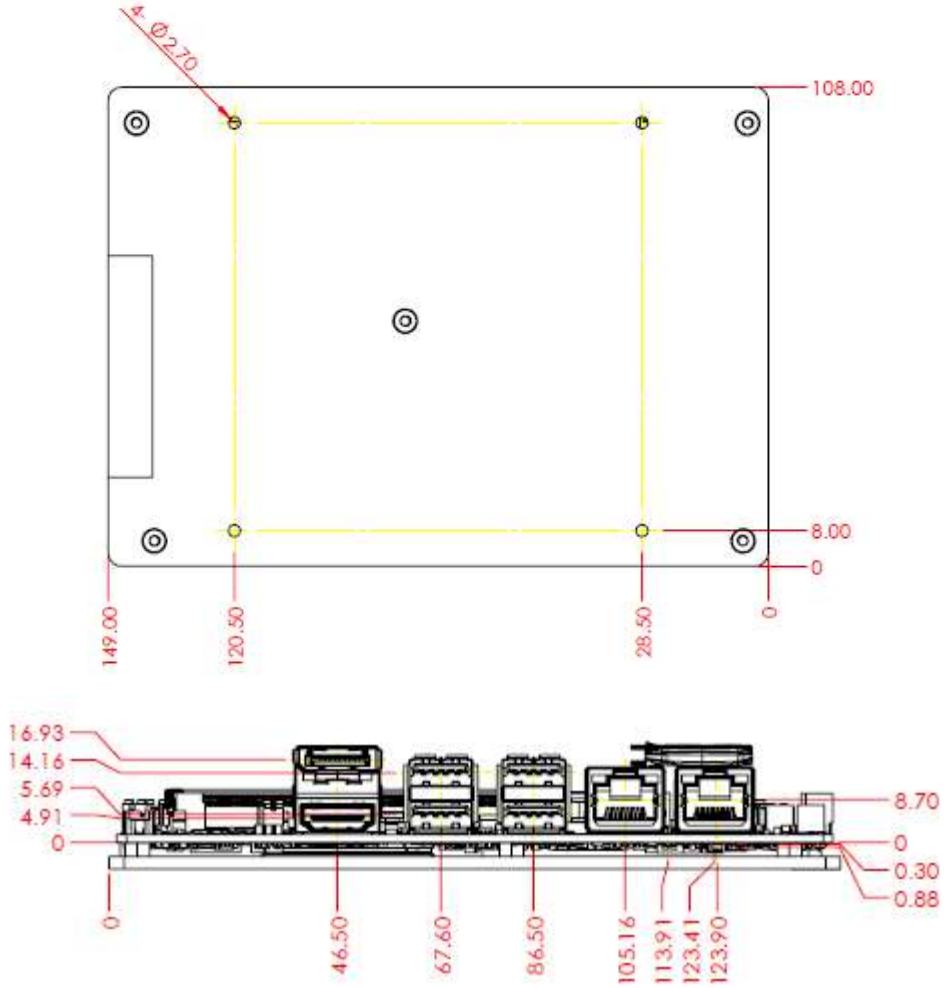
2.2 Mechanical Dimensions





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2.3 Power Consumption

Test Configuration	
CPU Type	Intel Atom® x6425E @3.0GHz
SBC BIOS	1.00.00
Memory	WARIS DDR4 2133 8GB x1 SO-DIMM
Chipset Driver	Intel® Chipset Device Software ,Version:10.1.19222.8341
ME Driver	Intel® Management Engine Components,Version:2242.3.34.0
VGA Card	Onboard Intel® UHD Graphics
VGA Driver	Intel® UHD Graphics ,Version:31.0.101.2114
LAN Card #1	Onboard Intel® I210 Gigabit Network Controller
LAN Driver #1	Intel® I210 Gigabit Network Controller ,Version:14.0.2.0
LAN Card #2	Onboard Intel® I210 Gigabit Network Controller #2
LAN Driver #2	Intel® I210 Gigabit Network Controller ,Version:14.0.2.0
Audio Card	Onboard Realtek ®Audio
Audio Driver	Realtek ®Audio Driver,Version:6.0.9244.1
Power Supply	FSP GROUP INC. FSP120-AHAN1
M.2 (E-Key) Wi-Fi Module	Intel® Wireless-AC 9260 (9260NGW)
M.2 (M-Key) SSD Card	WARIS 32GB M.2 2242 SSD (TS46EMM)
Hard Drive	KINGSTON 128GB

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Power consumption(12V)			
Item	Power ON	Full Loading 10 Min	Full Loading 30 Min
DC IN 12V	1.73A	1.98A	2.12A
Device +12V	0.16A	0.15A	0.17A
Device +5V	0.30A	0.32A	0.36A
USB3.0 Loading Test	4.80V/0.96A		

2.4 Environmental Specifications

Storage Temperature : -40~85°C

Operation Temperature : -40~85°C

Humidity: 10 ~ 95% non-condensing

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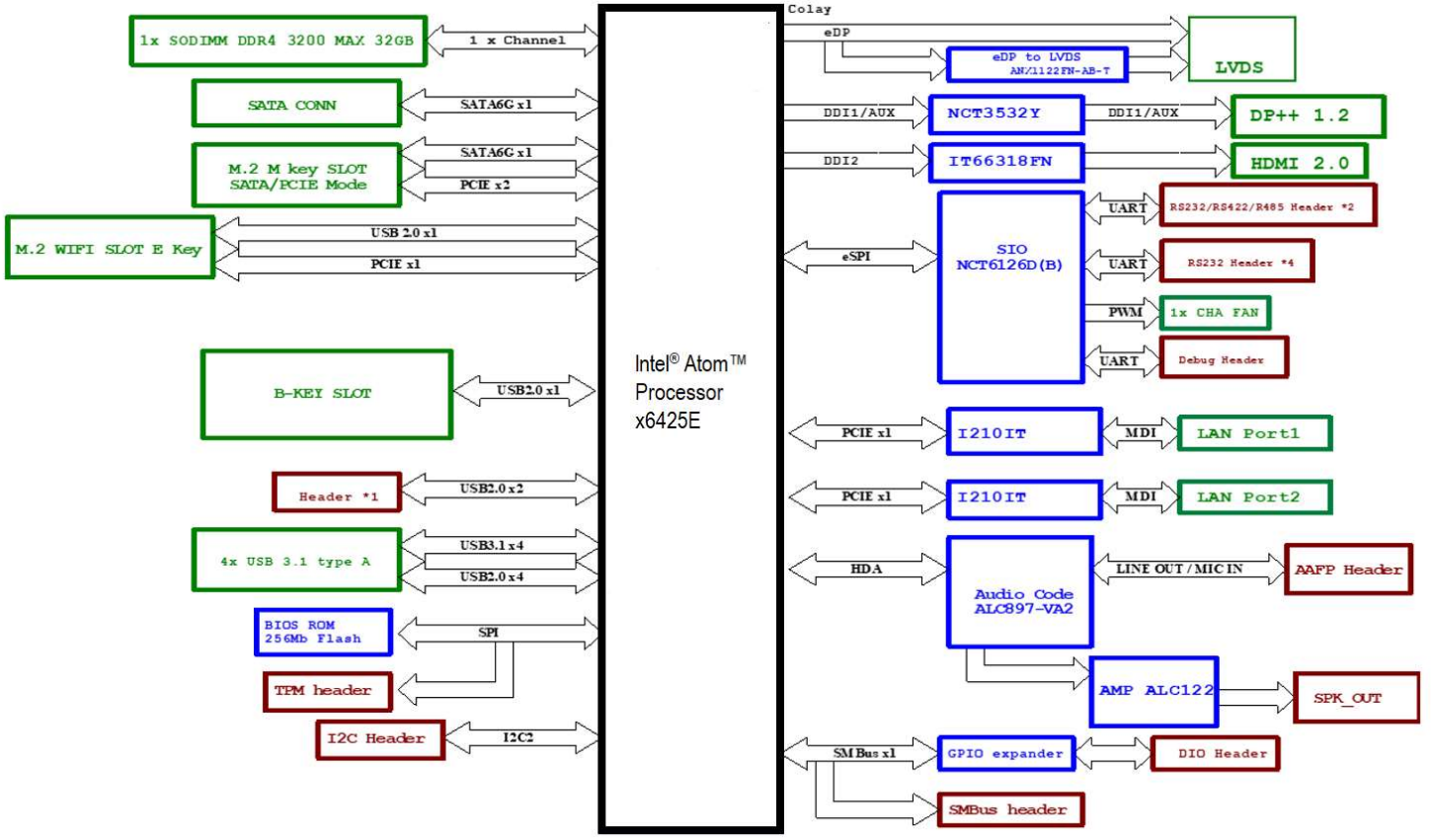
3 Block Diagram



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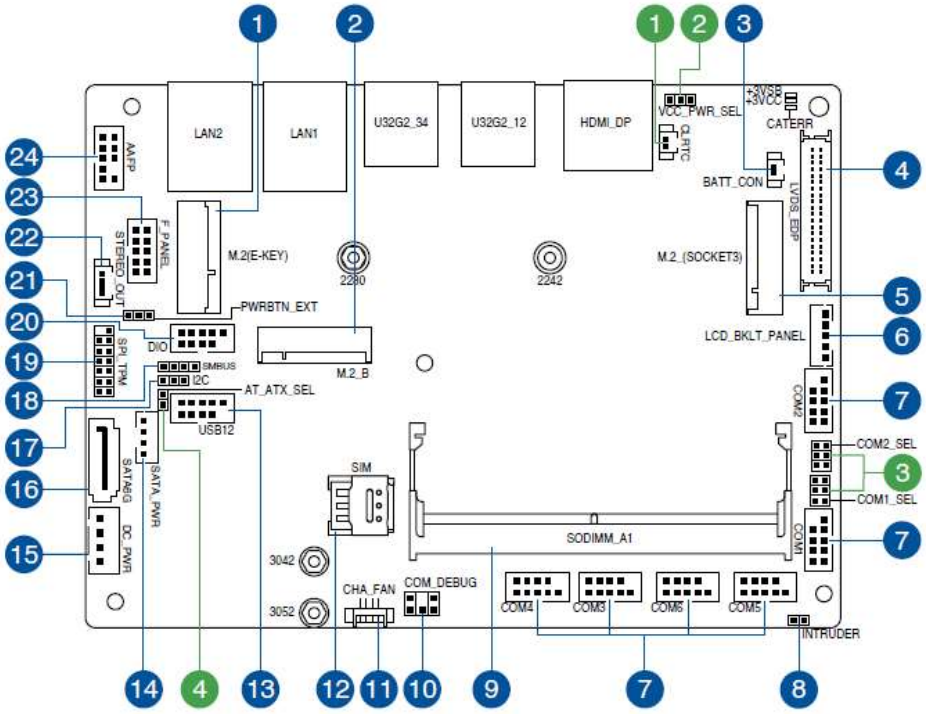
4 Hardware Configuration

4.1 Jumpers and Connectors

This chapter indicates jumpers, headers, and connector's locations. Users may find useful information related to hardware settings in this chapter.



4.2 Jumper Settings

For users to customize PEB-2274's features. In the following sections, **Short** means covering a jumper cap over jumper pins; **Open** or **N/C** (Not Connected) means removing a jumper cap from jumper pins. Users can refer to Figure 1 for the Jumper allocations.

Jumper Table

The jumper settings are schematically depicted in this manual as follows:

Jumper Function List:

Jumper	Function
1	Clear RTC RAM jumper
2	Display Panel VCC Power Selection jumper
3	COM +5V/+12V Selection jumper
4	AT/ATX Mode Configuration jumper

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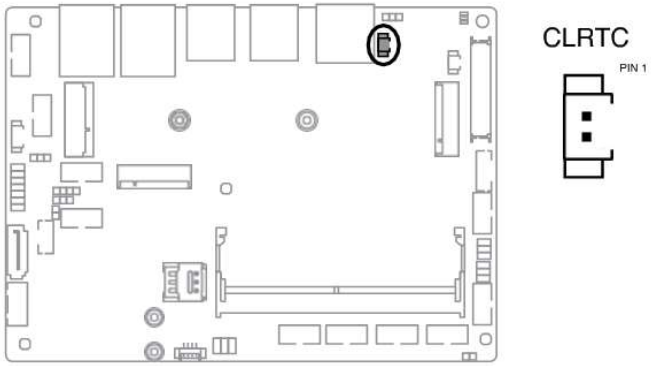
1 : Clear RTC RAM jumper



To erase the RTC RAM:

1. Turn OFF the computer and unplug the power cord.
2. Short-circuit pin 1-2 with a metal object or jumper cap for about 5-10 seconds.
3. Plug the power cord and trun ON the computer.
4. Hold down the <Del> key during the boot process and enter BIOS setup to re-enter data.

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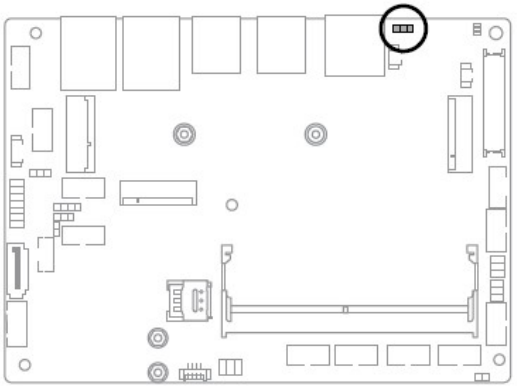
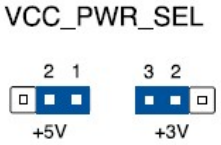
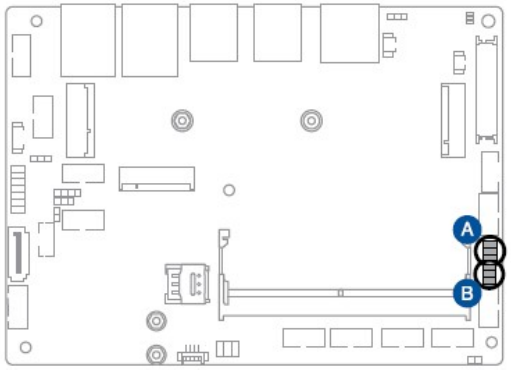
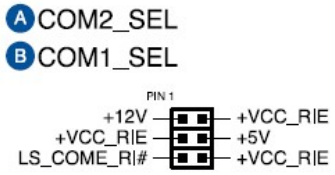
2 : Display Panel VCC Power Selection jumper





3 : COM +5V/+12V Selection jumper





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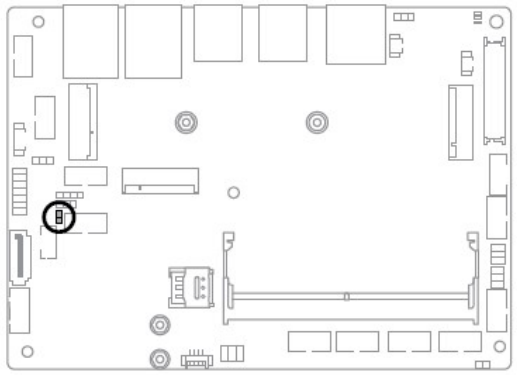
4：AT/ATX Mode Configuration jumper



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Jumper Function List:

Connectors	Function
1	M.2 (E-key) Wi-Fi slot
2	M.2 (E-key) Wi-Fi slot
3	M.2 (E-key) Wi-Fi slot
4	LVDS connector
5	M.2 (M-key) slot
6	Backlight Inverter Power connector
7	Serial Port connector
8	Chassis intrusion connector
9	DIMM slot
10	COM Debug connector
11	Fan connector
12	Nano SIM Card slot
13	USB 2.0 connector
14	SATA Power connector
15	DC-in Power connector
16	SATA connector
17	I2C connector
18	SMBus connector
19	SPI TPM connector

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20	GPIO connector
21	Power Button connector
22	Stereo Out connector
23	System Panel connector
24	Line Out / Mic connector

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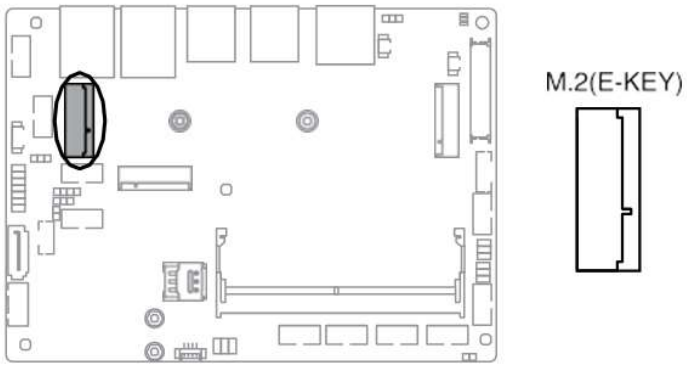
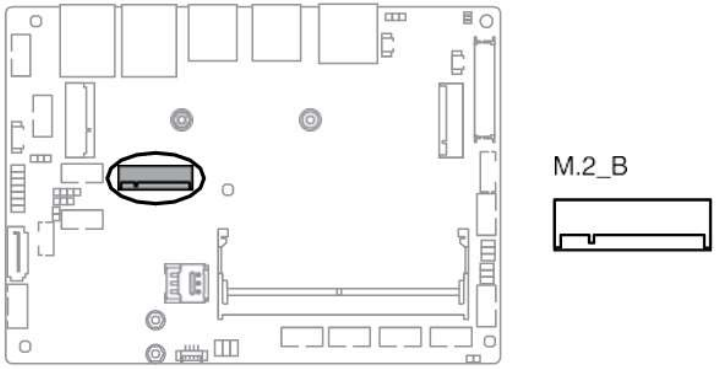
1 : M.2 (E-key) Wi-Fi slot



2 : M.2 (B-key) slot



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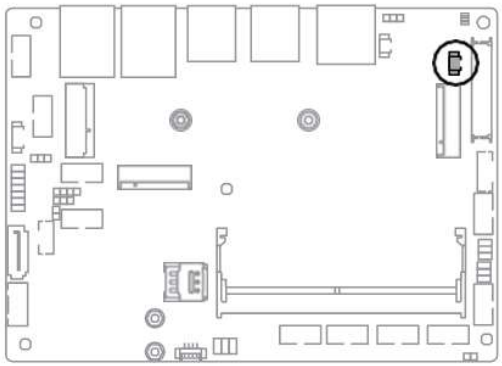
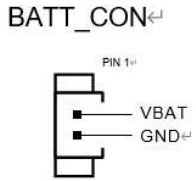
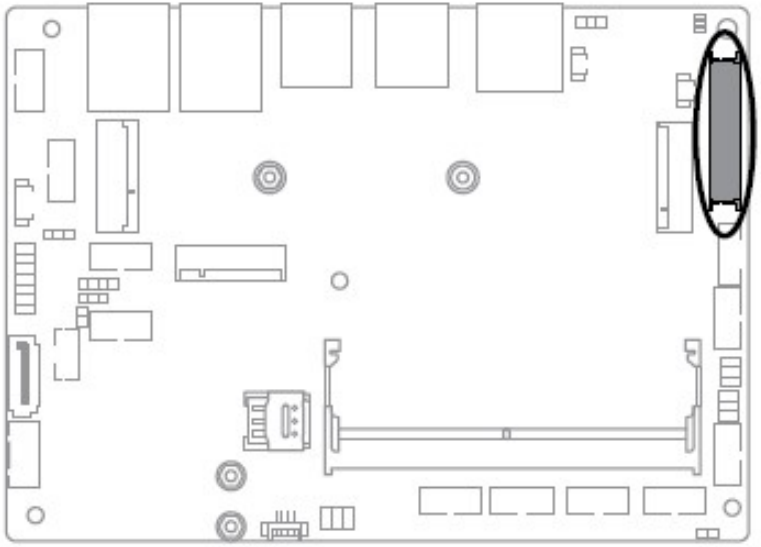
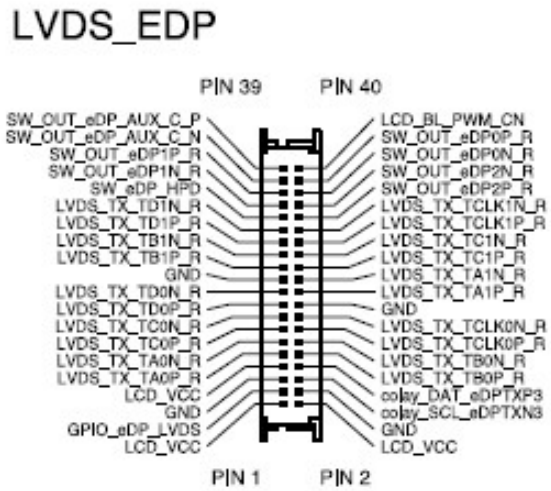
3 : Battery connector





4：LVDS connector





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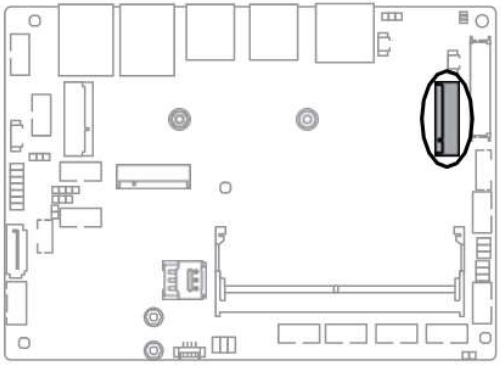
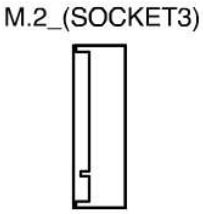
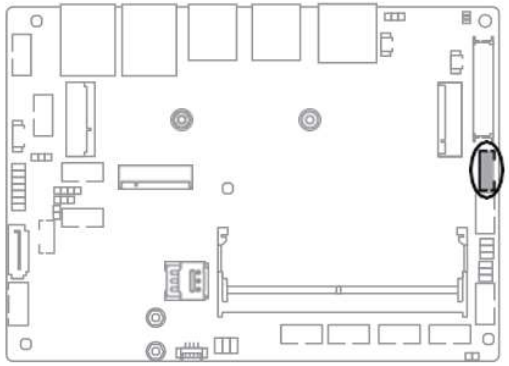
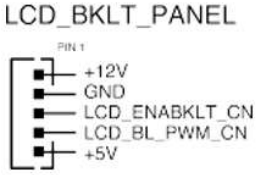
5：M.2 (M-key) slot





6: Backlight Inverter Power connector





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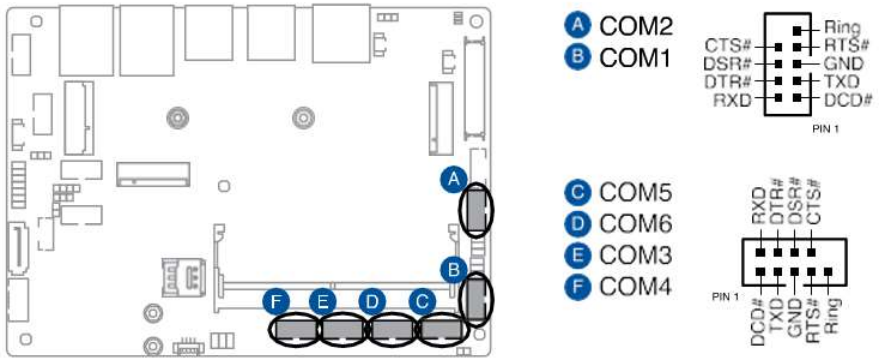
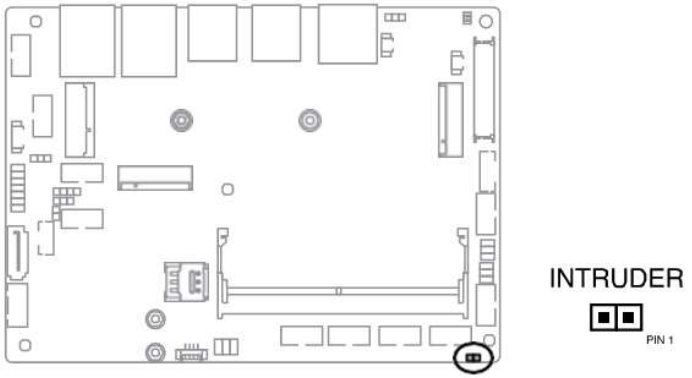
7 : Serial Port connector



8 : Chassis Intrusion connector



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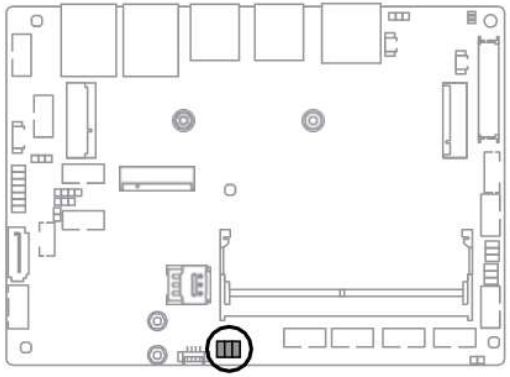
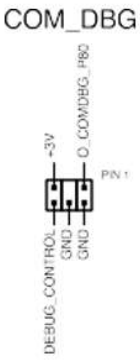
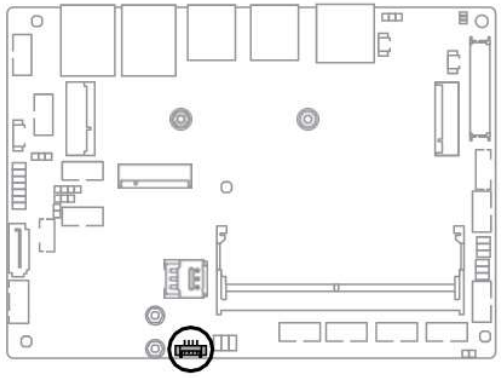
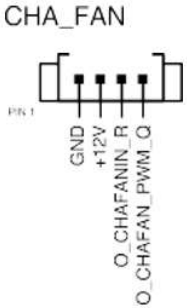
9 : COM Debug connector





10 : Fan Connector





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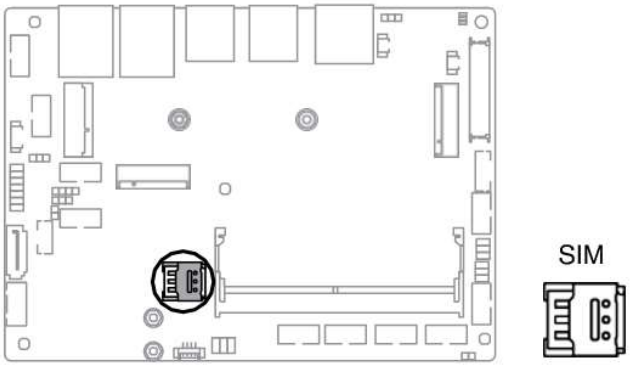
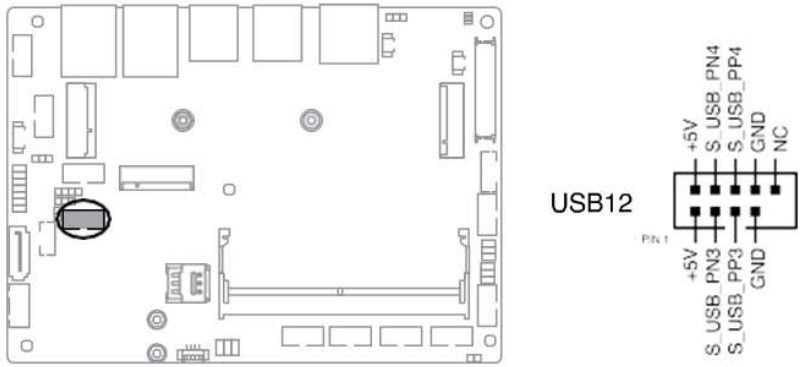
11 : Nano SIM Card slot



12 : USB 2.0 connector



WARNING: Do Not Connect a 1394 cable to the USB connectors. Dling so will damage the motherboard.

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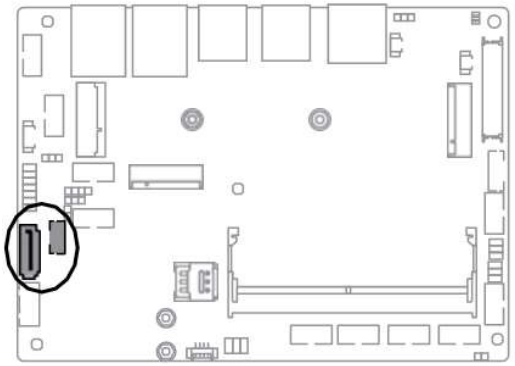
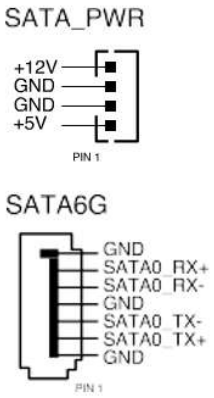
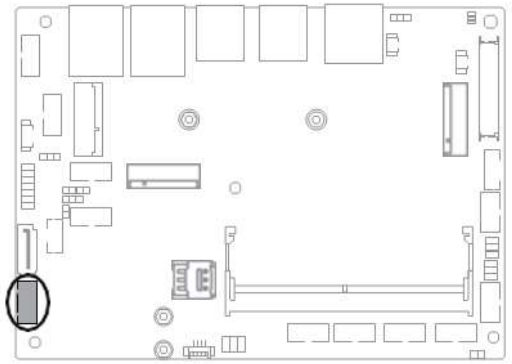
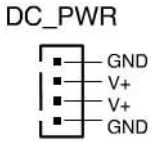
13 : SATA 6Gb/s & SATA Power connector





14 : DC-in 4-Pin Power connector





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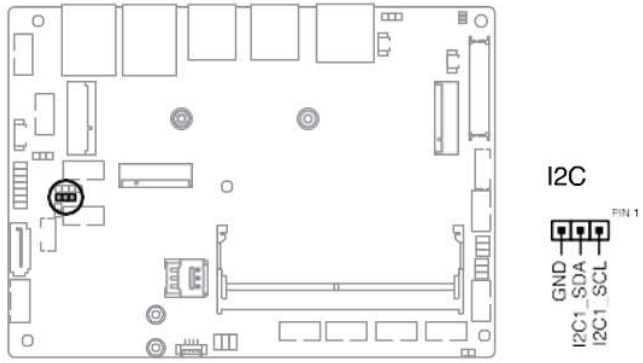
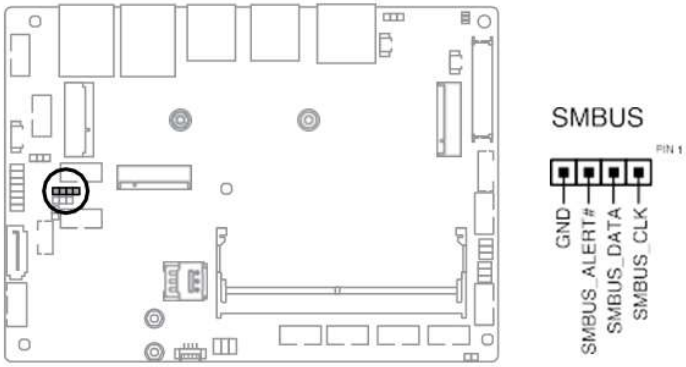
15 : I2C connect



16 : CMBus connector



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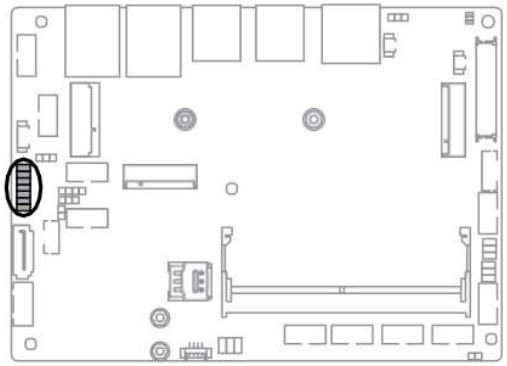
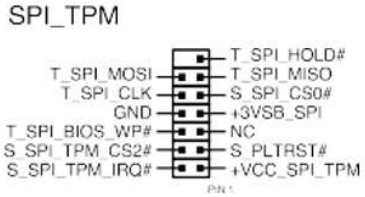
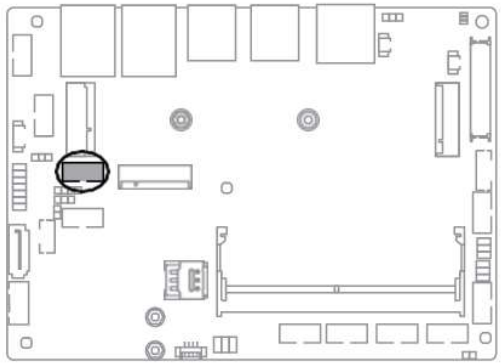
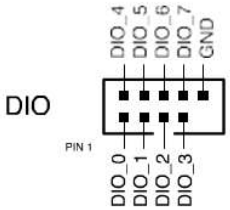
17 : SPI TPM connector





18 : GPIO connector





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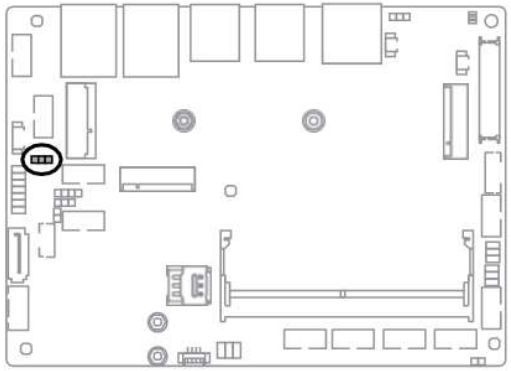
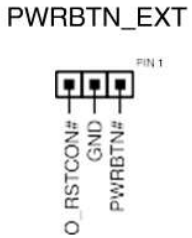
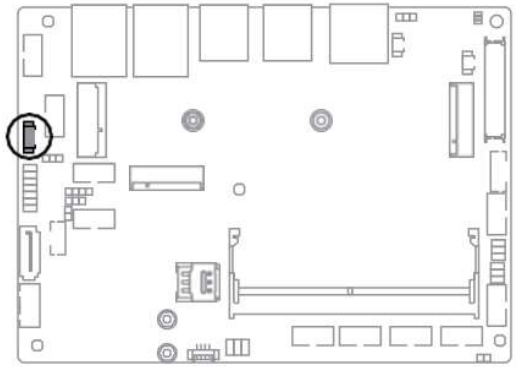
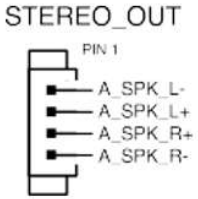
19 : Power Button Connector





20 : Stereo Out Connector





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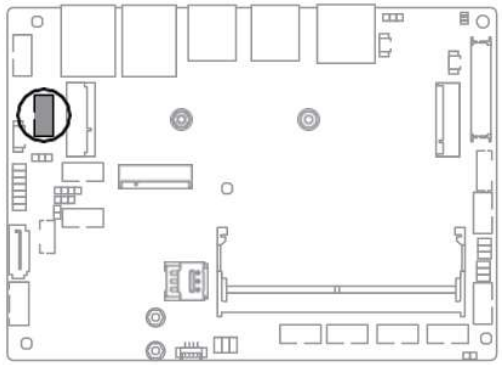
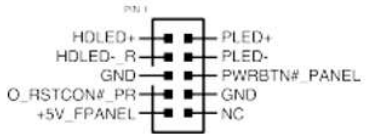
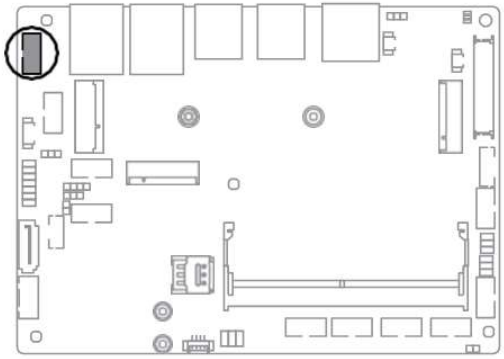
21：Front Panel connector



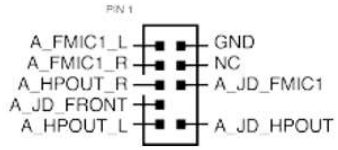
F_PANEL



22：Front Panel Audio (Line Out / Mic) connector



AAFP



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5 System Resources

5.1 Intel® Elkhart Lake SoC

Intel® Atom™ x6425E Processor(12C, 1.5M Cache, up to 3.00 GHz)

5.2 Main Memory

PEB-2274 provides 1 x 204-pin SO-DIMM sockets which supports DDR4 non-ECC memory. The maximum memory can be up to 32GB. Memory clock and related settings can be detected by BIOS via SPD interface.

Watch out the contact and lock integrity of memory module with socket, it will impact on the system reliability. Follow normal procedures to install memory module into memory socket. Before locking, make sure that all modules have been fully inserted into the card slots.

5.3 Installing the Single Board Computer

To install your PEB-2274 into standard chassis or proprietary environment, please perform the following:
Step 1 : Check all jumpers setting on proper position
Step 2 : Install and configure memory module on right position
Step 3 : Place PEB-2274 into the dedicated position in the system
Step 4 : Attach cables to existing peripheral devices and secure it

WARNING

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Please ensure that motherboard is properly inserted and fixed by mechanism.

5.3.1 Chipset Component Driver

The PEB-2274 build with Intel® Atom™ processor x6425E . It's a new chipset that some old operating systems might not be able to recognize. To overcome this compatibility issue, for Windows Operating Systems such as Windows 10, please install its INF before any of other Drivers are installed.

5.3.2 Intel® UHD Graphics

PEB-2274 has integrated Intel® UHD Graphics for 10th Gen Intel I® Processors.
Processor Graphics indicates graphics processing circuitry integrated into the processor, providing the graphics, compute, media, and display capabilities. Intel® HD Graphics, Iris™ Graphics, Iris Plus Graphics, and Iris Pro Graphics deliver enhanced media conversion, fast frame rates, and 4K Ultra HD (UHD) video
PEB-2274 supports LVDS, DP, HDMI display output. This combination makes PEB-2274 an excellent performance hardware.

5.3.3 Intel LAN I210IT Gigabit Ethernet Controller

- Intel I210IT Gigabit Ethernet controller and 2x RJ45 connectors on rear I/O

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6 BIOS Setup Items

6.1 Introduction

The following section describes the BIOS setup program. The BIOS setup program can be used to view and change the BIOS settings for the module. Only experienced users should change the default BIOS settings.

6.2 BIOS Setup

Power on the computer and the system will start POST (Power on Self Test) process. When the message below appears on the screen, press <Delete> or <ESC> key will enter BIOS setup screen.

Press<Delete> or <ESC> to enter SETUP

If the message disappears before responding and still wish to enter Setup, please restart the system by turning it OFF and On or pressing the RESET button. It can be also restarted by pressing <Ctrl>, <Alt>, and <Delete> keys on keyboard simultaneously.

Press <F1> to Run General Help or Resume

The BIOS setup program provides a General Help screen. The menu can be easily called up from any menu by pressing <F1>. The Help screen lists all the possible keys to use and the selections for the highlighted item. Press <Esc> to exit the Help Screen.

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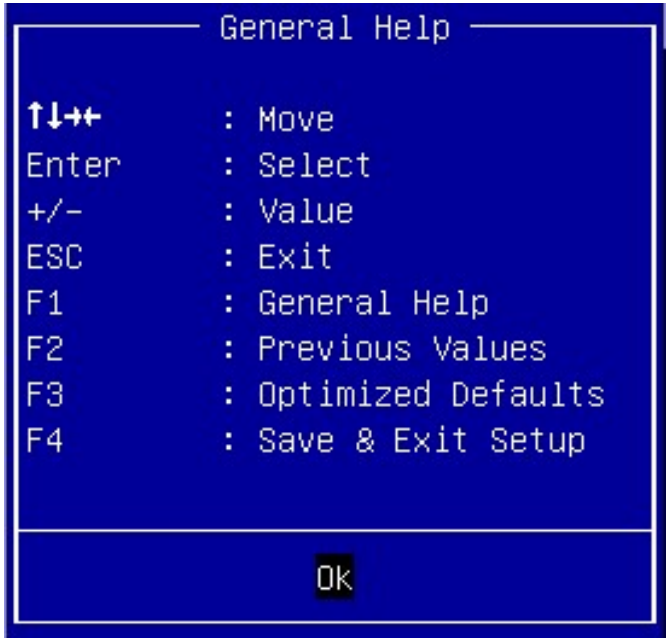

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6.2.1 Main

Use this menu for basic system configurations, such as time, date etc.

Feature	Description	Options
System Date	The date format is <Day>, <Month> <Date> <Year>. Use [+] or [—] to configure system Date.	
System Time	The time format is <Hour> <Minute> <Second>. Use [+] or [—] to configure system Time.	

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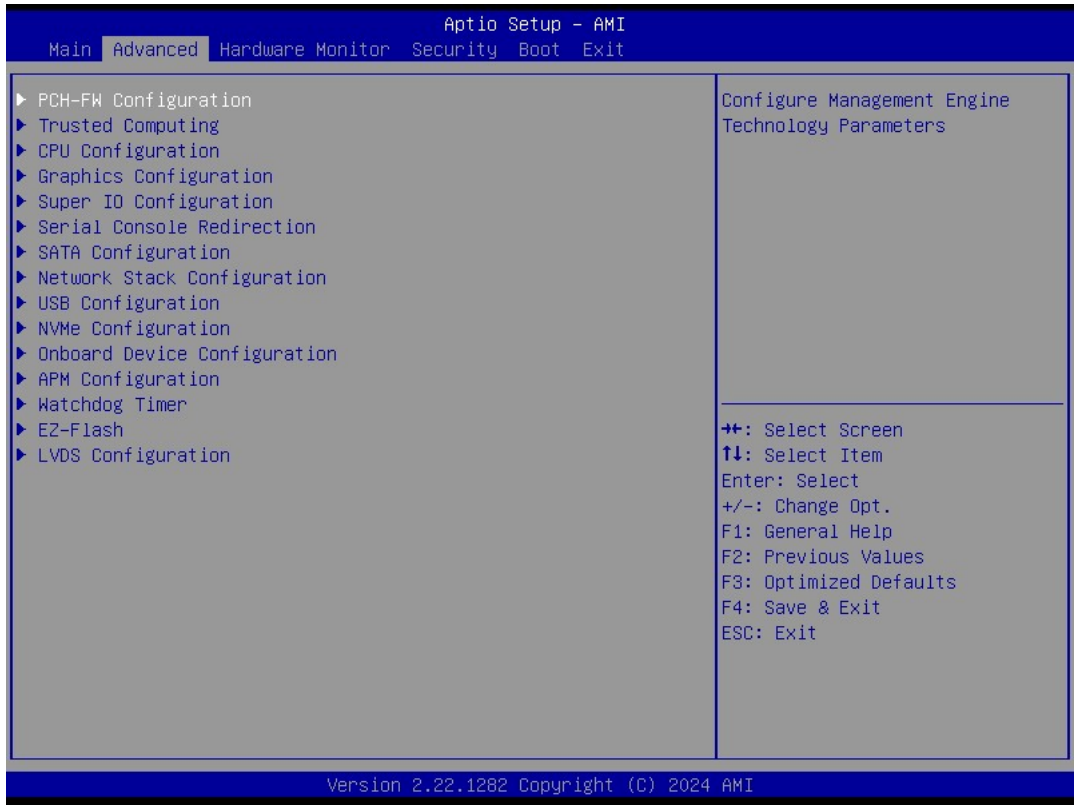
6.2.2 Configuration

Use this menu to set up the items of special enhanced features



PCH-FW Configuration

Configure Management Engine Technology Parameters

Feature	Description	Options
TPM Device Selection	Selects TPM device: PTT or dTPM. PTT-Enable PTT in SkuMgr dTPM1.2 –Disables PTT in SkuMgr Warning! PTT/ dTPM will be disabled and all data saved on it will be lost.	★dTPM, PTT

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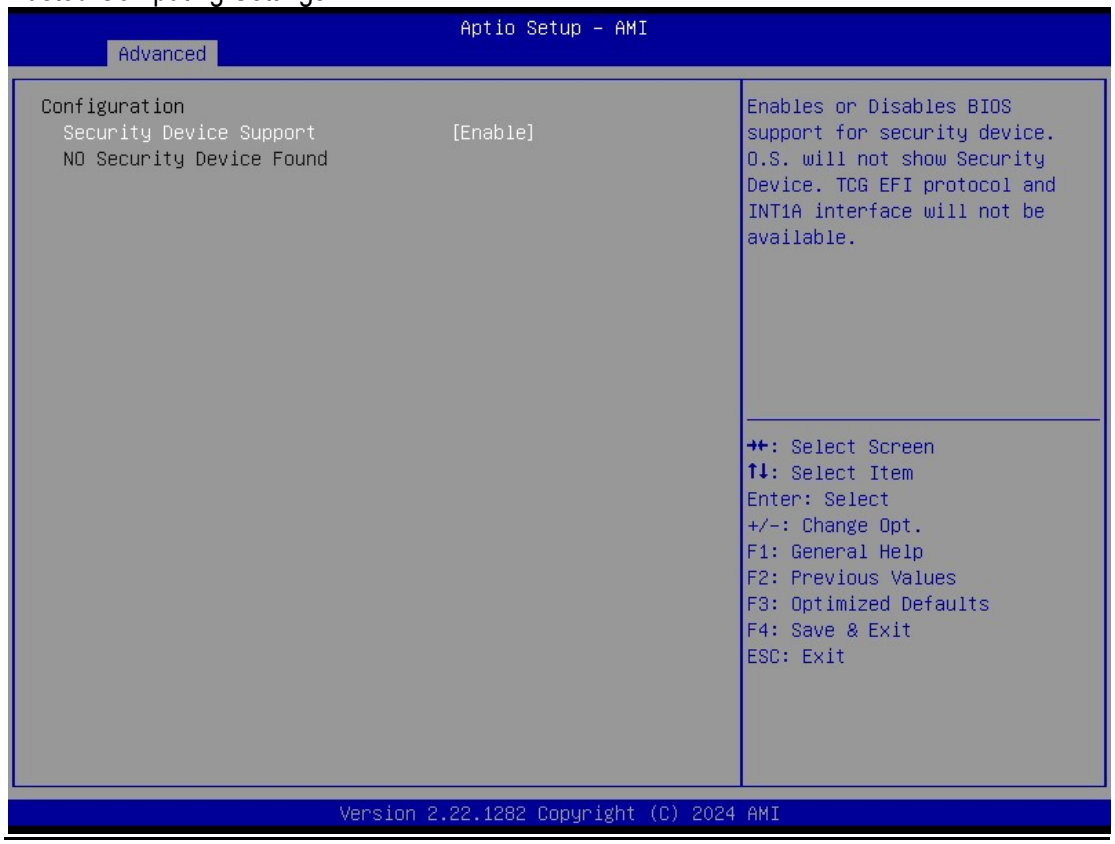
Trusted Computing

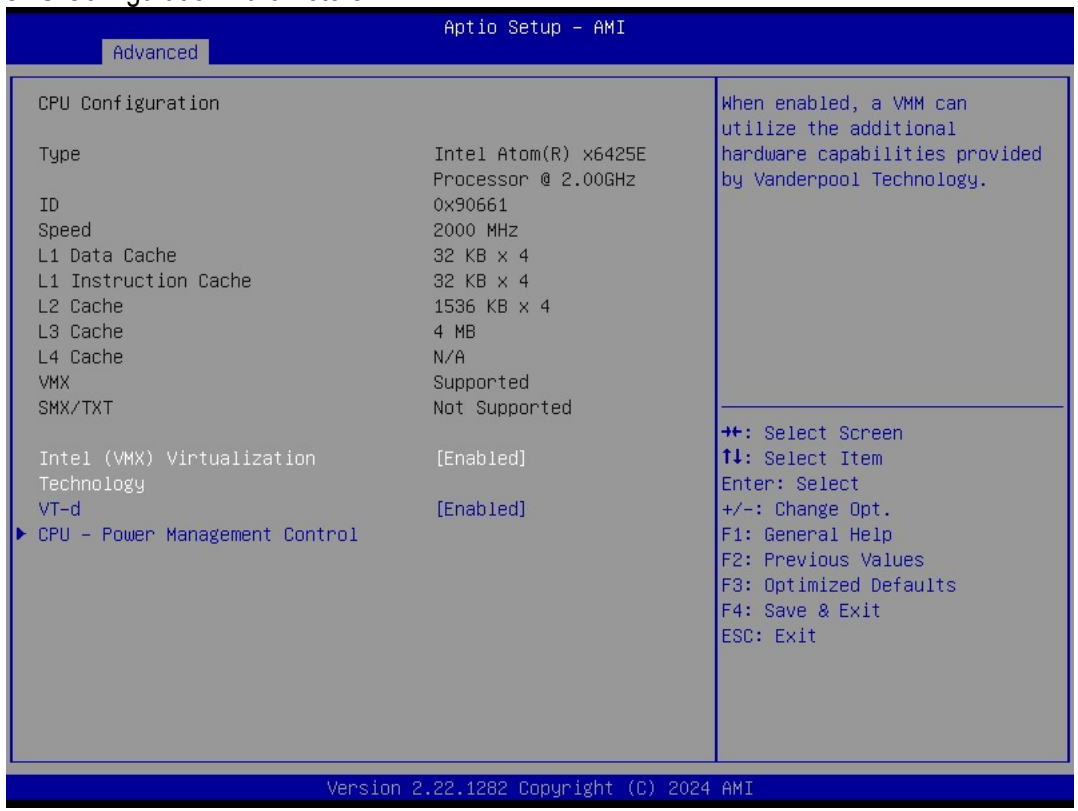
Trusted Computing Settings



Feature	Description	Options
Security Device Support	Enables or Disables BIOS support for security device. O.S. will not show Security Device. TCG EFI protocol and INT1A interface will not be available.	★Enable, Disable

CPU Configuration

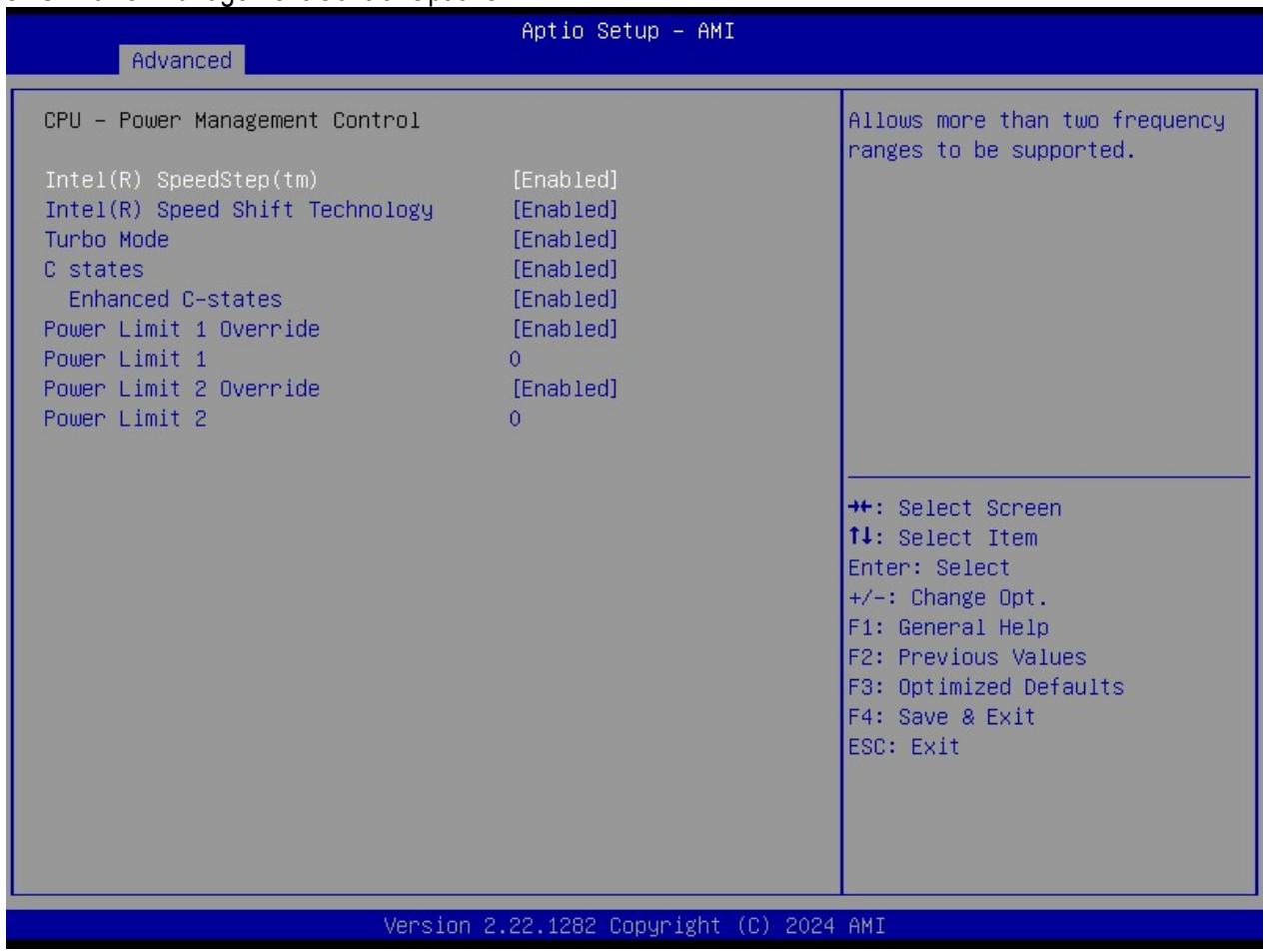
CPU Configuration Parameters



Feature	Description	Options
Intel (VMX)Virtualization Technology	When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.	★Enabled ,Disabled
VT-d	VT-d capability	★Enabled ,Disabled

CPU- Power Management Control

CPU- Power Management Control Options



Feature	Description	Options
Intel(R) SpeedStep(tm)	Allows more than two frequency ranges to be supported.	★Enabled ,Disabled
Intel(R) Speed Shift Technology	Enable/Disable Intel(R) Speed Shift Technology support. Enabling will expose the CPPC v2 interface to allow for hardware controlled P-states.	★Enabled ,Disabled
Turbo Mode	Enable/Disable processor Turbo Mode(requires EMTTM enabled too). AUTO means enabled.	★Enabled ,Disabled
C states	Enable/Disable CPU Power Management. Allows CPU to go to C states when it's not 100% utilized.	★Enabled ,Disabled
Enhanced C-states	Enable/Disable C1E. When enabled, CPU will switch to minimum speed when all cores enter C-State.	★Enabled ,Disabled
Power Limit 1 Override	Enable/Disable Power Limit 1 override. If this option is disables, BIOS will program the default values for power Limit 1 and Power Limit 1 Time Window.	★Disabled, Enabled
Power Limit 1 Override [Enable]		
Power Limit 1	Power Limit 1 in Milli Wattts. BIOS will round to the nearest 1/8W when programming. 0=no custom override. For 12.50W, enter 12500. Overclocking SKU: Value must be between Max and Min Power Limits(specified by PACKAGE_POWER_SKU_MSR). Other SKUs: This value must be between Min Power Limit and TDP Limit.	★0
Power Limit 2 Override	Enable/Disable Power Limit 1 override. If this option is disables, BIOS will program the default values for Power Limit 2 .	★Enabled ,Disabled
Power Limit 2	Power Limit 2 value in Milli Wattts. BIOS will round to the nearest 1/8W when programming. If value is 0, BIOS will program this value as 1.25*TDP. For 12.50w, enter 12500. Processor applies control policies such that the package power does not exceed this limit.	★0

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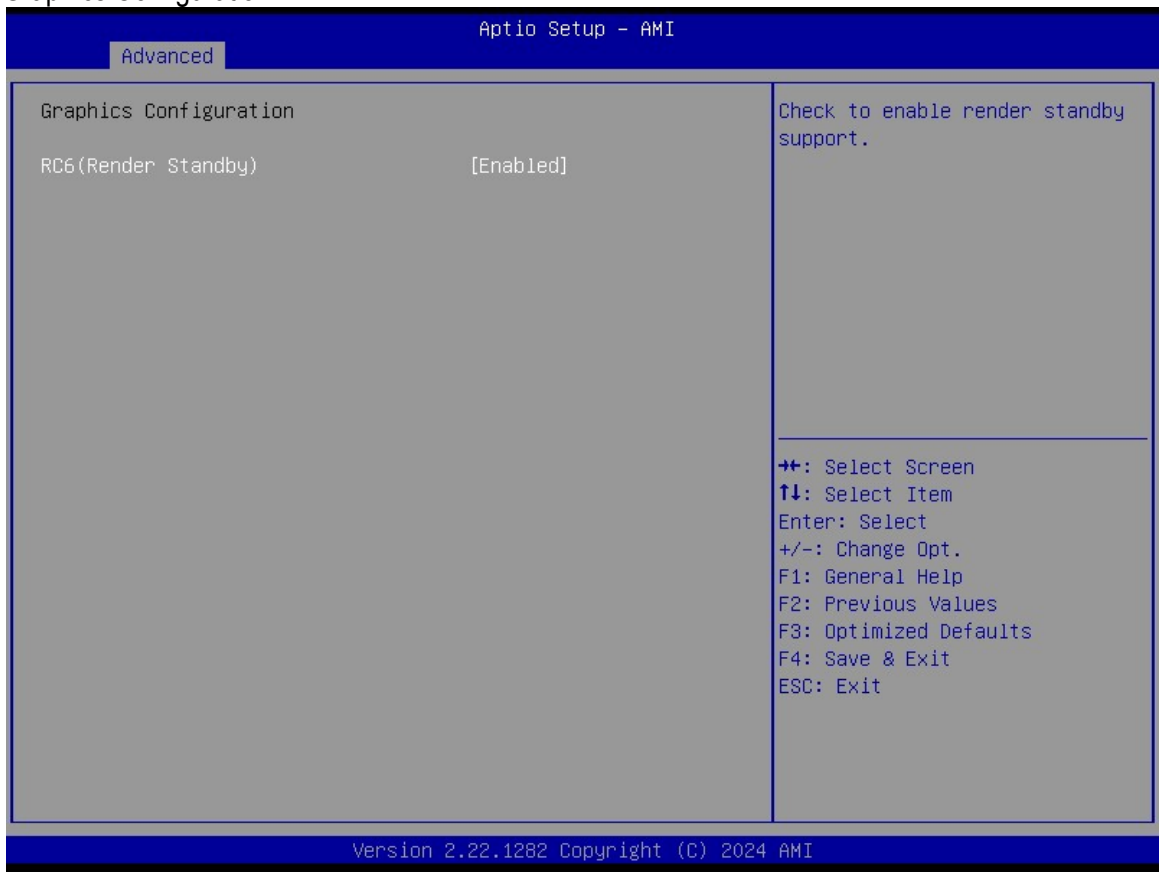
Graphics Configuration

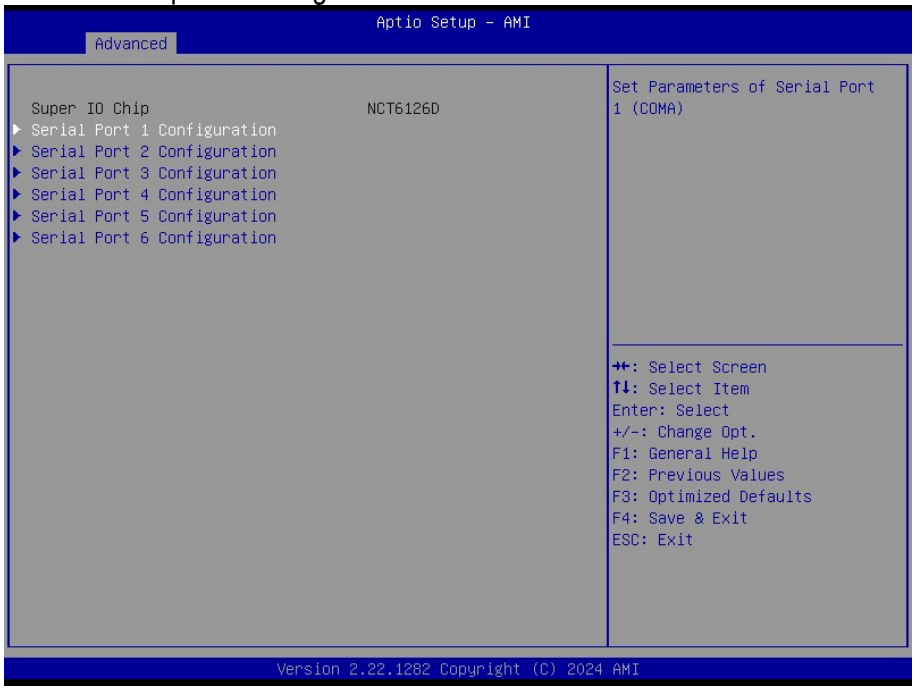
Graphics Configuration



Feature	Description	Options
RC6(Render Standby)	Check to enable render standby support.	★Enabled, Disabled

Super IO Configuration

NCT6126D Super IO Configuration



Feature	Description	Options
Serial Port 1 Configuration	Set Parameters of Serial Port1(COMA)	
Serial Port 2 Configuration	Set Parameters of Serial Port2(COMB)	
Serial Port 3 Configuration	Set Parameters of Serial Port3(COMC)	
Serial Port 4 Configuration	Set Parameters of Serial Port4(COMD)	
Serial Port 5 Configuration	Set Parameters of Serial Port5(COME)	
Serial Port 6 Configuration	Set Parameters of Serial Port6(COMF)	

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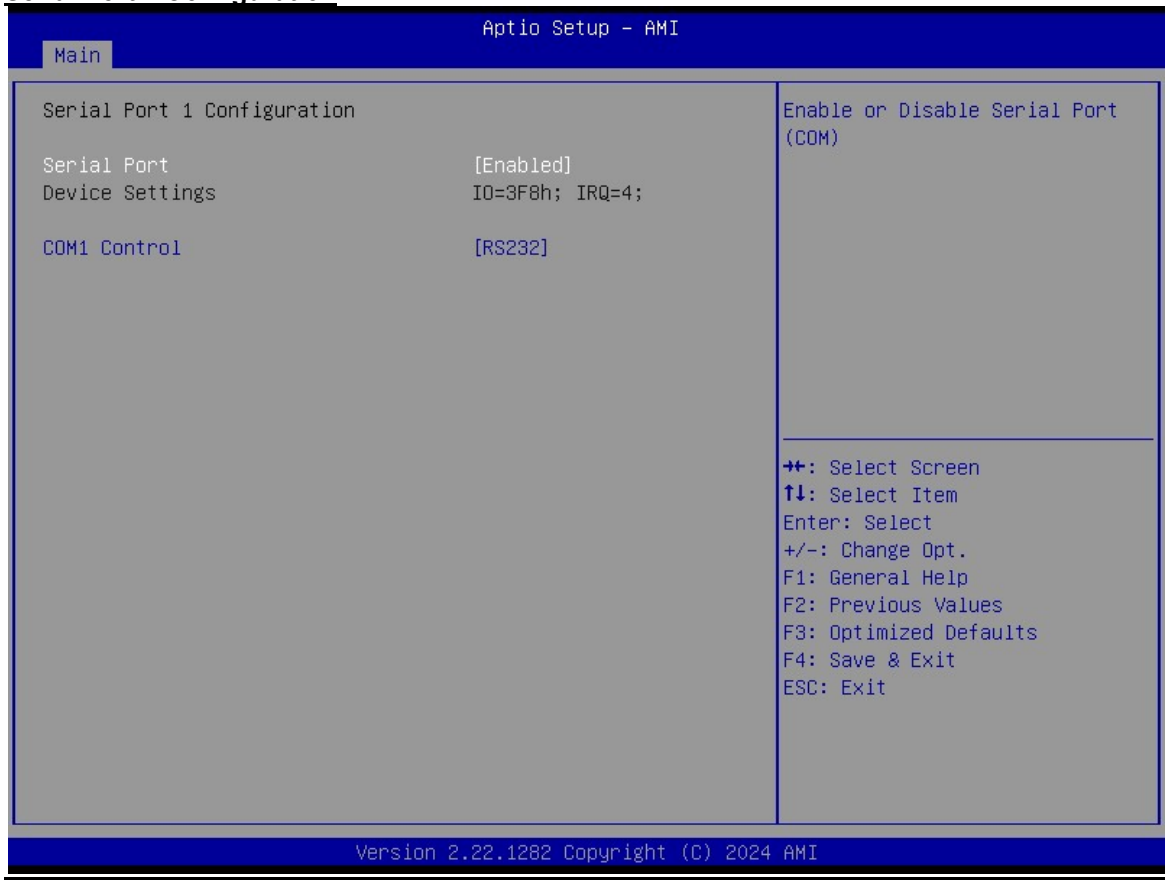
Serial Port 1 Configuration



Feature	Description	Options
Serial Port	Enable or Disable Serial Port (COM)	★Enabled ,Disabled
COM1 Control	Select COM1 mode. RS232, RS422 or RS485	★RS232,RS422,RS485

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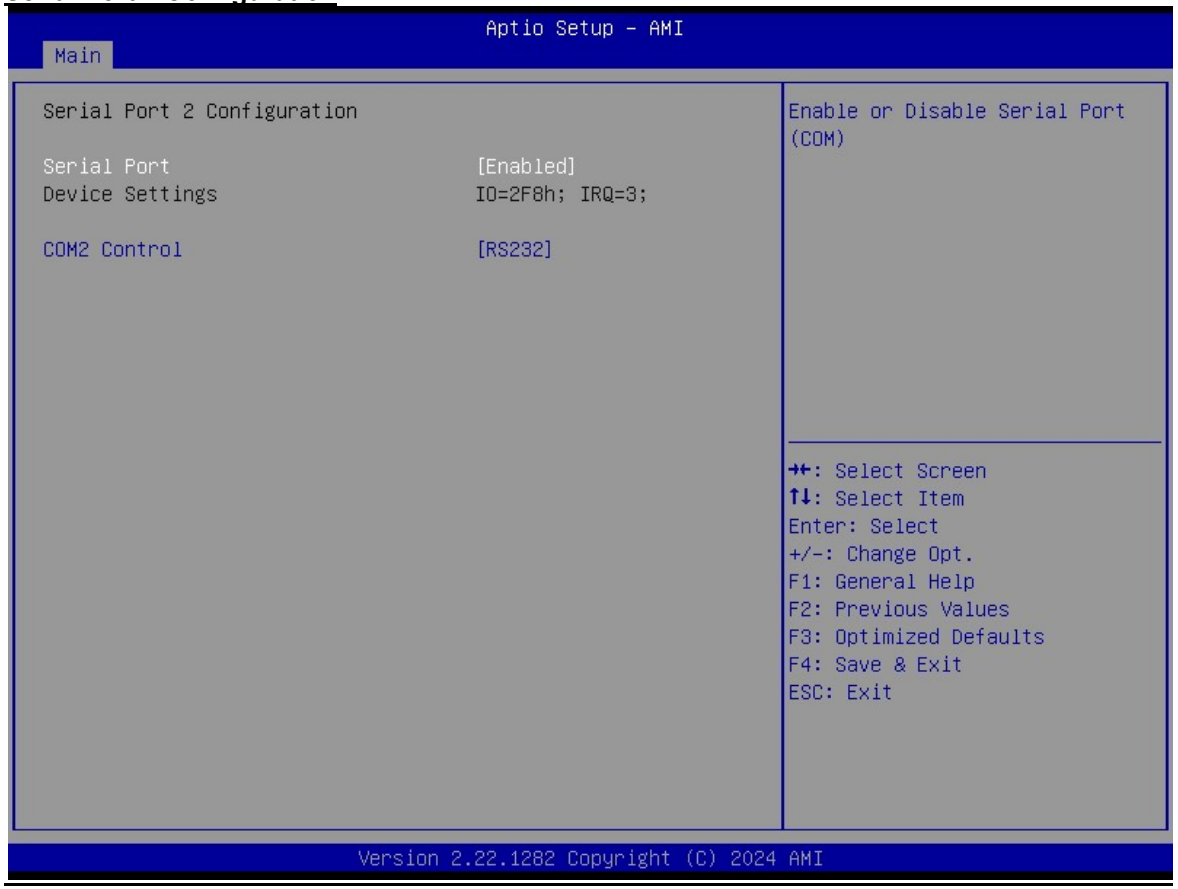
Serial Port 2 Configuration



Feature	Description	Options
Serial Port	Enable or Disable Serial Port (COM)	★Enabled ,Disabled
COM2 Control	Select COM2 mode. RS232, RS422 or RS485	★RS232,RS422,RS485

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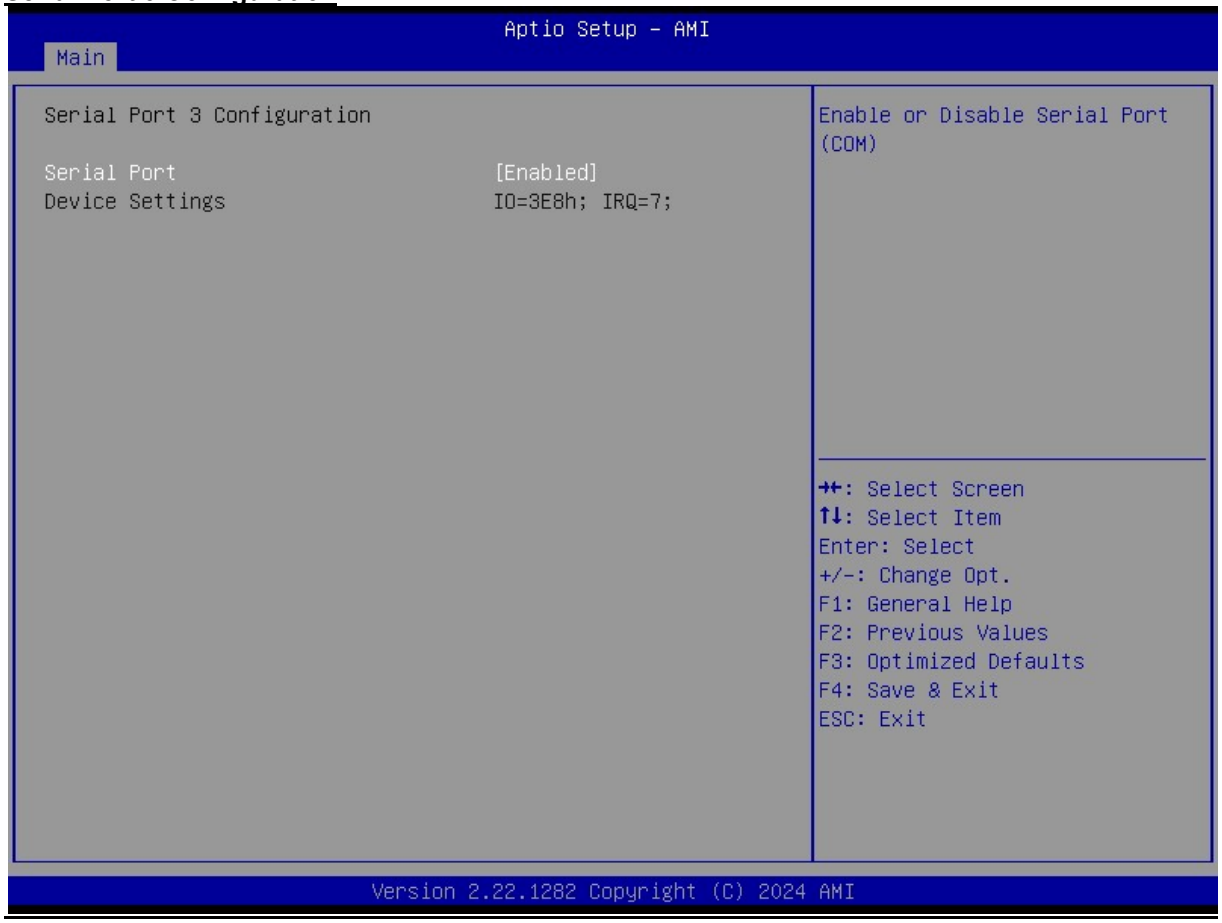
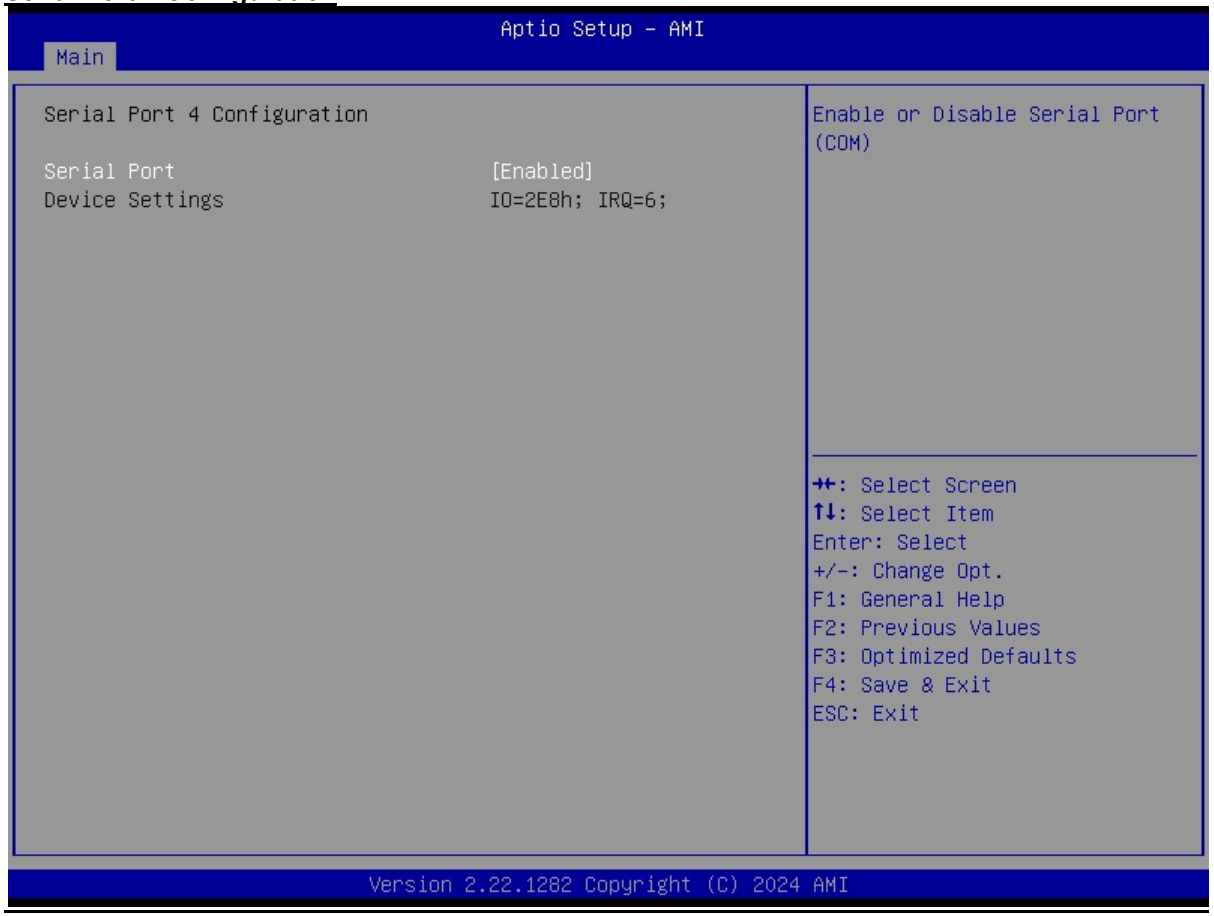
Serial Port 3 Configuration



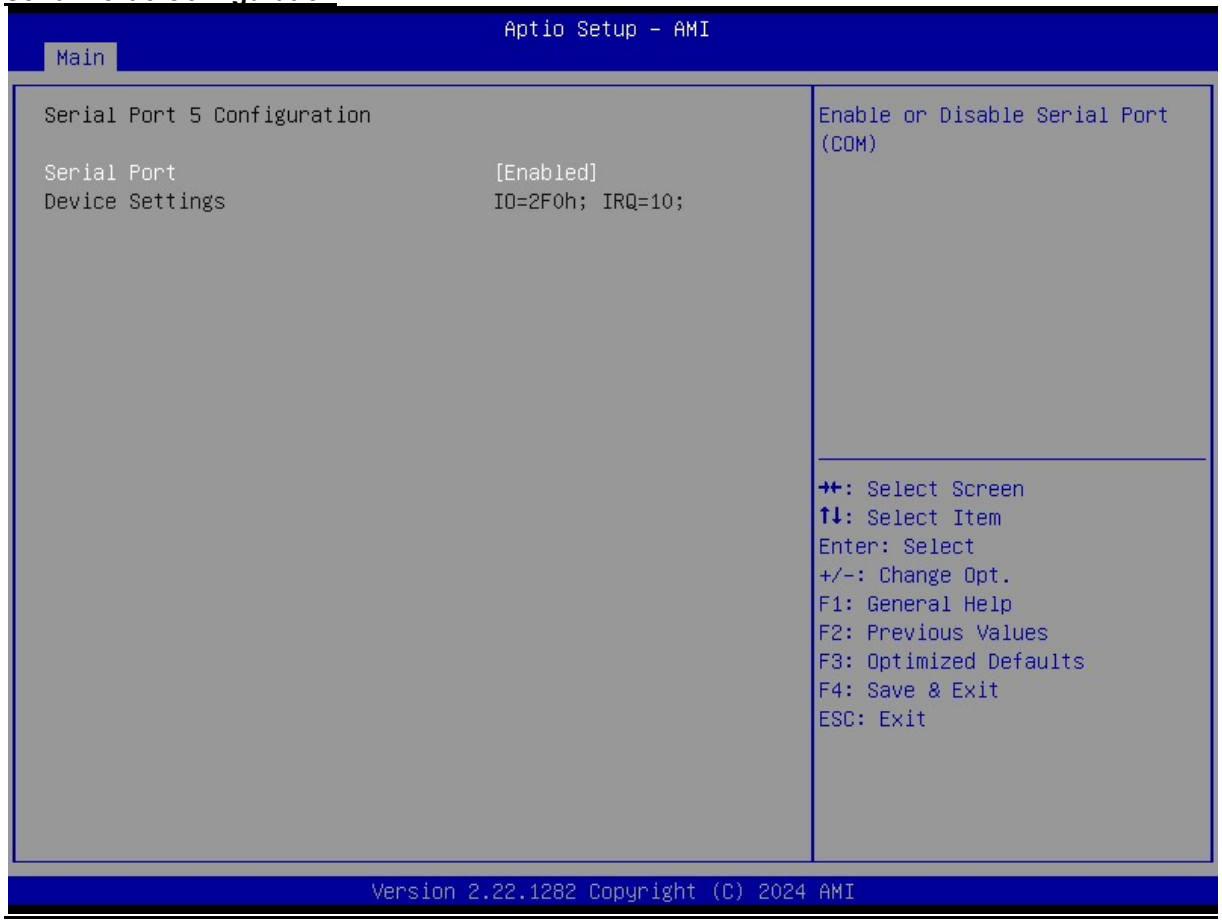
Feature	Description	Options
Serial Port	Enable or Disable Serial Port (COM)	★Enabled ,Disabled

Serial Port 4 Configuration



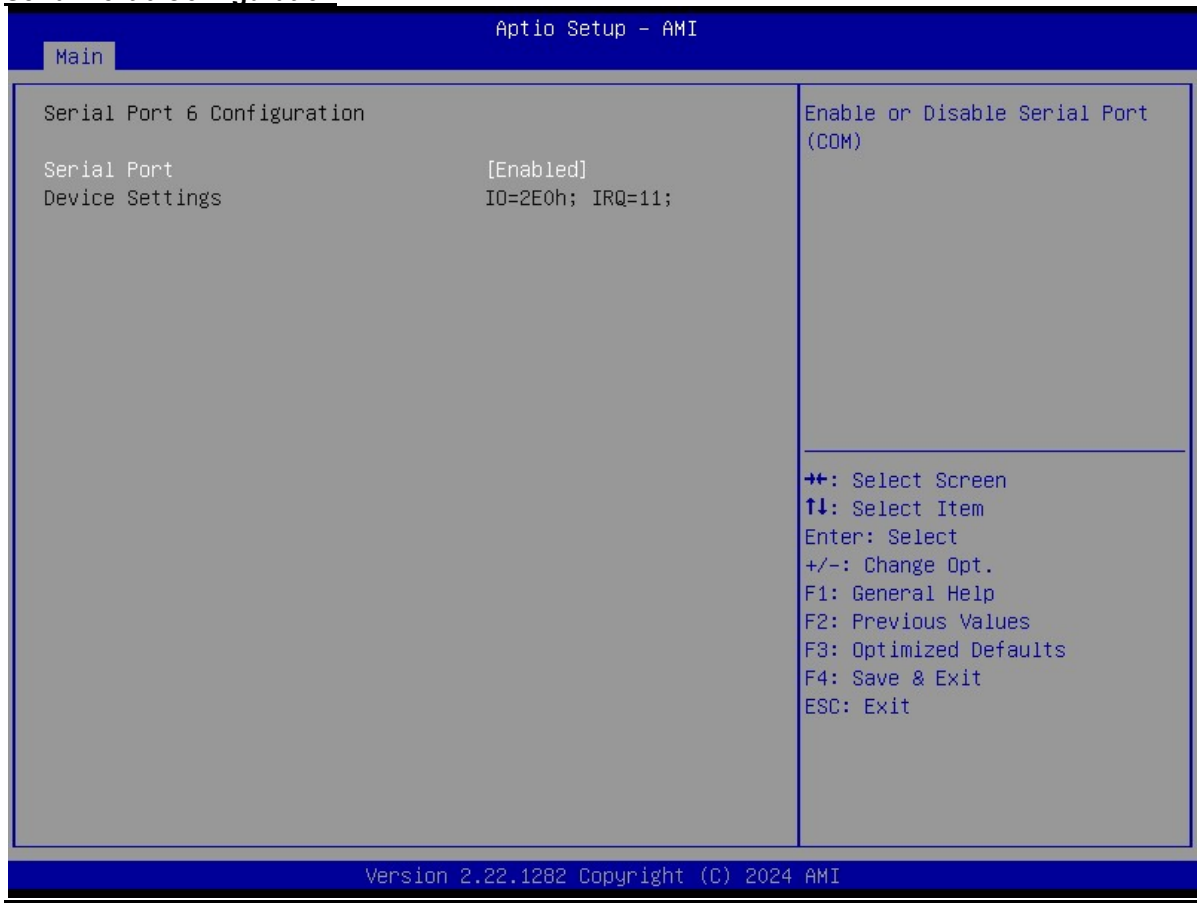
Feature	Description	Options
Serial Port	Enable or Disable Serial Port (COM)	★Enabled ,Disabled

Serial Port 5 Configuration



Feature	Description	Options
Serial Port	Enable or Disable Serial Port (COM)	★Enabled ,Disabled

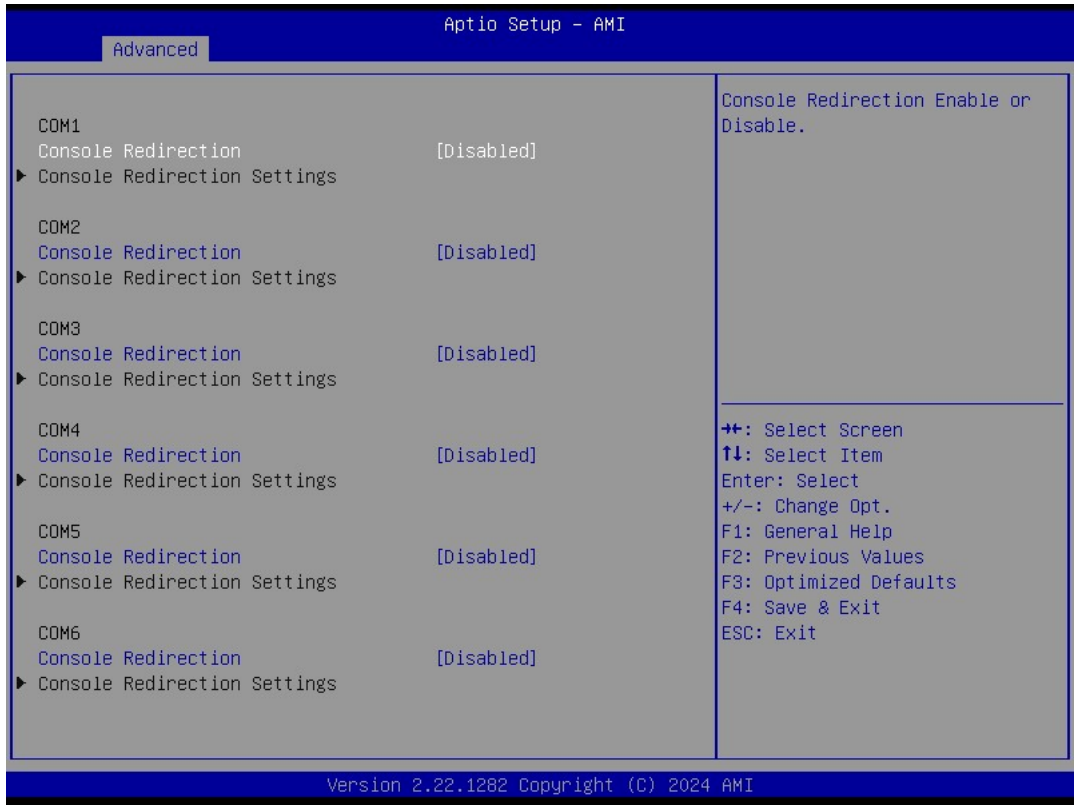
Serial Port 6 Configuration



Feature	Description	Options
Serial Port	Enable or Disable Serial Port (COM)	★Enabled ,Disabled

Serial Console Redirection

Serial Console Redirection



Feature	Description	Options
Console Redirection	Console Redirection Enable or Disable	★Disabled, Enabled
Console Redirection [Enabled]		
Console Redirection Settings	The settings specify how the host computer and the remote computer (which the user is using) will exchange data. Both computers should have the same or compatible settings.	

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Console Redirection Settings

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Feature	Description	Options
Terminal Type	Emulation: ANSI: Extended ASCII char set. VT100: ASCII char set. VT100+: Extends VT100 to support color, function keys, etc. VT-UTF8: Uses UTF8 encoding to map Unicode chars onto 1 or more bytes.	★ANSI, VT100, VT100+, VT-UTF8
Bits per second	Select Serial port transmission speed. The speed must be matched on other side. Long or noisy lines may require lower speeds.	★115200, 9600, 19200, 38400, 57600
Data bits	Data bits	★8, 7
Parity	A parity bit can be sent with the data bits to detect some transmission errors. Even: parity bit is 0 if the num of 1's in the data bits is even. Odd: parity bit is 0 if num of 1's in the data bits is odd. Mark: parity bit is always 1. Space Parity bit is always 0. Mark and Space Parity do not allow for error detection.	★None, Even, Odd, Mark, Space
Stop Bits	Stop bits indicate the end of a serial data packet. (A start bit indicates the beginning). The standard setting is 1 stop bit. Communication with slow devices may require more than 1 stop bit.	★1,2
Flow Control	Flow control can prevent data loss from buffer overflow. When sending data, if the receiving buffers are full, a 'stop' signal can be sent to stop the data flow. Once the buffers are empty, a 'start' signal can be sent to re-start the flow. Hardware flow control uses two wires to send start/stop signals.	★None, Hardware RTS/CTS
VT-UTFB Combo Key Support	Enable VT-UTF8 Combination Key Support for ANSI/VT100 terminals	★Enabled, Disabled
Recorder Mode	With this mode enabled only text will be sent. This is to capture Terminal data.	★Disabled, Enabled
Resolution 100x31	Enables or disables extended terminal resolution	★Disabled, Enabled
Putty KeyPad	Select FunctionKey and KeyPad on Putty	★VT100, LINUX,XTERMR6, SCO, ESCN, VT400

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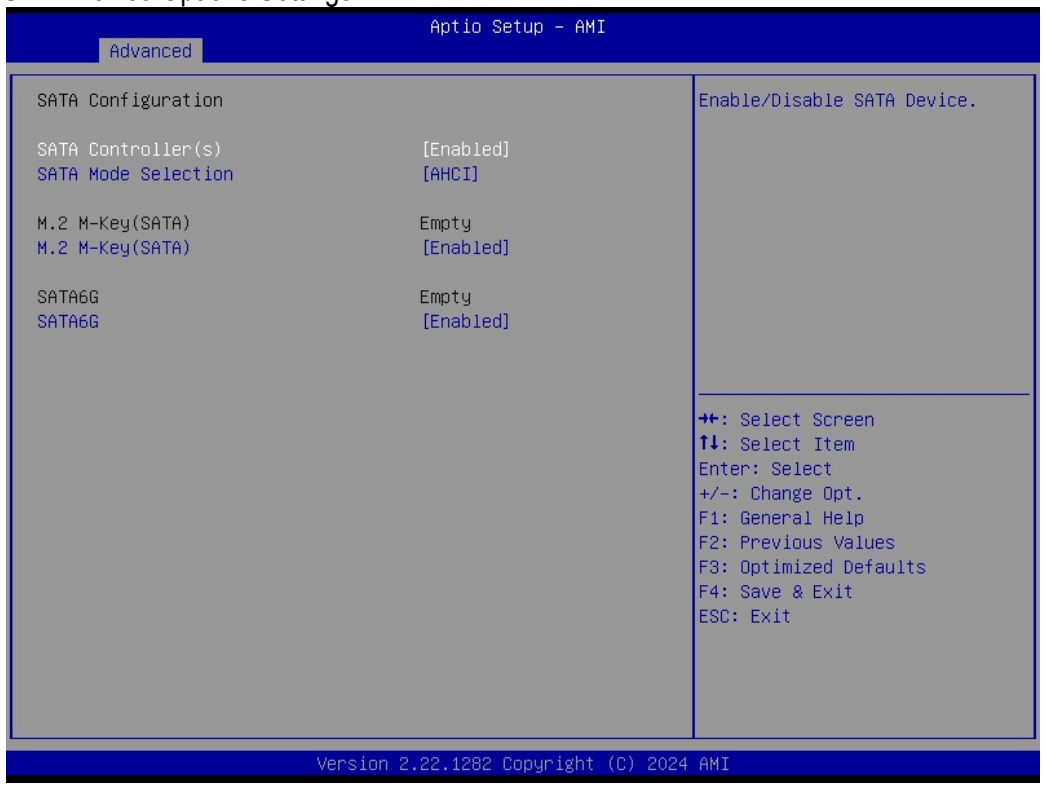
SATA Configuration

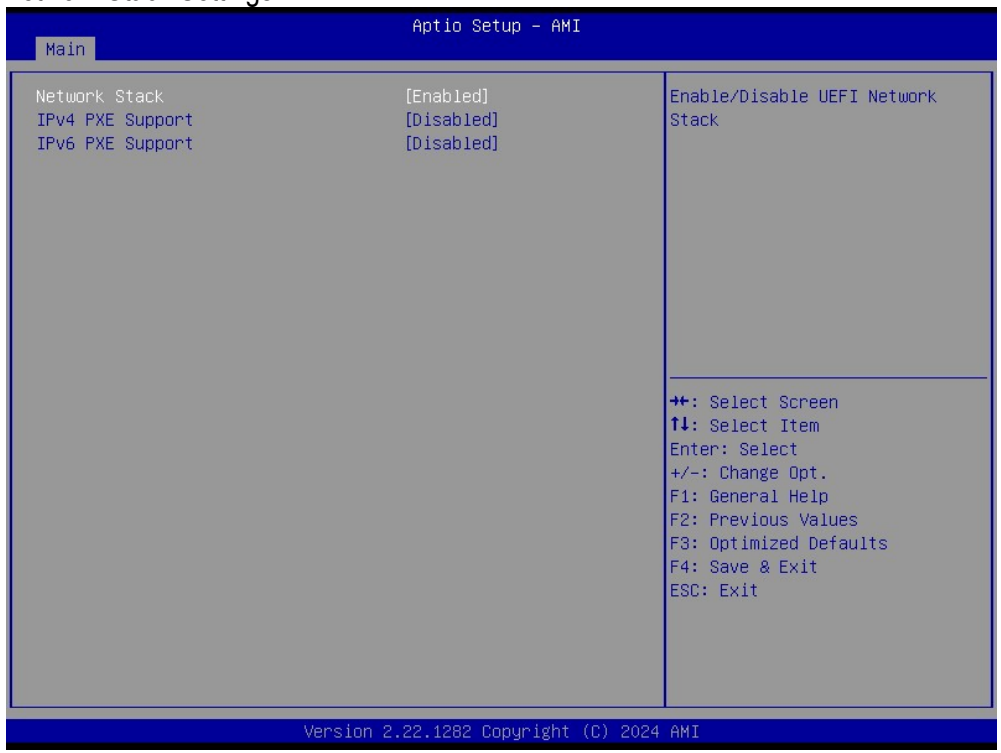
SATA Device Options Settings



Feature	Description	Options
SATA Controller(s)	Enable/Disable SATA Device.	★Enabled , Disabled
SATA Mode Selection	Determines how SATA controller(s) operate.	★AHCI
M.2 M-Key(SATA)	Enable or Disable SATA Port	★Enabled , Disabled
SATA6G	Enable or Disable SATA Port	★Enabled, Disabled

Network Stack Configuration

Network Stack Settings



Feature	Description	Options
Network Stack	Enable/ Disable UEFI Network Stack	★Disabled, Enabled
Network Stack [Enabled]		
Ipv4 PXE Support	Enable/Disable IPv4 PXE boot support. If disable, IPv4 PXE boot support will not be available.	★Disabled, Enabled
Ipv6 PXE Support	Enable/Disable IPv6 PXE boot support. If disable, IPv6 PXE boot support will not be available.	★Disabled, Enabled

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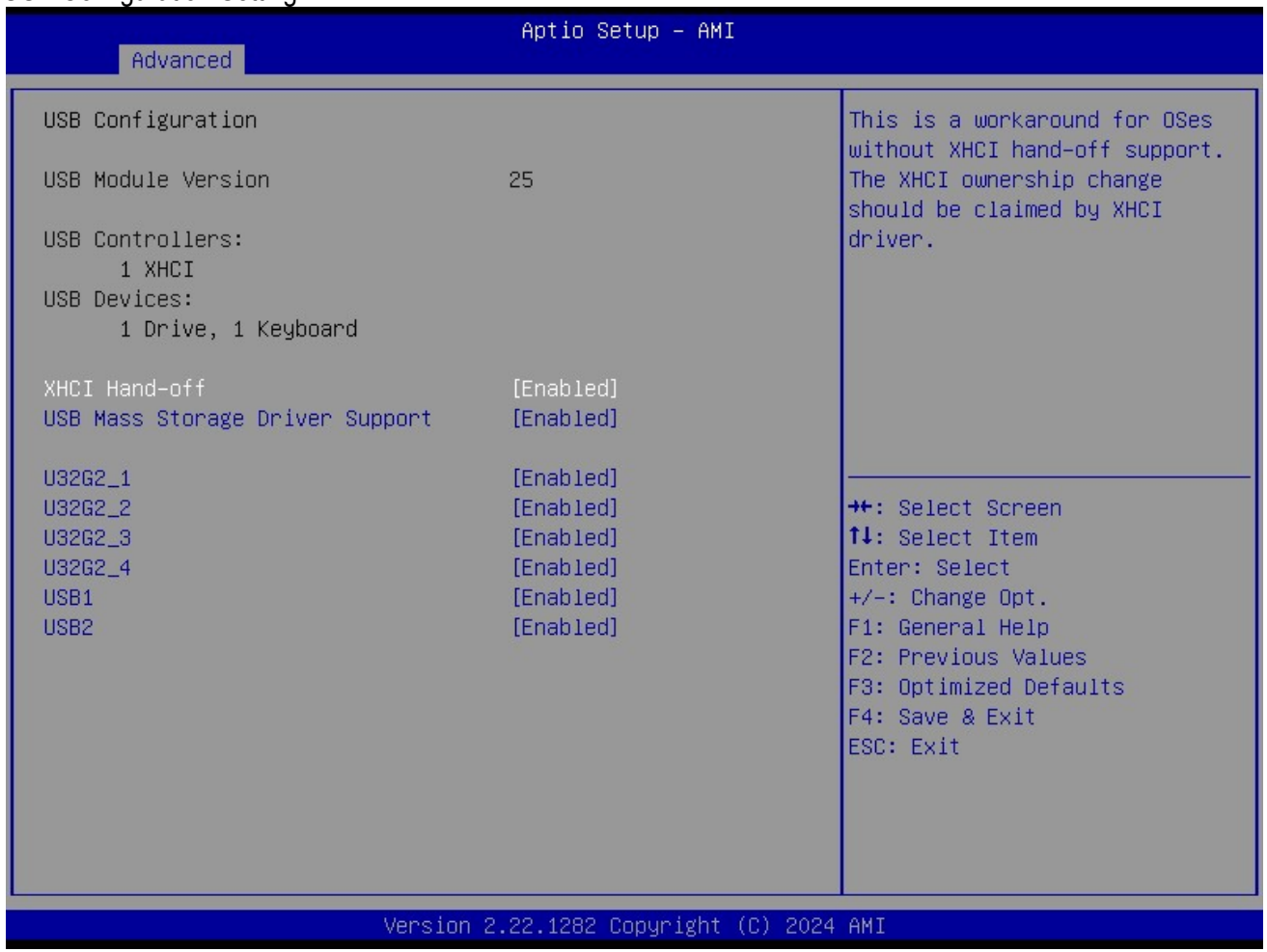
USB Configuration

USB Configuration Setting



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Feature	Description	Options
XHCI Hand-off	This is a workaround for OSes without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver	★Enabled, Disabled
USB Mass Storage Driver Support	Enable/Disable USB Mass Storage Driver Support	★Enabled, Disabled
U32G2_1~4	Enable/Disable this USB Physical Connector (physical port). Once disabled, any USB devices plug into the connector will not be detected by BIOS or OS.	★Enabled, Disabled
USB1~2	Enable/Disable this USB Physical Connector (Physical port). Once disabled, any USB devices plug into the connector will not be detected by BIOS or OS.	★Enabled, Disabled

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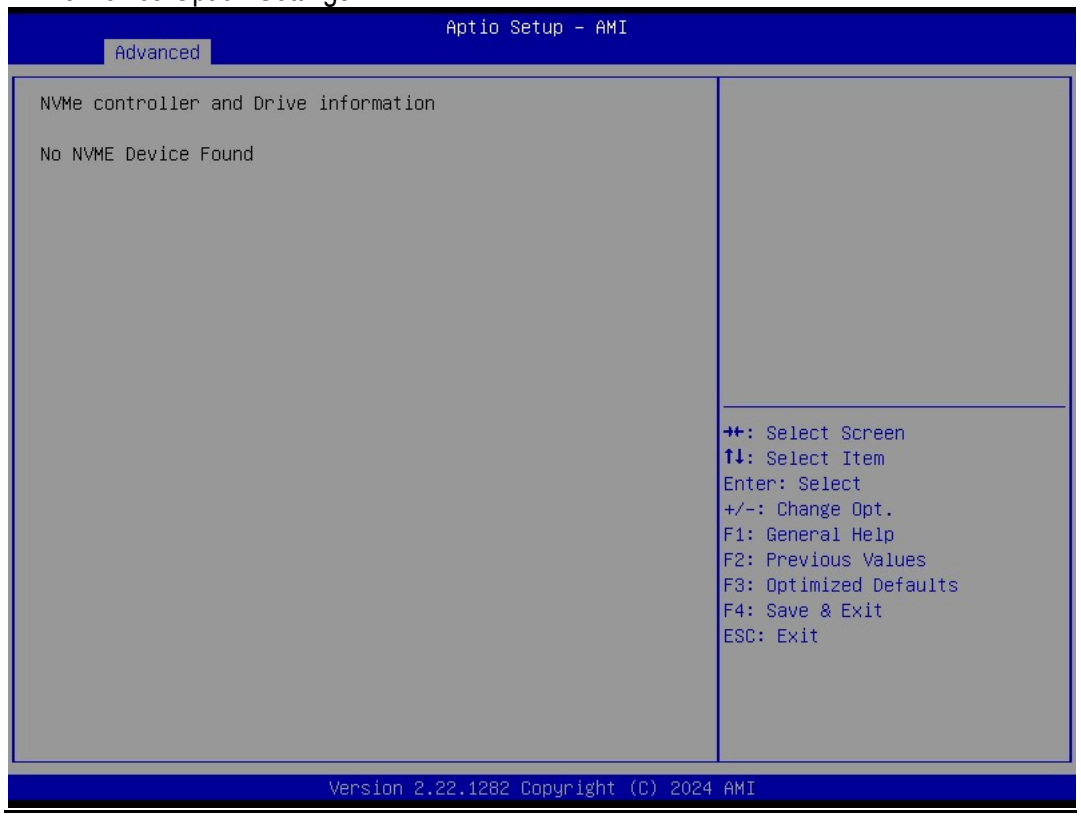
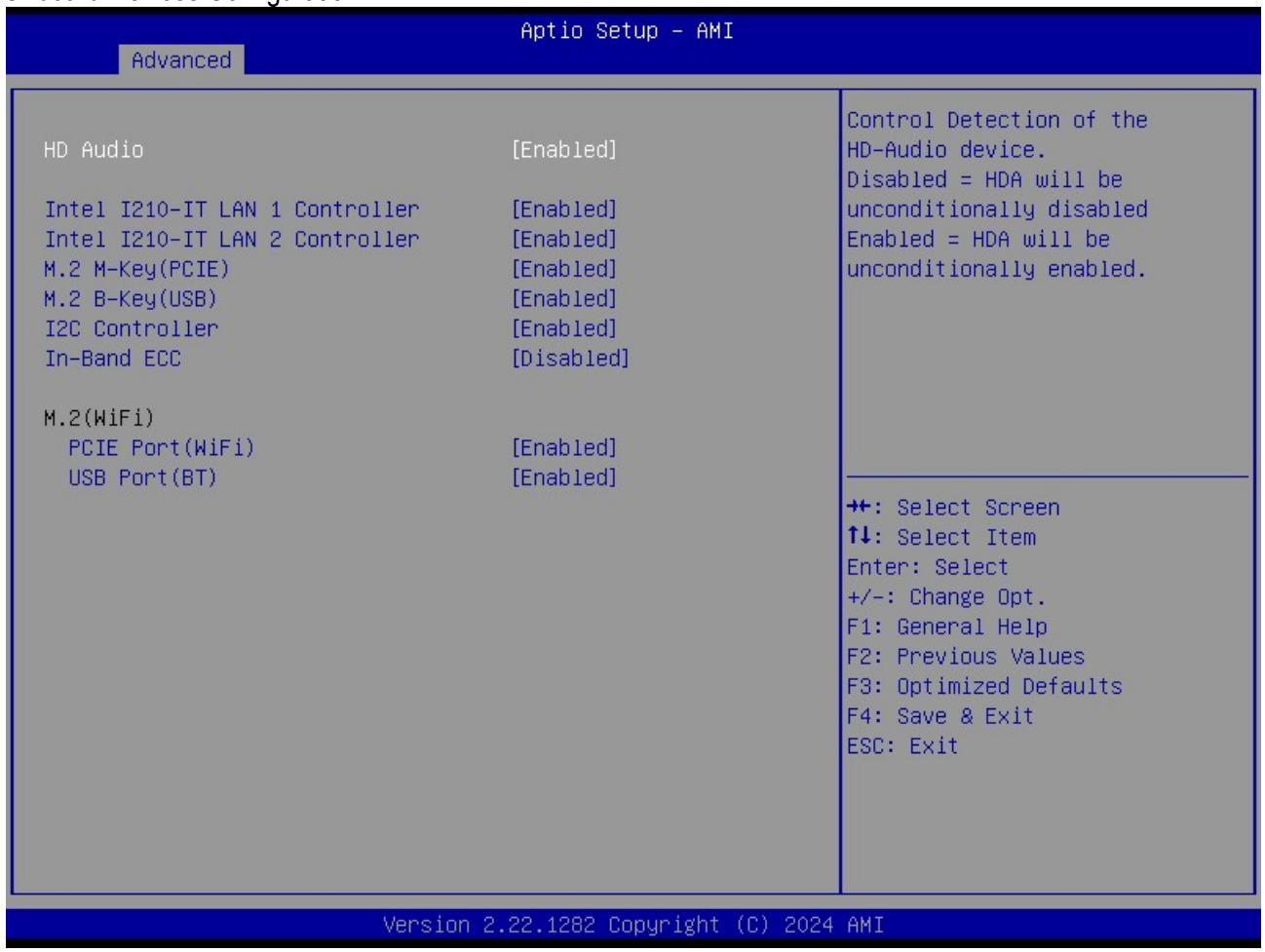
NVMe Configuration

NVMe Device Option Settings



Onboard Devices Configuration

Onboard Devices Configuration



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Feature	Description	Options
HD Audio	Control Detection of the HD-Audio device. Disabled= HDA will be unconditionally disabled. Enabled= HDA will be unconditionally enabled.	★Enabled, Disabled
Intel I210-IT LAN1 Controller	Enable/Disable Intel I210-IT LAN1 Controller	★Enabled, Disabled
Intel I210-IT LAN2 Controller	Enable/Disable Intel I210-IT LAN2 Controller	★Enabled, Disabled
M.2 M-Key(PCIE)	Enable/Disable M.2 M-Key(PCIE)	★Enabled, Disabled
M.2 B-Key(USB)	Enable/Disable M.2 B-Key(USB)	★Enabled, Disabled
I2C Controller	Enable/Disable I2C Controller	★Enabled, Disabled
In-Band ECC	Enable/Disable In-Band ECC	★Disabled, Enabled
PCIE Port(WiFi)	Enable/Disable M.2 WiFi (PCIE Port) Controller	★Enabled, Disabled
USB Port (BT)	Enable/Disable M.2 BT(USB Port) Controller	★Enabled, Disabled

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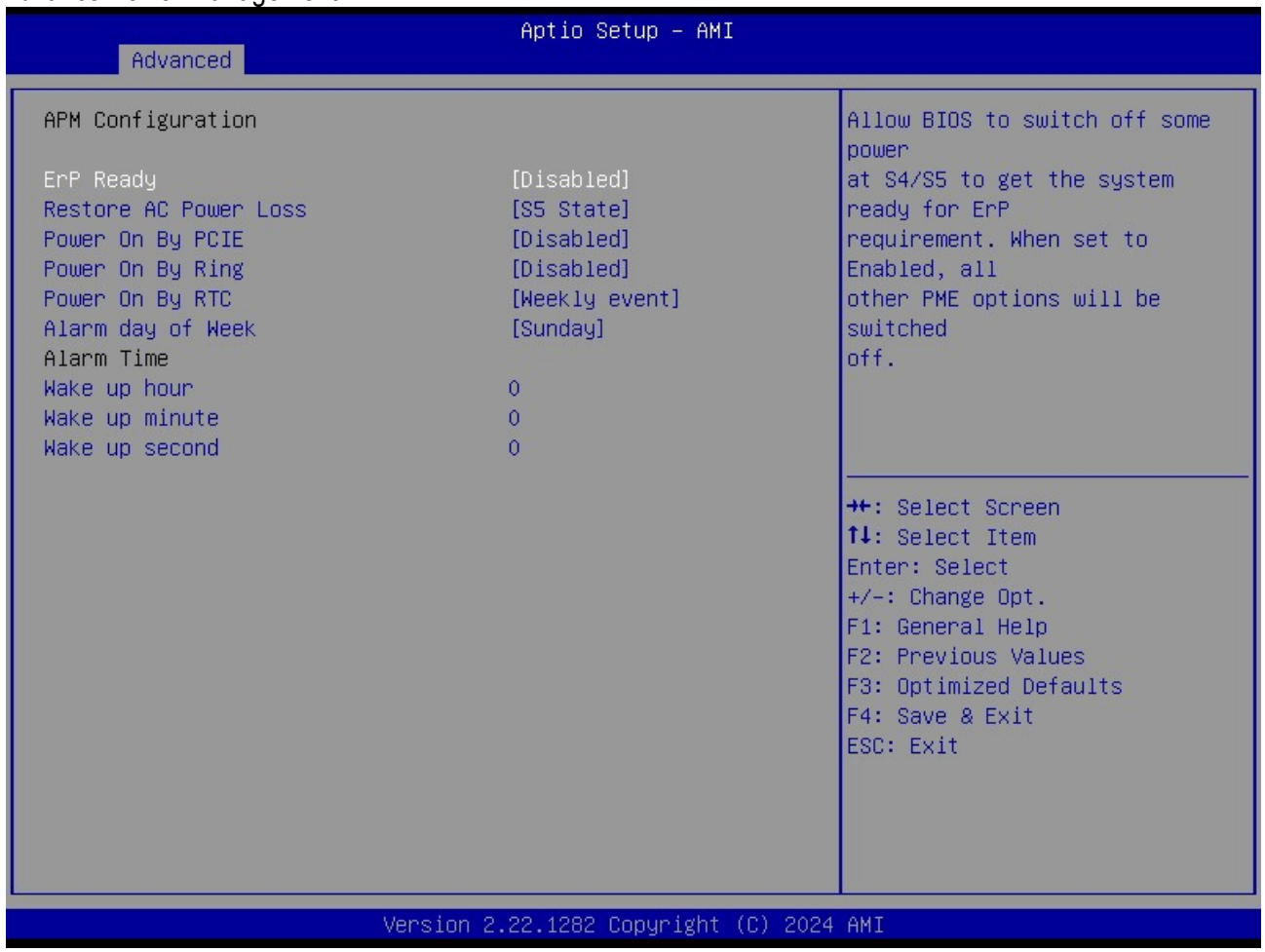
APM Configuration

Advance Power Management



Feature	Description	Options
ErP Ready	Allow BIOS to switch off some power at S4/S5 to get the system ready for ErP requirement. When set to Enabled, all other PME options will be switched off.	★Disabled, Enabled
Restore AC Power Loss	Select AC power state when power is re-applied after a power failure.	★S5 State, S0 State
Power On By PCIE	Enable or disable the Wake-on-LAN function of the onboard LAN controller or other installed PCIE LAN devices.	★Disabled, Enabled
Power On By Ring	Power On By Ring.	★Disabled, Enabled
Power On By RTC	Select whether to enable Wake Up on Alarm, to turn on your system on a special day of the week or daily. NOTE: Values in these fields may be overwritten by the operating system.	★Disabled, Single event, Daily event, Weekly event, Monthly event
Alarm day of Week	Select the day of the week when the system is to wake up.	★Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday
Day of the Month	RTC Alarm Date (Days)	★15
Wake up hour	Select 0-23 For example enter 3 for 3am and 15 for 3 pm.	★0
Wake up minute	Select 0-59 for Minute.	★0
Wake up second	Select 0-59 for Second.	★0

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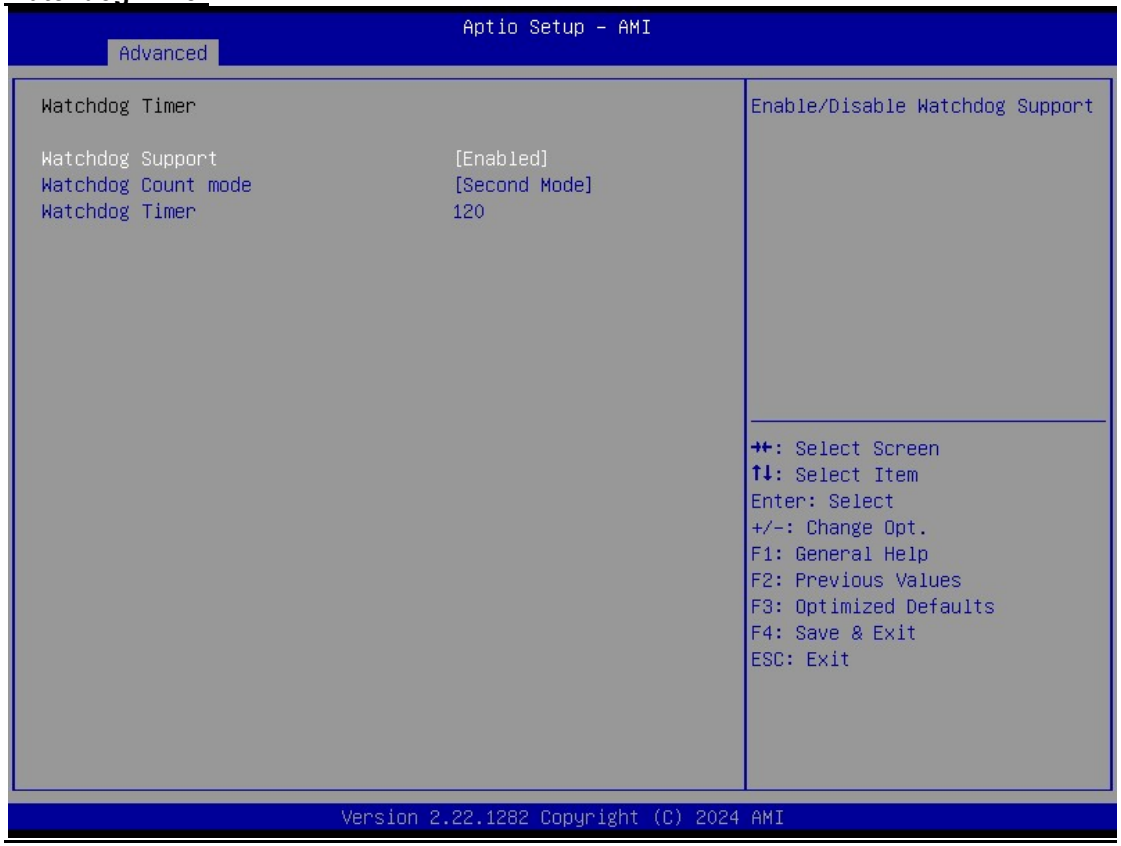
Watchdog Timer



Feature	Description	Options
Watchdog Support	Enable/Disable Watchdog Support.	★Enable, Disabled
Watchdog Count mode	Select Watchdog Timer I count mode.	★Second Mode, Minute Mode
Watchdog Timer	Watchdog Timer I Time-out value.	★120

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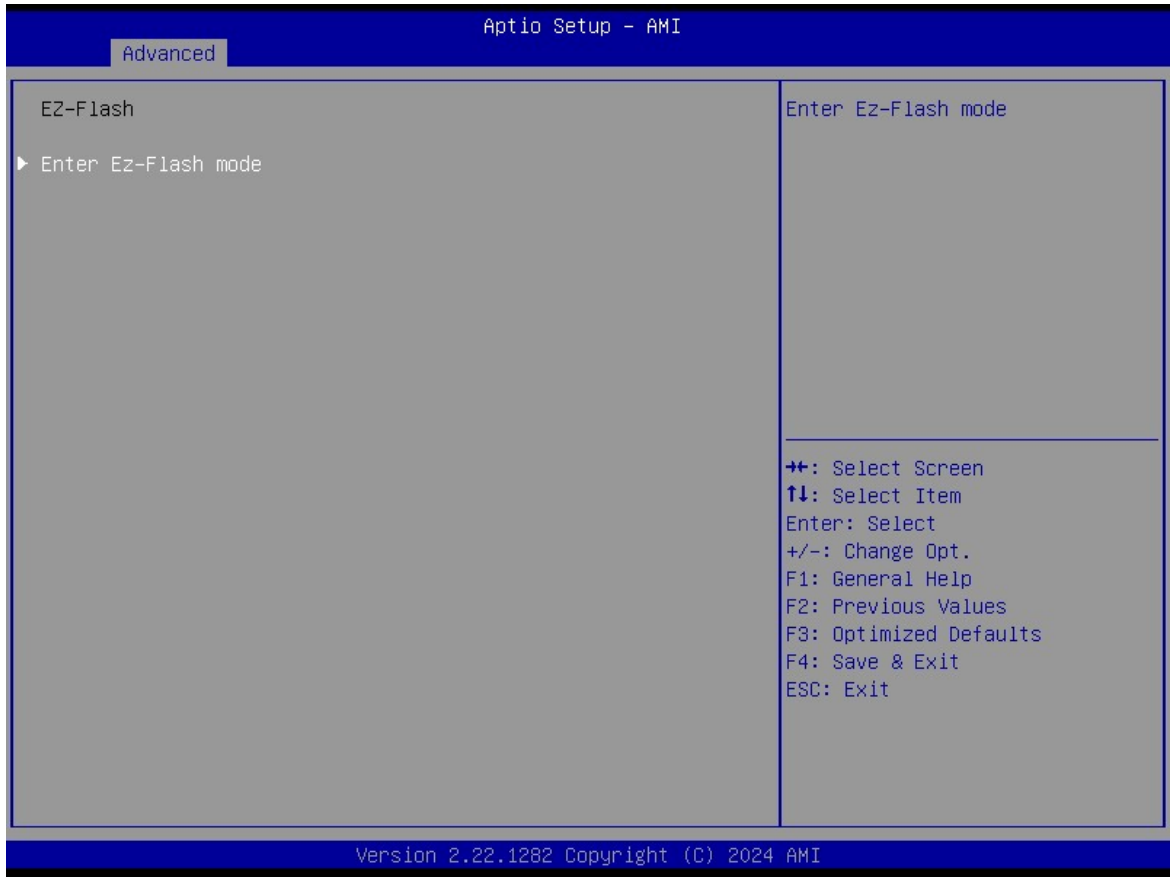
EZ-Flash

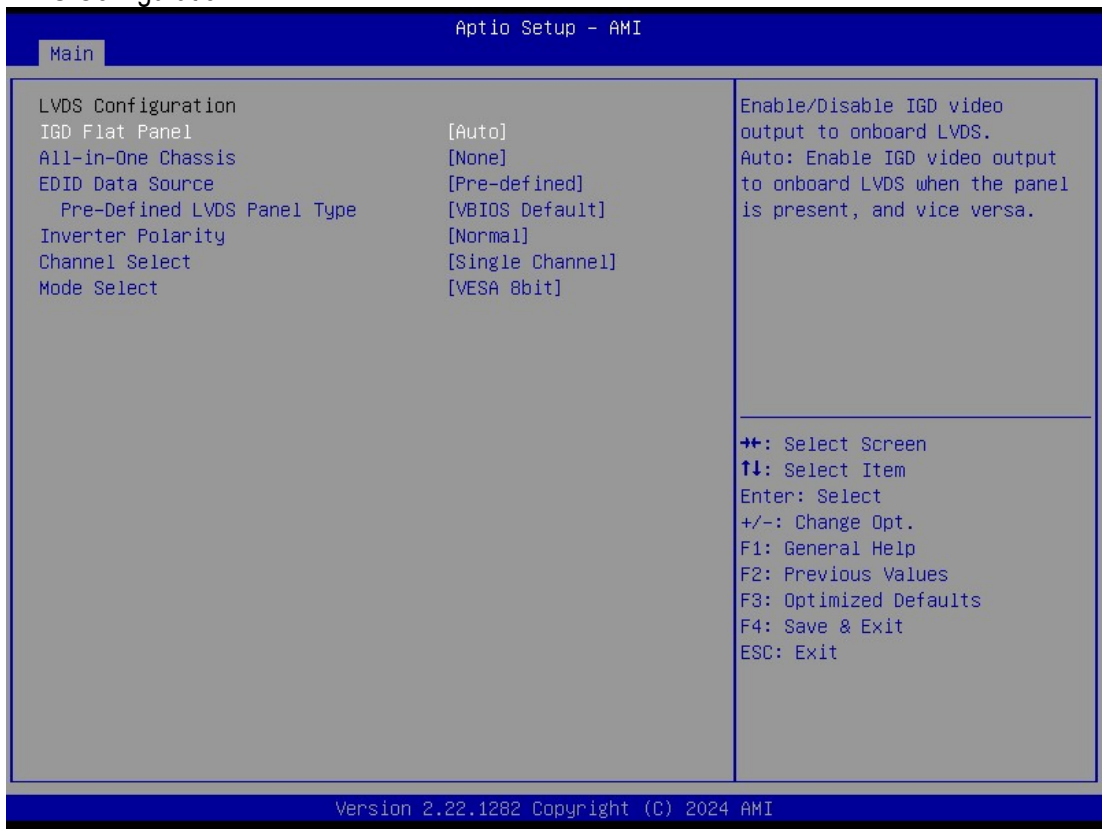
EZ-Flash



Feature	Description	Options
Enter Ez-Flash mode	Enter Ez-Flash mode	

LVDS Configuration

LVDS Configuration



Feature	Description	Options
IGD Flat Panel	Enable or disable IGD video output to onboard LVDS. Auto: Enable IGD video output to onboard LVDS when the panel is present, and vice versa.	★Auto, Enabled, Disabled,

All-in-One Chassis	Select All-in-One(AiO)chassis(if applicable) for simplified AiO configuration. Warning: Incorrect selection of AiO chassis may result in incorrect operation or potential damage to AiO chassis hardware.	★None,1920*1080 LVDS1, 1920*1080 LVDS2, 1920*1080 LVDS3, 1600*900 LVDS4,
EDID Data Source	EDID Data Source	★Pre-defined, Flat Panel Display
Pre-Defined LVDS Panel Type	Select LVDS panel used by Internal Graphics Device by selecting the appropriate setup item.	★VBIOS Default, 640x480, 800x600, 1024x768, 1280x1024, 1400x1050(RB) LVDS1, 1400x1050 LVDS2, 1600x1200 LVDS, 1366x768 LVDS, 1680x1050, 1920x1200, 1440x900 LVDS, 1600x900 LVDS, 1024x768 LVDS2, 1280x800, 1920x1080 LVDS, 2048x1536 LVDS
Inverter Polarity	Inverter board polarity Normal: PWM=0%(Dim) Inverted: PWM=0%(Bright) Consult inverter board specifications for proper value.	★Normal, Inverted
Channel Select	Channel Select.	★Single Channel. Dual Channel
Mode Select	Mode Select.	★VESA 8bit, JEIDA, VESA 6bit, VESA 10bit

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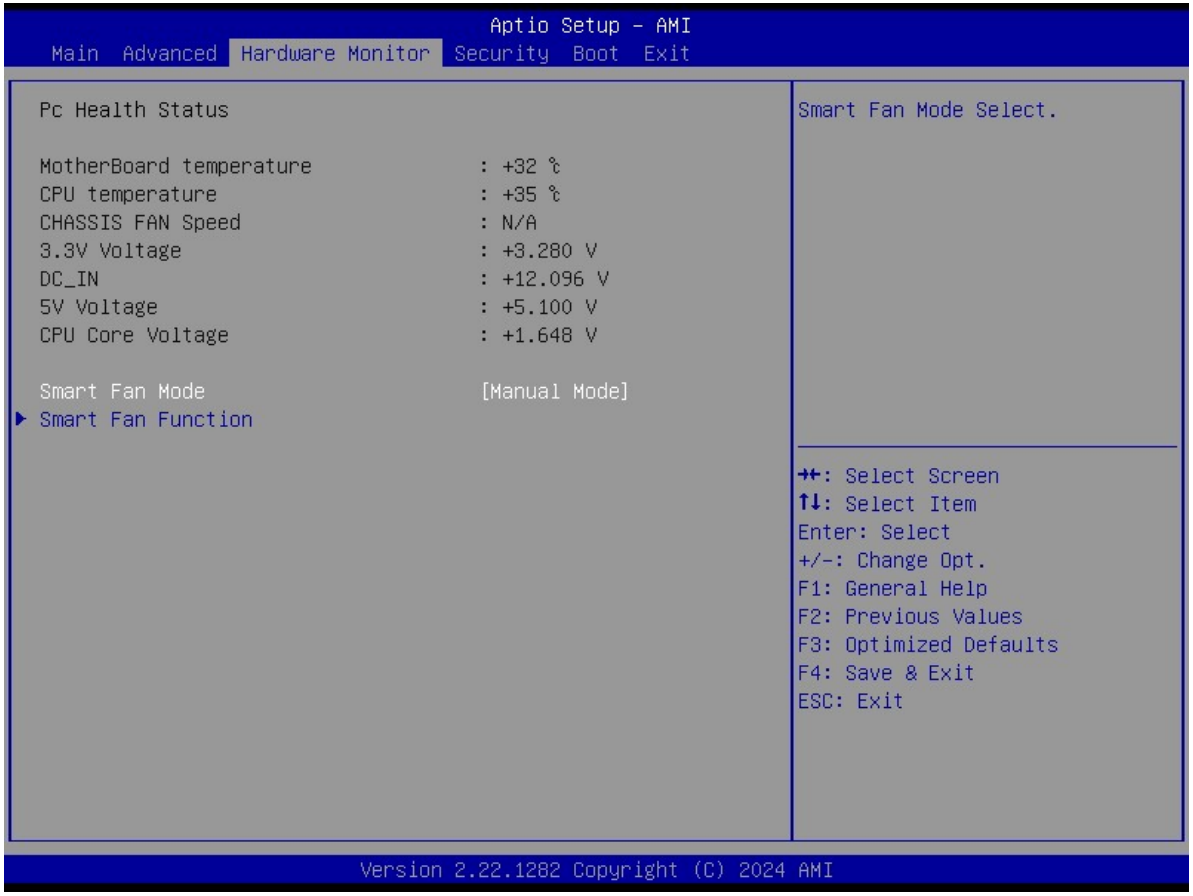
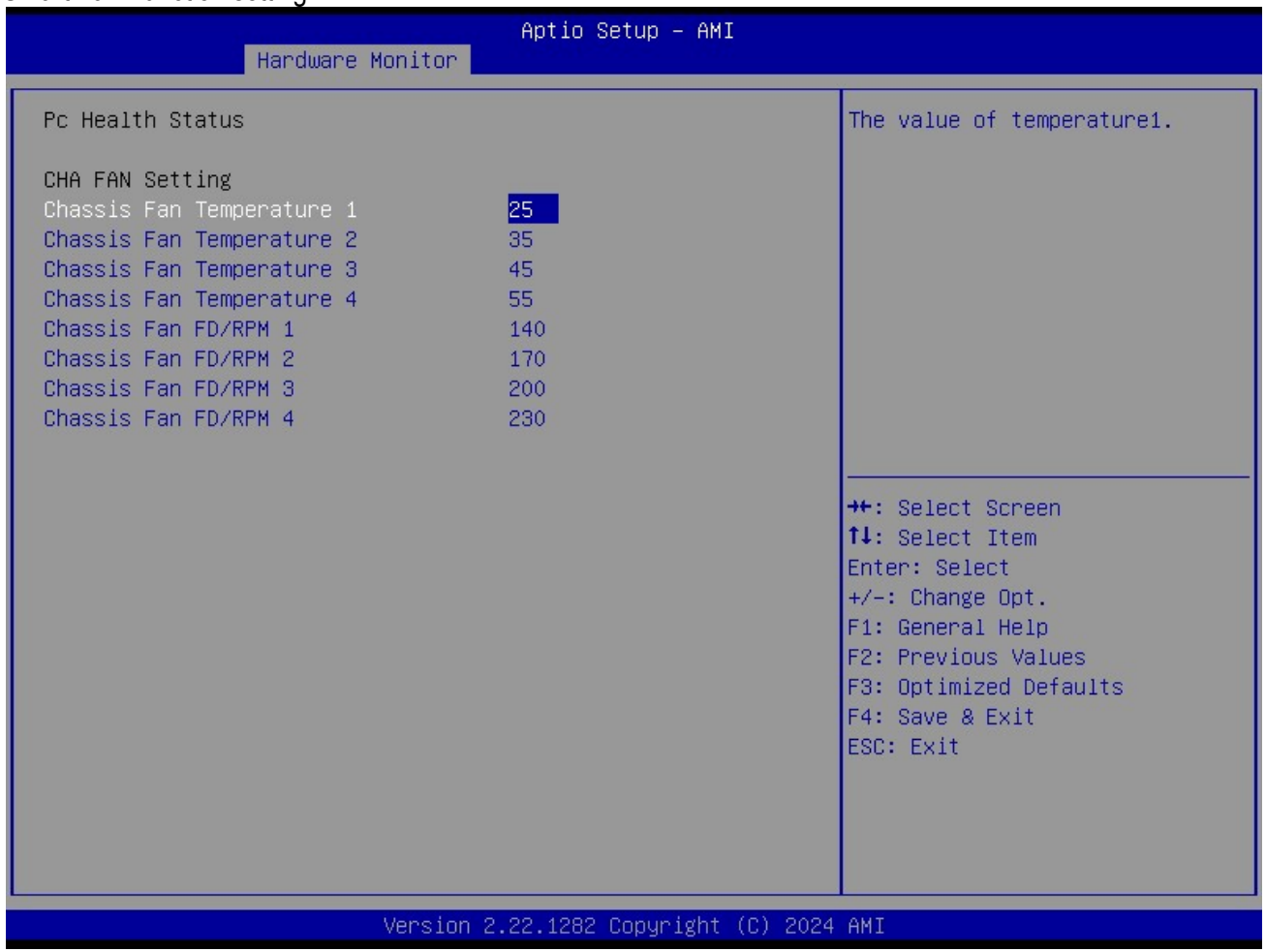
6.2.3 H/W Monitor



Feature	Description	Options
Smart Fan Mode	Smart Fan Mode Select	★Normal, Disabled, Manual Mode

Smart Fan Function

Smart Fan Function setting



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Feature	Description	Options
Chassis Fan Temperature 1	The value of temperature 1.	★25
Chassis Fan Temperature 2	The value of temperature 2.	★35
Chassis Fan Temperature 3	The value of temperature 3.	★45
Chassis Fan Temperature 4	The value of temperature 4.	★55
Chassis Fan FD/RPM 1	The value of Fan Duty/RPM 1 when temperature is T1.	★140
Chassis Fan FD/RPM 2	The value of Fan Duty/RPM 2 when temperature is T2.	★170
Chassis Fan FD/RPM 3	The value of Fan Duty/RPM 3 when temperature is T3.	★200
Chassis Fan FD/RPM 4	The value of Fan Duty/RPM 4 when temperature is T4.	★230

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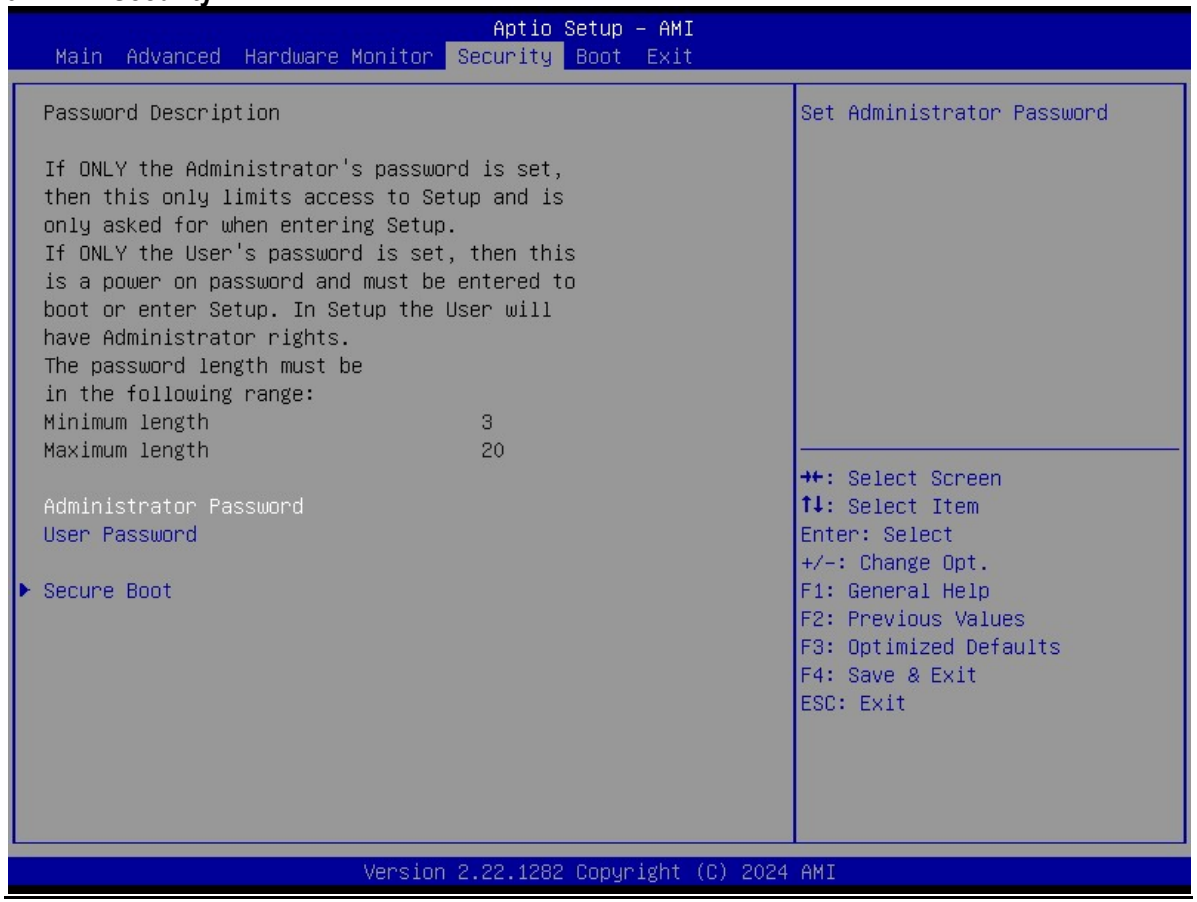
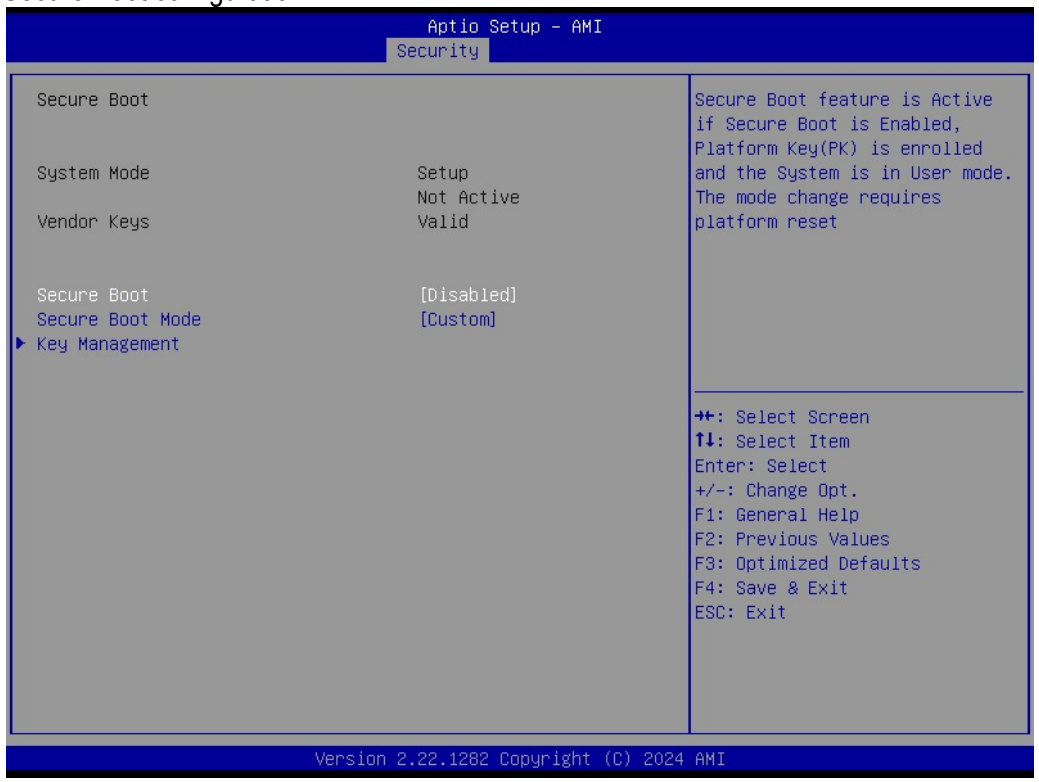
6.2.4 Security



Feature	Description	Options
Administrator Password	Set Administrator password.	
User Password	Set User Password	

Secure Boot

Secure Boot configuration



Feature	Description	Options
Secure Boot	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.	★Disabled, Enabled
Secure Boot Mode	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	★Custom ,Standard

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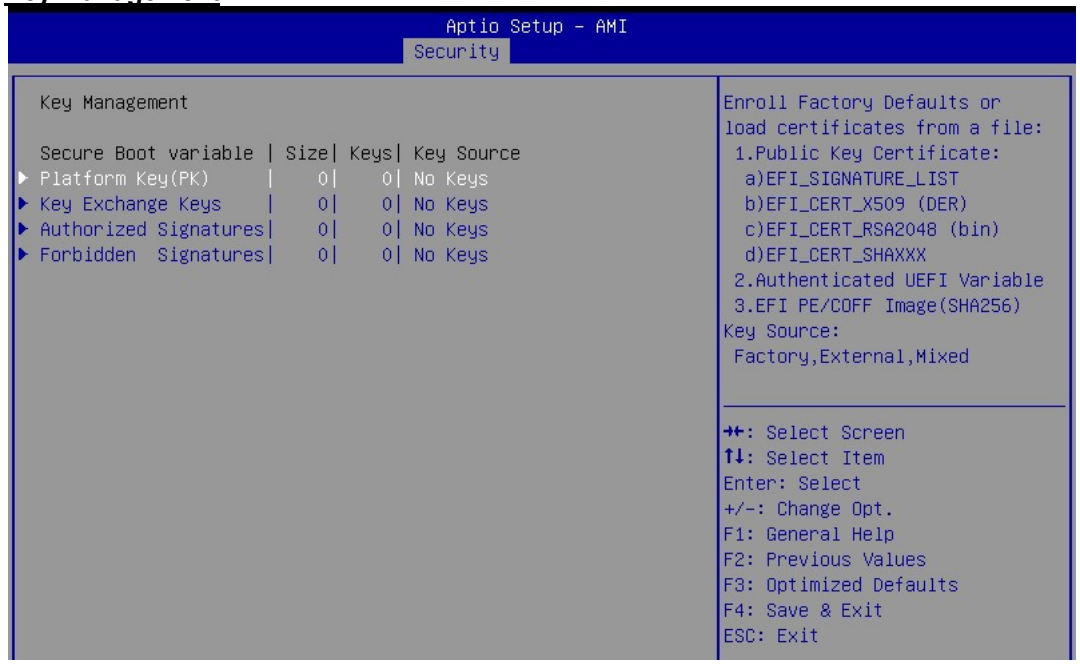
Key Management



Feature	Description	Options
Platform Key(PK)	Enroll Factory Defaults or load certificates from a file: 1.Publuc Key Certificate: a)EFI_SIGNATURE_LIST b) EFI_CERT_X509 (DER) c) EFI_CERT_RSA2048 (bin) d)EFI_CERT_SHAXXX 2.Authenticated UEFI Variable 3.EFI PE/COFF Image(SHA256) Key Source: Factory, External, Mixed	
Key Exchange Keys		
Authorized Signatures		
Forbidden Signatures		

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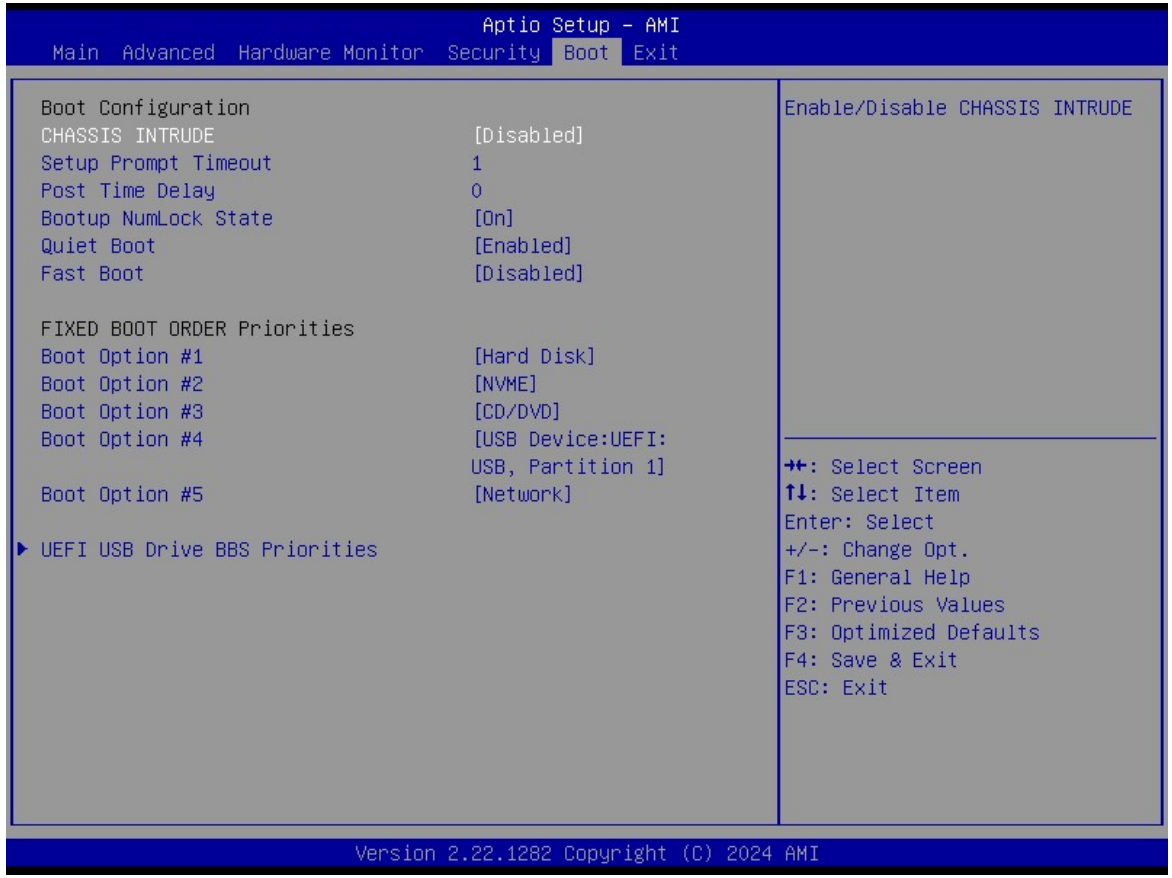
6.2.5 Boot



Feature	Description	Options
CHASSIS INTRUDE	Enable/Disable CHASSIS INTRUDE	★Disabled, Enabled
Setup Prompt Timeout	Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.	★1

Post Time Delay	Delay for specific situation needs. For example, HDD spin up time (Delay time=value*500ms)	★0
Bootup NumLock State	Select the keyboard NumLock state	★On, Off
Quiet Boot	Enables or disables Quiet Boot option	★Enabled, Disabled
Fast Boot	Enables or disables boot with initialization of a minimal set of devices required to launch active boot option. Has no effect for BBS boot options.	★Disabled, Enabled
Boot Option #1~#5	Sets the system boot order	★Hard Disk, NVME, CD/DVD,USB Device, Network, Disabled

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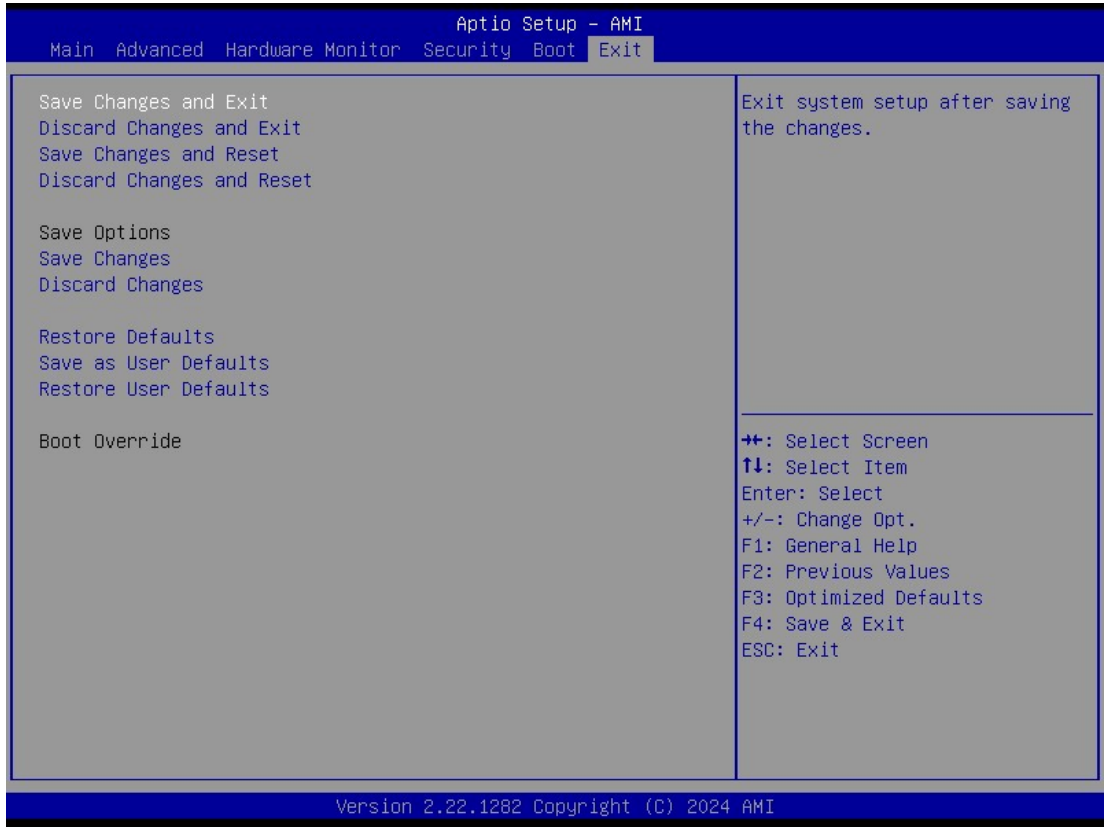
6.2.6 Save & Exit



Feature	Description	Options
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	Rest 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.	
Restore Defaults	Restore/Load Default values for all the setup options.	
Save as Use Defaults	Save the changes done so far as User Defaults	
Restore User Defaults	Restore the User Defaults to all the setup options.	

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7 Troubleshooting

This section provides a few useful tips to quickly get PEB-2274 running with success. This section will primarily focus on system integration issues, in terms of BIOS setting, and OS diagnostics.

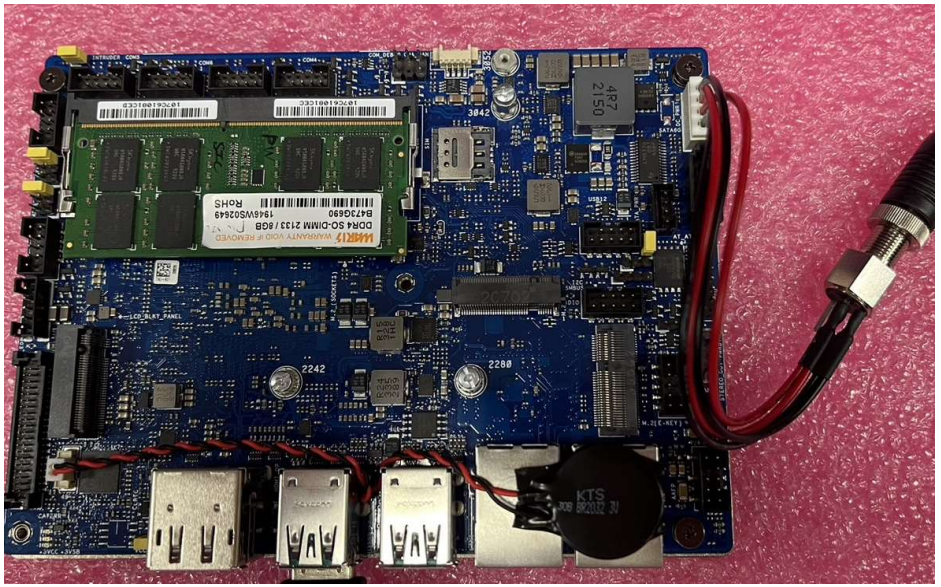
7.1 Hardware Quick Installation

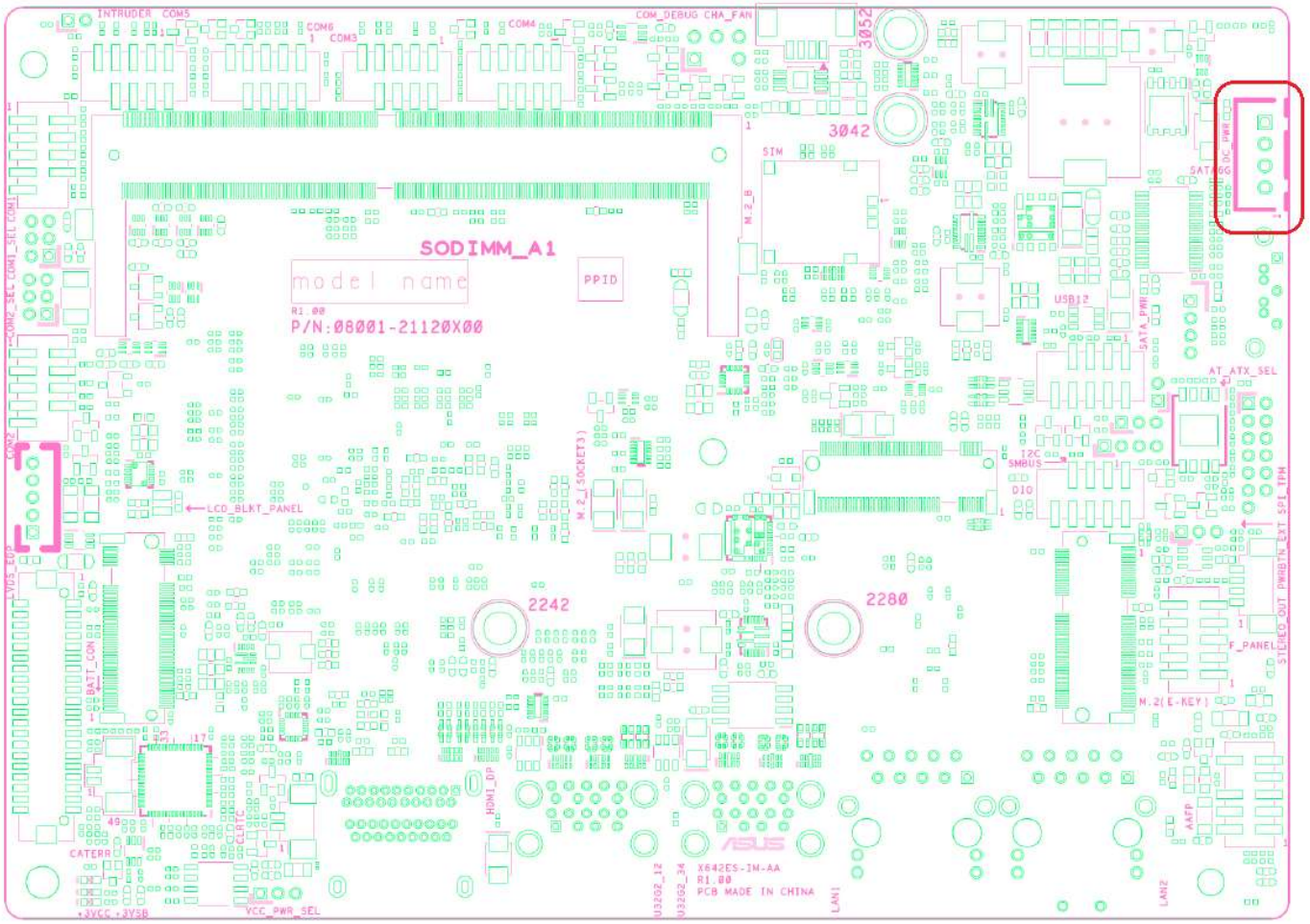
DC Jack Power

There is one method to connect the power of PEB-2274 which is 12V DC Jack (DC-IN).

j. DC_PWR

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

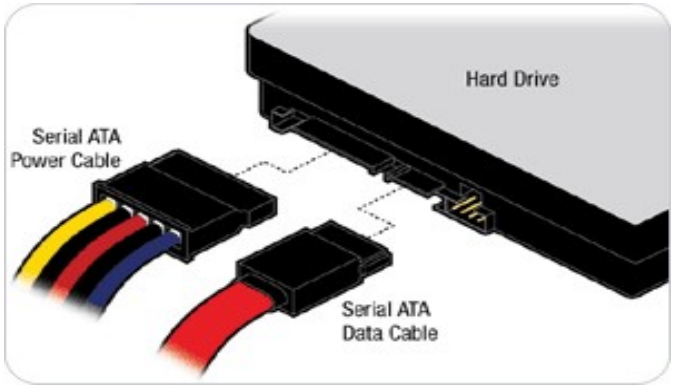



SODIMM_A1
model name
PPID
P/N:08001-21120X00
3042
3052
2242
2280
LCD_BLKT_PANEL
HDMI_DP
F_PANEL
AT_ATX_SEL
X642ES-IM-AA
PCB MADE IN CHINA

Serial ATA

Unlike IDE bus, each Serial ATA channel can only connect to one SATA hard disk at a time;

The installation of Serial ATA is simpler and easier than IDE, because SATA hard disk doesn't require setting up Master and Slave, which can reduce mistake of hardware installation.



PEB-2274 can support one SATA interface (SATAIII, 6.0Gb/s) on board. It has SATA ports on board.

7.2 BIOS Setting

It is assumed that users have correctly adopted modules and connected all the devices cables required before turning on DC power. DDR4 SO-DIMM Memory, keyboard, mouse, SATA hard disk, DP connector, power cable of the device, ATX accessories are good examples that deserve attention. With no assurance of properly and correctly accommodating these modules and devices, it is very possible to encounter system failures that result in malfunction of any device.

To make sure that you have a successful start with PEB-2274, it is recommended, when going with the boot-up sequence, to hit "delete " or " Esc" key and enter

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the BIOS setup menu to tune up a stable BIOS configuration so that you can wake up your system far well.

Loading the default optimal setting

When prompted with the main setup menu, please scroll down to “Restore Defaults”, press “Enter” and select “Yes” to load default optimal BIOS setup. This will force your BIOS setting back to the initial factory configurations. It is recommended to do this so you can be sure the system is running with the BIOS setting that Portwell has highly endorsed. As a matter of fact, users can load the default BIOS setting at any time when system appears to be unstable in boot up sequence.

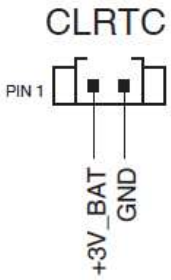
7.3 FAQ

Information & Support

Question: I forgot my password of system BIOS, what am I supposed to do?

Answer: You can switch off your power supply then find the 2-pin CLRTC on the PEB-2274 board .Then Use a metal object such as a screwdriver to short the two pins and wait 5 seconds to clean your password then to switch on your power supply.

Clear CMOS header (2-pin CLRTC)：CMOS Setting



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Question: How to update the BIOS file of PEB-2274?

Answer: 1. Please visit web site of Portwell download center as below hyperlink
https://www.portwell.com.tw/support-center/download-center/
2. Select "Search download" and type the keyword "PEB-2274".
3. Find the "BIOS "page and download the ROM file and unzip file to USB flash drive (FAT 32 / 16 format).
4. Boot into BIOS and switch to "Advanced" page then select" EZ-Flash".

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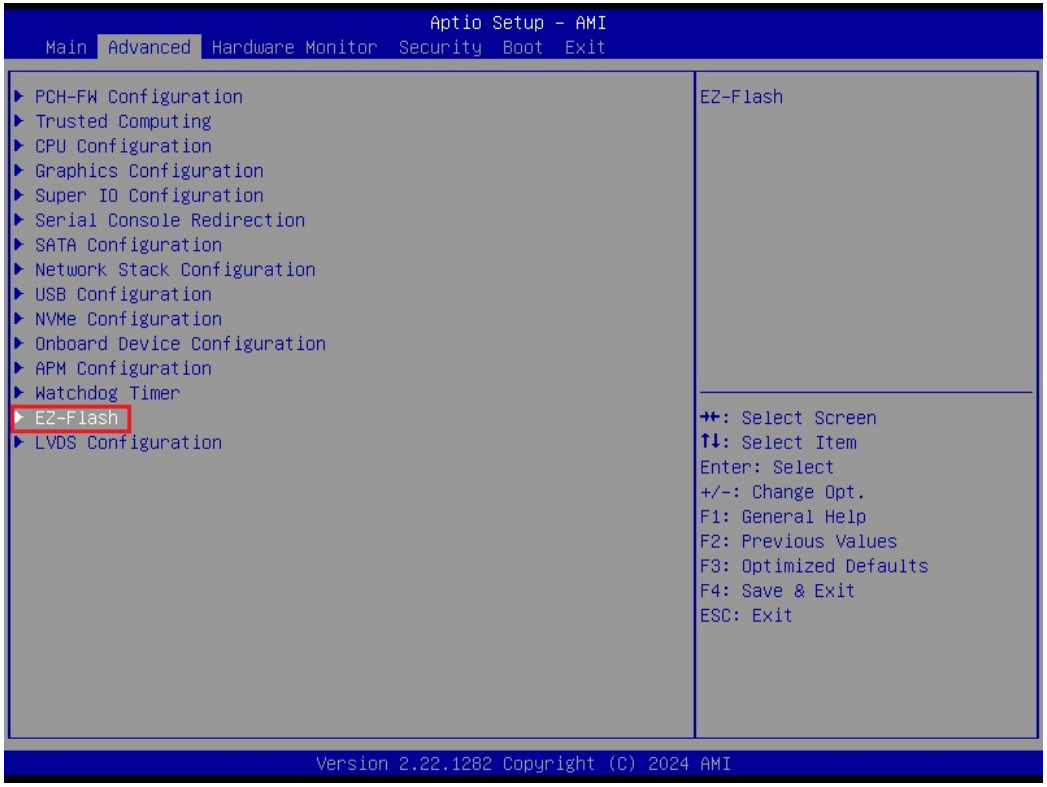

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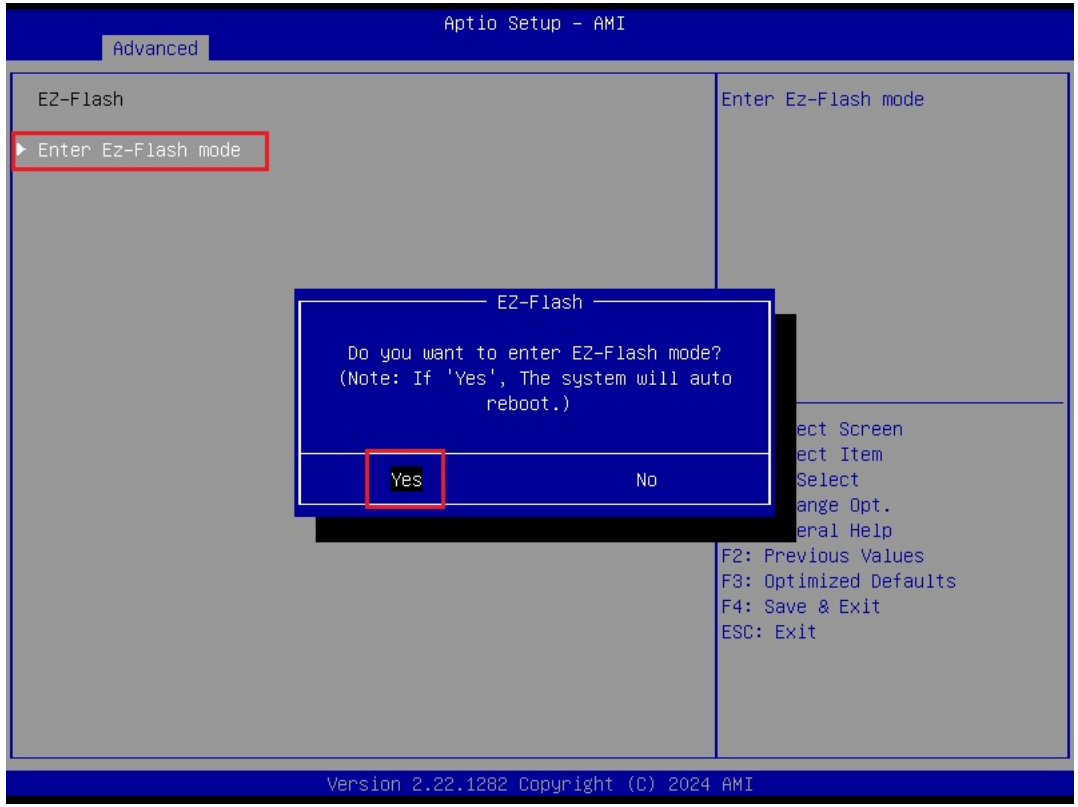
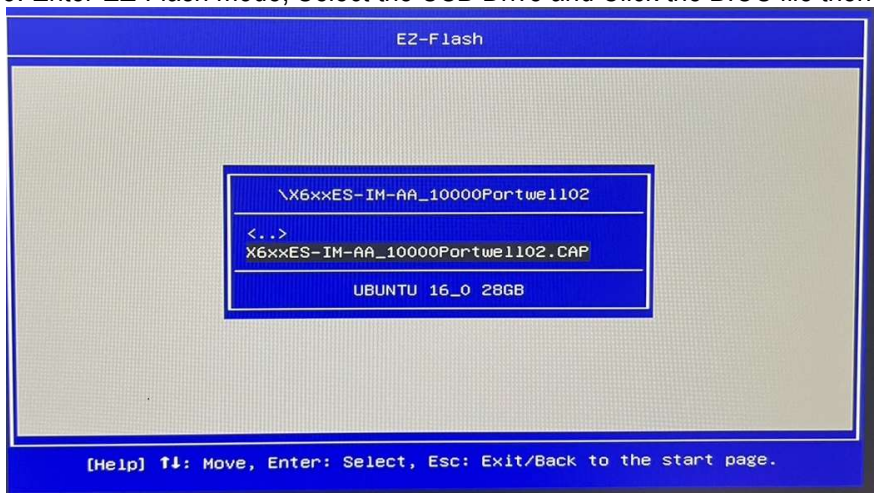

Aptio Setup – AMI
Advanced
EZ-Flash
Enter Ez-Flash mode
Enter Ez-Flash mode
EZ-Flash
Do you want to enter EZ-Flash mode?
(Note: If 'Yes', The system will auto reboot.)
Yes
No
ect Screen
ect Item
Select
ange Opt.
eral Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.22.1282 Copyright (C) 2024 AMI

5. Enter EZ-Flash mode, Select the USB Drive and Click the BIOS file then start updating BIOS.



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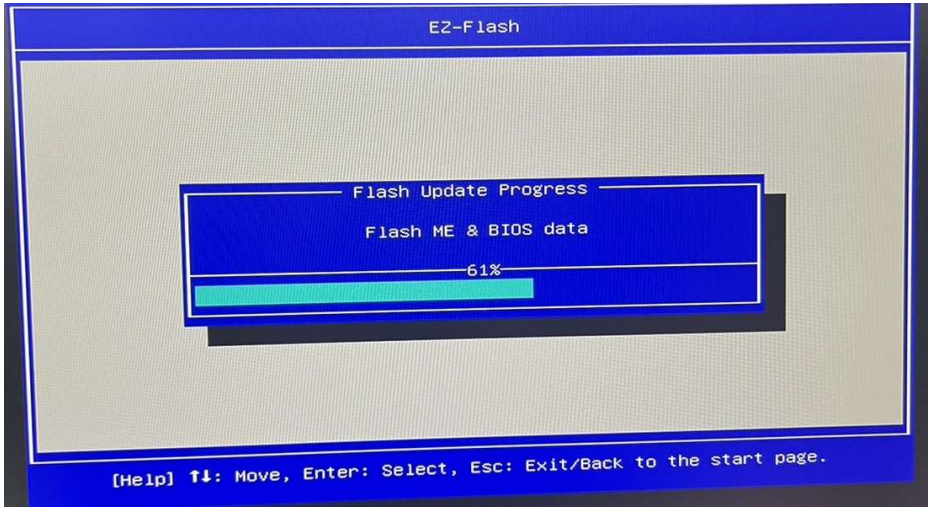
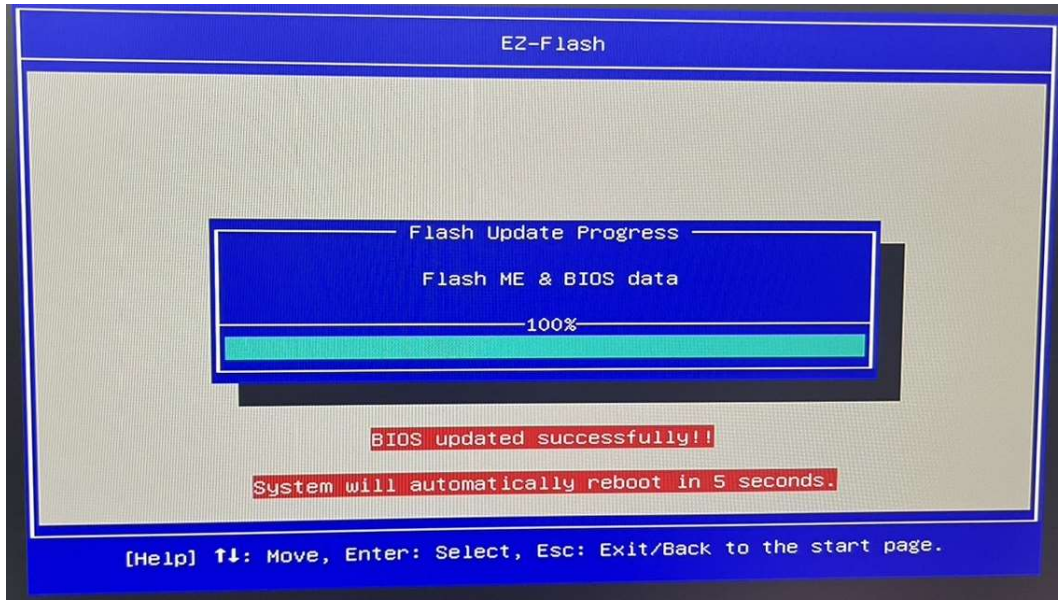


6. When you see the "BIOS updated successfully" message, which means the BIOS update processes finished. Please cut the AC power of and **wait for 10 seconds** before powering on.



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Question: What are the display options while using PEB-2274 board?

Answer: - The PEB-2274 supports HDMI、DP、LVDS display output.

Note:

Please visit our Download Center to get the Catalog, User manual, BIOS, and Driver files.

https://www.portwell.com.tw/support-center/download-center/

If you have other additional technical information or request which is not covered in this manual, please fill in the technical request form as below hyperlink.

https://www.portwell.com.tw/support-center/technical-request/

We will do our best to provide a suggestion or solution for you.

Thanks

8 Portwell Software Service

1. If you have customized requirements of BIOS, you can contact person of our company or branch.
2. If you have requirements of WDT、GPIO APP, you can contact our headquarter or branch, and we can render you assistance on developing.

Portwell Worldwide:	
Portwell, Inc.	E-mail: info@portwell.com.tw
Shanghai Portwell (China)	E-mail: info@portwell.com.cn
Portwell Japan, Inc (Tokyo/Osaka)	E-mail: info@portwell.co.jp
American Portwell Technology (USA)	E-mail: info@portwell.com
European Portwell Technology (Netherlands)	E-mail: info@portwell.eu
Portwell UK Ltd. (UK)	E-mail: info@portwell.eu
KIOSK Embedded Systems GmbH	E-mail: info@portwell.eu
Portwell India Technology Private Limited. (India)	E-mail: enquiry@portwell.in
Portwell Korea, Inc. (Korea)	E-mail: info@portwell.co.kr

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9 Industry Specifications

The list below provides links to industry specifications that apply to Portwell modules.

Low Pin Count Interface Specification, Revision 1.0 (LPC) http://www.intel.com/design/chipsets/industry/lpc.htm
Universal Serial Bus (USB) Specification, Revision 2.0 http://www.usb.org/home
PCI Specification, Revision 2.3 https://www.pcisig.com/specifications
Serial ATA Specification, Revision 3.0 http://www.serialata.org/
PCI Express Base Specification, Revision 2.0 https://www.pcisig.com/specifications

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