EAX-W480P

Intel® 10th Generation Core™ Processor ATX Motherboard With Intel® W480E Chipset

User's Manual

2nd Ed –08 April 2021

FCC Statement

THIS DEVICE COMPLIES WITH PART 15 FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS:

(1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE.

(2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION.

THIS EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY 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 WHEN THE EQUIPMENT IS OPERATED IN A COMMERCIAL ENVIRONMENT. THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENERGY AND, IF NOT INSTALLED AND USED IN ACCORDANCE WITH THE INSTRUCTION MANUAL, MAY CAUSE HARMFUL INTERFERENCE TO RADIO COMMUNICATIONS.

OPERATION OF THIS EQUIPMENT IN A RESIDENTIAL AREA IS LIKELY TO CAUSE HARMFUL INTERFERENCE IN WHICH CASE THE USER WILL BE REQUIRED TO CORRECT THE INTERFERENCE AT HIS OWN EXPENSE.

Notice

This guide is designed for experienced users to setup the system within the shortest time. For detailed information, please always refer to the electronic user's manual.

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1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into body, or (b) support or sustain life and whose failure to perform, when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in significant injury to the user.

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A Message to the Customer

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Avalue warrants to you, the original purchaser, that each of its products will be free from defects in materials and workmanship for two years from the date of purchase.

This warranty does not apply to any products which have been repaired or altered by persons other than repair personnel authorized by Avalue, or which have been subject to misuse, abuse, accident or improper installation. Avalue assumes no liability under the terms of this warranty as a consequence of such events. Because of Avalue's high quality-control standards and rigorous testing, most of our customers never need to use our repair service. If any of Avalue's products is defective, it will be repaired or replaced at no charge during the warranty period. For out-of-warranty repairs, you will be billed according to the cost of replacement materials, service time, and freight. Please consult your dealer for more details. If you think you have a defective product, follow these steps:

1. Collect all the information about the problem encountered. (For example, CPU type and speed, Avalue's products model name, hardware & BIOS revision number, other hardware and software used, etc.) Note anything abnormal and list any on-screen messages you get when the problem occurs.
2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information available.
3. If your product is diagnosed as defective, obtain an RMA (return material authorization) number from your dealer. This allows us to process your good return more quickly.
4. Carefully pack the defective product, a complete Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.
5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

Content

1. Getting Started

1.1 Safety Precautions

Warning!

Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges. Only experienced electronics personnel should open the PC chassis.

Caution!

Always ground yourself to remove any static charge before touching the CPU card. Modern electronic devices are very sensitive to static electric charges. As a safety precaution, use a grounding wrist strap at all times. Place all electronic components in a static-dissipative surface or static-shielded bag when they are not in the chassis.

1.2 Packing List

Before you begin installing your single board, please make sure that the following materials have been shipped:

- 1 x EAX-W480P motherboard
- 2 x SATA cables
- 1 x I/O Shield

If any of the above items is damaged or missing, contact your retailer.

1.3 Document Amendment History

Revision	Date	By	Comment
1st	January 2021	Avalue	Initial Release
2nd	April 2021	Avalue	Update Jumper and Connector

1.4 Manual Objectives

This manual describes in details Avalue Technology EAX-W480P Single Board.

We have tried to include as much information as possible but we have not duplicated information that is provided in the standard IBM Technical References, unless it proved to be necessary to aid in the understanding of this board.

We strongly recommend that you study this manual carefully before attempting to set up EAX-W480P or change the standard configurations. Whilst all the necessary information is available in this manual we would recommend that unless you are confident, you contact your supplier for guidance.

Please be aware that it is possible to create configurations within the CMOS RAM that make booting impossible. If this should happen, clear the CMOS settings, (see the description of the Jumper Settings for details).

If you have any suggestions or find any errors regarding this manual and want to inform us of these, please contact our Customer Service department with the relevant details.

1.5 System Specifications

System	
CPU	Intel® Xeon® W-1200 series & 10th Gen Supports LGA 1200 CPU Up to 125W Max
BIOS	AMI uEFI BIOS, 256Mbit SPI Flash ROM
System Chipset	Intel® W480E Chipset
I/O Chip	Nuvoton® NCT6106D Fintek F81216AD
System Memory	Four 288-pin DDR4 U- DIMM socket, supports up to 128GB Max
Watchdog Timer	H/W Reset, 5~255 seconds/5~255 minutes
H/W Status Monitor	CPU temperature monitoring Voltages monitoring CPU fan speed control
RAID	Support RAID 0, 1, 5, 10
TPM	A1 remove (Infineon SLB9665 support TPM 2.0 By option)
iAMT	YES, by CPU
Expansion Slot	
M.2	1 x M.2 (2242/2260/2280) B-Key, support SSD PCI-e x1 Signal
PCIe	2 x PCI-e x16 slot for 1 x PCI-e x16 or 2 x PCI-e x8 (By Auto switch IC) 4 x PCI-e x4
Storage	
M.2	1 x M.2 (2242/2260/2280) B-Key, support SSD PCI-e x1 Signal
SATA	4 x SATA III
Edge I/O	
COM	COM 1 by DB9 Connector at IO support RS-232
LAN	1 x Intel® I219LM Gigabit Ethernet PHY 1 x Intel® I210AT PCI-e Gigabit Ethernet 1 x Intel® I225V 2.5 Gigabit Ethernet Controller
USB 2.0	PS/2 KB/MS + 2 x USB 2.0
USB 3.1	3 x RJ-45 Dual deck for 6 x USB 3.1 GEN 2 connector
DP	2 x DP++
DVI	DVI-D
Onboard I/O	
COM	COM 1 by DB9 Connector at IO support RS-232 COM 2~3: Support RS232/422/485 selected by BIOS selection 3 x 2 x 3 pin, pitch 2.00mm connector for COM 1~3 support RS232 with Pin 9,+5V/+12V/RI by jumper 2 x 2 x 3 pin, pitch 2.00mm connector for COM 2~3 support RS422/485 connector,

	Pin 5 with +5V
	1 x 2 x 5 pin, pitch 2.00mm connector for COM 2 support RS-232 connector
	COM 3~6
	1 x 2 x 20 pin, pitch 2.00mm connector for COM 3~6 support RS-232 connector
	COM 7~10
	1 x 2 x 20 pin, pitch 2.00mm connector for COM 7~10: support RS-232 connector
USB 2.0	1 x 1 x 5 pin, pitch 2.54mm connector for 1 x USB 2.0
	2 x 2 x 5 pin, pitch 2.54mm connector for 4 x USB 2.0
	1 x USB 2.0 By Vertical type A connector
	USB Wake up by BIOS Setting
GPIO	1 x 2 x 10 pin, pitch 2.00mm connector for GPIO: 16 bits & +5VS Level SMBus
CPU/System FAN	1 x 1 x 4 pin, pitch 2.54mm CPU fan connector with smart fan function supported
	1 x 1 x 4 pin, pitch 2.54mm System fan connector with smart fan function supported
	1 x 1 x 3 pin, pitch 2.54mm System fan connector
Front Panel	1 x 2 x 5 pin, pitch 2.54mm connector for front panel
RTC Battery	1 x Horizontal type battery connector (CR2450 Battery)
	Co-lay 1 x 2 Pin Pitch 1.25mm horizontal type battery connector
AT/ATX Selector	1 x 1 x 3 pin pitch 2.00mm connector for AT/ATX jumper
	1 x 2 x 12 pin ATX power connector
	1 x 2 x 4 pin ATX 12V power connector
Clear CMOS	1 x 1 x 3pin, pitch 2.54mm connector for COMS Clear
LPC	2 x 2 x 5 pin, pitch 2.0mm connector for LPC
BIOS SPI	1 x 2 x 4 pin, pitch 2.00mm connector for BIOS SPI
Other	1 x 2 x 10 pin, pitch 2.54mm connector for Auxiliary panel
	1 x 2 x 5 pin, pitch 2.54mm connector for JME
	1 x 5 pin, pitch 2.54mm connector for +3.3S Level SMBus
Display	
Graphic Chipset	Intel® 10th Generation CPU integrated
Spec. & Resolution	DVI-D: 2048 x 1536 @ 60Hz
	2 x DP++: 3840 x 2160 @ 60Hz
	Note: This resolution is actual test result. Intel resolution as below:
	DP (1.4) : max resolution 4096x2304@60 (without HDR)
	: max resolution 3840x2160@60 (with HDR)
	Or
	HDMI (1.4) : max resolution 4096x2160@30 (not support HDR)
Multiple Display	Triple Display
Ethernet	
LAN Chipset	1 x Intel® I219LM Gigabit Ethernet PHY
	1 x Intel® I210AT PCI-e Gigabit Ethernet

	1 x Intel® I225V 2.5 Gigabit Ethernet Controller
LAN Spec.	10/100/1000 Base-Tx GbE compatible
Mechanical & Environmental Specification	
Power Requirement	+12V / +5V / 5VSB /+3.3V /-12V
ACPI	Single power ATX Support S0, S3, S4, S5
Power Mode	AT / ATX mode Switchable Through Jumper
Operating Temp.	0~60°C (32~140°F)
Storage Temp.	-40~ +75°C
Operating Humidity	40°C @ 95% Relative Humidity, Non-condensing
Size (L x W)	12" x 9.6" (304.8mm x 243.84mm)
Weight	1.32lbs (0.6kg)
OS Information	BIOS Support: 1. Win10 64bit UEFI 2. Linux

Note: Specifications are subject to change without notice.

1.6 Architecture Overview—Block Diagram

The following block diagram shows the architecture and main components of EAX-W480P.
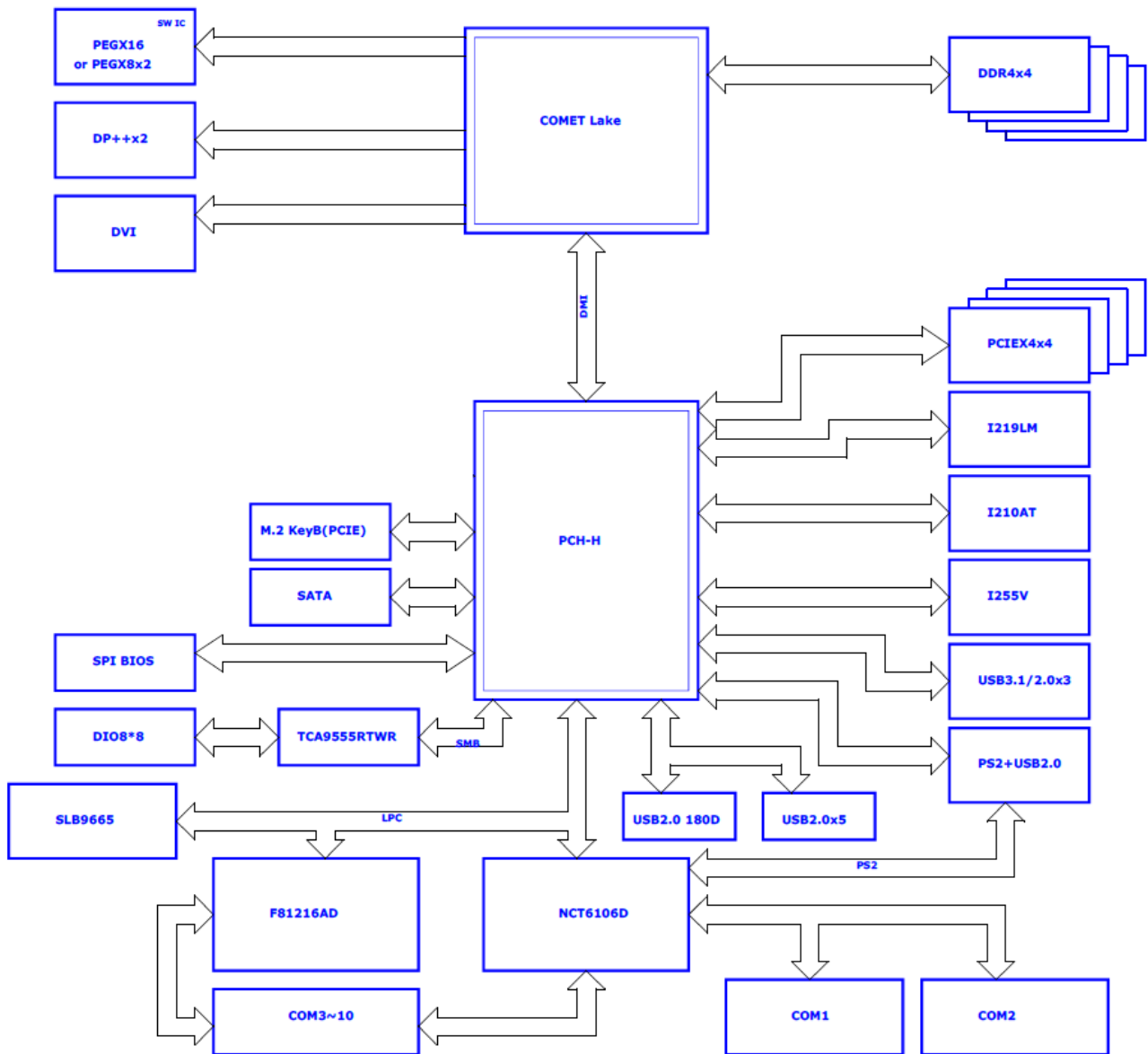
2. Hardware Configuration

2.1 Product Overview
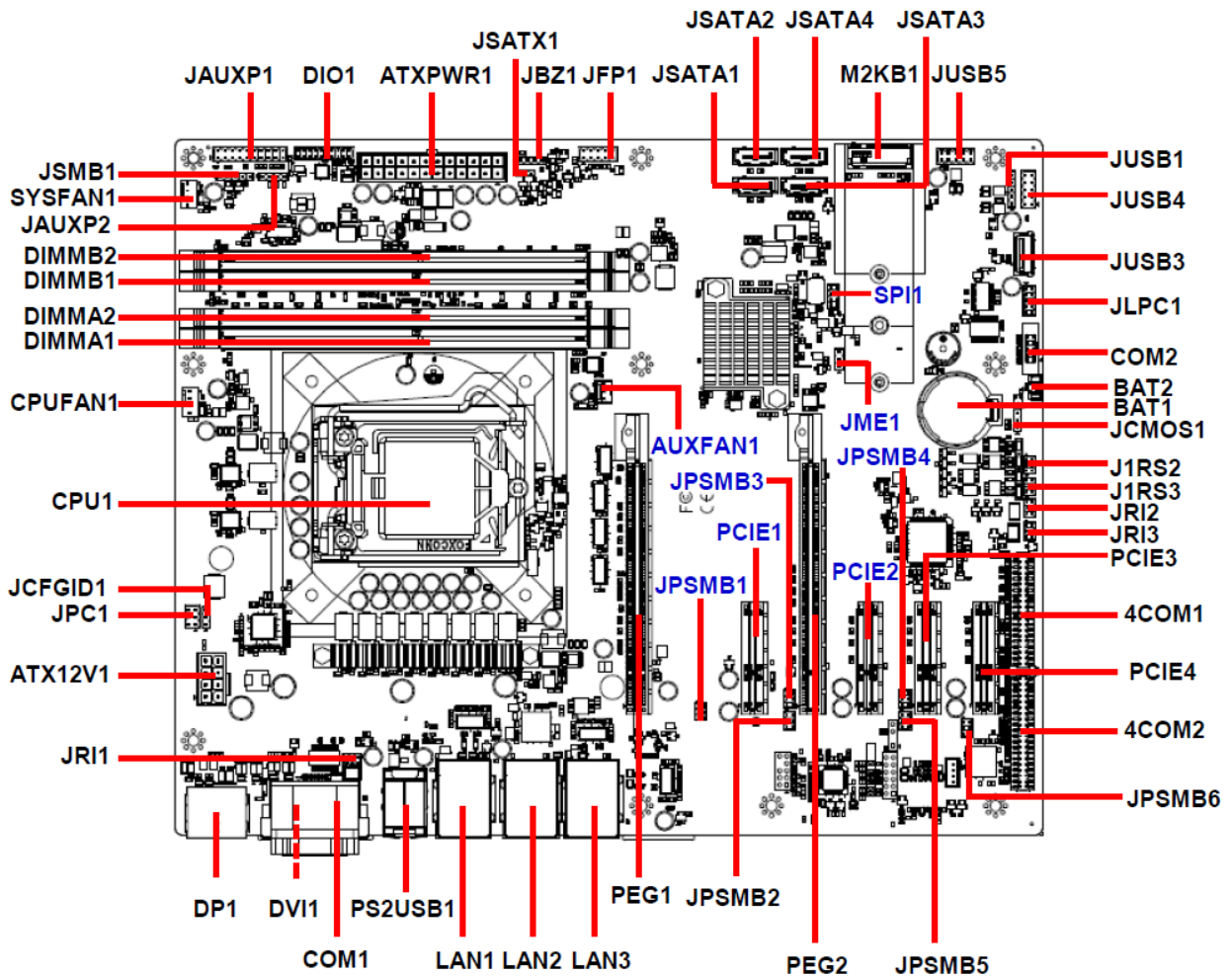
2.2 Jumper and Connector List

You can configure your board to match the needs of your application by setting jumpers. A jumper is the simplest kind of electric switch.

It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To "close" a jumper you connect the pins with the clip. To "open" a jumper you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2, and 3. In this case, you would connect either two pins.
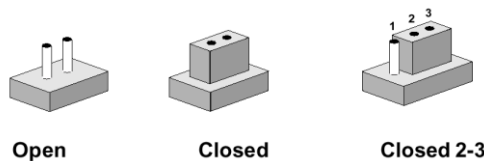
The jumper settings are schematically depicted in this manual as follows:

A pair of needle-nose pliers may be helpful when working with jumpers.

Connectors on the board are linked to external devices such as hard disk drives, a keyboard, or floppy drives. In addition, the board has a number of jumpers that allow you to configure your system to suit your application.

If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any changes.

The following tables list the function of each of the board's jumpers and connectors.

Jumpers

Label	Function	Note
JRI1/2/3	Serial port 1/2/3 pin9 signal select	3 x 2 header, pitch 2.00mm
JME1	BIOS ME function configuration	3 x 1 header, pitch 2.54mm
JSATX1	AT/ATX Power Mode Select	3 x 1 header, pitch 2.00mm
JCMOS1	Clear CMOS	3 x 1 header, pitch 2.54mm
JCFGID1	CPU TDP (Watts)	3 x 1 header, pitch 2.54mm
JPSMB1/2/3/4/5/6	PCI-e slot SMBus On off connector	3 x 2 header, pitch 2.00mm

Connectors

Label	Function	Note
CPUFAN1	CPU fan connector	4 x 1 wafer, pitch 2.54mm
SYSFAN1	System fan connector 1	4 x 1 wafer, pitch 2.54mm

	(with smart fan function supported)	
JFP1	Front Panel connector	5 x 2 header, pitch 2.54 mm
DIMMA1/2	240-pin DIMM slot 1	
DIMMB1/2	240-pin DIMM slot 2	
JSMB1	SMBus connector	5 x 1 header, pitch 2.54 mm
JAUXP1	Auxiliary Panel connector	10 x 2 header, pitch 2.54 mm
JAUXP2	Auxiliary Panel connector	4 x 1 header, pitch 2.54 mm
SPI1	Miscellaneous setting connector	4 x 2 header, pitch 2.00mm
COM1	Serial Port1 connector	
COM2	Serial Port2 connector	5 x 2 header, pitch 2.00 mm
4COM1/2	Serial Port connector	20 x 2 header, pitch 2.00mm
JBZ1	External Speaker connector	4 x 1 header, pitch 2.54 mm
DIO1	General purpose I/O connector	10 x 2 header, pitch 2.00mm
LAN1/2/3	2 x RJ-45 with Dual deck USB 3.0 connector	
PS2USB1	PS2+USB connector	
JUSB1	USB connector	5 x 1 header, pitch 2.54mm
JUSB3	USB connector	
JUSB4	USB connector	5 x 2 header, pitch 2.54mm
JUSB5	USB connector	5 x 2 header, pitch 2.54mm
J1RS2	J1RS2 connector	3 x 2 header, pitch 2.00 mm
J1RS3	J1RS3 connector	3 x 2 header, pitch 2.00 mm
JLPC1	LPC connector	5 x 2 header, pitch 2.00mm
PCIE1/2/3/4	PCIe slot 1/2/3/4	
M2KB1	M.2 Key B	
BAT1	Battery connector	
BAT2	Battery connector	2 x 1 wafer, pitch 1.25mm
AUXFAN1	Auxiliary Fan connector	3 x 1 wafer, pitch 2.54mm
ATXPWR1	ATX Power connector	12 x 2 wafer, pitch 4.20mm
ATX12V1	Power connector	2 x 4 wafer, pitch 4.20mm
JSATA1/2/3/4	Serial ATA connector 1/2/3/4	
CPU	CPU connector	
DP1	DP connector	
DVI1	DVI1 connector	
PEG1/2	PCI-e x16 slots 1/2	
JPC1	JPC1 connector	3 x 2 header, pitch 2.00 mm

2.3 Setting Jumpers & Connectors

2.3.1   Serial port 3 pin9 signal select (JRI3)
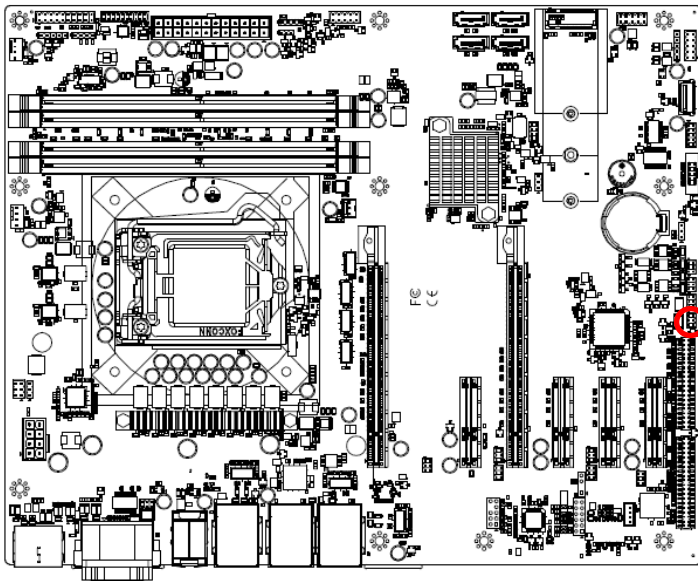
Ring*
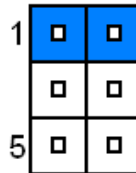
+5V
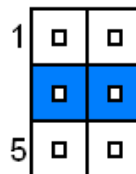
+12V
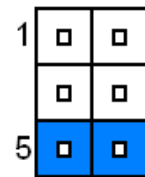
* **Default**

2.3.2   Serial port 2 pin9 signal select (JRI2)
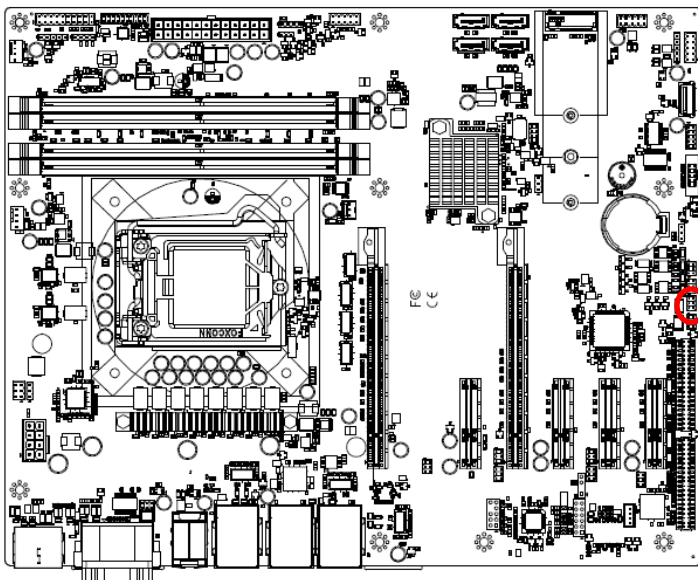
Ring*
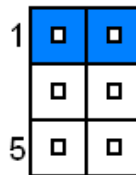
+5V
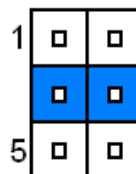
+12V
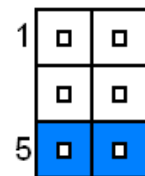
* **Default**

2.3.3 Serial port 1 pin9 signal select (JRI1)

Ring*

5   1

+5V

5   1

+12V

5   1
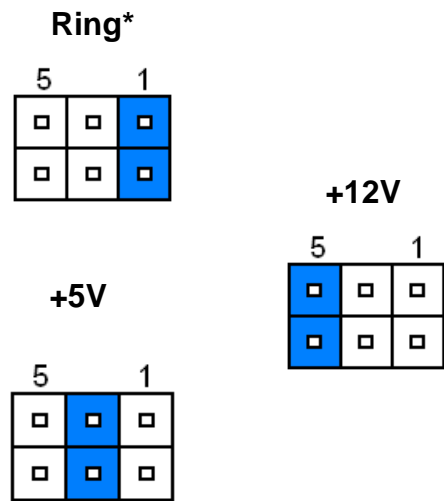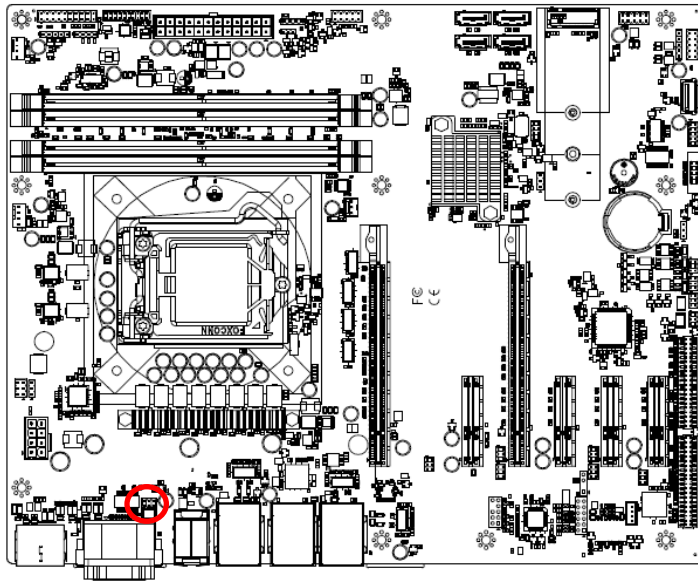
* Default

2.3.4 BIOS ME function configuration (JME1)

Enable ME *

3
1

Disable ME

3
1
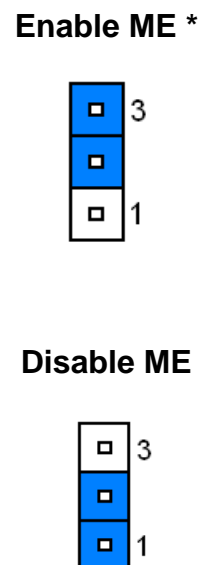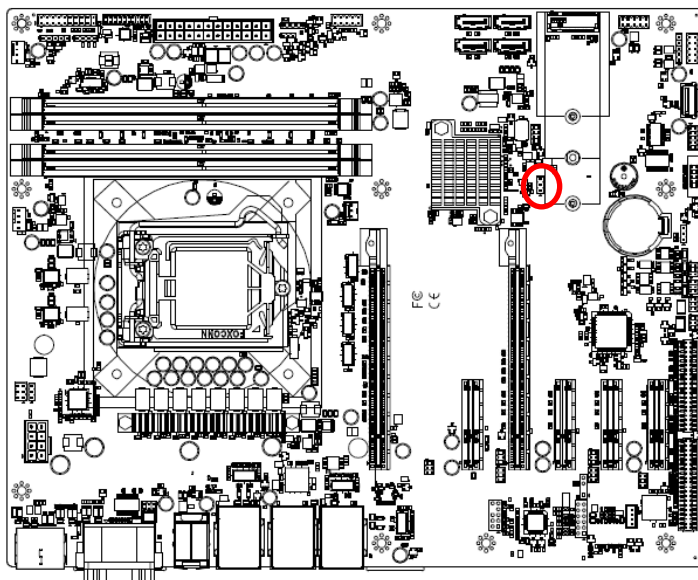
* Default

2.3.5 Clear CMOS (JCMOS1)
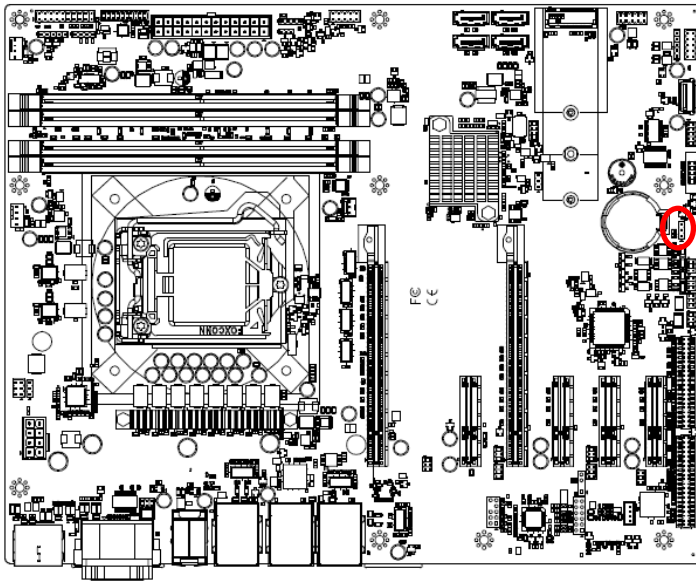
Protect*
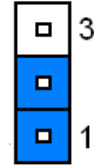
Clear CMOS
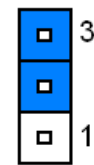
* Default

2.3.6 CPU TDP (Watts) (JCFGID1)
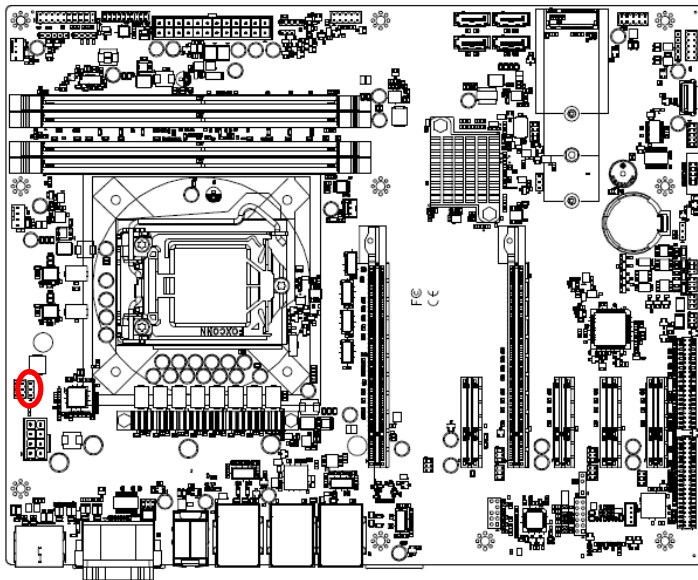
Config ID1 *
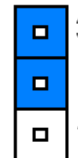
Config ID0
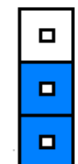
* Default

Note: Config ID0: JCFGID1(1-2) (For debug only)

Config ID1: JCFGID1(2-3) For CPU Power FW setting (Default).

2.3.7 PCI-e slot SMBus On off connector (JPSMB1)
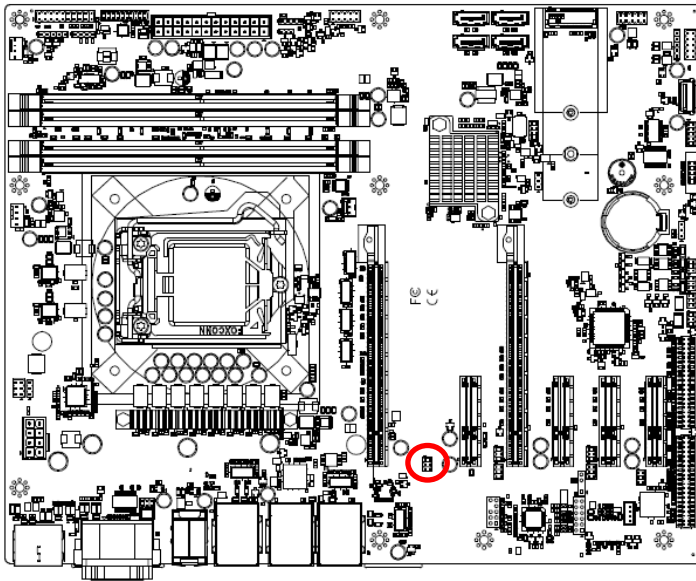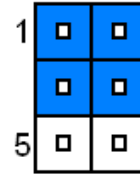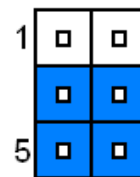
*** Default**

2.3.8 PCI-e slot SMBus On off connector (JPSMB2)
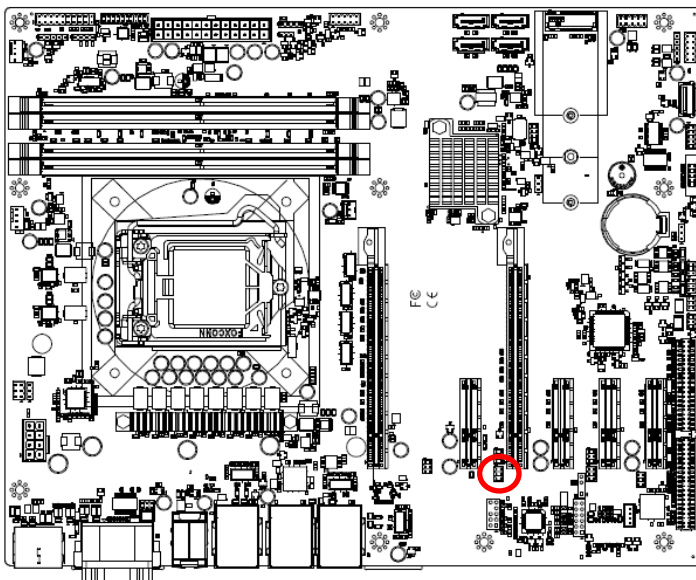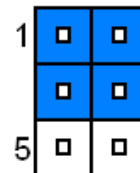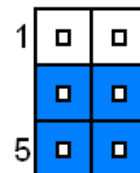
*** Default**

2.3.9   PCI-e slot SMBus On off connector (JPSMB3)
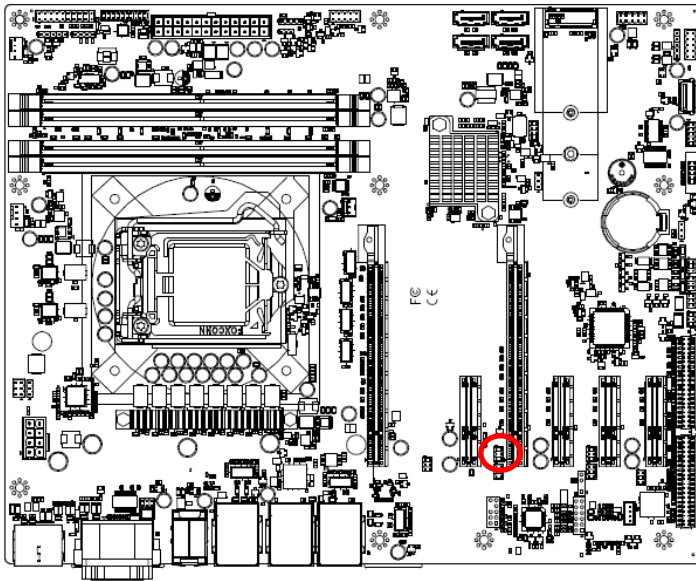
SMBus ON*
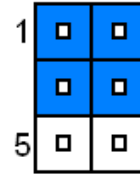
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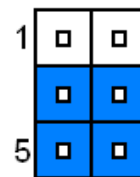
* Default

2.3.10   PCI-e slot SMBus On off connector (JPSMB4)
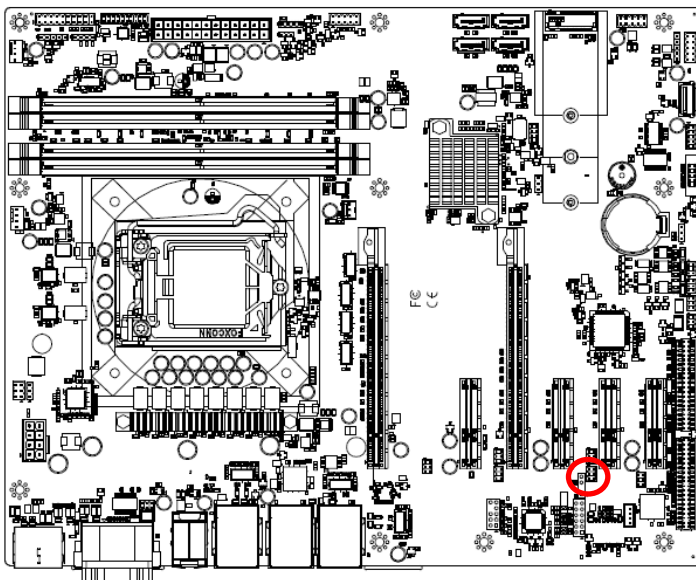
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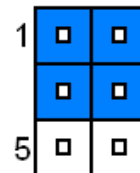
SMBus OFF
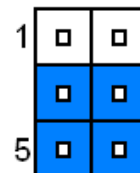
* Default

2.3.11   PCI-e slot SMBus On off connector (JPSMB5)
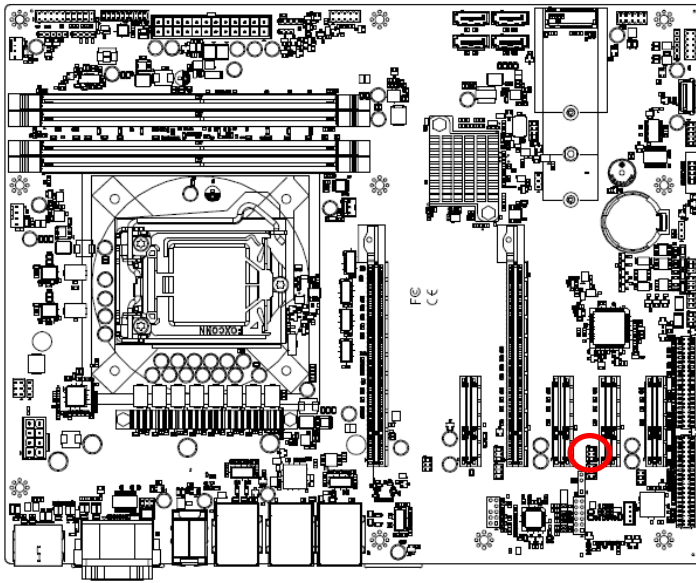
SMBus ON*
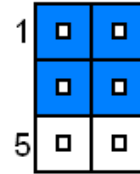
SMBus OFF
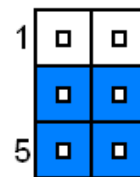
* Default

2.3.12   PCI-e slot SMBus On off connector (JPSMB6)
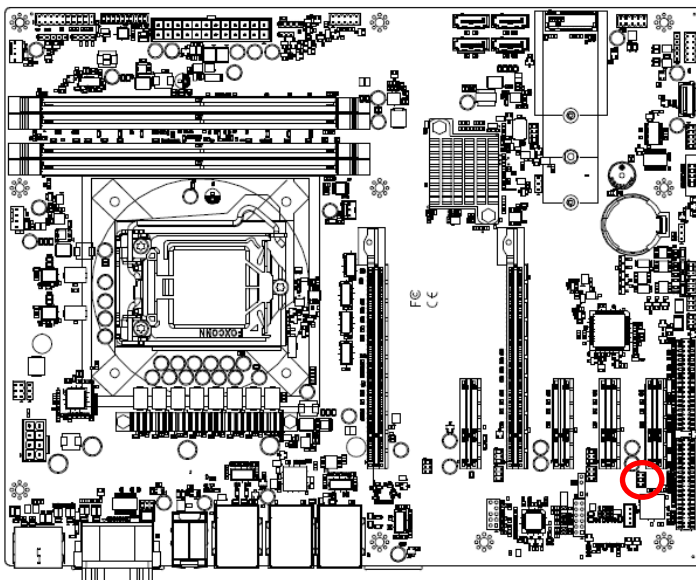
SMBus ON*
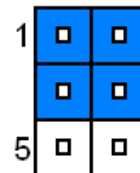
SMBus OFF
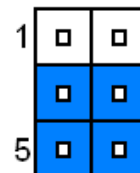
* Default

2.3.13 AT/ATX Power Mode Select (JSATX1)

ATX*

AT
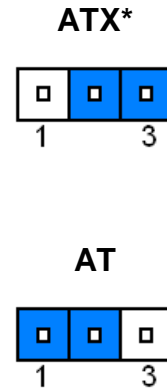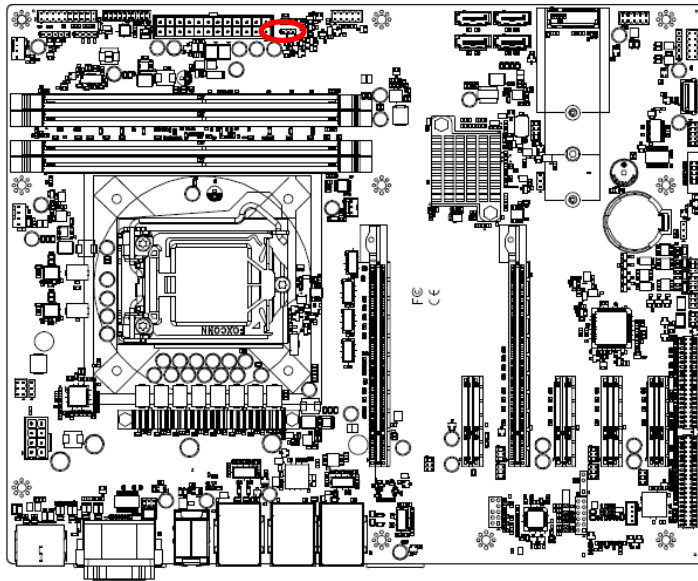
* Default

2.3.14 General purpose I/O connector (DIO1)
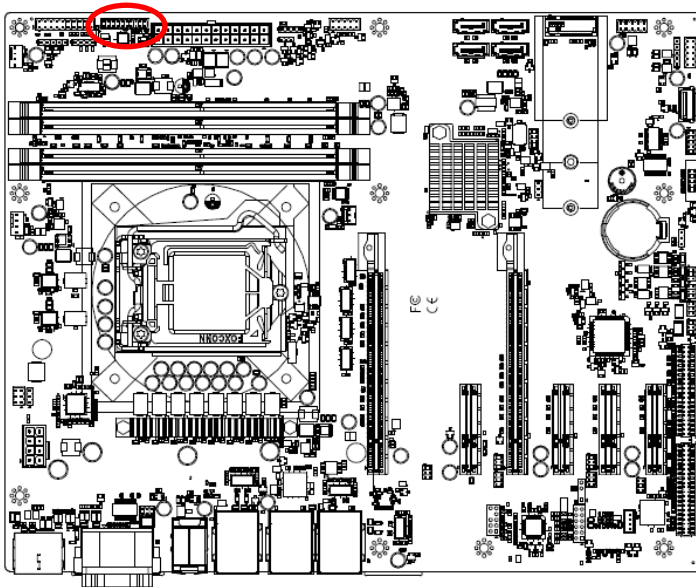
Signal	PIN	PIN	Signal
DI0	1	2	DO0
DI1	3	4	DO1
DI2	5	6	DO2
DI3	7	8	DO3
DI4	9	10	DO4
DI5	11	12	DO5
DI6	13	14	DO6
DI7	15	16	DO7
5V_SMB_CLK	17	18	5V_SMB_DATA
GND	19	20	+5V
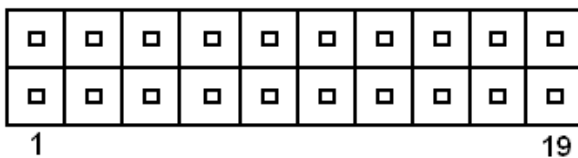
2.3.15 ATX Power connector (ATXPWR1)
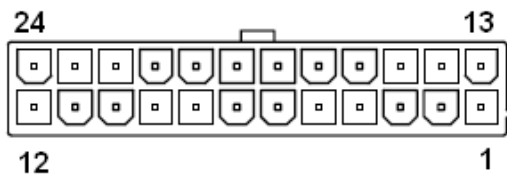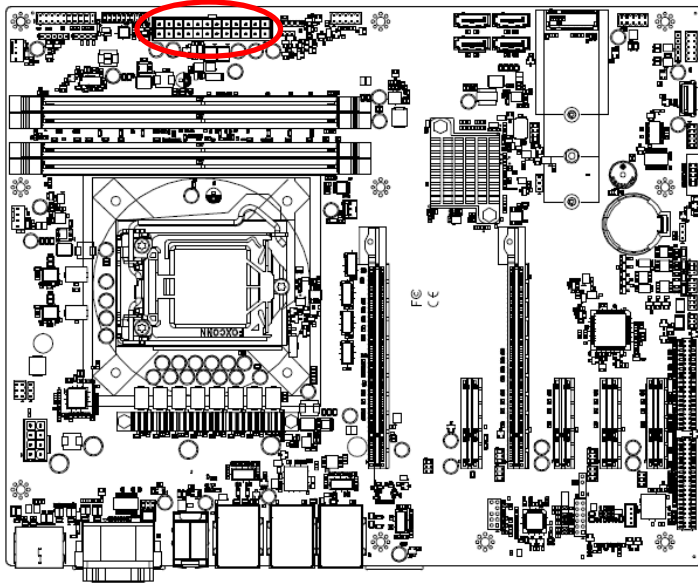
Signal	PIN	PIN	Signal
+3.3V	1	13	+3.3V
+3.3V	2	14	-12V
GND	3	15	GND
+5V	4	16	ATX_PSON#
GND	5	17	GND
+5V	6	18	GND
GND	7	19	GND
ATX24_PWROK	8	20	NC
+V5A_SB	9	21	+5V
+12V	10	22	+5V
+12V	11	23	+5V
+3.3V	12	24	GND

2.3.16 Power connector (ATX12V1)
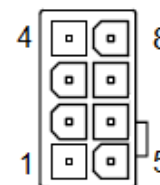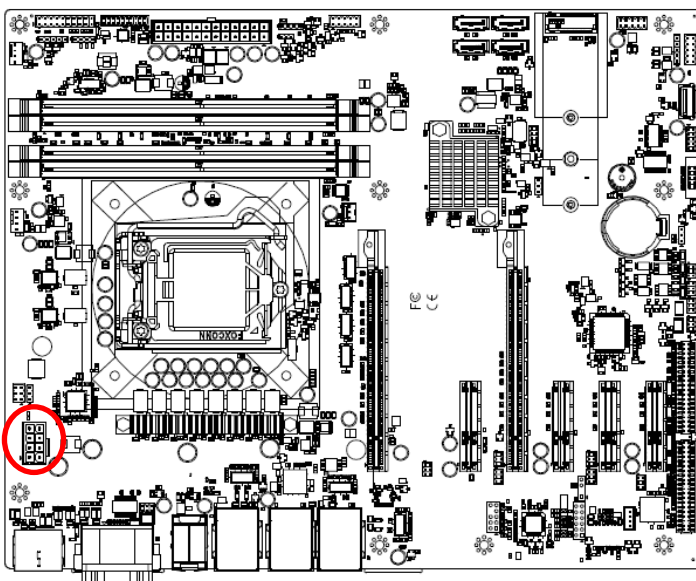
Signal	PIN	PIN	Signal
ATX_2X4_DET	4	8	+V12S_CPU
GND	3	7	+V12S_CPU
GND	2	6	+V12S_CPU
GND	1	5	+V12S_CPU

2.3.17 SMBus connector (JSMB1)
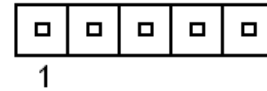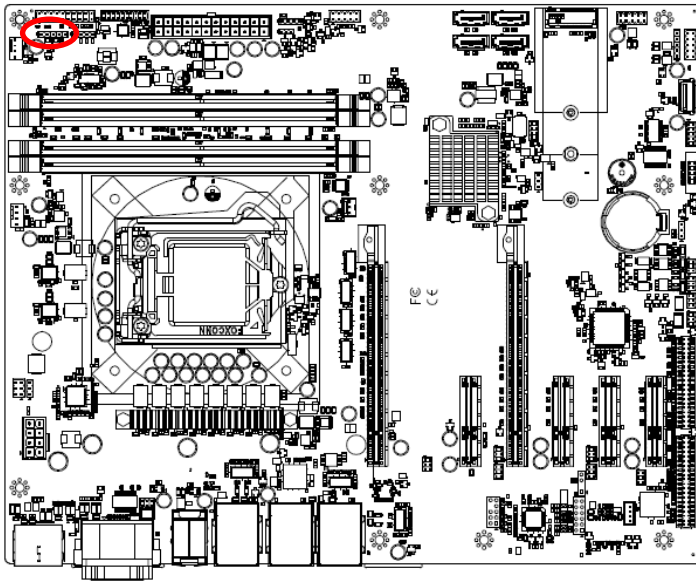
Signal	PIN
SMB_CLK	1
SMB_DATA	2
SMB_ALERT#	3
GND	4
+3.3V	5

2.3.18 LPC connector (JLPC1)
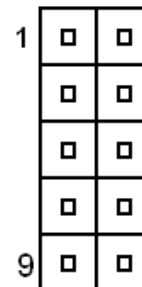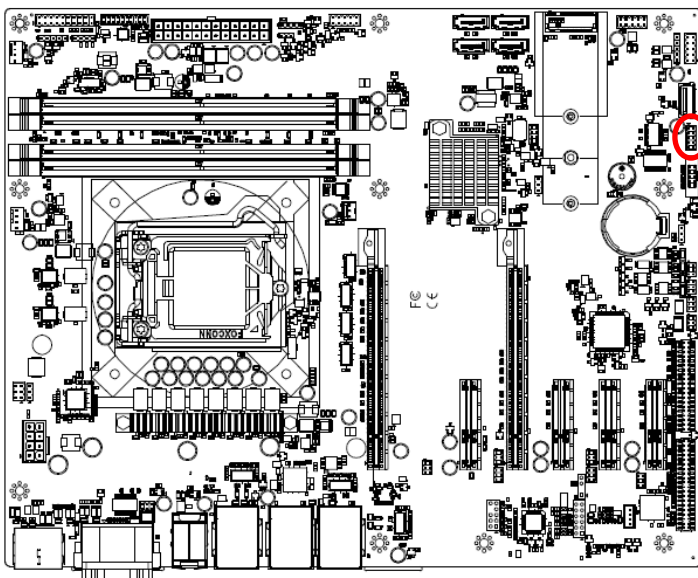
Signal	PIN	PIN	Signal
LPC_AD0	1	2	+3.3V
LPC_AD1	3	4	PLT_RST#_BUF
LPC_AD2	5	6	LPC_FRAME#
LPC_AD3	7	8	LPC_DEG_CLK
LPC_SERIRQ	9	10	GND

2.3.19 Battery connector (BAT2)
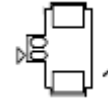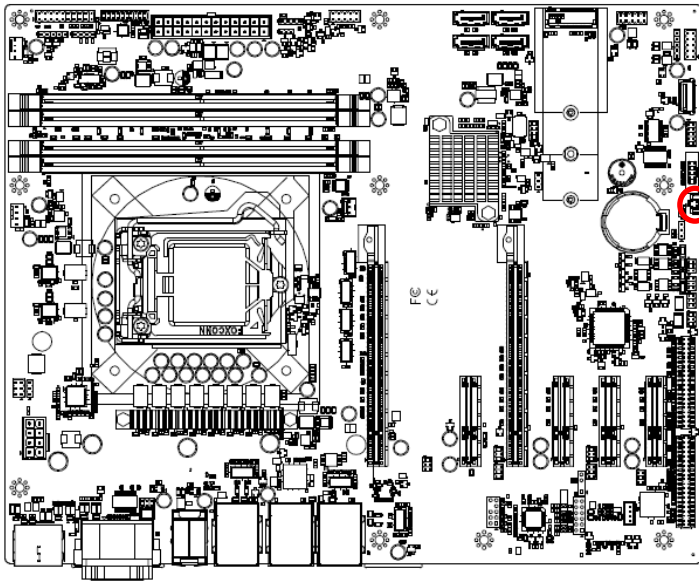
Signal	PIN
GND	1
+3.3V	2

2.3.20 Miscellaneous setting connector (SPI1)
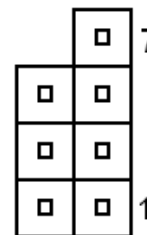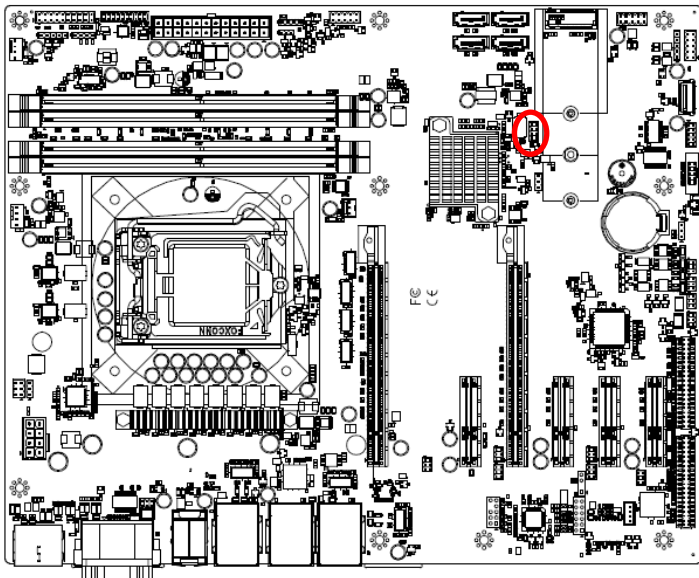
Signal	PIN	PIN	Signal
		7	SPI_HOLD#
SPI_MOSI	6	5	SPI_MISO
SPI_CLK	4	3	SPI_CS0#
GND	2	1	+ V 3.3A_SPI

2.3.21 Front Panel connector (JFP1)
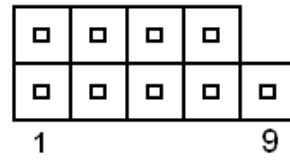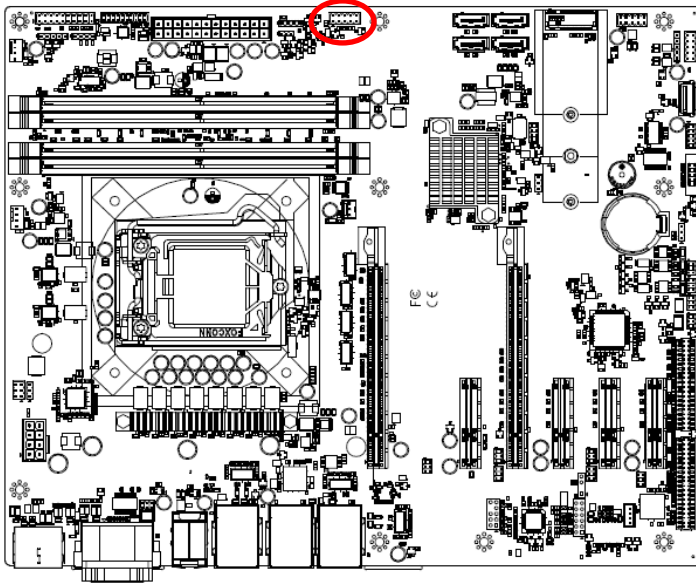
Signal	PIN	PIN	Signal
HDD_LED+	1	2	PWR_LED+
HDD_LED-	3	4	PWR_LED-
SYS_RST#	5	6	PWRBTN#
GND	7	8	GND
NC	9		

2.3.22 CPU fan connector (CPUFAN1)
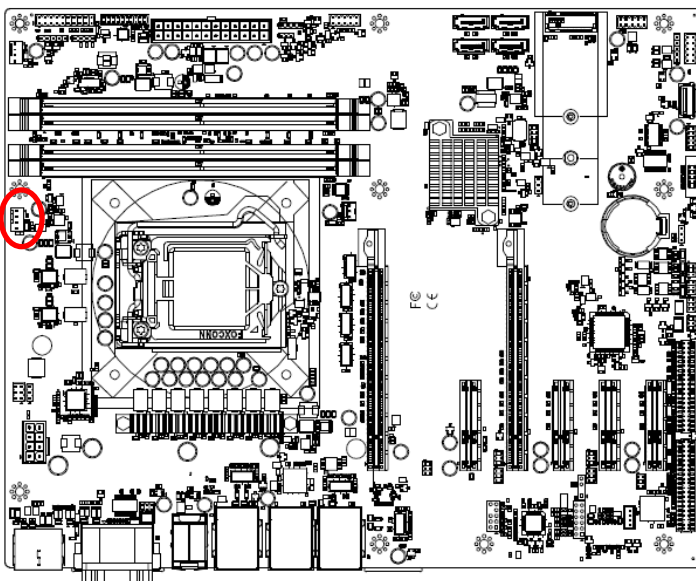
Signal	PIN
GND	1
+12V	2
CPU_ FANIN	3
CPU_FANOUT	4

2.3.23 System fan connector 1 (SYSFAN1)
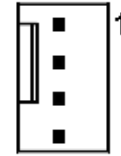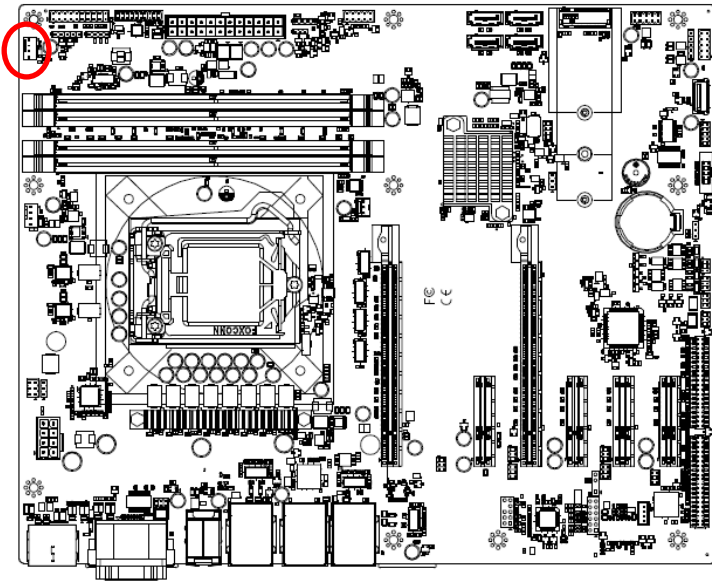
Signal	PIN
GND	1
+12V	2
SYS_ FANIN	3
SYS_FANOUT	4

2.3.24 External Speaker connector (JBZ1)
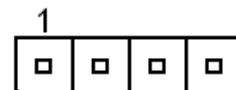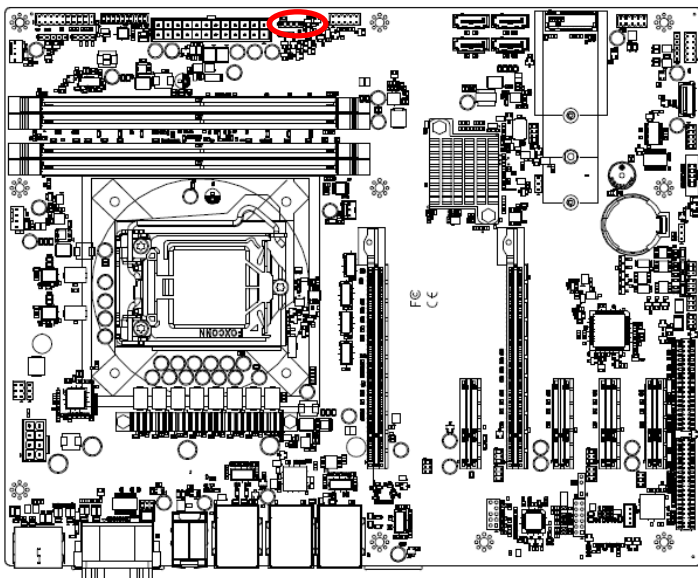
Signal	PIN
+5V	1
NC	2
NC	3
GND	4

2.3.25 Auxiliary Panel connector (JAUXP1)
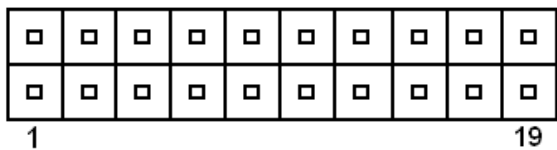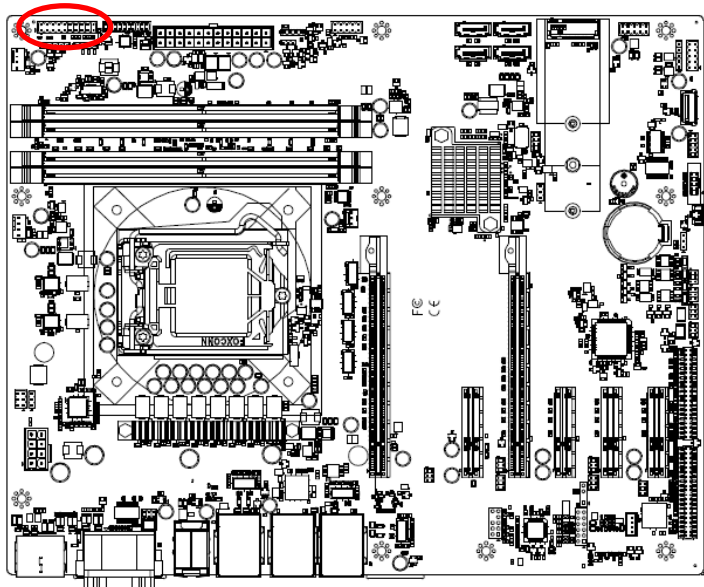
Signal	PIN	PIN	Signal
+5V	1	2	NC
NC	3	4	SMB_CLK
CASEOPEN#	5	6	NC
GND	7	8	GND
ERROR_LED+	9	10	SMB_DATA
ERROR_LED-	11	12	+5V
FRONT_LAN1_ACT	13	14	FRONT_LAN1_LINK100#
GND	15	16	FRONT_LAN1_LINK1000#
FRONT_LAN2_ACT	17	18	FRONT_LAN2_LINK100#
GND	19	20	FRONT_LAN2_LINK1000#

2.3.26 Auxiliary Panel connector (JAUXP2)
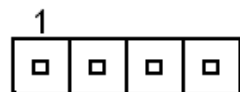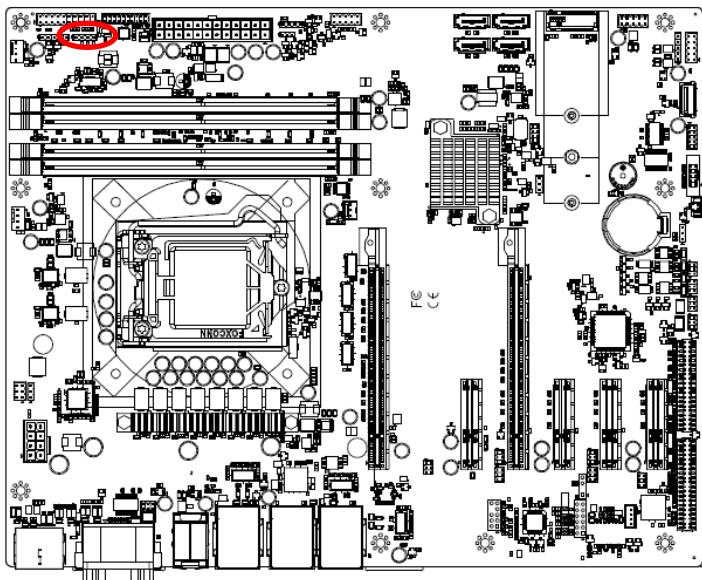
Signal	PIN
GND	1
FRONT_LAN3_ACT	2
FRONT_LAN3_LINK1000#_100	3
FRONT_LAN3_ LINK2500#	4

2.3.27 Serial port 2 connector (COM2)
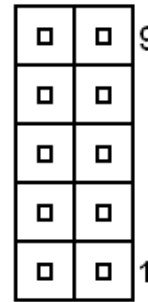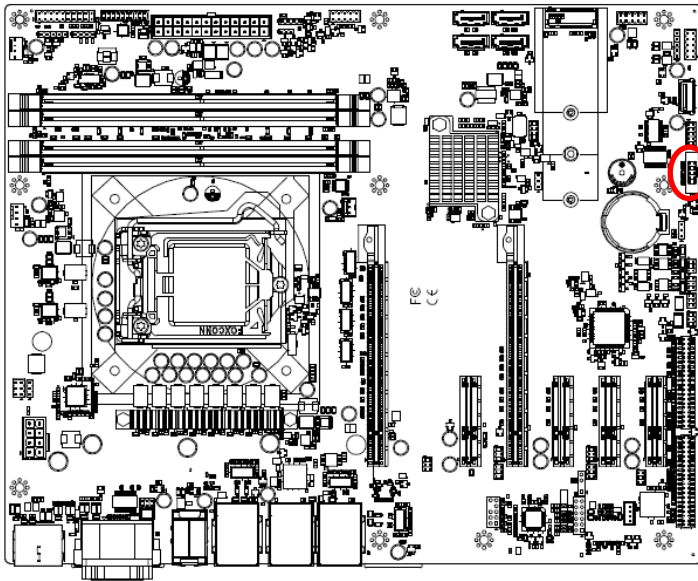
Signal	PIN	PIN	Signal
NC	10	9	NRIB#
NCTSB#	8	7	NRTSB#
NDSRB#	6	5	GND
NDTRB#	4	3	NTXDB
NRXDB	2	1	NDCDB#

2.3.28 USB connector (JUSB1)
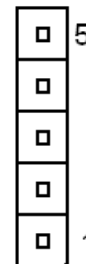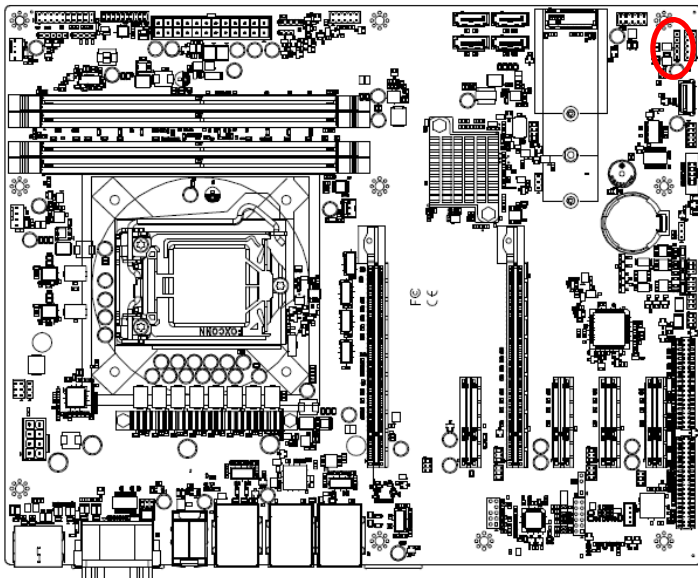
Signal	PIN
NC	5
GND	4
USB_P14	3
USB_N14	2
+V5A_USB14	1

2.3.29 USB connector 4 (JUSB4)
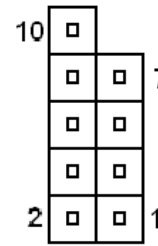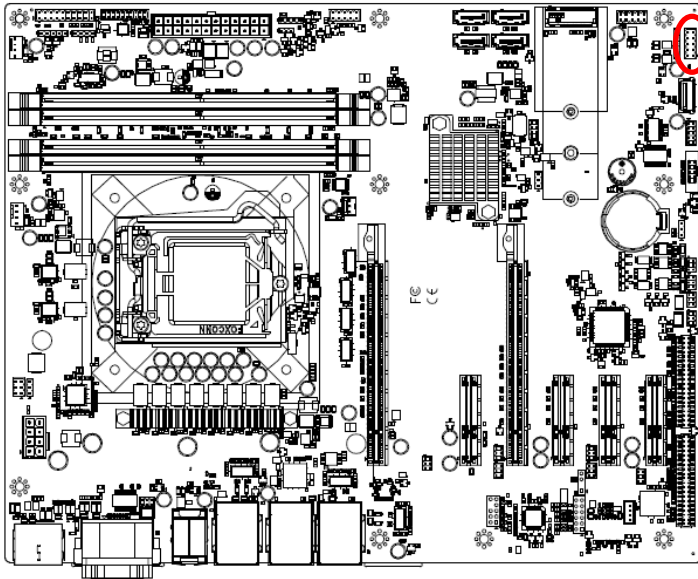
Signal	PIN	PIN	Signal
NC	10		
GND	8	7	GND
USB_8P	6	5	USB_7P
USB_8N	4	3	USB_7N
+5A_USB78	2	1	+5A_USB78

2.3.30 USB connector 5 (JUSB5)
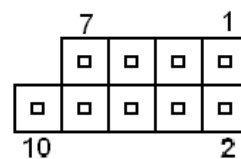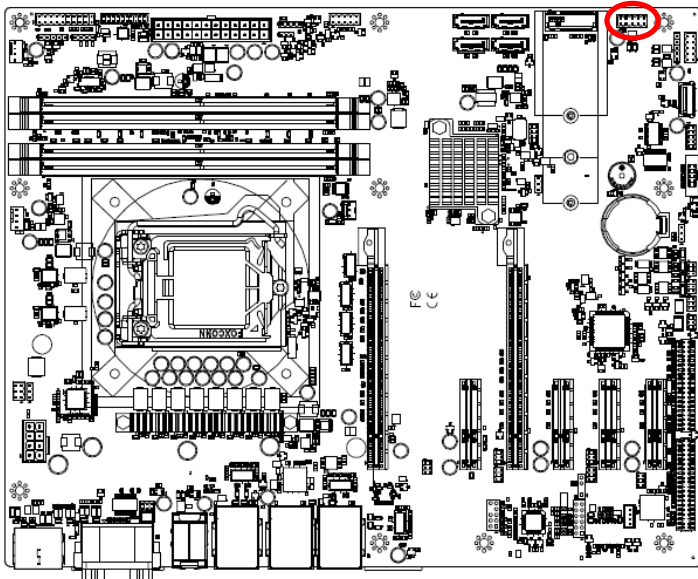
Signal	PIN	PIN	Signal
+5A_USBA	1	2	+5A_USBA
USB_9N	3	4	USB_10N
USB_9P	5	6	USB_10P
GND	7	8	GND
		10	NC

2.3.31   J1RS2 connector (J1RS2)
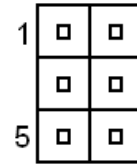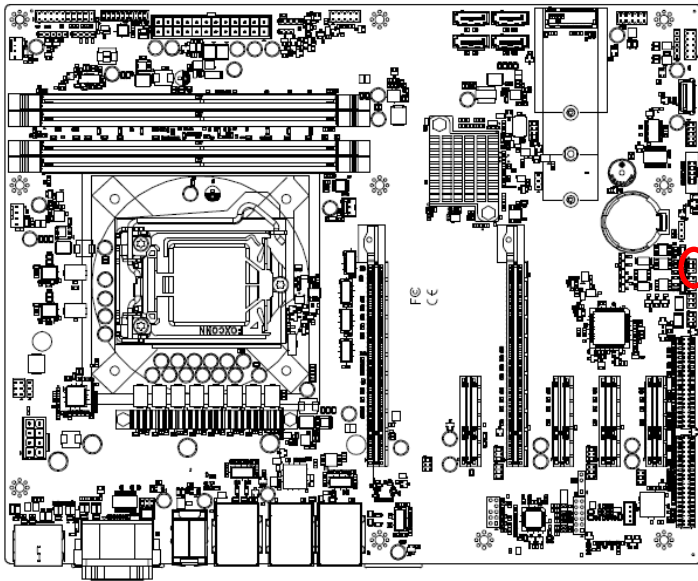
Signal	PIN	PIN	Signal
A485TX-	1	2	A422RX-
A485TX+	3	4	A422RX+
+5V	5	6	GND

2.3.32   J1RS3 connector (J1RS3)
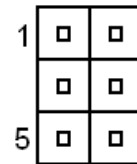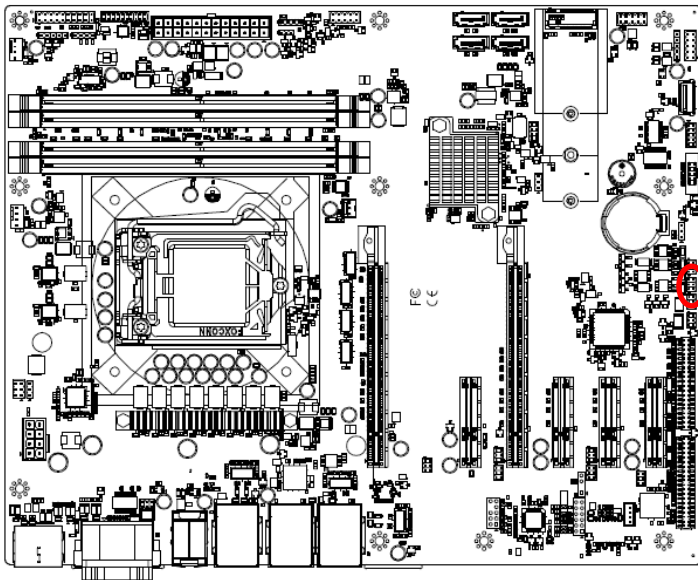
Signal	PIN	PIN	Signal
B485TX-	1	2	B422RX-
B485TX+	3	4	B422RX+
+5V	5	6	GND

2.3.33 Auxiliary Fan connector (AUXFAN1)
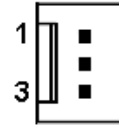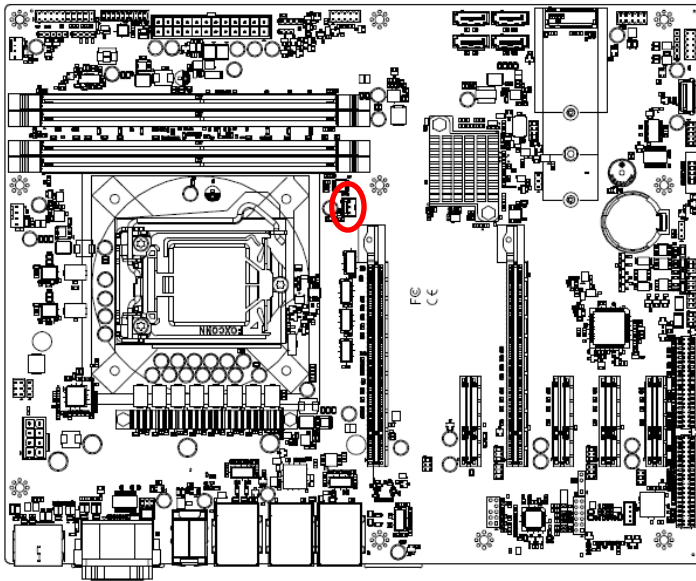
Signal	PIN
GND	1
+12V	2
AUX_R_FANIN	3

2.3.34 JPC1 connector (JPC1)
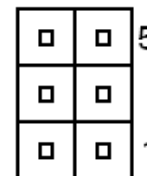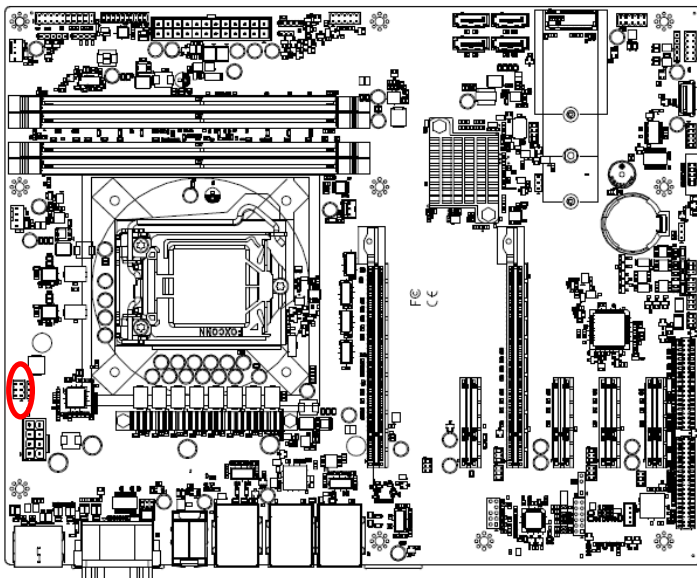
Signal	PIN	PIN	Signal
+V3.3_EXT	6	5	NC
VCCCORE_PMSCL	4	3	GND
VCCCORE_PMSDA	2	1	VCCCORE_nPMALERT

2.3.35 Serial port connector (4COM1)
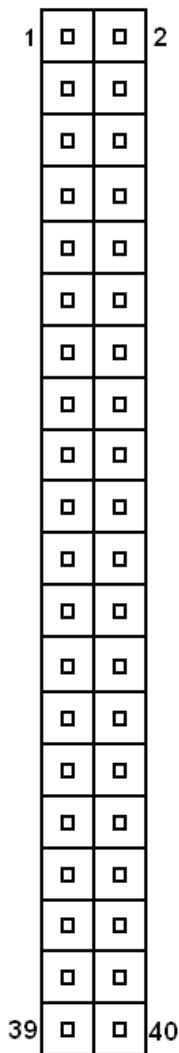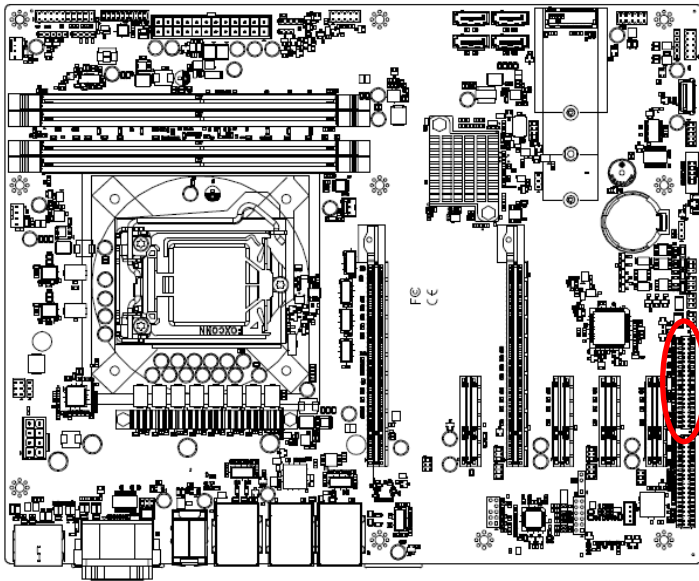
Signal	PIN	PIN	Signal
NDCDC#	1	2	NRXDC
NTXDC	3	4	NDTRC#
GND	5	6	NDSRC#
NRTSC#	7	8	NCTSC#
NRIC#	9	10	NC
NDCDD#	11	12	NRXDD
NTXDD	13	14	NDTRD#
GND	15	16	NDSRD#
NRTSD#	17	18	NCTSD#
NRID#	19	20	NC
NDCDE#	21	22	NRXDE
NTXDE	23	24	NDTRE#
GND	25	26	NDSRE#
NRTSE#	27	28	NCTSE#
NRIE#	29	30	NC
NDCDF#	31	32	NRXDF
NTXDF	33	34	NDTRF#
GND	35	36	NDSRF#
NRTSF#	37	38	NCTSF#
NRIF#	39	40	NC

2.3.36 Serial port connector (4COM2)
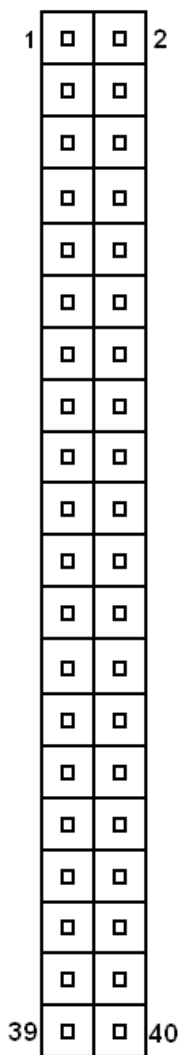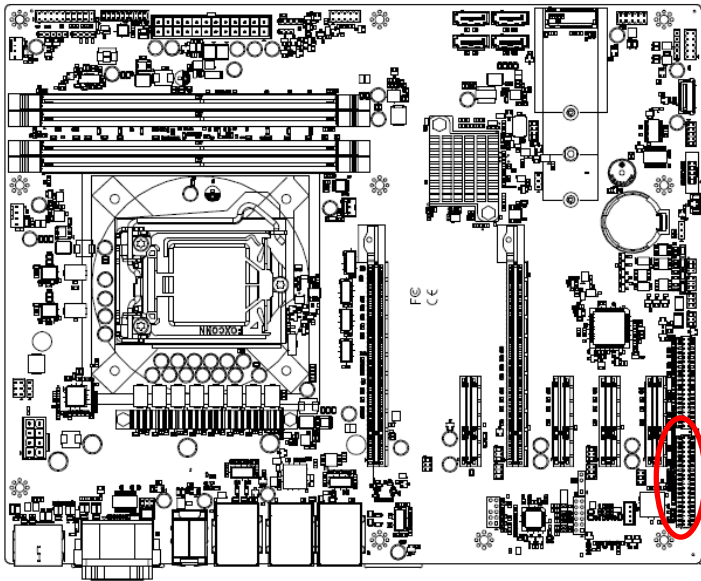
Signal	PIN	PIN	Signal
NDCD1#	1	2	NRXD1
NTXD1	3	4	NDTR1#
GND	5	6	NDSR1#
NRTS1#	7	8	NCTS1#
NRI1#	9	10	NC
NDCD2#	11	12	NRXD2
NTXD2	13	14	NDTR2#
GND	15	16	NDSR2#
NRTS2#	17	18	NCTS2#
NRI2#	19	20	NC
NDCD3#	21	22	NRXD3
NTXD3	23	24	NDTR3#
GND	25	26	NDSR3#
NRTS3#	27	28	NCTS3#
NRI3#	29	30	NC
NDCD4#	31	32	NRXD4
NTXD4	33	34	NDTR4#
GND	35	36	NDSR4#
NRTS4#	37	38	NCTS4#
NRI4#	39	40	NC

3.BIOS Setup

3.1 Introduction

The BIOS setup program allows users to modify the basic system configuration. In this following chapter will describe how to access the BIOS setup program and the configuration options that may be changed.

3.2 Starting Setup

The AMI BIOS™ is immediately activated when you first power on the computer. The BIOS reads the system information contained in the NVRAM and begins the process of checking out the system and configuring it. When it finishes, the BIOS will seek an operating system on one of the disks and then launch and turn control over to the operating system.

While the BIOS is in control, the Setup program can be activated in one of two ways:
By pressing <Del> or <F2> immediately after switching the system on, or
By pressing the <Del> or <F2> key when the following message appears briefly at the left-top of the screen during the POST (Power On Self Test).

Press <Del> or <F2> to enter SETUP

If the message disappears before you respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the "RESET" button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will again be asked to.

Press F1 to Continue, DEL to enter SETUP

3.3 Using Setup

In general, you use the arrow keys to highlight items, press <Enter> to select, use the PageUp and PageDown keys to change entries, press <F1> for help and press <Esc> to quit. The following table provides more detail about how to navigate in the Setup program using the keyboard.

Button	Description
↑	Move to previous item
↓	Move to next item
←	Move to the item in the left hand
→	Move to the item in the right hand
Esc key	Main Menu -- Quit and not save changes into NVRAM Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu
+ key	Increase the numeric value or make changes
- key	Decrease the numeric value or make changes
F1 key	General help, only for Status Page Setup Menu and Option Page Setup Menu
F2 key	Previous Values.
F3 key	Optimized defaults
F4 key	Save & Exit Setup

- **Navigating Through The Menu Bar**
  Use the left and right arrow keys to choose the menu you want to be in.

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

- **To Display a Sub Menu**
  Use the arrow keys to move the cursor to the sub menu you want. Then press <Enter>. A "➢" pointer marks all sub menus.

3.4 Getting Help

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window press <Esc> or the F1 key again.

3.5 In Case of Problems

If, after making and saving system changes with Setup, you discover that your computer no longer is able to boot, the AMI BIOS supports an override to the NVRAM settings which resets your system to its defaults.

The best advice is to only alter settings which you thoroughly understand. To this end, we strongly recommend that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both BIOS Vendor and your systems manufacturer to provide the absolute maximum performance and reliability. Even a seemingly small change to the chipset setup has the potential for causing you to use the override.

3.6 BIOS setup

Once you enter the Aptio Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from several setup functions and exit choices. Use the arrow keys to select among the items and press <Enter> to accept and enter the sub-menu.

3.6.1 Main Menu

This section allows you to record some basic hardware configurations in your computer and set the system clock.

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

     BIOS Information                                    Set the Time. Use Tab to
     BIOS Vendor              American Megatrends         switch between Time elements.
     Core Version             5.17
     Compliancy               UEFI 2.7; PI 1.6
     Project Version          1AWDV 0.39 x64
     Build Date and Time      01/04/2021 13:24:05
     Access Level             Administrator
     BIOS Name                E480P005

     System Language          [English]
   ▶ Intel RC Version

     System Date              [Tue 01/19/2021]
     System Time              [11:38:51]                →←: Select Screen
                                                         ↑↓: Select Item
                                                         Enter: Select
                                                         +/-: Change Opt.
                                                         F1: General Help
                                                         F2: Previous Values
                                                         F3: Optimized Defaults
                                                         F4: Save & Exit
                                                         ESC: Exit




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```

```
                           Aptio Setup - AMI
     Main

     Intel RC Version                              ▲

     Board Information
     Board ID                 EAX-W480P(E480P005)
     Fab ID                   Default string
     LAN PHY Revision         A6 (B2 Stepping)

     Processor Information
     Name                     CometLake DT
     Type                     Intel(R) Core(TM)
                              i3-10100TE CPU @ 2.30GHz
     Speed                    2300 MHz
     ID                       0xA0650
     Stepping                 G0                        →←: Select Screen
     Package                  LGA1200                   ↑↓: Select Item
     Number of Processors     4Core(s) / 8Thread(s)     Enter: Select
     Microcode Revision       BE                        +/-: Change Opt.
     GT Info                  GT2 (0x9BC8)              F1: General Help
     eDRAM Size               N/A                       F2: Previous Values
                                                         F3: Optimized Defaults
     IGFX VBIOS Version       N/A                       F4: Save & Exit
     IGFX GOP Version         N/A                       ESC: Exit
     Memory RC Version        0.0.0.75
     Total Memory              8192 MB
     Memory Frequency          2667 MHz              ▼

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```

3.6.1.1 System Language

This option allows choosing the system default language.

3.6.1.2 System Date

Use the system date option to set the system date. Manually enter the day, month and year.

3.6.1.3 System Time

Use the system time option to set the system time. Manually enter the hours, minutes and seconds.

Note: The BIOS setup screens shown in this chapter are for reference purposes only, and may not exactly match what you see on your screen.

Visit the Avalue website (www.avalue.com.tw) to download the latest product and BIOS information.

3.6.2 Advanced Menu

This section allows you to configure your CPU and other system devices for basic operation through the following sub-menus.

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

    ▶ CPU Configuration                          CPU Configuration Parameters
    ▶ PCH-FW Configuration
    ▶ ACPI Settings
    ▶ Super IO Configuration
    ▶ NCT6106D HW Monitor
    ▶ S5 RTC Wake Settings
    ▶ Serial Port Console Redirection
    ▶ USB Configuration
    ▶ Network Stack Configuration
    ▶ NVMe Configuration


                                                 →←: Select Screen
                                                 ↑↓: Select Item
                                                 Enter: Select
                                                 +/-: Change Opt.
                                                 F1: General Help
                                                 F2: Previous Values
                                                 F3: Optimized Defaults
                                                 F4: Save & Exit
                                                 ESC: Exit




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```

3.6.2.1 CPU Configuration

Item	Options	Description
Intel (VMX) Virtualization Technology	Disabled Enabled**[Default]**,	When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.
Active Processor Cores	All**[Default]**, 1/2/3/4/5 /6/7/8/9	Number of cores to enable in each processor package.

3.6.2.1.1 CPU - Power Management Control

Item	Options	Description
Intel(R) SpeedStep(tm)	Disabled Enabled**[Default]**,	Allows more than two frequency ranges to be supported.
Intel(R) Speed Shift Technology	Disabled Enabled**[Default]**,	Enable/Disable Intel(R) Speed Shift Technology support. Enabling will expose the CPPC v2 interface to allow for hardware controlled P-states.
Turbo Mode	Disabled Enabled**[Default]**,	Enable/Disable processor Turbo Mode (requires Intel Speed Step or Intel Speed Shift to be available and enabled).

3.6.2.2 PCH-FW Configuration
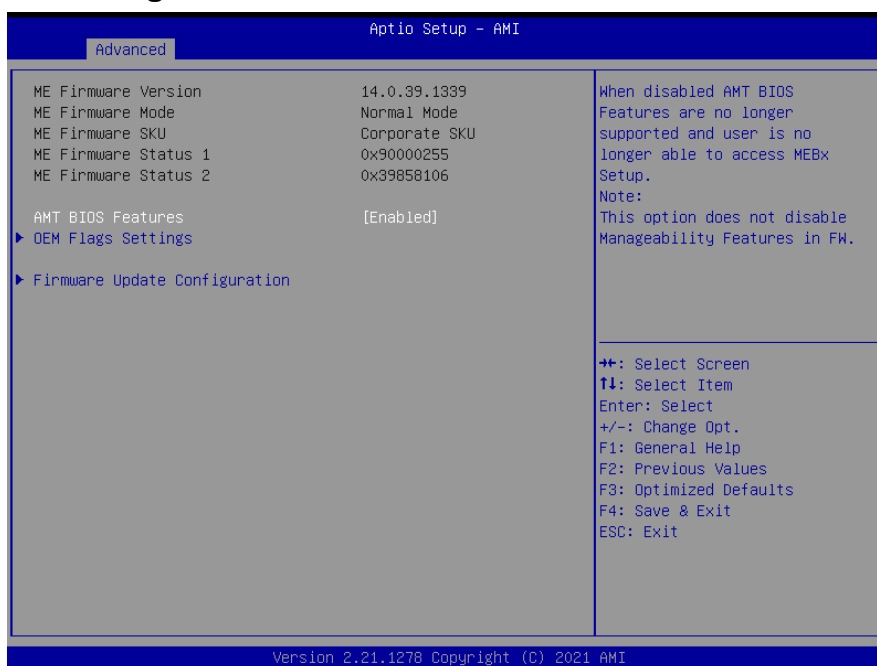
Item	Options	Description
AMT BIOS Features	Disabled Enabled**[Default]**,	When disabled AMT BIOS Features are no longer supported and user is no longer able to access MEBx Setup. Note: This option does not disable Manageability Features in FW.

3.6.2.2.1 OEM Flags Settings

```
                                    Aptio Setup - AMI
        Advanced

   Unconfigure ME                    [Disabled]              OEMFlag Bit 15:
                                                             Unconfigure ME with resetting
                                                             MEBx password to default.




                                                             ↔: Select Screen
                                                             ↑↓: Select Item
                                                             Enter: Select
                                                             +/-: Change Opt.
                                                             F1: General Help
                                                             F2: Previous Values
                                                             F3: Optimized Defaults
                                                             F4: Save & Exit
                                                             ESC: Exit




                        Version 2.21.1278 Copyright (C) 2021 AMI
```
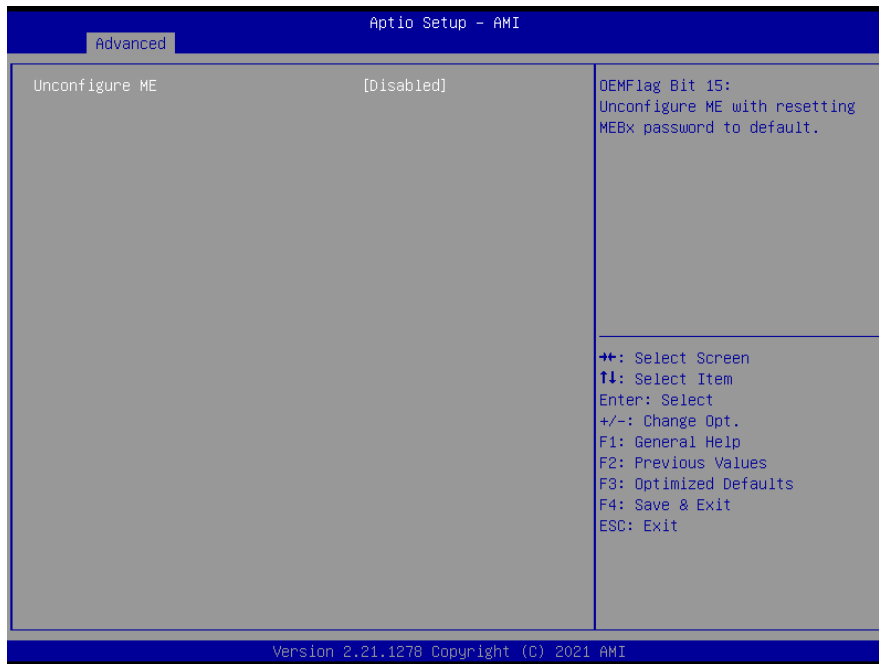
Item	Option	Description
Unconfigure ME	Default**[Default]**, Extended User USER Supervisor	OEMFlag Bit 15: Unconfigure ME with resetting MEBx password to default.

3.6.2.2.2 Firmware Update Configuration

```
                                    Aptio Setup - AMI
        Advanced

   Me FW Image Re-Flash              [Disabled]              Enable/Disable Me FW Image
                                                             Re-Flash function.




                                                             ↔: Select Screen
                                                             ↑↓: Select Item
                                                             Enter: Select
                                                             +/-: Change Opt.
                                                             F1: General Help
                                                             F2: Previous Values
                                                             F3: Optimized Defaults
                                                             F4: Save & Exit
                                                             ESC: Exit



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```

Item	Option	Description
Me FW Image Re-Flash	Disabled**[Default]**, Enabled	Enable/Disable Me FW Image Re-Flash function.

3.6.2.3 ACPI Settings
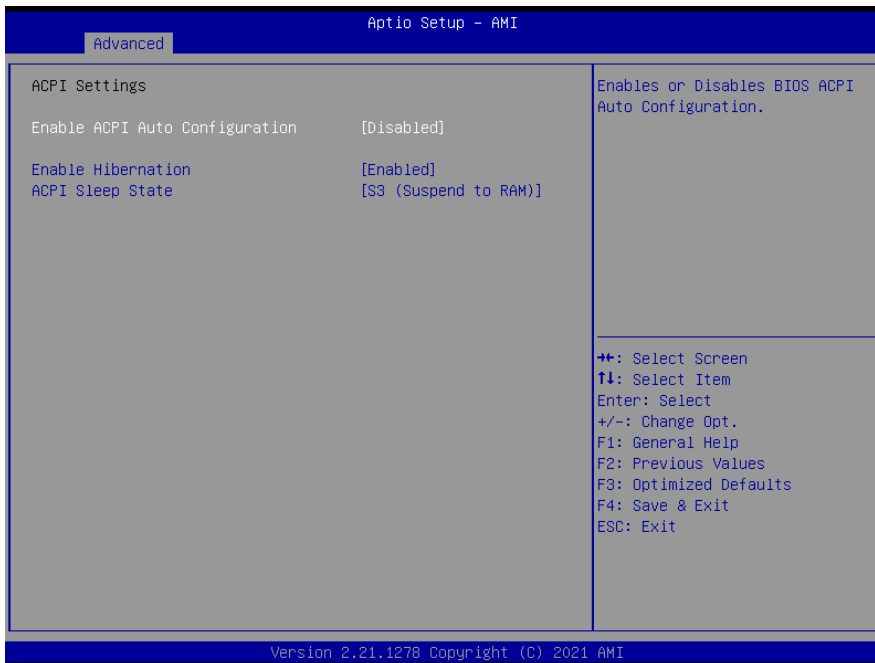
Item	Options	Description
Enable ACPI Auto Configuration	Disabled**[Default]**, Enabled	Enables or Disables BIOS ACPI Auto Configuration.
Enable Hibernation	Disabled Enabled**[Default]**,	Enables or Disables System ability to Hibernate (OS/S4 Sleep State). This option may not be effective with some operating systems.
ACPI Sleep State	Suspend Disabled, S3 (Suspend to RAM)**[Default]**	Select the highest ACPI sleep state the system will enter when the SUSPEDN button is pressed.

3.6.2.4 Super IO Configuration

You can use this item to set up or change the Super IO configuration for serial ports. Please refer to 3.6.2.5.1~ 3.6.2.5.10 for more information.

```
                              Aptio Setup – AMI
     Advanced

     Super IO Configuration                              Set Parameters of Serial Port
                                                         1 (COMA)
     Super IO Chip                    NCT6106D
   ▶ Serial Port 1 Configuration
   ▶ Serial Port 2 Configuration
   ▶ Serial Port 3 Configuration
   ▶ Serial Port 4 Configuration
   ▶ Serial Port 5 Configuration
   ▶ Serial Port 6 Configuration

     Secondary Super IO Chip          F81216
   ▶ Serial Port 7 Configuration
   ▶ Serial Port 8 Configuration                         ➜◆: Select Screen
   ▶ Serial Port 9 Configuration                         ↑↓: Select Item
   ▶ Serial Port 10 Configuration                        Enter: Select
                                                         +/−: Change Opt.
                                                         F1: General Help
                                                         F2: Previous Values
                                                         F3: Optimized Defaults
                                                         F4: Save & Exit
                                                         ESC: Exit



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```

Item	Description
Serial Port 1 Configuration	Set Parameters of Serial Port 1 (COMA).
Serial Port 2 Configuration	Set Parameters of Serial Port 2 (COMB).
Serial Port 3 Configuration	Set Parameters of Serial Port 3 (COMC).
Serial Port 4 Configuration	Set Parameters of Serial Port 4 (COMD).
Serial Port 5 Configuration	Set Parameters of Serial Port 5 (COME).
Serial Port 6 Configuration	Set Parameters of Serial Port 6 (COMF).
Serial Port 7 Configuration	Set Parameters of Serial Port 7 (COMG).
Serial Port 8 Configuration	Set Parameters of Serial Port 8 (COMH).
Serial Port 9 Configuration	Set Parameters of Serial Port 9 (COMI).
Serial Port 10 Configuration	Set Parameters of Serial Port 10 (COMJ).

3.6.2.4.1 Serial Port 1 Configuration

```
                              Aptio Setup - AMI
        Advanced

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




                                                           →←: Select Screen
                                                           ↑↓: Select Item
                                                           Enter: Select
                                                           +/-: Change Opt.
                                                           F1: General Help
                                                           F2: Previous Values
                                                           F3: Optimized Defaults
                                                           F4: Save & Exit
                                                           ESC: Exit




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```

Item	Option	Description
Serial Port	Disabled Enabled**[Default]**,	Enable or Disable Serial Port (COM).

3.6.2.4.2 Serial Port 2 Configuration

```
                              Aptio Setup - AMI
        Advanced

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

      UART 232 422 485                 [RS232]




                                                           →←: Select Screen
                                                           ↑↓: Select Item
                                                           Enter: Select
                                                           +/-: Change Opt.
                                                           F1: General Help
                                                           F2: Previous Values
                                                           F3: Optimized Defaults
                                                           F4: Save & Exit
                                                           ESC: Exit




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```

Item	Option	Description
Serial Port	Disabled Enabled**[Default]**,	Enable or Disable Serial Port (COM).

	RS232**[Default]**	
UART 232 422 485	RS422	Set COM Port as RS232, RS422 or RS485 mode.
	RS485	

3.6.2.4.3 Serial Port 3 Configuration

Item	Option	Description
Serial Port	Disabled Enabled**[Default]**,	Enable or Disable Serial Port (COM).
UART 232 422 485	RS232**[Default]** RS422 RS485	Set COM Port as RS232, RS422 or RS485 mode.

3.6.2.4.4 Serial Port 4 Configuration

```
                          Aptio Setup - AMI
        Advanced

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




                                                       ++: Select Screen
                                                       ↑↓: Select Item
                                                       Enter: Select
                                                       +/-: Change Opt.
                                                       F1: General Help
                                                       F2: Previous Values
                                                       F3: Optimized Defaults
                                                       F4: Save & Exit
                                                       ESC: Exit




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```

Item	Option	Description
Serial Port	Disabled Enabled**[Default]**,	Enable or Disable Serial Port (COM).

3.6.2.4.5 Serial Port 5 Configuration
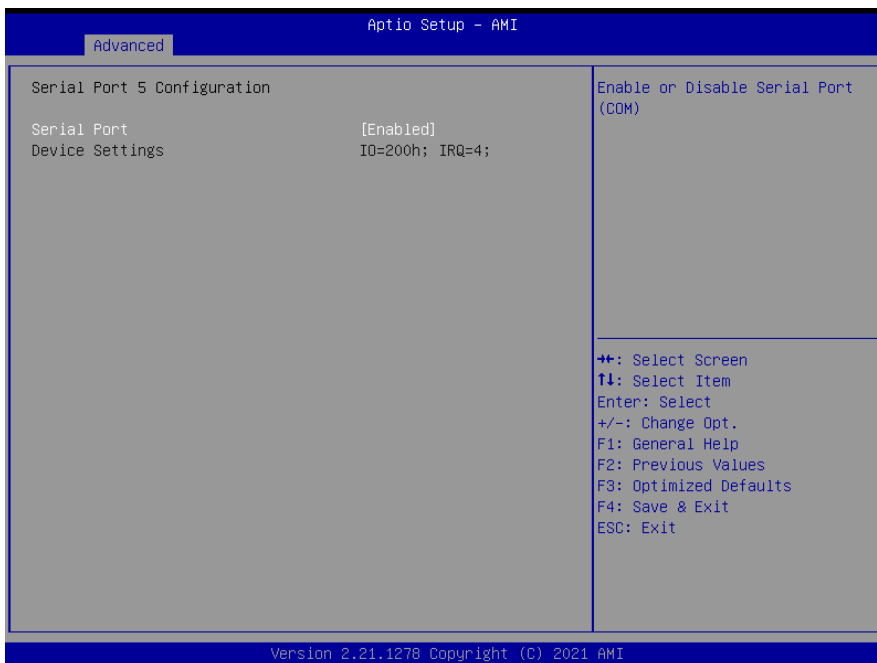
```
                          Aptio Setup - AMI
        Advanced

  Serial Port 5 Configuration                          Enable or Disable Serial Port
                                                       (COM)
  Serial Port                      [Enabled]
  Device Settings                  IO=200h; IRQ=4;




                                                       ++: Select Screen
                                                       ↑↓: Select Item
                                                       Enter: Select
                                                       +/-: Change Opt.
                                                       F1: General Help
                                                       F2: Previous Values
                                                       F3: Optimized Defaults
                                                       F4: Save & Exit
                                                       ESC: Exit




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```

Item	Option	Description
Serial Port	Disabled Enabled**[Default]**,	Enable or Disable Serial Port (COM).

3.6.2.4.6 Serial Port 6 Configuration
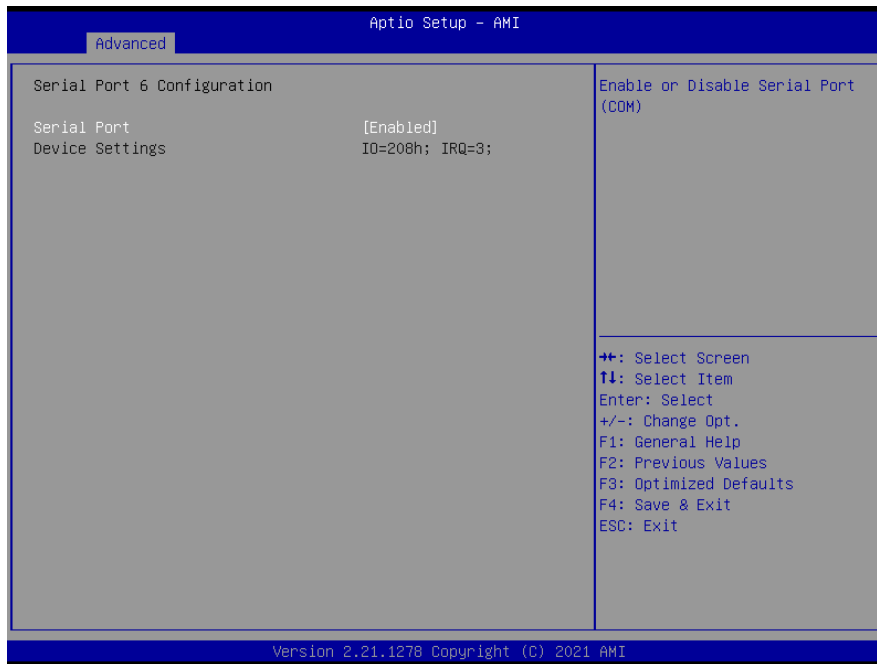
```
                              Aptio Setup - AMI
        Advanced

  Serial Port 6 Configuration                          Enable or Disable Serial Port
                                                       (COM)
  Serial Port                      [Enabled]
  Device Settings                  IO=208h; IRQ=3;




                                                       →←: Select Screen
                                                       ↑↓: Select Item
                                                       Enter: Select
                                                       +/-: Change Opt.
                                                       F1: General Help
                                                       F2: Previous Values
                                                       F3: Optimized Defaults
                                                       F4: Save & Exit
                                                       ESC: Exit



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```

Item	Option	Description
Serial Port	Disabled Enabled**[Default]**,	Enable or Disable Serial Port (COM).

3.6.2.4.7 Serial Port 7 Configuration
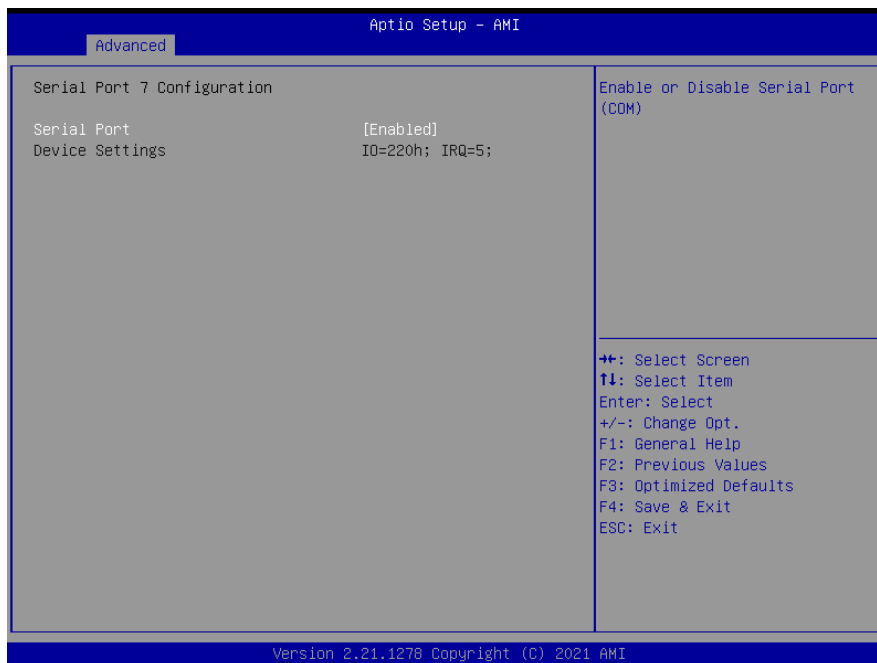
```
                              Aptio Setup - AMI
        Advanced

  Serial Port 7 Configuration                          Enable or Disable Serial Port
                                                       (COM)
  Serial Port                      [Enabled]
  Device Settings                  IO=220h; IRQ=5;




                                                       →←: Select Screen
                                                       ↑↓: Select Item
                                                       Enter: Select
                                                       +/-: Change Opt.
                                                       F1: General Help
                                                       F2: Previous Values
                                                       F3: Optimized Defaults
                                                       F4: Save & Exit
                                                       ESC: Exit



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```

Item	Option	Description
Serial Port	Disabled Enabled**[Default]**,	Enable or Disable Serial Port (COM).

3.6.2.4.8 Serial Port 8 Configuration
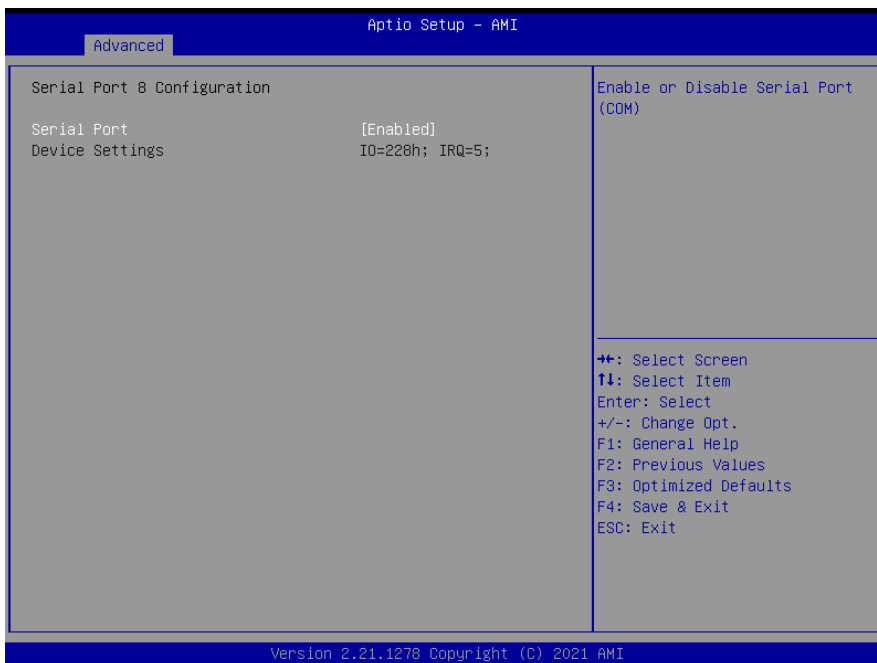
```
                                    Aptio Setup - AMI
        Advanced

  Serial Port 8 Configuration                              Enable or Disable Serial Port
                                                           (COM)
  Serial Port                        [Enabled]
  Device Settings                    IO=228h; IRQ=5;




                                                           ↔: Select Screen
                                                           ↑↓: Select Item
                                                           Enter: Select
                                                           +/-: Change Opt.
                                                           F1: General Help
                                                           F2: Previous Values
                                                           F3: Optimized Defaults
                                                           F4: Save & Exit
                                                           ESC: Exit




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```

Item	Option	Description
Serial Port	Disabled Enabled**[Default]**,	Enable or Disable Serial Port (COM).

3.6.2.4.9 Serial Port 9 Configuration
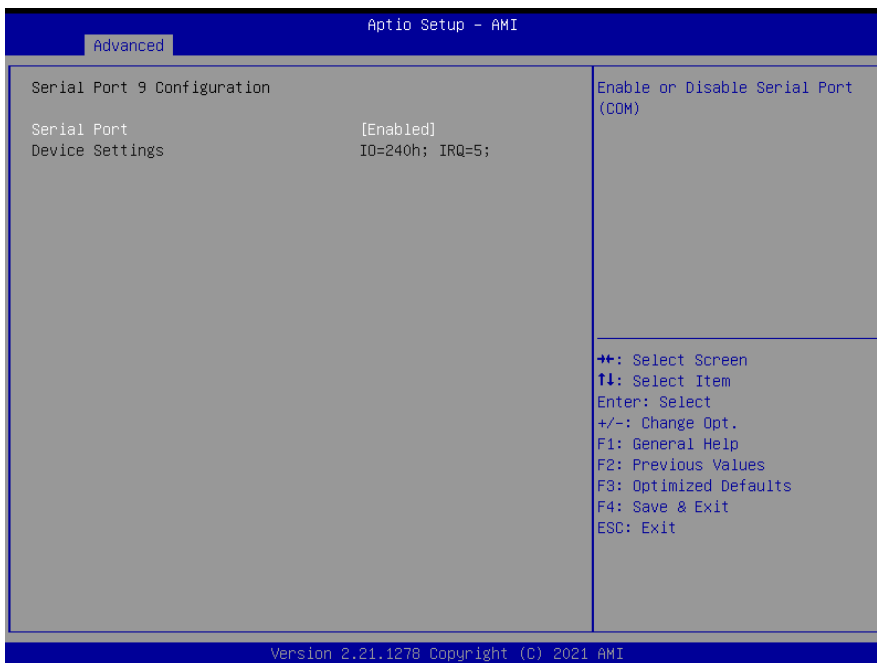
```
                                    Aptio Setup - AMI
        Advanced

  Serial Port 9 Configuration                              Enable or Disable Serial Port
                                                           (COM)
  Serial Port                        [Enabled]
  Device Settings                    IO=240h; IRQ=5;




                                                           ↔: Select Screen
                                                           ↑↓: Select Item
                                                           Enter: Select
                                                           +/-: Change Opt.
                                                           F1: General Help
                                                           F2: Previous Values
                                                           F3: Optimized Defaults
                                                           F4: Save & Exit
                                                           ESC: Exit




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```

Item	Option	Description
Serial Port	Disabled Enabled**[Default]**,	Enable or Disable Serial Port (COM).

3.6.2.4.10 Serial Port 10 Configuration
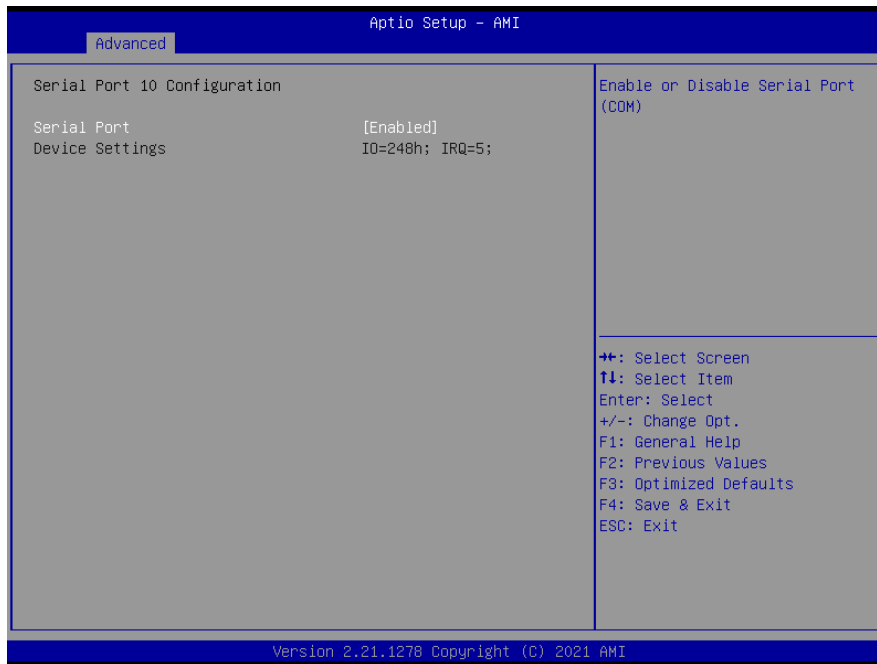
```
                              Aptio Setup – AMI
        Advanced

  Serial Port 10 Configuration                           Enable or Disable Serial Port
                                                         (COM)
  Serial Port                       [Enabled]
  Device Settings                   IO=248h; IRQ=5;




                                                         →←: Select Screen
                                                         ↑↓: Select Item
                                                         Enter: Select
                                                         +/-: Change Opt.
                                                         F1: General Help
                                                         F2: Previous Values
                                                         F3: Optimized Defaults
                                                         F4: Save & Exit
                                                         ESC: Exit



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```

Item	Option	Description
Serial Port	Disabled Enabled**[Default]**,	Enable or Disable Serial Port (COM).

3.6.2.5 NCT6106D H/W Monitor

```
                              Aptio Setup – AMI
        Advanced

  PC Health Status                                       Select Smart Fan Mode or set
                                                         fan duty/speed manually.
▶ Smart Fan Mode Configuration
  CPU Temperature                   : +28.5 C
  CPU Temperature(PECI)             : +31.5 C
  System Temperature                : +29 C
  CPU Fan Speed                     : 1475 RPM
  CPU Fan PWM Output (Duty)         : 255
  SYS Fan Speed                     : N/A
  AUX Fan Speed                     : N/A
  +5V                               : +5.060 V
  DRAM Voltage                      : +1.208 V
  VCORE                             : +0.784 V
  AVCC                              : +3.360 V          →←: Select Screen
  VSB3V                             : +3.264 V          ↑↓: Select Item
  VCC3V                             : +3.376 V          Enter: Select
  VBAT                              : +3.040 V          +/-: Change Opt.
                                                        F1: General Help
                                                        F2: Previous Values
                                                        F3: Optimized Defaults
                                                        F4: Save & Exit
                                                        ESC: Exit



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```

3.6.2.5.1 Smart Fan Configuration

```
                              Aptio Setup - AMI
       Advanced

   Smart Fan Mode Configuration                   Avalue Smart Fan Mode Select:
                                                  Mode 01 to Mode 20
   CPU Fan Mode                    [Manual Mode]  Or Manual(No Smart Fan)
   CPU Fan Manual Mode Duty        255

   SYS Fan Mode                    [Mode 01]




                                                  →←: Select Screen
                                                  ↑↓: Select Item
                                                  Enter: Select
                                                  +/-: Change Opt.
                                                  F1: General Help
                                                  F2: Previous Values
                                                  F3: Optimized Defaults
                                                  F4: Save & Exit
                                                  ESC: Exit




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```

Item	Option	Description
CPU Fan Mode	Manual Mode**[Default]**, Mode 01 Mode 02 Mode 03 Mode 04 Mode 05 Mode 06 Mode 07 Mode 08 Mode 09 Mode 10 Mode 11 Mode 12 Mode 13 Mode 14 Mode 15 Mode 16 Mode 17 Mode 18 Mode 19 Mode 20	Avalue Smart Fan Mode Select: Mode 01 to Mode 20 Or Manual (No Smart Fan)
CPU Fan Manual Mode Duty	255	Set Fan Duty Manually(1~255).
SYS FAN Mode	Manual Mode Mode 01**[Default]**, Mode 02 Mode 03 Mode 04	Avalue Smart Fan Mode Select: Mode 01 to Mode 20 Or Manual (No Smart Fan)

	Mode 05	
	Mode 06	
	Mode 07	
	Mode 08	
	Mode 09	
	Mode 10	
	Mode 11	
	Mode 12	
	Mode 13	
	Mode 14	
	Mode 15	
	Mode 16	
	Mode 17	
	Mode 18	
	Mode 19	
	Mode 20	

3.6.2.6　S5 RTC Wake Settings
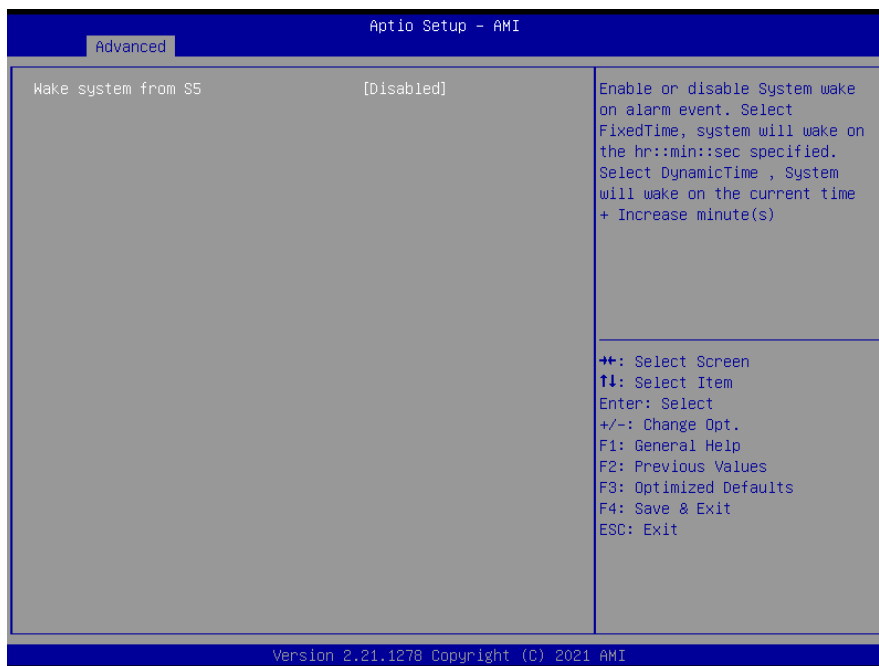
Item	Options	Description
Wake system from S5	Disabled**[Default]**, Fixed Time Dynamic Time	Enable or disable System wake on alarm event. Select Fixed Time, system will wake on the hr::min::sec specified. Select Dynamic Time, System will wake on the current time + Increase minute(s).

3.6.2.7 Serial Port Console Redirection
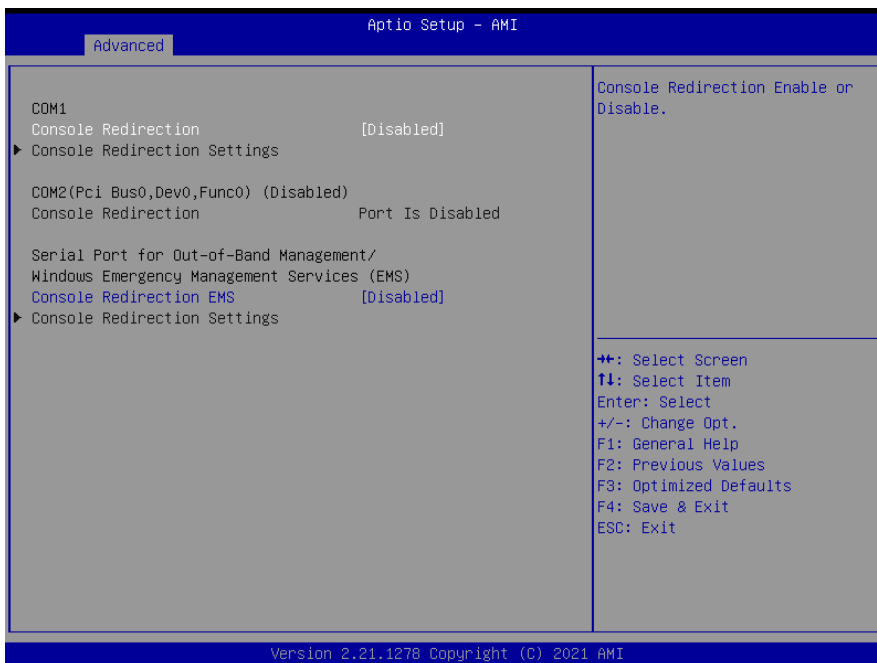
Item	Options	Description
Console Redirection	Disabled**[Default]**, Enabled	Console Redirection Enable or Disable.
Console Redirection EMS	Disabled**[Default]**, Enabled	Console Redirection Enable or Disable.

3.6.2.8 USB Configuration

The USB Configuration menu helps read USB information and configures USB settings.
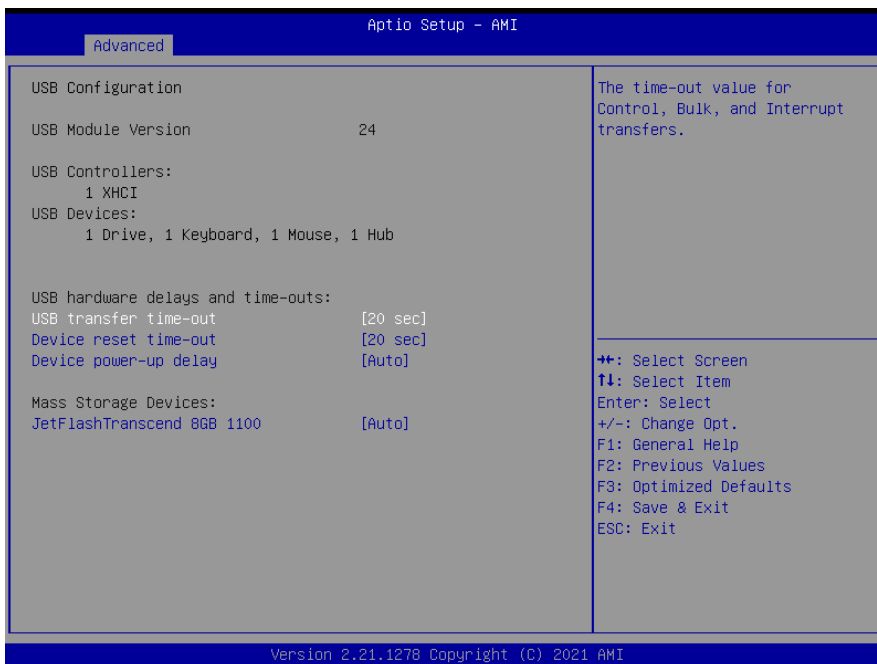
Item	Options	Description
USB transfer time-out	1 sec 5 sec 10 sec 20 sec**[Default]**	The time-out value for Control, Bulk, and Interrupt transfers.
Device reset time-out	10 sec 20 sec**[Default]** 30 sec 40 sec	USB mass storage device Start Unit command time-out.
Device power-up delay	Auto**[Default]** Manual	Maximum time the device will take before it properly reports itself to the Host Controller. 'Auto' uses default value: for a Root port it is 100ms, for a Hub port the delay is taken form Hub descriptor.
Mass Storage Devices	Auto**[Default]** Floppy Forced FDD Hard Disk CD-ROM	Mass storage device emulation type. 'AUTO' enumerates devices according to their media format. Optical drives are emulated as 'CDROM', drives with no media will be emulated according to a drive type.

3.6.2.9 Network Stack Configuration

Item	Options	Description
Network Stack	Disabled**[Default]**, Enabled	Enable/Disable UEFI Network Stack.

3.6.2.10 NVMe Configuration

```
                         Aptio Setup - AMI
      Advanced

  NVMe Configuration

  No NVME Device Found

                                                ↔: Select Screen
                                                ↑↓: Select Item
                                                Enter: Select
                                                +/-: Change Opt.
                                                F1: General Help
                                                F2: Previous Values
                                                F3: Optimized Defaults
                                                F4: Save & Exit
                                                ESC: Exit

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```

3.6.3 Chipset

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

                                                System Agent (SA) Parameters
  ▶ System Agent (SA) Configuration
  ▶ PCH-IO Configuration
  ▶ Board Configuration

                                                ↔: Select Screen
                                                ↑↓: Select Item
                                                Enter: Select
                                                +/-: Change Opt.
                                                F1: General Help
                                                F2: Previous Values
                                                F3: Optimized Defaults
                                                F4: Save & Exit
                                                ESC: Exit

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```

3.6.3.1   System Agent (SA) Configuration

```
                         Aptio Setup - AMI
              Chipset

 System Agent (SA) Configuration                          Memory Configuration Parameters

 SA PCIe Code Version              9.0.63.32
 VT-d                              Supported

▶ Memory Configuration
▶ Graphics Configuration
▶ DMI/OPI Configuration
▶ PEG Port Configuration
 VT-d                              [Enabled]

                                                         ↔: Select Screen
                                                         ↑↓: Select Item
                                                         Enter: Select
                                                         +/-: Change Opt.
                                                         F1: General Help
                                                         F2: Previous Values
                                                         F3: Optimized Defaults
                                                         F4: Save & Exit
                                                         ESC: Exit


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```

Item	Option	Description
VT-d	Disabled Enabled**[Default]**	VT-d capability.

3.6.3.1.1 Memory Configuration

```
                         Aptio Setup - AMI
              Chipset

 Memory Configuration                                     Maximum Value of TOLUD.
                                                          Dynamic assignment would
 Memory RC Version                 0.0.0.75               adjust TOLUD automatically
 Memory Frequency                   2667 MHz              based on largest MMIO length
 Memory Timings (tCL-tRCD-tRP-tRAS) 19-19-19-43           of installed graphic controller

 Channel 0 Slot 0                  Populated & Enabled
    Size                           8192 MB (DDR4)
    Number of Ranks                1
    Manufacturer                   Micron
 Channel 0 Slot 1                  Not Populated / Disabled
 Channel 1 Slot 0                  Not Populated / Disabled
 Channel 1 Slot 1                  Not Populated / Disabled

 Max TOLUD                         [Dynamic]
                                                         ↔: Select Screen
                                                         ↑↓: Select Item
                                                         Enter: Select
                                                         +/-: Change Opt.
                                                         F1: General Help
                                                         F2: Previous Values
                                                         F3: Optimized Defaults
                                                         F4: Save & Exit
                                                         ESC: Exit


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```

Item	Option	Description
Max TOLUD	Dynamic**[Default]** 1GB 1.25 GB 1.5 GB 1.75 GB 2 GB 2.25 GB 2.5 GB 2.75 GB 3 GB	Maximum Value of TOLUD. Dynamic assignment would adjust TOLUD automatically based on largest MMIO length of installed graphic controller

3.6.3.1.2 Graphics Configuration

Item	Option	Description
Primary Display	Auto**[Default]** IGFX PEG PCI	Select which of IGFX/PEG/PCI Graphics device should be Primary Display Or select SG for Switchable Gfx.
GTT Size	2MB 4MB 8MB**[Default]**	Select the GTT Size

3.6.3.1.3 DMI/OPI Configuration

```
                          Aptio Setup - AMI
              Chipset

   DMI/OPI Configuration

   DMI                            X4  Gen3

                                              ↔: Select Screen
                                              ↑↓: Select Item
                                              Enter: Select
                                              +/-: Change Opt.
                                              F1: General Help
                                              F2: Previous Values
                                              F3: Optimized Defaults
                                              F4: Save & Exit
                                              ESC: Exit


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```

3.6.3.1.4 PEG Port Configuration

```
                          Aptio Setup - AMI
              Chipset

   PEG Port Configuration                     Enable or Disable the Root Port

   PEG 0:1:0 (PCIEX1)          Not Present
     Enable Root Port          [Auto]
     Max Link Speed            [Auto]
     Max Link Width            [Auto]
     ASPM                      [Disabled]
   PEG 0:1:1 (PCIEX2)          Not Present
     Enable Root Port          [Auto]
     Max Link Speed            [Auto]
     Max Link Width            [Auto]
     ASPM                      [Disabled]
   PEG0 (PCIEX1) Max Payload size  [Auto]
   PEG1 (PCIEX2) Max Payload size  [Auto]

 ▶ PEG Port Feature Configuration            ↔: Select Screen
                                              ↑↓: Select Item
                                              Enter: Select
                                              +/-: Change Opt.
                                              F1: General Help
                                              F2: Previous Values
                                              F3: Optimized Defaults
                                              F4: Save & Exit
                                              ESC: Exit


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```

Item	Option	Description
Enable Root Port	Disabled Enabled Auto**[Default]**	Enable or Disable the Root Port.
Max Link Speed	Auto**[Default]** Gen1 Gen2 Gen3	Configure PEG 0:1:0 Max Speed

Max Link Width	Auto**[Default]** Force X1 Force X2 Force X4 Force X8	Force PEG link to retrain to X1/2/4/8
ASPM	Disabled Auto**[Default]** ASPM L0s ASPM L1 ASPM L0sL1	Control ASPM support for the PEG 0. This has no effect if PEG is not the currently active device.
Enable Root Port	Disabled Enabled Auto**[Default]**	Enable or Disable the Root Port.
Max Link Speed	Auto**[Default]** Gen1 Gen2 Gen3	Configure PEG 0:1:1 Max Speed
Max Link Width	Auto**[Default]** Force X1 Force X2 Force X4	Force PEG link to retrain to X1/2/4/8
ASPM	Disabled Auto**[Default]** ASPM L0s ASPM L1 ASPM L0sL1	Control ASPM support for the PEG1. This has no effect if PEG is not the currently active device.
PEG0 (PCIEX1) Max Payload size	Auto**[Default]** 128 256 TLP	Select PEG0 Max Payload size; Choose Auto(Default Device Capability) or force to 128/256 Bytes
PEG1 (PCIEX2) Max Payload size	Auto**[Default]** 128 256 TLP	Select PEG1 Max Payload size; Choose Auto(Default Device Capability) or force to 128/256 Bytes

3.6.3.1.4.1 PEG Port Feature Configuration

```
                          Aptio Setup - AMI
          Chipset

    PEG Port Feature Configuration                    Detect Non-Compliance PCI
                                                      Express Device in PEG
    Detect Non-Compliance Device       [Disabled]




                                                      →←: Select Screen
                                                      ↑↓: Select Item
                                                      Enter: Select
                                                      +/-: Change Opt.
                                                      F1: General Help
                                                      F2: Previous Values
                                                      F3: Optimized Defaults
                                                      F4: Save & Exit
                                                      ESC: Exit



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```
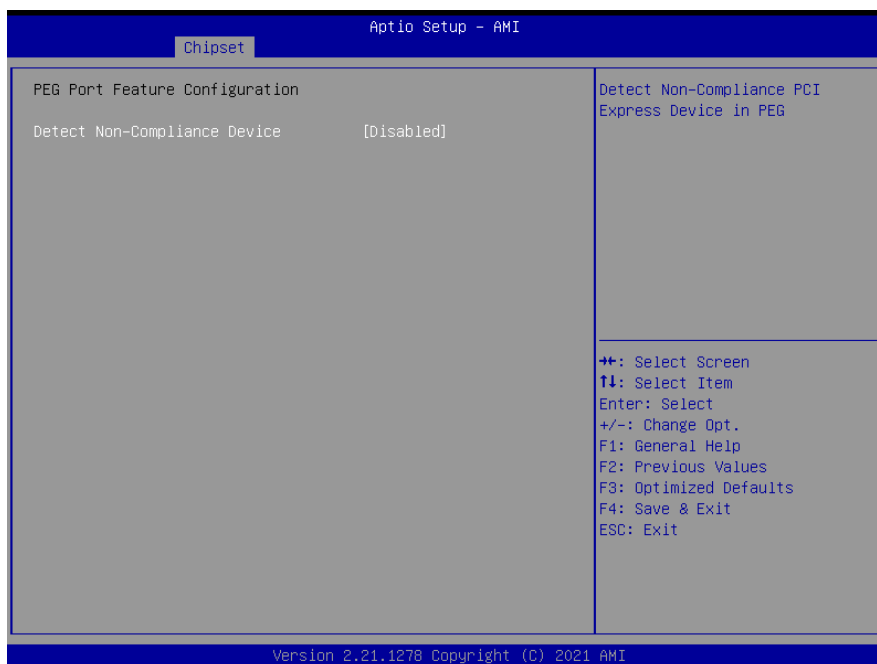
Item	Option	Description
Detect Non-Compliance Device	Disabled**[Default]** Enabled	Detect Non-Compliance PCI Express Device in PEG

3.6.3.2 PCH-IO Configuration

```
                          Aptio Setup - AMI
          Chipset

    PCH-IO Configuration                              PCI Express Configuration
  ▶ PCI Express Configuration                         settings
  ▶ SATA And RST Configuration

    PCH LAN Controller                 [Enabled]




                                                      →←: Select Screen
                                                      ↑↓: Select Item
                                                      Enter: Select
                                                      +/-: Change Opt.
                                                      F1: General Help
                                                      F2: Previous Values
                                                      F3: Optimized Defaults
                                                      F4: Save & Exit
                                                      ESC: Exit



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```

Item	Option	Description
PCH LAN Controller	Enabled**[Default]** Disabled	Enable/Disable onboard NIC.

3.6.3.2.1 PCI Express Configuration

```
                              Aptio Setup - AMI
            Chipset

     PCI Express Configuration                          PCI Express Root Port Settings.

     PCIE Port assigned to LAN           9

   ▶ PCI Express Slot 1 (PCI-E Port 1~4)
   ▶ PCI Express Slot 2 (PCI-E Port 5~8)
   ▶ PCI Express Slot 3 (PCI-E Port 17~20)
   ▶ PCI Express Slot 4 (PCI-E Port 21~24)
   ▶ Intel I211/I210 LAN Chip (PCI-E Port 10)
   ▶ Intel I225 LAN Chip (PCI-E Port 11)
   ▶ M.2 KeyB (PCI-E Port 12)

                                                        ↔: Select Screen
                                                        ↑↓: Select Item
                                                        Enter: Select
                                                        +/-: Change Opt.
                                                        F1: General Help
                                                        F2: Previous Values
                                                        F3: Optimized Defaults
                                                        F4: Save & Exit
                                                        ESC: Exit

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```

3.6.3.2.1.1   PCI Express Slot 1 (PCI-E Port 1~4)

```
                              Aptio Setup - AMI
            Chipset

     PCI Express Slot 1 (PCI-E Port        [Enabled]       Control the PCI Express Root
     1~4)                                                  Port.
     ASPM 0                               [Disabled]
     L1 Substates                         [L1.1 & L1.2]
     PCIe Speed                           [Auto]
     Detect Timeout                       0

                                                        ↔: Select Screen
                                                        ↑↓: Select Item
                                                        Enter: Select
                                                        +/-: Change Opt.
                                                        F1: General Help
                                                        F2: Previous Values
                                                        F3: Optimized Defaults
                                                        F4: Save & Exit
                                                        ESC: Exit

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```
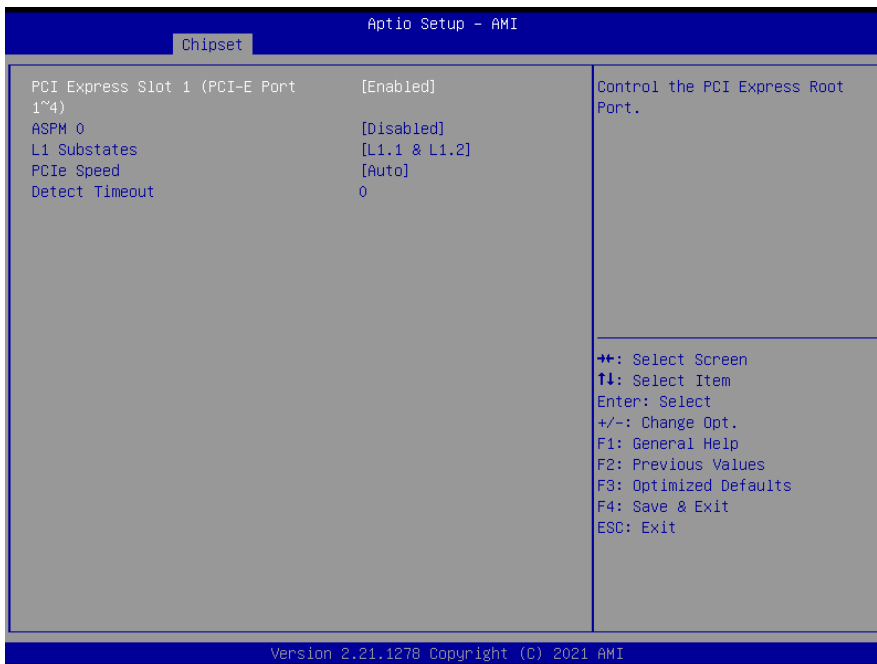
Item	Option	Description
PCI Express Slot 1 (PCI-E Port 1~4)	Disabled Enabled**[Default]**,	Control the PCI Express Root Port.
ASPM 0	Disabled**[Default]** L0s L1 L0sL1 Auto	Set the ASPM Level: Force L0s – Force all links to L0s State AUTO – BIOS auto configure DISABLE – Disables ASPM.

	Disabled	
L1 Substates	L1.1	PCI Express L1 Substates settings.
	L1.1 & L1.2**[Default]**	
	Auto**[Default]**	
PCIe Speed	Gen1	Configure PCIe Speed
	Gen2	
	Gen3	
Detect Timeout	0	The number of milliseconds reference code will wait for link to exit Detect state for enabled ports before assuming there is no device and potentially disabling the port.

3.6.3.2.1.2 PCI Express Slot 2 (PCI-E Port 5~8)

```
                            Aptio Setup - AMI
          Chipset

    PCI Express Slot 2 (PCI-E Port    [Enabled]         Control the PCI Express Root
    5~8)                                                Port.
    ASPM 4                            [Disabled]
    L1 Substates                      [L1.1 & L1.2]
    PCIe Speed                        [Auto]
    Detect Timeout                    0



                                                        →←: Select Screen
                                                        ↑↓: Select Item
                                                        Enter: Select
                                                        +/-: Change Opt.
                                                        F1: General Help
                                                        F2: Previous Values
                                                        F3: Optimized Defaults
                                                        F4: Save & Exit
                                                        ESC: Exit



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```

Item	Option	Description
PCI Express Slot 2 (PCI-E Port 5~8)	Disabled Enabled**[Default]**,	Control the PCI Express Root Port.
ASPM 4	Disabled**[Default]** L0s L1 L0sL1 Auto	Set the ASPM Level: Force L0s – Force all links to L0s State AUTO – BIOS auto configure DISABLE – Disables ASPM.
L1 Substates	Disabled L1.1 L1.1 & L1.2**[Default]**	PCI Express L1 Substates settings.
PCIe Speed	Auto**[Default]** Gen1 Gen2 Gen3	Configure PCIe Speed

Detect Timeout	0	The number of milliseconds reference code will wait for link to exit Detect state for enabled ports before assuming there is no device and potentially disabling the port.

3.6.3.2.1.3   PCI Express Slot 3 (PCI-E Port 17~20)


```
                              Aptio Setup – AMI
          Chipset

 PCI Express Slot 3 (PCI-E Port        [Enabled]          Control the PCI Express Root
 17~20)                                                   Port.
 ASPM 16                               [Disabled]
 L1 Substates                          [L1.1 & L1.2]
 PCIe Speed                            [Auto]
 Detect Timeout                        0




                                                          ↔: Select Screen
                                                          ↑↓: Select Item
                                                          Enter: Select
                                                          +/-: Change Opt.
                                                          F1: General Help
                                                          F2: Previous Values
                                                          F3: Optimized Defaults
                                                          F4: Save & Exit
                                                          ESC: Exit




                          Version 2.21.1278 Copyright (C) 2021 AMI
```

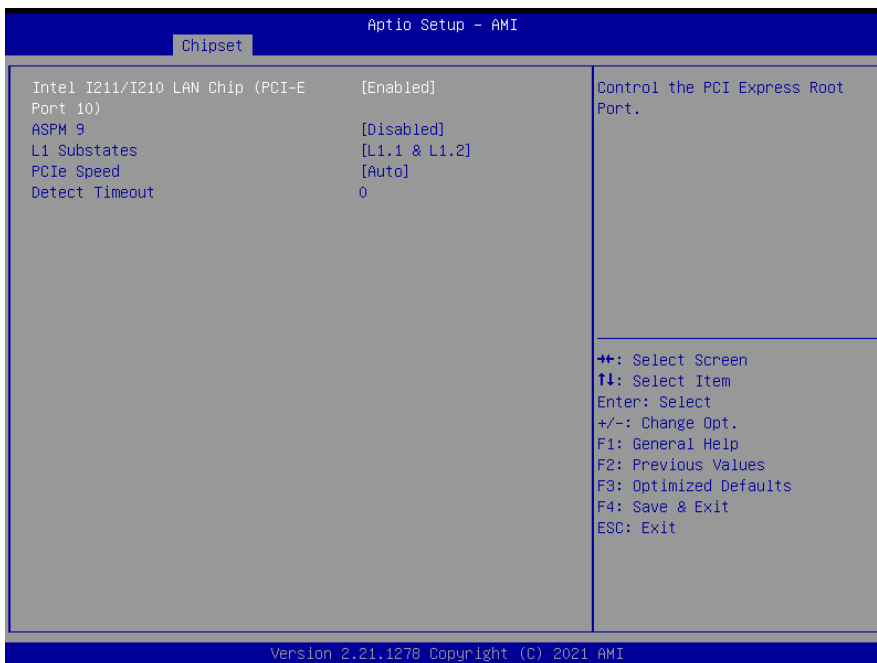| Item	Option	Description
PCI Express Slot 3 (PCI-E Port 17~20)	Disabled Enabled**[Default]**,	Control the PCI Express Root Port.
ASPM 16	Disabled**[Default]** L0s L1 L0sL1 Auto	Set the ASPM Level: Force L0s – Force all links to L0s State AUTO – BIOS auto configure DISABLE – Disables ASPM.
L1 Substates	Disabled L1.1 L1.1 & L1.2**[Default]**	PCI Express L1 Substates settings.
PCIe Speed	Auto**[Default]** Gen1 Gen2 Gen3	Configure PCIe Speed
Detect Timeout	0	The number of milliseconds reference code will wait for link to exit Detect state for enabled ports before assuming there is no device and potentially disabling the port.

3.6.3.2.1.4　PCI Express Slot 4 (PCI-E Port 21~24)

```
                            Aptio Setup - AMI
            Chipset

 PCI Express Slot 4 (PCI-E Port      [Enabled]            Control the PCI Express Root
 21~24)                                                   Port.
 ASPM 20                             [Disabled]
 L1 Substates                        [L1.1 & L1.2]
 PCIe Speed                          [Auto]
 Detect Timeout                      0




                                                          →←: Select Screen
                                                          ↑↓: Select Item
                                                          Enter: Select
                                                          +/-: Change Opt.
                                                          F1: General Help
                                                          F2: Previous Values
                                                          F3: Optimized Defaults
                                                          F4: Save & Exit
                                                          ESC: Exit




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```

Item	Option	Description
PCI Express Slot 4 (PCI-E Port 21~24)	Disabled Enabled**[Default]**,	Control the PCI Express Root Port.
ASPM 20	Disabled**[Default]** L0s L1 L0sL1 Auto	Set the ASPM Level: Force L0s – Force all links to L0s State AUTO – BIOS auto configure DISABLE – Disables ASPM.
L1 Substates	Disabled L1.1 L1.1 & L1.2**[Default]**	PCI Express L1 Substates settings.
PCIe Speed	Auto**[Default]** Gen1 Gen2 Gen3	Configure PCIe Speed
Detect Timeout	0	The number of milliseconds reference code will wait for link to exit Detect state for enabled ports before assuming there is no device and potentially disabling the port.

3.6.3.2.1.5 Intel I211/I210 LAN Chip (PCI-E Port 10)

```
                            Aptio Setup - AMI
          Chipset

   Intel I211/I210 LAN Chip (PCI-E    [Enabled]          Control the PCI Express Root
   Port 10)                                              Port.
   ASPM 9                            [Disabled]
   L1 Substates                      [L1.1 & L1.2]
   PCIe Speed                        [Auto]
   Detect Timeout                    0




                                                        →←: Select Screen
                                                        ↑↓: Select Item
                                                        Enter: Select
                                                        +/-: Change Opt.
                                                        F1: General Help
                                                        F2: Previous Values
                                                        F3: Optimized Defaults
                                                        F4: Save & Exit
                                                        ESC: Exit



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```

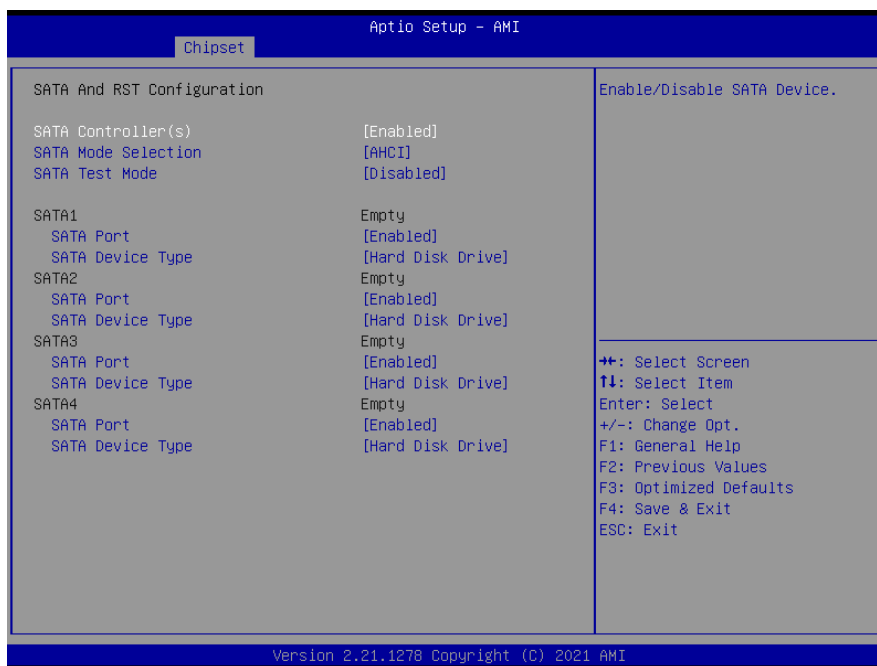| Item	Option	Description
Intel I211/I210 LAN Chip (PCI-E Port 10)	Disabled Enabled**[Default]**,	Control the PCI Express Root Port.
ASPM 9	Disabled**[Default]** L0s L1 L0sL1 Auto	Set the ASPM Level: Force L0s – Force all links to L0s State AUTO – BIOS auto configure DISABLE – Disables ASPM.
L1 Substates	Disabled L1.1 L1.1 & L1.2**[Default]**	PCI Express L1 Substates settings.
PCIe Speed	Auto**[Default]** Gen1 Gen2 Gen3	Configure PCIe Speed
Detect Timeout	0	The number of milliseconds reference code will wait for link to exit Detect state for enabled ports before assuming there is no device and potentially disabling the port.

3.6.3.2.1.6 Intel I225 LAN Chip (PCI-E Port 11)

```
                              Aptio Setup – AMI
          Chipset

    Intel I225 LAN Chip (PCI-E Port      [Enabled]          Control the PCI Express Root
    11)                                                     Port.
    ASPM 10                              [Disabled]
    L1 Substates                         [L1.1 & L1.2]
    PCIe Speed                           [Auto]
    Detect Timeout                       0




                                                            →←: Select Screen
                                                            ↑↓: Select Item
                                                            Enter: Select
                                                            +/-: Change Opt.
                                                            F1: General Help
                                                            F2: Previous Values
                                                            F3: Optimized Defaults
                                                            F4: Save & Exit
                                                            ESC: Exit




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```

Item	Option	Description
Intel I225 LAN Chip (PCI-E Port 11)	Disabled Enabled**[Default]**,	Control the PCI Express Root Port.
ASPM 10	Disabled**[Default]** L0s L1 L0sL1 Auto	Set the ASPM Level: Force L0s – Force all links to L0s State AUTO – BIOS auto configure DISABLE – Disables ASPM.
L1 Substates	Disabled L1.1 L1.1 & L1.2**[Default]**	PCI Express L1 Substates settings.
PCIe Speed	Auto**[Default]** Gen1 Gen2 Gen3	Configure PCIe Speed
Detect Timeout	0	The number of milliseconds reference code will wait for link to exit Detect state for enabled ports before assuming there is no device and potentially disabling the port.

3.6.3.2.1.7 M.2 KeyB (PCI-E Port 12)

```
                              Aptio Setup - AMI
        Chipset

  M.2 KeyB (PCI-E Port 12)        [Enabled]          Control the PCI Express Root
  ASPM 11                         [Disabled]         Port.
  L1 Substates                    [L1.1 & L1.2]
  PCIe Speed                      [Auto]
  Detect Timeout                  0




                                                     →←: Select Screen
                                                     ↑↓: Select Item
                                                     Enter: Select
                                                     +/-: Change Opt.
                                                     F1: General Help
                                                     F2: Previous Values
                                                     F3: Optimized Defaults
                                                     F4: Save & Exit
                                                     ESC: Exit




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```

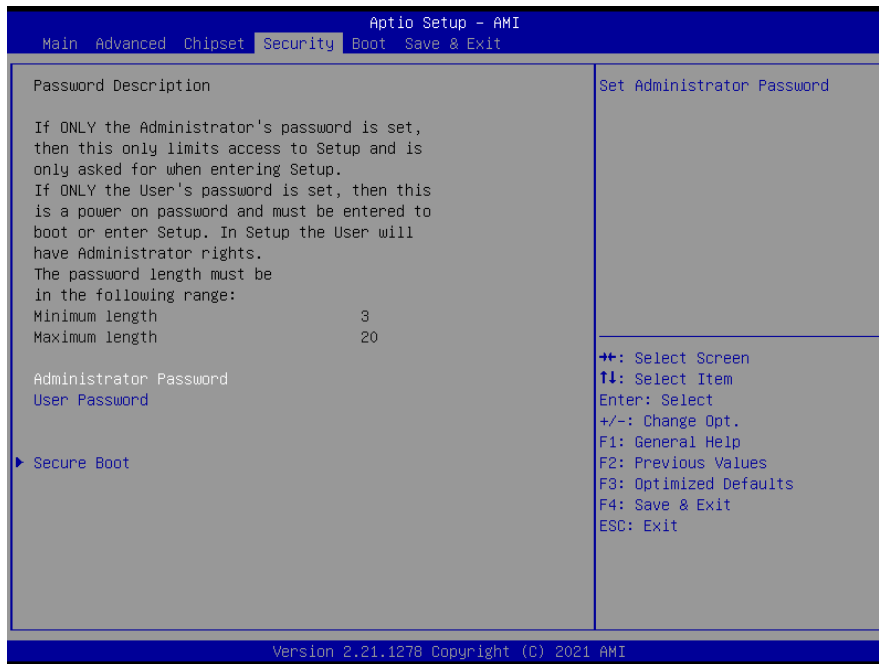| Item	Option	Description
M.2 KeyB (PCI-E Port 12)	Disabled Enabled**[Default]**,	Control the PCI Express Root Port.
ASPM 11	Disabled**[Default]** L0s L1 L0sL1 Auto	Set the ASPM Level: Force L0s – Force all links to L0s State AUTO – BIOS auto configure DISABLE – Disables ASPM.
L1 Substates	Disabled L1.1 L1.1 & L1.2**[Default]**	PCI Express L1 Substates settings.
PCIe Speed	Auto**[Default]** Gen1 Gen2 Gen3	Configure PCIe Speed
Detect Timeout	0	The number of milliseconds reference code will wait for link to exit Detect state for enabled ports before assuming there is no device and potentially disabling the port.

3.6.3.2.1 SATA And RST Configuration

```
                              Aptio Setup - AMI
              Chipset

      SATA And RST Configuration                        Enable/Disable SATA Device.

      SATA Controller(s)              [Enabled]
      SATA Mode Selection             [AHCI]
      SATA Test Mode                  [Disabled]

      SATA1                           Empty
        SATA Port                     [Enabled]
        SATA Device Type              [Hard Disk Drive]
      SATA2                           Empty
        SATA Port                     [Enabled]
        SATA Device Type              [Hard Disk Drive]
      SATA3                           Empty
        SATA Port                     [Enabled]            ↔: Select Screen
        SATA Device Type              [Hard Disk Drive]    ↑↓: Select Item
      SATA4                           Empty              Enter: Select
        SATA Port                     [Enabled]          +/-: Change Opt.
        SATA Device Type              [Hard Disk Drive]  F1: General Help
                                                         F2: Previous Values
                                                         F3: Optimized Defaults
                                                         F4: Save & Exit
                                                         ESC: Exit


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```

Item	Options	Description
SATA Configuration(S)	Enabled**[Default]**, Disabled	Enable/Disable SATA Device.
SATA Mode Selection	AHCI**[Default]**, RAID	Determines how SATA controller(s) operate.
SATA Test Mode	Enabled Disabled**[Default]**,	Test Mode Enable/Disable (Loop Back).
SATA Port	Disabled Enabled**[Default]**,	Enable or Disable SATA Port
SATA Device Type	Hard Disk Drive**[Default]**, Solid State Drive	Identify the SATA port is connected to Solid State Drive or Hard Disk Drive.

3.6.3.3   Board Configuration

```
                              Aptio Setup - AMI
            Chipset

    Board Configuration                              ErP Function (Deep S5).

    ErP Function                    [Disabled]
    PWR-On After PWR-Fail           [Off]
    Watch Dog                       [Disabled]
    Wake Up by Ring                 [Enabled]
    USB Standby Power               [Enabled]
    SHOW DMI INFO                   [Disabled]


                                                 →←: Select Screen
                                                 ↑↓: Select Item
                                                 Enter: Select
                                                 +/-: Change Opt.
                                                 F1: General Help
                                                 F2: Previous Values
                                                 F3: Optimized Defaults
                                                 F4: Save & Exit
                                                 ESC: Exit



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```

Item	Option	Description
ErP Function	Disabled Enabled**[Default]**,	ErP Function (Deep S5).
PWR-On After PWR-Fail	Off**[Default]**, On Last state	AC loss resume.
Watch Dog	Disabled**[Default]**, 30 sec 40 sec 50 sec 1 min 2 min 10 min 30 min	Select WatchDog.
Wake Up by Ring	Disabled Enabled**[Default]**,	Wake Up by Ring from S3/S4/S5
USB Standby Power	Disabled Enabled**[Default]**,	Enable/Disable USB Standby Power during S3/S4/S5
SHOW DMI INFO	Disabled**[Default]**, Enabled	SHOW DMI INFO

3.6.4 Security

Item	Description
Administrator Password	Set Administrator Password
User Password	Set User Password

3.6.4.1 Secure Boot

Item	Option	Description
Secure Boot	Disabled Enabled**[Default]**,	Secure Boot feature is Active if Secure Boot is Enabled, Platform Key(PK) is enrolled and the System is in User mode. The mode change requires platform reset
Secure Boot Mode	Standard Custom**[Default]**,	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

3.6.5 Boot

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

     Boot Configuration                                  Number of seconds to wait for
     Setup Prompt Timeout              1                 setup activation key.
     Bootup NumLock State              [On]              65535(0xFFFF) means indefinite
     Quiet Boot                        [Disabled]        waiting.

     Boot Option Priorities
     Boot Option #1                    [UEFI:
                                       JetFlashTranscend 8GB
                                       1100, Partition 1]


                                                         ++: Select Screen
                                                         ↑↓: Select Item
                                                         Enter: Select
                                                         +/-: Change Opt.
                                                         F1: General Help
                                                         F2: Previous Values
                                                         F3: Optimized Defaults
                                                         F4: Save & Exit
                                                         ESC: Exit



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```

Item	Option	Description
Setup Prompt Timeout	1	Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.
Bootup NumLock State	On**[Default]** Off	Select the keyboard NumLock state.
Quiet Boot	Disabled**[Default]** Enabled	Enable or disable Quiet Boot option.
Boot Option #1	Sets the system boot order	

3.6.6 Save & Exit

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

  Save Options                                 Reset the system after saving
                                               the changes.
  Save Changes and Reset
  Discard Changes and Reset

  Default Options
  Restore Defaults

  Boot Override
  UEFI: JetFlashTranscend 8GB 1100, Partition 1


                                               →←: Select Screen
                                               ↑↓: Select Item
                                               Enter: Select
                                               +/-: Change Opt.
                                               F1: General Help
                                               F2: Previous Values
                                               F3: Optimized Defaults
                                               F4: Save & Exit
                                               ESC: Exit



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```

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

  Save Options                                 Reset the system after saving
                                               the changes.
  Save Changes and Reset
  Discard Changes and Reset

  Default Options
  Restore Defaults

  Boot Override
  UEFI: JetFlashTranscend 8GB 11┌──── Save & reset ────┐
                                │                      │
                                │ Save configuration and reset? │
                                │                      │
                                │                      │←: Select Screen
                                │  Yes          No     │↓: Select Item
                                └──────────────────────┘nter: Select
                                               /-: Change Opt.
                                               F1: General Help
                                               F2: Previous Values
                                               F3: Optimized Defaults
                                               F4: Save & Exit
                                               ESC: Exit



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```

3.6.5.1 Save Changes and Reset

Reset the system after saving the changes.

3.6.5.2 Discard Changes and Reset

Any changes made to BIOS settings during this session of the BIOS setup program are discarded. The setup program then exits and reboots the controller.

3.6.5.3 Restore Defaults

This option restores all BIOS settings to the factory default. This option is useful if the controller exhibits unpredictable behavior due to an incorrect or inappropriate BIOS setting.

3.6.5.4 Launch EFI Shell from filesystem device

Attempts to Launch EFI Shell application (Shellx64.efi) from one of the available filesystem devices.

4. Drivers Installation

Note: Installation procedures and screen shots in this section are for your reference and may not be exactly the same as shown on your screen.

4.1 Install Chipset Driver
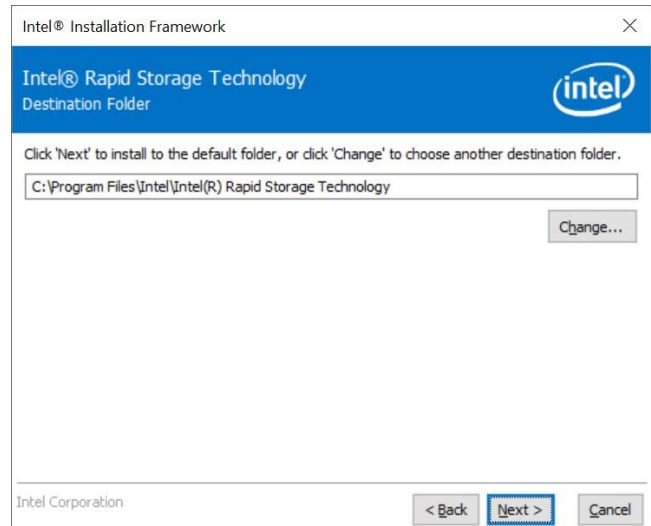
All drivers can be found on the Avalue Official
Website:
http://www.avalue.com.tw.

Note: The installation procedures and screen
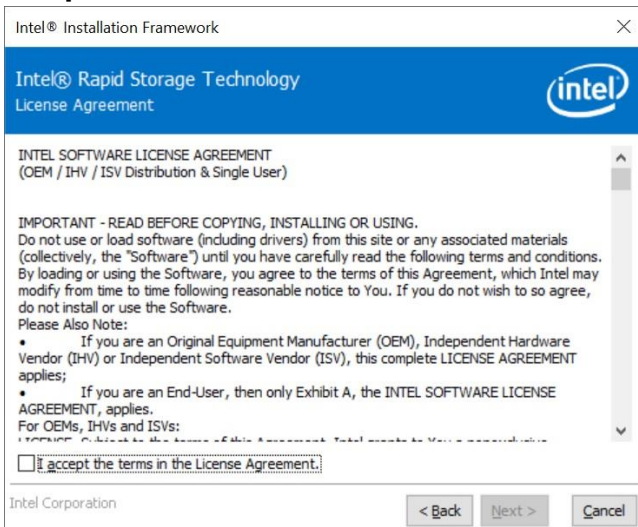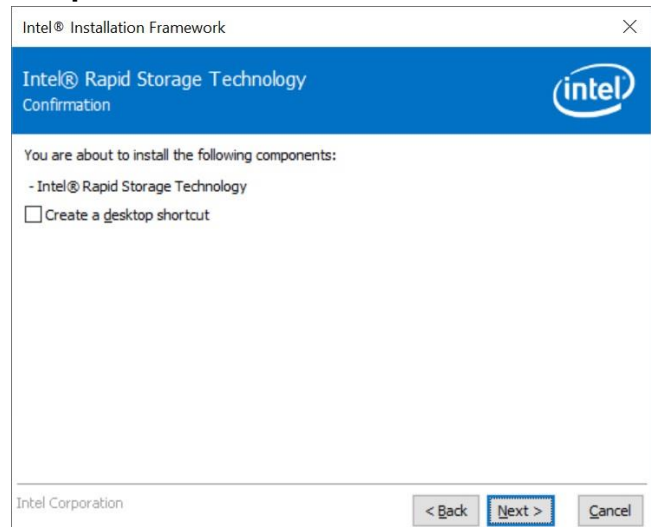shots in this section are based on
Windows 10 operation system. If the
warning message appears while the
installation process, click Continue to
go on.

Step1. Click **Next**.

Step 3. Click **Install**.

Step 2. Click **Accept**.

Step 4. Complete setup.

4.2 Install VGA Driver

All drivers can be found on the Avalue Official Website:
http://www.avalue.com.tw.

Note: The installation procedures and screen shots in this section are based on Windows 10 operation system.
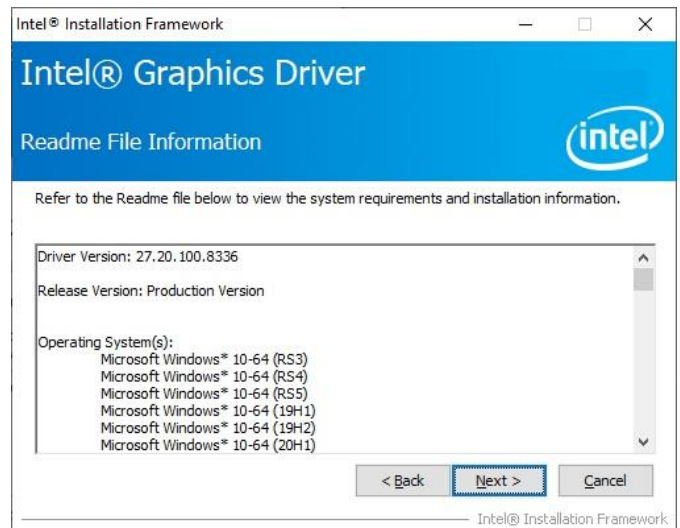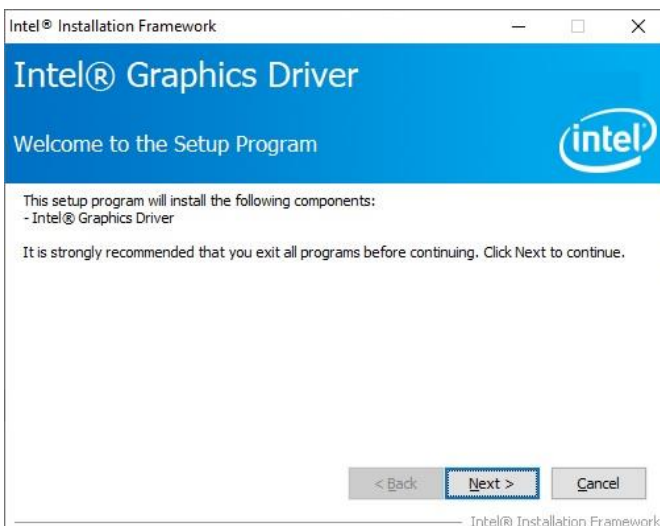
Step 3. Click **Next.**

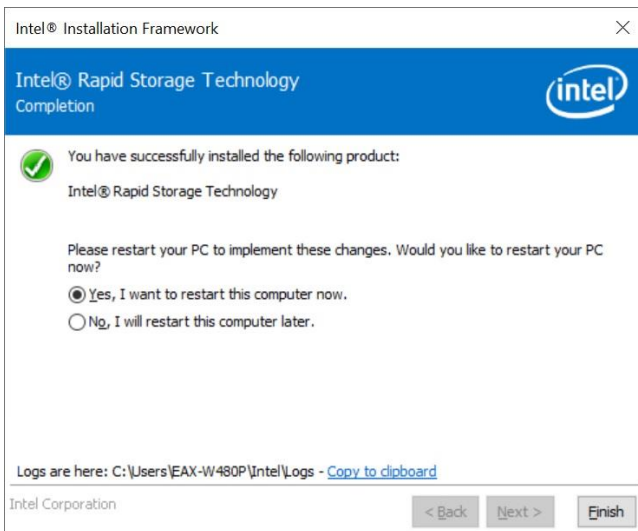**Step 1.** Click **Next** to continue installation.
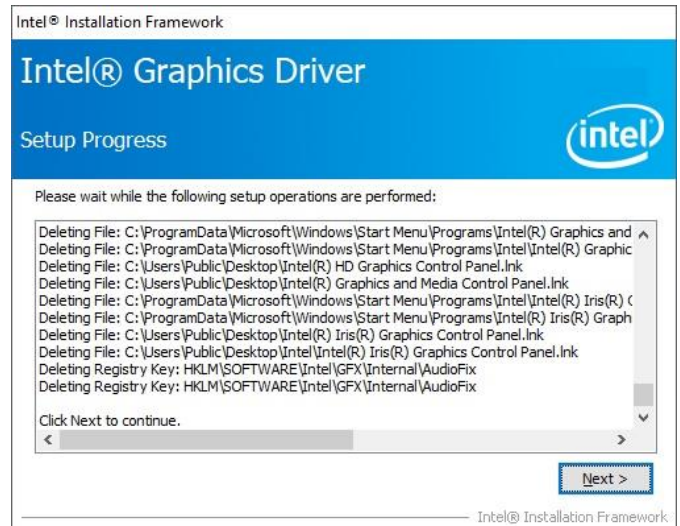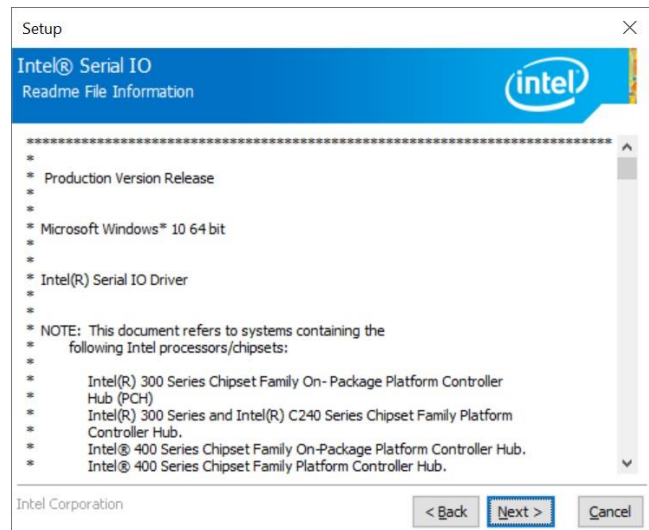
Step 4. Click **Next**.
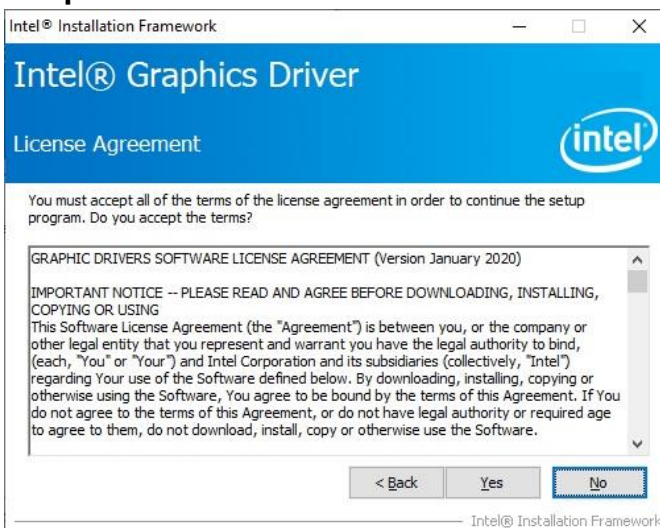
Step 2. Click **Yes**.
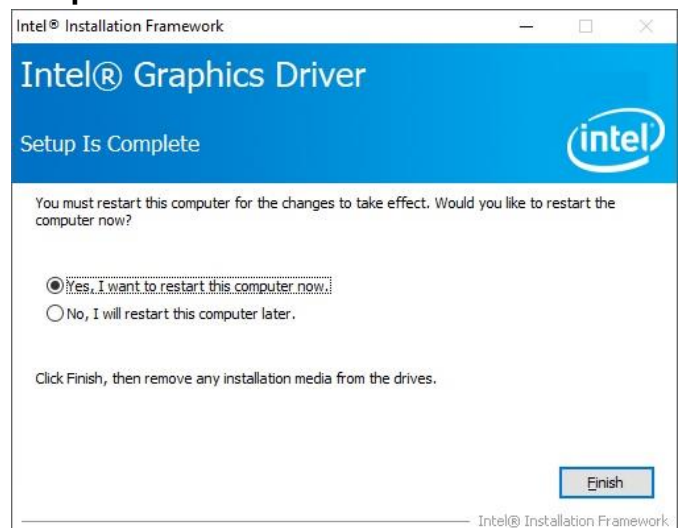
Step 5. Click **Finish** to complete setup.

4.3 Install ME Driver

All drivers can be found on the Avalue
Official Website:
http://www.avalue.com.tw.

> **Note:** The installation procedures and
> screen shots in this section are
> based on Windows 10 operation
> system.
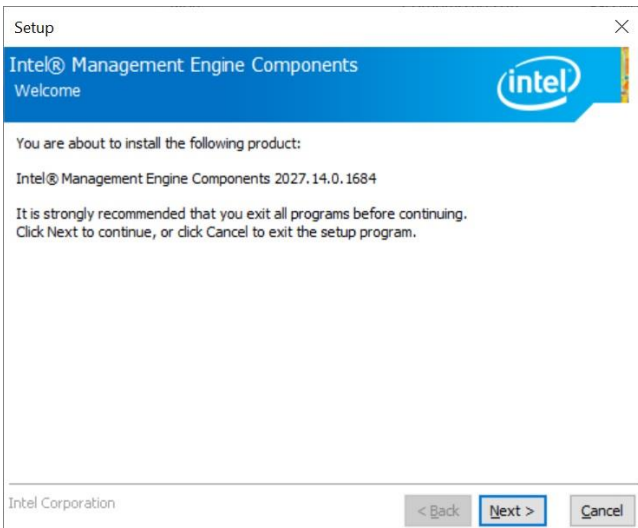
Step 1. Click **Next** to continue setup.
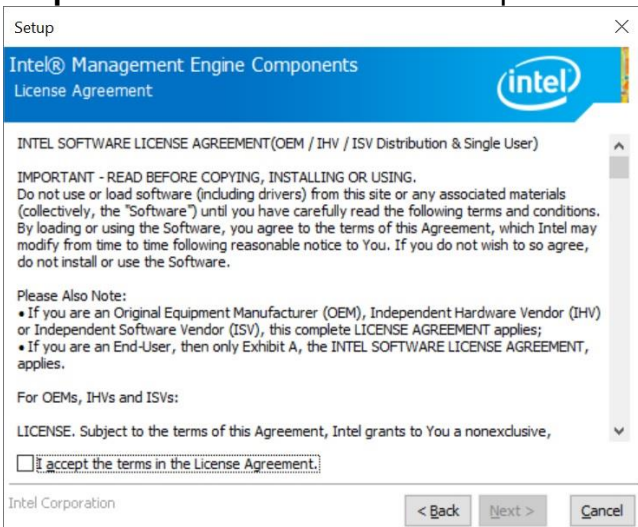
Step 2. Click **Next**.
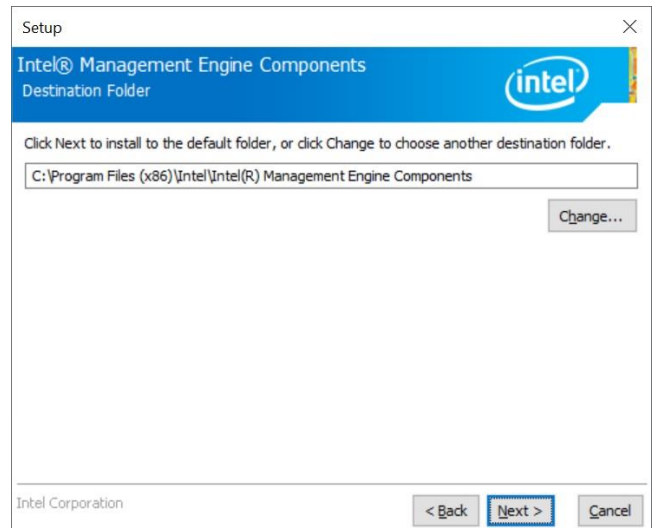
Step 3. Click **Next**
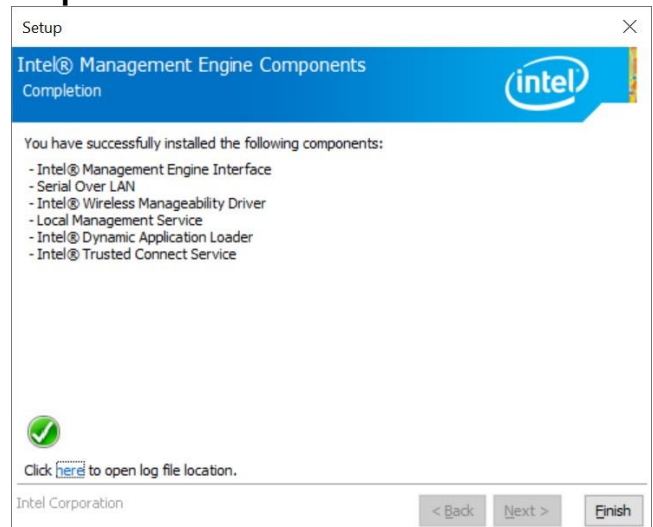
Step 4. Click **Finish** to complete the setup

4.4 Install LAN Driver

All drivers can be found on the Avalue Official Website:

http://www.avalue.com.tw.

Note: The installation procedures and screen shots in this section are based on Windows 10 operation system.
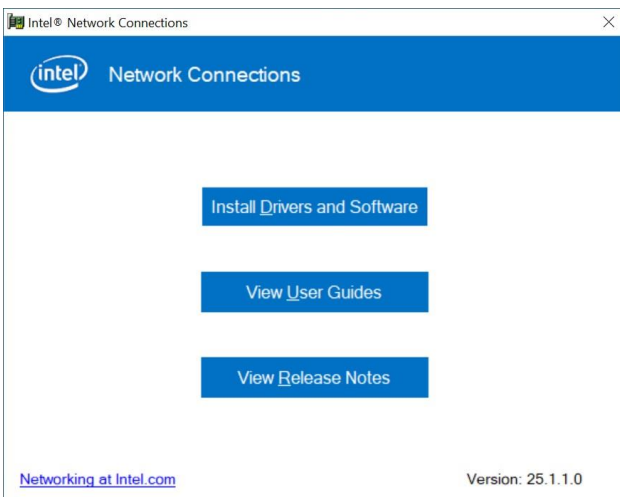
Step 1. Click **Install Drivers and Software**
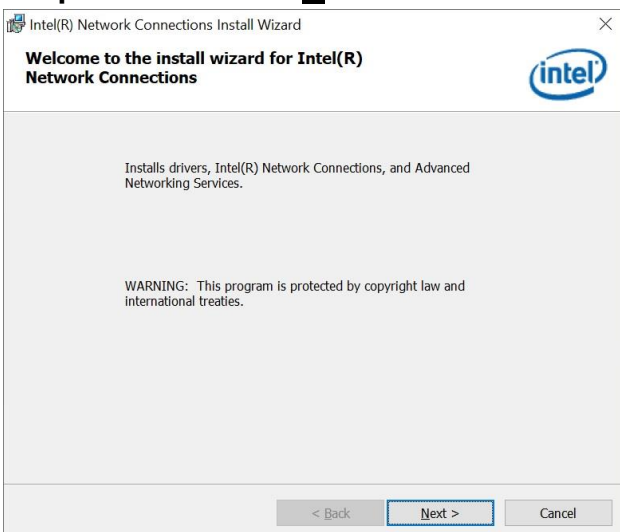
Step 2. Click **Next** to continue installation.
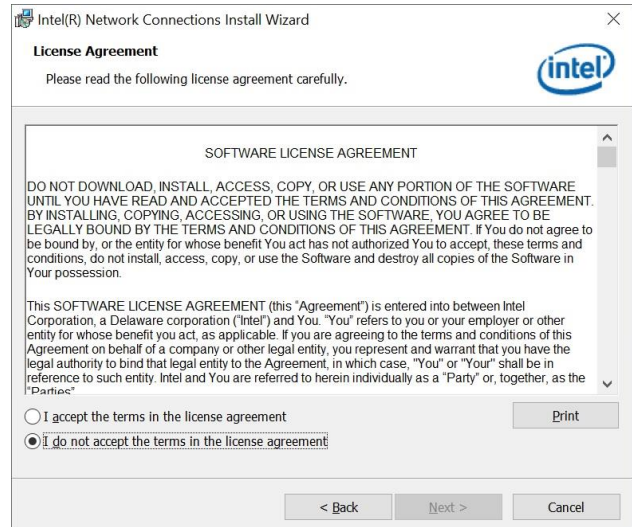
Step 3. Click **Next**.
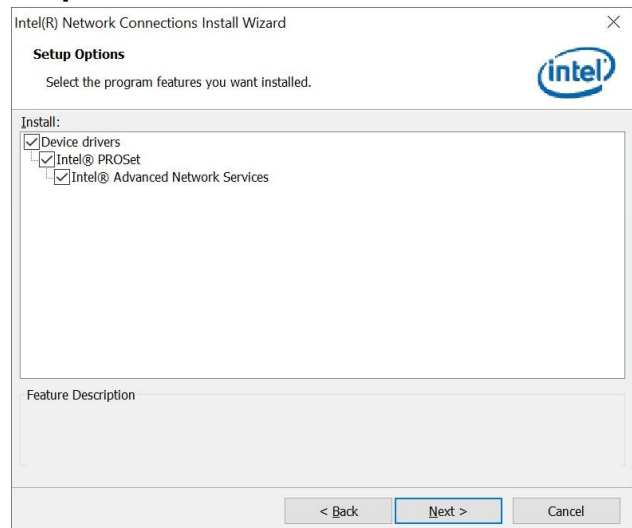
Step 4. Click **Next**.
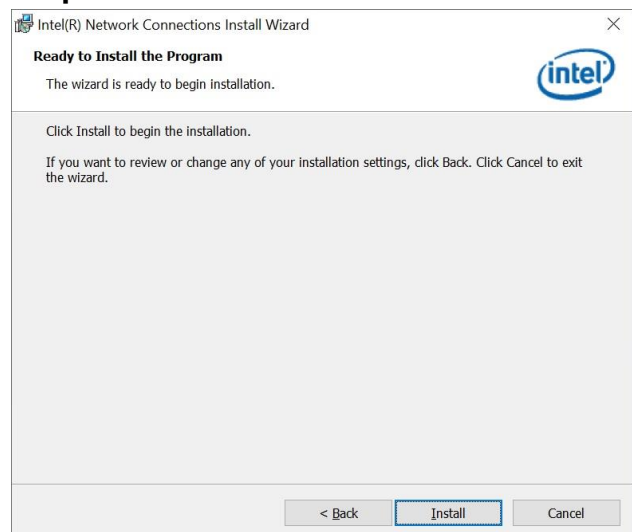
Step 5. Click **Install**.
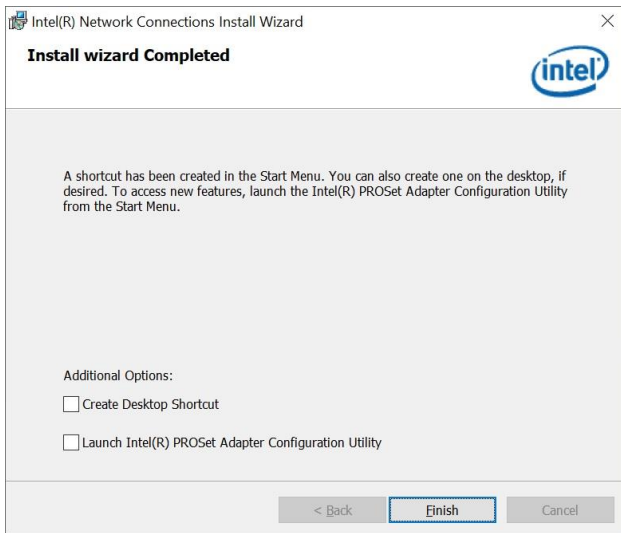
Step 6. Click **Finish** to complete setup.

4.5 Install RST Driver

All drivers can be found on the Avalue Official Website: **http://www.avalue.com.tw**.

Note: The installation procedures and screen shots in this section are based on Windows 10 operation system.
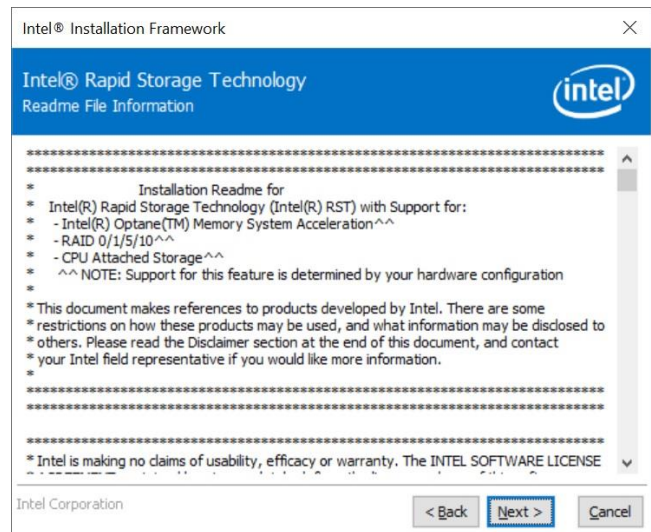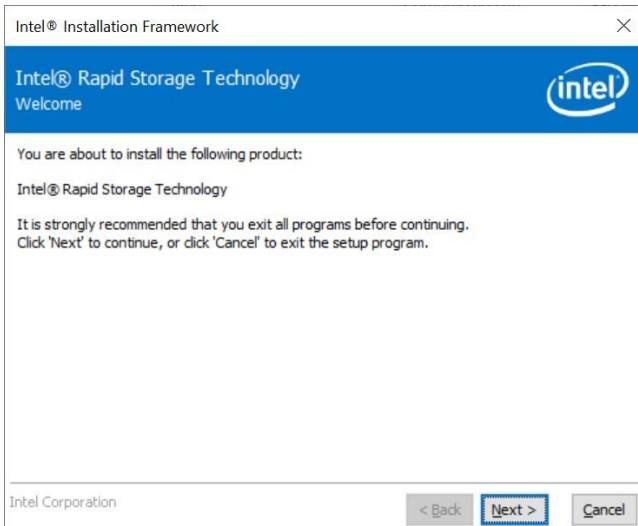
Step 3. Click **Next.**

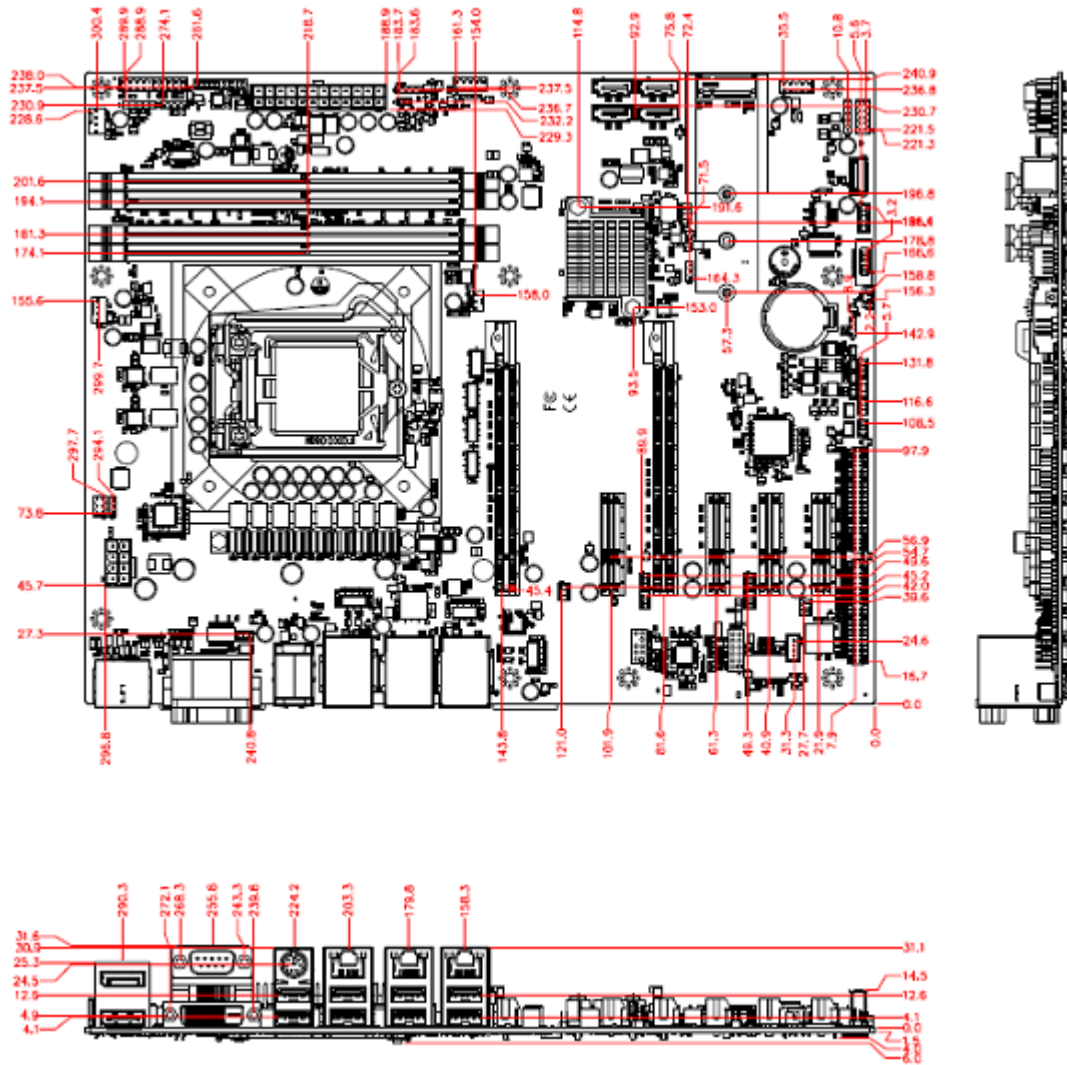**Step 1.** Click **Next** to continue installation.

Step 4. Click **Next**.

Step 2. Click **Next**.

Step 5. Click **Finish** to complete setup.

Step 6. Click **Finish** to complete setup.

4.6 Install Serial IO Driver

All drivers can be found on the Avalue Official Website:

http://www.avalue.com.tw.

Note: The installation procedures and screen shots in this section are based on Windows 10 operation system.

Step 3. Click **Next.**

Step 1. Click **Next** to continue installation.
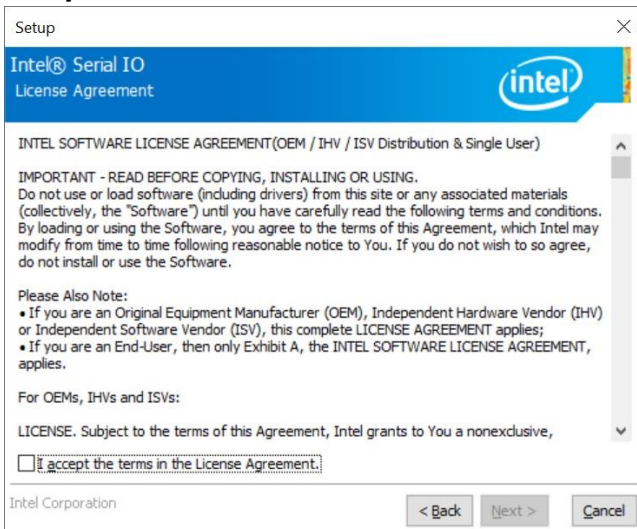
Step 4. Click **Next**.

Step 2. Click **Next**.
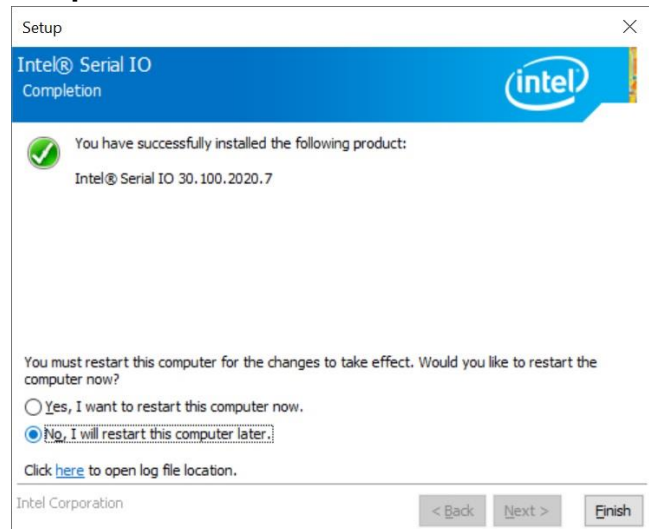
Step 5. Click **Finish** to complete setup.

5. Mechanical Drawing

Unit: mm

Unit: mm