

# ERX-ZXEP

Onboard Zhaoxin KX-U6780A 8 cores BGA CPU Micro ATX  
Motherboard with ZX200 Chipset

## User's Manual



2<sup>nd</sup> Ed – 11 December 2020

### 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 UNDESIRE 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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5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

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# 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 ERX-ZXEP 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
1 <sup>st</sup>	November 2020	Avalue	Initial Release
2 <sup>nd</sup>	December 2020	Avalue	Update Drivers Installation

### 1.4 Manual Objectives

This manual describes in details Avalue Technology ERX-ZXEP 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 ERX-ZXEP 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	
<b>CPU</b>	Zhaoxin E KX-6000 series 4/8 core BGA CPU Up to 70W Max
<b>BIOS</b>	AMI uEFI BIOS, 256Mbit SPI Flash ROM
<b>System Chipset</b>	ZX200 Chipset
<b>I/O Chip</b>	Nuvoton® NCT6106D (TBC)
<b>System Memory</b>	Four 288-pin DDR4 2400/2666MHz U-DIMM socket, supports up to 64GB Max
<b>Watchdog Timer</b>	H/W Reset, 1sec. ~ 65535sec.
<b>H/W Status Monitor</b>	Monitoring CPU & System Temperature and Voltage
<b>TPM</b>	Nationz (国民技术), Z32H330TC-SQN-611, SPI Interface TCM chip (Optional)
Expansion Slot	
<b>PCIe</b>	1 x PCI-e x16 slot for 1 x PCI-e x 8 signal 2 x PCI-e x 4
<b>PCI</b>	1 x PCI
Storage	
<b>SATA</b>	2 x SATA III
Edge I/O	
<b>COM</b>	1 x RS232 DB9 Connector (COM 1 by BIOS selection)
<b>LAN</b>	2 x Intel® I211AT co-lay I210AT PCI-e Gigabit Ethernet
<b>USB 2.0</b>	4 x USB2.0 at I/O
<b>USB 3.1</b>	2 x USB 3.1 Gen2 at I/O, 4 x USB 3.1 Gen 1 at I/O
<b>HDMI</b>	1 x HDMI
<b>DVI</b>	1 x DVI-D + VGA Dual Deck Connector
Onboard I/O	
<b>COM</b>	COM 2~3: Support RS232/422/485 selected by BIOS selection 2 x 2 x 3 pin, pitch 2.00mm connector for COM 1~2 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 DB9 Connector for COM1 (RS232)at I/O, support RS232 with Pin 9,+5V/+12V/RI by jumper 1 x 2 x 5 pin, pitch 2.00mm connector for COM2 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

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<b>USB 2.0</b>	3 x 2 x 5 pin, pitch 2.54mm connector for 6 x USB 2.0
<b>USB 3.1</b>	1 x USB 3.1 Gen 1 By Vertical type A connector
<b>GPIO</b>	1 x 2 x 10 pin, pitch 2.00mm connector for GPIO: 16 bits & +5VS Level SMBus→MP not listed 1 x 5 pin, pitch 2.54mm connector for +3.3S Level SMBus
<b>CPU/System FAN</b>	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
<b>Buzzer</b>	1 x Onboard buzzer and Power good LED 1 x 4 pin, pitch 2.54mm connector for Speaker Buzzer
<b>Front Panel</b>	1 x 2 x 5 pin, pitch 2.54mm connector for front panel
<b>RTC Battery</b>	1 x Vertical type battery connector (CR2450 Battery) Co-lay 1 x 2 Pin Pitch 1.25mm horizontal type battery connector
<b>AT/ATX Selector</b>	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
<b>Clear CMOS</b>	1 x 1 x 3pin, pitch 2.00mm connector for Clear CMOS
<b>LPC</b>	2 x 2 x 5 pin, pitch 2.0mm connector for LPC
<b>BIOS SPI</b>	1 x 2 x 4 pin, pitch 2.00mm connector for BIOS SPI
<b>Audio</b>	1 x 2 x 5 pin, pitch 2.54mm connector for front Audio
<b>Amp Connector</b>	1 x 2 x 5 pin, pitch 2.00mm connector for front Audio 6W Amplifier
<b>LPT</b>	1 x 2 x 13 pin, pitch 2.00mm connector for LPT
<b>Auxiliary panel</b>	1 x 2 x 10 pin, pitch 2.54mm connector for Auxiliary panel (must be have case open API) →not in the standard list.
<b>Display</b>	
<b>Spec. &amp; Resolution</b>	VGA: 1920 x 1200 @ 60 Hz DVI-D : DVI Single-Link : 1920 x 1200 @ 60 Hz 1 x HDMI: 3840 x 2160 @ 30 Hz (Note: This resolution is actual test result. Intel resolution: 4096x2160@24Hz)
<b>Multiple Display</b>	Triple Display Supporting 3 display (2 display with clone mode, 1 display with extend mode)
<b>Audio</b>	
<b>Audio Codec</b>	Realtek ALC892 HD Audio Decoding Controller
<b>Amplifier</b>	6W Amplifier
<b>Ethernet</b>	
<b>LAN Chipset</b>	2 x Intel® I211AT co-layout I210AT PCI-e Gigabit Ethernet (TBC)
<b>LAN Spec.</b>	10/100/1000 Base-Tx GbE compatible
<b>Mechanical &amp; Environmental Specification</b>	
<b>Power</b>	+12V / +5V / 5VSB /+3.3V / -12V

Requirement	
<b>ACPI</b>	Single power ATX Support S0, S3, S4, S5
<b>Power Mode</b>	AT/ATX mode
<b>Operating Temp.</b>	0°C ~ 55°C with 0.5m/s air flow
<b>Storage Temp.</b>	-40°C ~ 85°C (-40°F ~ 185°F)
<b>Operating Humidity</b>	40°C @ 95% Relative Humidity, Non-condensing
<b>Size (L x W) (Please consult product engineers for the production feasibility if the size is larger than 410x360mm or smaller than 80x70mm)</b>	9.6" x 9.6" (243.84mm x 243.84mm)
<b>Weight</b>	0.60kg
<b>Vibration Test</b>	<p>Random Vibration Operation</p> <p>1 Test PSD : 0.00454G<sup>2</sup>/Hz , 1.5 Grms</p> <p>2 System condition : operation mode</p> <p>3 Test frequency : 5~500 Hz</p> <p>4 Test axis : X,Y and Z axis</p> <p>5 Test time : 30 minutes per each axis</p> <p>6 IEC60068-2-64 Test Fh</p> <p>6 Storage : SSD</p> <p>Random vibration test (Non-operation)</p> <p>1 PSD: 0.01818G<sup>2</sup>/Hz , 3.0 Grms</p> <p>2 Non-Operation mode</p> <p>3 Test Frequency : 5-500Hz</p> <p>4 Test Axis : X,Y and Z axis</p> <p>5 30 min. per each axis</p> <p>6 IEC 60068-2-64 Test:Fh</p> <p>Package Vibration Test:</p> <p>1 Test PSD : 0.026G<sup>2</sup>/Hz , 2.16 Grms</p> <p>2 Test frequency : 5~500 Hz</p> <p>3 Test axis : X,Y and Z axis</p> <p>4 Test time : 30 minutes per each axis</p>

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	5 IEC 60068-2-64 Test Fh
<b>Drop Test</b>	Package drop test Reference ISTA 2A, Method : IEC-60068-2-32 Test:Ed Test Ea : Drop Test 1 Test phase : One corner, three edges, six faces 2 Test high : 96.5cm 3 Package weight : 0.2 Kg 4 Test drawing
<b>OS Information</b>	Win7, Win10 64bit. Linux, 中標麒麟(NeoKylin 7)



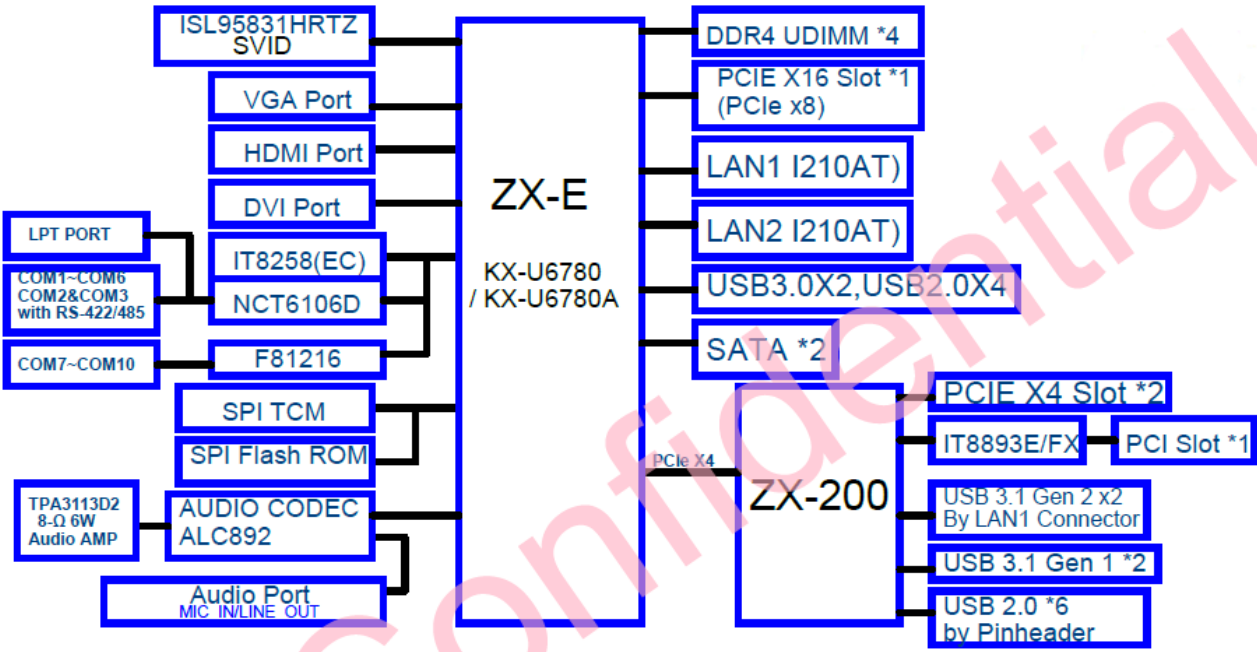
**Note:** Specifications are subject to change without notice.

### User condition suggestion:

- Four 288-pin DDR4 2400/2666MHz U-DIMM socket, supports up to 64GB Max:
  - a. When using more than one DIMM, the DRAM must be in same brand, model, speed, capacity.
  - b. Two DIMMs installing in symmetrical placement of both channel (DIMM1+DIMM3 or DIMM2+DIMM4)
- Triple Display condition: Supporting 3 display (2 display with clone mode, 1 display with extend mode)
- TCM IC limitation: Bitlocker is not supported in Windows.
- In ACPI S5 mode, install devices need to power off.

1.6 Architecture Overview—Block Diagram

The following block diagram shows the architecture and main components of ERX-ZXEP.

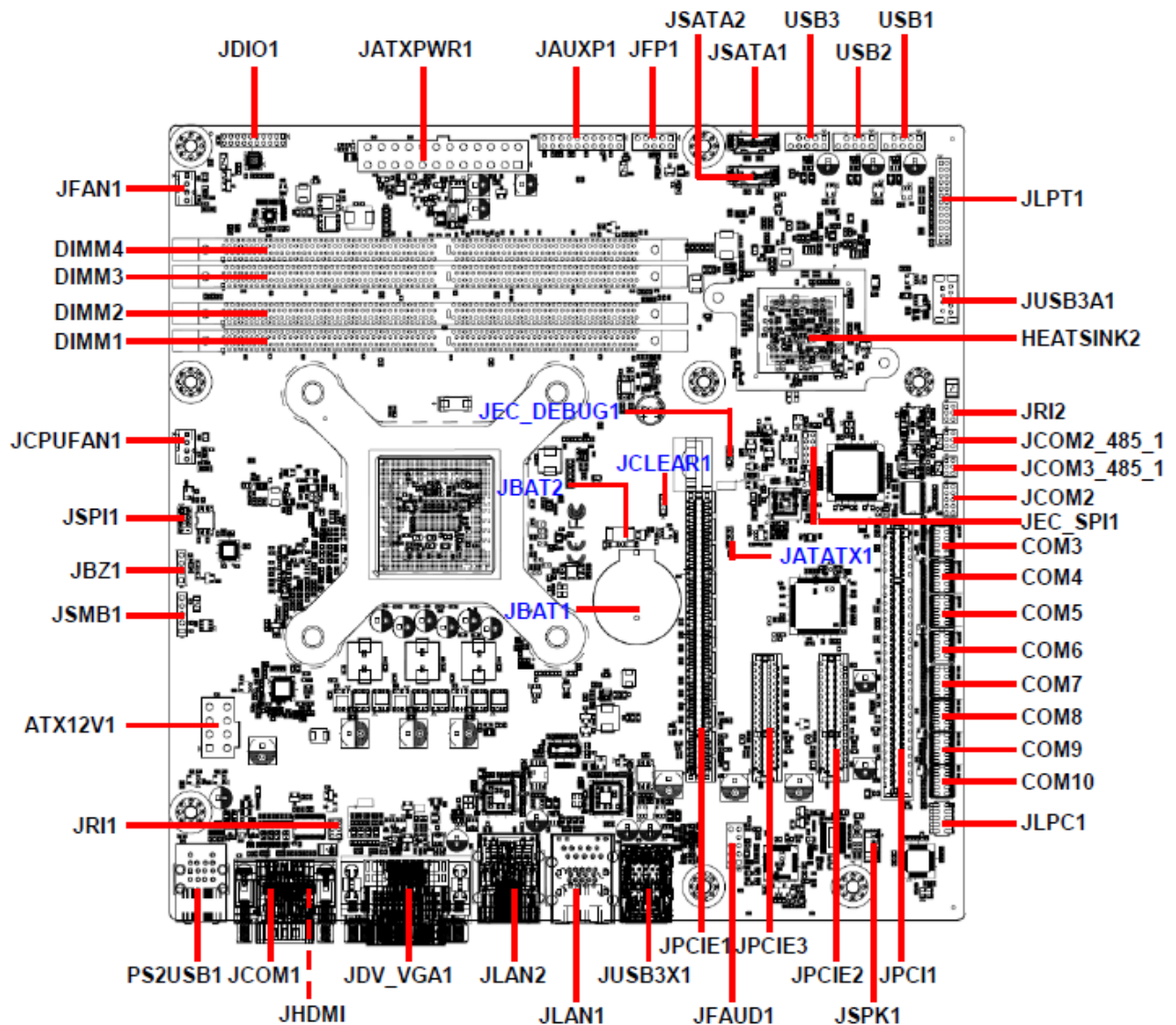


## 2. Hardware Configuration

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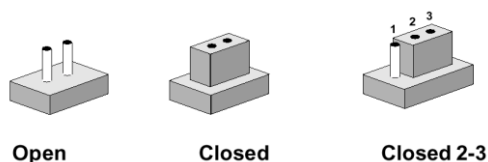
## 2.1 Product Overview



## 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	Serial port 1/2 pin9 signal select	3 x 2 header, pitch 2.00mm
JATATX1	AT/ATX Power Mode Select	3 x 1 header, pitch 2.00mm
JCLEAR1	Clear CMOS	3 x 1 header, pitch 2.00mm

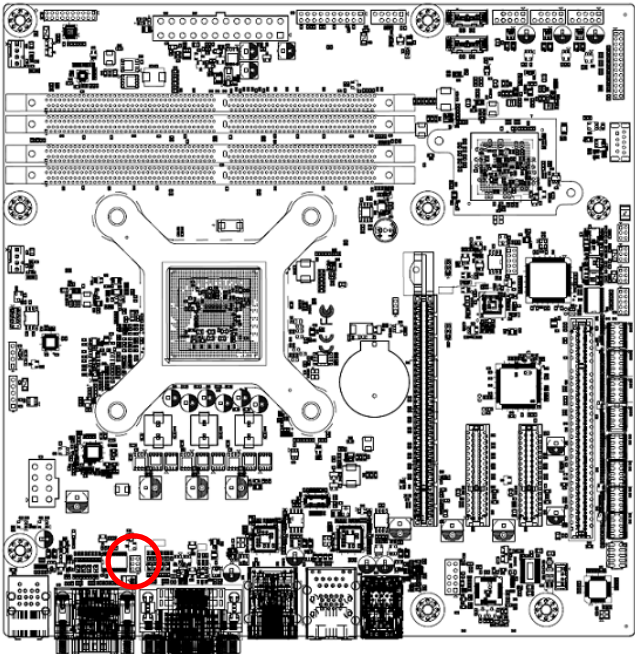
### Connectors

Label	Function	Note
JFAN1	System fan connector 1 (with smart fan function supported)	4 x 1 wafer, pitch 2.54mm
JCPUFAN1	CPU fan connector	4 x 1 wafer, pitch 2.54mm
JAUXP1	Auxiliary Panel connector	10 x 2 header, pitch 2.54mm
JSPI1	Miscellaneous setting connector	4 x 2 header, pitch 2.00mm
JEC_SPI1	EC SPI Flash	5 x 2 header, pitch 2.00mm

<b>JEC_DEBUG1</b>	EC Debug	3 x 1 header, pitch 2.00 mm
<b>JCOM1</b>	COM1 RS232 connector	
<b>JCOM2</b>	Serial Port2 connector	5 x 2 header, pitch 2.00 mm
<b>JFAUD1</b>	Front Audio connector	5 x 2 header, pitch 2.54mm
<b>JDIO1</b>	General purpose I/O connector	10 x 2 header, pitch 2.00mm
<b>JSPK1</b>	Speaker connector	4 x 1 wafer, pitch 2.00 mm
<b>JFP1</b>	Front Panel connector	5 x 2 header, pitch 2.54mm
<b>JLAN1/2</b>	2 x RJ-45 with Dual deck USB 3.0 connector	
<b>COM3-6</b>	Serial Port3-6 connector	20 x 2 header, pitch 2.00mm
<b>COM7-10</b>	Serial Port7-10 connector	20 x 2 header, pitch 2.00mm
<b>USB1/2/3</b>	USB connector 1/2/3	5 x 2 header, pitch 2.54mm
<b>JUSB3A1</b>	USB 3.1 Gen 1 By Vertical type A connector	
<b>JUSB3X1</b>	USB connector	
<b>JCOM2_485_1</b>	Serial Port2 RS485/422 Mode connector	3 x 2 header, pitch 2.00 mm
<b>JCOM3_485_1</b>	Serial Port2 RS485/422 Mode connector	3 x 2 header, pitch 2.00 mm
<b>JLPC1</b>	LPC connector	5 x 2 header, pitch 2.00mm
<b>JLPT1</b>	LPT connector	13 x 2 header, pitch 2.00 mm
<b>ATXPWR1</b>	ATX Power connector	12 x 2 wafer, pitch 4.20mm
<b>ATX12V1</b>	ATX12V power connector	4 x 2 wafer, pitch 4.20mm
<b>JBAT1</b>	Battery connector 1	
<b>JBAT2</b>	Battery connector 2	
<b>JBZ1</b>	Buzzer connector	4 x 1 header, pitch 2.54mm
<b>JSMB1</b>	SMBus connector	5 x 1 header, pitch 2.54mm
<b>JHDMI1</b>	HDMI connector	
<b>JSATA1/2</b>	Serial ATA connector	
<b>DIMMA1/2/3/4</b>	260-pin DIMM slot 1	
<b>JPCIE1/2/3</b>	PCI-e x16 slot	
<b>JDV_VGA1</b>	VGA connector	
<b>JPCI1</b>	PCI slot	
<b>PS2USB1</b>	PS2+USB connector	
<b>HEATSINK2</b>	ZX-200 heatsink	

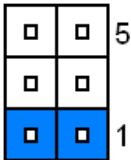
2.3 Setting Jumpers & Connectors

2.3.1 Serial port 1 pin9 signal select (JRI1)

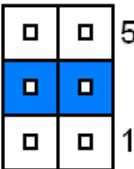


\* Default

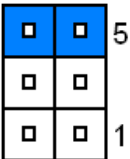
Ring\*



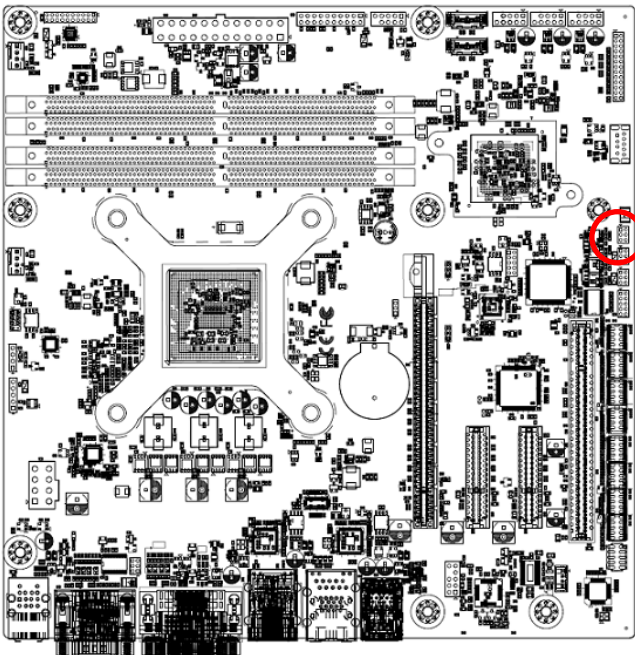
+5V



+12V

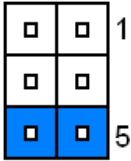


2.3.2 Serial port 2 pin9 signal select (JRI2)

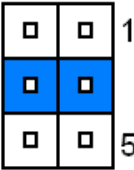


\* Default

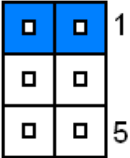
JCOM\_RI#\_2



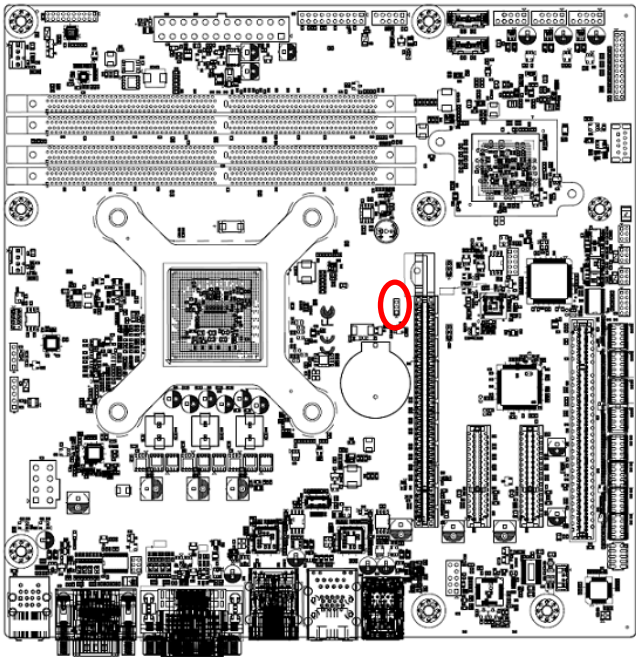
Ring\*



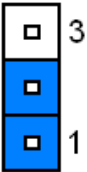
+12V



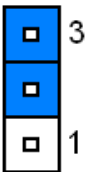
2.3.3 Clear CMOS (JCLEAR1)



Protect\*

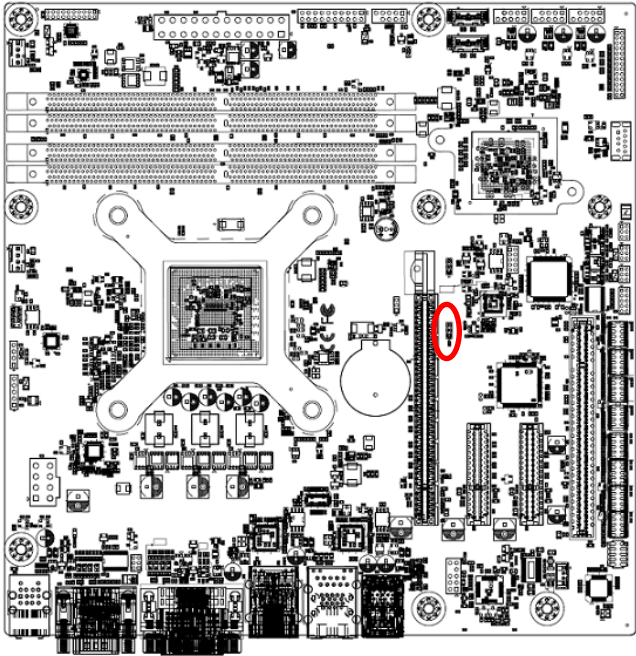


Clear CMOS

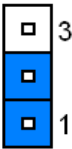


\* Default

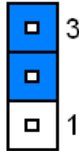
2.3.4 AT/ATX Power Mode Select (JATATX1)



AT



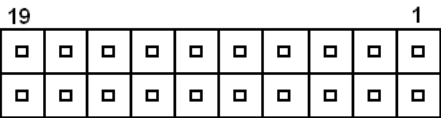
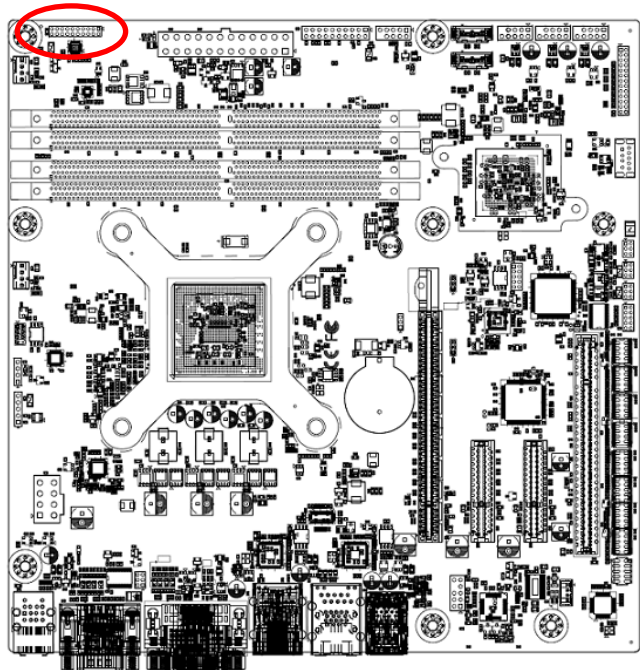
ATX\*



\* Default

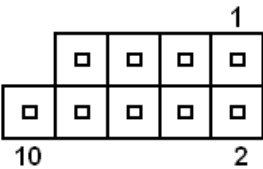
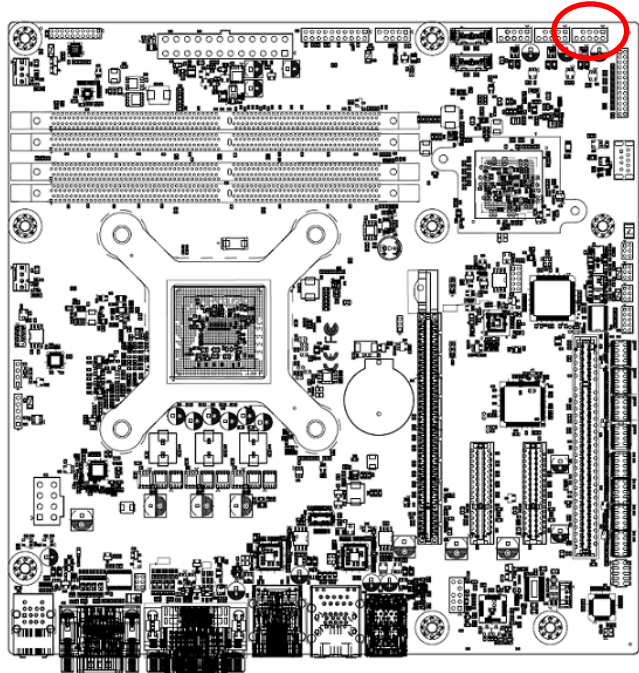


2.3.5 General purpose I/O connector (DIO1)



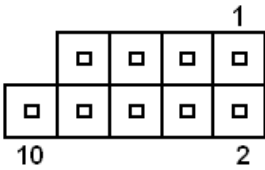
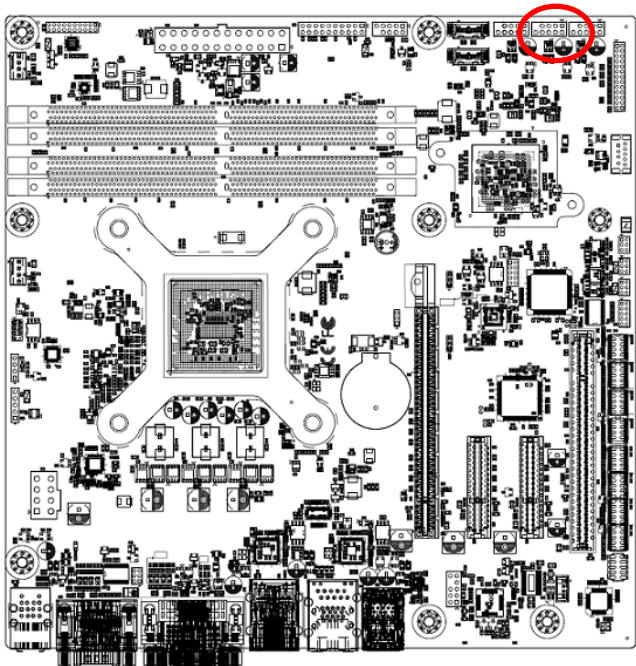
Signal	PIN	PIN	Signal
DI0	1	2	DO0
DI1	3	4	DO1
DI2	5	6	DO2
DI3	7	8	DO3
DI4	9	10	DO4
DI5	11	12	DO5
DI6	13	14	DO6
DI7	15	16	DO7
5V_SMB_CLK	17	18	5V_SMB_DATA
GND	19	20	+5V

2.3.6 USB connector (USB1)



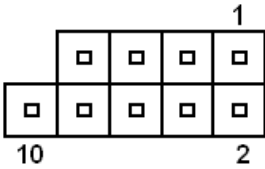
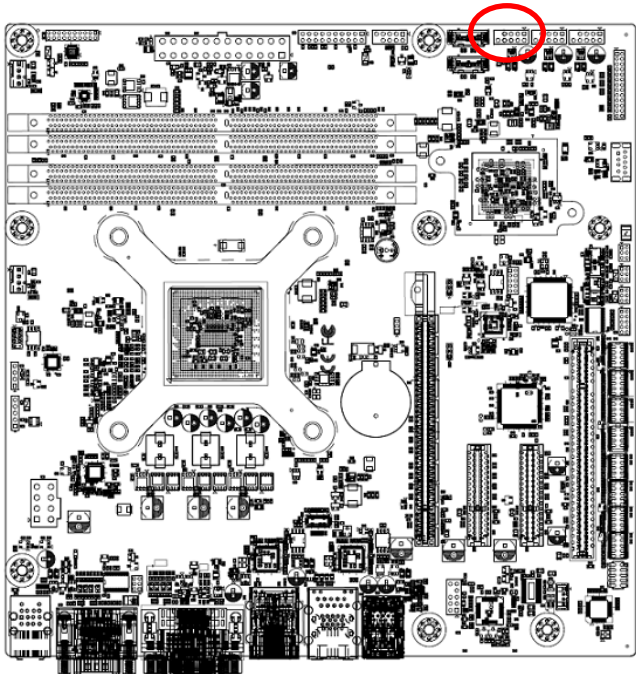
Signal	PIN	PIN	Signal
+ZX_USBVCC0_1	1	2	+ZX_USBVCC0_1
ZX_R_USB0-	3	4	ZX_R_USB1-
ZX_R_USB0+	5	6	ZX_R_USB1+
GND	7	8	GND
		10	NC

2.3.7 USB connector (USB2)



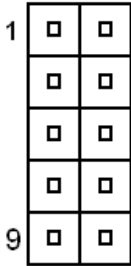
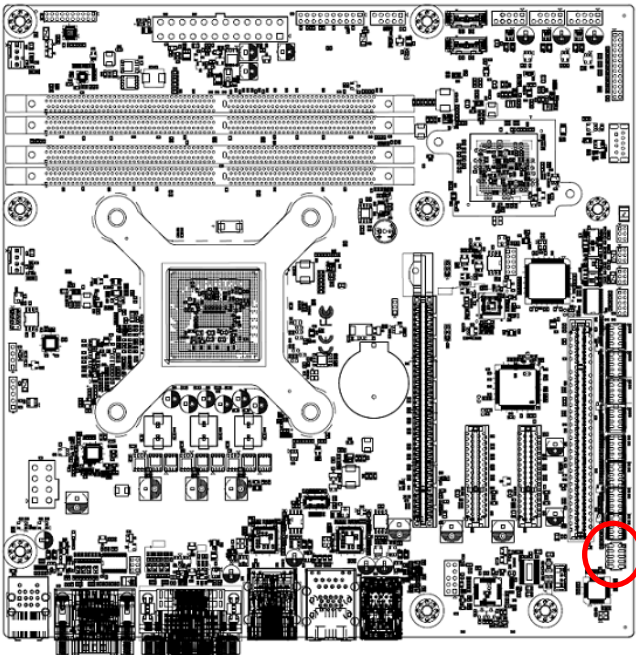
Signal	PIN	PIN	Signal
+ZX_USBVCC2_3	1	2	+ZX_USBVCC2_3
ZX_R_USB2-	3	4	ZX_R_USB3-
ZX_R_USB2+	5	6	ZX_R_USB3+
GND	7	8	GND
		10	NC

2.3.8 USB connector (USB3)



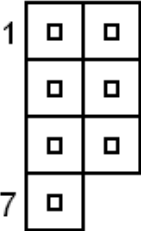
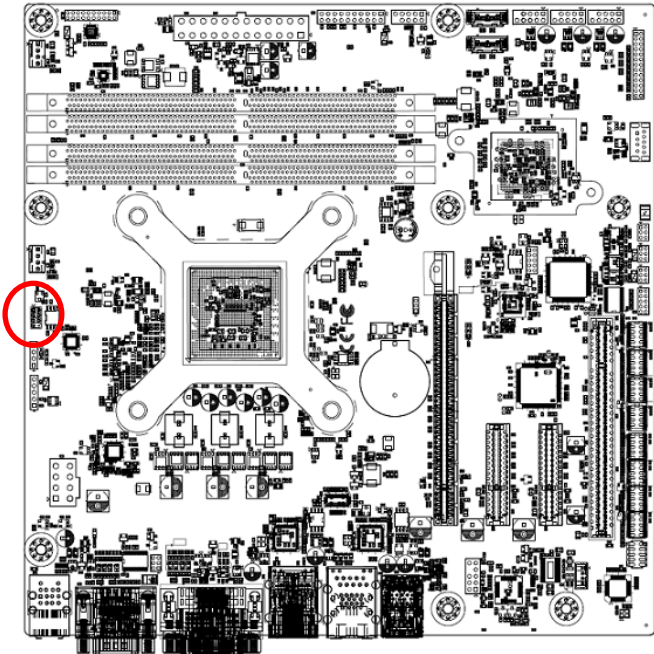
Signal	PIN	PIN	Signal
+ZX_USBVCC4_5	1	2	+ZX_USBVCC4_5
ZX_R_USB4-	3	4	ZX_R_USB5-
ZX_R_USB4+	5	6	ZX_R_USB5+
GND	7	8	GND
		10	NC

2.3.9 LPC connector (JLPC1)



Signal	PIN	PIN	Signal
LPC_AD0	1	2	+3.3V
LPC_AD1	3	4	PCIRST#
LPC_AD2	5	6	LPC_LFRAME#
LPC_AD3	7	8	CLK_33M_LPC
LPC_SERIRQ	9	10	GND

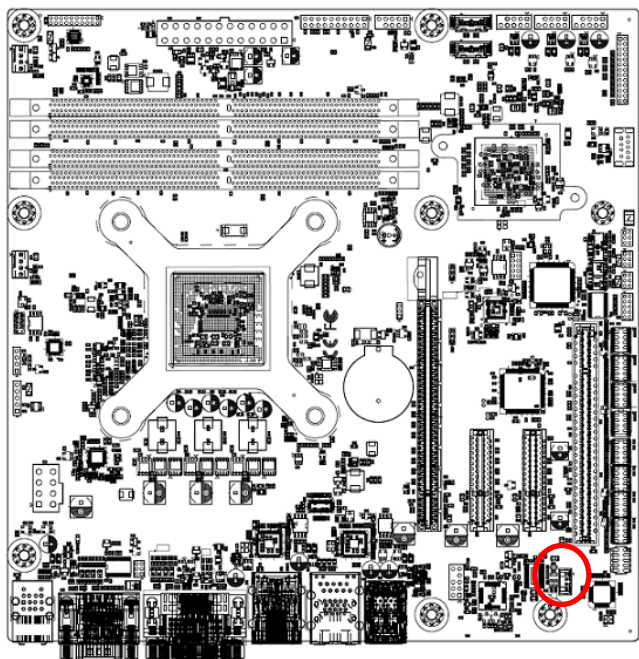
2.3.10 Miscellaneous setting connector (JSPI1)



Signal	PIN	PIN	Signal
+ V3.3A_SPI	1	2	GND
SPI_CS0#	3	4	SPI_CLK
SPI_MISO	5	6	SPI_MOSI
SPI_HOLD#	7		

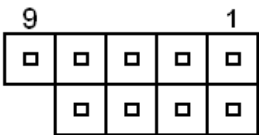
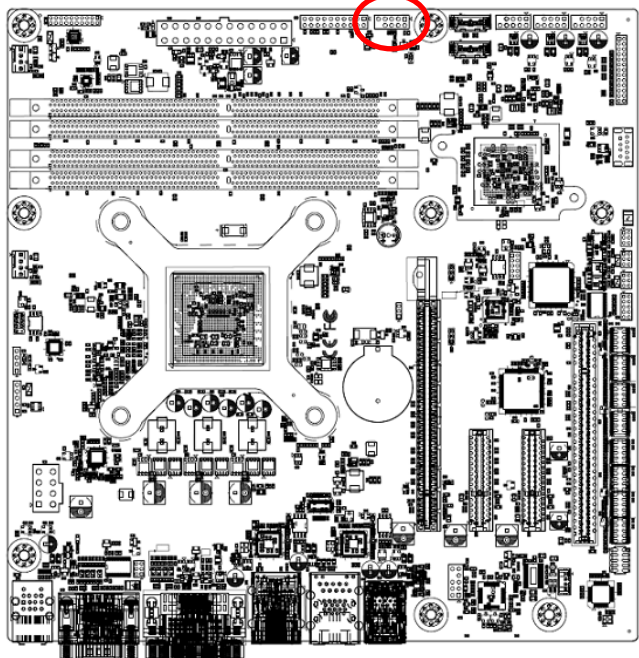


2.3.11 Speaker connector (JSPK1)



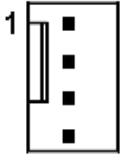
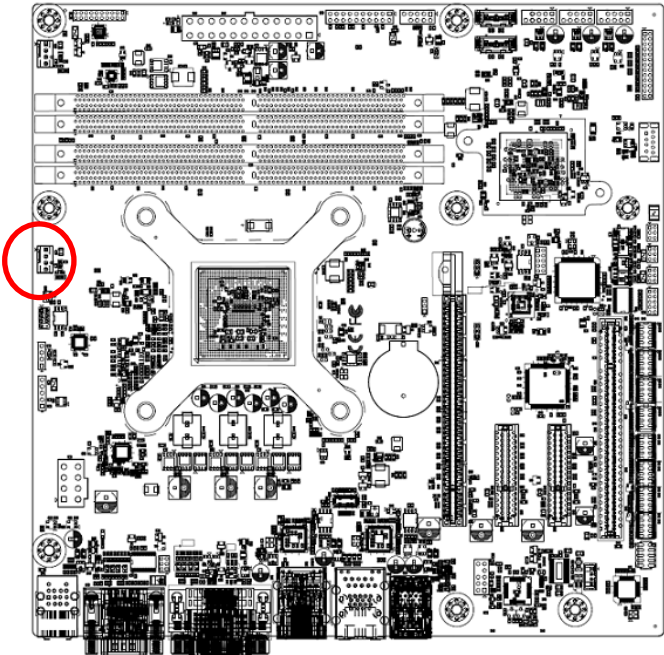
Signal	PIN
LSPK+	1
LSPK-	2
RSPK+	3
RSPK-	4

2.3.12 Front Panel connector (JFP1)



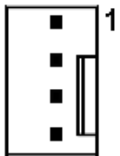
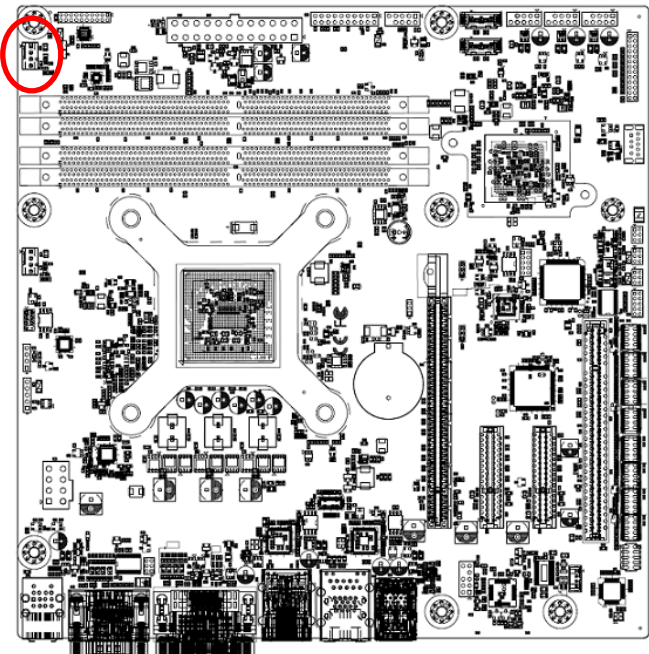
Signal	PIN	PIN	Signal
HDD_LED+	1	2	PWR_LED+
HDD_LED-	3	4	PWR_LED-
GND	5	6	PWRBTN#
GND	7	8	GND
NC	9		

2.3.13 CPU fan connector (JCPUFAN1)



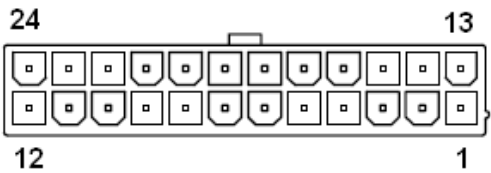
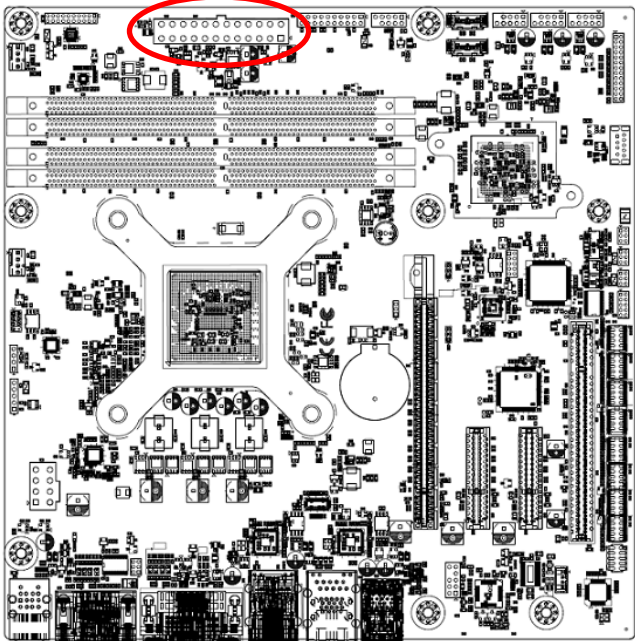
PIN	Signal
1	GND
2	+12V
3	CPU_R_FANIN
4	CPU_FANOUT

2.3.14 System fan connector 1 (JFAN1)



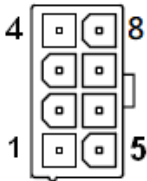
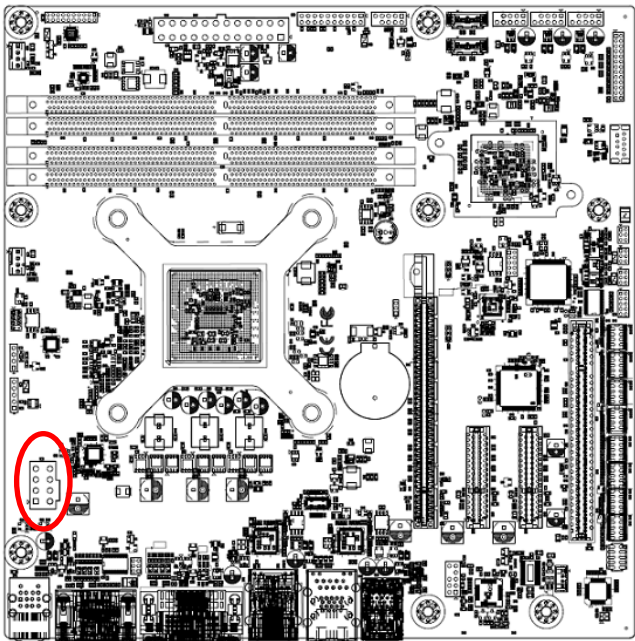
PIN	Signal
1	GND
2	+12V
3	SYSFANIN
4	SYS_FAN_PWMOUT

2.3.15 ATX Power connector (ATXPWR1)



Signal	PIN	PIN	Signal
+3.3V	13	1	+3.3V
-12V	14	2	+3.3V
GND	15	3	GND
ATXPSON#	16	4	+5V
GND	17	5	GND
GND	18	6	+5V
GND	19	7	GND
-5V	20	8	ATX20_PWRGD
+5V	21	9	+V5SB
+5V	22	10	+12V
+5V	23	11	GND
GND	24	12	+3.3V

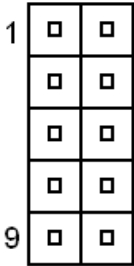
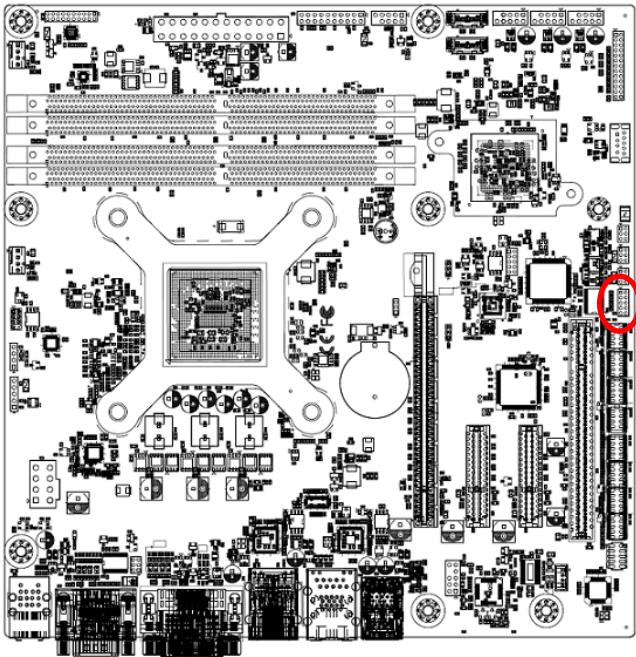
2.3.16 ATX 12V power connector (ATX12V1)



Signal	PIN	PIN	Signal
GND	4	8	+V12S_CPU
GND	3	7	+V12S_CPU
GND	2	6	+V12S_CPU
GND	1	5	+V12S_CPU

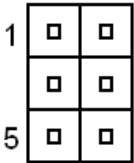
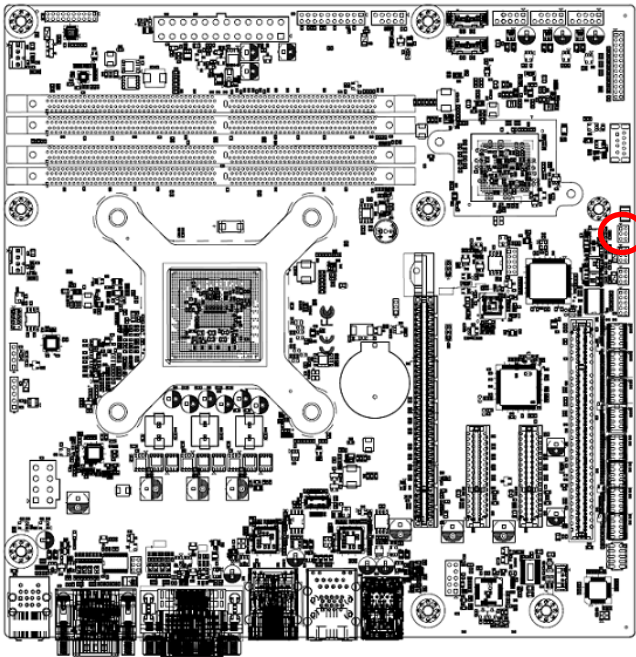


2.3.17 Serial port connector (JCOM2)



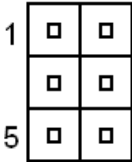
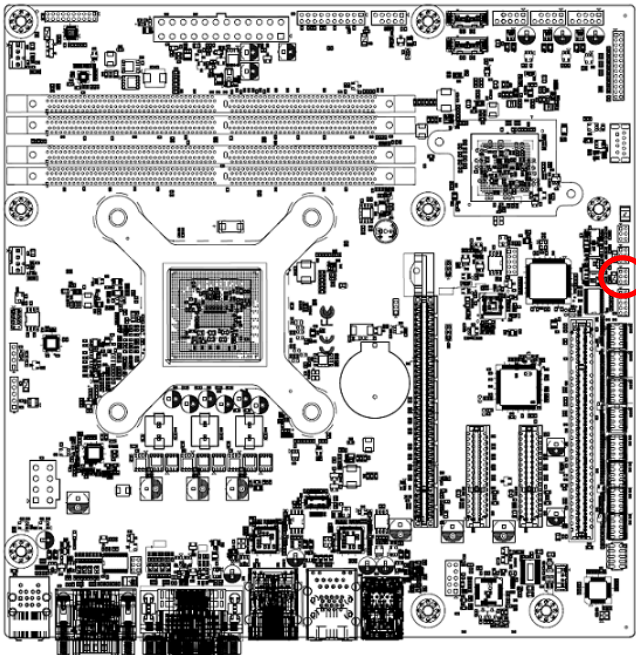
Signal	PIN	PIN	Signal
COM_DCD#_2	1	2	COM_RXD_2
COM_TXD_2	3	4	COM_DTR#_2
GND	5	6	COM_DSR#_2
COM_RTS#_2	7	8	COM_CTS#_2
COM_R#_2	9	10	NC

2.3.18 Serial Port2 RS485/422 Mode connector (JCOM2\_485\_1)



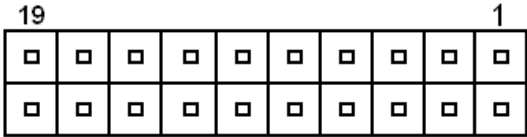
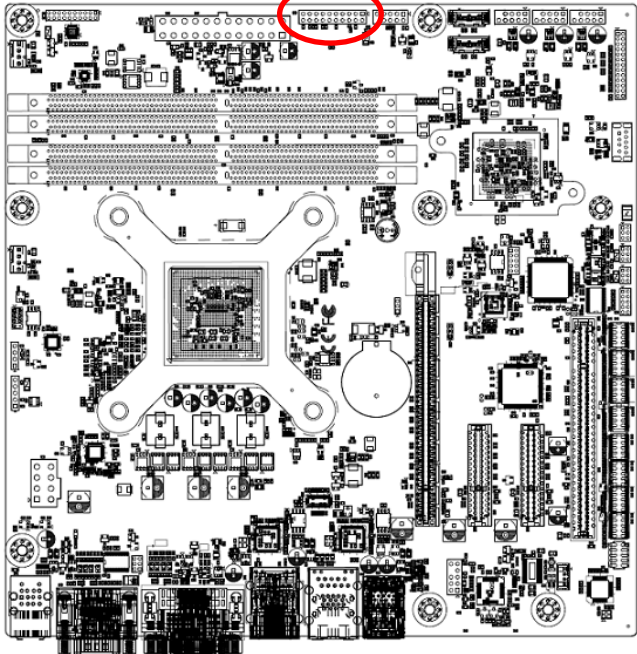
Signal	PIN	PIN	Signal
485_422TX2-	1	2	422TX2-
485_422TX2+	3	4	422TX2+
+5V	5	6	GND

2.3.19 Serial Port2 RS485/422 Mode connector (JCOM3\_485\_1)



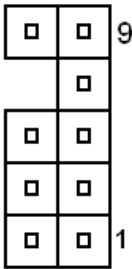
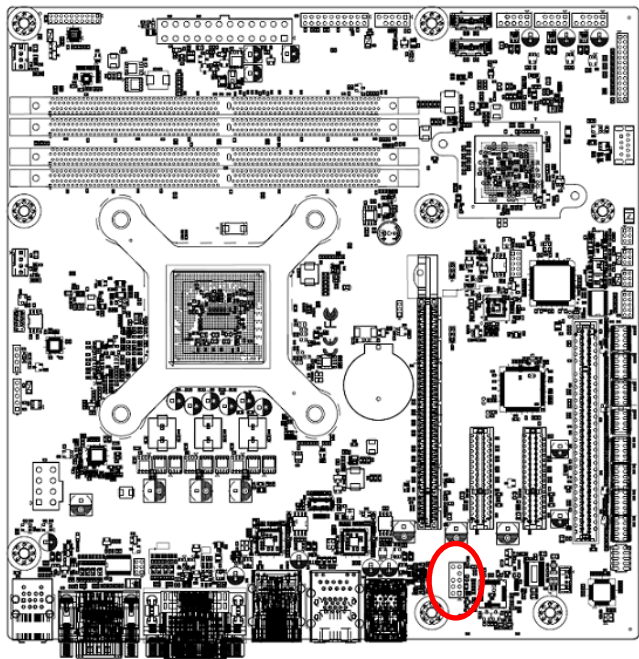
Signal	PIN	PIN	Signal
485_422TX3-	1	2	422TX3-
485_422TX3+	3	4	422TX3+
+5V	5	6	GND

2.3.20 Auxiliary Panel connector (JAUXP1)



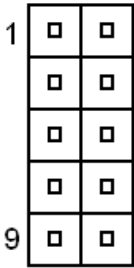
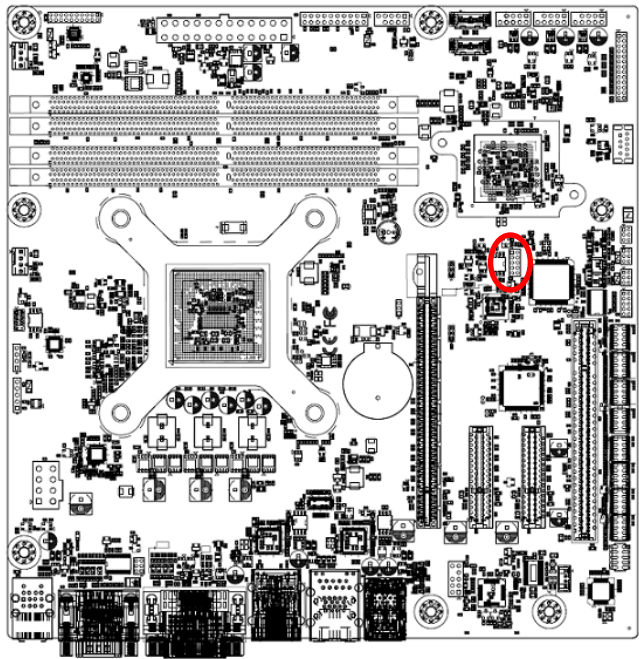
Signal	PIN	PIN	Signal
+V5DUAL_AUX	1	2	NC
NC	3	4	SMB_CK_AUX
CASEOPEN#	5	6	NC
GND	7	8	GND
NC	9	10	SMB_DAT_AUX
NC	11	12	NC
LAN1_ACT+	13	14	FRONT_LAN1_LINK100#
GND	15	16	FRONT_LAN1_LINK1000#
LAN2_ACT+	17	18	FRONT_LAN2_LINK100#
GND	19	20	FRONT_LAN2_LINK1000#

2.3.21 Front Audio connector (FAUD1)



Signal	PIN	PIN	Signal
LINE2_JD	10	9	LINE2_LIN
		7	SENSE_B
MIC2_JD	6	5	LINE2_RIN
AC2_DET#	4	3	MIC2_RIN
GND	2	1	MIC2_LIN

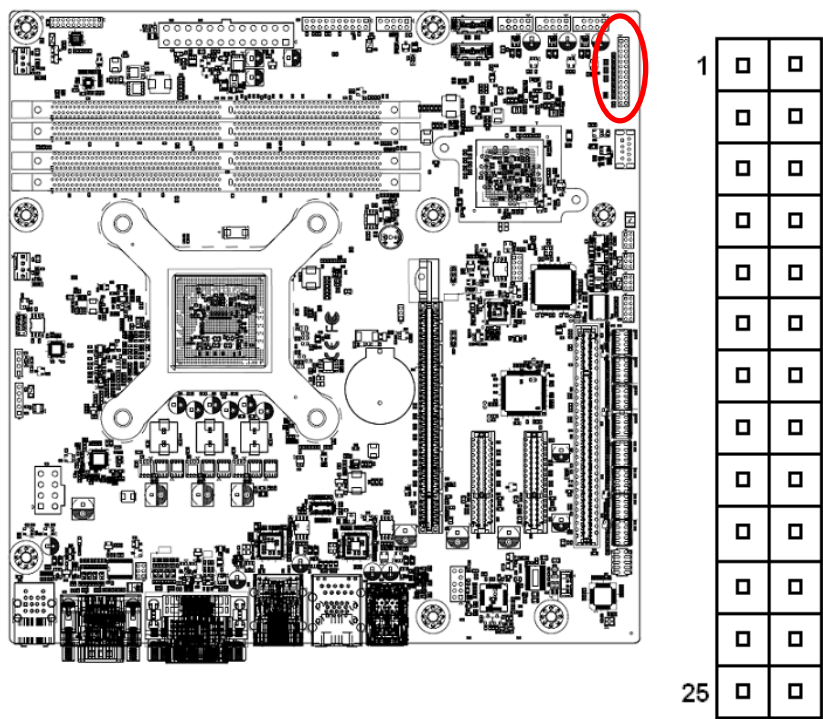
2.3.22 EC SPI Flash (JEC\_SPI1)



Signal	PIN	PIN	Signal
+3VSPI_EC	1	2	GND
EC_FSCE#	3	4	EC_FSCK
EC_FMISO	5	6	EC_FMOSI
EC_HOLD#	7	8	NC
EC_SMCLK0	9	10	EC_SMDAT0

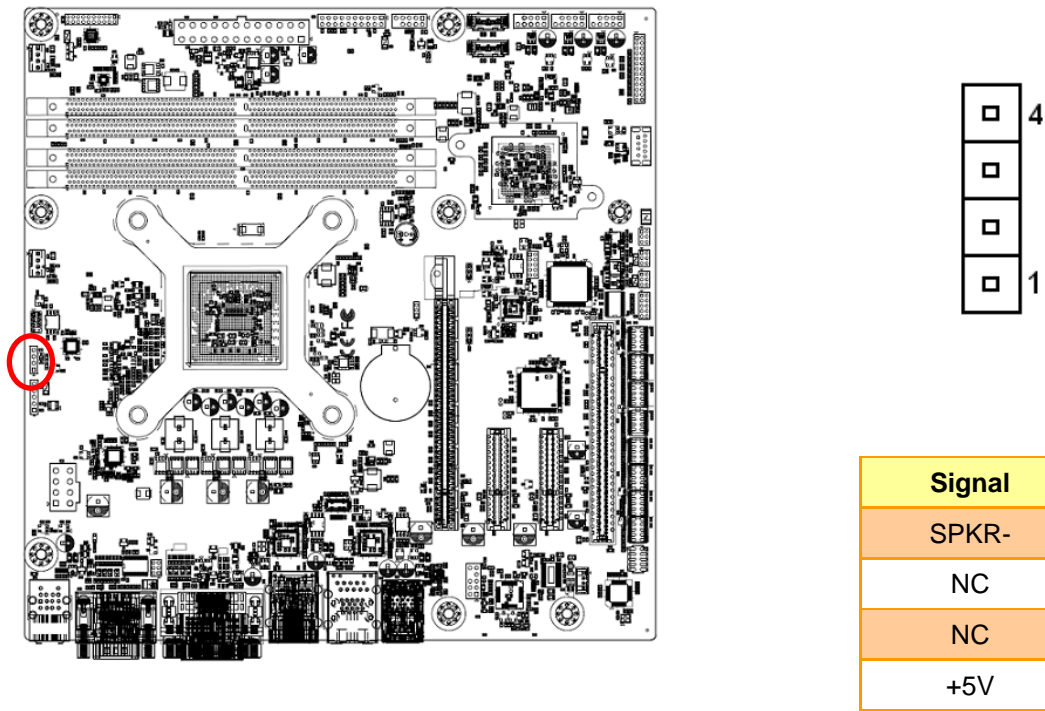


2.3.23 LPT connector (JLPT1)



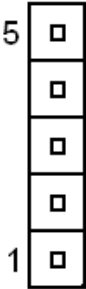
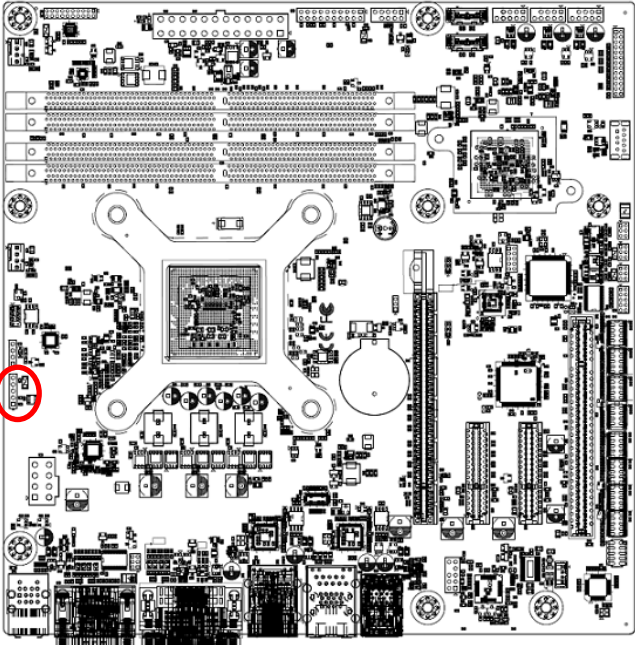
Signal	PIN	PIN	Signal
PT_STB-	1	2	PT_AFD#
PTD0	3	4	ERR#
PTD1	5	6	PT_PAR_INIT#
PTD2	7	8	PT_SLIN#
PTD3	9	10	GND
PTD4	11	12	GND
PTD5	13	14	GND
PTD6	15	16	GND
PTD7	17	18	GND
ACK#	19	20	GND
BUSY	21	22	GND
PE	23	24	GND
SLCT	25	26	NC

2.3.24 Buzzer connector (JBZ1)



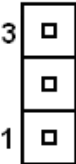
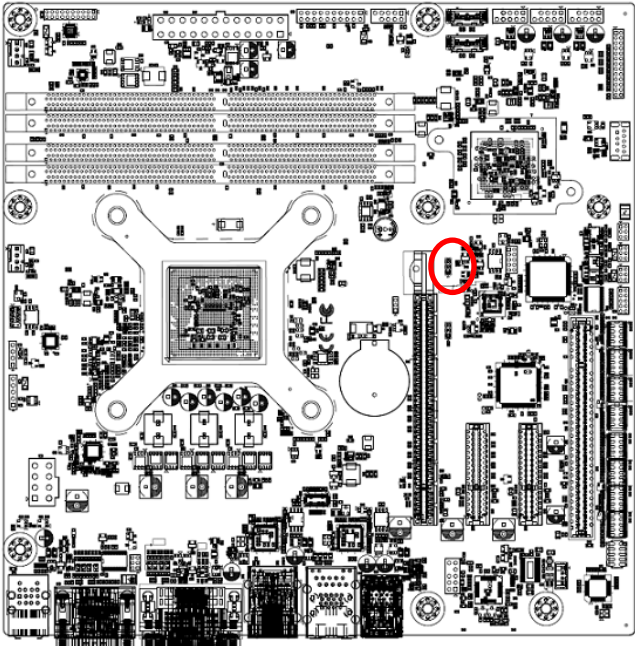
Signal	PIN
SPKR-	4
NC	3
NC	2
+5V	1

2.3.25 SMBus connector (JSMB1)



Signal	PIN
+3.3V	5
GND	4
NC	3
SMBDAT_S0	2
SMBCLK_S0	1

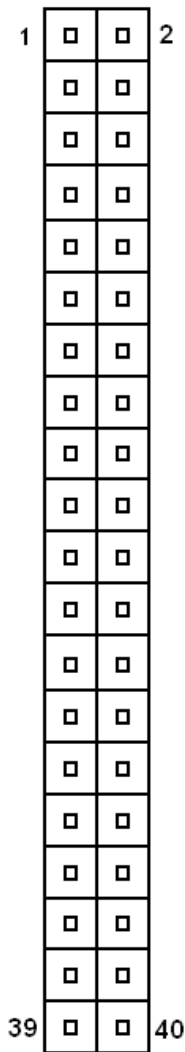
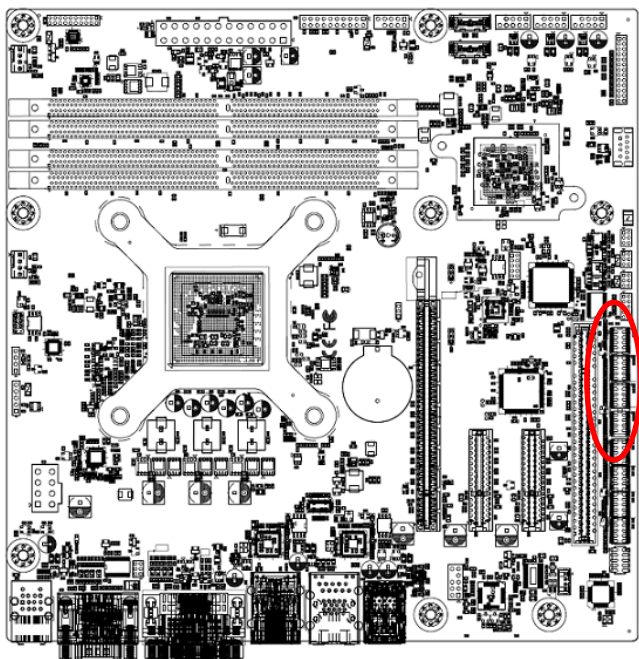
2.3.26 EC Debug (JEC\_DEBUG1)



Signal	PIN
GND	3
EC_SMDAT0	2
EC_SMCLK0	1

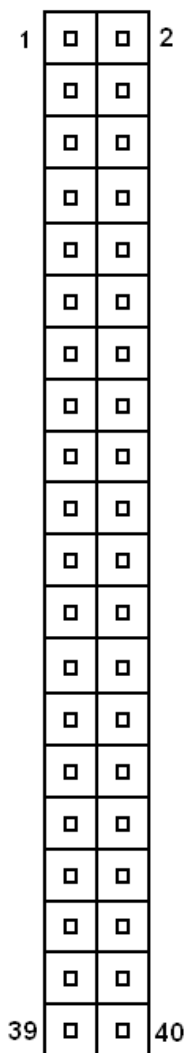
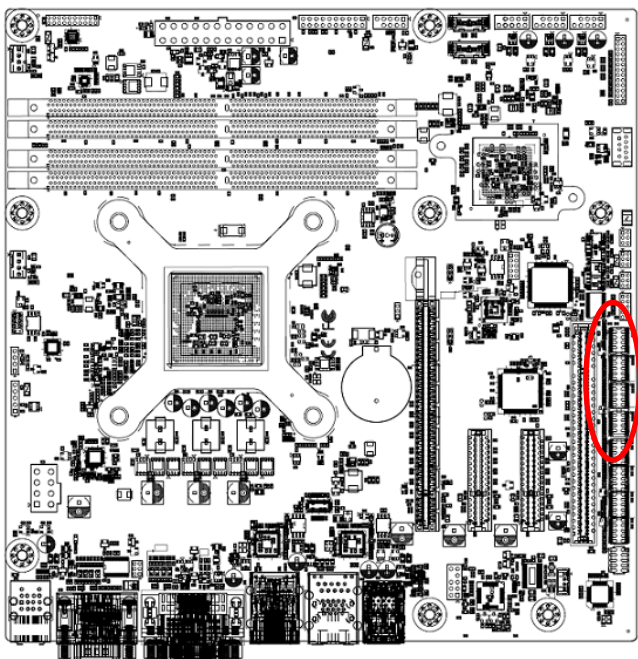


2.3.27 Serial Port3-6 connector (COM3-6)



Signal	PIN	PIN	Signal
COM_DCD_3	1	2	COM_RXD_3
COM_TXD_3	3	4	COM_DTR#_3
GND	5	6	COM_DSR#_3
COM_RTS#_3	7	8	COM_CTS#_3
COM_R#_3	9	10	NC
COM_DCD_4	11	12	COM_RXD_4
COM_TXD_4	13	14	COM_DTR#_4
GND	15	16	COM_DSR#_4
COM_RTS#_4	17	18	COM_CTS#_4
COM_R#_4	19	20	NC
COM_DCD_5	21	22	COM_RXD_5
COM_TXD_5	23	24	COM_DTR#_5
GND	25	26	COM_DSR#_5
COM_RTS#_5	27	28	COM_CTS#_5
COM_R#_5	29	30	NC
COM_DCD_6	31	32	COM_RXD_6
COM_TXD_6	33	34	COM_DTR#_6
GND	35	36	COM_DSR#_6
COM_RTS#_6	37	38	COM_CTS#_6
COM_R#_6	39	40	NC

2.3.28 Serial Port7-10 connector (COM7-10)



Signal	PIN	PIN	Signal
COM_DCD_7	1	2	COM_RXD_7
COM_TXD_7	3	4	COM_DTR#_7
GND	5	6	COM_DSR#_7
COM_RTS#_7	7	8	COM_CTS#_7
COM_R#_7	9	10	NC
COM_DCD_8	11	12	COM_RXD_8
COM_TXD_8	13	14	COM_DTR#_8
GND	15	16	COM_DSR#_8
COM_RTS#_8	17	18	COM_CTS#_8
COM_R#_8	19	20	NC
COM_DCD_9	21	22	COM_RXD_9
COM_TXD_9	23	24	COM_DTR#_9
GND	25	26	COM_DSR#_9
COM_RTS#_9	27	28	COM_CTS#_9
COM_R#_9	29	30	NC
COM_DCD_10	31	32	COM_RXD_10
COM_TXD_10	33	34	COM_DTR#_10
GND	35	36	COM_DSR#_10
COM_RTS#_10	37	38	COM_CTS#_10
COM_R#_10	39	40	NC

## 3.BIOS Setup

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### 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.



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.



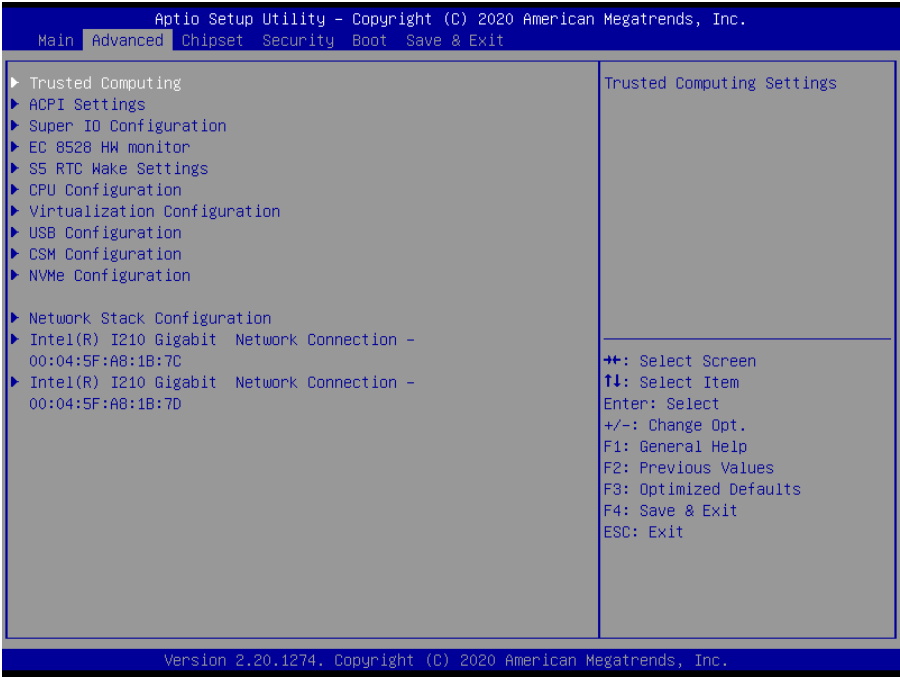
**Note:** The BIOS setup screens shown in this chapter are for reference purposes only, and may not exactly match what you see on your screen.

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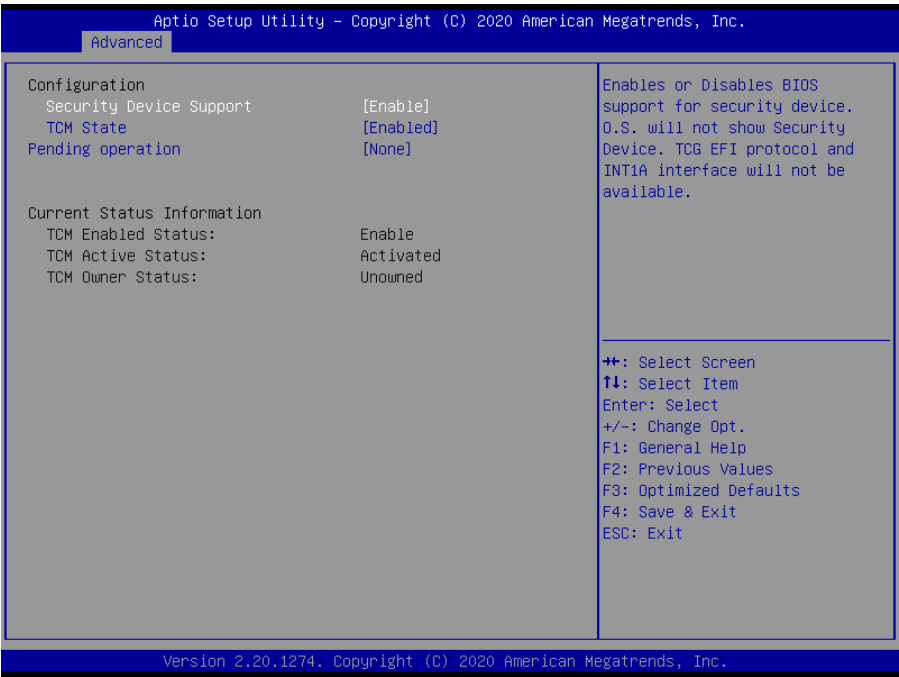
Visit the Avalue website ([www.avalue.com.tw](http://www.avalue.com.tw)) to download the latest product and BIOS information.

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.



3.6.2.1 Trusted Computing





Item	Options	Description
<b>Security Device Support</b>	Disabled Enabled[Default]	Enables or Disables BIOS support for security device. O.S. will not show Security Device. TCG EFI protocol and INT1A interface will not be available.
<b>TCM State</b>	Disabled Enabled[Default],	Enable/Disable Security Device. NOTE: Your Computer will reboot during restart in order to change State of the Device.
<b>Pending operation</b>	Nono[Default], TCM clear	Schedule an Operation for the Security Device. NOTE: Your Computer will reboot during restart in order to change State of Security Device.

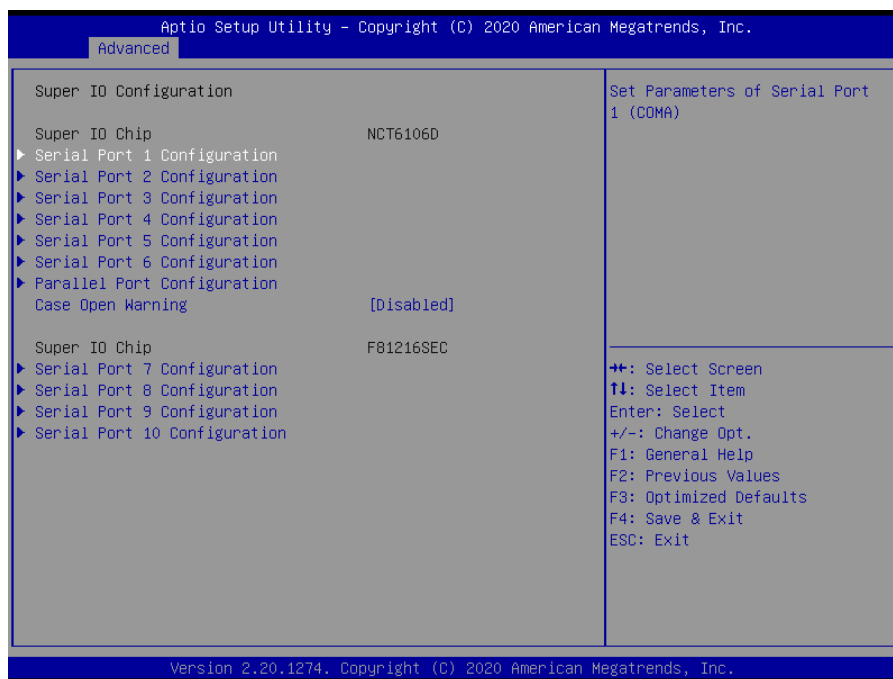
### 3.6.2.2 ACPI Settings



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

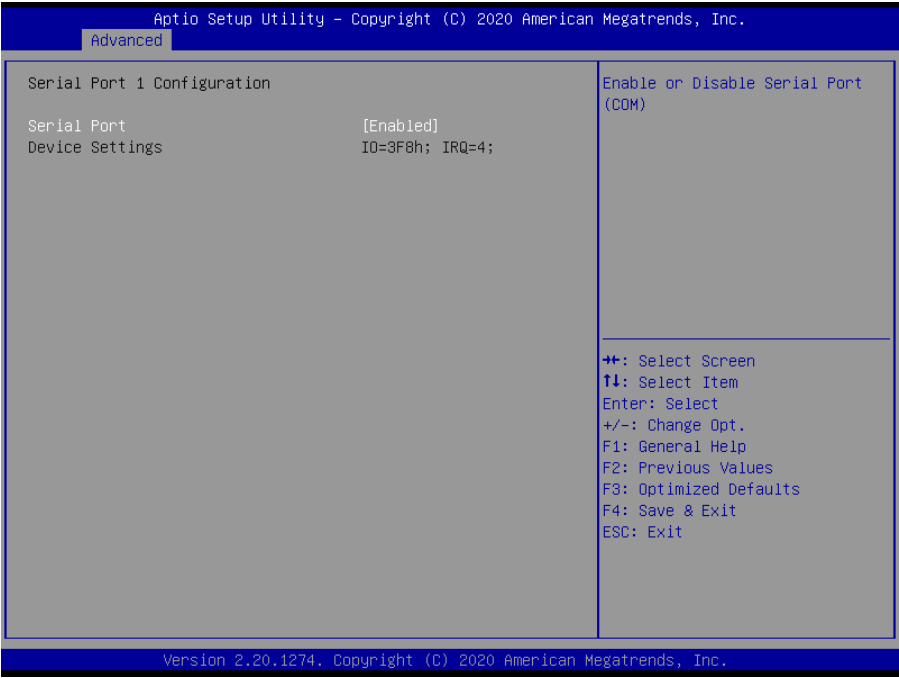
## 3.6.2.3 Super IO Configuration

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~ 3.6.2.5.11 for more information.



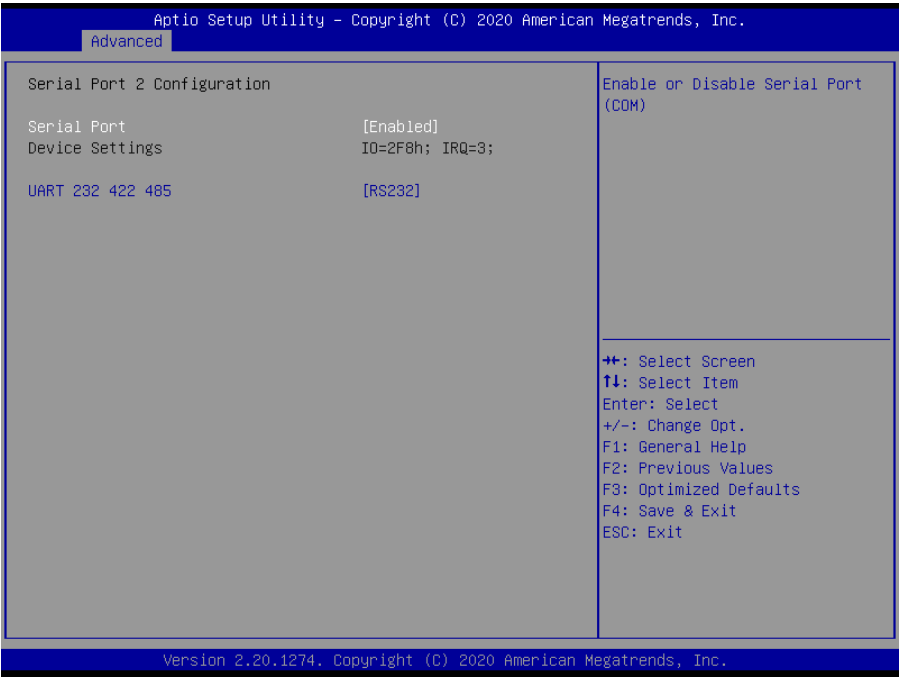
Item	Option	Description
Case Open Warning	Disabled[Default], Enabled	Enable/Disable Case Open Warning.
Serial Port 1 Configuration	Set Parameters of Serial Port 1 (COMA).	
Serial Port 2 Configuration	Set Parameters of Serial Port 2 (COMB).	
Serial Port 3 Configuration	Set Parameters of Serial Port 3 (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).	
Parallel Port Configuration	Enable or Disable Parallel Port (LPT/LPTE).	
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).	

3.6.2.3.1 Serial Port 1 Configuration



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

3.6.2.3.2 Serial Port 2 Configuration

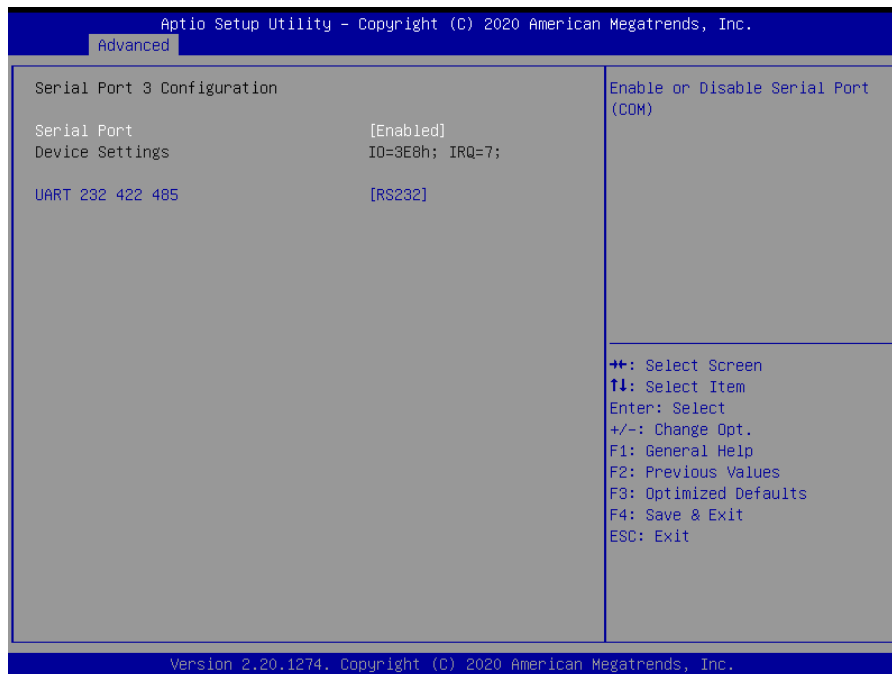


Item	Option	Description
Serial Port	Disabled	Enable or Disable Serial Port (COM).

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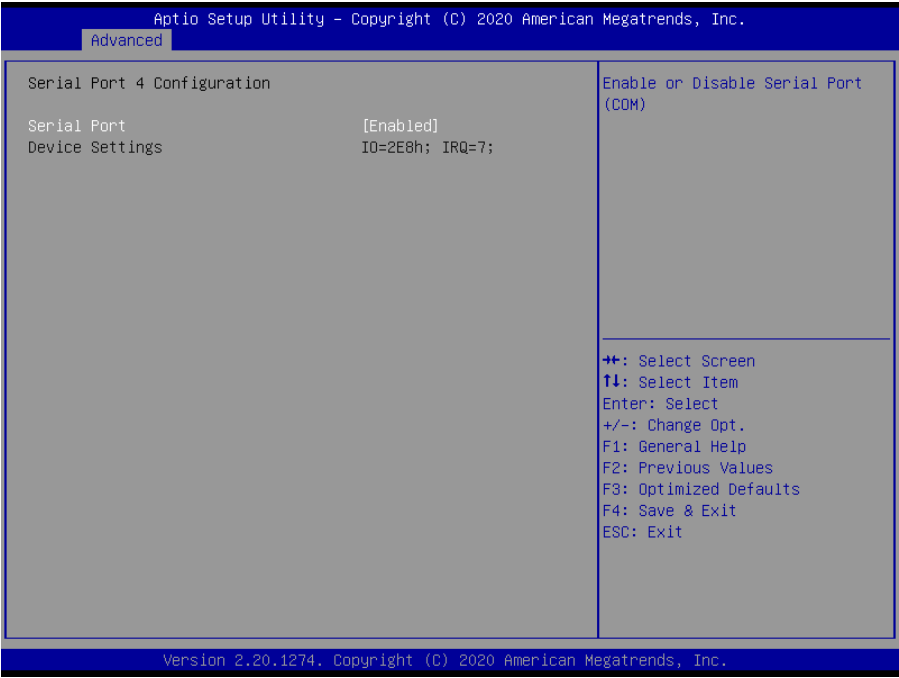
	Enabled[Default],	
UART 232 422 485	RS232[Default], RS422 RS485	Change the Serial Port as RS232/RS422/RS485

### 3.6.2.3.3 Serial Port 3 Configuration



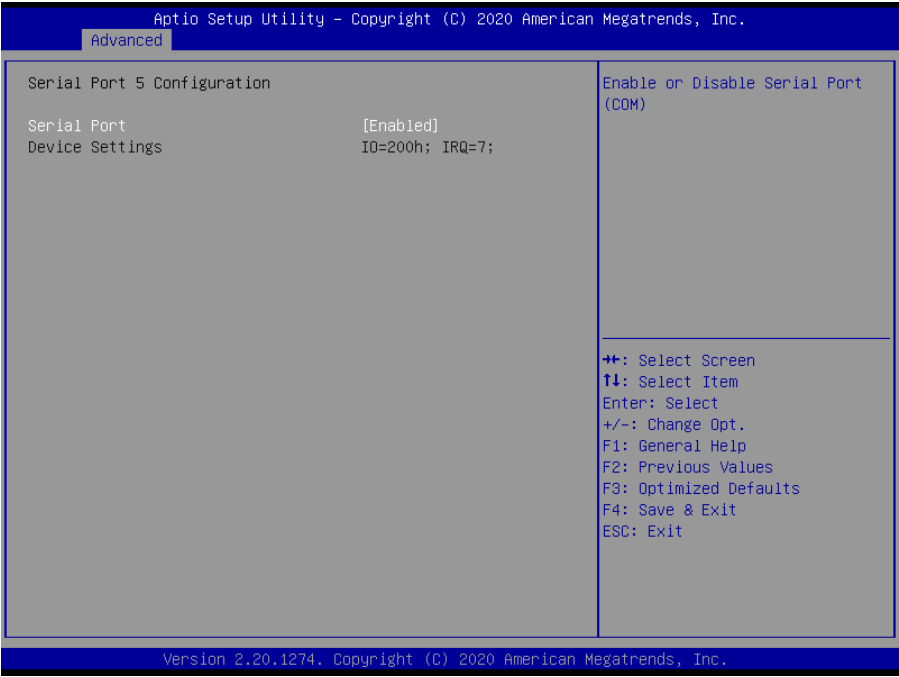
Item	Option	Description
Serial Port	Disabled Enabled[Default],	Enable or Disable Serial Port (COM).
UART 232 422 485	RS232[Default], RS422 RS485	Change the Serial Port as RS232/RS422/RS485

3.6.2.3.4 Serial Port 4 Configuration



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

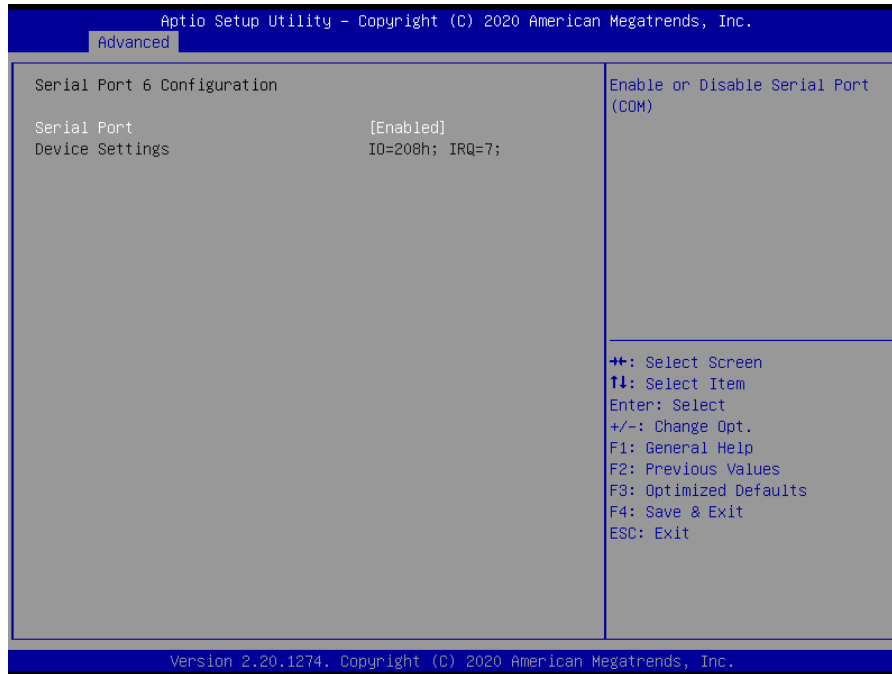
3.6.2.3.5 Serial Port 5 Configuration



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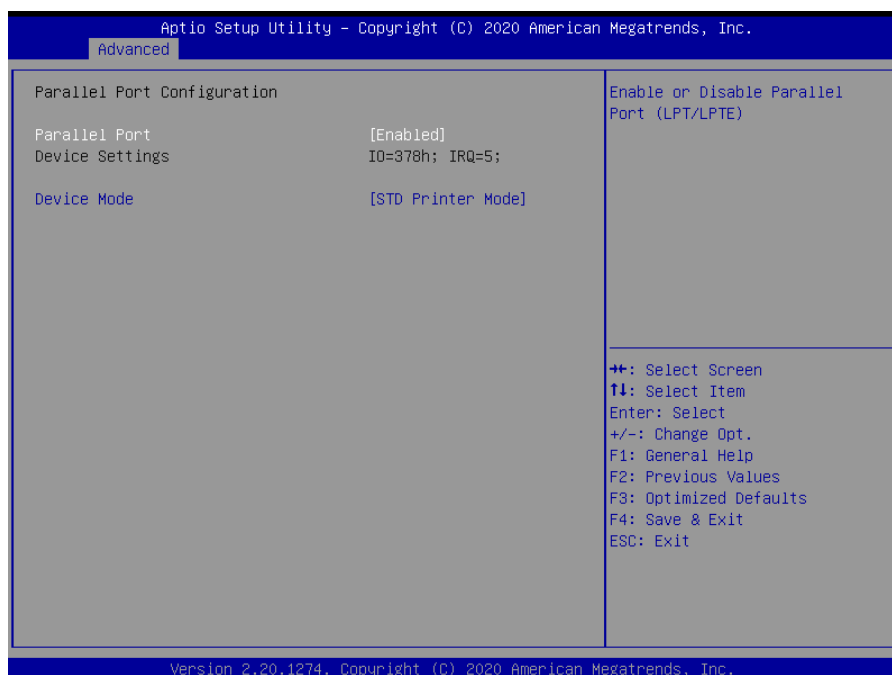
Item	Option	Description
Serial Port	Disabled Enabled[Default],	Enable or Disable Serial Port (COM).

### 3.6.2.3.6 Serial Port 6 Configuration



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

### 3.6.2.3.7 Parallel Port Configuration





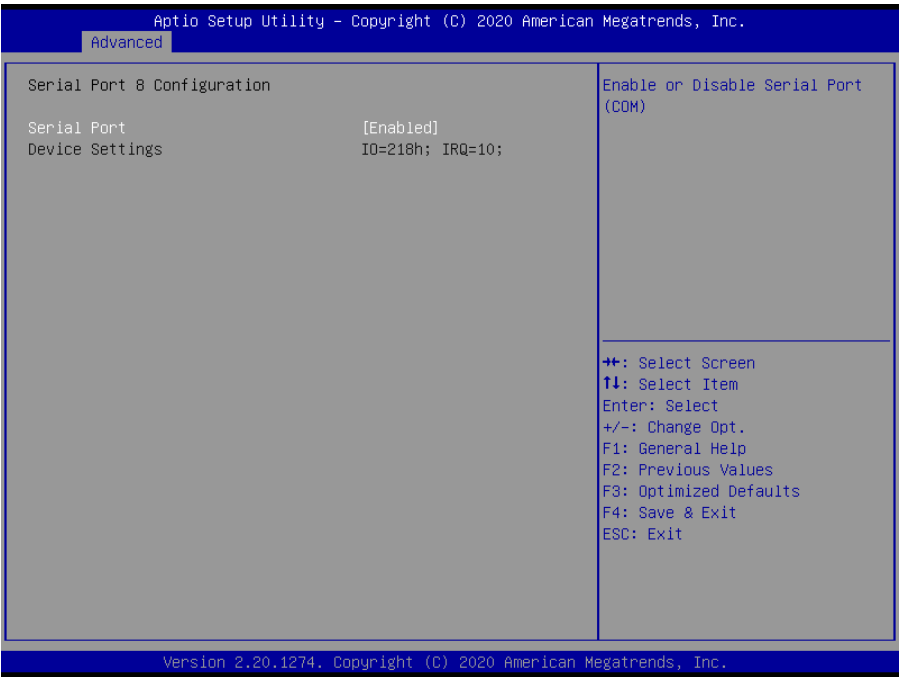
Item	Option	Description
Parallel Port	Disabled Enabled[Default],	Enable or Disable Parallel Port (LPT/LPTE).
Device Mode	STD Printer Mode[Default], SPP Mode Epp-1.9 and SPP Mode Epp-1.7 and SPP Mode ECP Mode ECP and Epp-1.9 and SPP Mode ECP and Epp-1.7 and SPP Mode	Change the Parallel Port mode.

### 3.6.2.3.8 Serial Port 7 Configuration



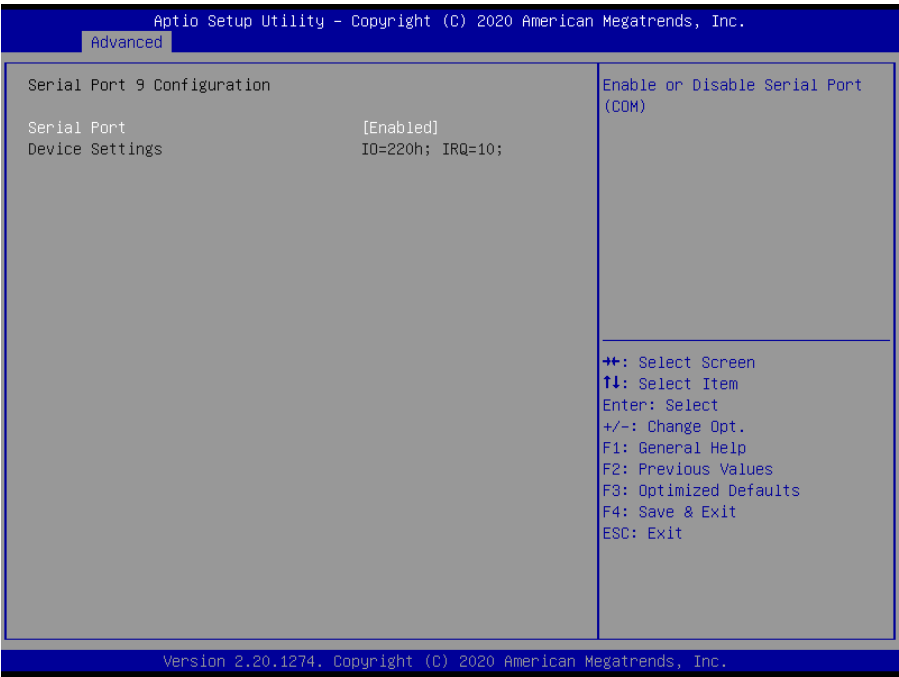
Item	Option	Description
Serial Port	Disabled Enabled[Default],	Enable or Disable Serial Port (COM).

3.6.2.3.9 Serial Port 8 Configuration



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

3.6.2.3.10 Serial Port 9 Configuration



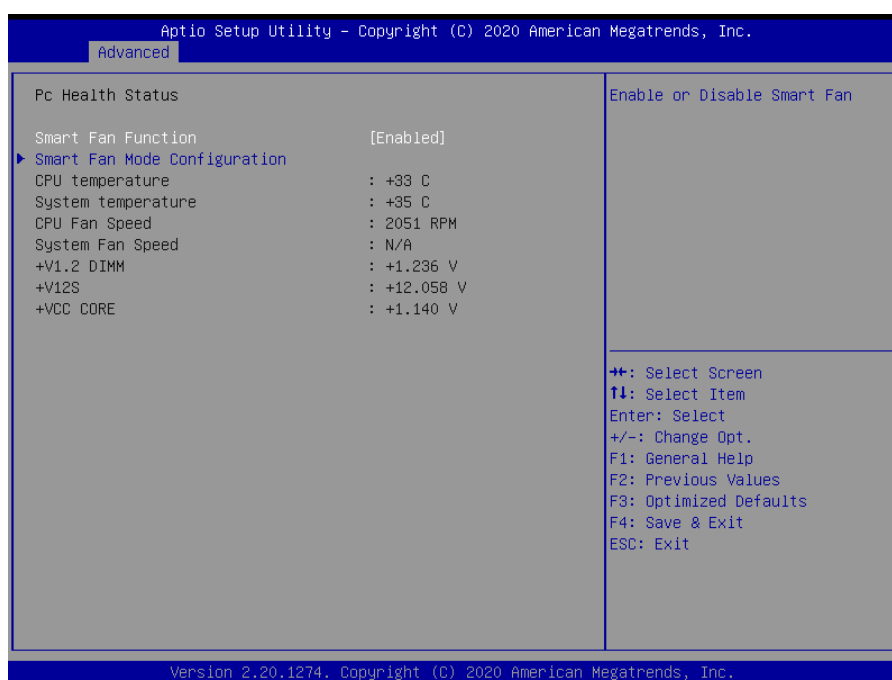
Item	Option	Description
Serial Port	Disabled Enabled[Default],	Enable or Disable Serial Port (COM).

### 3.6.2.3.11 Serial Port 10 Configuration



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

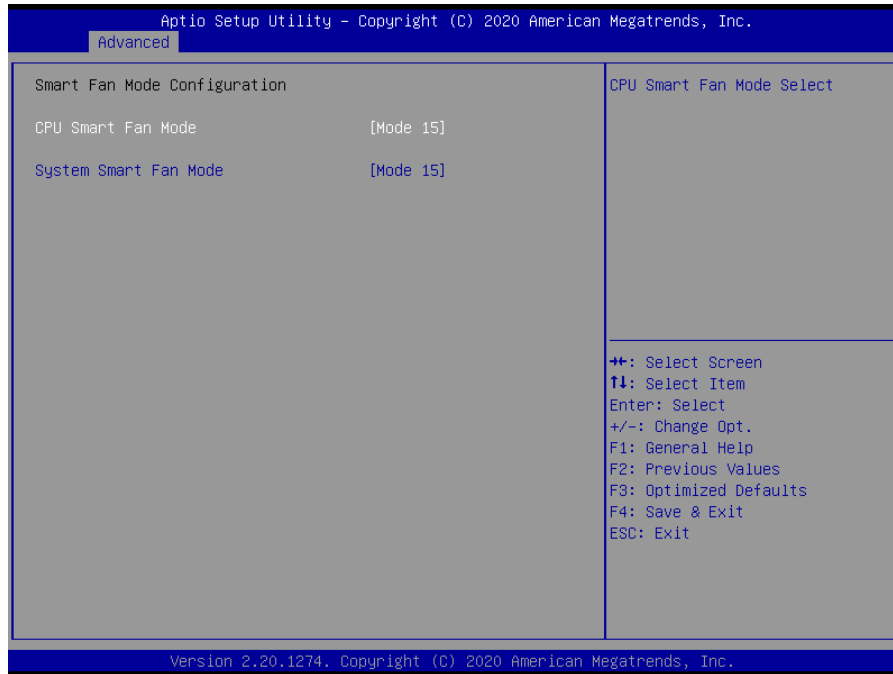
### 3.6.2.4 EC 8528 HW monitor



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Item	Option	Description
Smart Fan Function	Disabled Enabled[Default],	Enable or Disable Smart Fan

### 3.6.2.4.1 Smart Fan Configuration



Item	Option	Description
CPU Fan Mode	Manual Mode	CPU Smart Fan Mode Select
	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[Default],	
	Mode 16	
	Mode 17	
	Mode 18	
	Mode 19	
	Mode 20	
	Manual Mode	
	Mode 01	
	Mode 02	

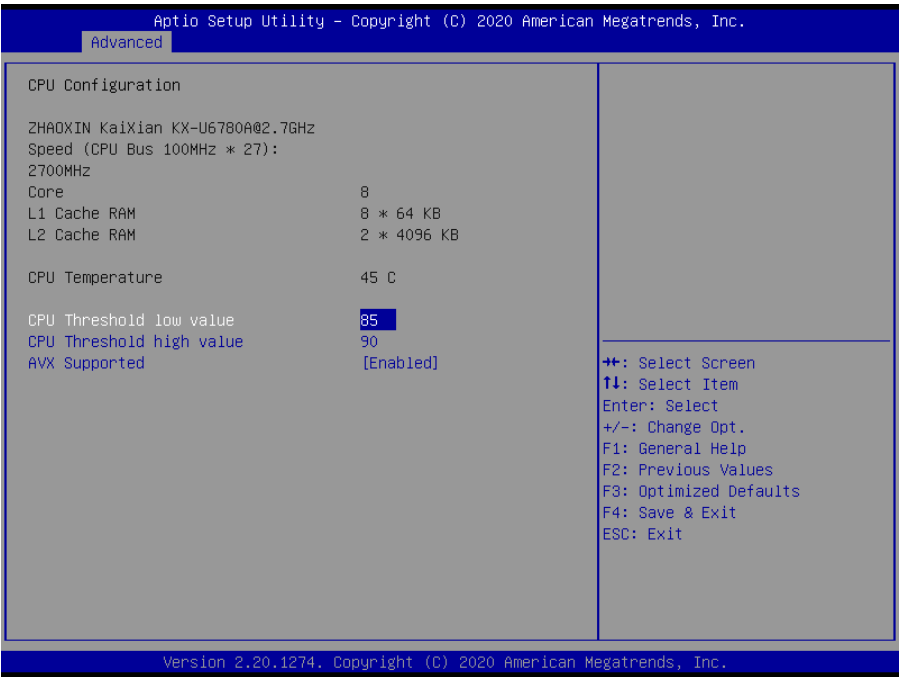
<b>System Smart Fan Mode</b>	Mode 03 Mode 04 Mode 05 Mode 06 Mode 07 Mode 08 Mode 09 Mode 10 Mode 11 Mode 12 Mode 13 Mode 14 Mode 15[Default], Mode 16 Mode 17 Mode 18 Mode 19 Mode 20	System Smart Fan Mode Select
------------------------------	--	------------------------------

### 3.6.2.5 S5 RTC Wake Settings



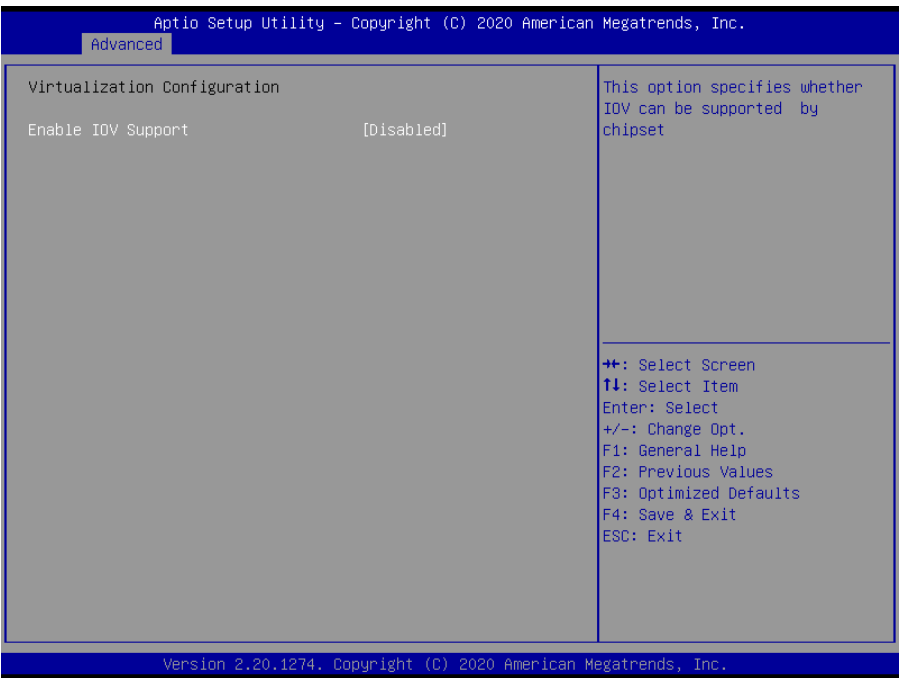
Item	Options	Description
<b>Wake system from S5</b>	Disabled[Default], Fixed Time Dynamic Time	Enable or disable System wake on alarm event. Select FixedTime, system will wake on the hr::min::sec specified. Select DynamicTime, System will wake on the current time + Increase minute(s).

3.6.2.6 CPU Configuration



Item	Options	Description
AVX Supported	Disabled Enabled[Default],	AVX Supported
CPU Threshold low value		85
CPU Threshold high value		90

3.6.2.7 Virtualization Configuration

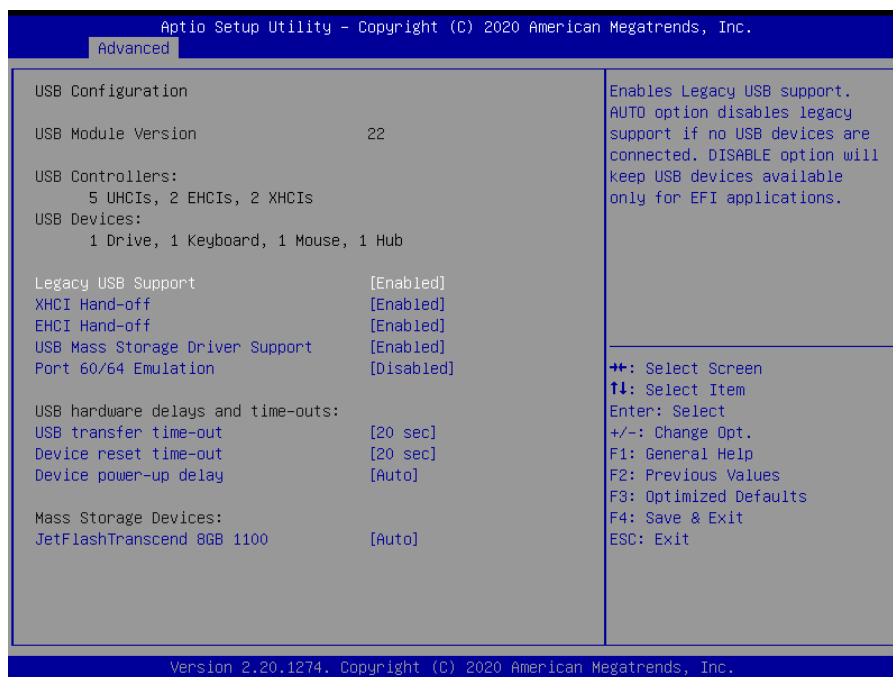




Item	Options	Description
<b>Enable IOV Support</b>	Disabled[Default], Win10 linux	This option specifies whether IOV can be supported by chipset

### 3.6.2.8 USB Configuration

The USB Configuration menu helps read USB information and configures USB settings.

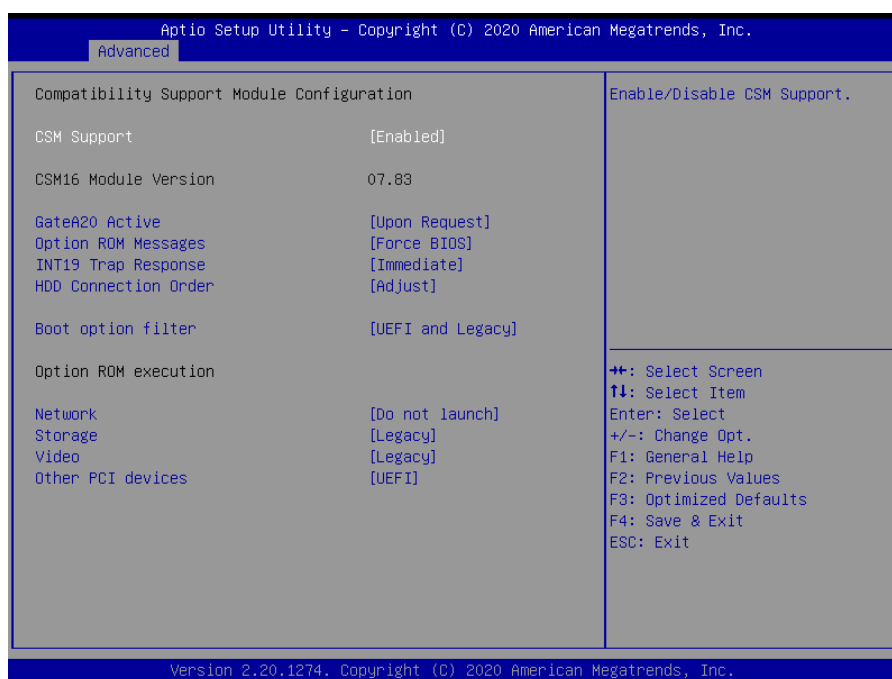


Item	Options	Description
<b>Legacy USB Support</b>	Disabled Enabled[Default], Auto	Enables Legacy USB support. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications.
<b>XHCI Hand-off</b>	Disabled Enabled[Default],	This is a workaround for OSeS without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.
<b>EHCI Hand-off</b>	Disabled Enabled[Default],	This is a workaround for OSeS without EHCI hand-off support. The EHCI ownership change should be claimed by EHCI driver.
<b>Port 60/64 Emulation</b>	Disabled[Default], Enabled	Enables I/O port 60h/ 64h emulation support. This should be enabled for the complete USB keyboard legacy support for non-USB aware OSeS.
<b>USB transfer time-out</b>	1 sec 5 sec 10 sec 20 sec[Default]	The time-out value for Control, Bulk, and Interrupt transfers.
<b>Device reset time-out</b>	10 sec 20 sec[Default] 30 sec	USB mass storage device Start Unit command time-out.

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	40 sec	
<b>Device power-up delay</b>	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 from Hub descriptor.
<b>JetFlash Transcend 8GB 1100</b>	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.

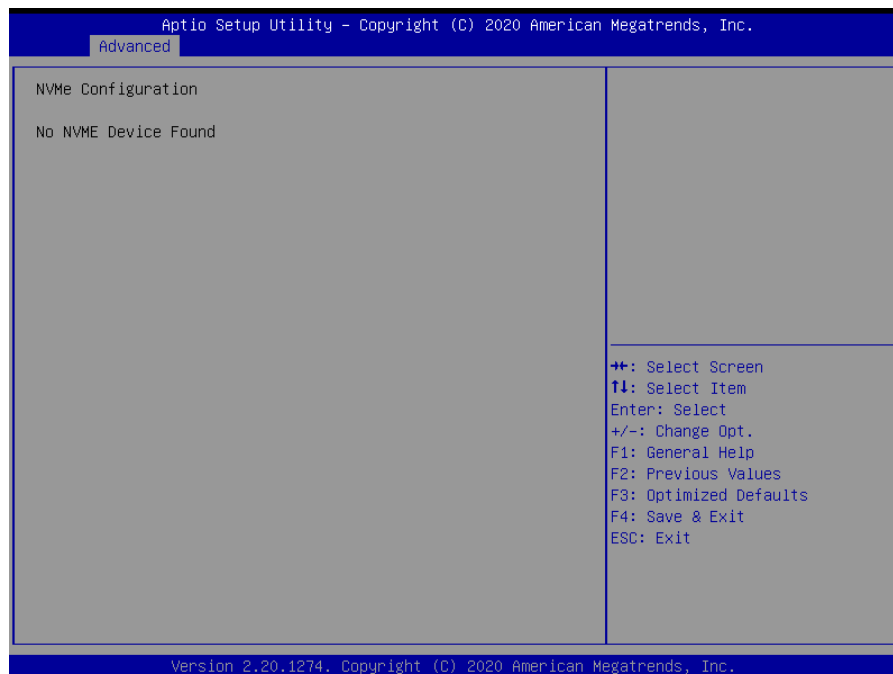
### 3.6.2.9 CSM Configuration



Item	Options	Description
<b>CSM Support</b>	Disabled Enabled[Default],	Enable/Disable CSM Support
<b>GateA20 Active</b>	Upon Request[Default], Always	UPON REQUEST - GA20 can be disabled using BIOS services. ALWAYS - do not allow disabling GA20; this option is useful when any RT code is executed above 1MB.
<b>Option ROM Messages</b>	Force BIOS[Default], Keep Current	Set display mode for Option ROM
<b>INT19 Trap Response</b>	Immediate[Default], Postponed	BIOS reaction on INT19 trapping by Option ROM: IMMEDIATE - execute the trap right away; POSTPONED - execute the trap during legacy boot.
<b>HDD Connection Order</b>	Adjust[Default], Keep	Some OS require HDD handles to be adjusted, i.e. OS is installed on drive 80h.
<b>Boot option filter</b>	UEFI and Legacy [Default], Legacy only	This option controls Legacy/UEFI ROMs priority

	UEFI only	
<b>Network</b>	Do not launch[Default], UEFI Legacy	Controls the execution of UEFI and Legacy Network OpROM
<b>Storage</b>	Do not launch UEFI Legacy[Default],	Controls the execution of UEFI and Legacy Storage OpROM
<b>Video</b>	Do not launch UEFI Legacy[Default],	Controls the execution of UEFI and Legacy Video OpROM
<b>Other PCI devices</b>	Do not launch UEFI[Default], Legacy	Determines OpROM execution policy for devices other than Network, Storage, or Video

### 3.6.2.10 NVMe Configuration



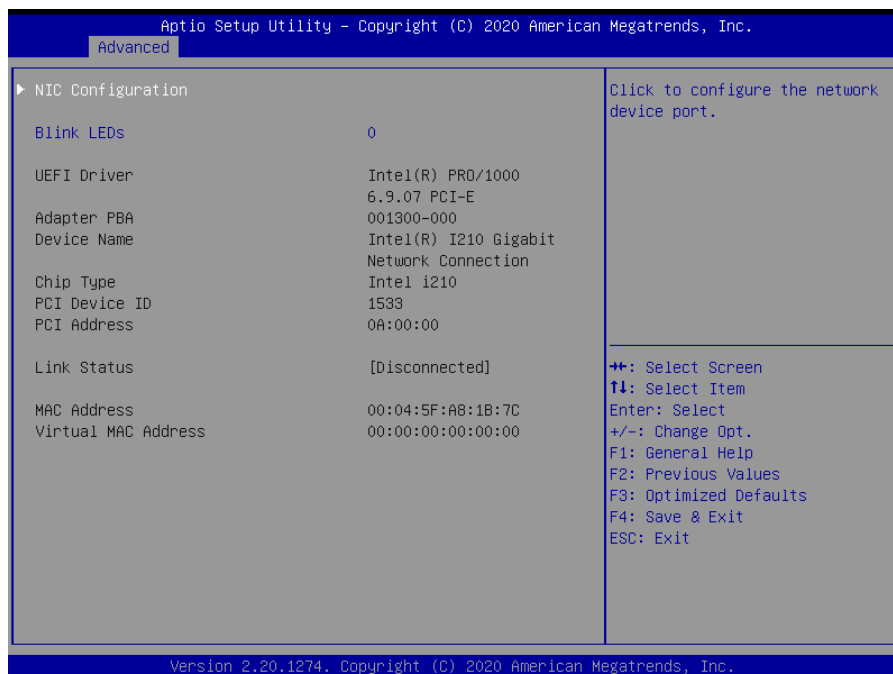
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### 3.6.2.11 Network Stack Configuration



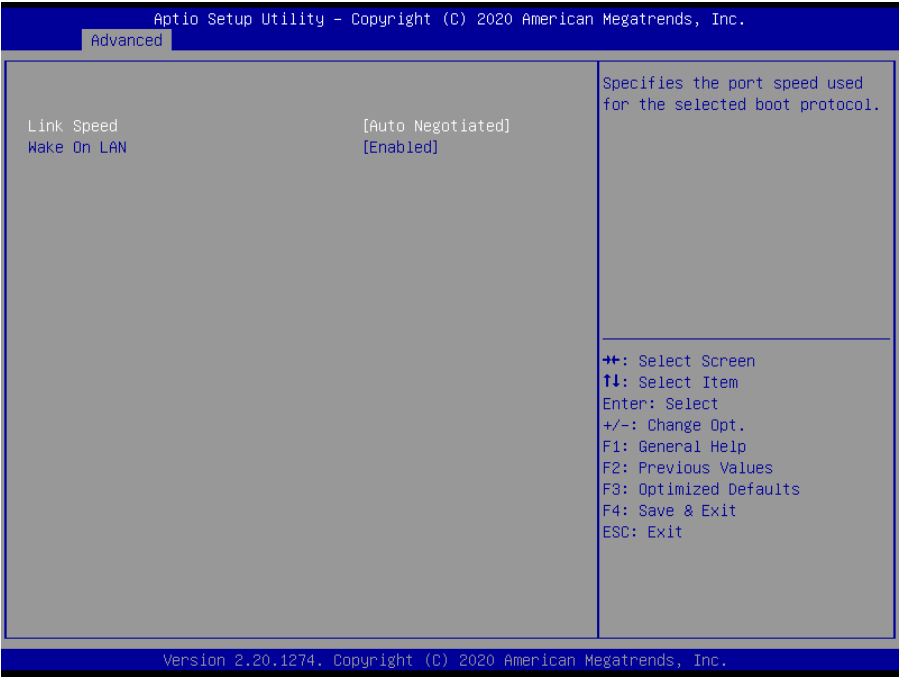
Item	Options	Description
<b>Network Stack</b>	Disabled[Default], Enabled	Enable/Disable UEFI Network Stack.

### 3.6.2.12 Intel(R) I210 Gigabit Network Connection – 00:04:5F:A8:1B:7C



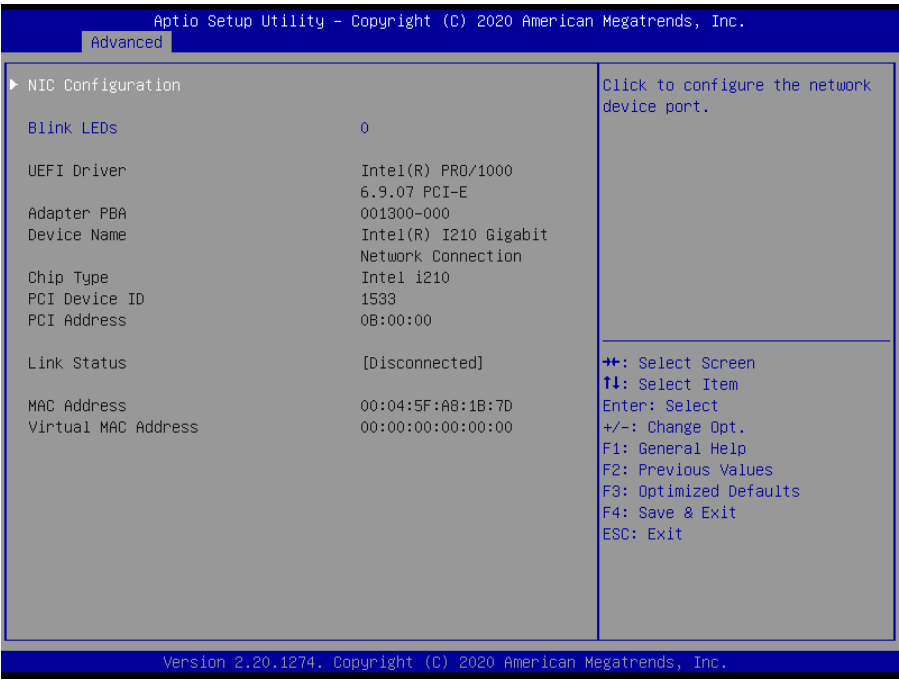
Item	Options	Description
<b>Blink LEDs</b>	0	Identify the physical network port by blinking the associated LED

3.6.2.12.1 NIC Configuration



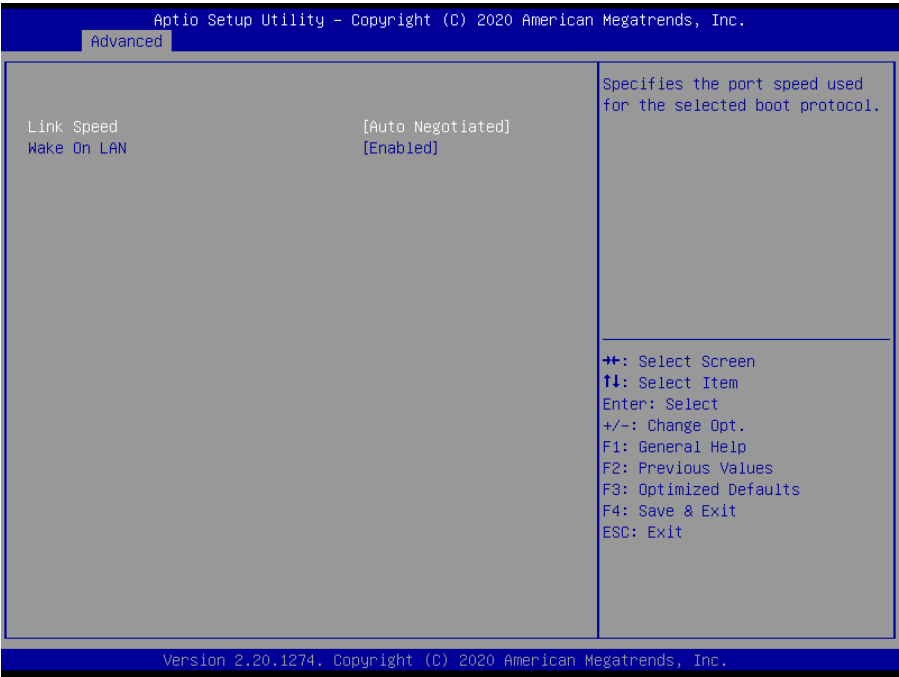
Item	Options	Description
Link Speed	Auto Negotiated[Default], 10 Mbps Half 10 Mbps Full 100 Mbps Half 100 Mbps Full	Specifies the port speed used for the selected boot protocol.
Wake On LAN	Disabled Enabled[Default],	Enables the server to be powered on using an in-band magic packet.

3.6.2.13 Intel(R) I210 Gigabit Network Connection – 00:04:5F:A8:1B:7D



Item	Options	Description
Blink LEDs	0	Identify the physical network port by blinking the associated LED

3.6.2.13.1 NIC Configuration





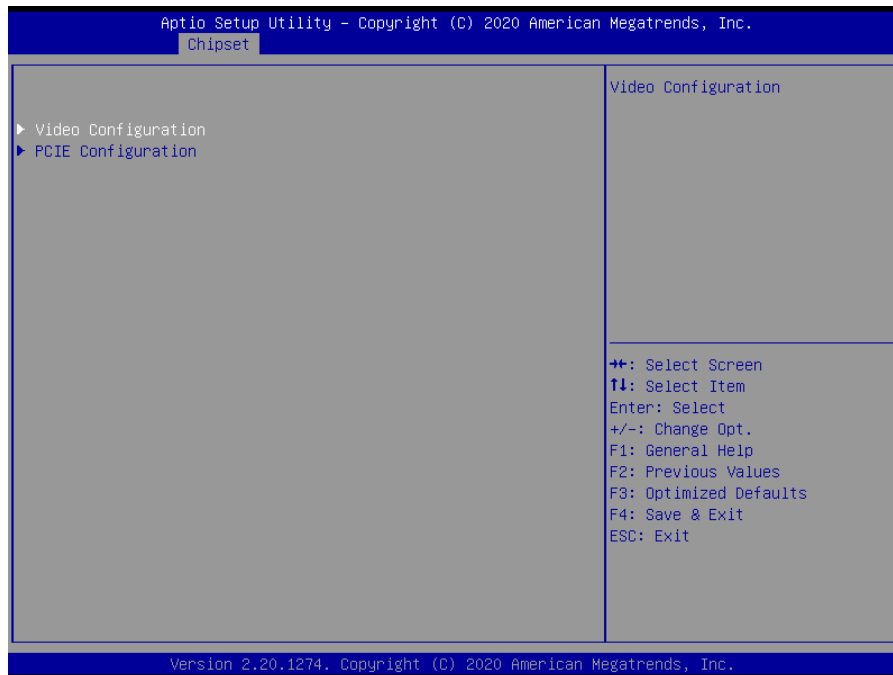
Item	Options	Description
Link Speed	Auto Negotiated[Default], 10 Mbps Half 10 Mbps Full 100 Mbps Half 100 Mbps Full	Specifies the port speed used for the selected boot protocol.
Wake On LAN	Disabled Enabled[Default],	Enables the server to be powered on using an in-band magic packet.

### 3.6.3 Chipset

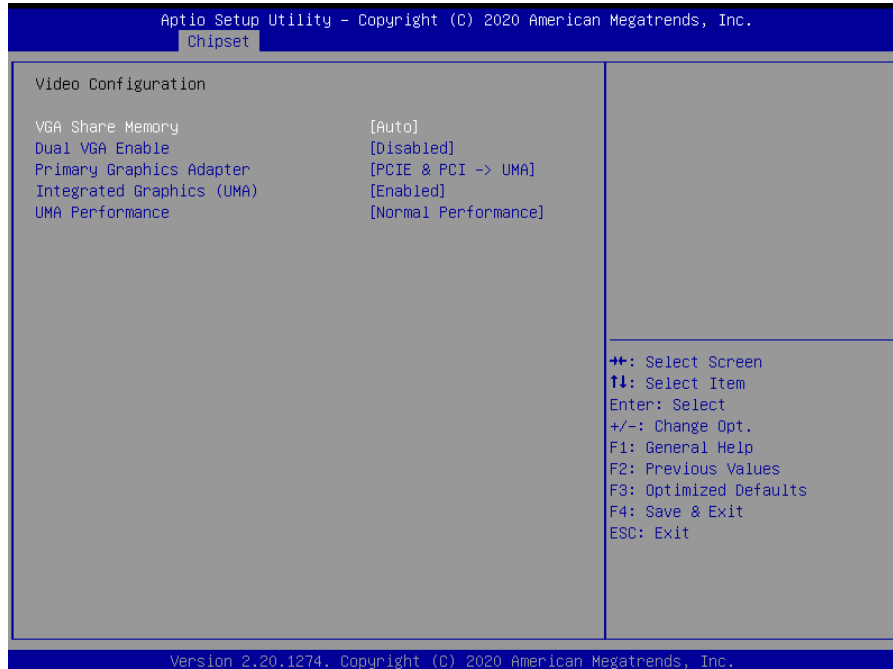


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## 3.6.3.1 North Bridge



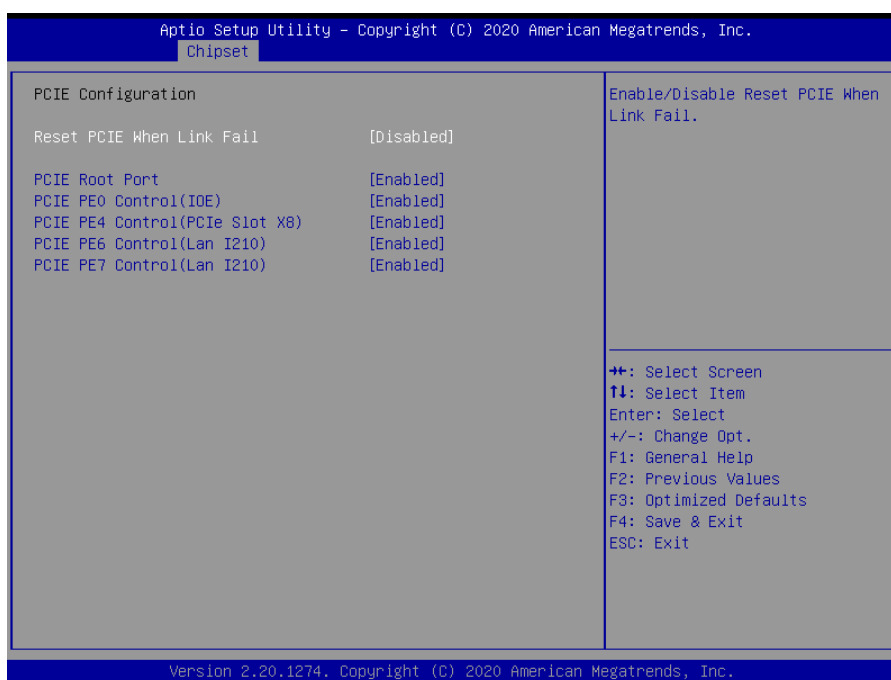
### 3.6.3.1.1 Video Configuration



Item	Option	Description
Dual VGA Enable	Disabled[Default], Enabled	Dual VGA Enable/Disable
Primary Graphics Adapter	PCIe & PCI -> UMA[Default], UMA->PCIe & PCI	Select Primary Graphics Adapter.

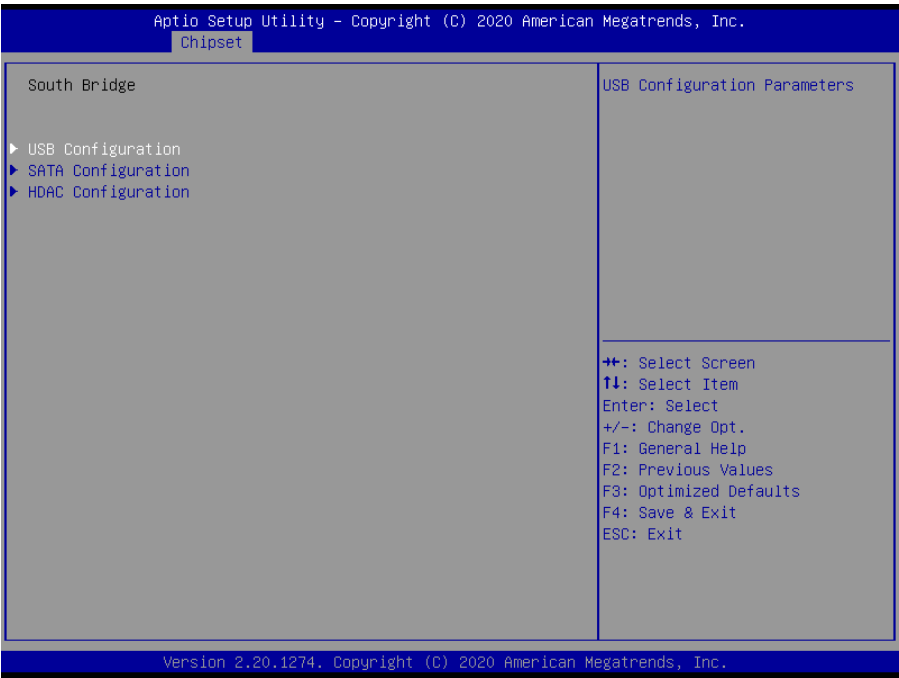
Integrated Graphics (UMA)	Disabled Enabled[Default],	Integrated Graphics (UMA) Enable/Disable
VGA Share Memory		64M 128 M 256 M 512 M Auto[Default],
UMA Performance		Normal Performance[Default], High Performance

### 3.6.3.1.2 PCIE Configuration

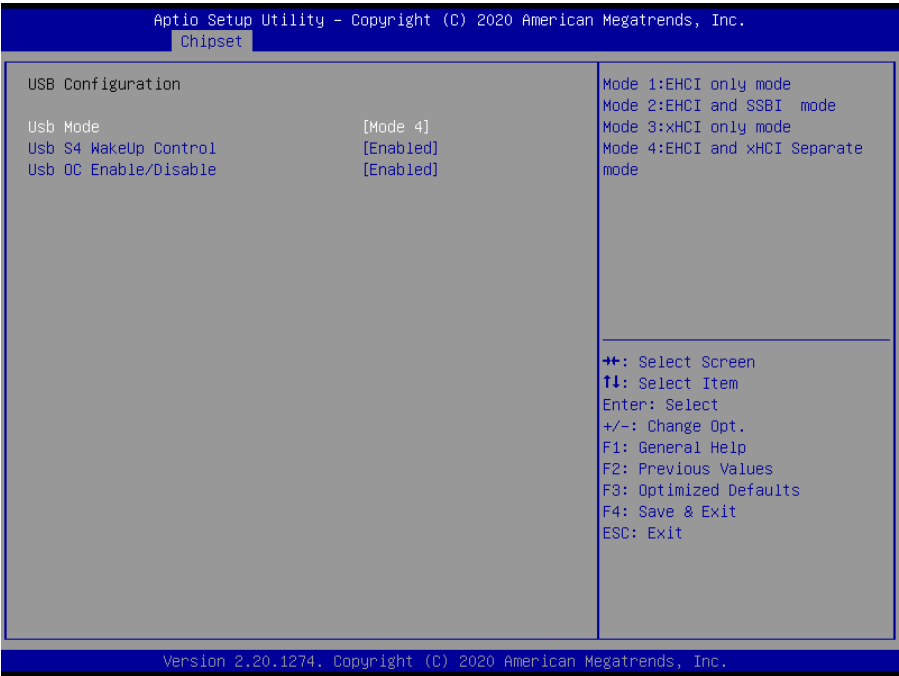


Item	Option	Description
Reset PCIE When Link Fail	Disabled[Default], Enabled	Enable/Disable Reset PCIE When Link Fail
PCIE Root Port	Disabled Enabled[Default],	PCIE Root Port
PCIE PE0 Control(IOE)	Disabled Enabled[Default],	PCIE Port PHYA_[13:10] link to IOE(zx-200)
PCIE PE4 Control(PCIe Slot X8)	Disabled Enabled[Default],	PCIE Port PHYA_[9:2] for PCIe Slot
PCIE PE6 Control(Lan I210)	Disabled Enabled[Default],	PCIE Port PHYA_[0] for Lan I210
PCIE PE7 Control(Lan I210)	Disabled Enabled[Default],	PCIE Port PHYA_[0] for Lan I210

3.6.3.2 South Bridge



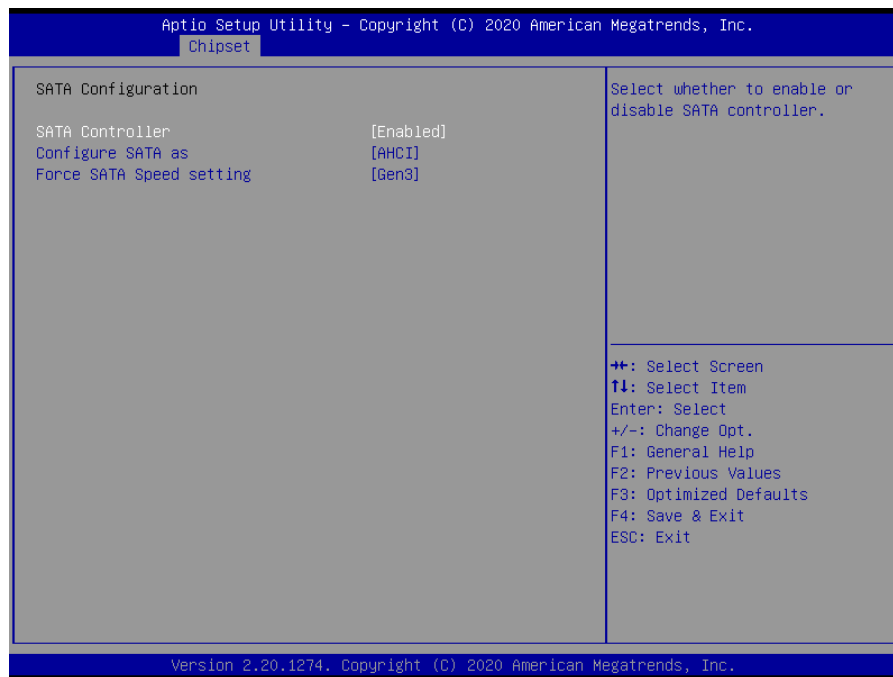
3.6.3.2.1 USB Configuration



Item	Option	Description
Usb Mode	Disabled	Mode 1:EHCI only mode
	Mode 1	Mode 2:EHCI and SSBI mode
	Mode 2	Mode 3:xHCI only mode
		Mode 4:EHCI and xHCI Separate mode

	Mode 3 Mode 4[Default],	
<b>Usb S4 WakeUp Control</b>	Disabled Enabled[Default],	Usb S4 WakeUp Enable/Disable selection
<b>Usb OC Enable/Disable</b>	Disabled Enabled[Default],	Usb OC Enable/Disable selection

### 3.6.3.2.2 SATA Configuration



Item	Option	Description
<b>SATA Controller</b>	Disabled Enabled[Default],	Select whether to enable or disable SATA controller.
<b>Configure SATA as</b>	IDE AHCI[Default],	Select IDE/AHCI/RAID Mode. NOTE: Device driver support is required for AHCI or RAID. Depending on how the hard disk image was installed, changing this setting may prevent the system from booting.
<b>Force SATA Speed setting</b>	Gen1 Gen2 Gen3[Default],	Gen1/ Gen2/ Gen3

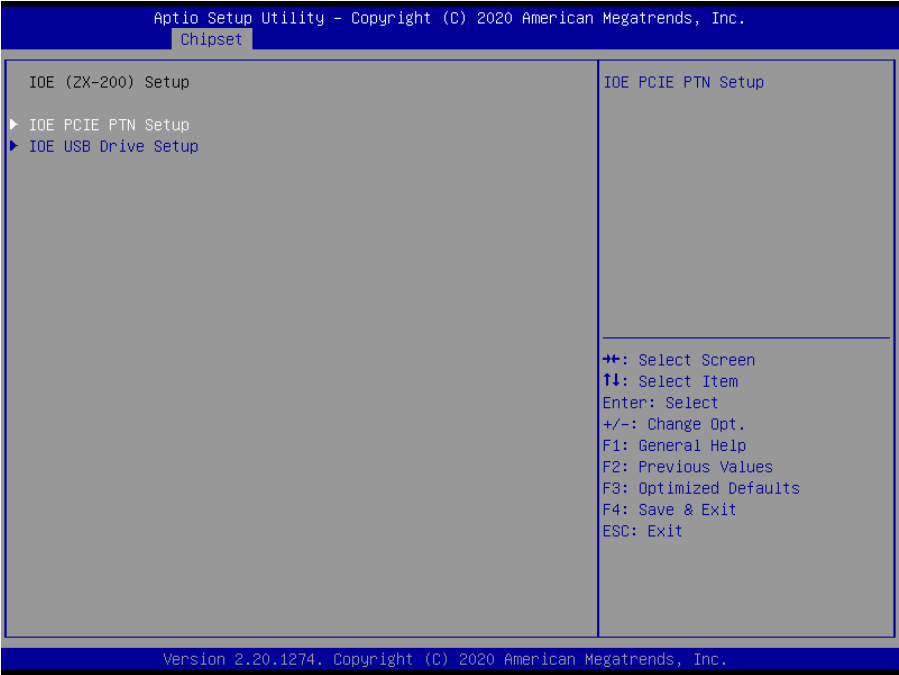
3.6.3.2.3 HDAC Configuration



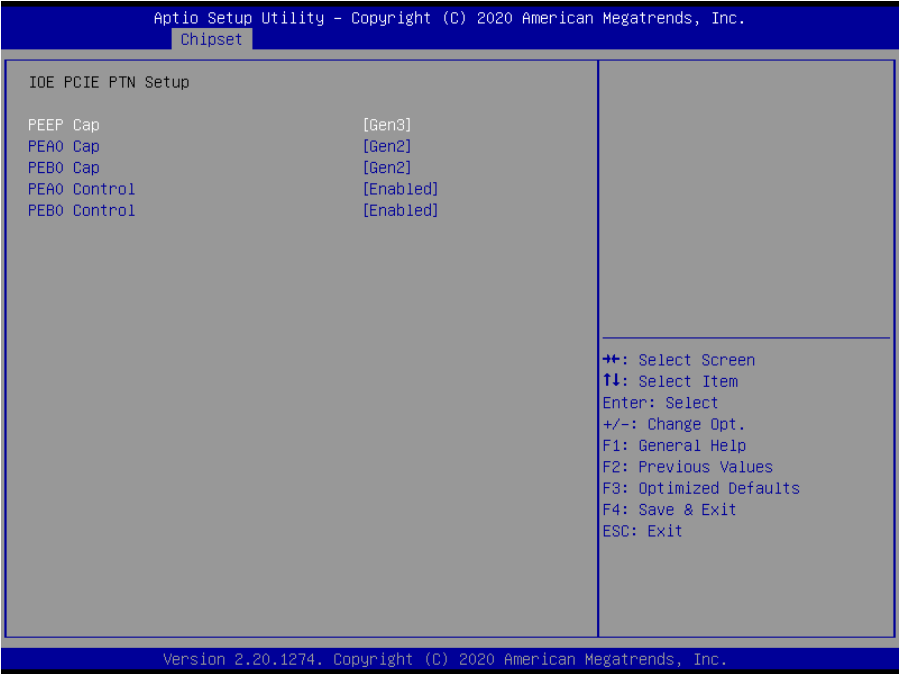
Item	Option	Description
OnChip HDAC Device	Disabled Enabled[Default],	HDAC Control
Amplifier Gain	20db 26db[Default], 32db 36db	Amplifier Gain



3.6.3.3 IOE (ZX-200) Setup



3.6.3.3.1 IOE PCIE PTN Setup

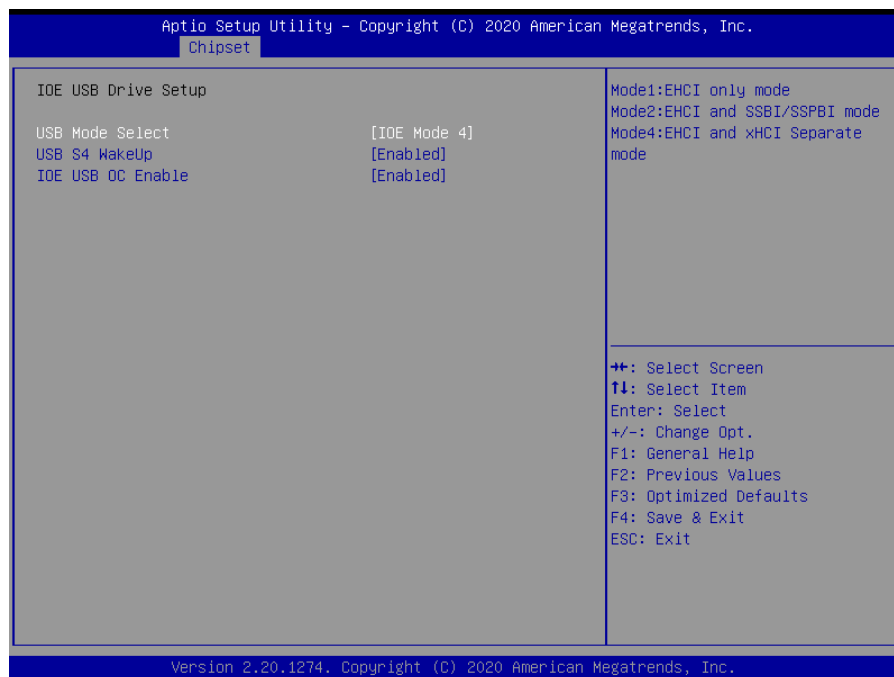


Item	Option
PEEP Cap	Gen1
	Gen2
	Gen3[Default],

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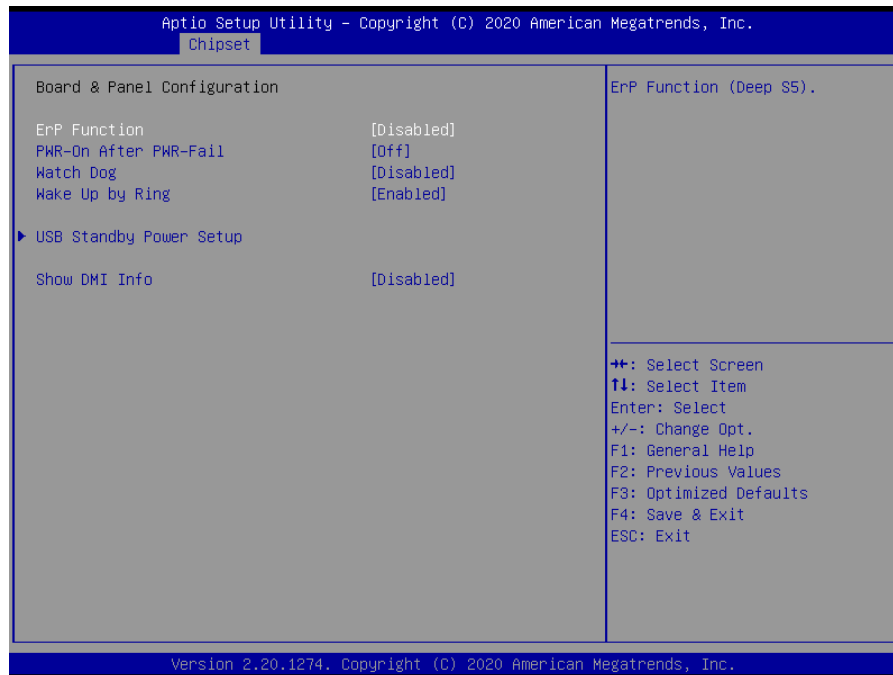
PEA0 Cap	Gen1 Gen2[Default],
PEB0 Cap	Gen1 Gen2[Default],
PEA0 Control	Disabled Enabled[Default],
PEB0 Control	Disabled Enabled[Default],

### 3.6.3.3.2 IOE USB Drive Setup



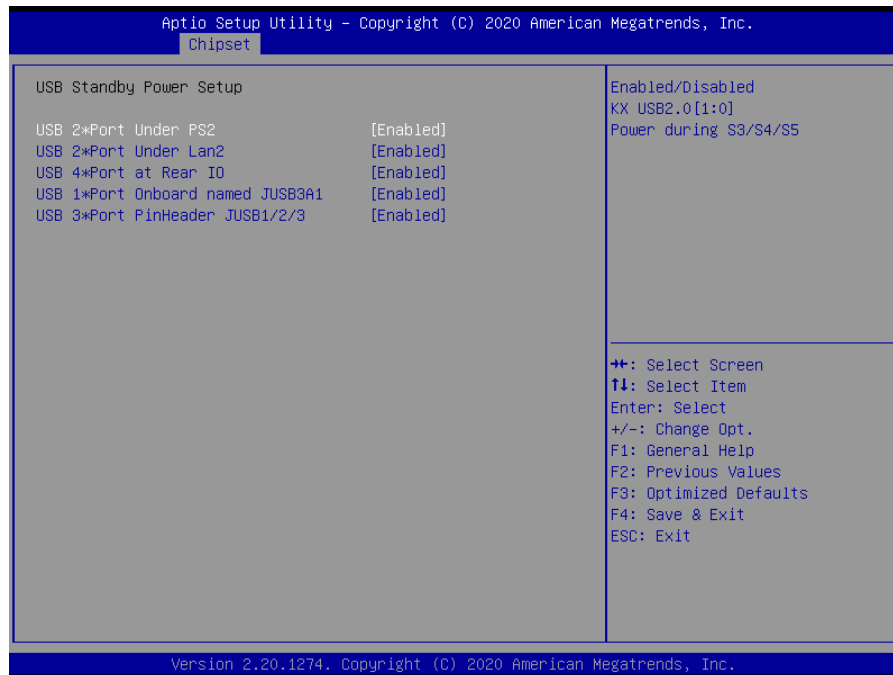
Item	Option	Description
USB Mode Select	Disabled IOE Mode 1 IOE Mode 2 IOE Mode 3 IOE Mode 4[Default],	Mode1:EHCI only mode Mode 2:EHCI and SSBI/SSPBI mode Mode4:EHCI and xHCI Separate mode
USB S4 WakeUp	Disabled Enabled[Default],	USB S4 WakeUp
IOE USB OC Enable	Disabled Enabled[Default],	IOE USB OC Enable

### 3.6.3.4 Board & Panel Configuration



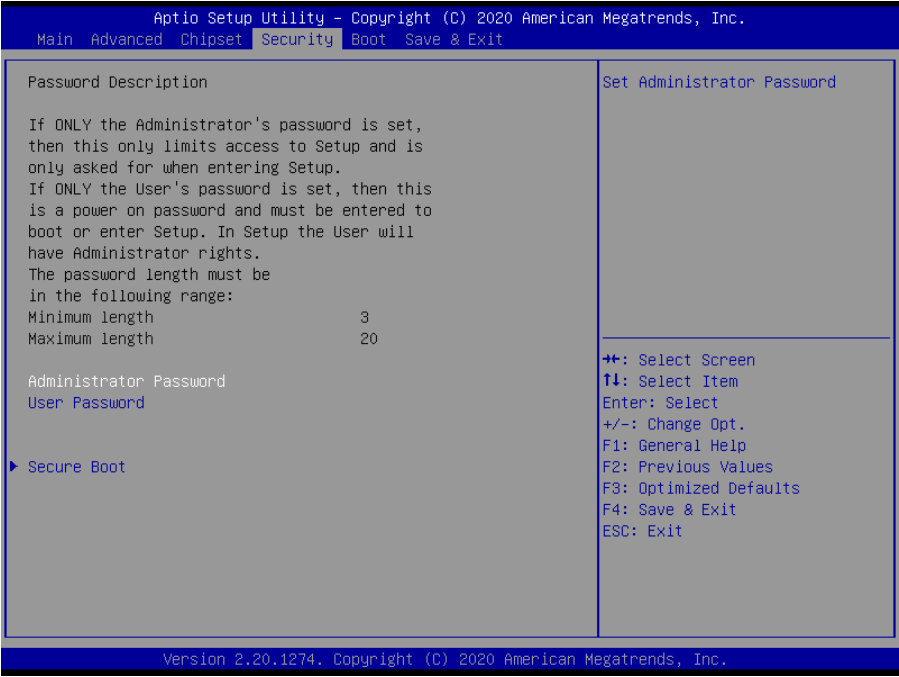
Item	Option	Description
<b>ErP Function</b>	Disabled[Default], Enabled	ErP Function (Deep S5).
<b>PWR-On After PWR-Fail</b>	Off[Default], On Last state	AC loss resume
<b>Watch Dog</b>	Disabled[Default], 30 sec 40 sec 50 sec 1 min 2 min 10 min 30 min	Select WatchDog
<b>Wake Up by Ring</b>	Disabled Enabled[Default],	Wake Up by Ring from S3/S4/S5
<b>Show DMI Info</b>	Disabled[Default], Enabled	SMBIOS Type1/ Type2 information

## 3.6.3.4.1 USB Standby Power Setup



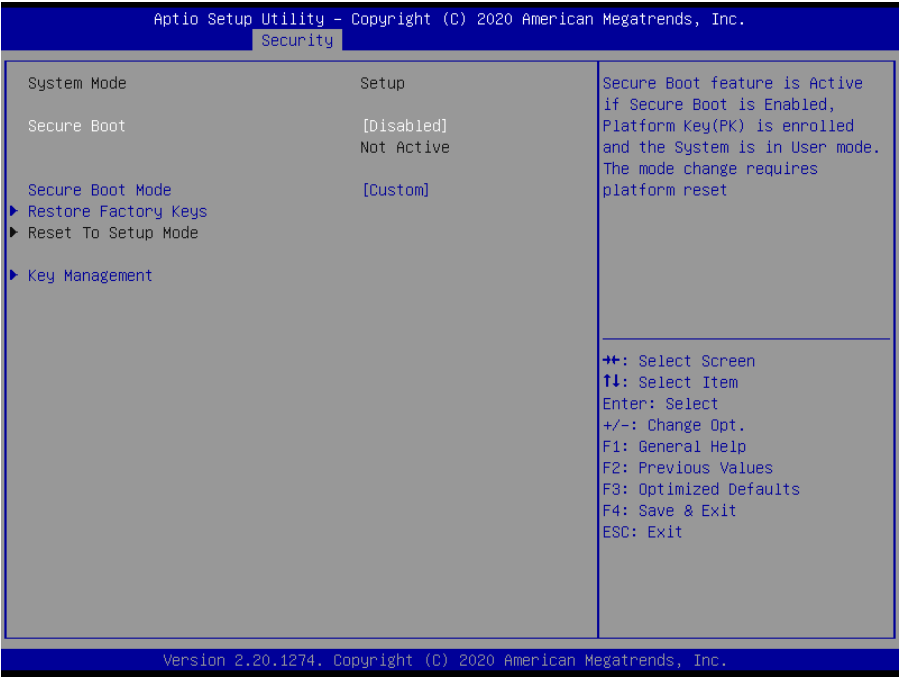
Item	Option	Description
USB 2*Port Under PS2	Disabled Enabled[Default],	Enabled/Disabled KX USB2.0[1:0] Power during S3/S4/S5
USB 2*Port Under Lan2	Disabled Enabled[Default],	Enabled/Disabled KX USB2.0[3:2] Power during S3/S4/S5
USB 4*Port at Rear IO	Disabled Enabled[Default],	Enabled/Disabled KX USB2.0[5:4], KX USB3.0[1:0], ZX USB2.0[7:6], ZX USB3.0[1:0], Power during S3/S4/S5
USB 1*Port Onboard named JUSB3A1	Disabled Enabled[Default],	Enabled/Disabled ZX USB2.0[8] and ZX USB3.0[2] Power during S3/S4/S5
USB 3*Port PinHeader JUSB1/2/3	Disabled Enabled[Default],	Enabled/Disabled ZX USB2.0[5:0] Power during S3/S4/S5

3.6.4 Security



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

3.6.4.1 Secure Boot



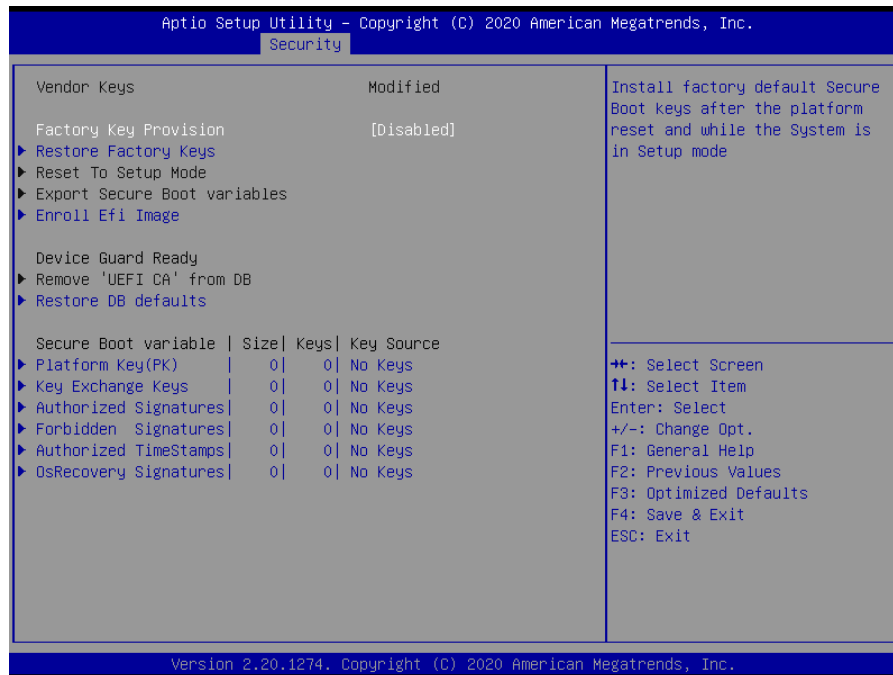
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Item	Option	Description
Secure Boot	Disabled[Default], Enabled	Secure Boot feature is Active if Secure Boot is Enabled, Platform Key(PK) is enrolled and the System is in User mode. The mode change requires platform reset
Secure Boot Mode	Standard Custom[Default],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

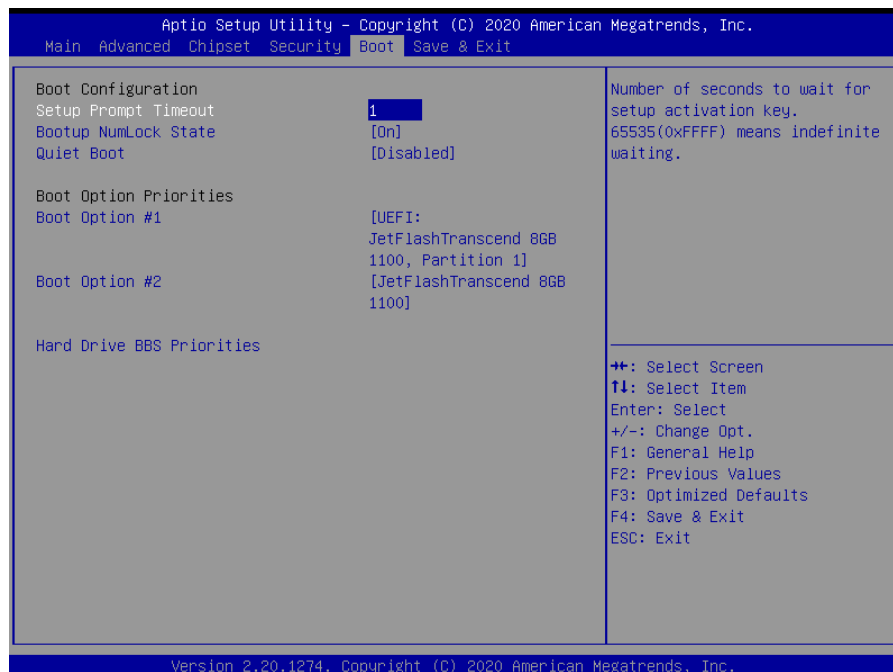
### 3.6.4.1.1 Restore Factory Keys



### 3.6.4.1.2 Key Management



### 3.6.5 Boot



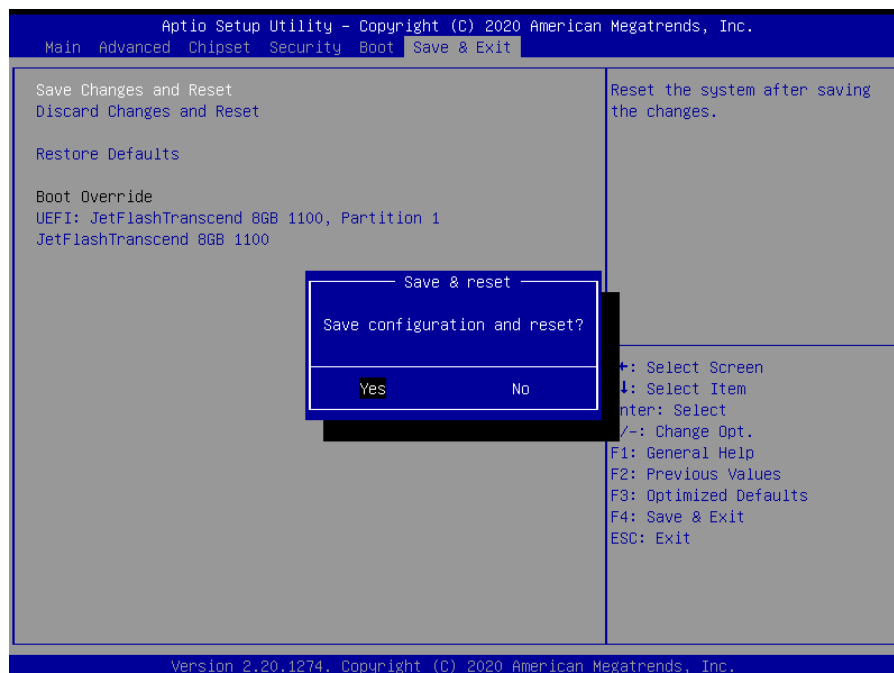
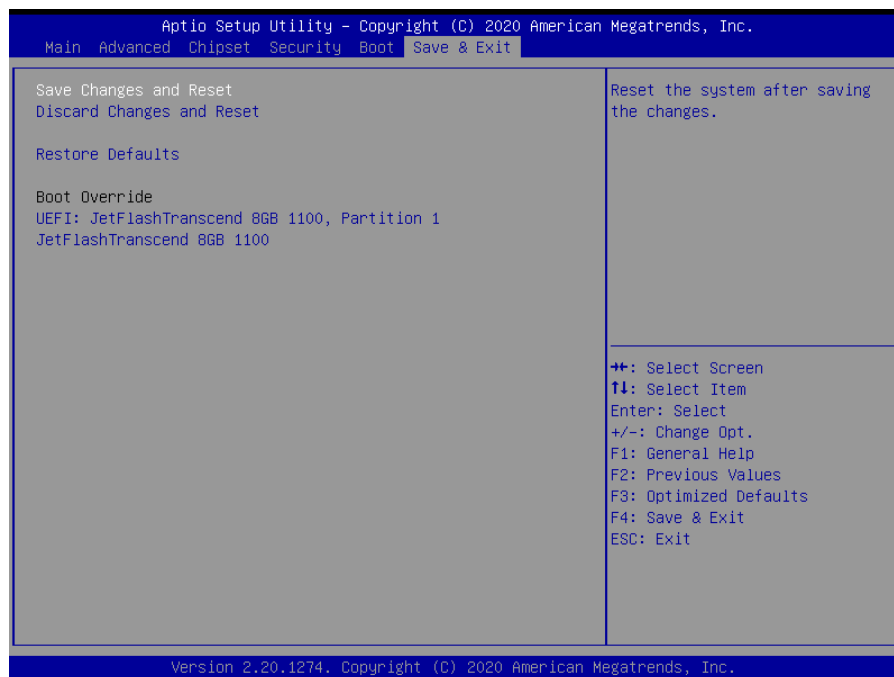
Item	Option	Description
Setup Prompt Timeout	1	Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.



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<b>Bootup NumLock State</b>	On[Default] Off	Select the keyboard NumLock state.
<b>Quiet Boot</b>	Disabled[Default] Enabled	Enable or disable Quiet Boot option.
<b>Boot Option #1</b>	Sets the system boot order	
<b>Boot Option #2</b>	Sets the system boot order	

### 3.6.6 Save & Exit



**3.6.6.1 Save Changes and Reset**

Reset the system after saving the changes.

**3.6.6.2 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.

**3.6.6.3 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.

**3.6.6.4 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 VGA Driver

All drivers can be found on the Avalue Official Website:

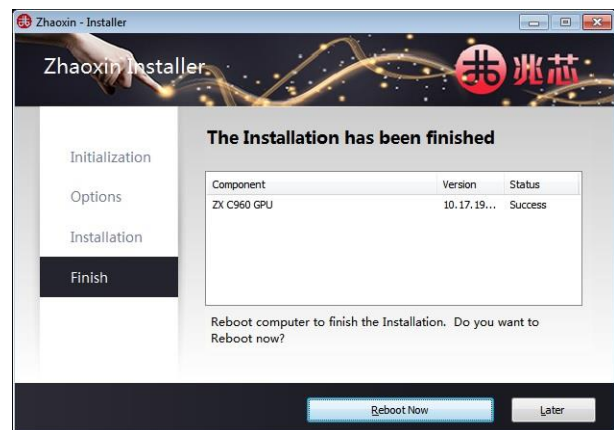
<http://www.avalue.com.tw>.



**Note:** The installation procedures and screen shots in this section are based on Windows 7 operation system. If the warning message appears while the installation process, click Continue to go on.



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



**Step 2.** Click **Reboot Now**.

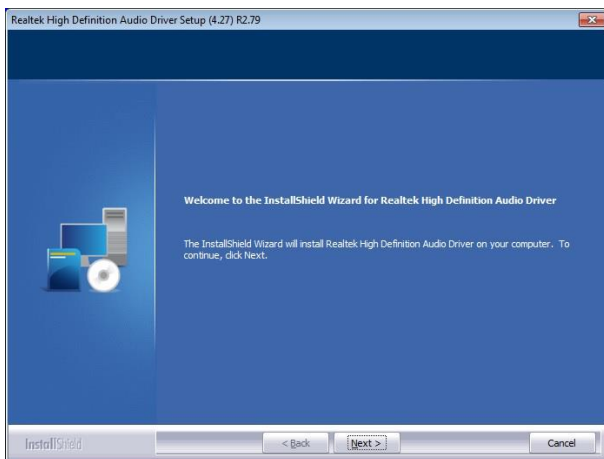
### 4.2 Install Audio Driver

All drivers can be found on the Avalue Official Website:

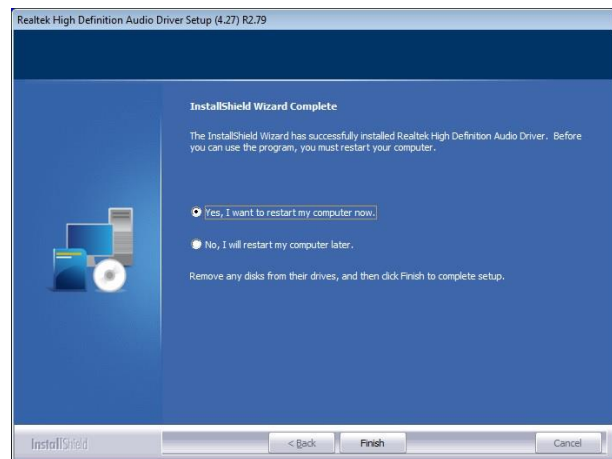
<http://www.avalue.com.tw>.



**Note:** The installation procedures and screen shots in this section are based on Windows 7 operation system.



**Step1.** Click **Next** to Install.



**Step 2.** Select **Finish** to complete Installation.

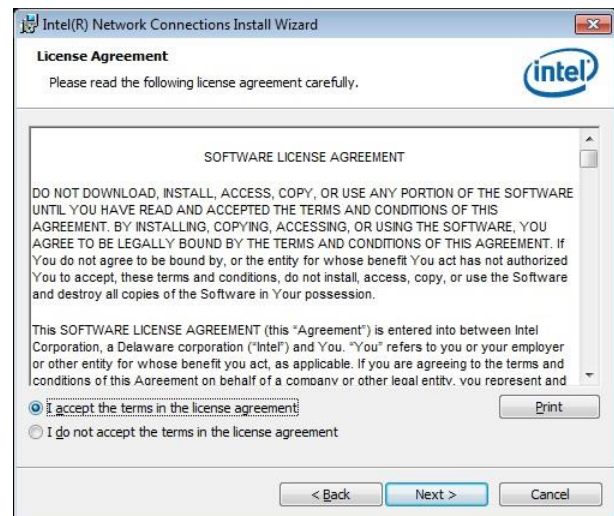
## 4.3 Install LAN Driver

All drivers can be found on the Avalue Official Website:

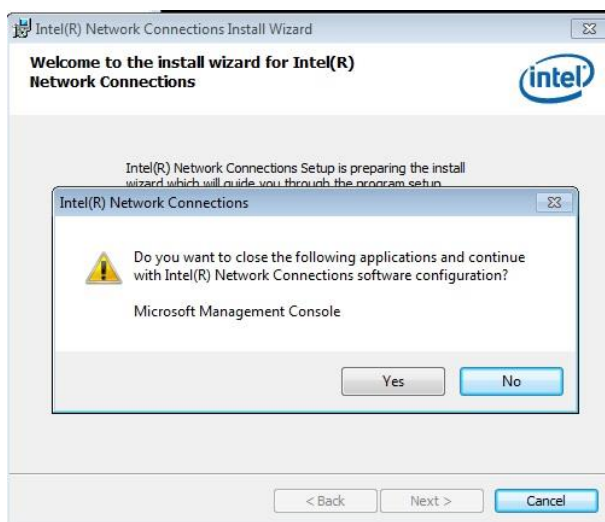
<http://www.avalue.com.tw>.



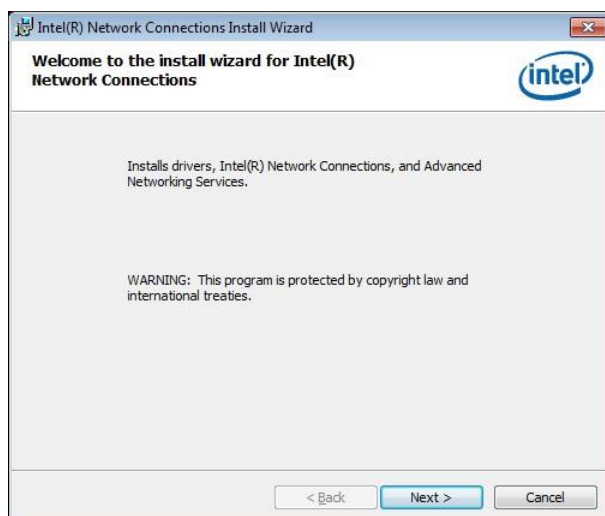
**Note:** The installation procedures and screen shots in this section are based on Windows 7 operation system.



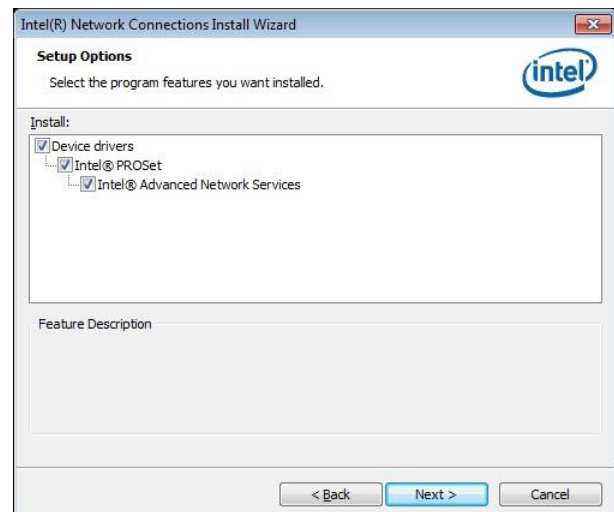
**Step 3. Click Next.**



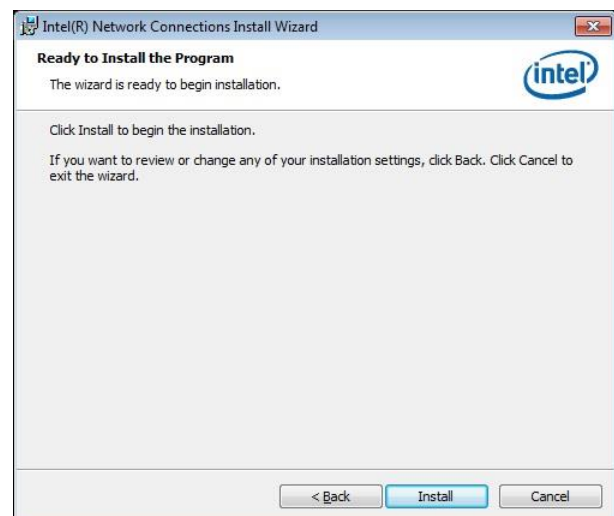
**Step 1. Click No.**



**Step 2. Click Next** to continue installation.

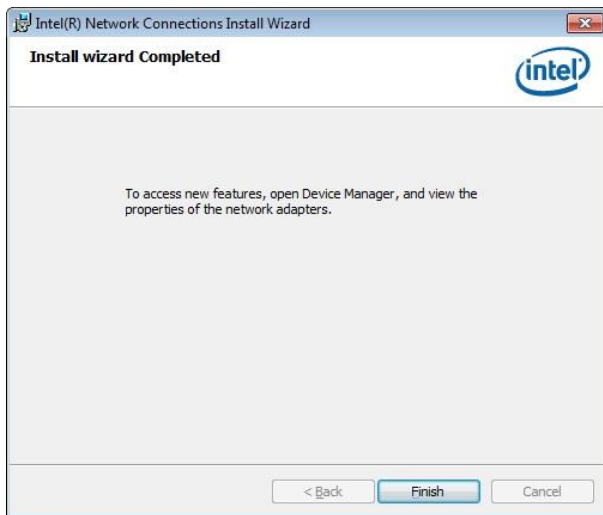


**Step 4. Click Next.**



**Step 5. Click Install.**

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

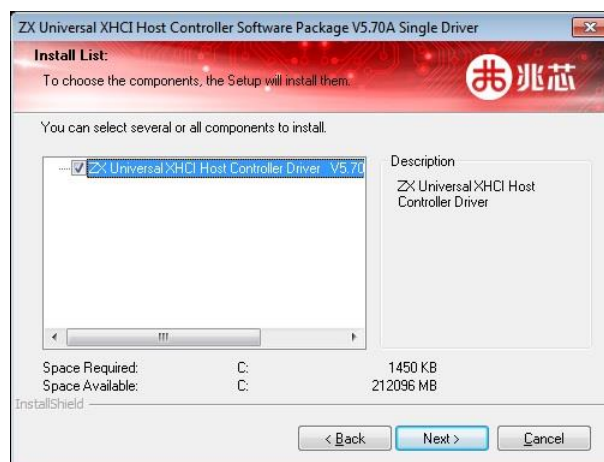
## 4.4 Install USB Driver

All drivers can be found on the Avalue Official Website:

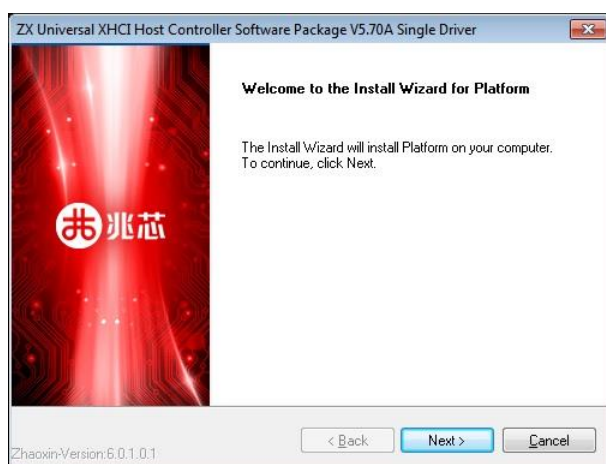
<http://www.avalue.com.tw>.



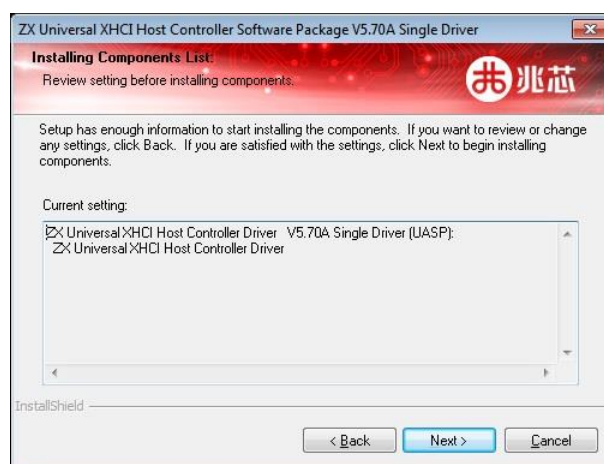
**Note:** The installation procedures and screen shots in this section are based on Windows 7 operation system.



**Step 3. Click Next.**



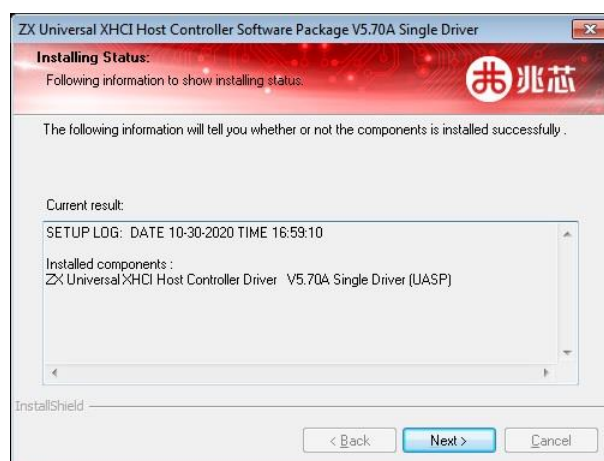
**Step 1. Click Next** to continue installation.



**Step 4. Click Next.**



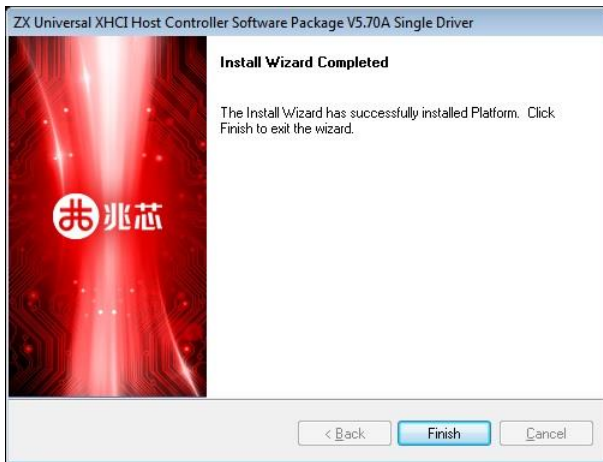
**Step 2. Click Next.**



**Step 5. Click Next.**



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

## 4.5 Install Fintek Serial Patch Driver

All drivers can be found on the Avalue Official Website:

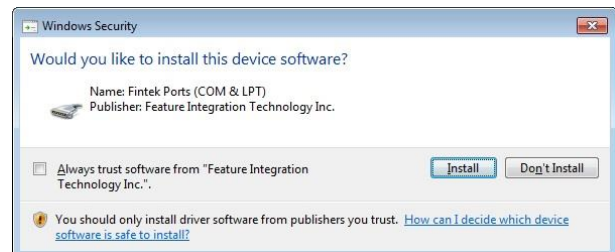
<http://www.avalue.com.tw>.



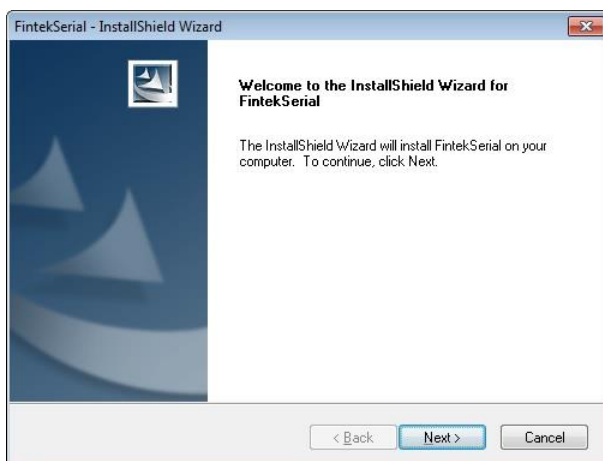
**Note:** The installation procedures and screen shots in this section are based on Windows 7 operation system. If the warning message appears while the installation process, click Continue to go on.



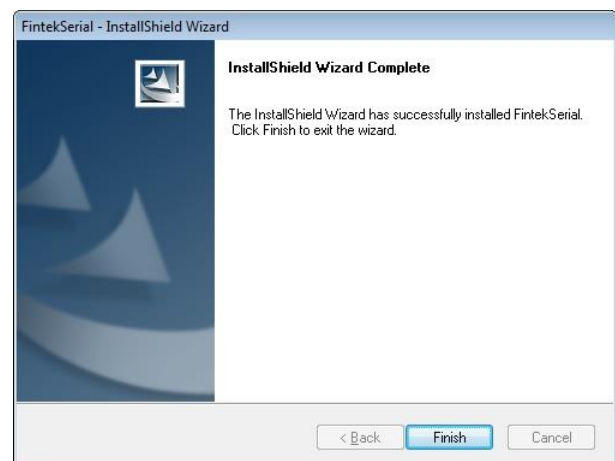
**Step1.** Click **Ok**.



**Step3.** Click **Install**.



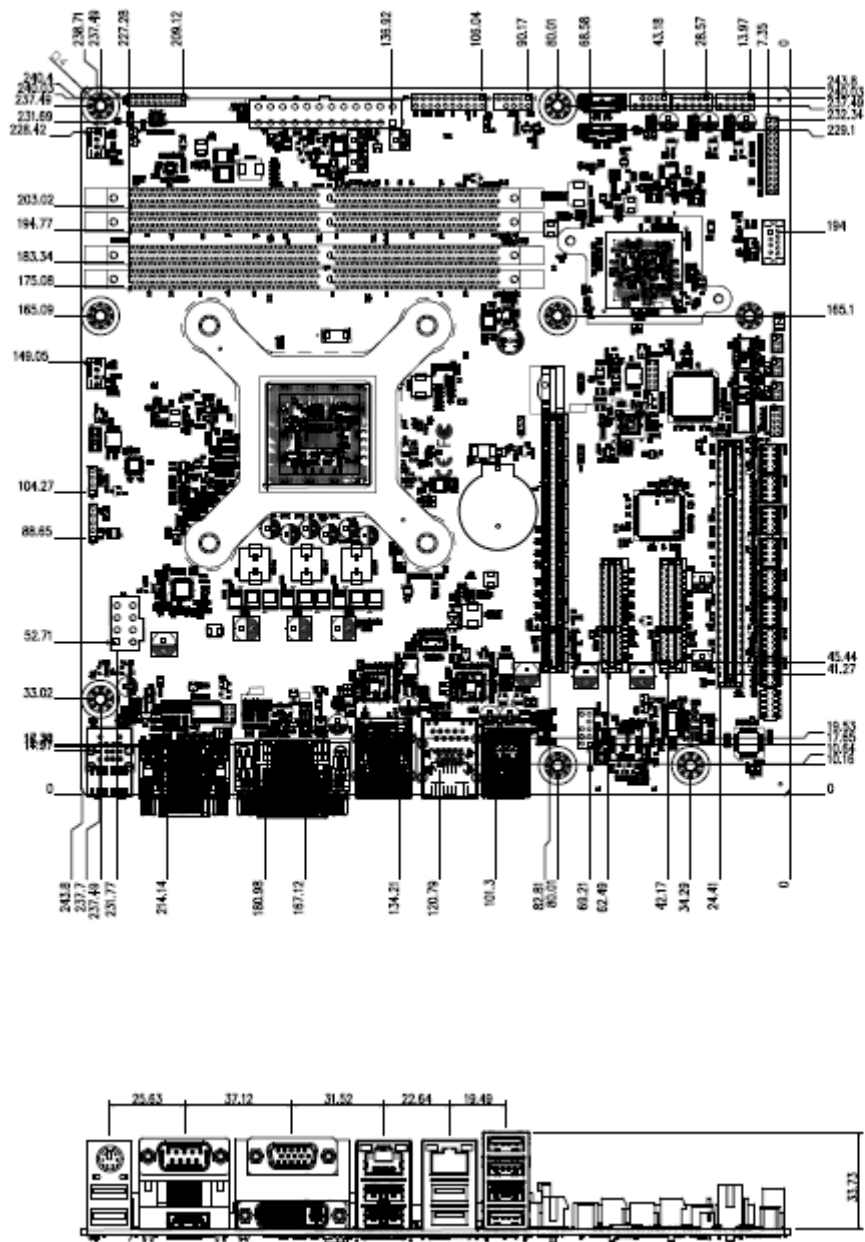
**Step 2.** Click **Next**.



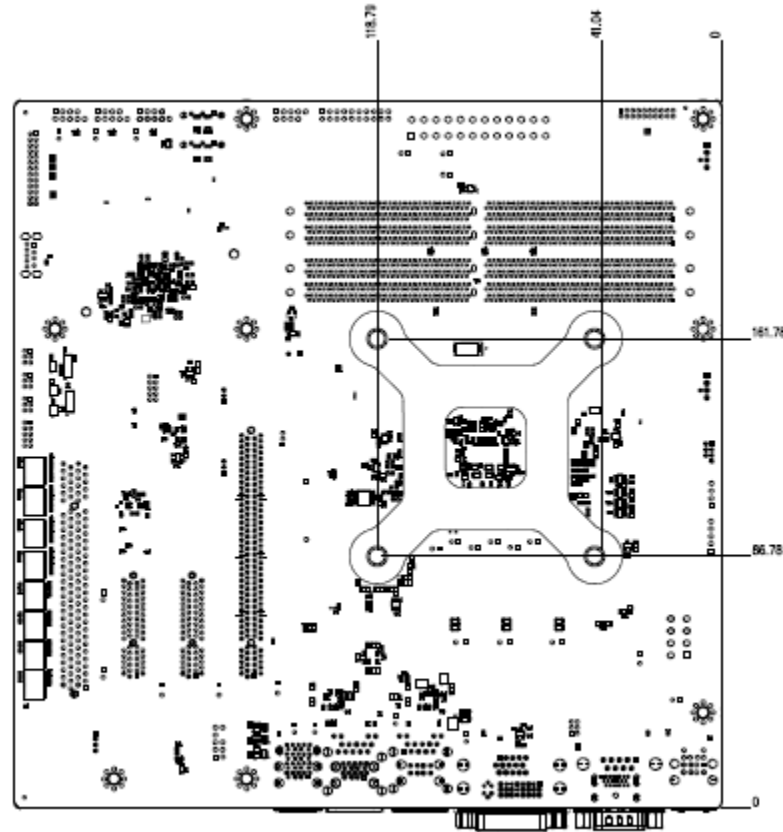
**Step 4.** Click **Finish** to complete setup.

# 5. Mechanical Drawing





Unit: mm



Unit: mm

