

# SPC-1533-B1

15" rugged Stainless steel panel PC

## Quick Reference Guide

1<sup>st</sup> Ed – 29 November 2021

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## 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.

## A Message to the Customer

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Each and every Avalue's product is built to the most exacting specifications to ensure reliable performance in the harsh and demanding conditions typical of industrial environments. Whether your new Avalue device is destined for the laboratory or the factory floor, you can be assured that your product will provide the reliability and ease of operation for which the name Avalue has come to be known.

Your satisfaction is our primary concern. Here is a guide to Avalue's customer services. To ensure you get the full benefit of our services, please follow the instructions below carefully.

### ***Technical Support***

We want you to get the maximum performance from your products. So if you run into technical difficulties, we are here to help. For the most frequently asked questions, you can easily find answers in your product documentation. These answers are normally a lot more detailed than the ones we can give over the phone. So please consult the user's manual first.

To receive the latest version of the user's manual; please visit our Web site at:

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

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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

- 1 x SPC-1533-B1 Stainless Steel Panel PC (without adapter)



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

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## 1.3 System Specifications

<b>Component</b>	
<b>Mother Board</b>	EMX-APLP(J3455)
<b>CPU</b>	Intel® Celeron® J3455 (F1 stepping)
<b>CPU Cooler (Type)</b>	Fanless Heatsink
<b>Memory</b>	2 x 204-pin DDR3L 1600 & 1333MHz SO-DIMM supports up to 16GB
<b>Power Supply</b>	External power adapter
<b>Adapter</b>	AC/DC adapter 24V/2.5A 90 Plug Type
<b>System Fan</b>	Fanless
<b>Wireless LAN</b>	Optional M.2 Wi-Fi/BT module with waterproof antenna
<b>Bluetooth</b>	Optional M.2 Wi-Fi/BT module with waterproof antenna
<b>Operating System</b>	Windows 10 Ubuntu 16.04 Android x86 8.1
<b>Storage</b>	
<b>Solid State Drive</b>	1x 2.5" Drive Bay (option) (Suggest using wide temp SSD: ACC-2S3S-32G-10R)
<b>Other Storage Device</b>	1 x mSATA (Default) (Suggest using wide temp mSATAACC-MSA-64G-11R)
<b>Panel</b>	
<b>LCD Panel</b>	15" XGA TFT LED Panel CMI G150XNE-L03
<b>LCD Control Board</b>	Built-in
<b>B/L Inverter/Converter</b>	Built-in
<b>PCap Touch Screen</b>	15" PCap Touch
<b>Others</b>	15" CMI G150XNE-L03
<b>External I/O</b>	
<b>Serial Port</b>	1 x M12 8-pin (male) COM1, RS-232 (RS-232/422/485 by EMX-APLP) with waterproof cover and chain
<b>USB Port</b>	2 x M12 8-pin (male) for 2 x USB 2.0 with waterproof cover and chain
<b>LAN Port</b>	1 x M12 8-pin (male) for LAN with waterproof cover and chain
<b>Wireless LAN Antenna</b>	Optional Wi-Fi with PCB type antenna with waterproof cover
<b>Others</b>	1 x IP66 Air pressure relief valve
<b>Mechanical</b>	
<b>Power Type</b>	AT/ATX(+12V~24V)
<b>Power button</b>	1 x Power Switch on the back
<b>Power Connector Type</b>	1 x M12 3-pin (male) for DC power with waterproof cover and chain

**SPC-1533-B1**

<b>Dimension</b>	393 mm x 315.8mm x 49 mm, thickness needs be under 50mm
<b>Weight</b>	5.7 Kgs
<b>Color</b>	Silver stainless
<b>Fan-less</b>	Full System Fan-less
<b>OS Support</b>	Windows 10 Ubuntu 16.04 Android x86 8.1
<b>Reliability</b>	
<b>EMI Test</b>	CE/FCC Class A
<b>Dust and Rain Test</b>	Full IP66/IP69K
<b>Vibration Test</b>	<p>Random Vibration Operation</p> <ol style="list-style-type: none"> <li>1 Test PSD : 0.00454G<sup>2</sup>/Hz , 1.5 Grms</li> <li>2 System condition : operation mode</li> <li>3 Test frequency : 5~500 Hz</li> <li>4 Test axis : X,Y and Z axis</li> <li>5 Test time : 30 minutes per each axis</li> <li>6 IEC60068-2-64 Test Fh</li> <li>6 Storage : SSD/mSATA</li> </ol> <p>Sine Vibration test (Non-operation)</p> <ol style="list-style-type: none"> <li>1 Test Acceleration : 2G</li> <li>2 Test frequency : 5~500 Hz</li> <li>3 Sweep : 1 Oct/ per one minute. (logarithmic)</li> <li>4 Test Axis : X,Y and Z axis</li> <li>5 Test time :30 min. each axis</li> <li>6 System condition : Non-Operating mode</li> <li>7. Reference IEC 60068-2-6 Testing procedures</li> </ol> <p>Package Vibration Test:</p> <ol style="list-style-type: none"> <li>1 Test PSD : 0.026G<sup>2</sup>/Hz , 2.16 Grms</li> <li>2 Test frequency : 5~500 Hz</li> <li>3 Test axis : X,Y and Z axis</li> <li>4 Test time : 30 minutes per each axis</li> <li>5 IEC 60068-2-64 Test Fh</li> </ol>
<b>Mechanical Shock Test</b>	<ol style="list-style-type: none"> <li>1 Wave from : Half Sine wave</li> <li>2 Acceleration Rate : 10g for operation mode</li> <li>3 Duration Time : 11ms</li> <li>4 No. of shock : Z axis 300 times</li> <li>5 Test Axis : Z axis</li> <li>6 operation mode</li> </ol>



	7 Reference IEC 60068-2-27 testing procedures Test Eb : Shock Test
<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 : 5Kg 4 Test drawing  4-feet drop resistance without package MIL-STD-810G
<b>Operating Temperature</b>	-10°C ~ 50°C (14°F ~ 122°F), by flow = 0.5
<b>Operating Humidity</b>	40°C @ 95% Relative Humidity, Non-condensing
<b>Storage Temperature</b>	-20°C ~ 60°C (-4°F ~ 140°F)



**Note:**

\*(Suggestion accessory when adapter needed):

ACC-ADP-060N-09R (AC/DC adapter 24V/2.5A 90 Plug Type)

E170W050030R (Waterproof M12 DC Cable (M12/3Pin- D2.5DC-Plug 200cm))

\*Specifications are subject to change without notice.

## 1.4 System Overview

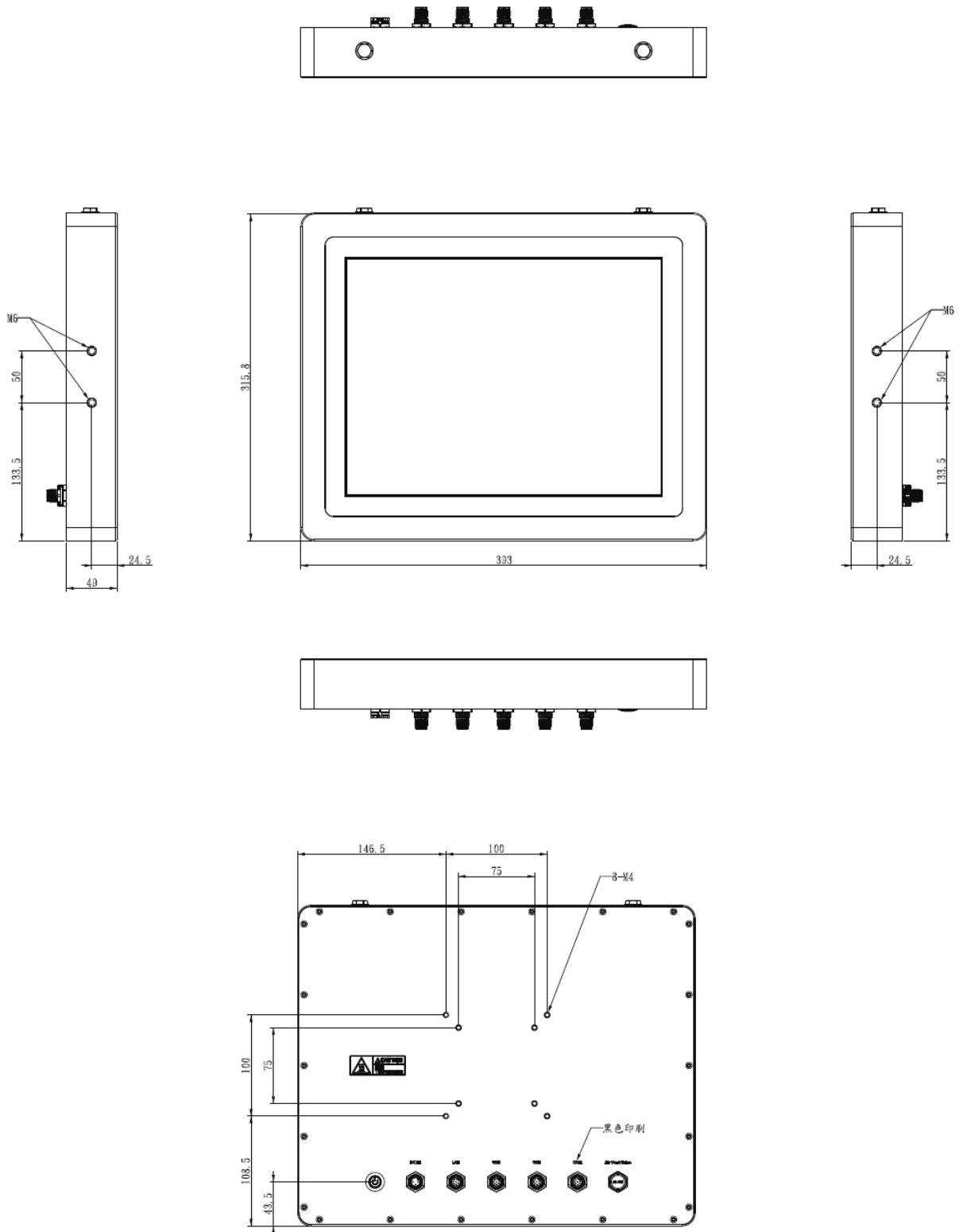
### 1.4.1 Bottom View



### Connectors

Label	Function	Note
COM	Waterproof M12 8-pin (male) COM1(RS-232(default)/422/485)	
USB	Waterproof M12 8-pin (male) for 2 x USB 2.0	
LAN	Waterproof M12 8-pin (male) for LAN	
DC IN	Waterproof M12 3-pin (male) for DC power	
POWER	System power indicator	
ALTW	Air Vent Value	

## 1.5 System Dimensions



(Unit: mm)

# 2. Hardware Configuration

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For advanced information, please refer to:

- 1- EMX-APLP User's Manual



**Note:** If you need more information, please visit our website:

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

## 2.1 SPC-1533-B1 connector mapping

### 2.1.1 Waterproof M12 8-pin (male) for 2 x USB 2.0 (USB)



CN1	Signal
1	USB1 5V
3	D1-
4	D1+
7	GND
2	USB2 5V
5	D2-
6	D2+
8	GND

### 2.1.2 Waterproof M12 8-pin (male) COM1(RS-232(default)/422/485) (COM)



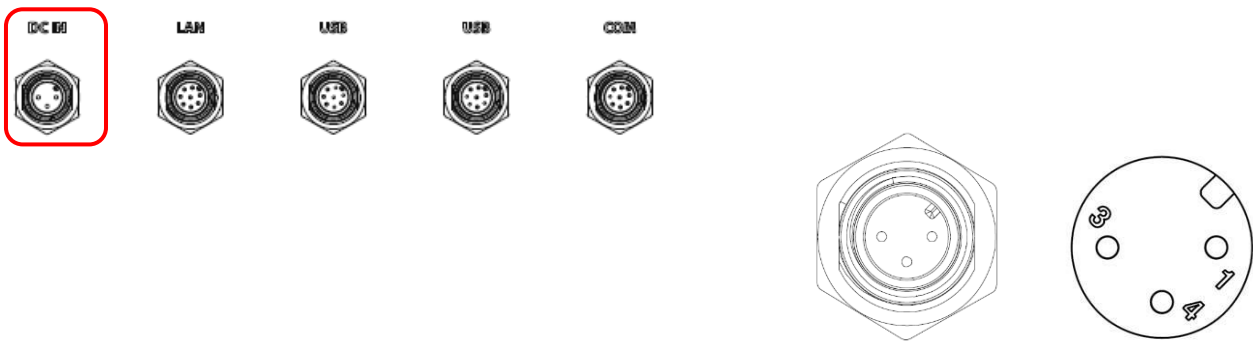
CN1	RS-232/422/485
1	DCD / 422R+
2	RXD / 422R-
3	TXD / 422T- / 485-
4	DTR / 422T+ / 485+
5	GND
6	DSR
7	RTS
8	CTS

2.1.3 Waterproof M12 8-pin (male) for LAN (LAN)



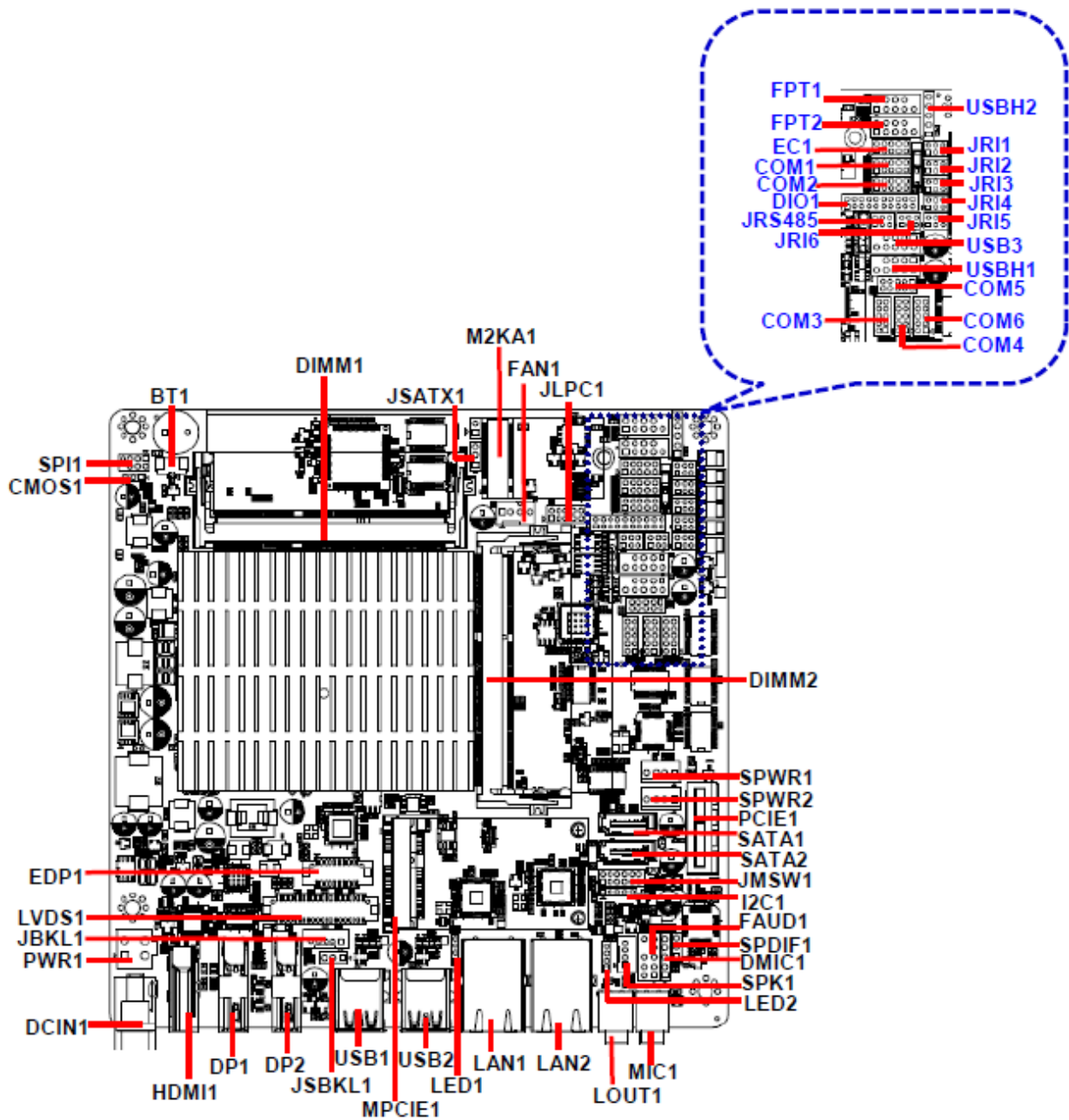
CN1	Pin Define
1	LAN1_0+
2	LAN1_0-
3	LAN1_1+
4	LAN1_1-
5	LAN1_2+
6	LAN1_2-
7	LAN1_3+
8	LAN1_3-

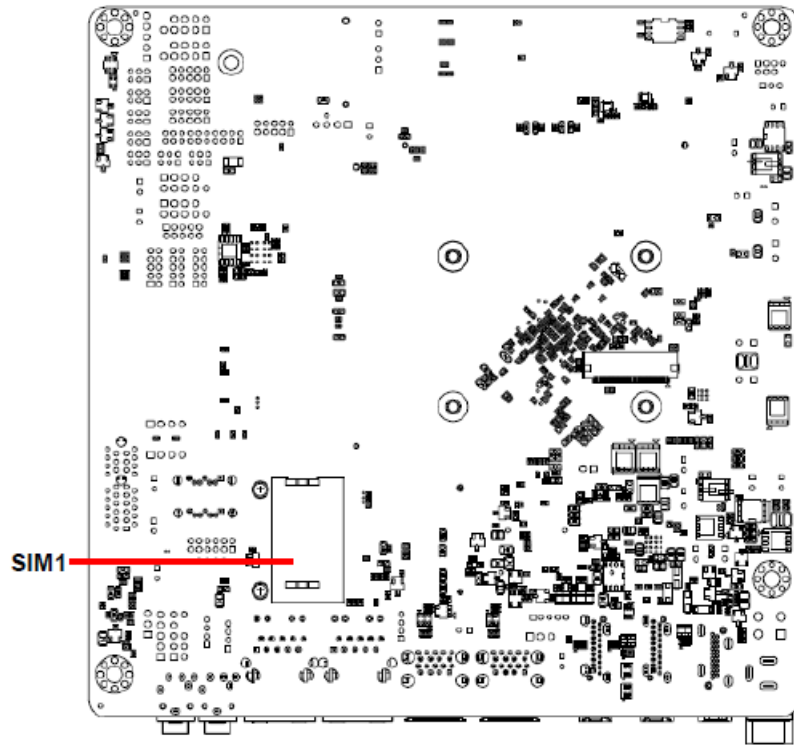
2.1.4 Waterproof M12 3-pin (male) for DC power (DC IN)



CN1	Pin Define
1	NC
3	VCC
4	GND

## 2.2 Product Overview







## 2.3 Jumper and Connector List

### Jumpers

Label	Function	Note
JRI1/2/3/4/5/6	Serial port 1/2/3/4/5/6 pin9 signal select	3 x 2 header, pitch 2.00mm
JMSW1	SATA2/MSATA1 mPCIe slot selector	6 x 2 header, pitch 2.00mm
JSBKL1	LVDS Back Light power selection	3 x 1 header, pitch 2.54mm
JSATX1	AT/ATX Power Mode Select	3 x 1 header, pitch 2.54mm
CMOS1	Clear CMOS	3 x 1 header, pitch 2.00mm

### Connectors

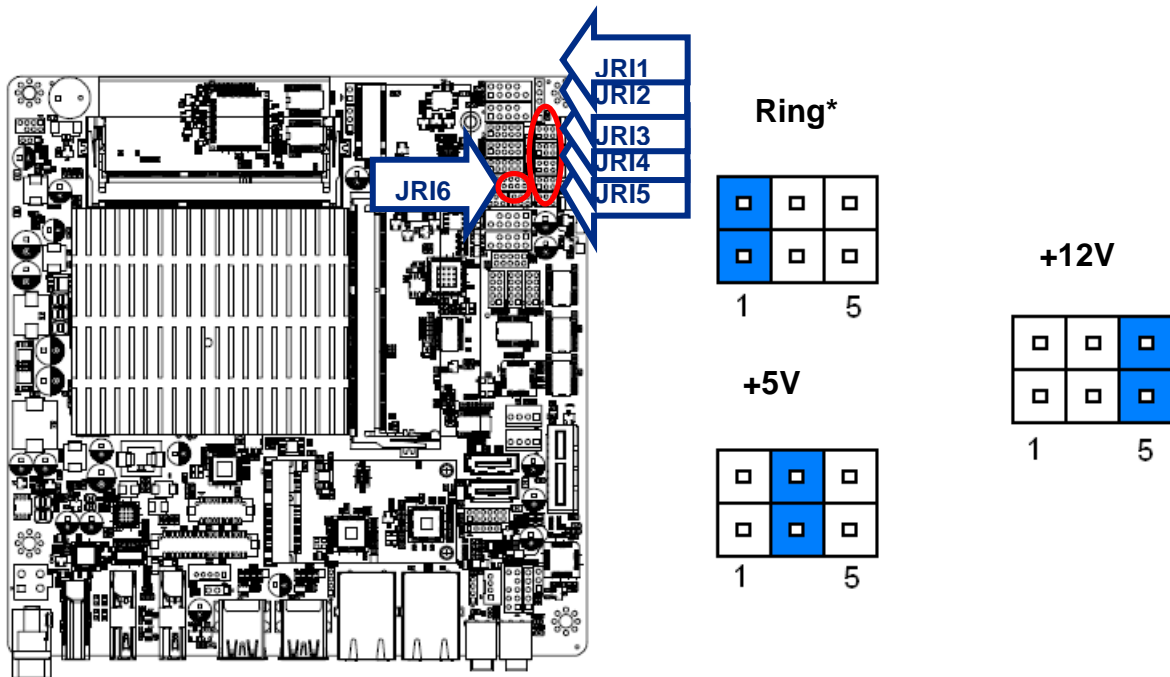
Label	Function	Note
FAN1	CPU fan connector	4 x 1 wafer, pitch 2.54mm
FPT1	Front Panel connector 1	5 x 2 header, pitch 2.54mm
FPT2	Front Panel connector 2	5 x 2 header, pitch 2.54mm
DIMM1/2	204-pin DDR3L DIMM socket	
FAUD1	Front Audio connector	5 x 2 header, pitch 2.54mm
JBKL1	LCD Inverter connector	5 x 1 wafer, pitch 2.00mm Compatible with Connector: JST PHR-5
SPI1	SPI connector	4 x 2 header, pitch 2.00mm
COM1	Serial Port 1 connector	5 x 2 header, pitch 2.00mm
COM2	Serial Port 2 connector	5 x 2 header, pitch 2.00mm
COM3	Serial Port 3 connector	5 x 2 header, pitch 2.00mm
COM4	Serial Port 4 connector	5 x 2 header, pitch 2.00mm
COM5	Serial Port 5 connector	5 x 2 header, pitch 2.00mm
COM6	Serial Port 6 connector	5 x 2 header, pitch 2.00mm
JRS485	Serial Port 1 RS485/422 Mode connector	3 x 2 header, pitch 2.00mm
DIO1	General purpose I/O connector	10 x 2 header, pitch 2.00mm
SPK1	Speaker connector	4 x 1 wafer, pitch 2.00mm
LVDS1	LVDS Connector	DIN 40-pin wafer, pitch 1.25mm Compatible with Connector: Hirose DF13-40DS-1.25C
USB1/2	USB connector 1/2	

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<b>USB3</b>	USB 2.0 connector	5 x 2 header, pitch 2.54mm
<b>USBH1</b>	USB 2.0 connector	5 x 2 header, pitch 2.54mm
<b>USBH2</b>	USB 2.0 connector	5 x 1 header, pitch 2.54mm
<b>SPDIF1</b>	Sony/Philips Digital Interface	3 x 1 header, pitch 2.54mm
<b>LAN1/2</b>	RJ-45 Ethernet 1/2	
<b>PCIE1</b>	PCIe connector	
<b>LED1</b>	LED indicator connector 1	4 x 1 header, pitch 2.00mm
<b>LED2</b>	LED indicator connector 2	4 x 1 header, pitch 2.00mm
<b>DP1/2</b>	DP connector 1/2	
<b>EDP1</b>	eDP connector	10 x 2 wafer, pitch 1.25mm
<b>BT1</b>	Battery connector	2 x 1 wafer, pitch 1.25mm
<b>M2KA1</b>	M.2 Type A 2230 connector	
<b>MPCIE1</b>	Mini-PCIe connector 1	
<b>JLPC1</b>	LPC connector	5 x 2 header, pitch 2.00mm
<b>PWR1</b>	Power connector	2 x 2 wafer, pitch 4.20mm
<b>SATA1/2</b>	Serial ATA connector 1/2	
<b>SPWR1/2</b>	SATA Power connector 1/2	4 x 1 wafer, pitch 2.54mm
<b>EC1</b>	EC_Program	5 x 2 header, pitch 2.00mm
<b>DCIN1</b>	DC Power-in connector	
<b>I2C1</b>	I2C connector	5 x 1 header, pitch 2.00mm
<b>HDMI1</b>	HDMI connector	
<b>LOUT1</b>	Line-out audio jack	
<b>MIC1</b>	Mic-in audio jack	
<b>DMIC1</b>	Digital Microphone connector	5 x 1 header, pitch 2.54mm
<b>SIM1</b>	SIM card slot	

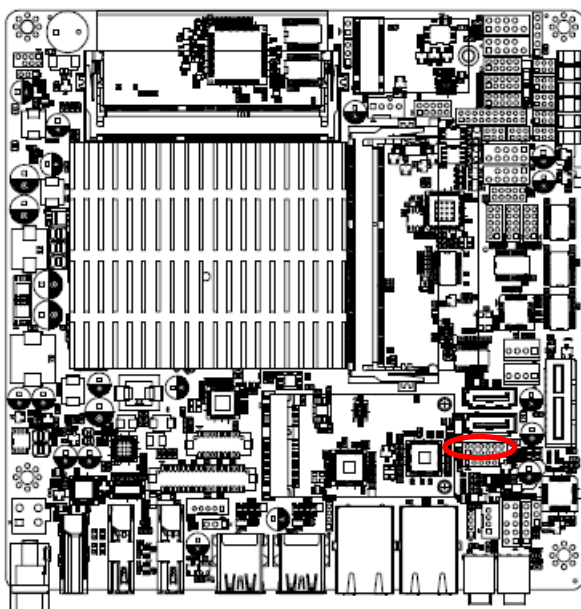
## 2.4 Setting Jumpers & Connectors

### 2.4.1 Serial port 1/2/3/4/5/6 pin9 signal select (JR11/JR12/JR13/JR14/JR15/JR16)

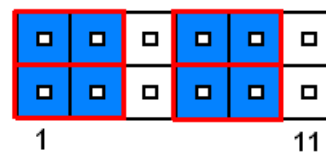


\* Default

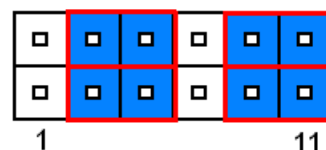
### 2.4.2 SATA2/MSATA1 mPCIe slot selector (JMSW1)



**SATA2 Connector\***  
(SATA2 Connector enabled, MSATA1 slot Disabled)



**MSATA1 mPCIe slot**  
(MSATA1 slot enabled, SATA2 Connector Disabled)

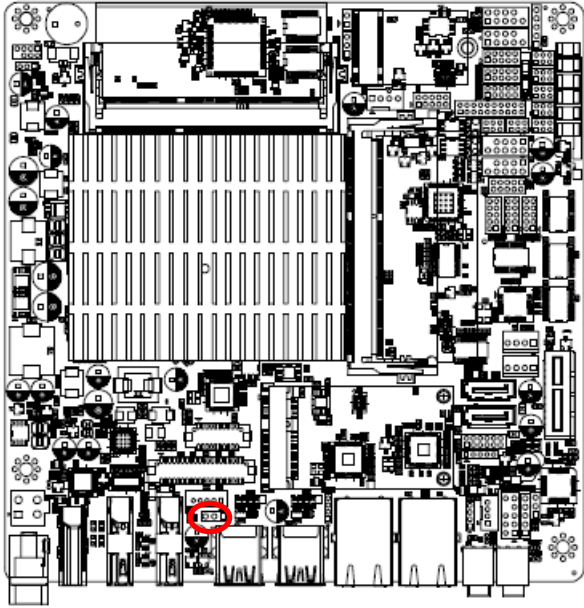


\* Default

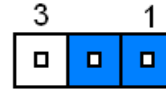
**Note:**

SATA2/MSATA1 shared SATA signal, can not be used simultaneously.

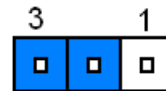
### 2.4.3 LVDS Back Light power selection (JSBKL1)



PWM Mode\*(Max current: 2A)

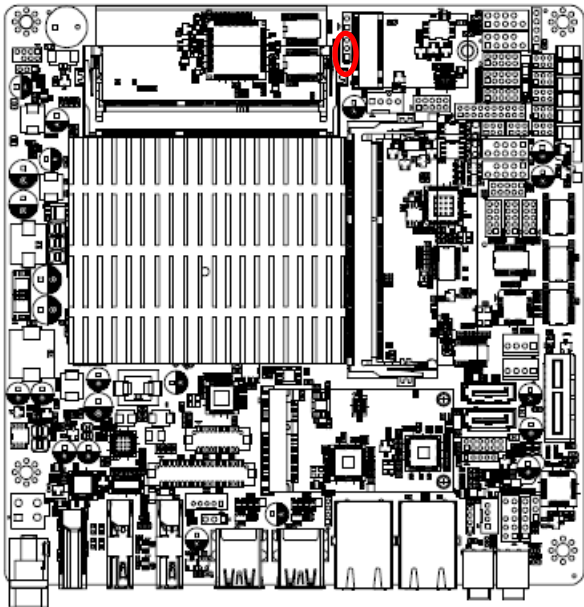


DC Mode(Max current: 2A)

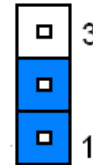


\* Default

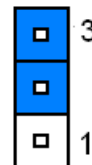
### 2.4.4 AT/ATX Power Mode Select (JSATX1)



ATX\*

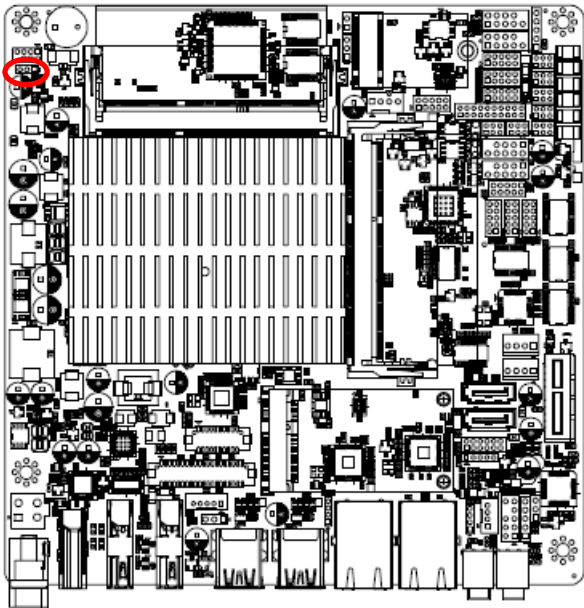


AT

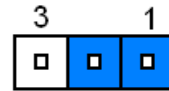


\* Default

### 2.4.5 Clear CMOS (CMOS1)



Protect\*

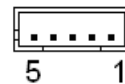
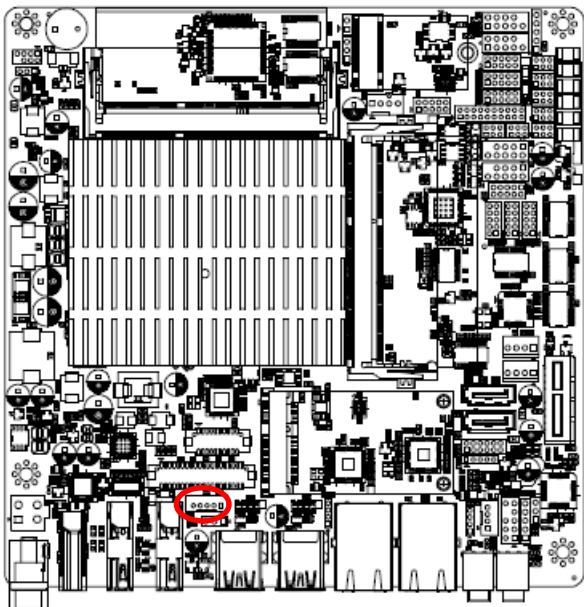


Clear CMOS



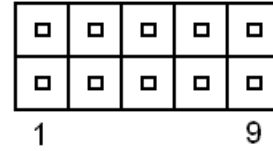
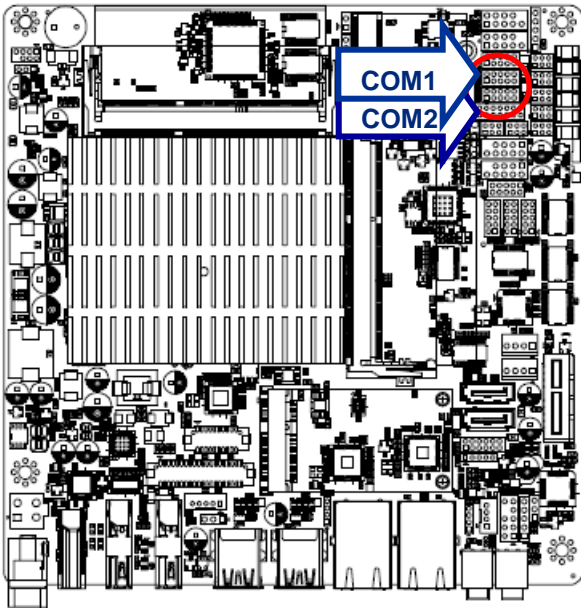
\* Default

### 2.4.6 LCD Inverter connector (JBKL1)



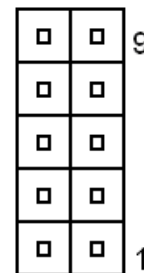
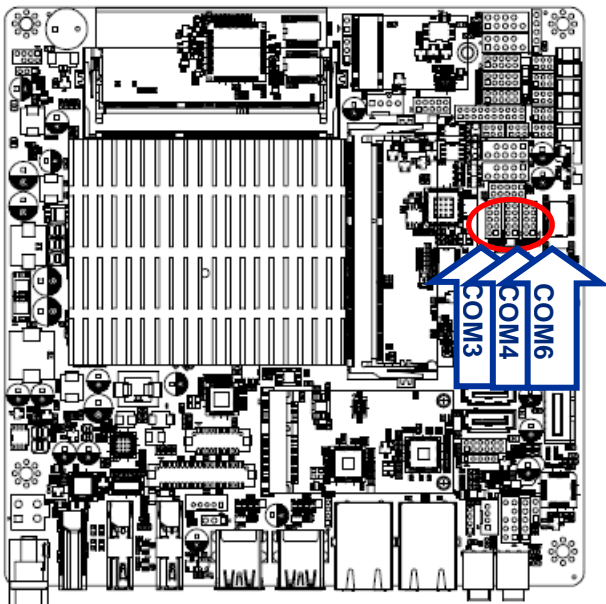
PIN	Signal
1	+12V
2	GND
3	LVDS_BKLTEN
4	LVDS_BKLADJ
5	+5V

2.4.7 Serial port 1/2 connector (COM1/2)



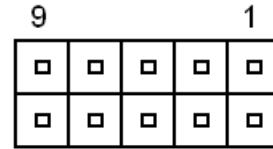
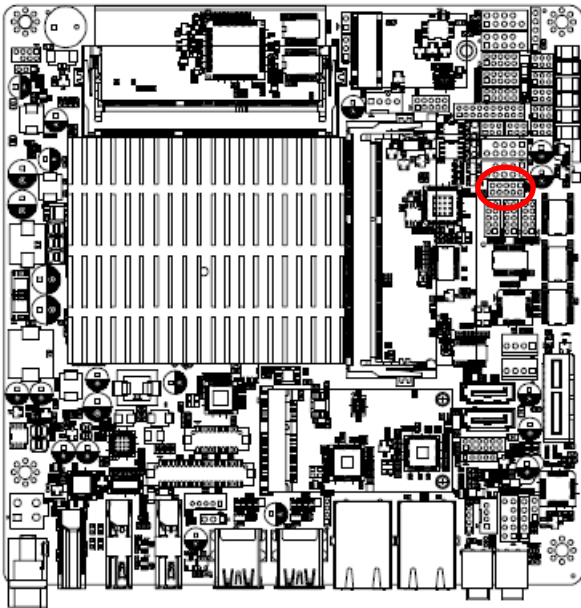
Signal	PIN	PIN	Signal
DCD	1	2	RXD
TXD	3	4	DTR
GND	5	6	DSR
RTS	7	8	CTS
RI	9	10	NC

2.4.8 Serial port 3/4/6 connector (COM3/4/6)



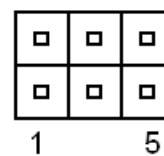
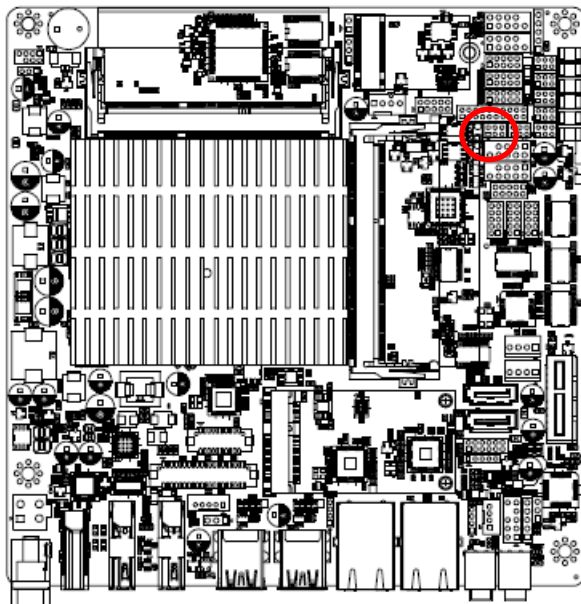
Signal	PIN	PIN	Signal
NC	10	9	RI
CTS	8	7	RTS
DSR	6	5	GND
DTR	4	3	TXD
RXD	2	1	DCD

2.4.9 Serial port 5 connector (COM5)



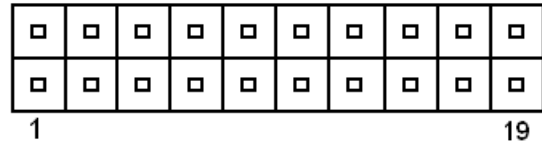
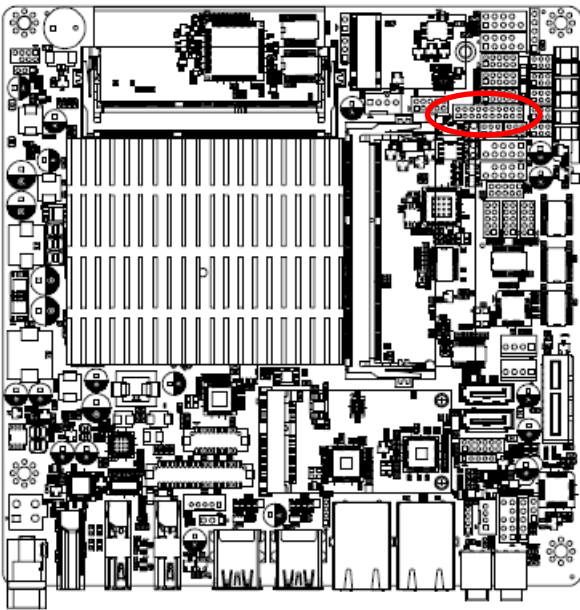
Signal	PIN	PIN	Signal
NDCD#	1	2	NRXD
NTXD	3	4	NDTR#
GND	5	6	NDSR#
NRTS#	7	8	NCTS#
NRI#	9	10	NC

2.4.10 Serial Port 1 RS485/422 Mode connector (JRS485)



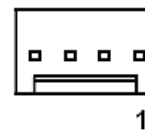
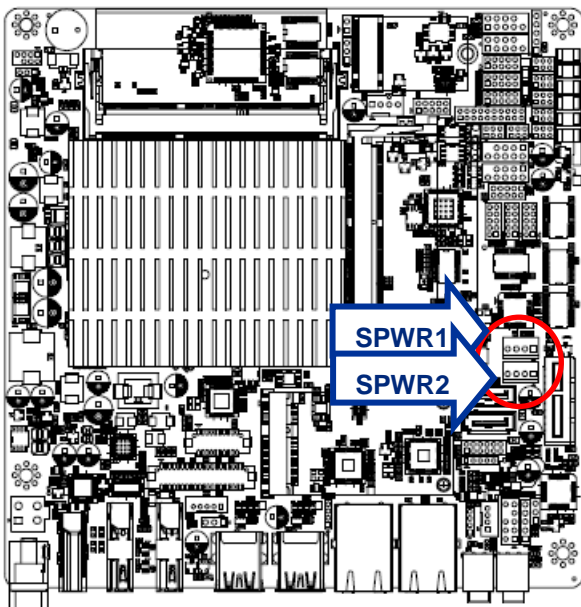
Signal	PIN	PIN	Signal
485TX-	1	2	422RX-
485TX+	3	4	422RX+
GND	5	6	GND

2.4.11 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
SMB_CLK	17	18	SMB_DATA
GND	19	20	+5V

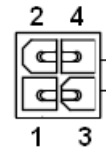
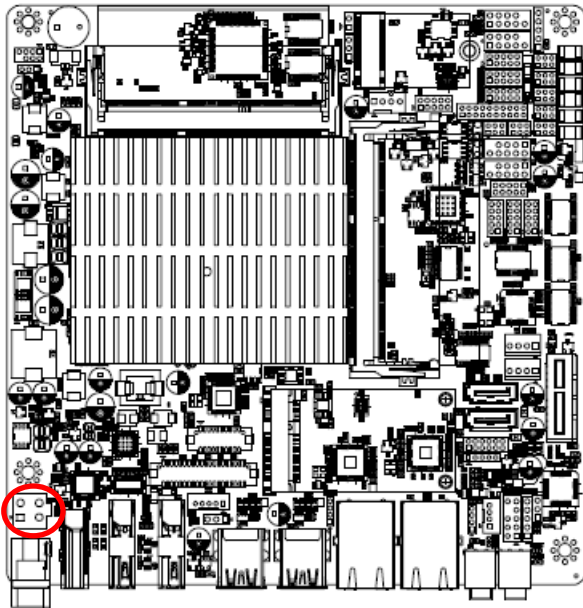
2.4.12 SATA Power connector 1/2 (SPWR1/2)



PIN	Signal
1	+V5S_SATA
2	GND
3	GND
4	+V12S_SATA

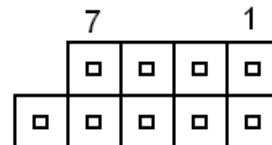
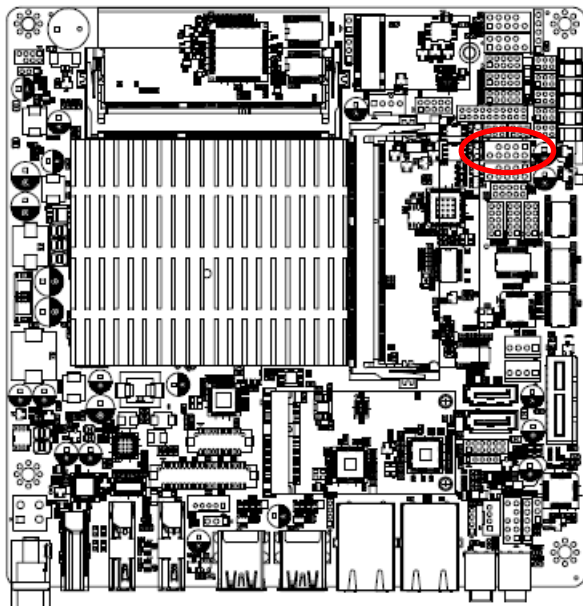


2.4.13 Power connector (PWR1)



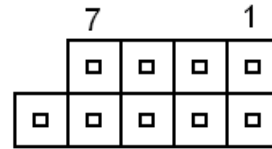
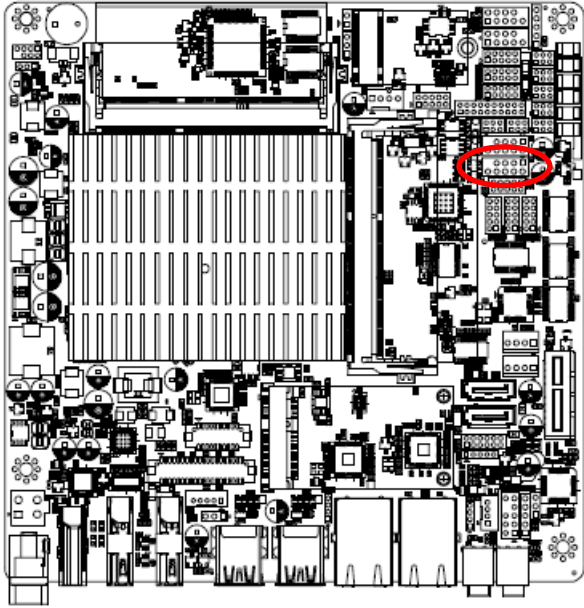
Signal	PIN	PIN	Signal
GND	1	2	GND
+V12-24_DCIN	3	4	+V12-24_DCIN

2.4.14 USB2.0 connector (USB3)



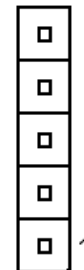
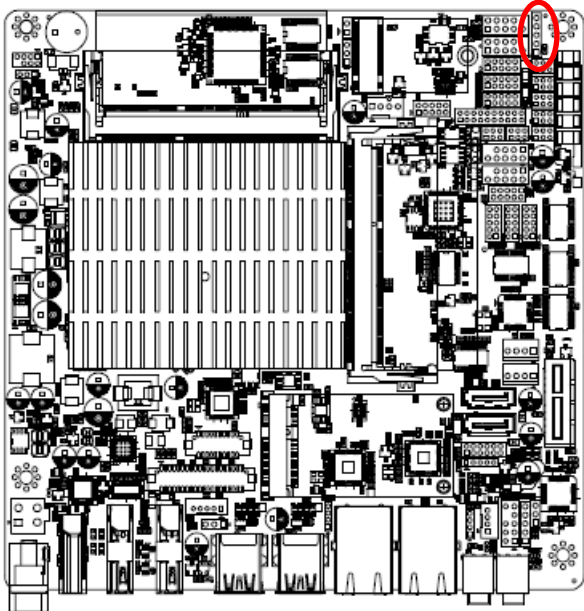
Signal	PIN	PIN	Signal
+5VSB	1	2	+5VSB
USBDN4	3	4	USBDN5
USBDP4	5	6	USBDP5
GND	7	8	GND
		10	NC

2.4.15 USB2.0 connector (USBH1)



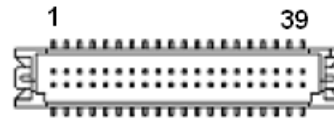
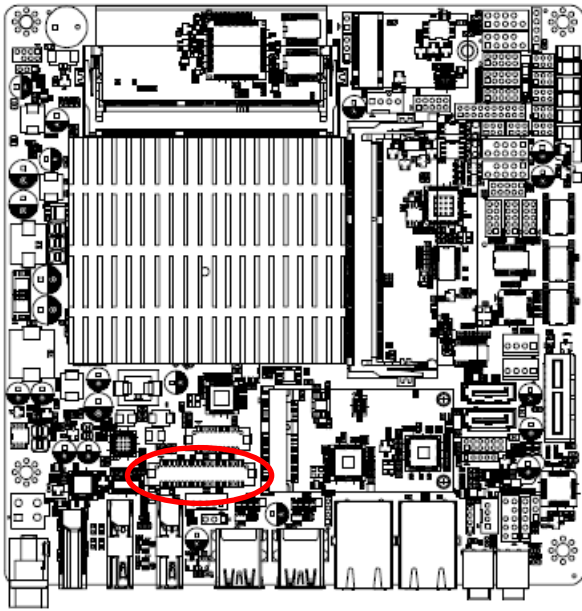
Signal	PIN	PIN	Signal
+5VSB	1	2	+5VSB
USB_HDN1	3	4	USB_HDN2
USB_HDP1	5	6	USB_HDP2
GND	7	8	GND
		10	NC

2.4.16 USB2.0 connector (USBH2)



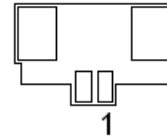
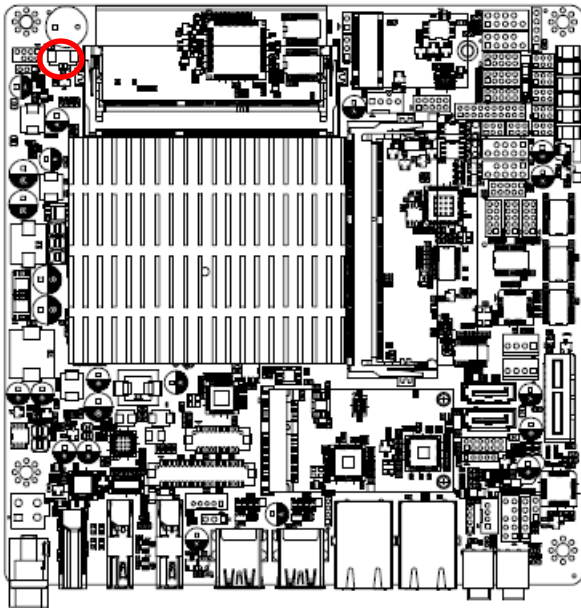
PIN	Signal
5	NC
4	GND
3	USB_HDP4
2	USB_HDN4
1	+5VSB

2.4.17 LVDS connector (LVDS1)



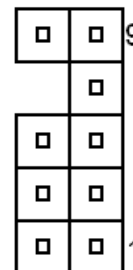
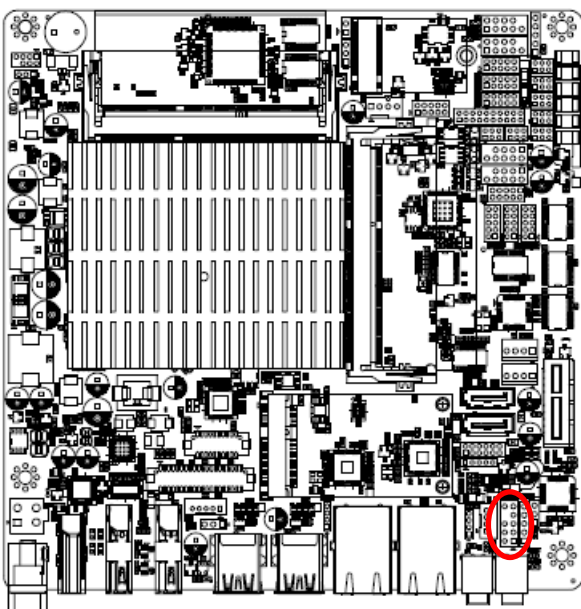
Signal	PIN	PIN	Signal
+3.3V	1	2	+5V
+3.3V	3	4	+5V
NC	5	6	NC
GND	7	8	GND
LVDS_DATAP1	9	10	LVDS_DATAP0
LVDS_DATAN1	11	12	LVDS_DATAN0
GND	13	14	GND
LVDS_DATAP3	15	16	LVDS_DATAP2
LVDS_DATAN3	17	18	LVDS_DATAN2
GND	19	20	GND
LVDS_DATAP5	21	22	LVDS_DATAP4
LVDS_DATAN5	23	24	LVDS_DATAN4
GND	25	26	GND
LVDS_DATAP7	27	28	LVDS_DATAP6
LVDS_DATAN7	29	30	LVDS_DATAN6
GND	31	32	GND
LVDS_CLK2P	33	34	LVDS_CLK1P
LVDS_CLK2N	35	36	LVDS_CLK1N
GND	37	38	GND
+12V	39	40	+12V

2.4.18 Battery connector (BT1)



PIN	Signal
1	+3.3VSB
2	GND

2.4.19 Front Audio connector (FAUD1)

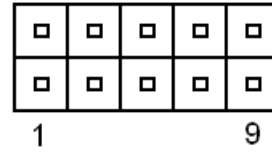
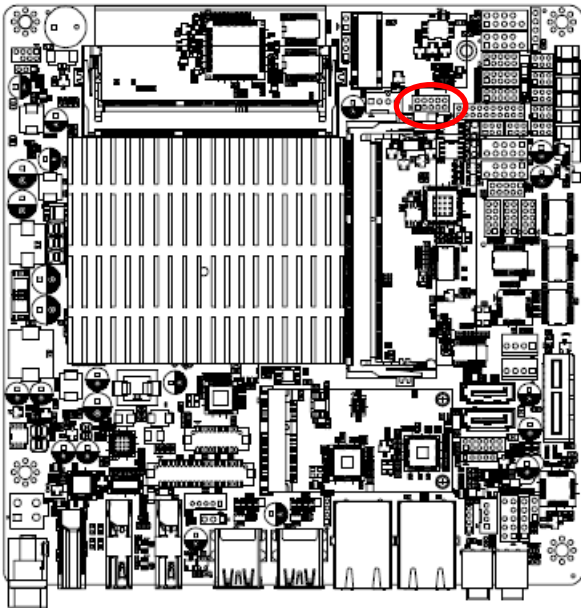


Signal	PIN	PIN	Signal
LINE2_JD	10	9	LINE2_L
		7	SENSE_B
MIC2_JD	6	5	LINE2_R
AUD_FRONT_DET	4	3	MIC2_R
GND	2	1	MIC2_L

2.4.19.1 Signal Description –Front Audio connector (FAUD1)

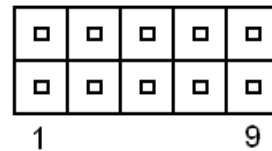
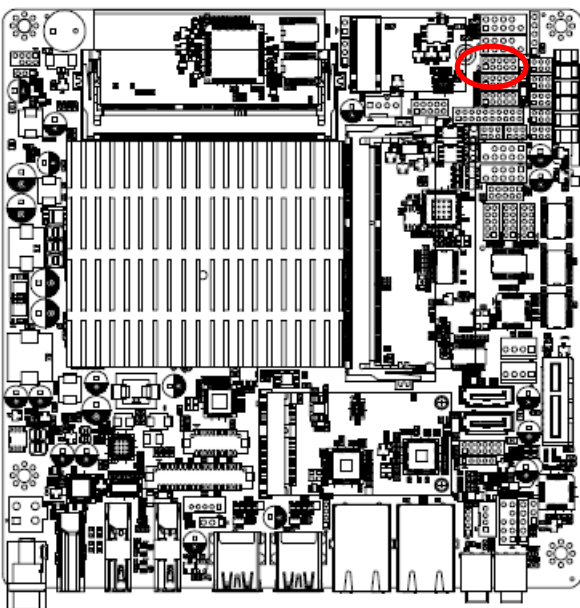
Signal	Signal Description
LINE2_JD	AUDIO IN (LINE_RIN/LIN)sense pin
MIC2_JD	MIC IN (MIC_RIN/LIN) sense pin

### 2.4.20 LPC connector (JLPC1)



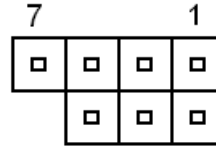
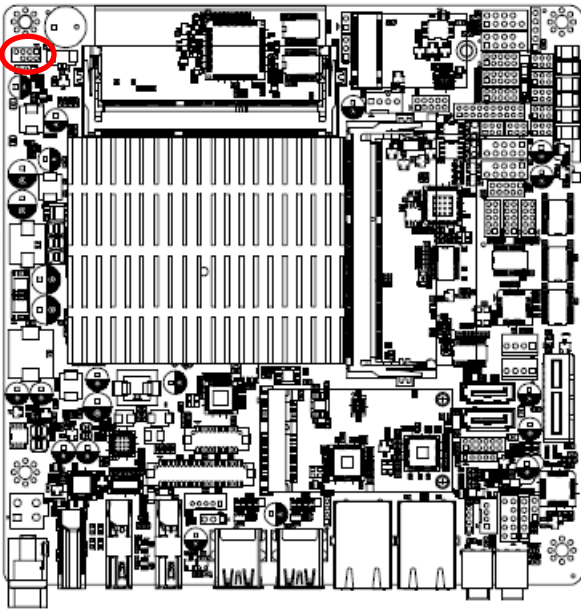
Signal	PIN	PIN	Signal
LPC_AD0	1	2	+3.3V
LPC_AD1	3	4	PLT_RST#
LPC_AD2	5	6	LPC_FRAME#
LPC_AD3	7	8	LPC_CLK_DEB
LPC_SERIRQ	9	10	GND

### 2.4.21 EC\_Program (EC1)



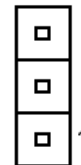
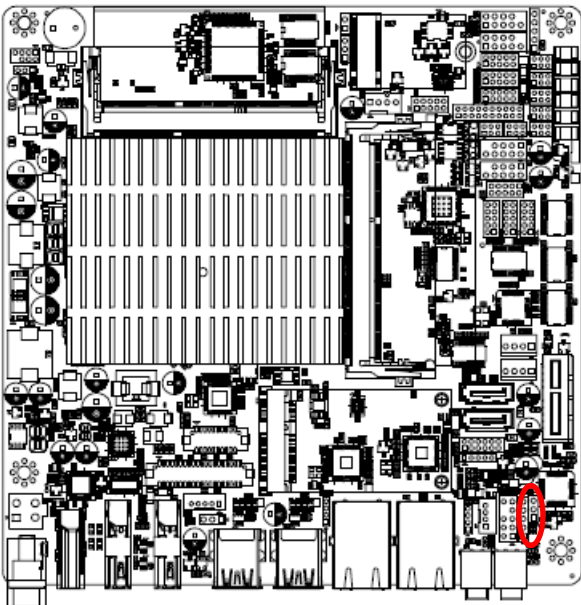
Signal	PIN	PIN	Signal
+3.3A_ECSPi	1	2	GND
EC_FSCE#	3	4	EC_FSCK
EC_FSMIOSO	5	6	EC_FSMOSI
EC_HOLD#	7	8	NC
EC_SMBCLK	9	10	EC_SMBDATA

2.4.22 SPI connector (SPI1)



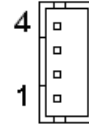
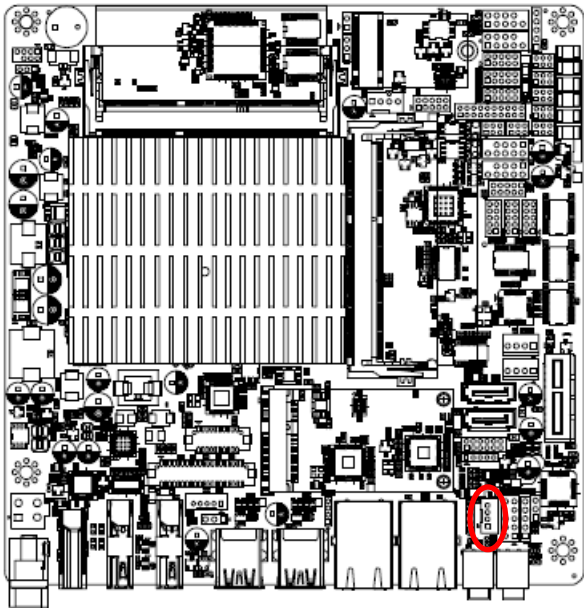
Signal	PIN	PIN	Signal
+1.8VSB	1	2	GND
SPI_CS0#	3	4	SPI_CLK
SPI_MISO	5	6	SPI_MOSI
SPI_HOLD#	7		

2.4.23 Sony/Philips Digital Interface (SPDIF1)



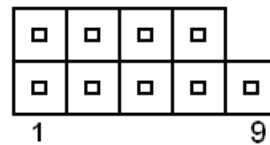
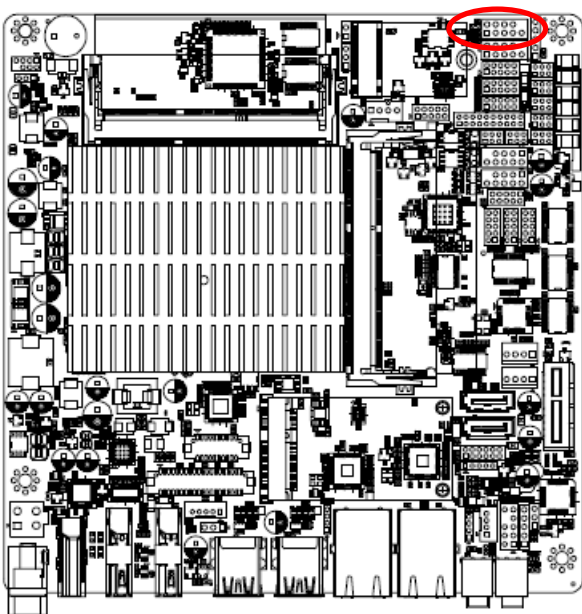
PIN	Signal
3	GND
2	SPDIF_OUT
1	+5V

### 2.4.24 Speaker connector (SPK1)



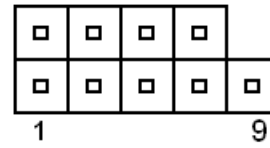
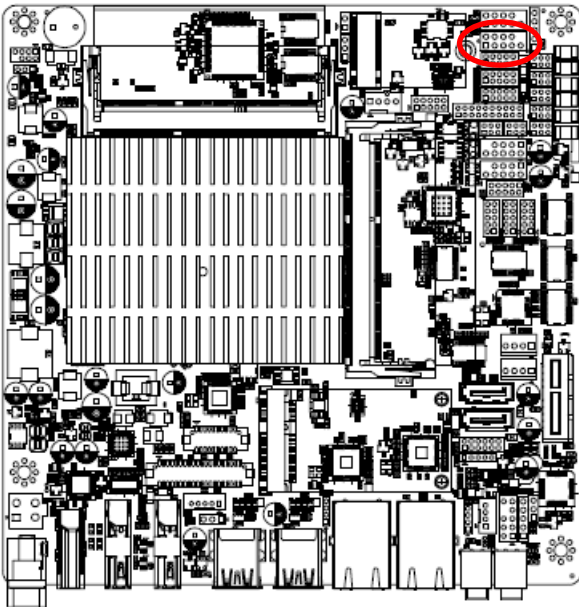
PIN	Signal
4	RSPK-
3	RSPK+
2	LSPK-
1	LSPK+

### 2.4.25 Front Panel connector 1 (FPT1)



Signal	PIN	PIN	Signal
+HD_LED	1	2	+PWR_LED
-HD_LED	3	4	-PWE_LED
+Reset	5	6	+PWR_BNT
-Reset	7	8	-PWR_BNT
NC	9		

### 2.4.26 Front Panel connector 2 (FPT2)

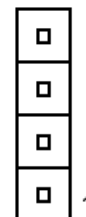
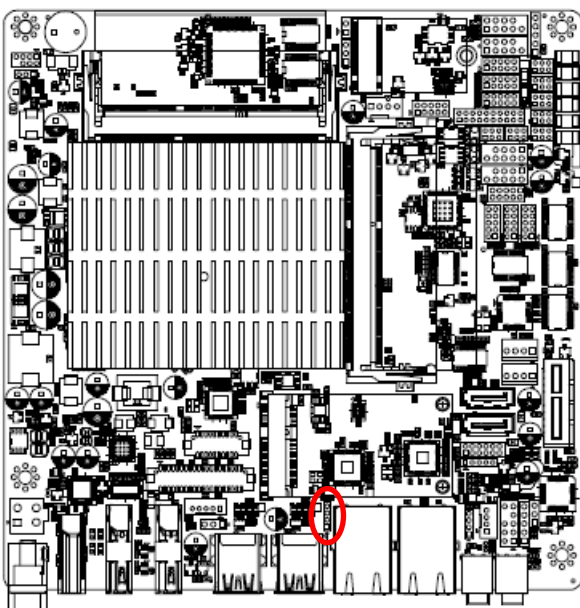


Signal	PIN	PIN	Signal
Speaker+	1	2	BLK_VR(10K)
NC	3	4	BLK_UP
NC	5	6	BLK_DN
Speaker-	7	8	GND
NC	9	10	

**Note:**

1. Pin2 with GND: Control LVDS Backlight by use Variable Resistor.
2. BLK\_UP with GND/BLK\_DN with GND: Step control LVDS Backlight by use button and BIOS must to be set "BR Button". (Please refer to page.61)

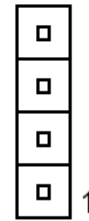
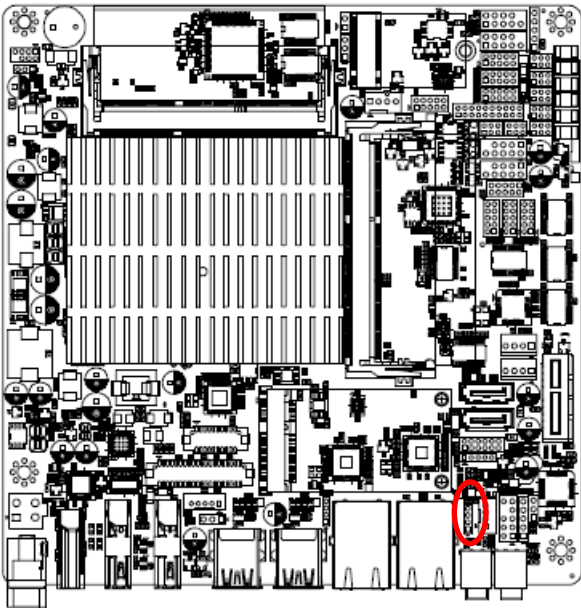
### 2.4.27 LED indicator connector 1 (LED1)



PIN	Signal
4	L1_1000#_LED
3	L1_100#_LED
2	L1_ACT_N
1	L1_ACT_P

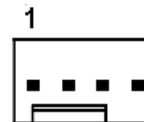
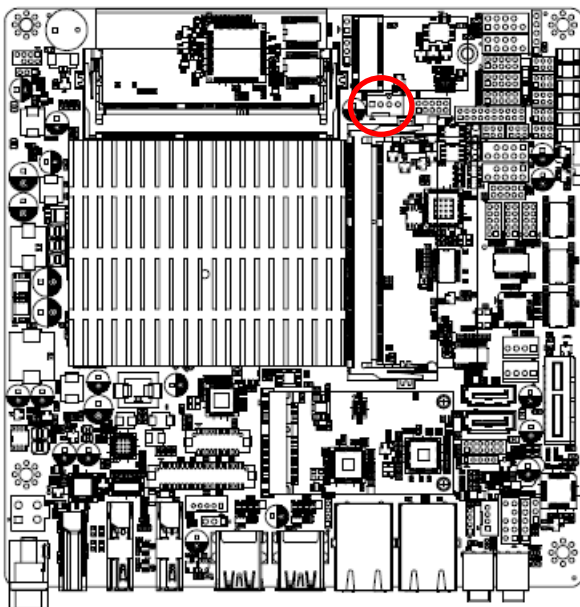


2.4.28 LED indicator connector 2 (LED2)



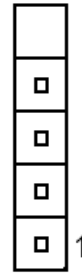
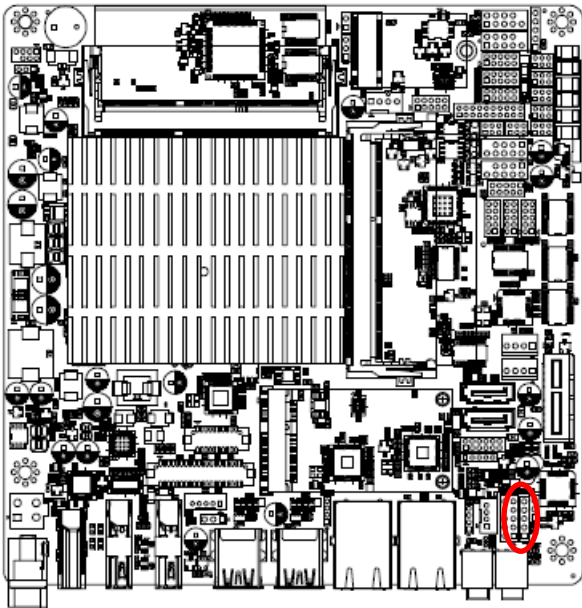
PIN	Signal
4	L2_1000#_LED
3	L2_100#_LED
2	L2_ACT_N
1	L2_ACT_P

2.4.29 CPU fan connector (FAN1)



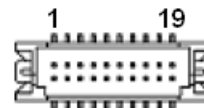
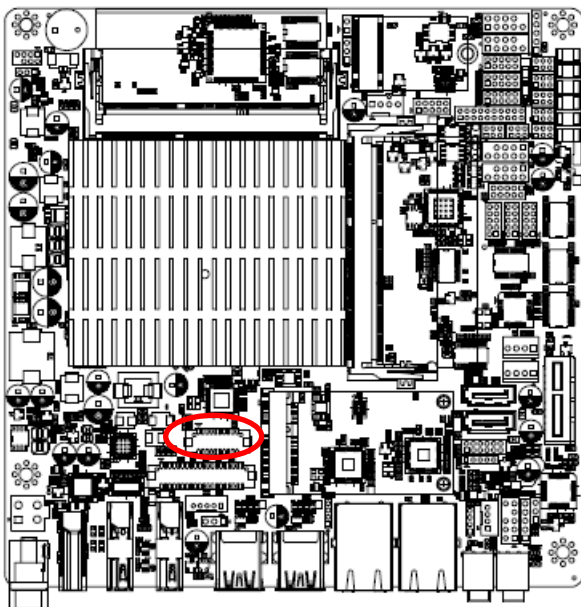
PIN	Signal
1	GND
2	+12V
3	CPU_FANIN
4	CPU_FANOUT

2.4.30 Digital Microphone connector (DMIC1)



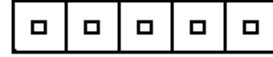
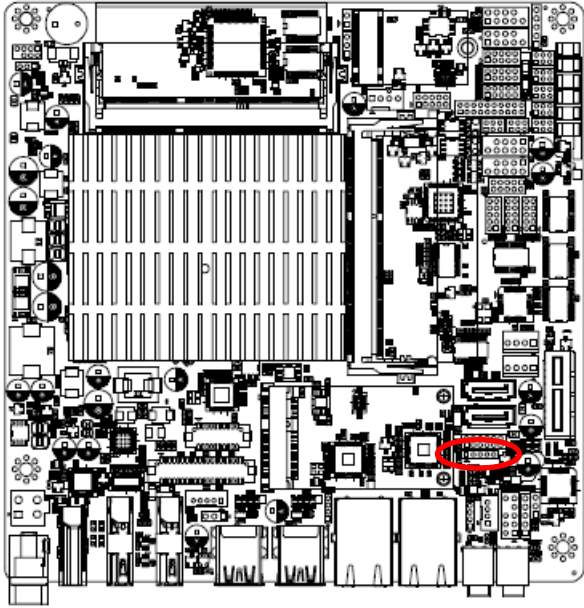
PIN	Signal
5	
4	DMIC_CLK
3	GND
2	DMIC_DAT
1	+3.3VSB

2.4.31 eDP connector (EDP1)



Signal	PIN	PIN	Signal
GND	1	2	GND
EDP_TXN0	3	4	EDP_TXN3
EDP_TXP0	5	6	EDP_TXP3
GND	7	8	NC
EDP_TXN1	9	10	GND
EDP_TXP1	11	12	EDP_AUXN
GND	13	14	EDP_AUXP
EDP_TXN2	15	16	GND
EDP_TXP2	17	18	EDP_C_HPD
EDP_VCC_PAL	19	20	EDP_VCC_PAL

2.4.32 I2C connector (I2C1)



1

PIN	Signal
1	+3.3V
2	I2C5_INT#
3	I2C5_LS_CLK
4	I2C5_LS_DATA
5	GND

# 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.

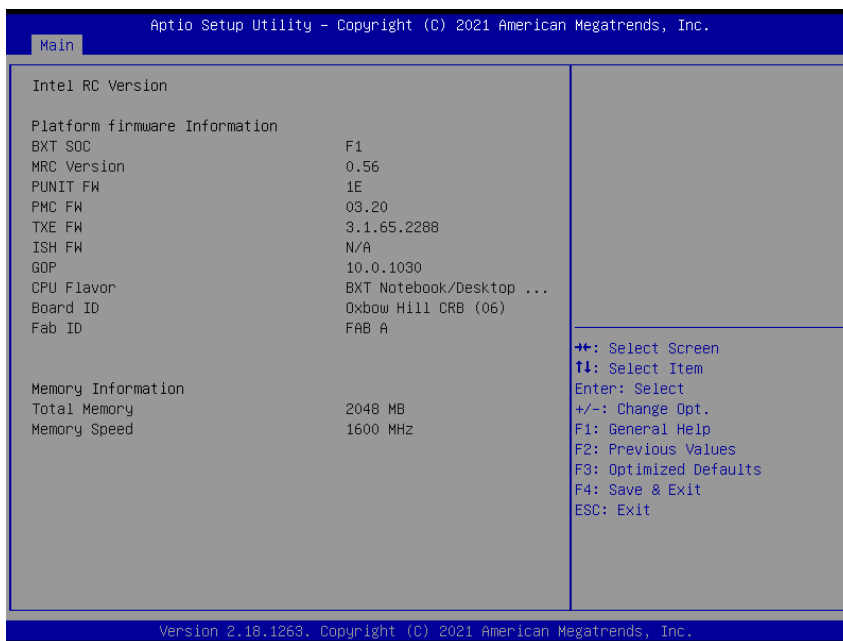
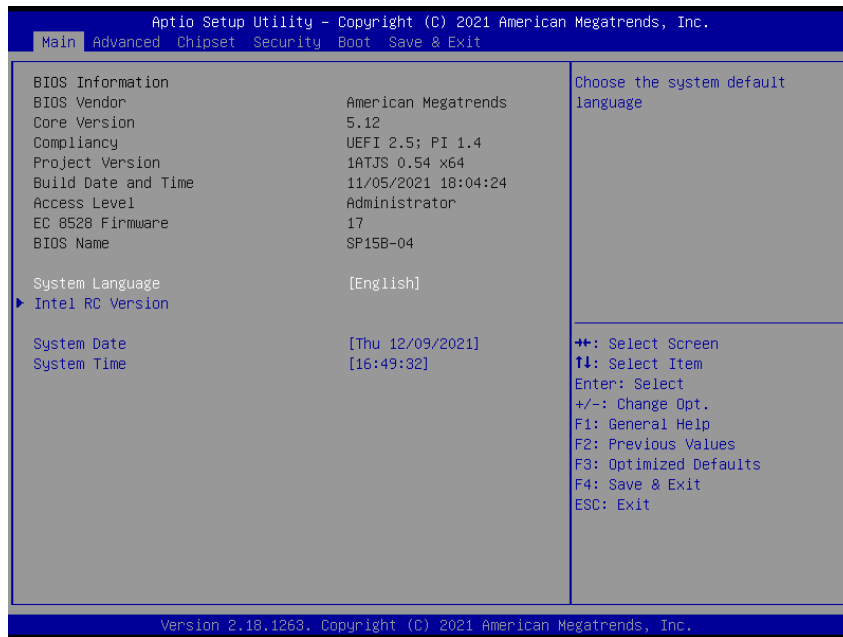
The best advice is to only alter settings which you thoroughly understand. To this end, we strongly recommend that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both BIOS Vendor and your systems manufacturer to provide the absolute maximum performance 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.





### 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.

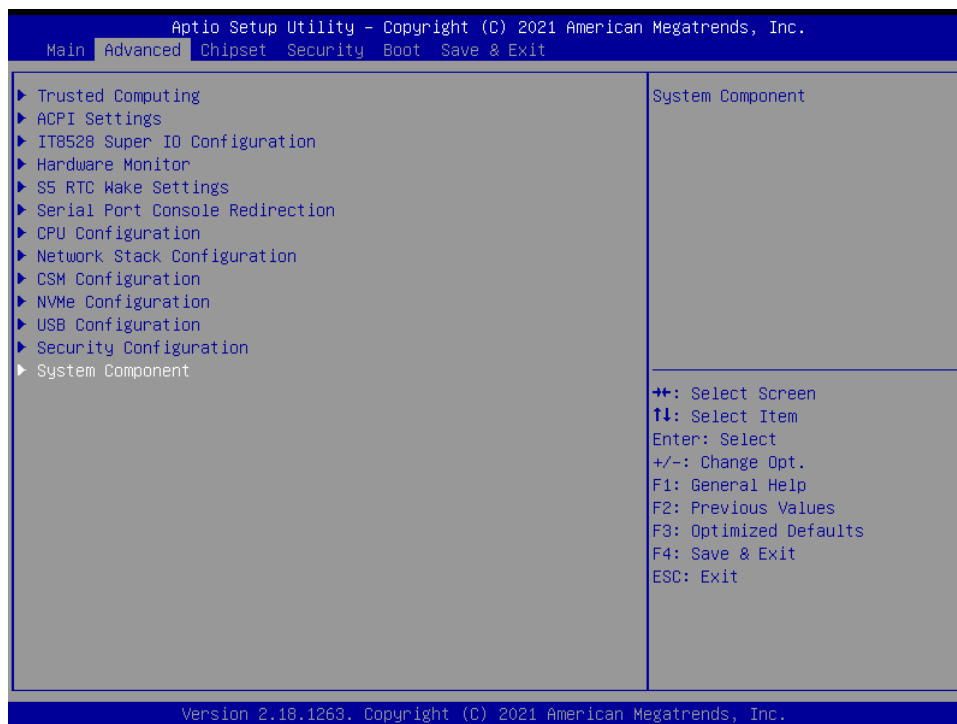


**Note:** The BIOS setup screens shown in this chapter are for reference purposes only, and may not exactly match what you see on your screen.

Visit the Avalue website ([www.avalu.com.tw](http://www.avalu.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.

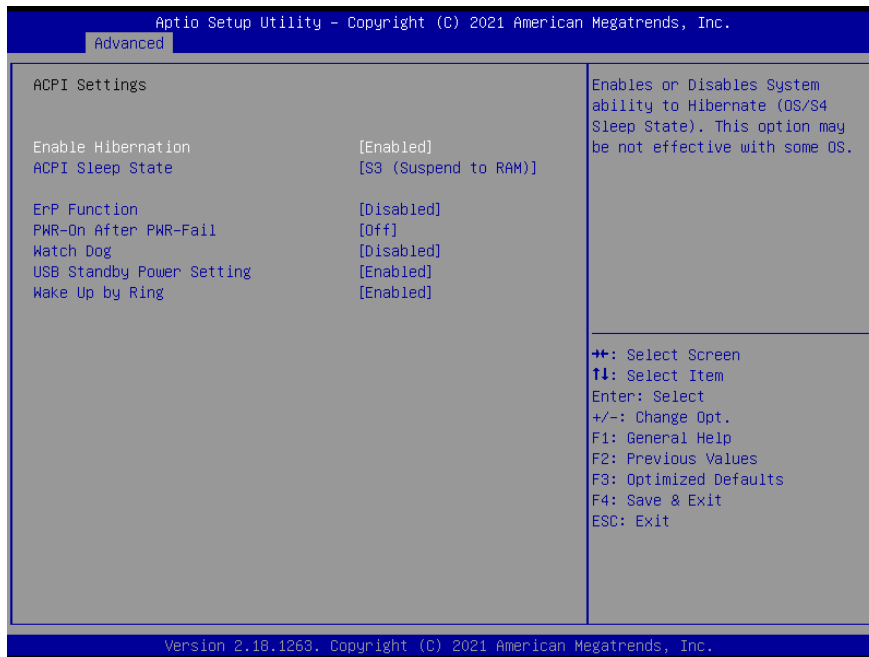


### 3.6.2.1 Trusted Computing



Item	Options	Description
<b>Security Device Support</b>	Disable, Enable[ <b>Default</b> ]	Enables or Disables BIOS support for security device. O.S. will not show Security Device. TCG EFI protocol and INT1Ainterface will not be available.

### 3.6.2.2 ACPI Settings

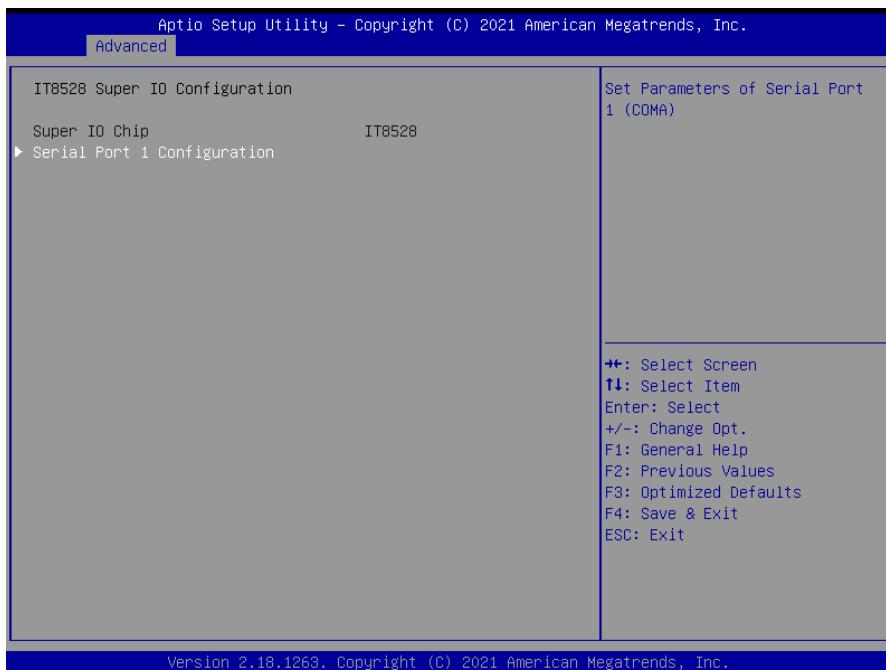


Item	Options	Description
<b>Enable Hibernation</b>	Disabled Enabled[ <b>Default</b> ],	Enables or Disables System ability to Hibernate (OS/S4 Sleep State). This option may be not effective with some

		OS.
<b>ACPI Sleep State</b>	Suspend Disabled, S3 (Suspend to RAM)[ <b>Default</b> ]	Select the highest ACPI sleep state the system will enter when the SUSPEDN button is pressed.
<b>ErP Function</b>	Disabled[ <b>Default</b> ], Enabled	ErP Function (Deep S5).
<b>PWR-On After PWR-Fail</b>	Off[ <b>Default</b> ] On Last state	AC loss resume.
<b>Watch Dog</b>	Disabled[ <b>Default</b> ], 30 sec 40 sec 50 sec 1 min 2 min 10 min 30 min	Select WatchDog.
<b>USB Standby Power Setting</b>	Disabled Enabled[ <b>Default</b> ],	Enabled/Disabled USB Standby Power during S3/S4/S5.
<b>Wake Up by Ring</b>	Disabled Enabled[ <b>Default</b> ],	Wake Up by Ring from S3/S4/S5.

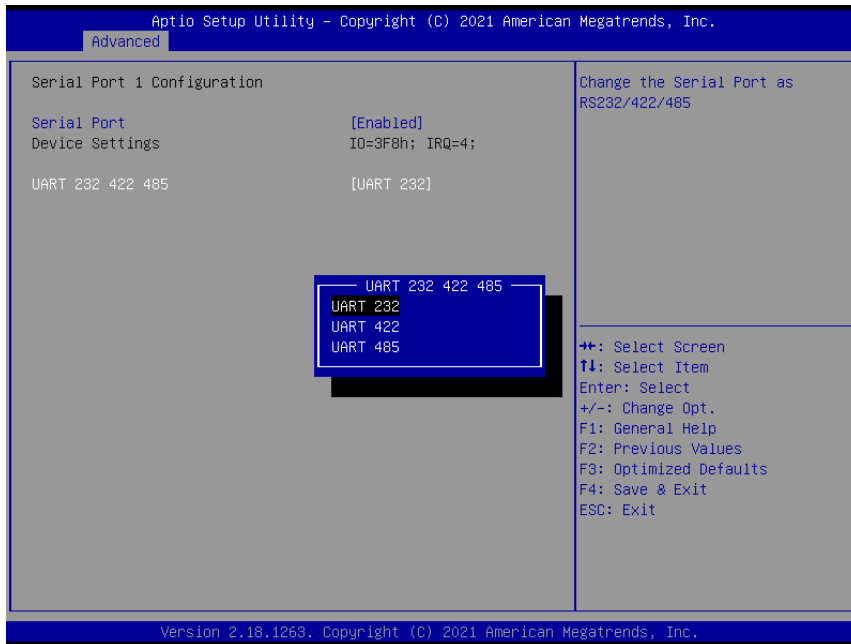
### 3.6.2.3 IT8528 Super IO Configuration

You can use this item to set up or change the IT8528 Super IO configuration for serial ports. Please refer to 3.6.2.3.1 for more information.



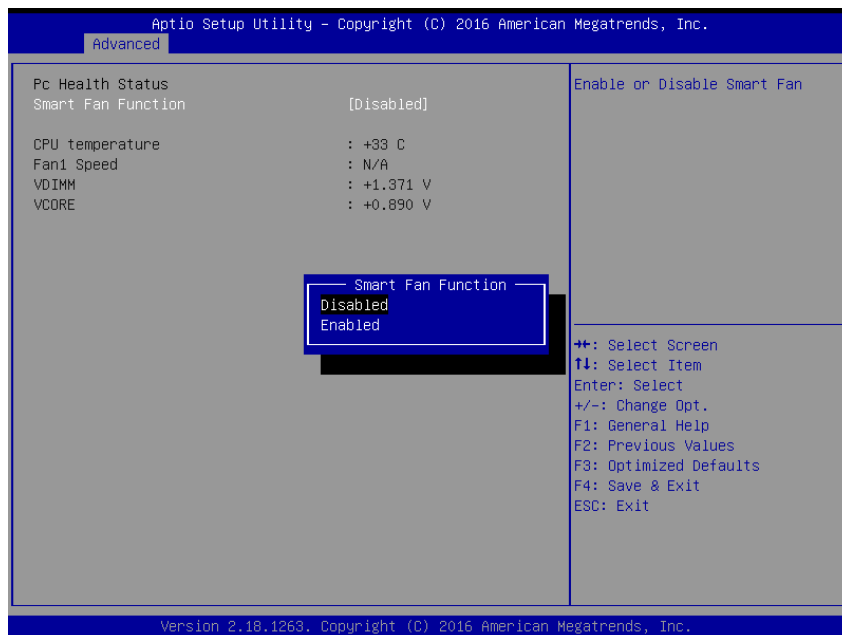
Item	Description
<b>Serial Port 1 Configuration</b>	Set Parameters of Serial Port 1 (COMA).

### 3.6.2.3.1 Serial Port 1 Configuration



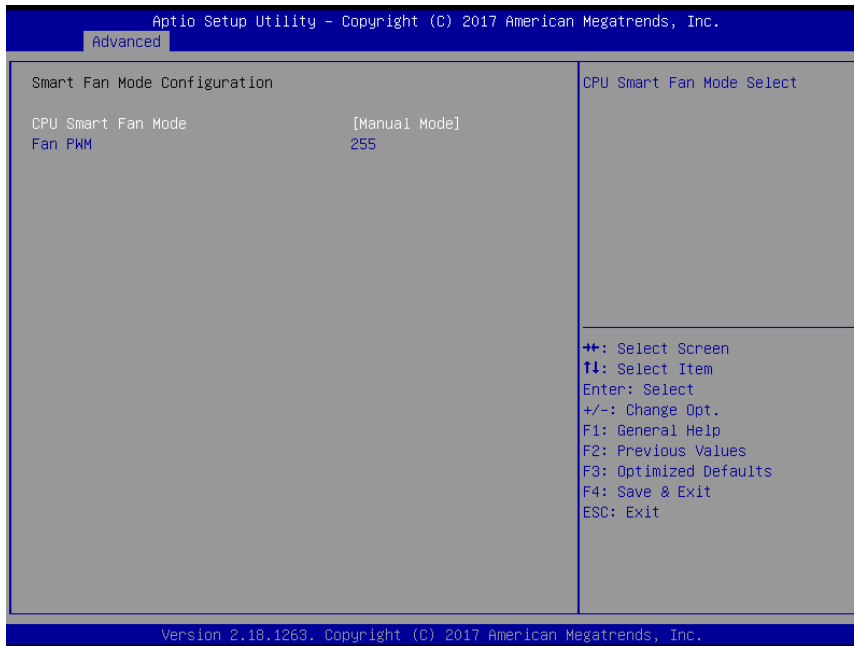
Item	Option	Description
Serial Port	Enabled[Default], Disabled	Enable or Disable Serial Port (COM).
UART 232 422 485	UART 232[Default], UART 422, UART 485	Change the Serial Port as RS232/422/485.

### 3.6.2.4 H/W Monitor



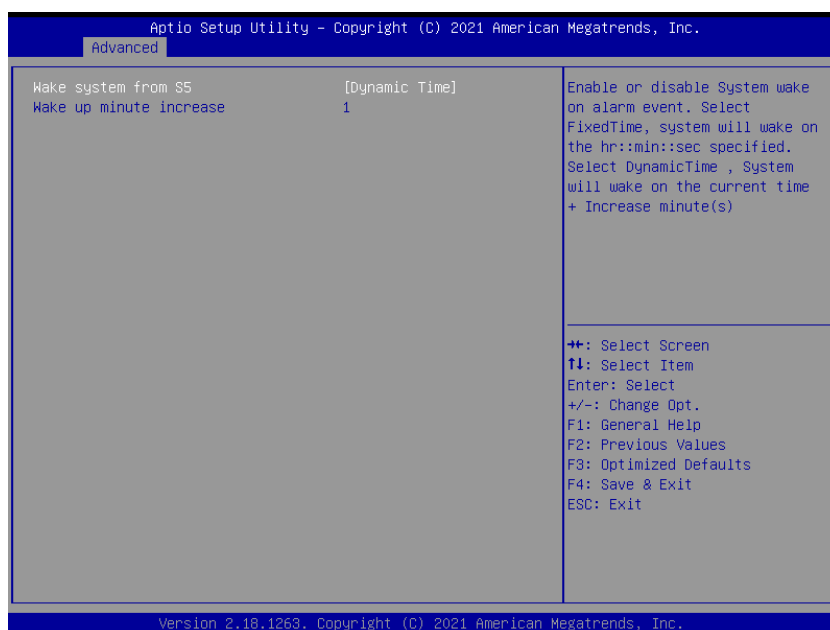
Item	Options	Description
Smart Fan Function	Enabled, Disabled[Default]	Enable or Disable Smart Fan.

### 3.6.2.4.1 Smart Fan Mode Configuration

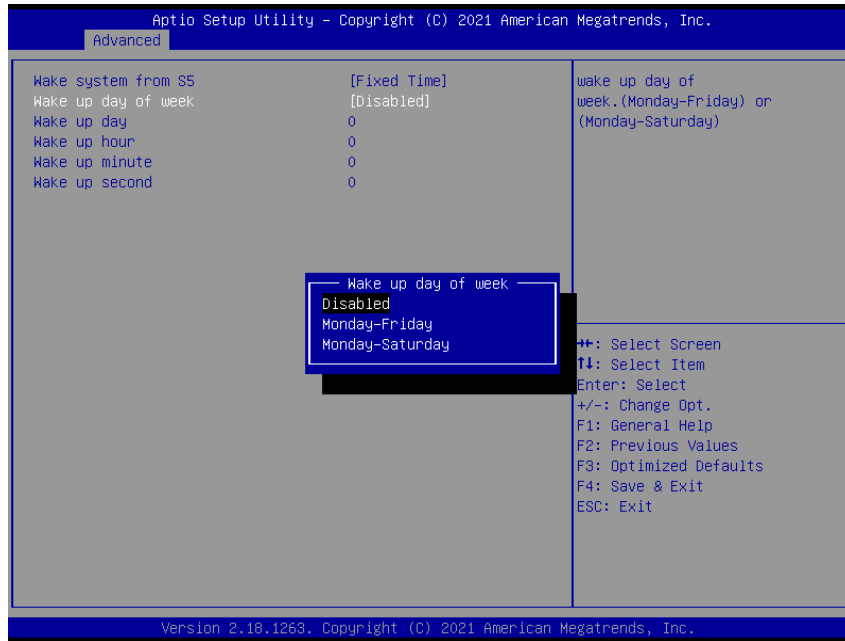


Item	Option	Description
<b>CPU Smart Fan Mode</b>	Manual Mode[Default]/Mode 01/Mode 02/Mode 03/Mode 04/Mode 05/Mode 06/Mode 07/Mode 08/Mode 09/Mode 10/Mode 11/Mode 12/Mode 13/Mode 14/Mode 15/Mode 16/Mode 17/Mode 18/Mode 19/Mode 20	CPU Smart Fan Mode Select.
<b>Fan PWM</b>	0-255	Fan PWM duty.

### 3.6.2.5 S5 RTC Wake Settings

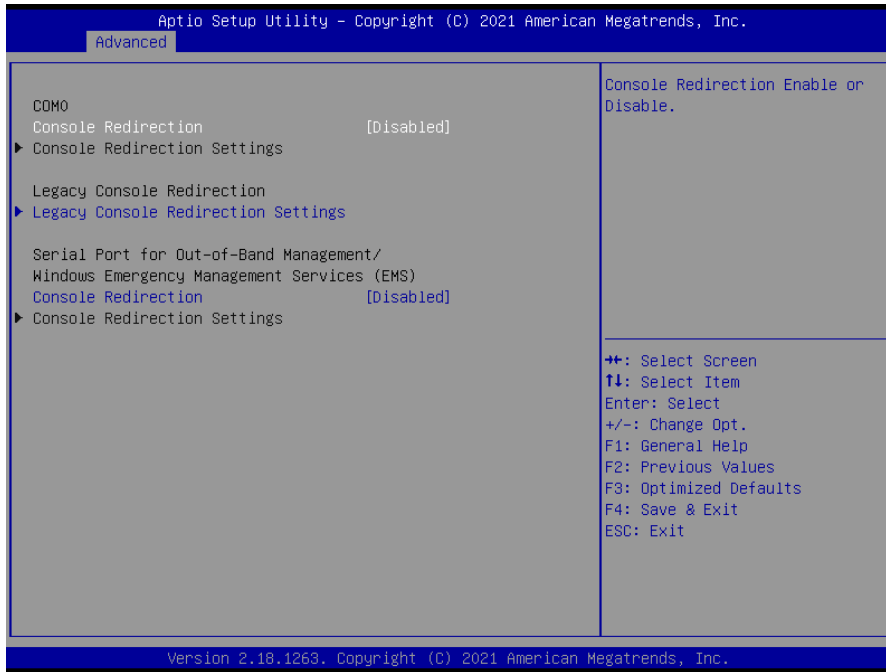


Item	Options	Description
<b>Wake system from S5</b>	Disabled[Default], Fixed Time Dynamic Time	Enable or disable System wake on alarm event. Select Fixed Time, system will wake on the hr::min::sec specified. Select Dynamic Time, System will wake on the current time + Increase minute(s).
<b>Wake up minute increase</b>	1-5	Wake up minute increase.



Item	Options	Description
<b>Wake system from S5</b>	Disabled, Fixed Time[Default] 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).
<b>Wake up day of week</b>	Disabled[Default] Monday-Friday Monday-Saturday	Wake up day of week. (Monday-Friday) or (Monday-Saturday).
<b>Wake up day</b>	1-31	Select 0 for daily system wake up 1-31 for which day of the month that you would like the system to wake up.
<b>Wake up hour</b>	0-23	Select 0-23 For example enter 3 for 3am and 15 for 3pm.
<b>Wake up minute</b>	0-23	Select 0-23 For example enter 3 for 3am and 15 for 3pm.
<b>Wake up second</b>	0-23	Select 0-23 For example enter 3 for 3am and 15 for 3pm.

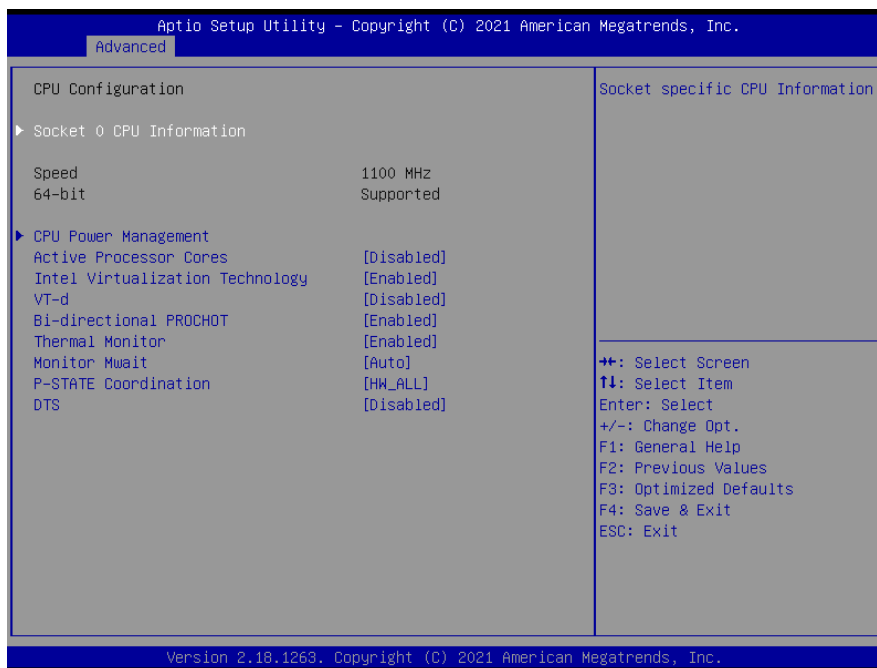
### 3.6.2.6 Serial Port Console Redirection



Item	Options	Description
Console Redirection	Disabled[Default], Enabled	Console Redirection Enable or Disable.

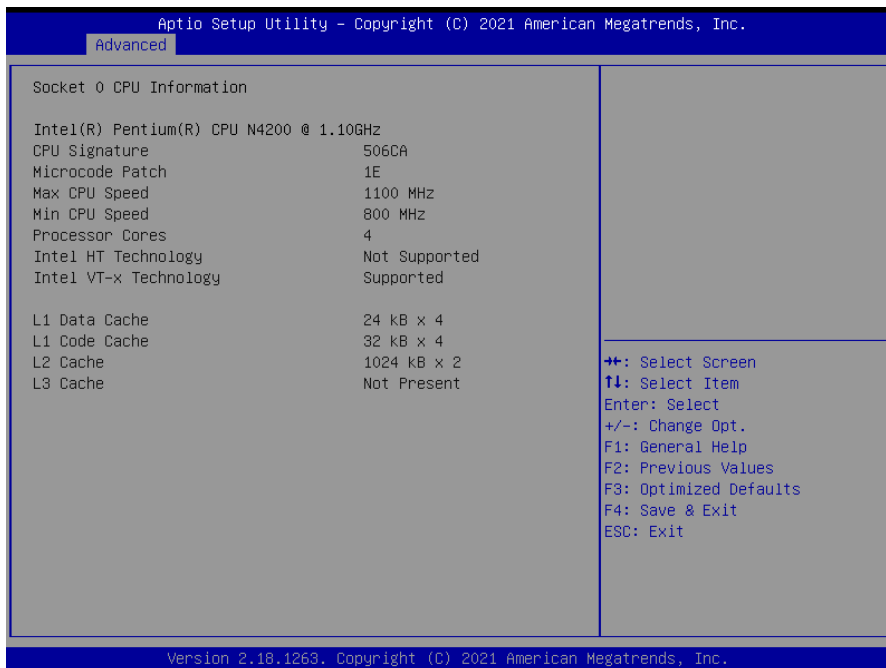
### 3.6.2.7 CPU Configuration

Use the CPU configuration menu to view detailed CPU specification and configure the CPU.



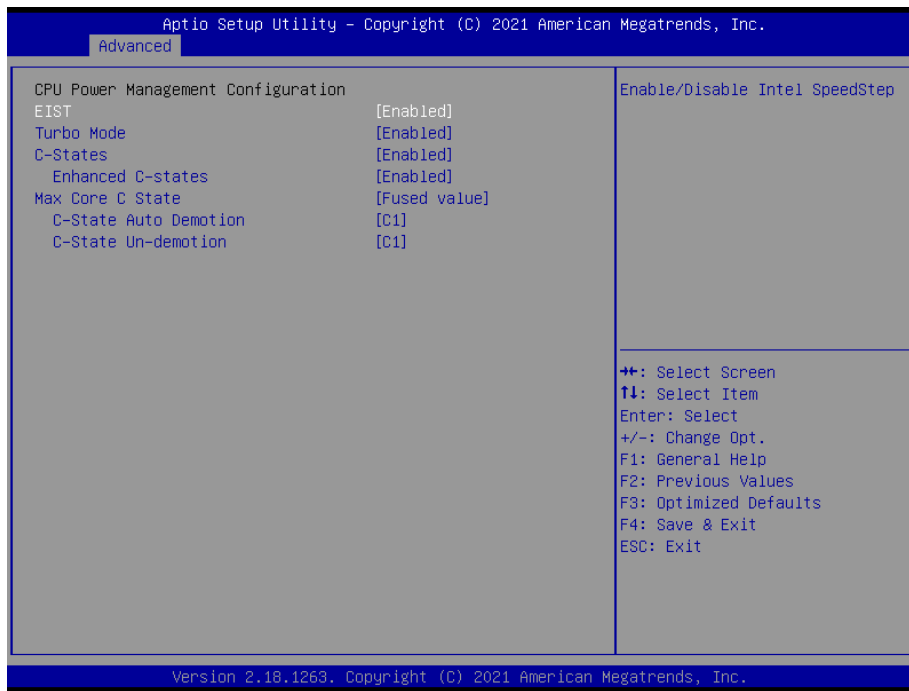
Item	Options	Description
Active Processor Cores	Disabled[Default], Enabled	Number of cores to enable in each processor package.
Intel Virtualization Technology	Disabled, Enabled[Default]	When enabled, a VMM can utilize the additional hardware capabilities provided by Virtualization Technology.
VT-d	Disabled[Default], Enabled	Enable/Disable CPU VT-d.
Bi-directional PROCHOT	Disabled, Enabled[Default]	When a processor thermal sensor trips (either core), the PROCHOT# will be driven. If bi-direction is enabled, external agents can drive PROCHOT# to throttle the processor.
Thermal Monitor	Disabled, Enabled[Default]	Enable/Disable Thermal Monitor.
Monitor Mwait	Disabled, Enabled Auto[Default]	Enable/Disable Monitor Mwait.
P-STATE Coordination	HW_ALL[Default] SW_ALL SW_ANY	Change P-STATE Coordination type.
DTS	Disabled[Default], Enabled	Enable/Disable Digital Thermal Sensor.

### 3.6.2.7.1 Socket 0 CPU Information



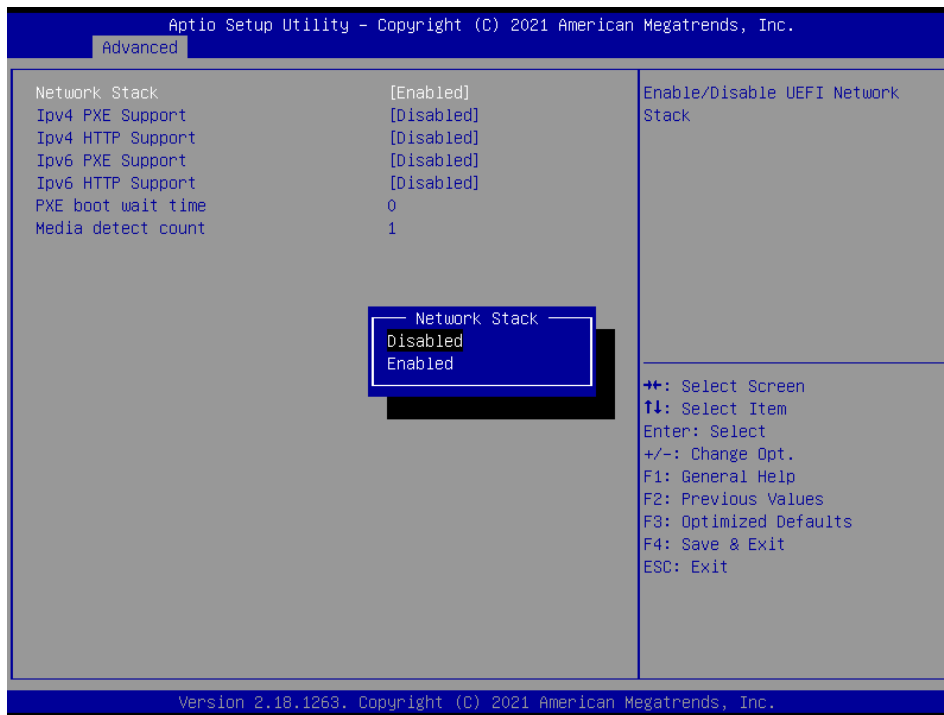


### 3.6.2.7.2 CPU Power Management Configuration



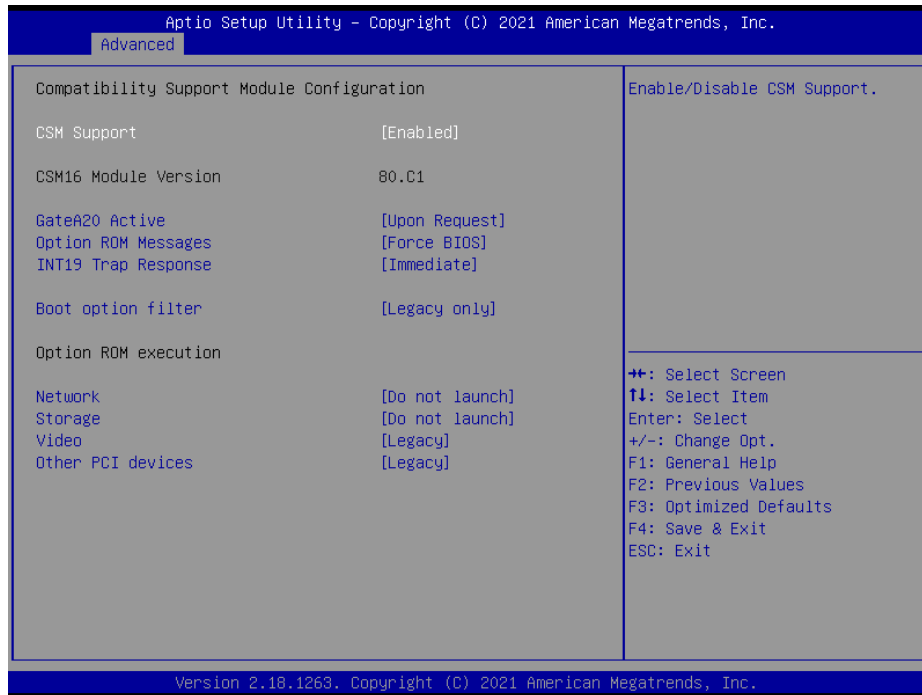
Item	Options	Description
<b>EIST</b>	Disabled, Enabled[ <b>Default</b> ]	Enable/Disable Intel SpeedStep.
<b>Turbo Mode</b>	Disabled, Enabled[ <b>Default</b> ]	Turbo Mode.
<b>C-States</b>	Disabled, Enabled[ <b>Default</b> ]	Enable/Disable C State.
<b>Enhanced C-states</b>	Disabled, Enabled[ <b>Default</b> ]	Enable/Disable C1E. When enabled, CPU will switch to minimum speed when all cores enter C-State.
<b>Max Core C State</b>	Fused value[ <b>Default</b> ] Core C10 Core C9 Core C8 Core C7 Core C6 Core C1 Unlimited	This option controls the Max Core C State that cores will support.
<b>C-State Auto Demotion</b>	Disabled C1[ <b>Default</b> ]	Configure C-State Auto Demotion.
<b>C-State Un-demotion</b>	Disabled C1[ <b>Default</b> ]	Configure C-State Un-demotion.

### 3.6.2.8 Network Stack Configuration



Item	Options	Description
<b>Network Stack</b>	Disabled[Default] Enabled	Enable/Disable UEFI Network Stack.
<b>Ipv4 PXE Support</b>	Disabled[Default] Enabled	Enable Ipv4 PXE Boot Support. If disabled IPV4 PXE boot option will not be created.
<b>Ipv4 HTTP Support</b>	Disabled[Default] Enabled	Enable Ipv4 HTTP Boot Support. If disabled IPV4 HTTP boot option will not be created.
<b>Ipv6 PXE Support</b>	Disabled[Default] Enabled	Enable Ipv6 PXE Boot Support. If disabled IPV6 PXE boot option will not be created.
<b>Ipv6 HTTP Support</b>	Disabled[Default] Enabled	Enable Ipv6 HTTP Boot Support. If disabled IPV6 HTTP boot option will not be created.
<b>PXE boot wait time</b>	0	Wait time to press ESC key to abort the PXE boot.
<b>Media detect count</b>	1	Number of times presence of media will be checked.

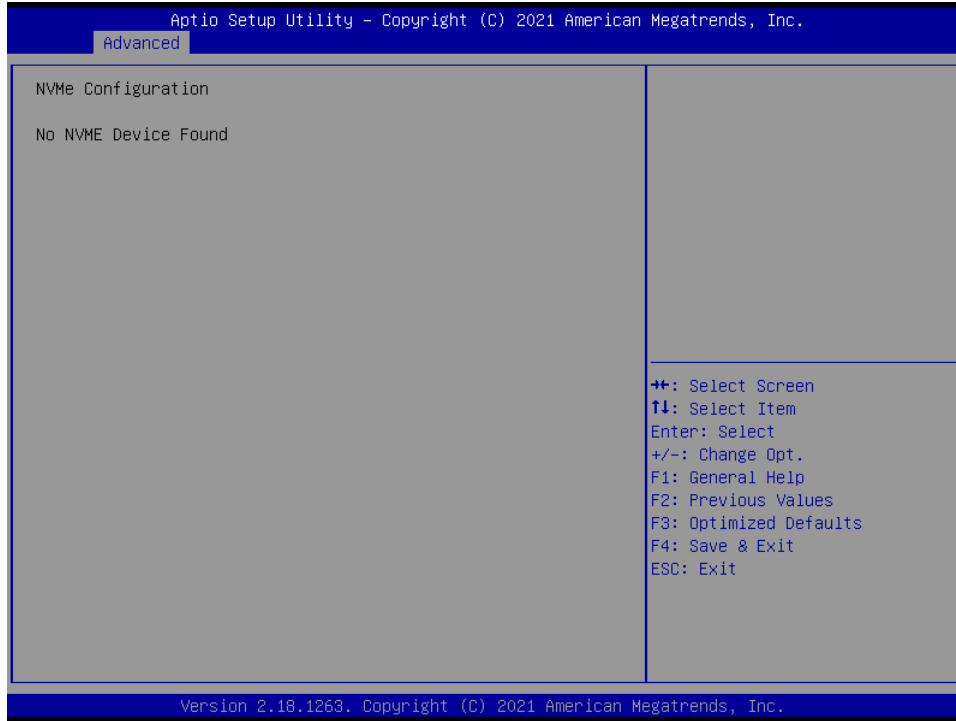
### 3.6.2.9 CSM Configuration



Item	Options	Description
<b>CSM Support</b>	Disabled[ <b>Default</b> ], Enabled	Enable/Disable CSM Support.
<b>GateA20 Active</b>	Upon Request[ <b>Default</b> ] 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 Keep Current[ <b>Default</b> ]	Set display mode for Option ROM.
<b>INT19 Trap Response</b>	Immediate[ <b>Default</b> ] Postponed	BIOS reaction on INT19 trapping by Option ROM: IMMEDIATE – execute the trap right away; POSTPONED – execute the trap during legacy boot.
<b>Boot option filter</b>	UEFI and Legacy Legacy only[ <b>Default</b> ] UEFI only	This option controls Legacy/UEFI ROMs priority.
<b>Network</b>	Do not launch[ <b>Default</b> ] UEFI Legacy	Controls the execution of UEFI and Legacy PXE OpROM.
<b>Storage</b>	Do not launch[ <b>Default</b> ] UEFI Legacy	Controls the execution of UEFI and Legacy Storage OpROM.
<b>Video</b>	Do not launch UEFI Legacy[ <b>Default</b> ]	Controls the execution of UEFI and Legacy Video OpROM.

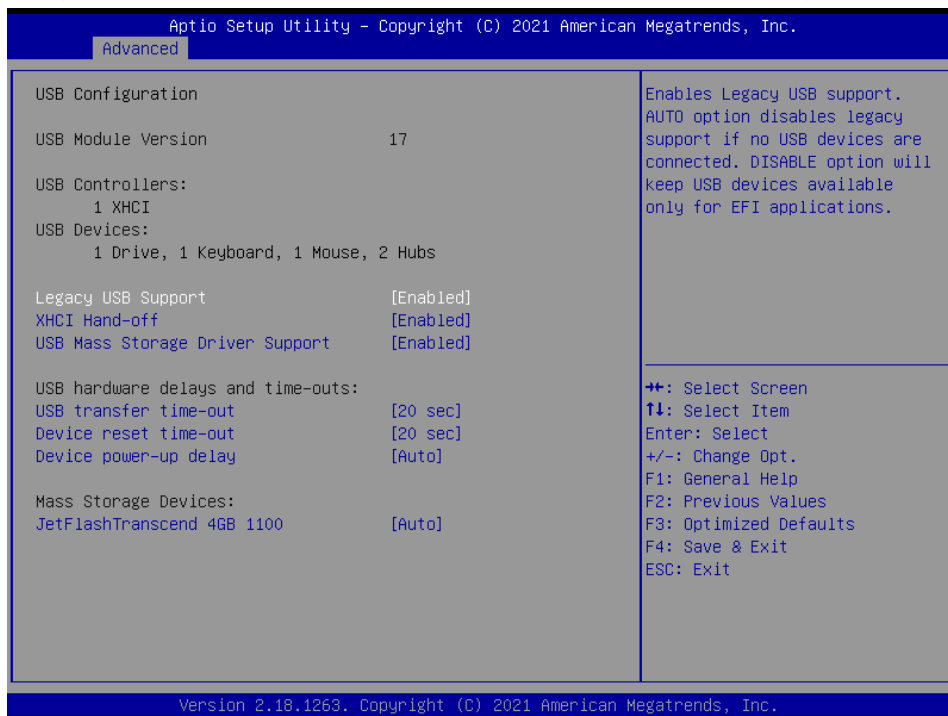
<p><b>Other PCI devices</b></p>	<p>Do not launch UEFI Legacy[<b>Default</b>]</p>	<p>Determines OpROM execution policy for devices other than Network, Storage, or Video.</p>
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### 3.6.2.10 NVMe Configuration



### 3.6.2.11 USB Configuration

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



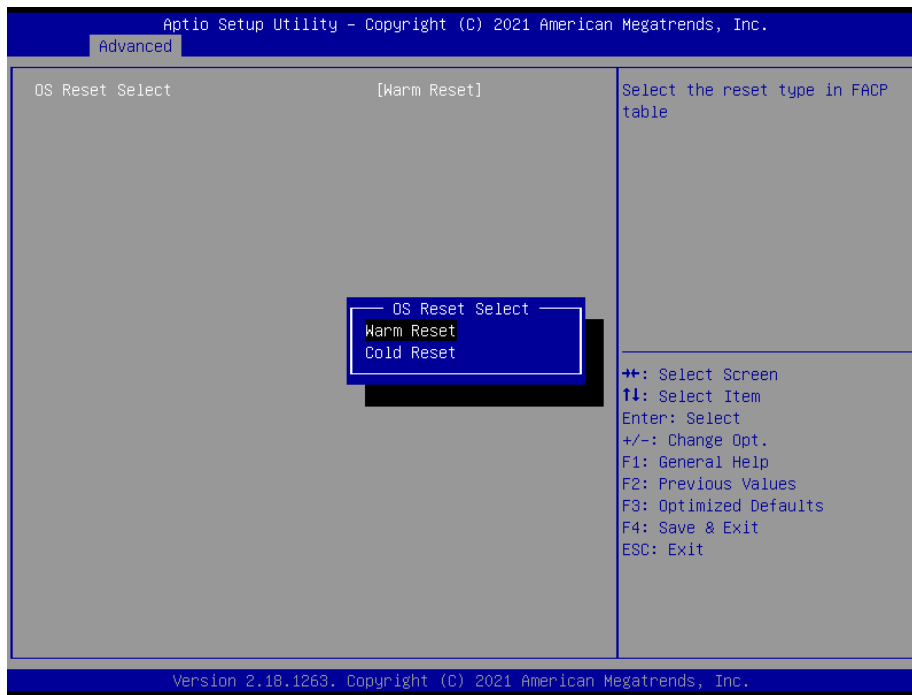
Item	Options	Description
<b>Legacy USB Support</b>	Enabled[Default] Disabled Auto	Enables Legacy USB support. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications.
<b>XHCI Hand-off</b>	Enabled[Default] Disabled	This is a workaround for OSes without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.
<b>USB Mass Storage Driver Support</b>	Disabled Enabled[Default]	Enable/Disable USB Mass Storage Driver Support.
<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 40 sec	USB mass storage device Start Unit command time-out.
<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.

### 3.6.2.12 Security Configuration



Item	Options	Description
<b>TXE HMRFP0</b>	Enabled, Disabled[Default]	TXE HMRFP0.
<b>TXE EOP Message</b>	Enabled[Default], Disabled	Send EOP Message Before Enter OS.

### 3.6.2.13 System Component

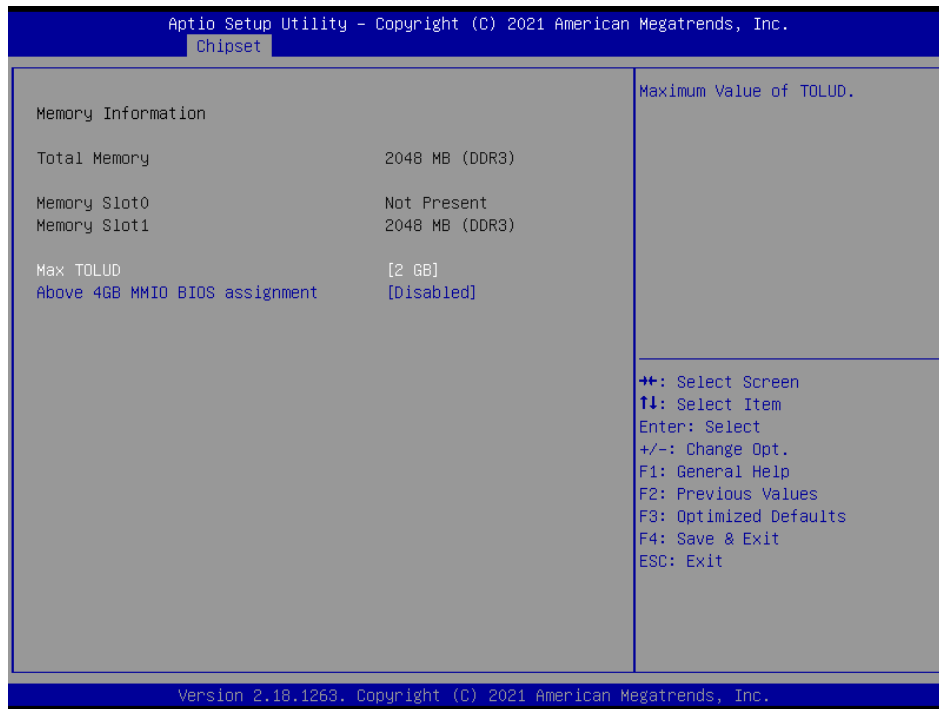


Item	Options	Description
OS Reset Select	Warm Reset Cold Reset[Default]	Select the reset type in FACP table.

### 3.6.3 Chipset

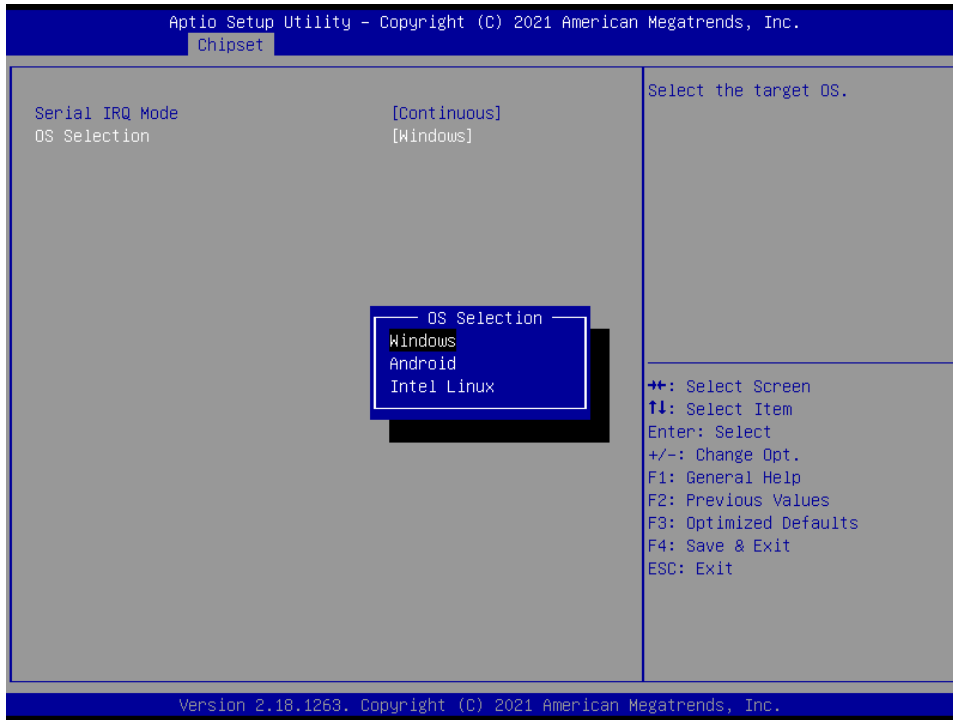


### 3.6.3.1 North Bridge



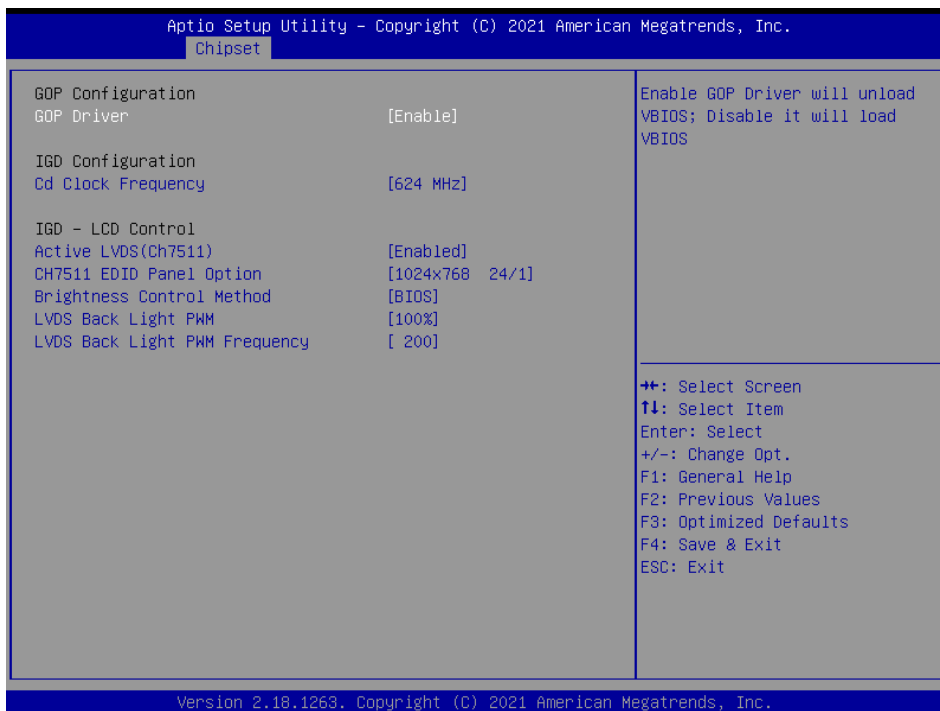
Item	Option	Description
<b>Max TOLUD</b>	2 GB[Default] 2.25 GB 2.5 GB 2.75 GB	Maximum Value of TOLUD.
<b>Above 4GB MMIO BIOS assignment</b>	Enabled, Disabled[Default]	Enable/Disable above 4GB MemoryMappedIO BIOS assignment. This is disabled automatically when Aperture Size is set to 2048MB.

### 3.6.3.2 South Bridge



Item	Option	Description
Serial IRQ Mode	Quiet Continuous[Default]	Configure Serial IRQ Mode.
OS Selection	Windows[Default] Android Intel Linux	Select the target OS.

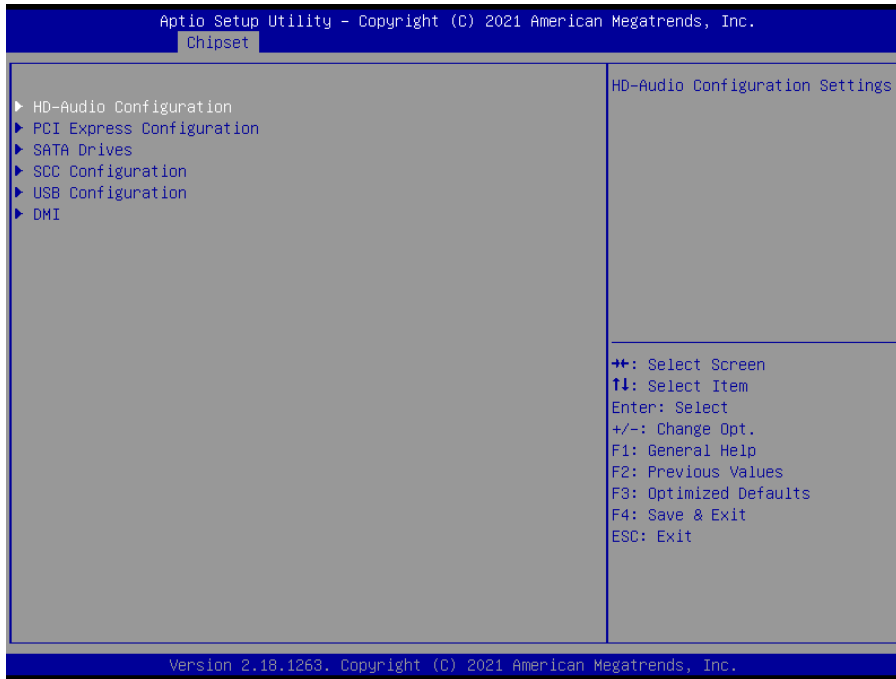
### 3.6.3.3 Uncore Configuration



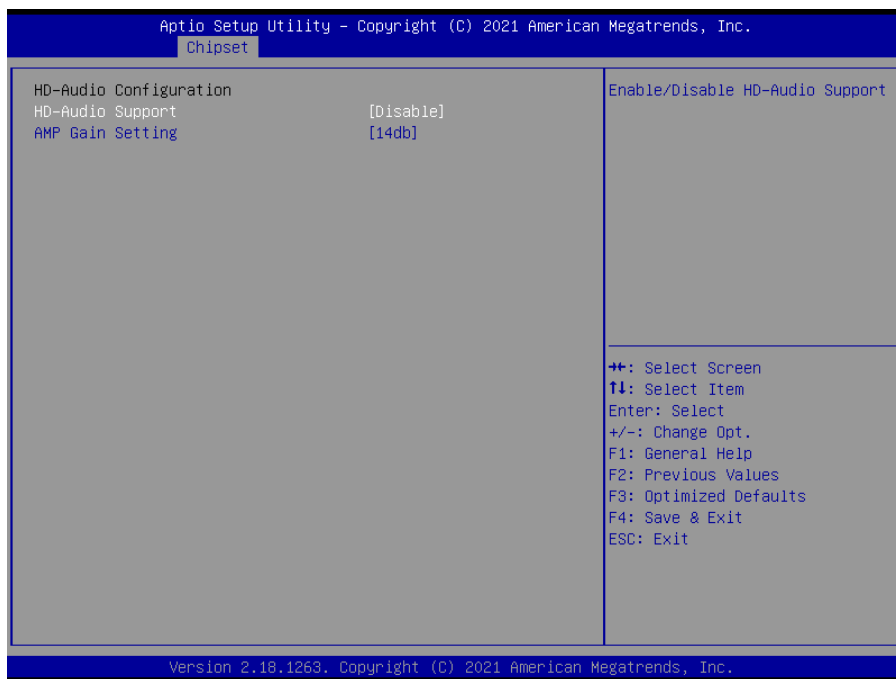


Item	Option	Description
<b>GOP Driver</b>	Enable[Default] Disable	Enable GOP Driver will unload VBIOS; Disabled it will load VBIOS.
<b>Cd Clock Frequency</b>	144 MHz 288 MHz 384 MHz 576 MHz 624 MHz[Default]	Select the highest Cd Clock frequency supported by the platform.
<b>Active LVDS (Ch7511)</b>	Disabled[Default] Enabled	Active Internal LVDS(eDP->Ch7511-to-LVDS).
<b>CH7511 EDID Panel Option</b>	1024x768 24/1[Default] 800x600 18/1 1024x768 18/1 1366x768 18/1 1024x600 18/1 1280x800 18/1 1920x1200 24/2 1920x1080 18/2 1280x1024 24/2 1440x900 18/2 1600x1200 24/2 1366x768 24/1 1920x1080 24/2 1680x1050 24/2	Port1-EDP to LVDS(Chrotel 7511) Panel EDID Option.
<b>Brightness Control Method</b>	BIOS[Default] BR Button VR OS Driver	LVDS Brightness Control Method. 1.BIOS 2.Brightness Button 3.Variable Resistor 4.OS Driver.
<b>LVDS Back Light PWM</b>	00% 25% 50% 75% 100%[Default]	Select LVDS back light PWM duty.
<b>LVDS Back Light PWM Frequency</b>	200[Default] 300 400 500 700 1k 2k 3k 5k 10k 20k	Select LVDS back light PWM Frequency.

### 3.6.3.4 South Cluster Configuration

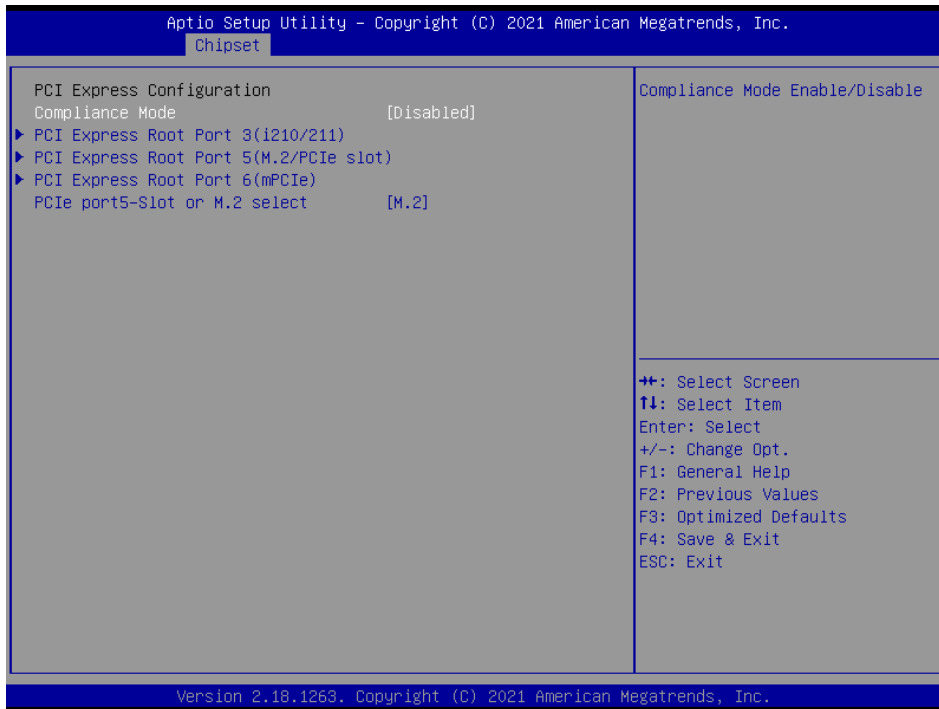


#### 3.6.3.4.1 HD-Audio Configuration



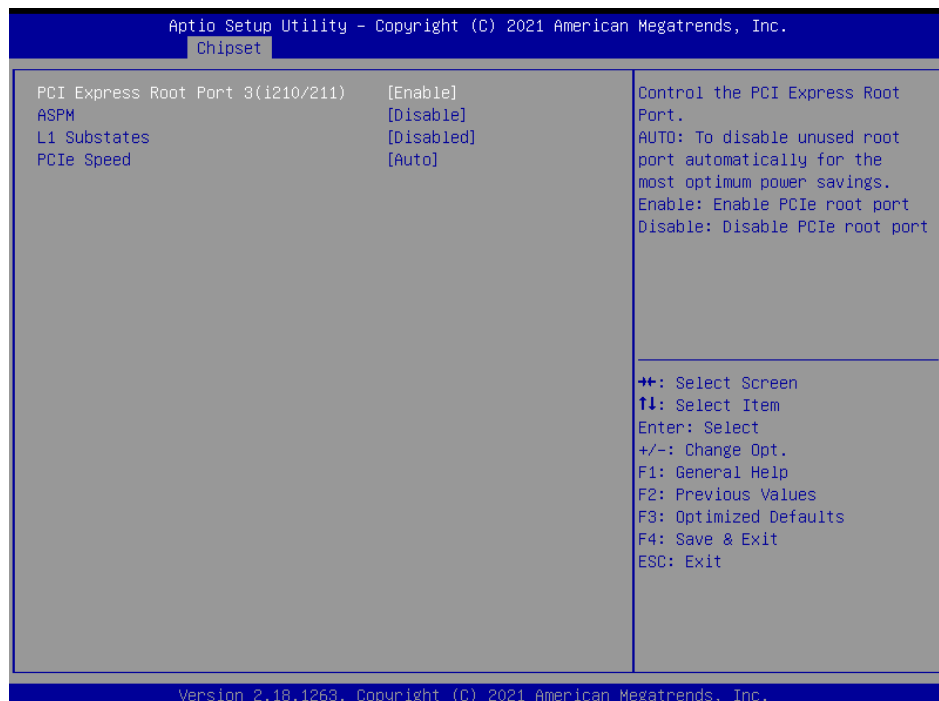
Item	Option	Description
HD-Audio Support	Disable[Default]	Enable/Disable HD-Audio Support.
	Enable	
AMP Gain Setting	11db	Select AMP Gain db.
	14db[Default]	
	19db	
	25db	

### 3.6.3.4.2 PCI Express Configuration



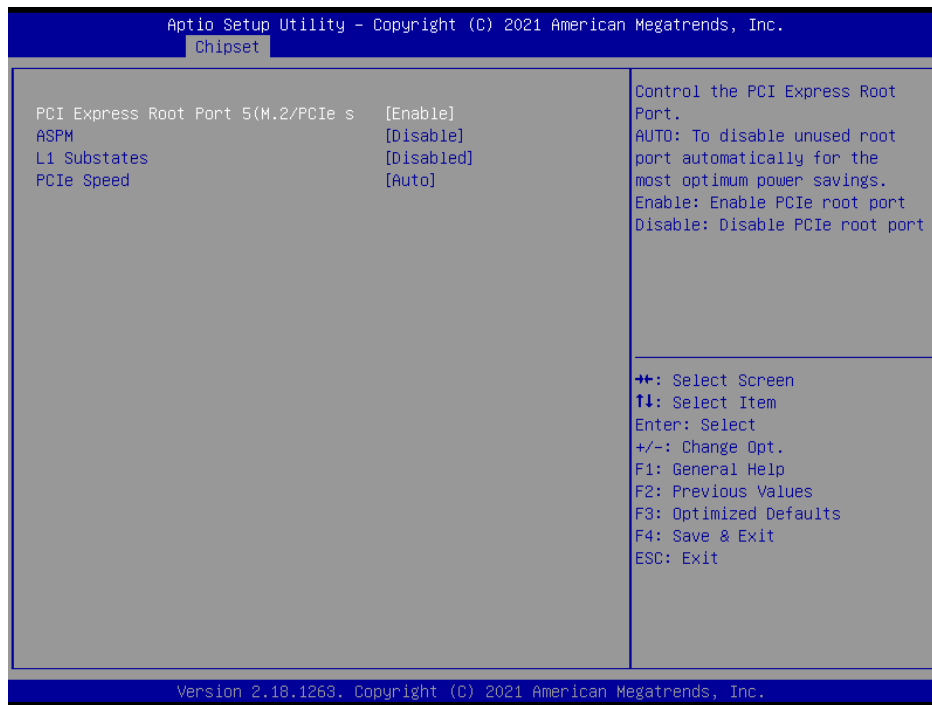
Item	Option	Description
<b>Compliance Mode</b>	Disable[Default] Enable	Compliance Mode Enable/Disable.
<b>PCIe port5-Slot or M.2 select</b>	PCIe slot M.2[Default],	PCIe port5 mapping to PCIe slot or M.2.

#### 3.6.3.4.2.1 PCI Express Root Port 3(i210/211)



Item	Option	Description
<b>PCI Express Root Port 3(i210/211)</b>	Disable Enable[Default]	Control the PCI Express Root Port. AUTO: To disable unused root port automatically for the most optimum power savings. Enable: Enable PCIe root port Disable: Disable PCIe root port.
<b>ASPM</b>	Disable[Default] L0s L1 L0sL1 Auto	PCI Express Active State Power Management settings.
<b>L1 Substates</b>	Disabled[Default] L1.1 L1.2 L1.1 & L1.2	PCI Express L1 Substates settings.
<b>PCIe Speed</b>	Auto[Default] Gen 1 Gen 2	Configure PCIe Speed.

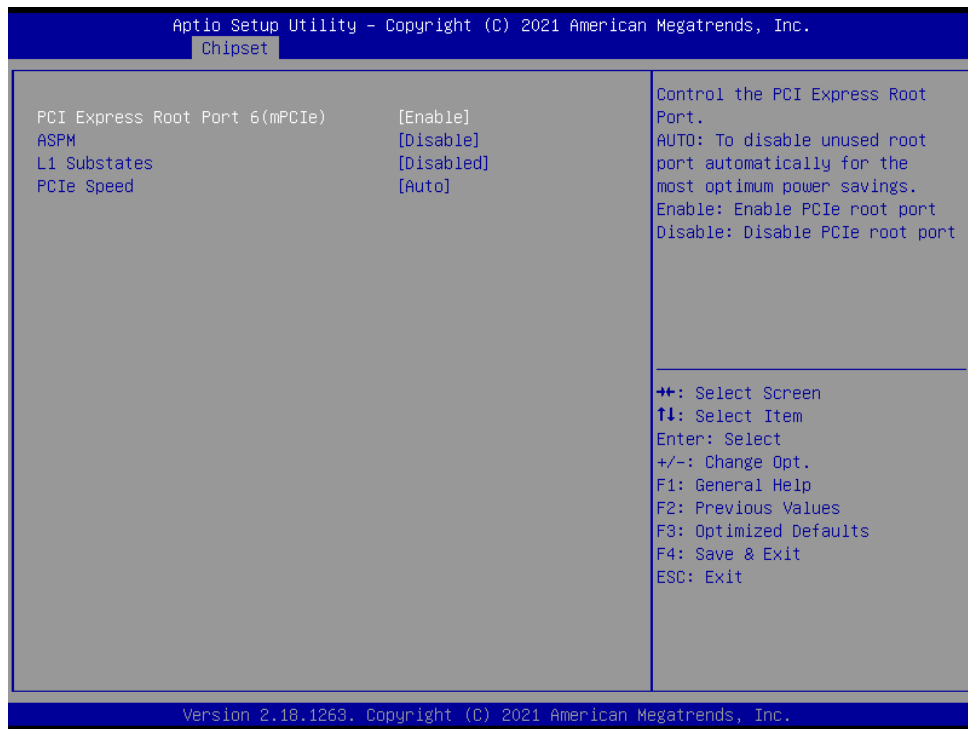
### 3.6.3.4.2.2 PCI Express Root Port 5(M.2/PCIe slot)



Item	Option	Description
<b>PCI Express Root Port 5(M.2/PCIe slot)</b>	Disable Enable[Default]	Control the PCI Express Root Port. AUTO: To disable unused root port automatically for the most optimum power savings. Enable: Enable PCIe root port Disable: Disable PCIe root port.
<b>ASPM</b>	Disable[Default] L0s	PCI Express Active State Power Management settings.

	L1 L0sL1 Auto	
<b>L1 Substates</b>	Disabled[Default] L1.1 L1.2 L1.1 & L1.2	PCI Express L1 Substates settings.
<b>PCIe Speed</b>	Auto[Default] Gen 1 Gen 2	Configure PCIe Speed.

### 3.6.3.4.2.3 PCI Express Root Port 6(mPCIe)

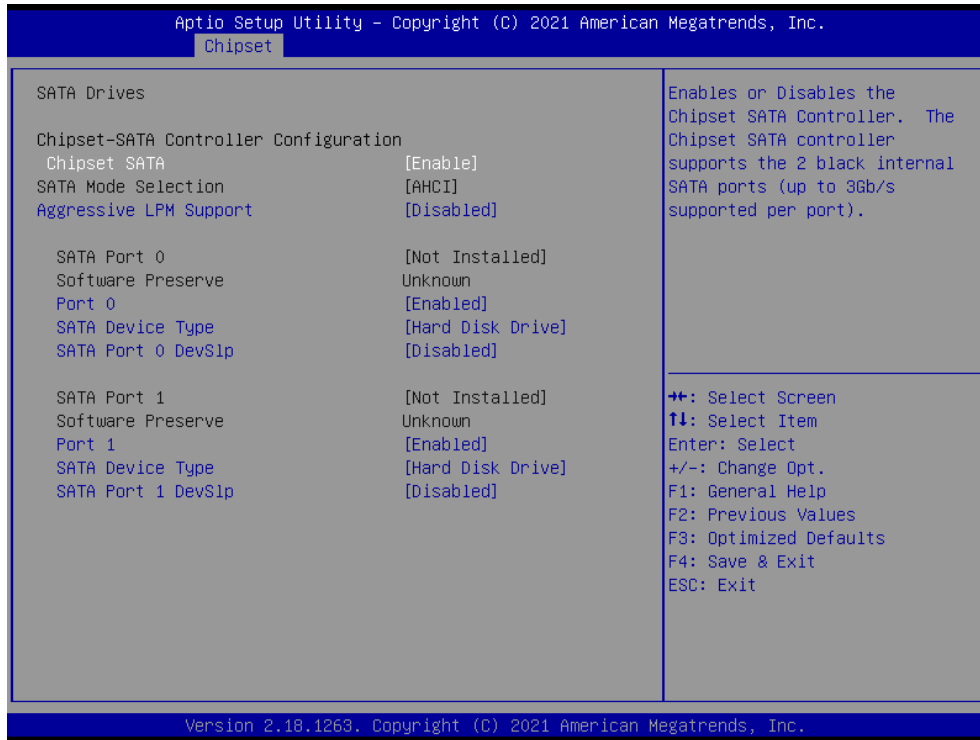


Item	Option	Description
<b>PCI Express Root Port 6(mPCIe)</b>	Disable Enable[Default]	Control the PCI Express Root Port. AUTO: To disable unused root port automatically for the most optimum power savings. Enable: Enable PCIe root port Disable: Disable PCIe root port.
<b>ASPM</b>	Disable[Default] L0s L1 L0sL1 Auto	PCI Express Active State Power Management settings.
<b>L1 Substates</b>	Disabled[Default] L1.1 L1.2 L1.1 & L1.2	PCI Express L1 Substates settings.

## SPC-1533-B1

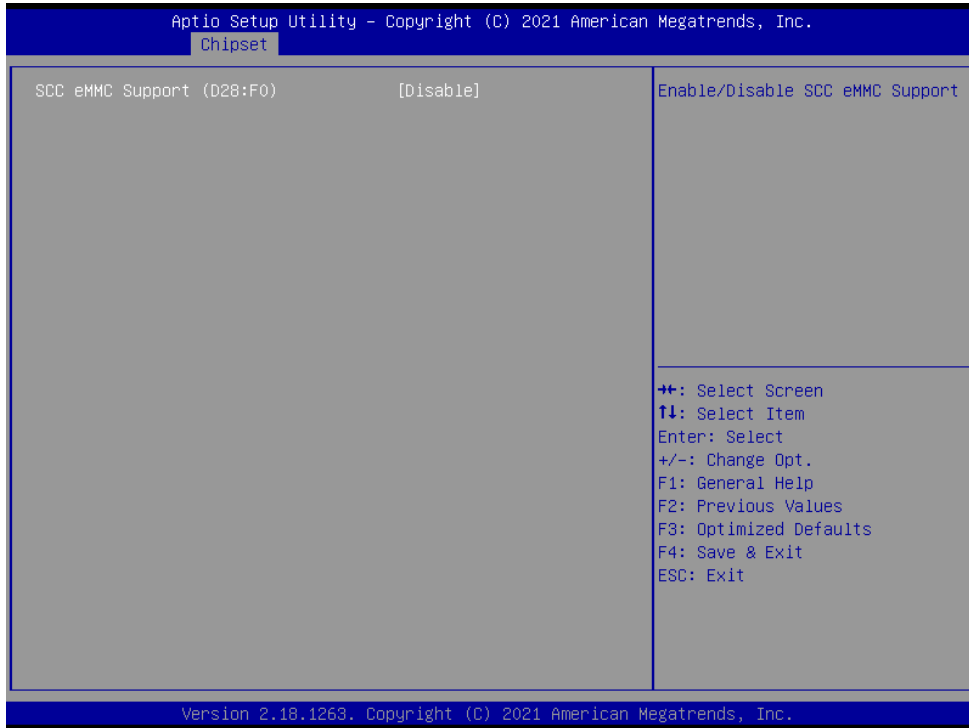
<b>PCIe Speed</b>	Auto[ <b>Default</b> ] Gen 1 Gen 2	Configure PCIe Speed.
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### 3.6.3.4.3 SATA Drives



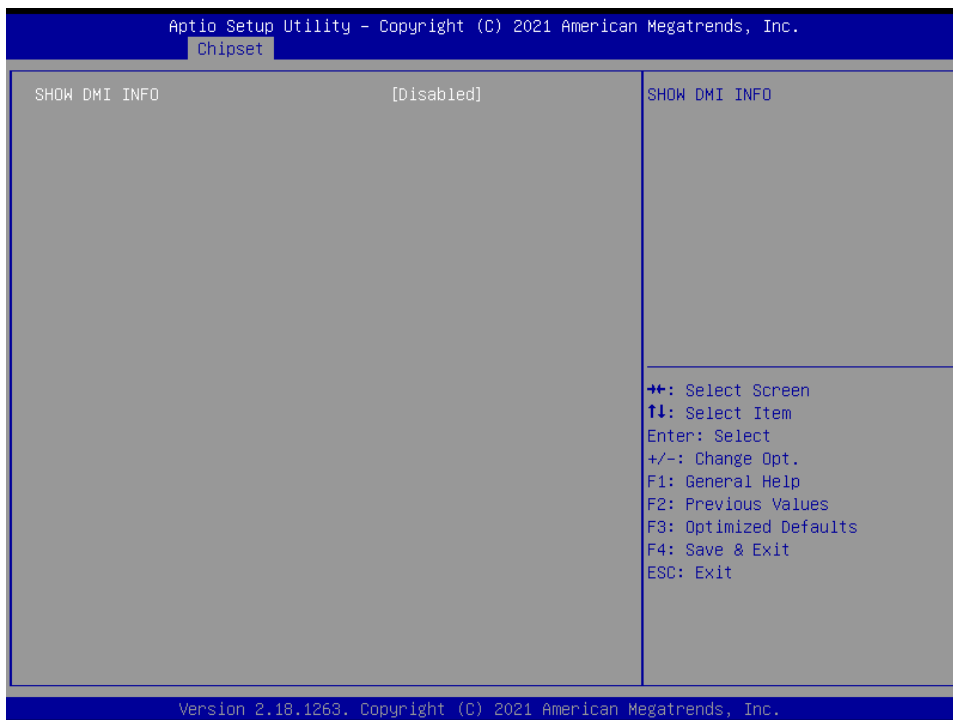
Item	Option	Description
<b>Chipset SATA</b>	Enable[ <b>Default</b> ], Disable	Enables or Disables the Chipset the SATA Controller. The Chipset SATA controller supports the 2 black internal SATA ports (up to 3Gb/s supported per port).
<b>Aggressive LPM Support</b>	Disabled[ <b>Default</b> ] Enabled	Enable PCH to aggressively enter link power state.
<b>Port 0/1</b>	Disabled Enabled[ <b>Default</b> ]	Enable or Disable SATA Port.
<b>SATA Device Type</b>	Hard Disk Drive[ <b>Default</b> ] Solid State Drive	Identify the SATA port is connected to Solid State Driver or Hard Disk Drive.
<b>SATA Port 0/1 DevSlp</b>	Disabled[ <b>Default</b> ] Enabled	Enable/Disable SATA Port 0/1 DevSlp. Board rework for LP needed before enable.

### 3.6.3.4.4 SCC Configuration



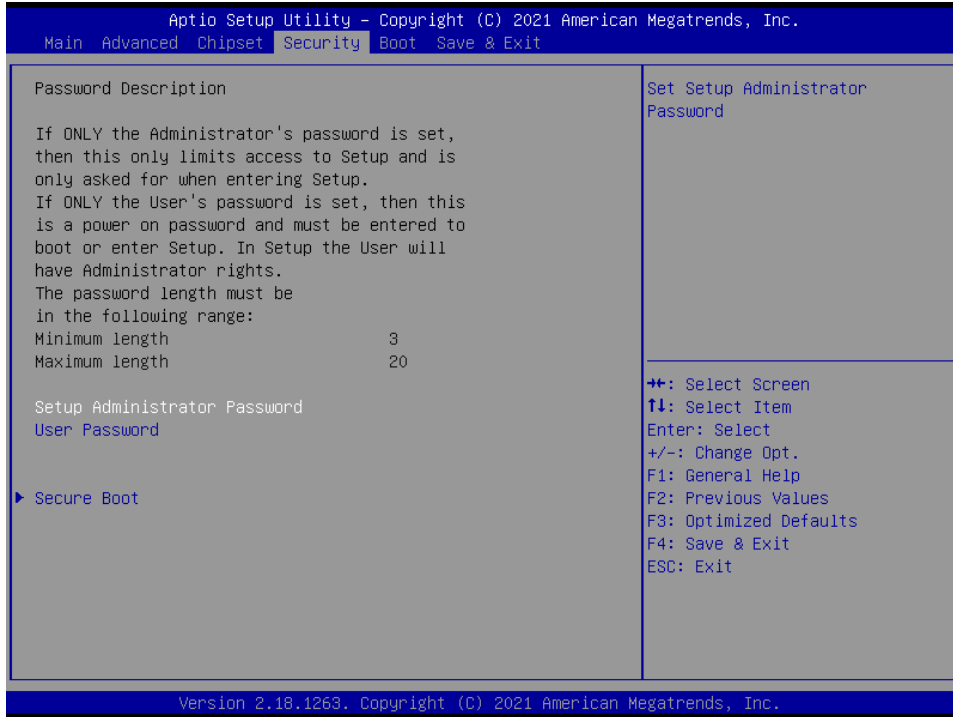
Item	Option	Description
SCC eMMC Support (D28:F0)	Disable[Default], Enable	Enable/Disable SCC eMMC Support.

### 3.6.3.5 DMI



Item	Option	Description
SHOW DMI INFO	Disable[Default], Enable	SHOW DMI INFO

### 3.6.4 Security



- **Setup Administrator Password**

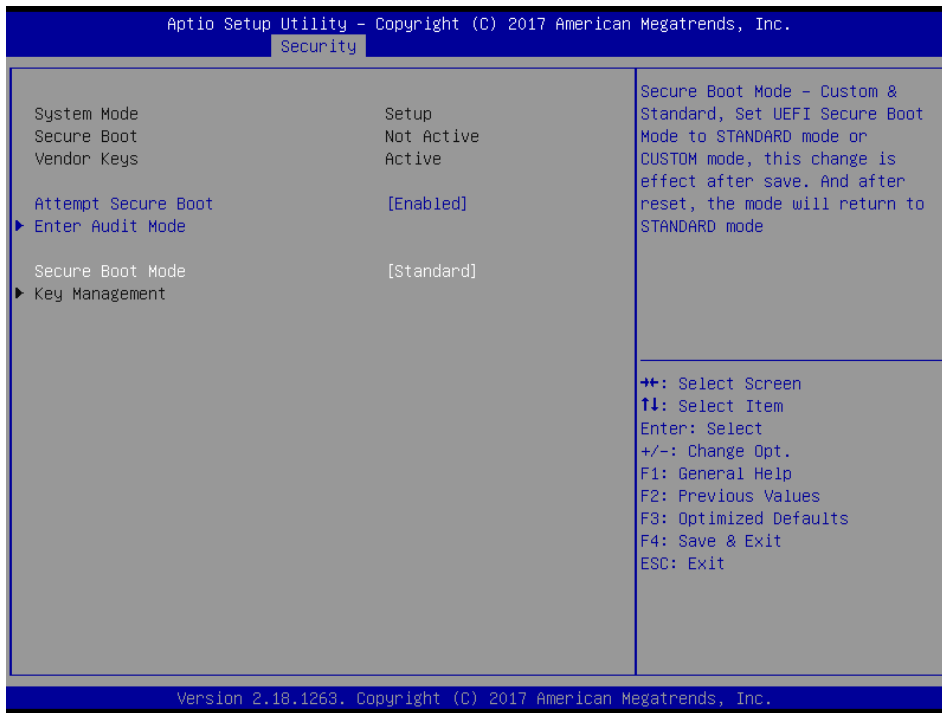
Set setup Administrator Password

- **User Password**

Set User Password



### 3.6.4.1 Secure Boot



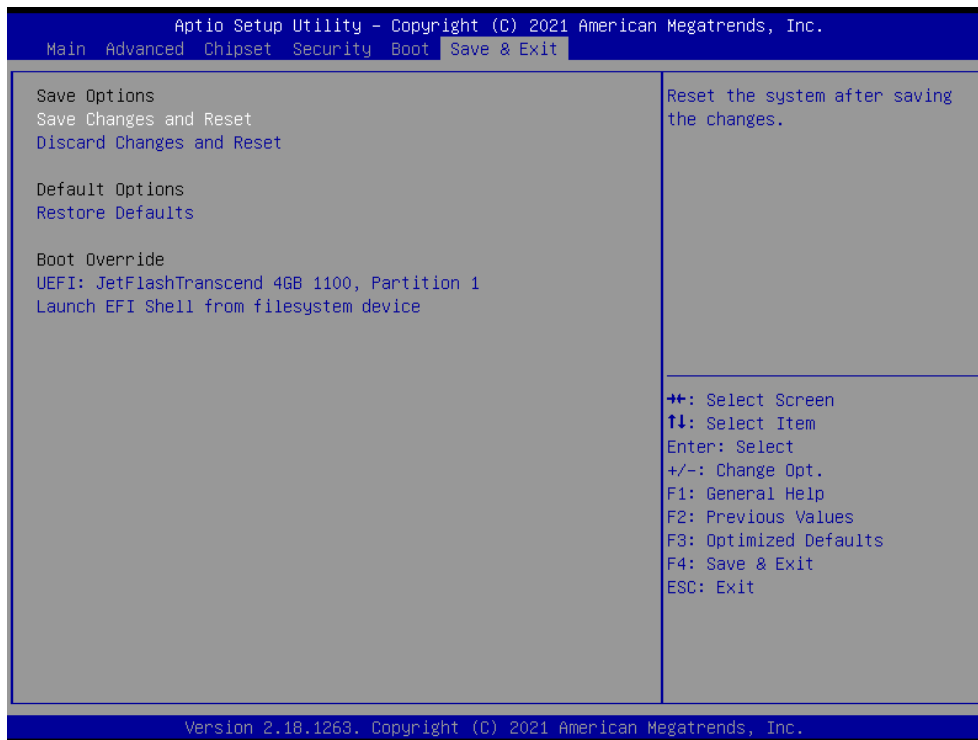
Item	Option	Description
<b>Attempt Secure Boot</b>	Disabled[Default] Enabled	Secure Boot activated when Platform Key(PK) is enrolled, and CSM function is disabled.
<b>Secure Boot Mode</b>	Standard[Default] Customized	Secure Boot Mode –Custom_Standard, Set UEFI Secure Boot Mode to STANDARD mode or CUSTOM mode or CUSTOM mode, this change is effect after save. And after reset, the mode will return to STANDARD mode.

### 3.6.5 Boot



Item	Option	Description
<b>Setup Prompt Timeout</b>	1~ 65535	Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.
<b>Bootup NumLock State</b>	On[Default] Off	Select the Keyboard NumLock state
<b>Quiet Boot</b>	Disabled[Default] Enabled	Enables or disables Quiet Boot option
<b>Boot Option #1</b>	Set the system boot order.	

### 3.6.6 Save and 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

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**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.

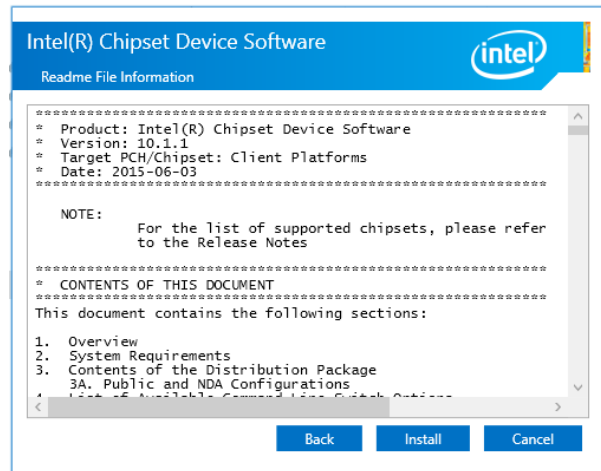
## 4.1 Install Chipset Driver

All drivers can be found on the Avalue Official Website:

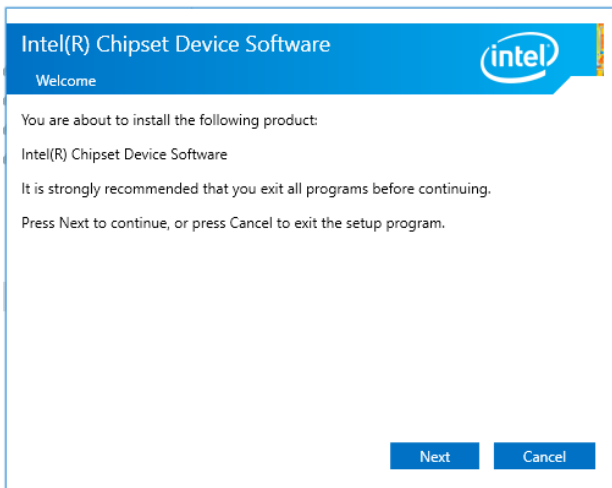
<http://www.avalu.com.tw>.



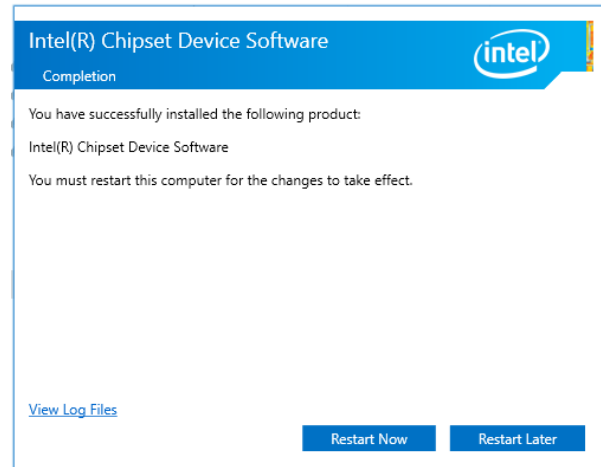
**Note:** The installation procedures and screen shots in this section are based on Windows 10 operation system. If the warning message appears while the installation process, click Continue to go on.



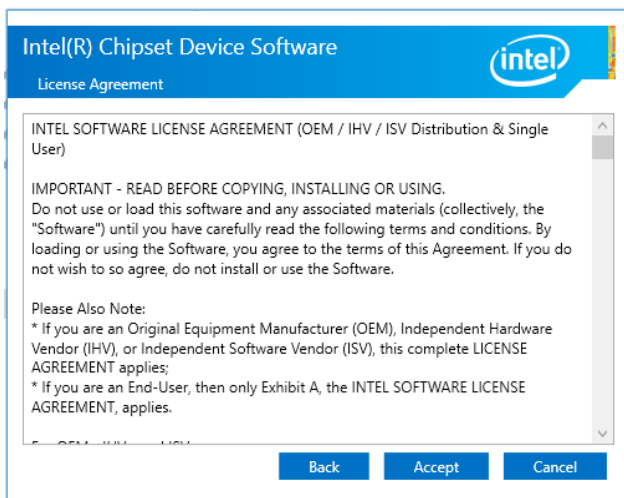
**Step 3. Click Install.**



**Step1. Click Next.**



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



**Step 2. Click Accept.**

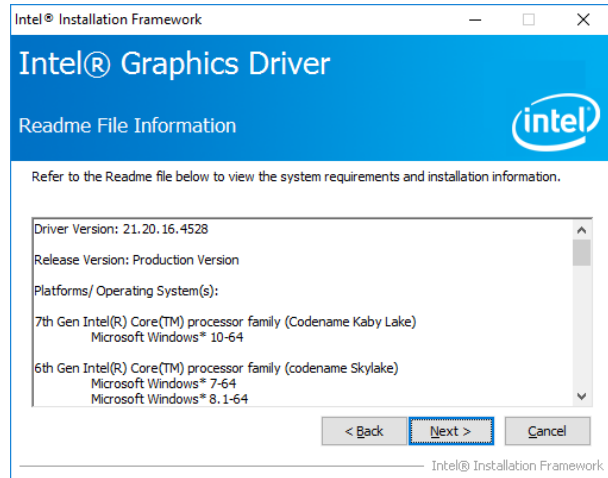
## 4.2 Install VGA Driver

All drivers can be found on the Avalue Official Website:

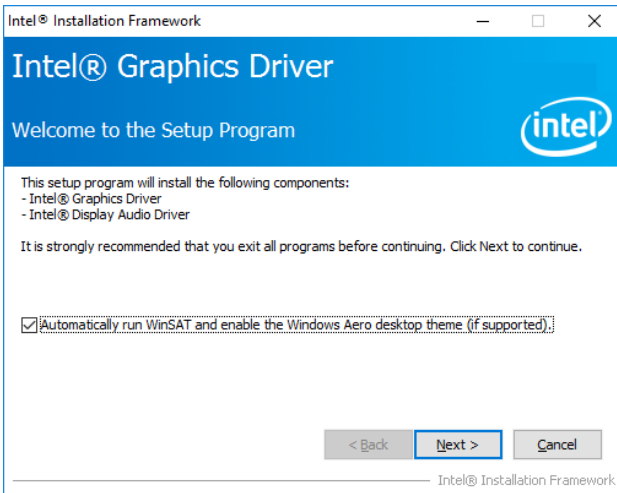
<http://www.avalue.com.tw>.



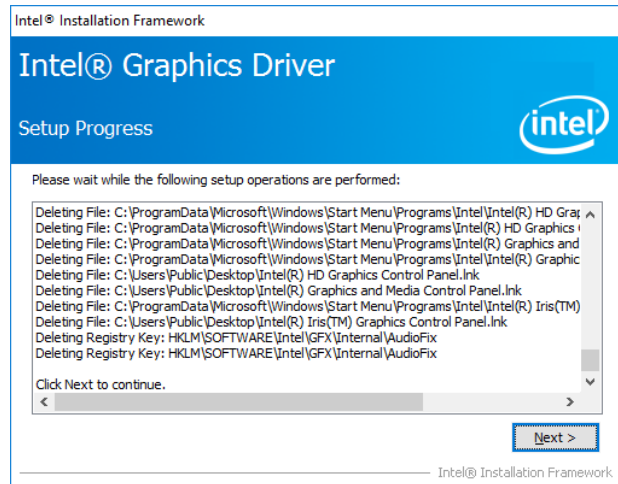
**Note:** The installation procedures and screen shots in this section are based on Windows 10 operation system. If the warning message appears while the installation process, click Continue to go on.



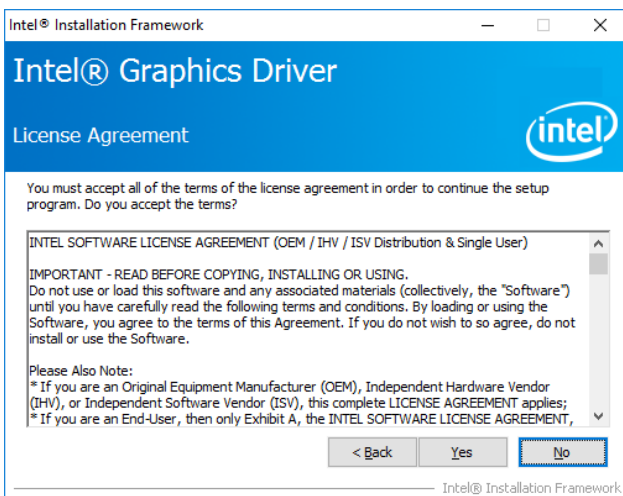
**Step 3. Click Next.**



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

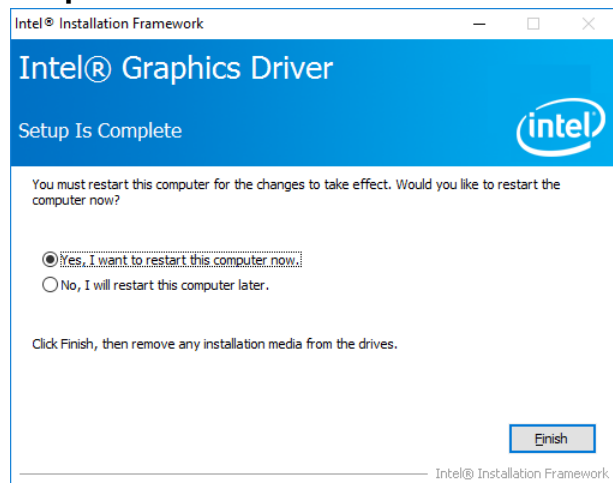


**Step 4. Click Next.**



**Step 2.**

Click **Yes** to accept license agreement.



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

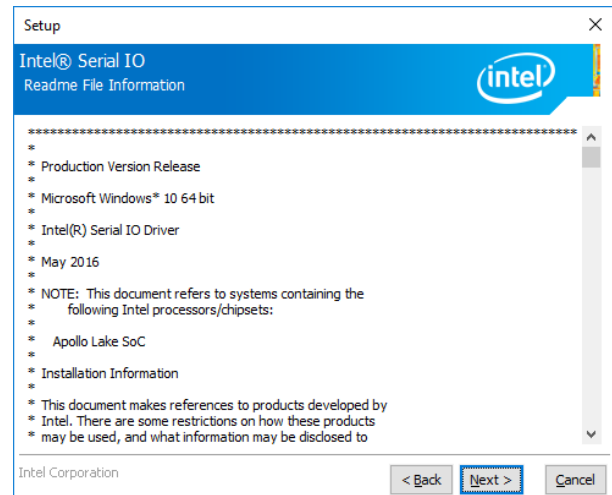
## 4.3 Install Serial IO Driver

All drivers can be found on the Avalue Official Website:

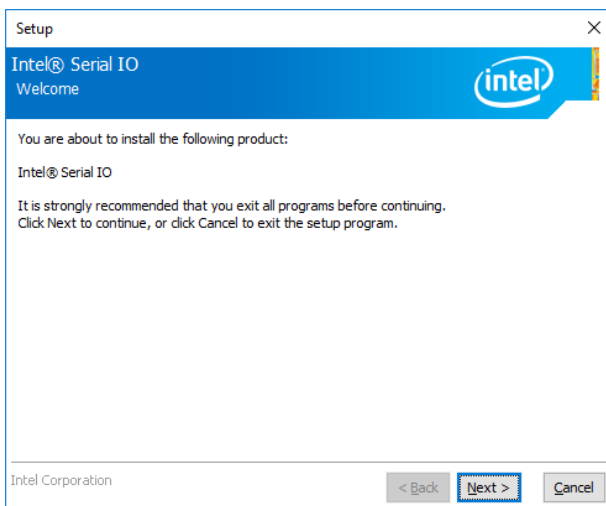
<http://www.avalue.com.tw>.



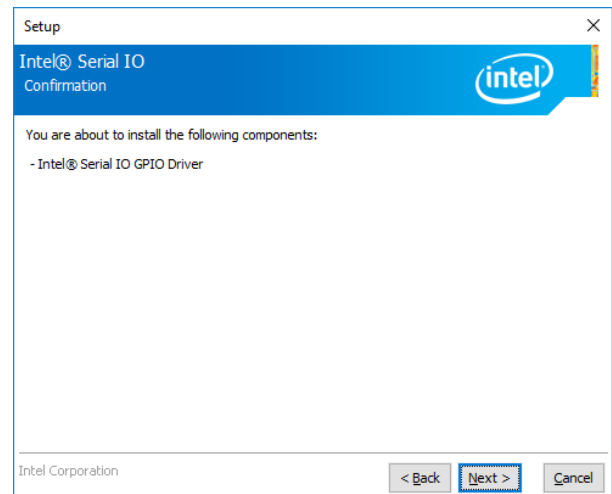
**Note:** The installation procedures and screen shots in this section are based on Windows 10 operation system. If the warning message appears while the installation process, click Continue to go on.



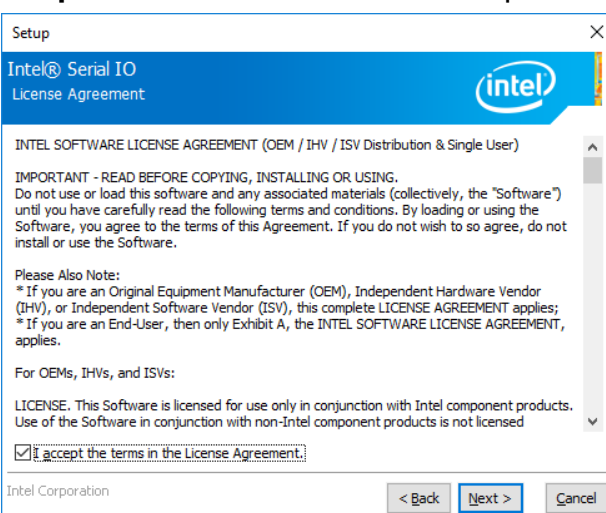
**Step 3. Click Next.**



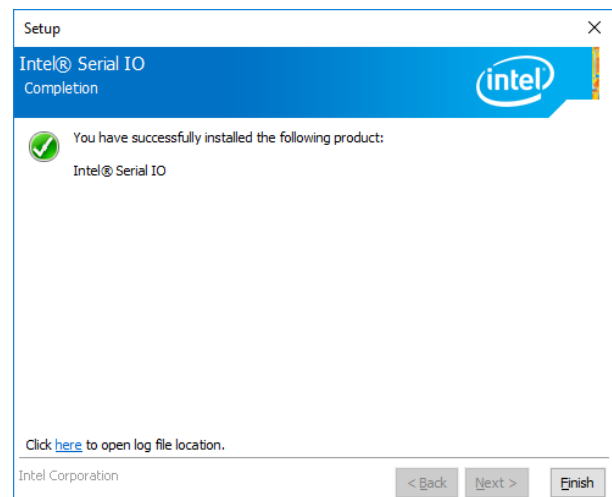
**Step 1. Click Next** to continue setup.



**Step 4. Click Next.**



**Step 2. Click Next.**



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

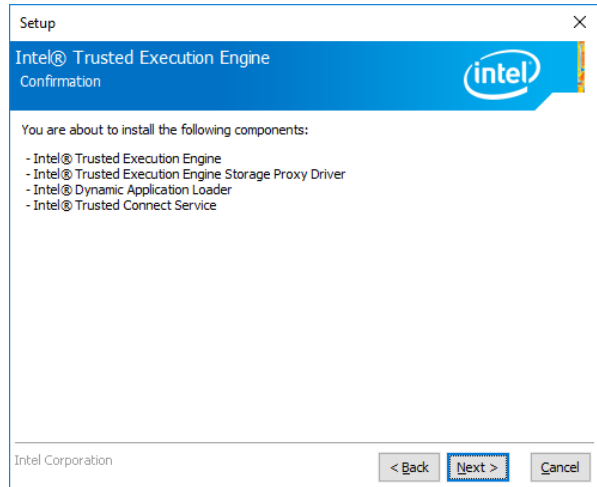
## 4.4 Install TXE Driver

All drivers can be found on the Avalue Official Website:

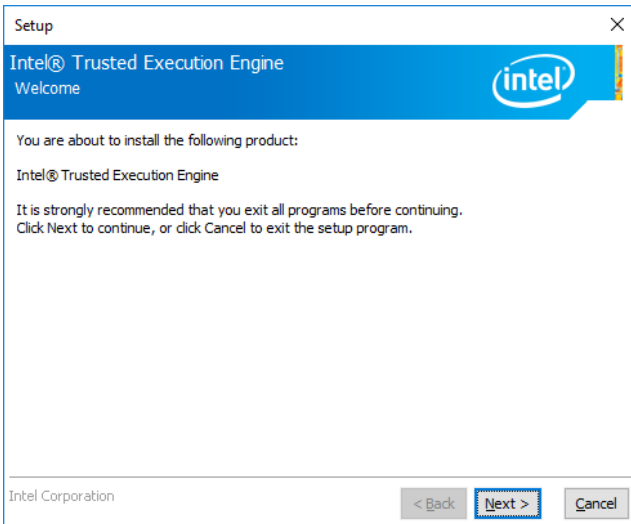
<http://www.avalue.com.tw>.



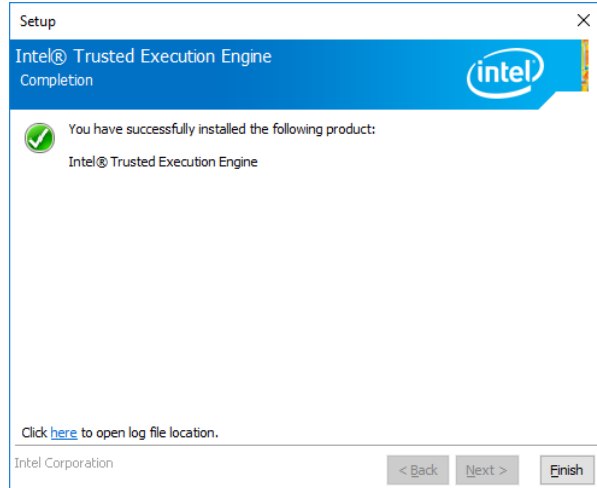
**Note:** The installation procedures and screen shots in this section are based on Windows 10 operation system. If the warning message appears while the installation process, click Continue to go on.



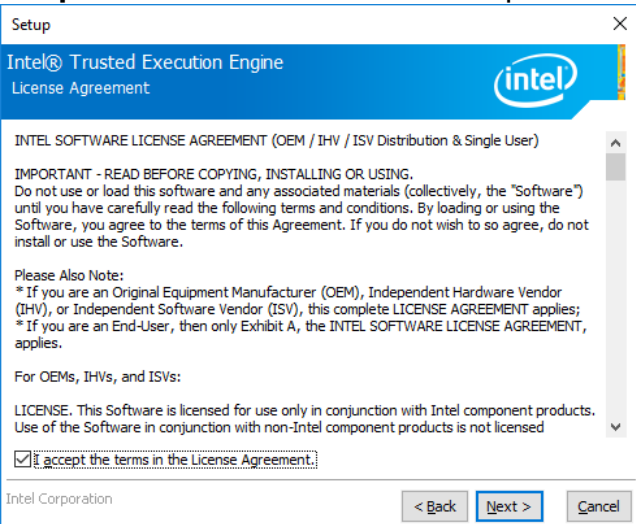
**Step 3. Click Next.**



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



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



**Step 2. Click Next.**



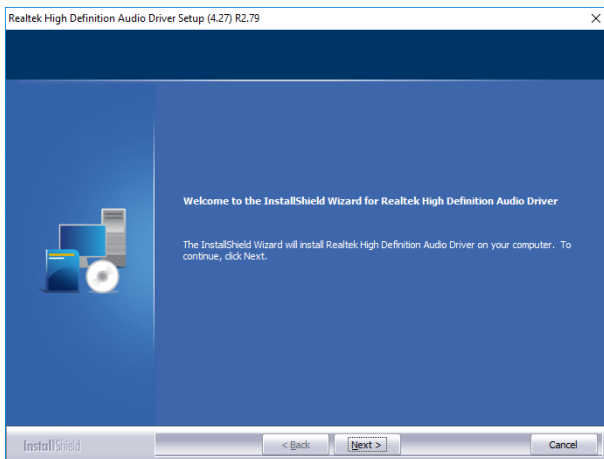
## 4.5 Install Audio Driver (For Realtek ALC662 HD Audio)

All drivers can be found on the Avalue Official Website:

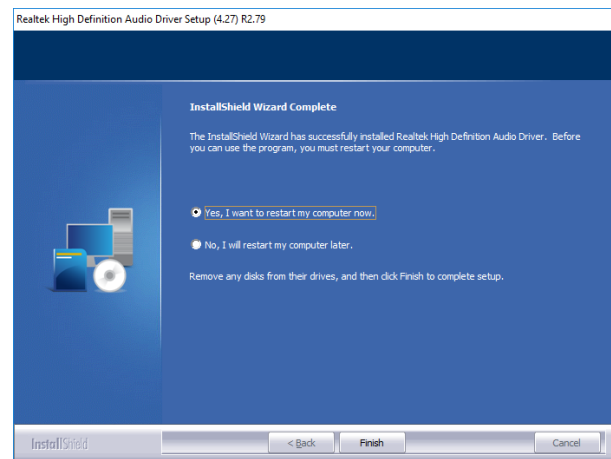
<http://www.avalue.com.tw>.



**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** to Install.



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

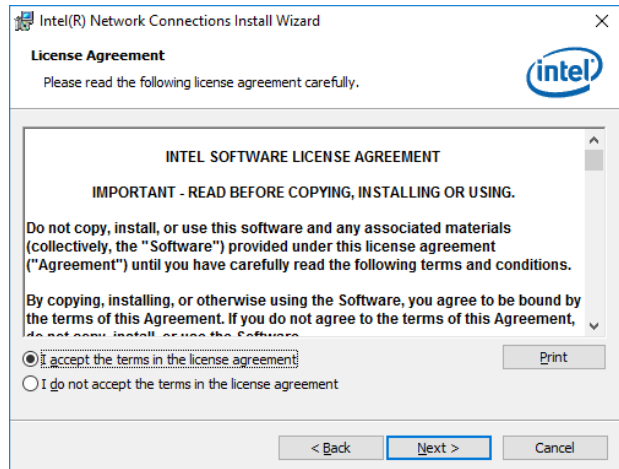
## 4.6 Install LAN Driver (For Intel I211AT)

All drivers can be found on the Avalue Official Website:

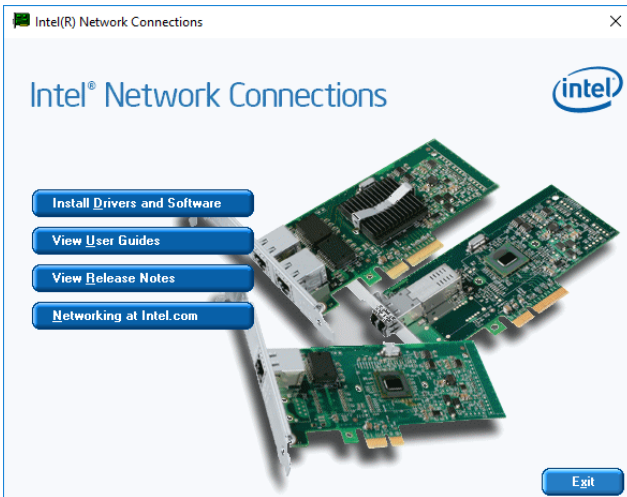
<http://www.avalu.com.tw>.



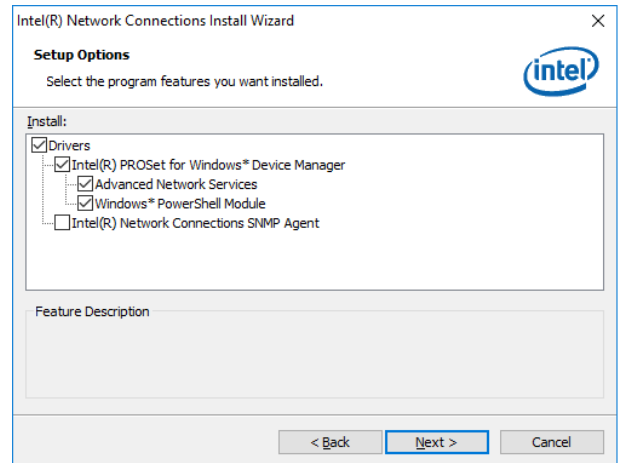
**Note:** The installation procedures and screen shots in this section are based on Windows 10 operation system. If the warning message appears while the installation process, click Continue to go on.



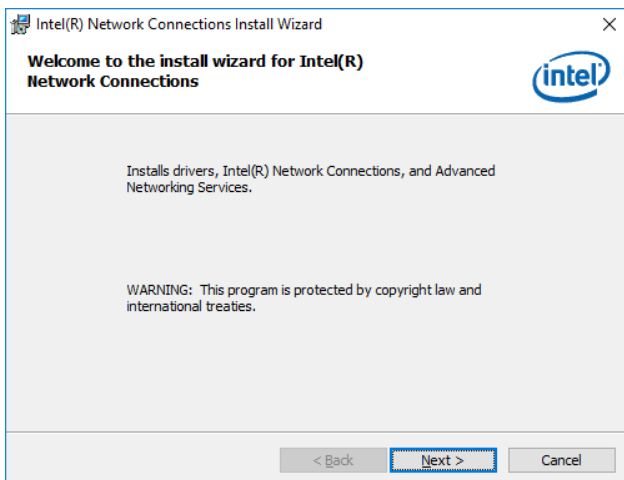
**Step 3. Click Next.**



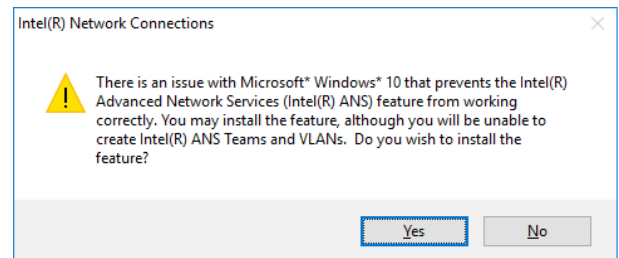
**Step 1. Click Install Drivers and Software.**



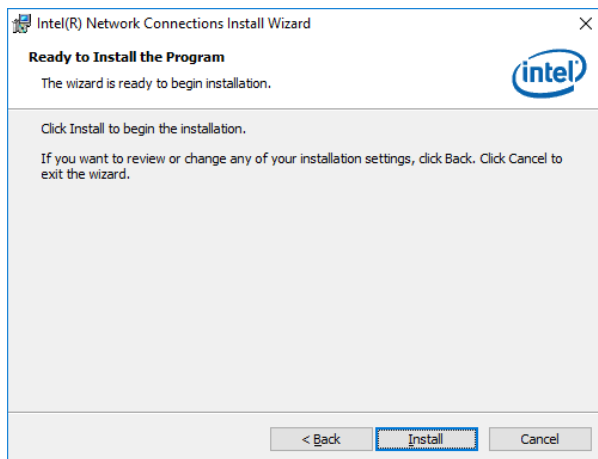
**Step 4. Click Next.**



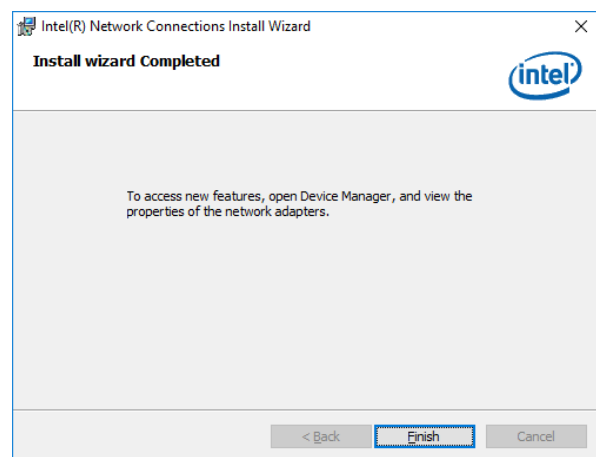
**Step 2. Click Next.**



**Step 5. Click Yes.**



**Step 6. Click Install.**



**Step 7. Click Finish to complete setup.**

