EMX-BYT2-B1

Intel® Celeron® J1900 Processor (2M Cache, Up to 2.42 GHz)

User's Manual

2nd Ed – 25 November 2022

Part No. E2047MXT201R

FCC Statement

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

(1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE.

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

THIS EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS "A" DIGITAL DEVICE, PURSUANT TO PART 15 OF THE FCC RULES.

THESE LIMITS ARE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINST HARMFUL INTERFERENCE WHEN THE EQUIPMENT IS OPERATED IN A COMMERCIAL ENVIRONMENT. THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENERGY AND, IF NOT INSTALLED AND USED IN ACCORDANCE WITH THE INSTRUCTION MANUAL, MAY CAUSE HARMFUL INTERFERENCE TO RADIO COMMUNICATIONS.

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

Notice

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4. Carefully pack the defective product, a complete Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.
5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

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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 EMX-BYT2 motherboard
- 2 x SATA cables
- 1 x I/O Shield
- 1 x SATA Power Cable

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

1.3 Document Amendment History

Revision	Date	By	Comment
1st	September 2022	Avalue	Initial Release
2nd	November 2022	Avalue	Update Block Diagram

1.4 Manual Objectives

This manual describes in details Avalue Technology EMX-BYT2-B1 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 EMX-BYT2-B1 or change the standard configurations. Whilst all the necessary information is available in this manual we would recommend that unless you are confident, you contact your supplier for guidance.

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

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

1.5 System Specifications

System	
CPU	Intel® Celeron® J1900 Processor (2M Cache, Up to 2.42 GHz)
BIOS	AMI uEFI BIOS, 64/128 Mbit SPI Flash ROM
I/O Chip	EC IT8528E
System Memory	2 x 204-pin DDR3L 1333MHz SODIMMs, up to 8GB
Watchdog Timer	H/W Reset, 1sec. – 65535sec./min. 1sec. or 1min. step
H/W Status Monitor	CPU temperature monitoring Voltages monitoring CPU fan speed control
TPM	Option Infineon SLB9665 support TPM 2.0 by LPC port
Expansion Slot	
Mini PCI-e	1 x full size Mini PCI-e support mSATA only (SATA II and mSATA Switchable Through jumper) 1 x full size Mini PCI-e support WiFi or communication module 1 x PCI-e x1 1 x SD card slot support SD/ SDHC Card 1 x SIM card slot
Storage	
Mini PCI-e	1 x full size Mini PCI-e support mSATA only (SATA II and mSATA Switchable Through jumper) 1 x full size Mini PCI-e support WiFi or communication module
SATA	2 x SATA II
eMMC	Option eMMC (4GB/16GB/32GB (default 32GB))
SD Card	1 x SD card slot support SD/ SDHC Card
Edge I/O	
LAN	2 x RJ-45
USB 3.1	4 x USB 3.0
HDMI	1 x HDMI
DVI/VGA	1 x VGA
Audio	Line-out & Mic-in
DC Input	1 x DC Jack lockable connector type
Onboard I/O	
COM	COM1: COM 1 support RS232/422/485 connector, with / +5V&+12V Supported and RS422/485 by BIOS setting

	1 x 2 x 5 pin, pitch 2.00mm connector for COM1: support RS-232 connector, Pin 9 with / +5V&+12V Supported 1 x 2 x 3 pin, pitch 2.00mm connector for COM1: support RS422/485 connector, Pin 5 with / +5V Supported COM2~6: 5 x 2 x 5 pin, pitch 2.00mm connector for COM2~6: support RS-232 connector, Pin 9 with / +5V&+12V Supported
USB 2.0	1 x 2 x 5 pin, pitch 2.54mm connector for 2 x USB 2.0
GPIO	1 x 2 x 6 pin, pitch 2.00mm connector for GPIO: 8 bits(Through SMBus TEXAS TCA9555RTWR I/O EXPANDER)
SATA Power	2 x SATA Power
CPU/System FAN	1 x 1 x 4 pin, pitch 2.54mm CPU fan connector with smart fan function supported
Front Panel	1 x 2 x 5 pin, pitch 2.54mm connector for front panel 2 1 x 2 x 5 pin, pitch 2.54mm connector for front panel 1
RTC Battery	1 x horizontal type battery connector (Battery cable 170mm length)
AT/ATX Selector	1 x 1 x 3 pin, pitch 2.54mm connector for AT/ATX mode
Clear CMOS	1 x 3 pin ,pitch 2.00mm connector for CMOS clear
LVDS/eDP	1 x 2 x 20 pin, pitch 1.25mm connector for LVDS or eDP
LCD Backlight Brightness	1 x 3 pin, pitch 2.54mm connector LCD backlight brightness adjustment (PWM/DC)
LCD Inverter	1 x 1 x 5 pin, pitch 2.00mm Wafer connector for LCD inverter backlight connector (5V/12V)
LPC	1 x 2 x 5 pin, pitch 2.0mm connector for LPC
BIOS SPI	1 x 2 x 4 pin, pitch 2.00mm connector for BIOS SPI
EC Debug/ eSPI	1 x 2 x 5 pin, pitch 2.00mm connector for EC SPI
Audio/ Audio AMP	1 x 2 x 5 pin, pitch 2.54mm connector for front Audio
Activity Indicator LED	1 x 4 pin, pitch 2.00mm connector for WiFi Activity Indicator LED
Power input connector	1 x 2 x 2 pin, pitch 4.20mm connector for power input connector 1 x 1 x 3 pin, pitch 2.54mm connector for AT/ATX mode
DC-Input	1 x DC Jack lockable connector type
Display	
Graphic Chipset	Intel® Celeron® SoC integrated Graphics
Spec. & Resolution	HDMI: 1920x1200 @60Hz VGA: 2560 x 1600 @ 60 Hz 1 x LVDS: 1920 x 1080@60Hz Dual channel 18/24-bits LVDS (Chrontel CH7513A-BF eDP to LVDS) Or 1 x eDP 1920 x 1080@60Hz (2 Lanes)

	HDMI +LVDS or eDP, HDMI+VGA, VGA+LVDS or eDP
Multiple Display	Dual Display
Audio	
Audio Codec	Realtek ALC888S HD Audio Codec
Amplifier	Realtek ALC105 Stereo Class-D 2W 4Ω x 2
Ethernet	
LAN Chipset	2 x Intel I210AT (Co-lay i211AT) Gigabit Ethernet. (Default: I210AT)
LAN Spec.	10/100/1000 Mb/s
Mechanical & Environmental Specification	
Power Requirement	DC in +12V
ACPI	Single power ATX Support S0, S3, S4, S5 ACPI 3.0 Compliant
Power Mode	AT / ATX mode Switchable Through Jumper
Operating Temp.	0 ~ 60°C (32 ~ 140°F)
Storage Temp.	-40~ +75°C
Operating Humidity	40°C @ 95% Relative Humidity, Non-condensing
Size (L x W) (Please consult product engineers for the production feasibility if the size is larger than 410x360mm or smaller than 80x70mm)	6.7" x 6.7" (170mm x 170mm)
Weight	0.40kg

If user want to install Win 8.1 Pro OS on eMMC of EMX-BYT2 motherboard,

User must do:

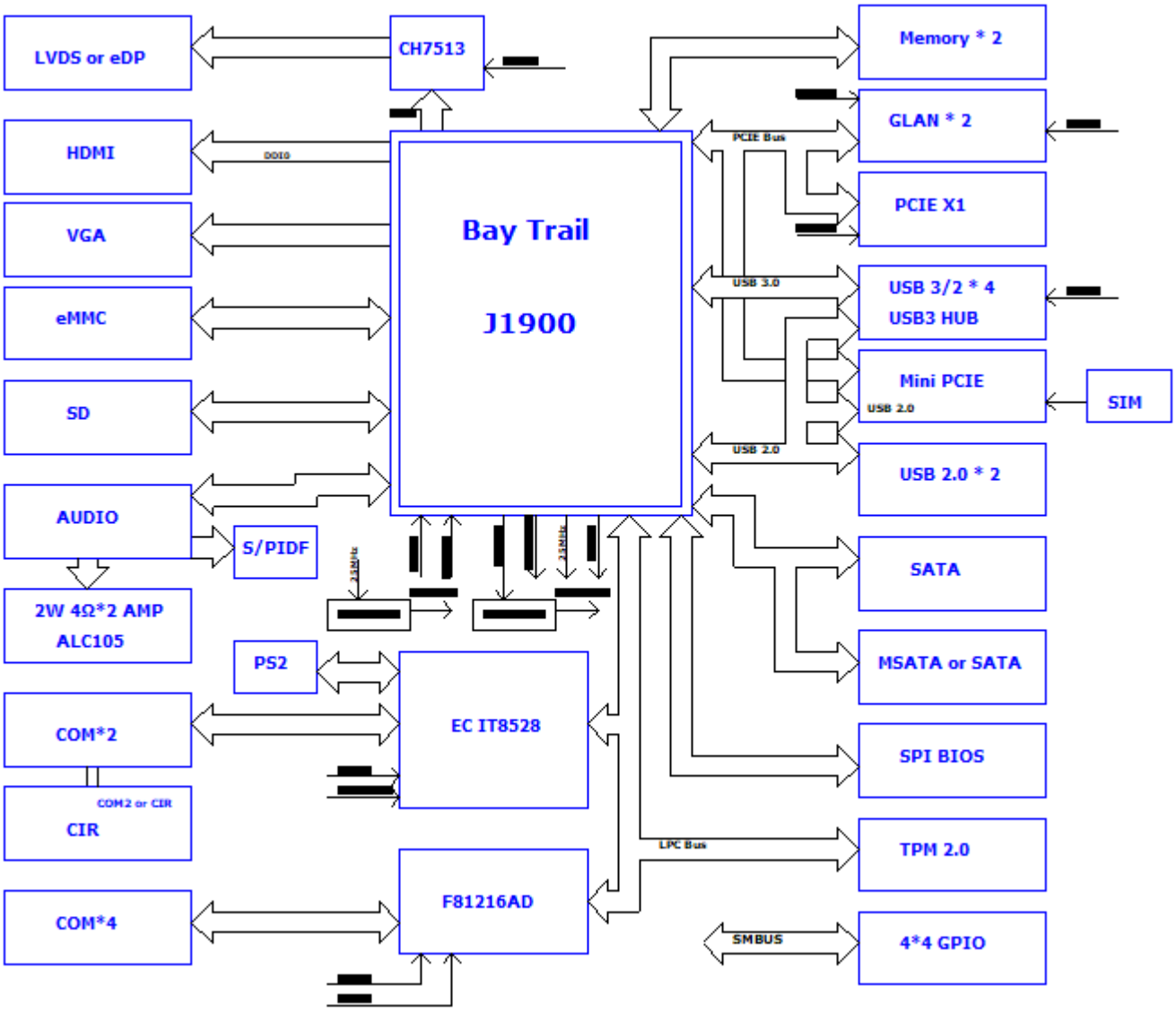
A. BIOS setup menu must select eMMC mode with "PCI mode"(because selection with "ACPI mode" during OS install, OS cannot find eMMC to install).

B. Windows OS must use Microsoft Win 8.1 Pro with update version of OS image to install.

Note: Specifications are subject to change without notice.

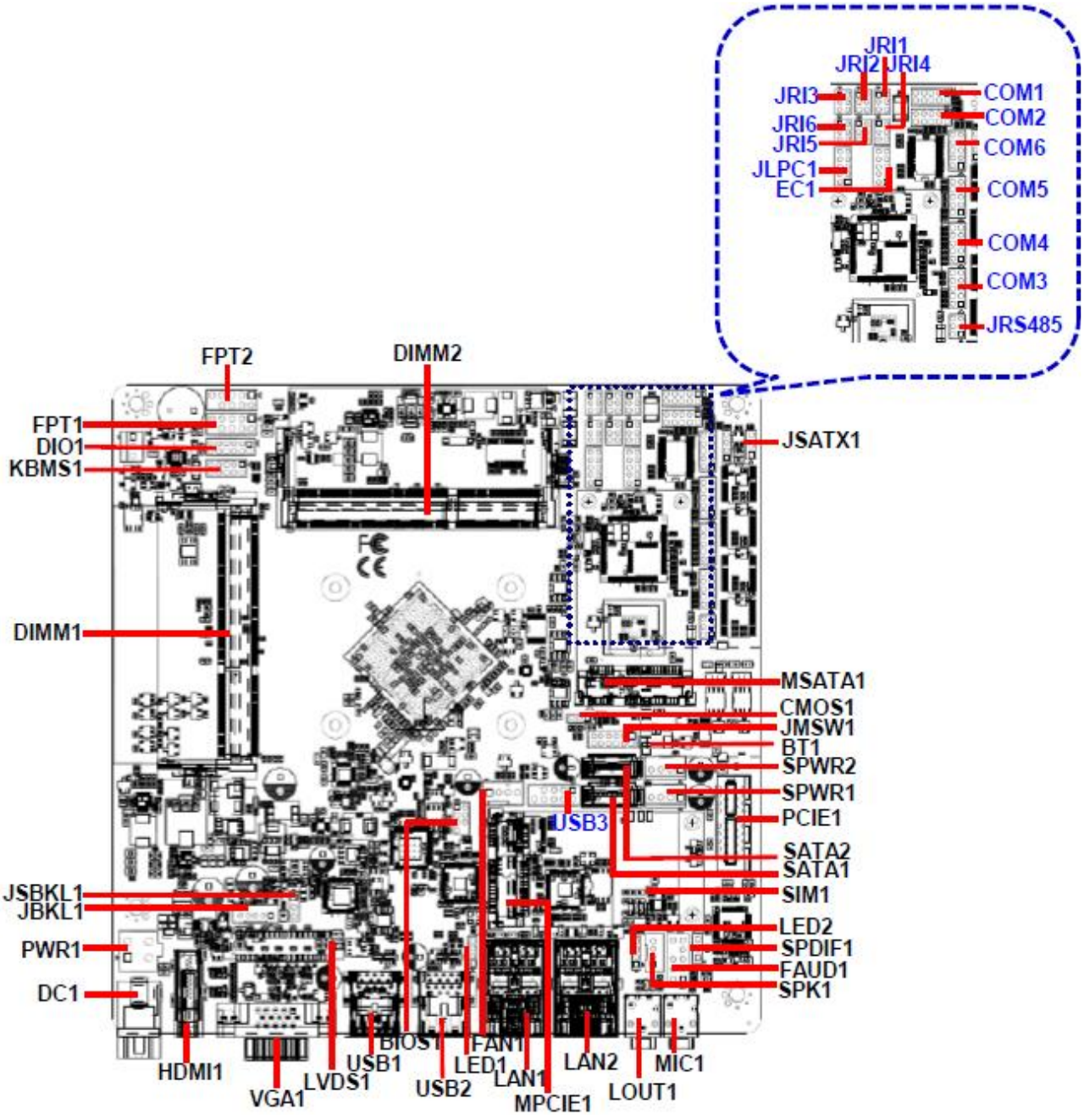
1.6 Architecture Overview—Block Diagram

The following block diagram shows the architecture and main components of EMX-BYT2-B1.



2. Hardware Configuration

2.1 Product Overview



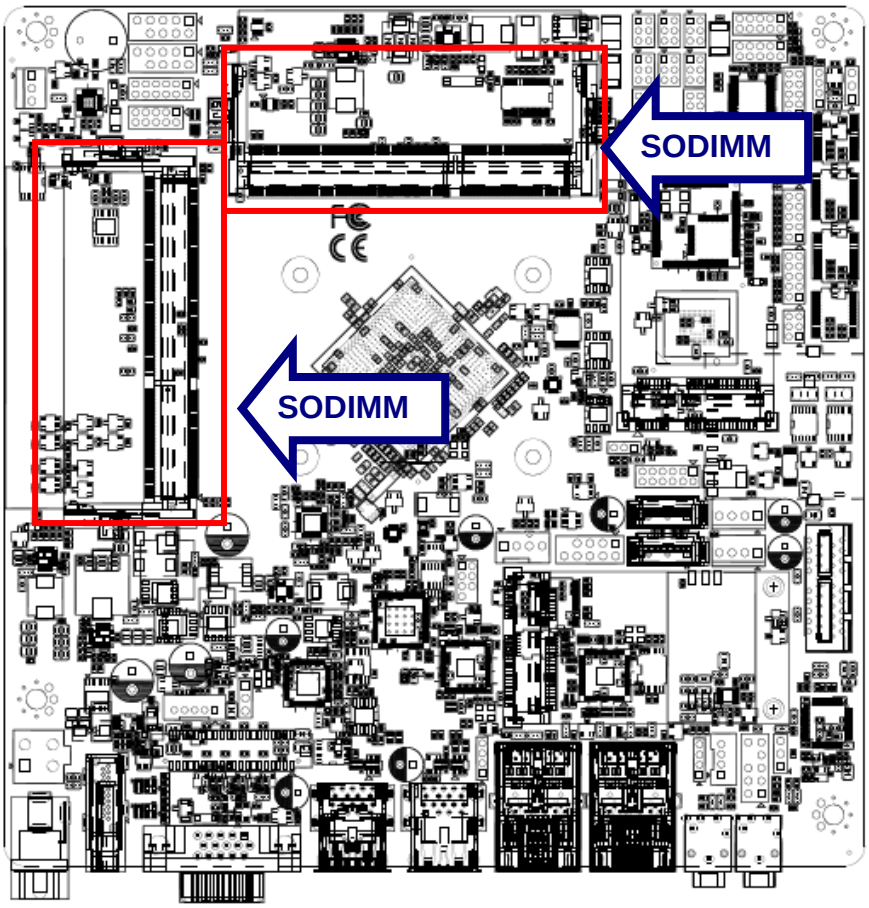
• Main Memory

EMX-BYT2 provides 2 x 204-pin DDR3L 1333MHz SODIMMs.

• SODIMM module.

Note:

The Platform requires DDR3L SODIMMs to be populated starting with the SODIMM at DIMM1.



• SD Card

USB Low & Full speed (@3.3V) Transmit traffic AF% less than 10% (max 50TB over lifespan) per port or use only High Speed or Super Speed USB devicesUSB Receive traffic is not affected. Connecting Low or Full Speed devices through a USB2 High Speed (or greater) hub mitigates the issue.

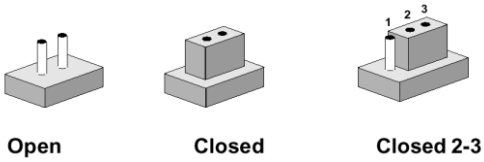
•SD Card (operating at 3.3V) AF% less than 10%. UHS-1 cards operating at 1.8V are not affected.

Usage of SD cards operating at 3.3V should be minimized and usage should be limited to UHS-I type SD cards operating at 1.8V. Inserting the SD card, and leaving it in the system, as extended storage, reduces the life of the interface. Occasional usage of SD card, inserting the card –transferring data to or from the SD card-then removing the SD card, is not a concern. Customers have the option to enable a default D3 device setting to extend the life of the SD card interface, if supported by the OS.

2.2 Jumper and Connector List

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

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



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

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

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

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

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

Jumpers

Label	Function	Note
JRI1/2/3/4/5/6	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

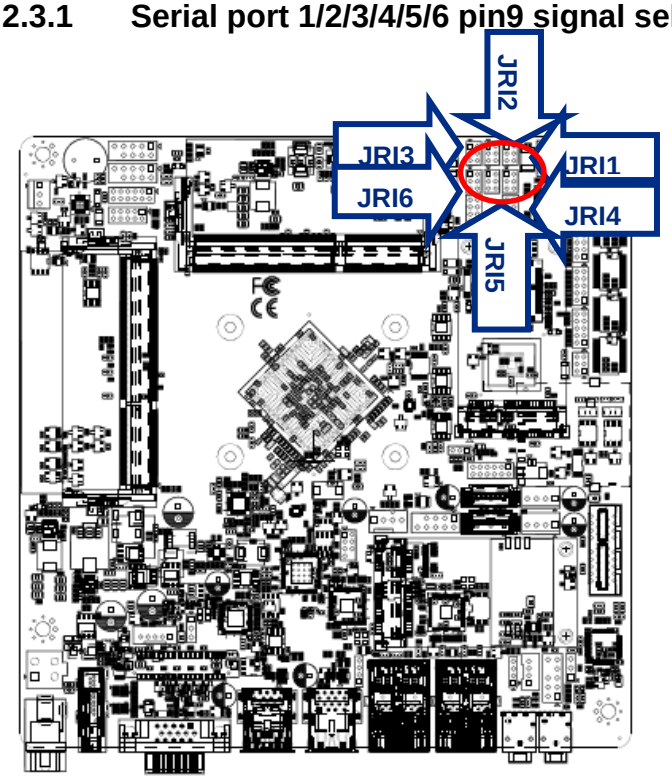
Connectors

Label	Function	Note
FAN1	CPU fan connector	4 x 1 wafer, pitch 2.54mm
FPT1	Miscellaneous setting connector 1	5 x 2 header, pitch 2.54 mm
FPT2	Miscellaneous setting connector 2	5 x 2 header, pitch 2.54 mm
DIMM1/2	204-pin DDR3L DIMM socket	
FAUD1	Front Audio connector	5 x 2 header, pitch 2.54 mm

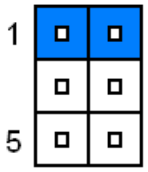
JBKL1	LCD Inverter connector	5 x 1 wafer, pitch 2.00mm
BIOS1	BIOS connector	4 x 2 header, pitch 2.00 mm
COM1	Serial Port 1 connector	5 x 2 header, pitch 2.00mm
COM2	Serial Port 2 connector	5 x 2 header, pitch 2.00mm
COM3	Serial Port 3 connector	5 x 2 header, pitch 2.00mm
COM4	Serial Port 4 connector	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
DIO1	General purpose I/O connector	6 x 2 header, pitch 2.00mm
SPK1	Speaker connector	1 x 4 wafer, pitch 2.00 mm
LVDS1	LVDS Connector	DIN 40-pin wafer, pitch 1.25mm
USB1/2	USB connector 1/2	
USB3	USB connector 3	5 x 2 header, pitch 2.54mm
SPDIF1	Sony/Philips Digital Interface	3 x 1 header, pitch 2.54 mm
LAN1/2	RJ-45 Ethernet 1/2	
PCIE1	PCIe connector	
LED1	LED indicator connector 1	4 x 1 header, pitch 2.00mm
LED2	LED indicator connector 2	4 x 1 header, pitch 2.00mm
KBMS1	PS/2 keyboard & mouse connector	5 x 2 header, pitch 2.00 mm
BT1	Battery connector	2 x 1 wafer, pitch 1.25mm
MSATA1	Full size mPCIe Slot	
MPCIE1	Mini-PCIe connector 1	
JRS485	Serial Port 1 RS485/422 Mode connector	3 x 2 header, pitch 2.00 mm
JLPC1	LPC connector	5 x 2 header, pitch 2.00mm
PWR1	Power connector	2 x 2 wafer, pitch 4.20mm
SATA1	Serial ATA connector 1	
SATA2	Serial ATA connector 2	
SPWR1/2	SATA Power connector 1/2	4 x 1 wafer, pitch 2.54mm
EC1	EC_Program	5 x 2 header, pitch 2.00 mm
DC1	DC Power-in connector	
SIM1	SIM card slot	
HDMI1	HDMI connector	
LOUT1	Line-out audio jack	
MIC1	Mic-in audio jack	
VGA1	VGA connector	

2.3 Setting Jumpers & Connectors

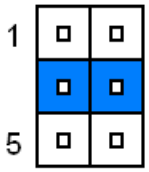
2.3.1 Serial port 1/2/3/4/5/6 pin9 signal select (JRI1/JRI2/JRI3/JRI4/JRI5/JRI6)



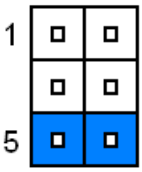
Ring*



+5V

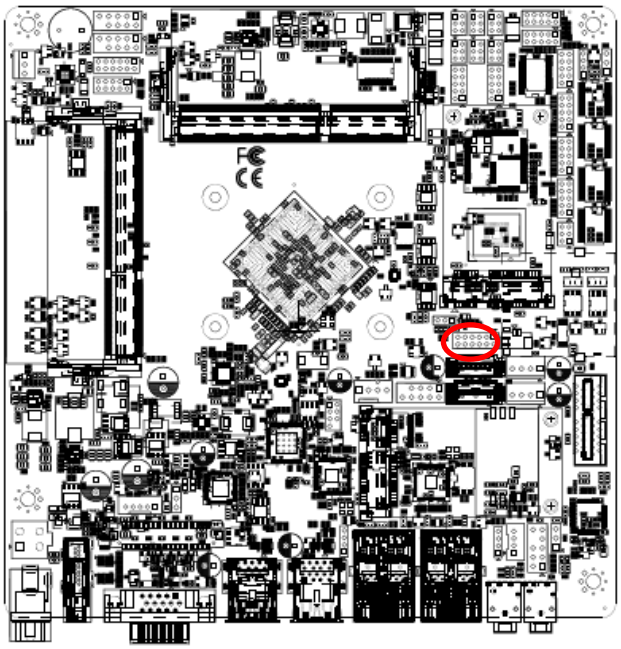


+12V



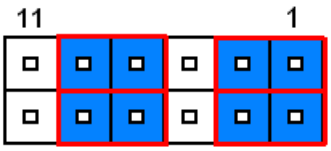
*** Default**

2.3.2 SATA2/MSATA1 mPCIe slot selector (JMSW1)



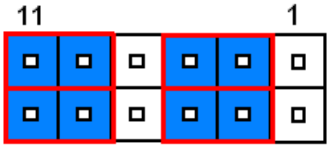
SATA2 Connector *

(SATA2 Connector enabled, MSATA1 slot Disabled)



MSATA1 mPCIe slot

(MSATA1 slot enabled, SATA2 Connector Disabled)

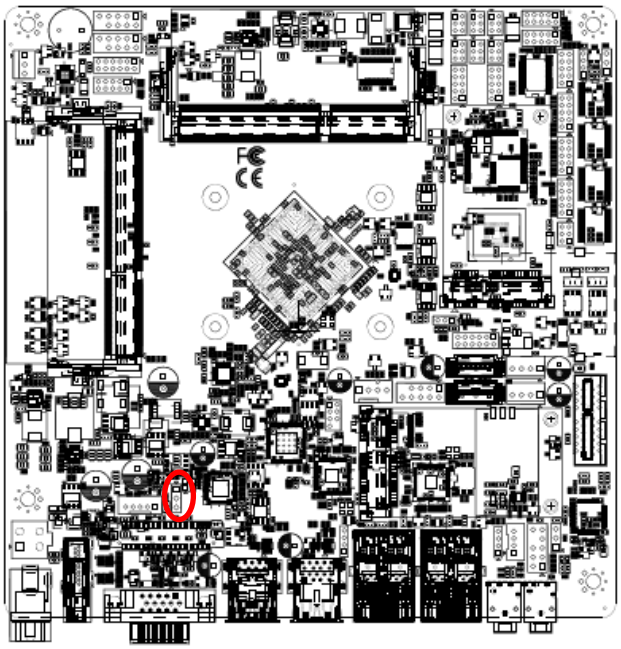


*** Default**

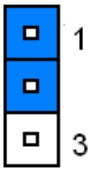
Note:

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

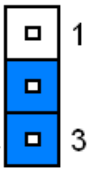
2.3.3 LVDS Back Light power selection (JSBKL1)



PWM Mode*(Max current: 2A)

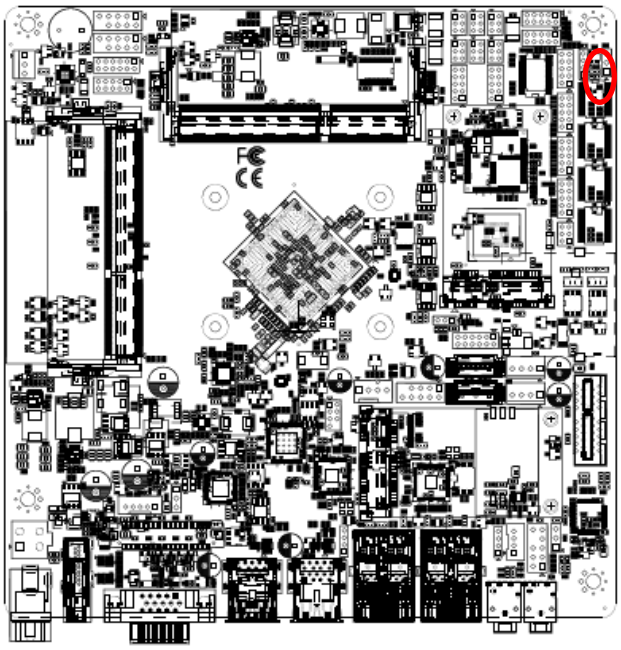


DC Mode(Max current: 2A)

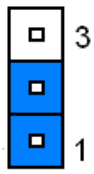


*** Default**

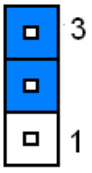
2.3.4 AT/ATX Power Mode Select (JSATX1)



ATX*

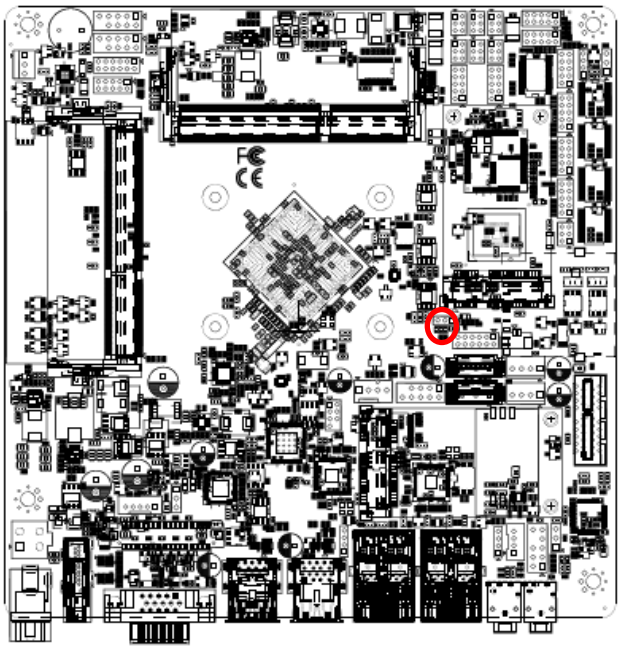


AT

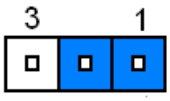


*** Default**

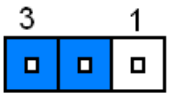
2.3.5 Clear CMOS (CMOS1)



Protect*

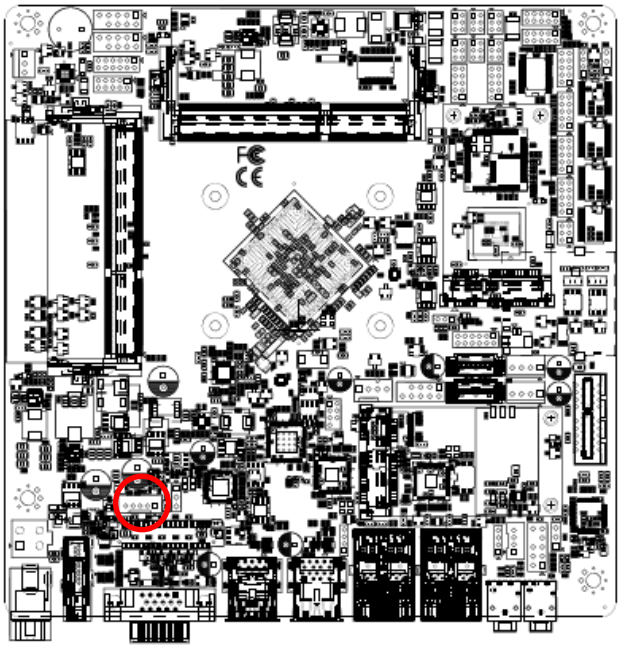


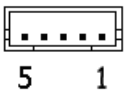
Clear CMOS



*** Default**

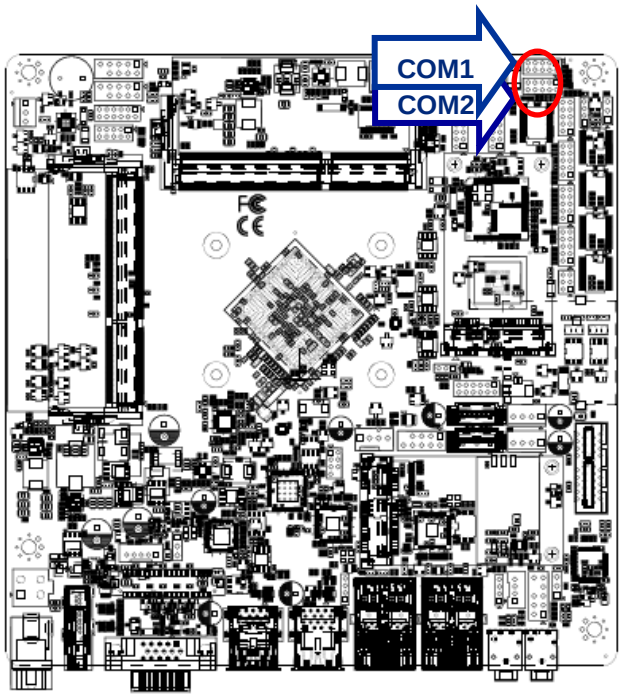
2.3.6 LCD Inverter connector (JBKL1)

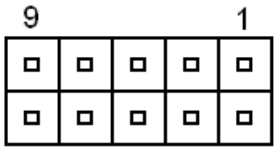




PIN	Signal	Max current
1	+12V	2A
2	GND	
3	LVDS_BKLTEN	
4	LVDS_BKLADJ	
5	+5V	2A

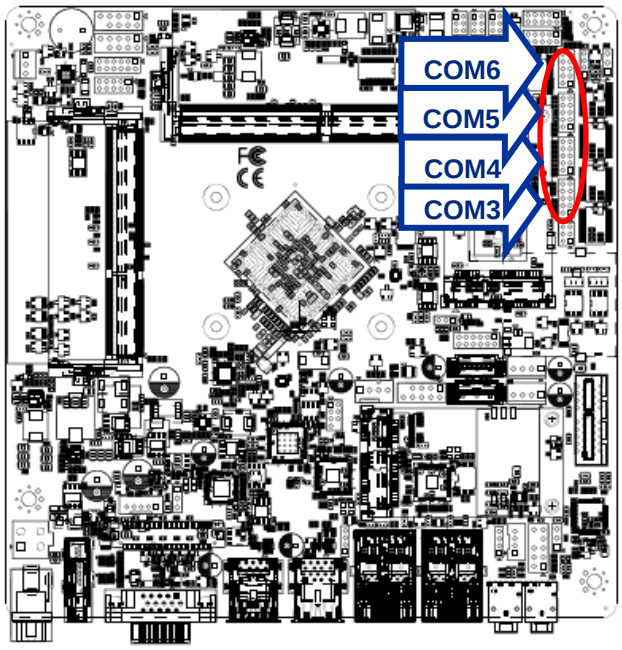
2.3.7 Serial port 1/2 connector (COM1/2)

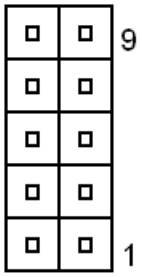




Signal	PIN	PIN	Signal
DCD	1	2	RXD
TXD	3	4	DTR
GND	5	6	DSR
RTS	7	8	CTS
RI	9	10	NC

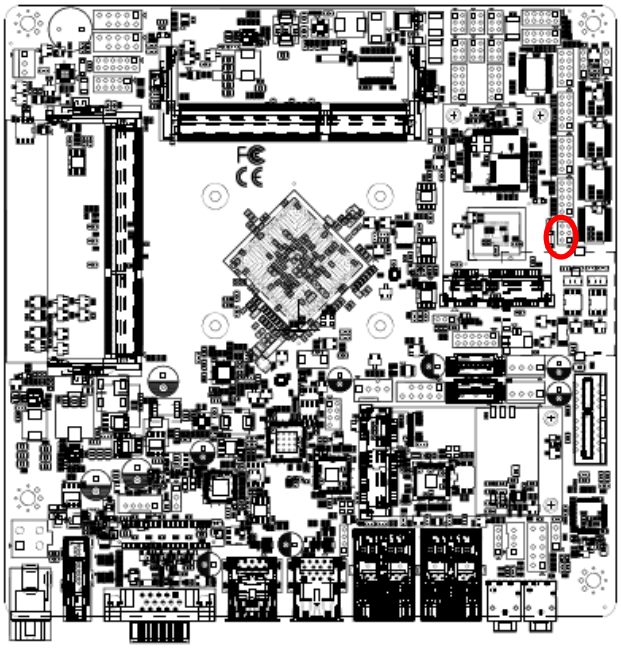
2.3.8 Serial port 3/4/5/6 connector (COM3/4/5/6)

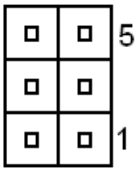




Signal	PIN	PIN	Signal
NC	10	9	RI
CTS	8	7	RTS
DSR	6	5	GND
DTR	4	3	TXD
RXD	2	1	DCD

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





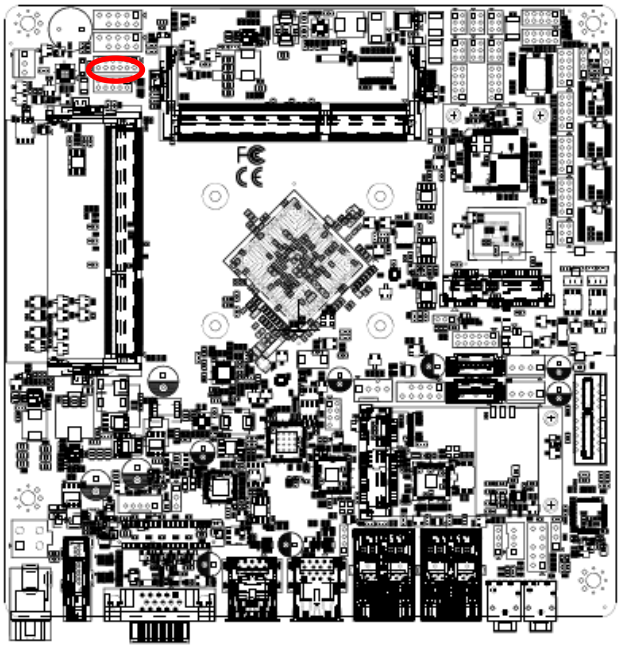
RS-422

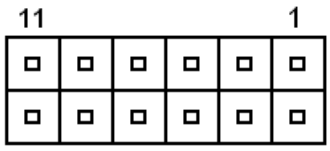
Signal	PIN	PIN	Signal
GND	6	5	+5V
422RX+	4	3	422TX+
422RX-	2	1	422TX-

RS-485

Signal	PIN	PIN	Signal
GND	6	5	+5V
NC	4	3	485TX+
NC	2	1	485TX-

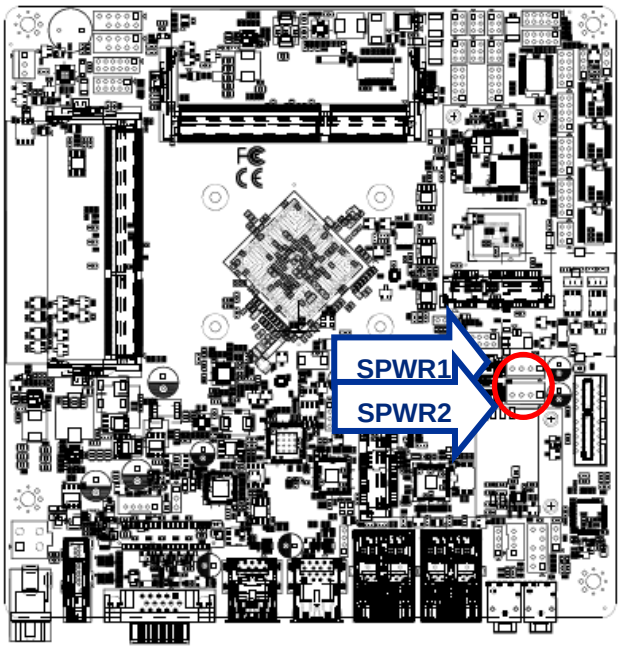
2.3.10 General purpose I/O connector (DIO1)

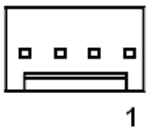




Signal	PIN	PIN	Signal
DI0	1	2	DO0
DI1	3	4	DO1
DI2	5	6	DO2
DI3	7	8	DO3
SMB_CLK	9	10	SMB_DATA
GND	11	12	+5V

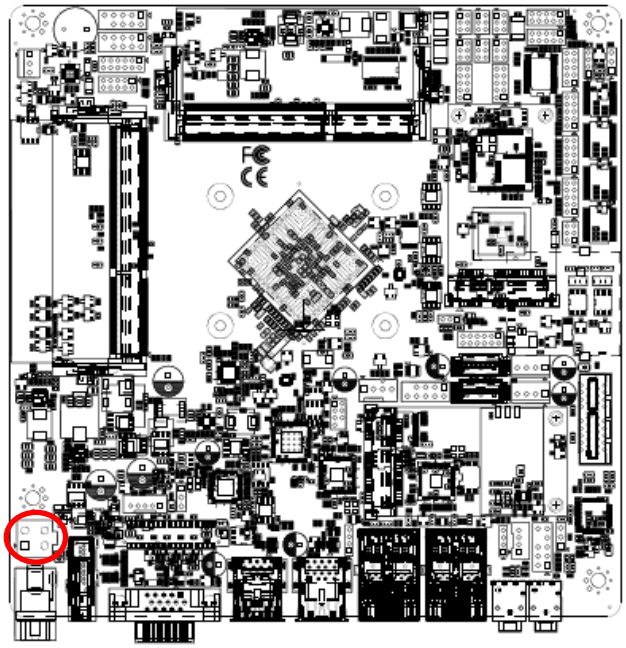
2.3.11 SATA Power connector 1/2 (SPWR1/2)

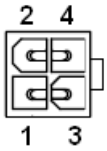




PIN	Signal	Max current
1	+V5S_SATA	3A
2	GND	
3	GND	
4	+V12S_SATA	3A

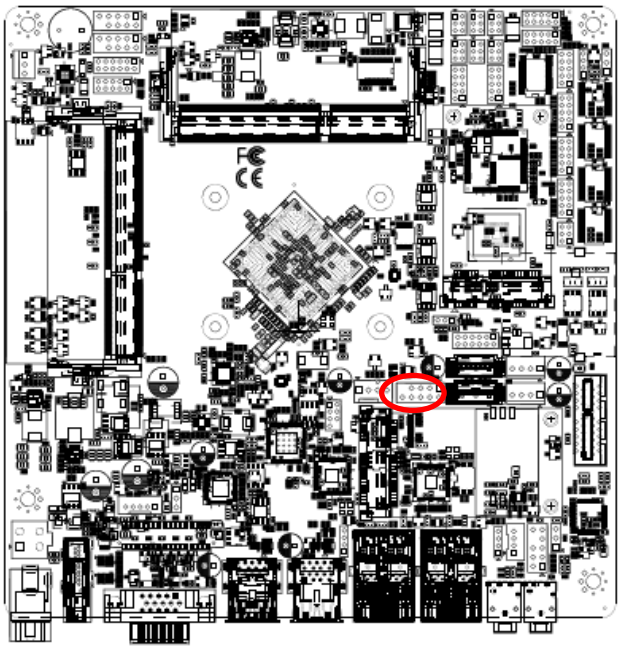
2.3.12 Power connector (PWR1)

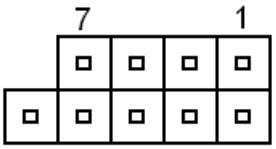




Signal	PIN	PIN	Signal
GND	1	2	GND
+VIN_12V	3	4	+VIN_12V

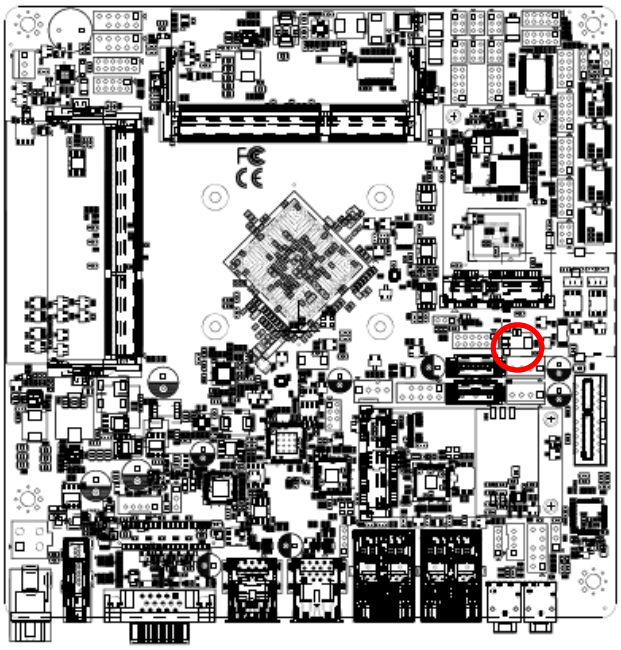
2.3.13 USB connector 3 (USB3)

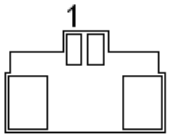




Signal	PIN	PIN	Signal
+V5A_USB01	1	2	+V5A_USB01
USB_DN0	3	4	USB_DN1
USB_DP0	5	6	USB_DP1
GND	7	8	GND
		10	NC

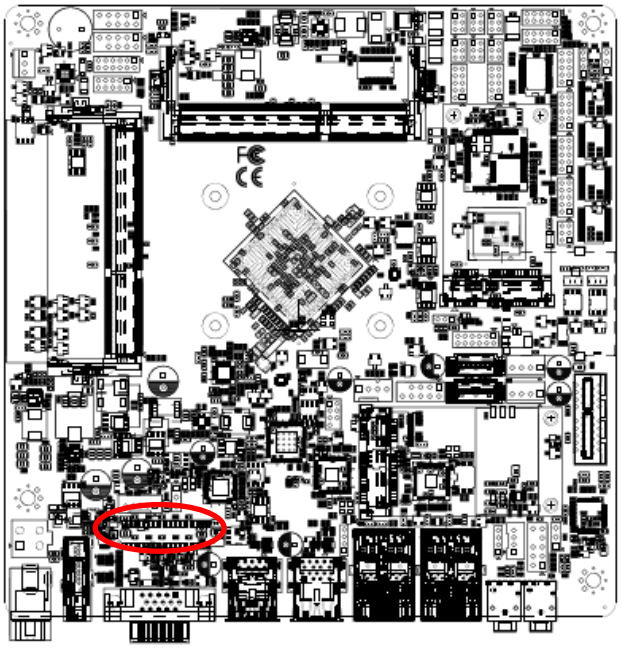
2.3.14 Battery connector (BT1)

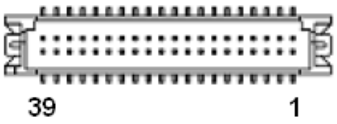




Signal	PIN
+3V	1
GND	2

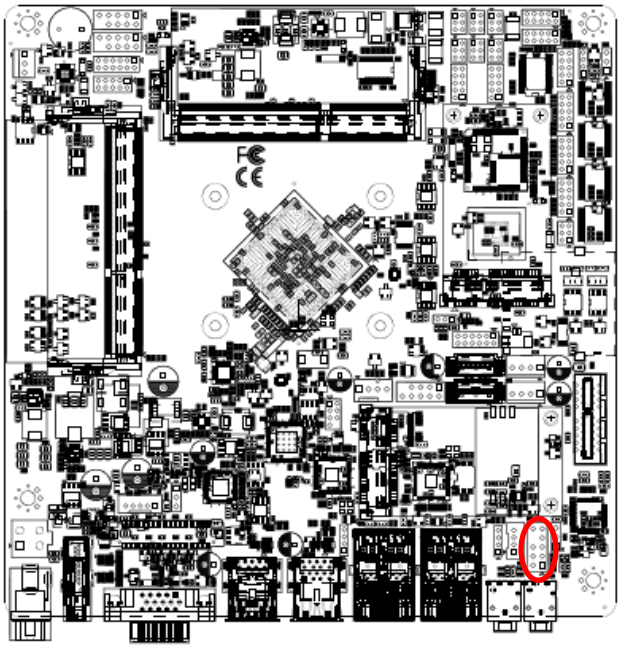
2.3.15 LVDS connector (LVDS1/eDP)

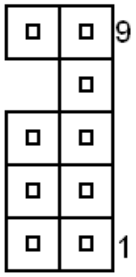




Signal	PIN	PIN	Signal
LVDS_VDD33V/EDP_VDD33V	1	2	LVDS_VDD5V
GND	3	4	GND
EDP_DDC_SCL	5	6	EDP_DDC_DAT
GND	7	8	GND
LVDS_DATAP1/EDP_TX1P	9	10	LVDS_DATAP0/EDP_HPD
LVDS_DATAN1/EDP_TX1N	11	12	LVDS_DATAN0
GND	13	14	GND
LVDS_DATAP3	15	16	LVDS_DATAP2/EDP_TX0P
LVDS_DATAN3	17	18	LVDS_DATAN2/EDP_TXN0
GND	19	20	GND
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/EDP_AUXP
LVDS_CLK2N	35	36	LVDS_CLK1N/EDP_AUXN
GND	37	38	GND
LVDS_VDD12V	39	40	LVDS_VDD12V

2.3.16 Audio connector (FAUD1)



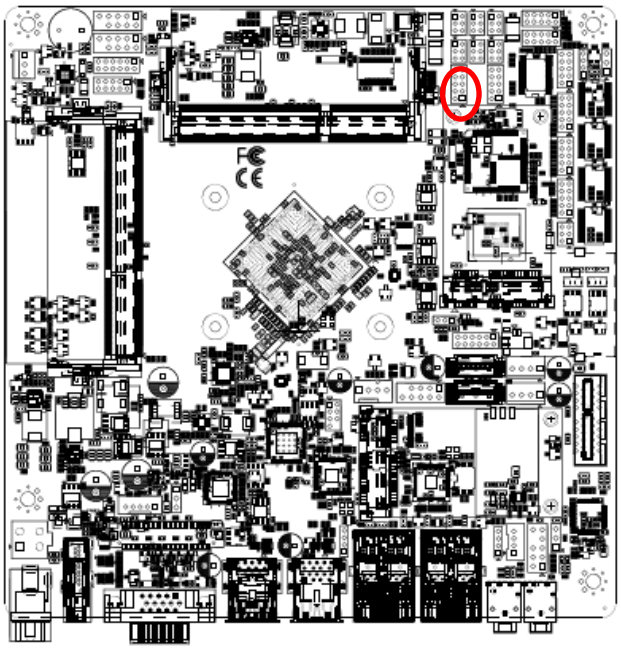


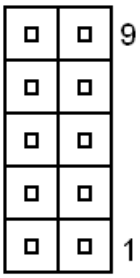
Signal	PIN	PIN	Signal
LINE2_JD	10	9	LINE2_L
		7	SENSE_B
MIC2_JD	6	5	LINE2_R
AUD_FRONT_DET	4	3	MIC2_R
GND	2	1	MIC2_L

2.3.17.1 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

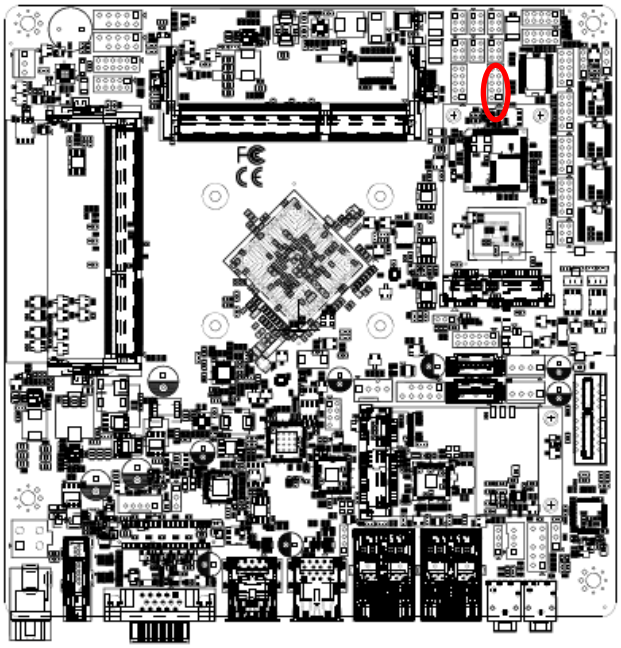
2.3.18 LPC connector (JLPC1)

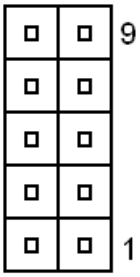




Signal	PIN	PIN	Signal
GND	10	9	LPC_SERIRQ
LPC_DEG_CLK	8	7	LPC_AD3
LPC_FRAME#	6	5	LPC_AD2
PLT_RST#	4	3	LPC_AD1
+3.3V	2	1	LPC_AD0

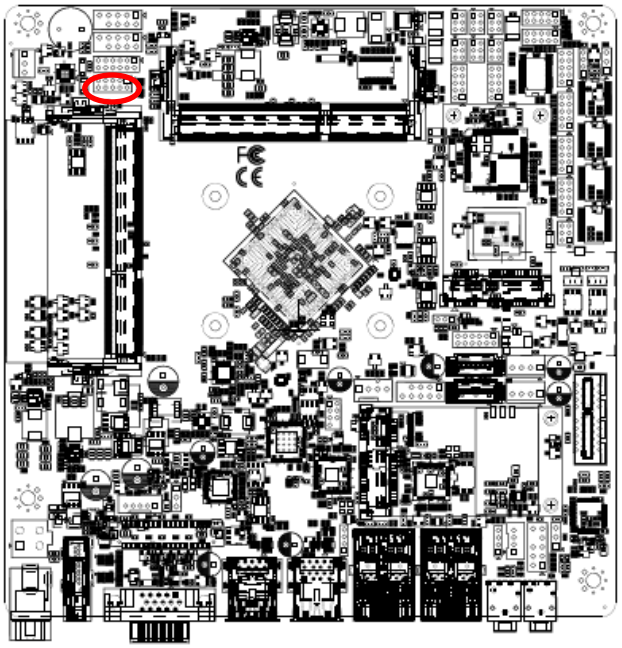
2.3.19 EC_Program (EC1)

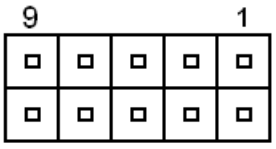




Signal	PIN	PIN	Signal
EC_SMDATA_DBG	10	9	EC_SMCLK_DBG
NC	8	7	EC_HOLD#
EC_FSMOSI	6	5	EC_FSMIOSO
EC_FSCK	4	3	EC_FSCE#
GND	2	1	+3.3A_ECSPI

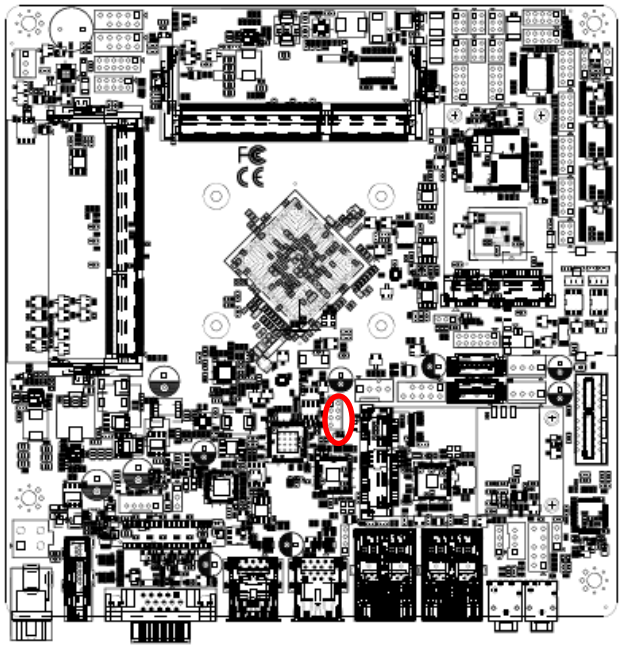
2.3.20 PS/2 keyboard & mouse connector (KBMS1)

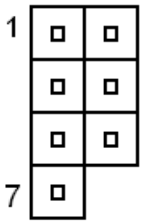




Signal	PIN	PIN	Signal
KBDAT	1	2	KBCK
GND	3	4	+5VSB
MSDAT	5	6	MSCK
NC	7	8	NC
NC	9	10	NC

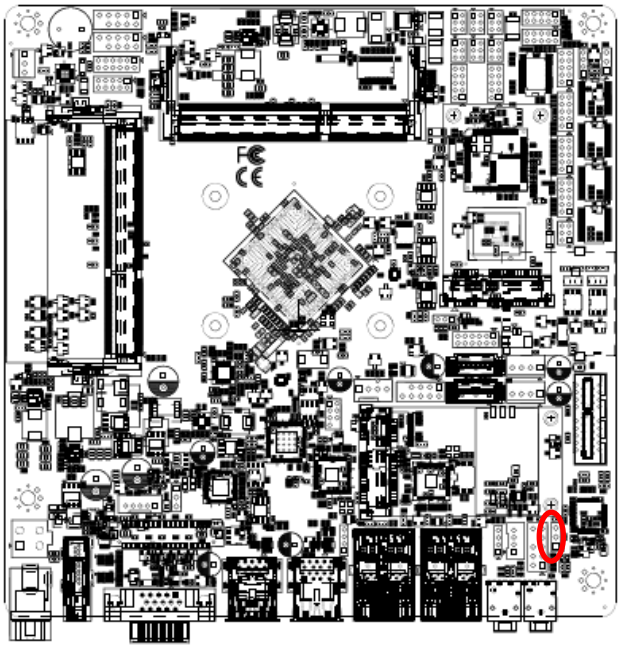
2.3.21 BIOS connector (BIOS1)

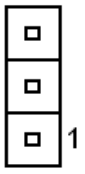




Signal	PIN	PIN	Signal
+V1.8A_SPI	1	2	GND
SPI_ROM_CS0#	3	4	SPI_ROM_CLK
SPI_ROM_R_MISO	5	6	SPI_ROM_MOSI
SPI_ROM_HOLD#	7		

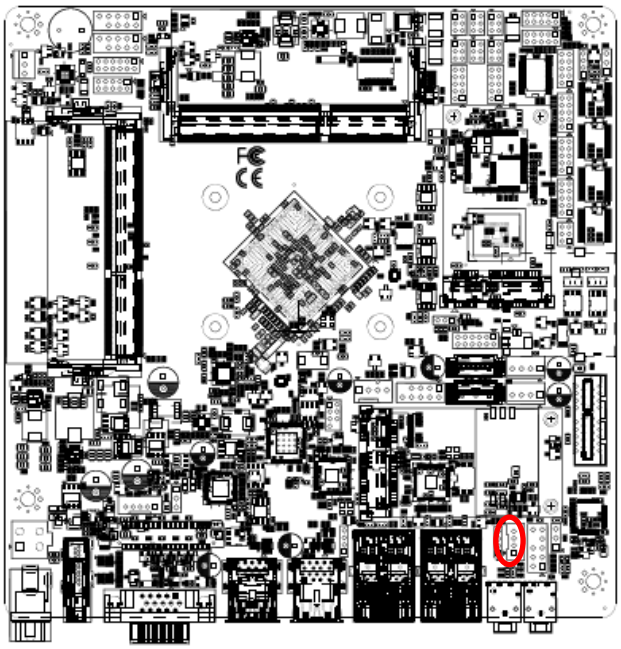
2.3.22 Sony/Philips Digital Interface (SPDIF1)





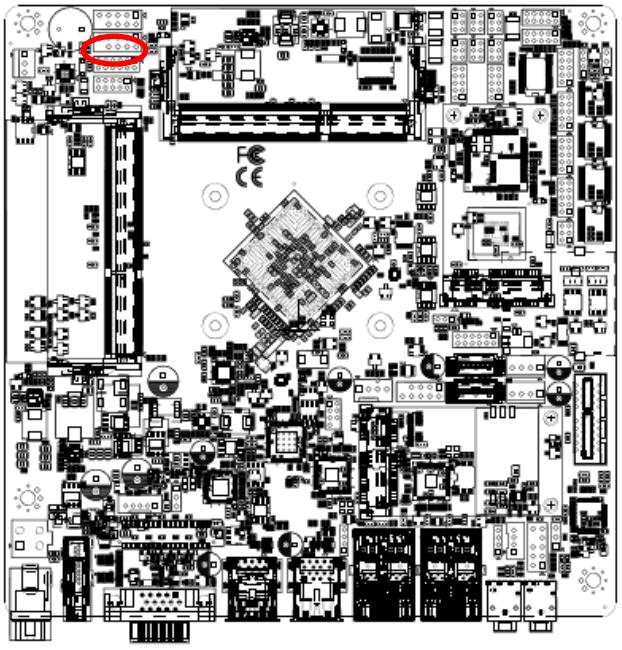
Signal	PIN
GND	3
SPDIF_OUT	2
+5V	1

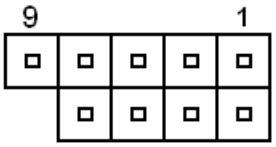
2.3.23 Speaker connector (SPK1)



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

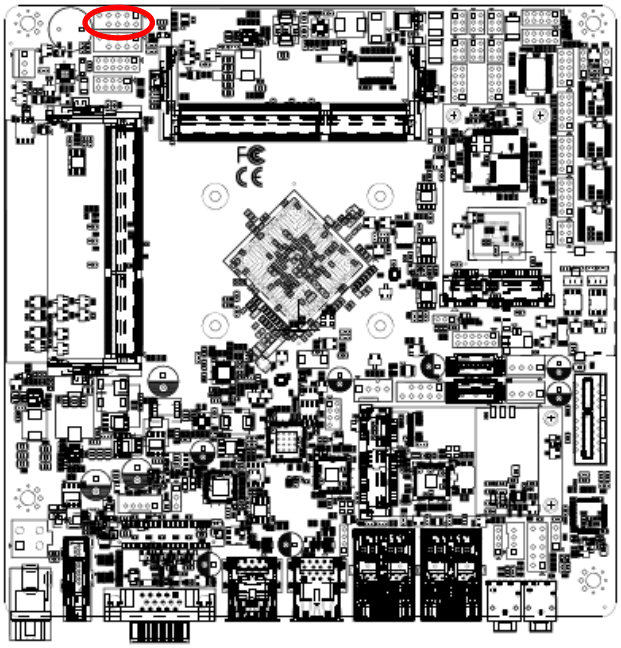
2.3.24 Miscellaneous setting connector 1 (FPT1)

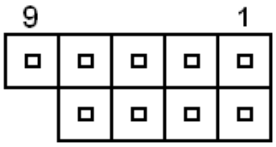




Signal	PIN	PIN	Signal
+HD_LED	1	2	+PWR_LED
-HD_LED	3	4	-PWE_LED
+Reset	5	6	+PWR_BNT
-Reset	7	8	-PWR_BNT
NC	9		

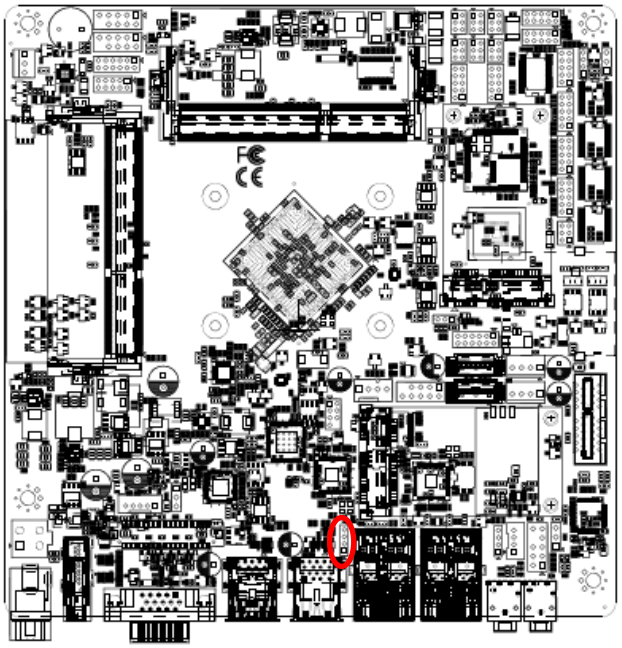
2.3.25 Miscellaneous setting connector 2 (FPT2)





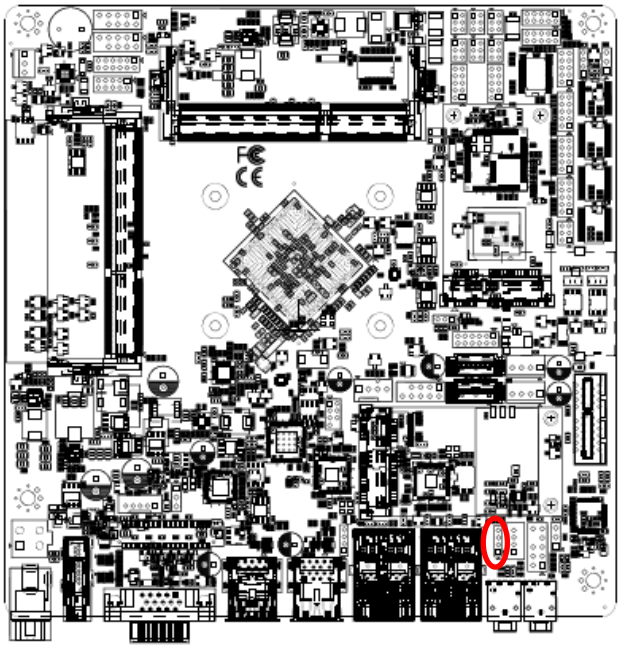
Signal	PIN	PIN	Signal
Speaker+	1	2	BLK_VR(10K)
NC	3	4	BLK_UP
NC	5	6	BLK_DN
Speaker-	7	8	GND
NC	9	10	

2.3.26 LED indicator connector 1 (LED1)



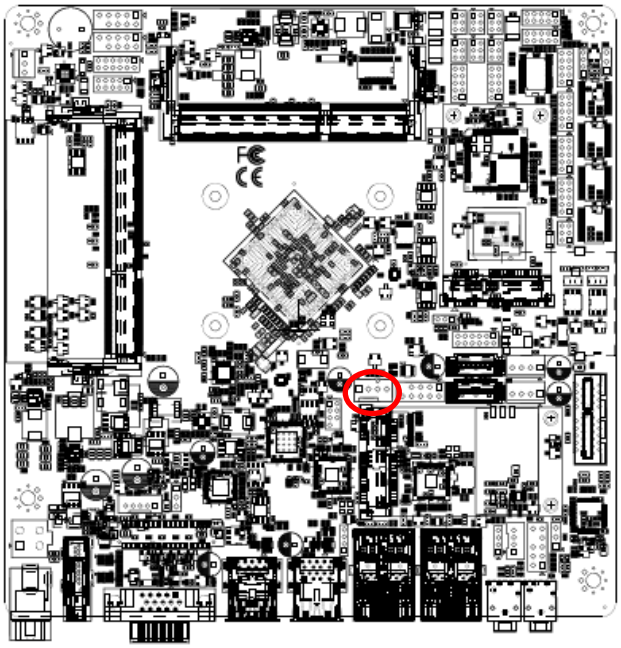
Signal	PIN
L1_1000#_LED	4
L1_100#_LED	3
L1_ACT_N	2
L1_ACT_P	1

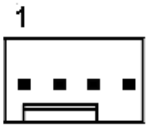
2.3.27 LED indicator connector 2 (LED2)



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

2.3.28 CPU fan connector (FAN1)





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

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.

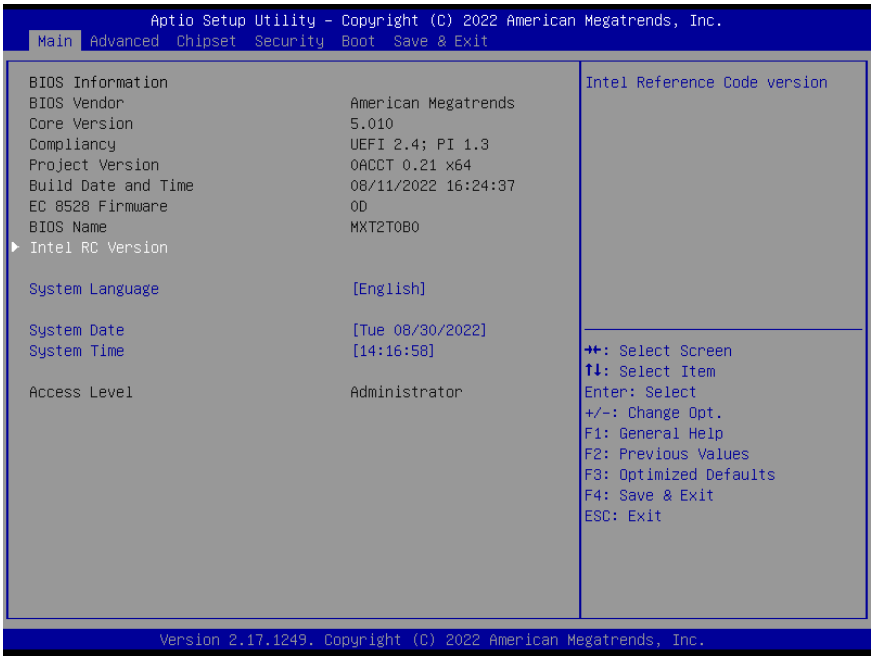
The best advice is to only alter settings which you thoroughly understand. To this end, we strongly recommend that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both BIOS Vendor and your systems manufacturer to provide the absolute maximum performance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

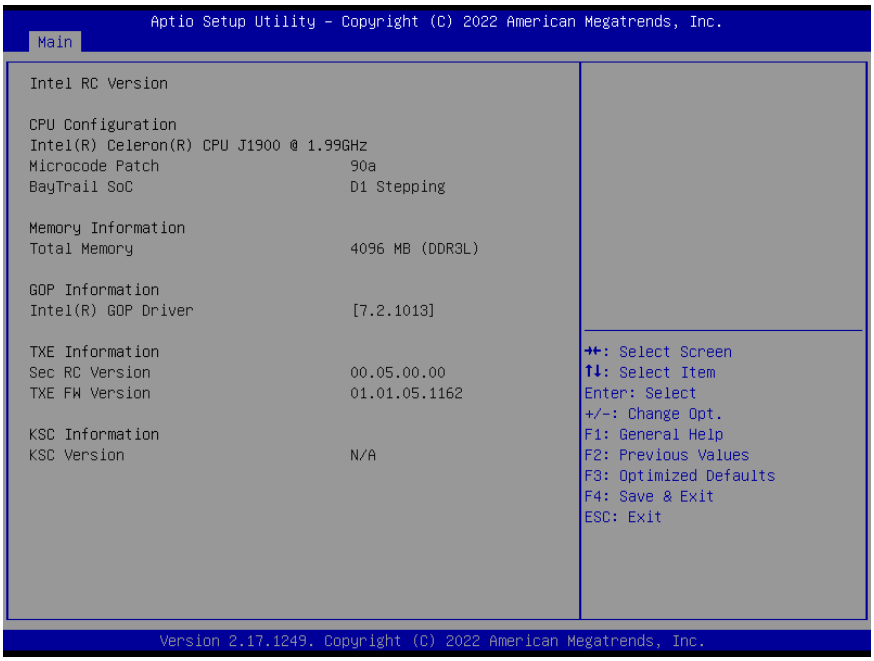
3.6 BIOS setup

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.

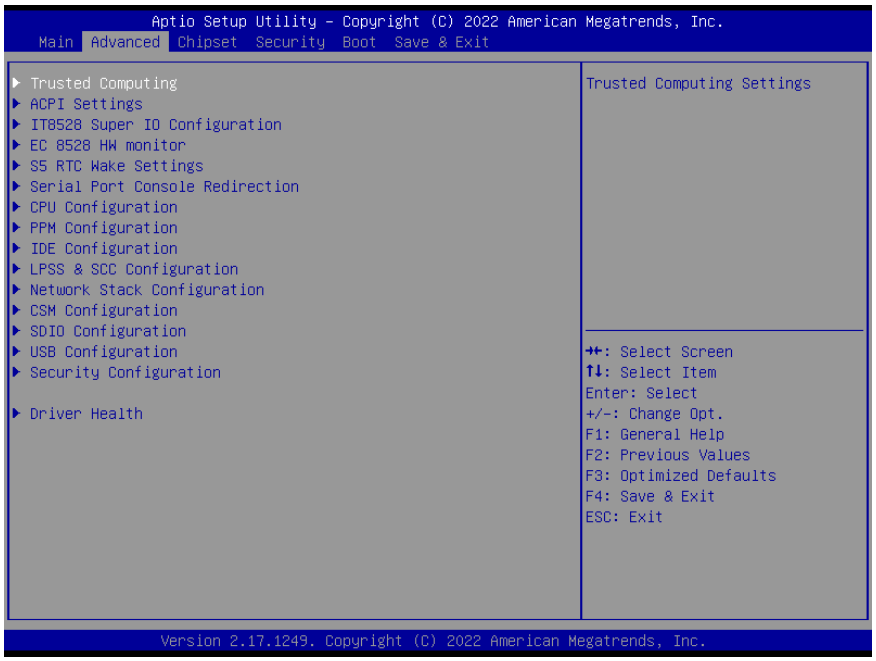
3.6.1.3 System Time

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

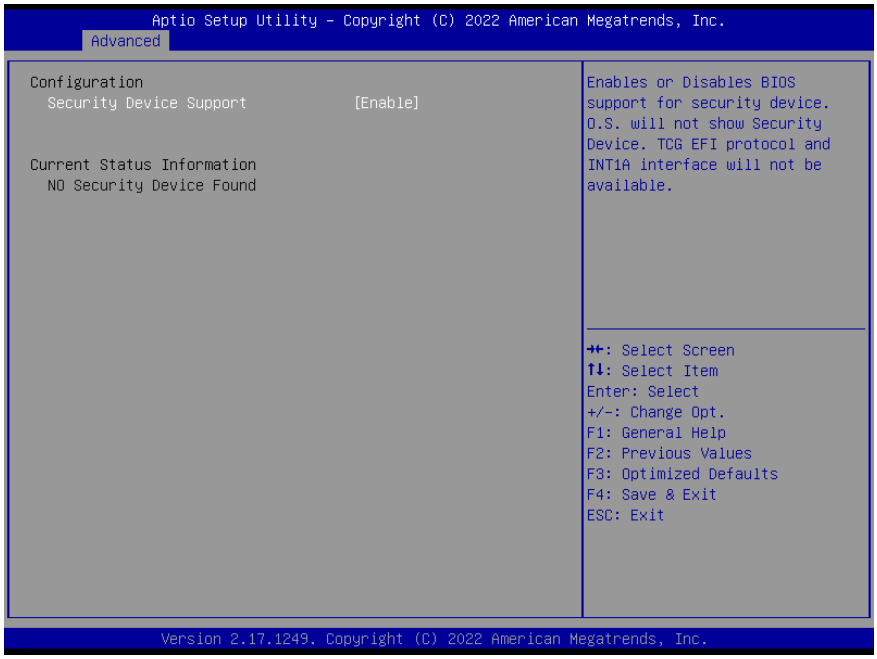
Note: The BIOS setup screens shown in this chapter are for reference purposes only, and may not exactly match what you see on your screen.
Visit the Avalue website (www.avalue.com.tw) to download the latest product and BIOS information.

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.

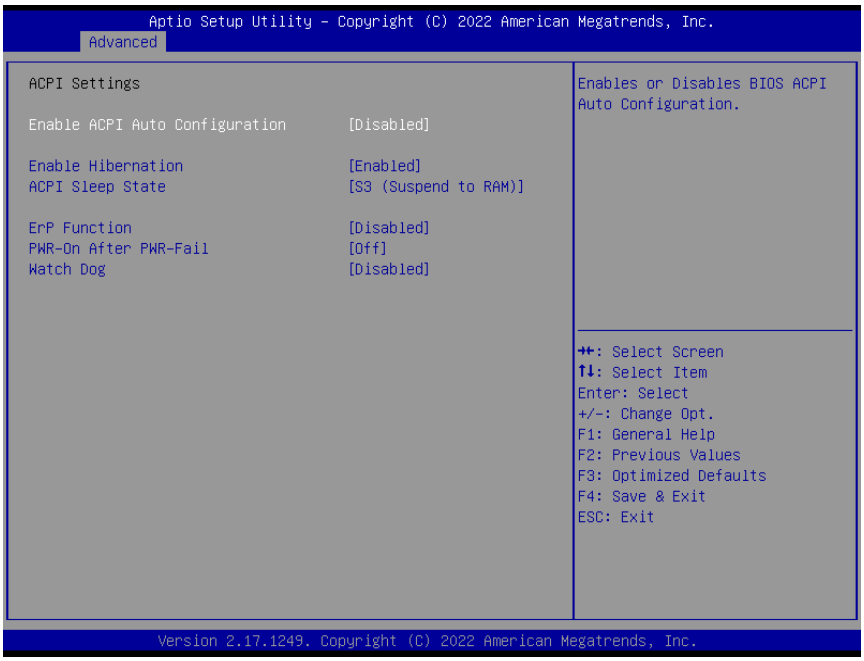


3.6.2.1 Trusted Computing



Item	Options	Description
Security Device Support	Disable, Enable**[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.

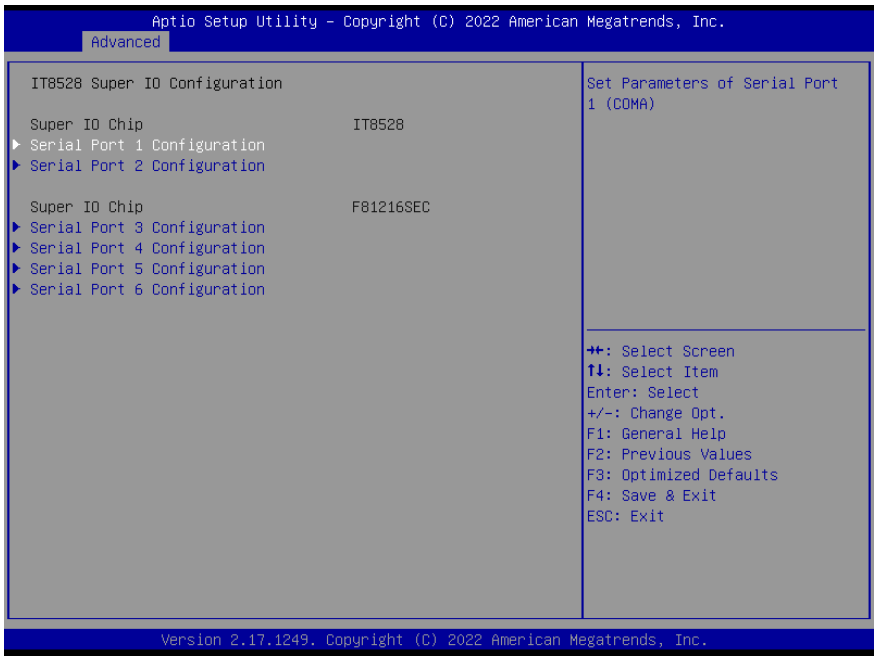
3.6.2.2 ACPI Settings



Item	Options	Description
Enable ACPI Auto Configuration	Disabled**[Default]**, Enabled	Enables or Disables BIOS ACPI Auto Configuration.
Enable Hibernation	Disabled Enabled**[Default]**,	Enables or Disables System ability to Hibernate (OS/S4 Sleep State). This option may be not effective with some OS.
ACPI Sleep State	Suspend Disabled, S3 (Suspend to RAM)**[Default]**	Select the highest ACPI sleep state the system will enter when the SUSPEND button is pressed.
ErP Function	Disabled**[Default]**, Enabled	ErP Function (Deep S5).
PWR-On After PWR-Fail	Off**[Default]** On Last state	AC loss resume.
Watch Dog	Disabled**[Default]**, 30 sec 40 sec 50 sec 1 min 2 min 10 min 30 min	Select WatchDog.

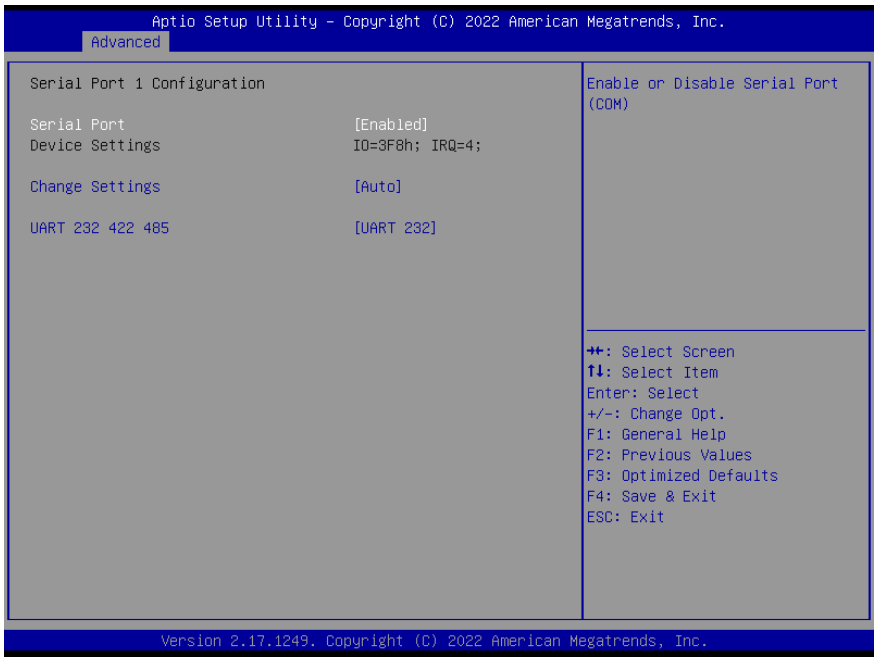
3.6.2.3 IT8528 Super IO Configuration

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~ 3.6.2.3.6 for more information.



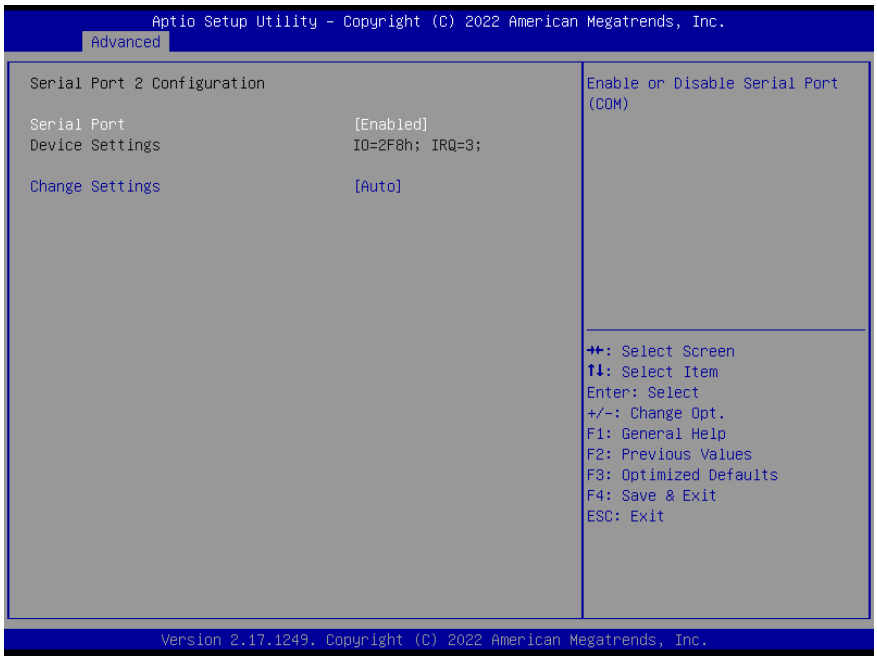
Item	Description
Serial Port 1 Configuration	Set Parameters of Serial Port 1 (COMA).
Serial Port 2 Configuration	Set Parameters of Serial Port 2 (COMB).
Serial Port 3 Configuration	Set Parameters of Serial Port 3 (COMC).
Serial Port 4 Configuration	Set Parameters of Serial Port 4 (COMD).
Serial Port 5 Configuration	Set Parameters of Serial Port 5 (COME).
Serial Port 6 Configuration	Set Parameters of Serial Port 6 (COMF).

3.6.2.3.1 Serial Port 1 Configuration



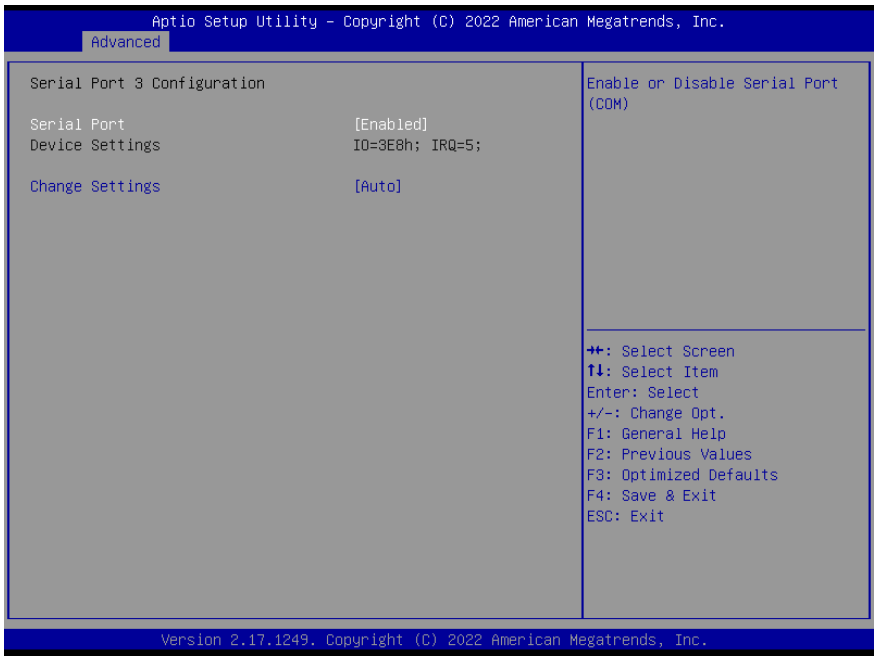
Item	Option	Description
Serial Port	Disabled Enabled**[Default]**,	Enable or Disable Serial Port (COM)
Change Settings	Auto**[Default]** IO=3F8h; IRQ=4; IO=3F8h; IRQ=3,4,5,6,7,9,10,11,12; IO=2F8h; IRQ=3,4,5,6,7,9,10,11,12; IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12; IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12;	Select an optimal setting for Super IO Device
UART 232 422 485	UART 232**[Default]**, UART 422, UART 485	Change the Serial Port as RS232/ 422/ 485

3.6.2.3.2 Serial Port 2 Configuration



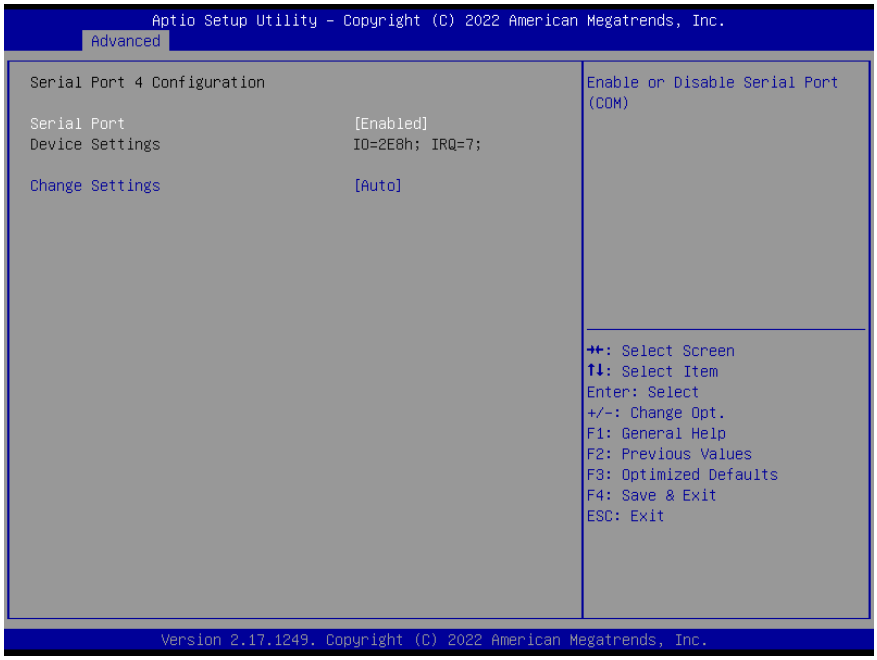
Item	Option	Description
Serial Port	Disabled Enabled**[Default]**,	Enable or Disable Serial Port (COM)
Change Settings	Auto**[Default]** IO=2F8h; IRQ=3; IO=3F8h; IRQ=3,4,5,6,7,9,10,11,12; IO=2F8h; IRQ=3,4,5,6,7,9,10,11,12; IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12; IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12;	Select an optimal setting for super IO Device

3.6.2.3.3 Serial Port 3 Configuration



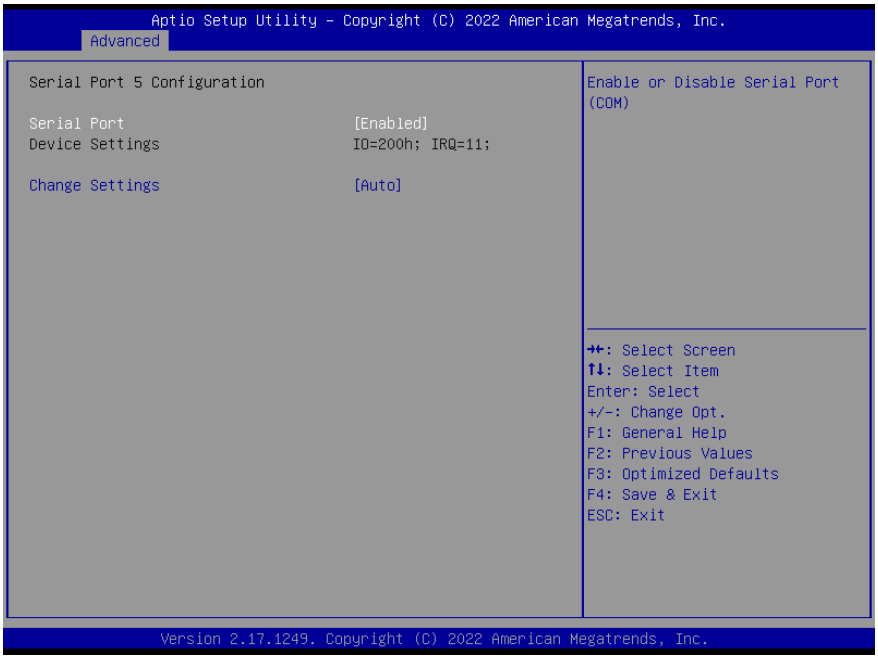
Item	Option	Description
Serial Port	Disabled Enabled**[Default]**,	Enable or Disable Serial Port (COM)
Change Settings	Auto**[Default]** IO=3E8h; IRQ=5; IO=3E8h; IRQ=3,4,5,6,7,10,11,12; IO=2E8h; IRQ=3,4,5,6,7,10,11,12; IO=200h; IRQ=3,4,5,6,7,10,11,12; IO=208h; IRQ=3,4,5,6,7,10,11,12;	Select an optimal setting for super IO Device

3.6.2.3.4 Serial Port 4 Configuration



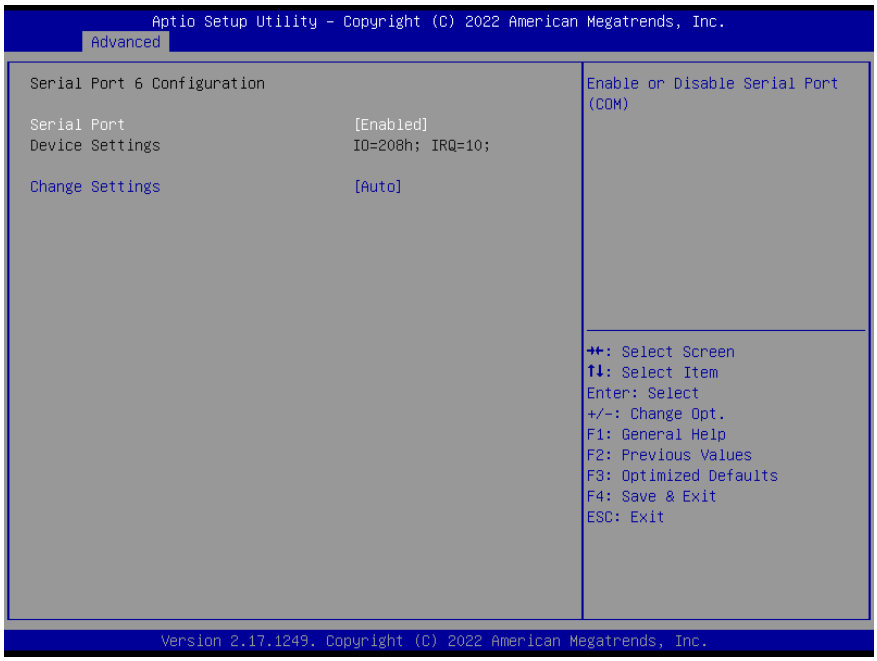
Item	Option	Description
Serial Port	Disabled Enabled**[Default]**,	Enable or Disable Serial Port (COM)
Change Settings	Auto**[Default]** IO=2E8h; IRQ=7; IO=3E8h; IRQ=3,4,5,6,7,10,11,12; IO=2E8h; IRQ=3,4,5,6,7,10,11,12; IO=200h; IRQ=3,4,5,6,7,10,11,12; IO=208h; IRQ=3,4,5,6,7,10,11,12;	Select an optimal setting for super IO Device

3.6.2.3.5 Serial Port 5 Configuration



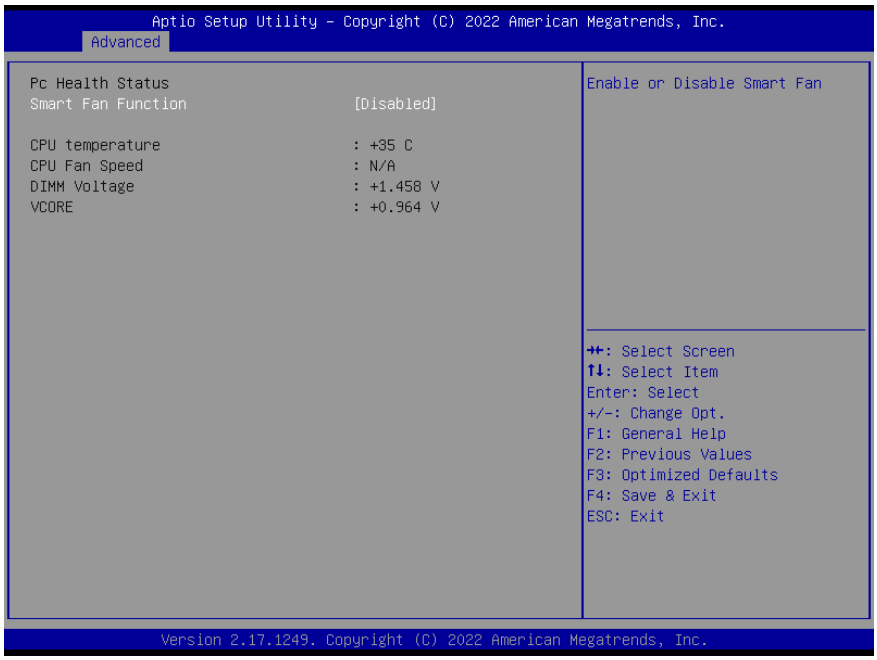
Item	Option	Description
Serial Port	Disabled Enabled**[Default]**,	Enable or Disable Serial Port (COM)
Change Settings	Auto**[Default]** IO=200h; IRQ=11; IO=3E8h; IRQ=3,4,5,6,7,10,11,12; IO=2E8h; IRQ=3,4,5,6,7,10,11,12; IO=200h; IRQ=3,4,5,6,7,10,11,12; IO=208h; IRQ=3,4,5,6,7,10,11,12;	Select an optimal setting for super IO Device

3.6.2.3.6 Serial Port 6 Configuration



Item	Option	Description
Serial Port	Disabled Enabled**[Default]**,	Enable or Disable Serial Port (COM)
Change Settings	Auto**[Default]** IO=208h; IRQ=10; IO=3E8h; IRQ=3,4,5,6,7,10,11,12; IO=2E8h; IRQ=3,4,5,6,7,10,11,12; IO=200h; IRQ=3,4,5,6,7,10,11,12; IO=208h; IRQ=3,4,5,6,7,10,11,12;	Select an optimal setting for super IO Device

3.6.2.4 H/W Monitor

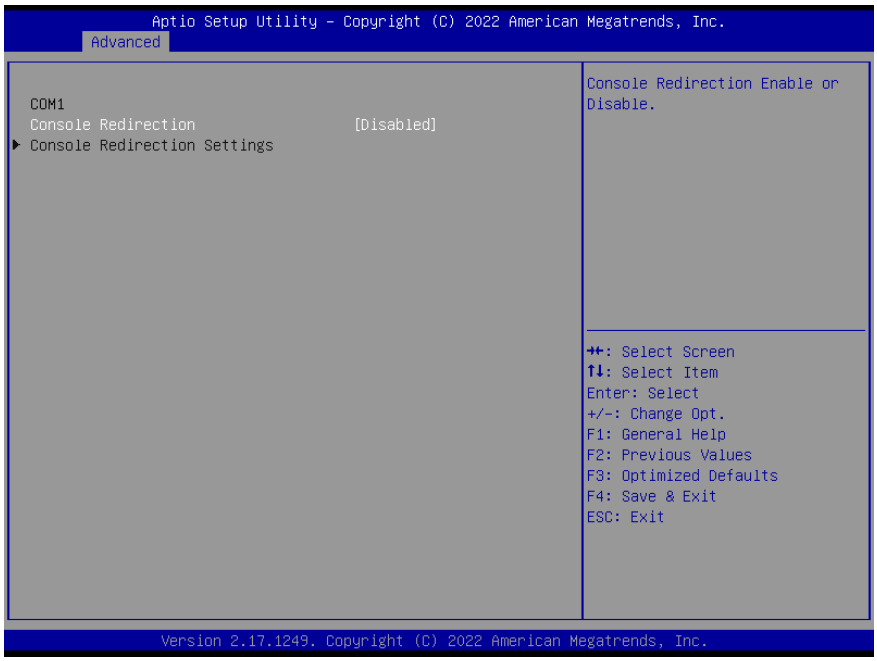


Item	Options	Description
Smart Fan Function	Disabled Enabled**[Default]**,	Enable or Disable Smart Fan

3.6.2.5 S5 RTC Wake Settings

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

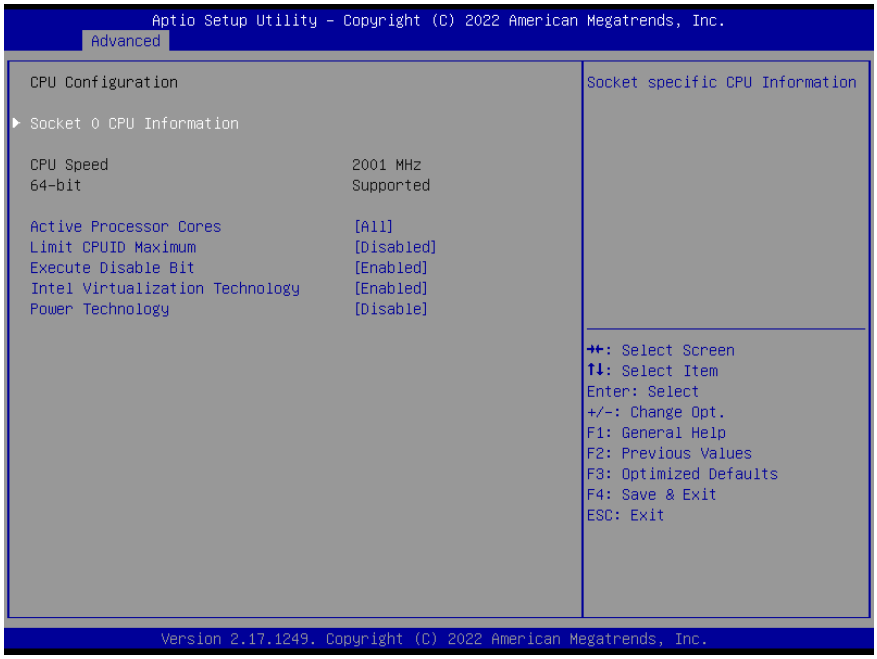
3.6.2.6 Serial Port Console Redirection



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

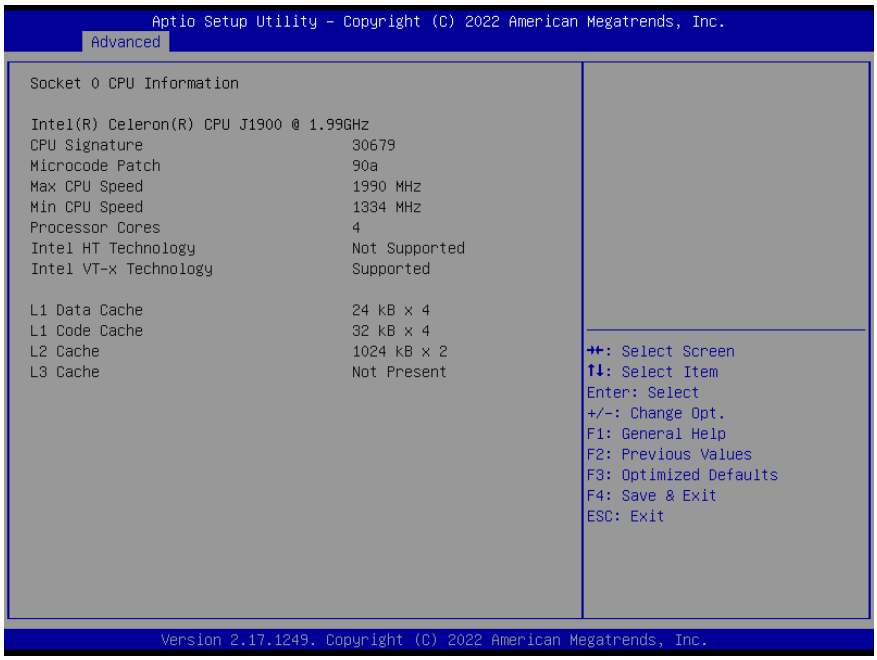
3.6.2.7 CPU Configuration

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

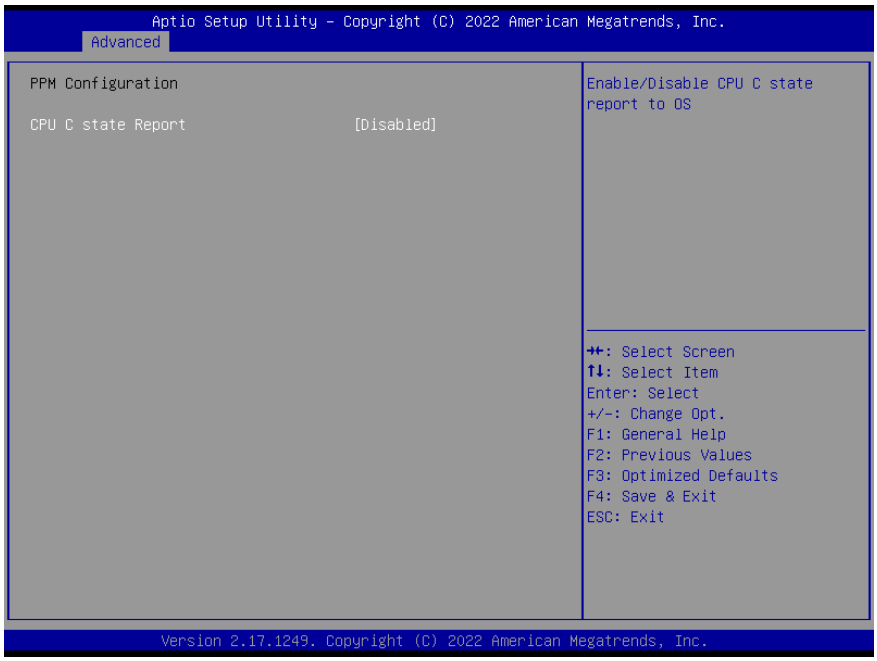


Item	Options	Description
Active Processor Cores	All**[Default]**, 1	Number of cores to enable in each processor package.
Limit CPUID Maximum	Disabled**[Default]**, Enabled	Disabled for Windows XP
Execute Disable Bit	Disabled, Enabled**[Default]**	XD can prevent certain classes of malicious buffer overflow attacks when combined with a supporting OS (Windows Server 2003 SP1, Windows XP SP2, SuSE Linux 9.2, RedHat Enterprise 3 Update 3.)
Intel Virtualization Technology	Disabled, Enabled**[Default]**	When enabled, a VMM can utilize the additional hardware capabilities provided by Virtualization Technology
Power Technology	Disabled**[Default]**, Energy Efficient Custom	Enable the power management features.

3.6.2.7.1 Socket 0 CPU Information

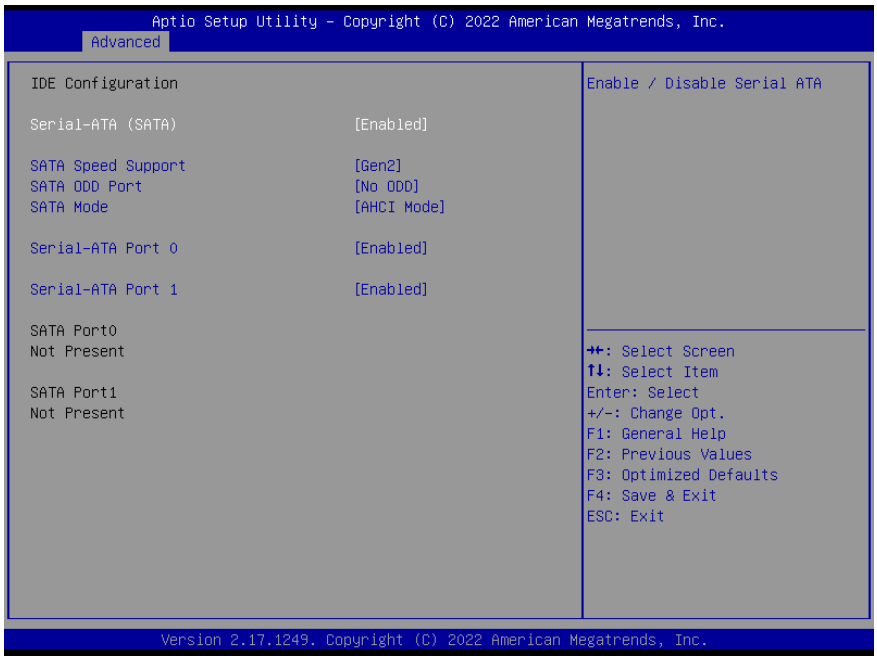


3.6.2.8 PPM Configuration



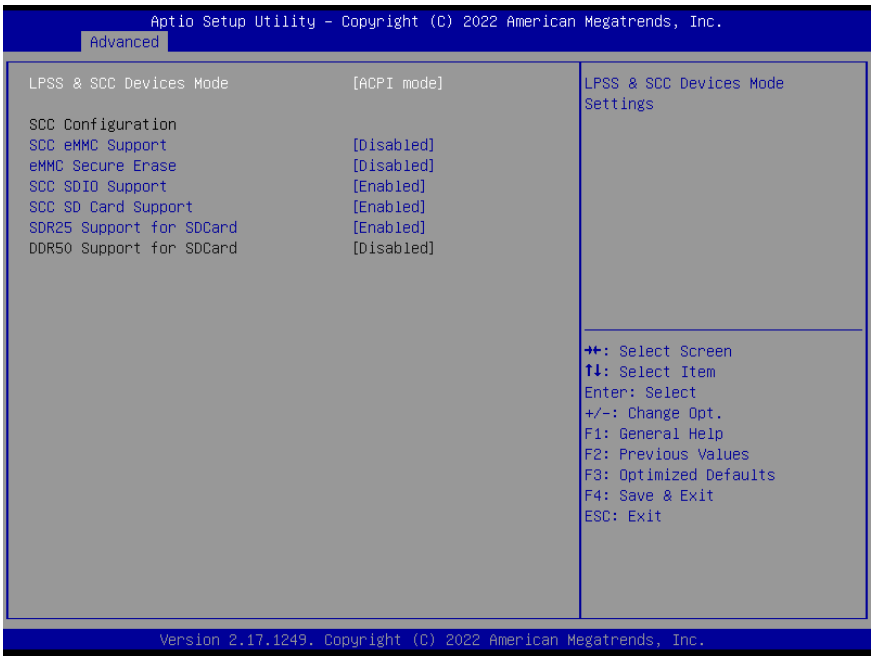
Item	Options	Description
CPU C state Report	Disabled**[Default]**, Enabled	Enable/Disable CPU C state report to OS

3.6.2.9 IDE Configuration



Item	Options	Description
Serial-ATA (SATA)	Enabled**[Default]** Disabled,	Enable/Disable Serial ATA
SATA Speed Support	Gen1 Gen2**[Default]**	SATA Speed Support Gen1 or Gen2
SATA ODD Port	Port0 ODD Port1 ODD No ODD**[Default]**	SATA ODD is Port0 or Port1
SATA Mode	IDE Mode AHCI Mode**[Default]**	Select IDE/AHCI
Serial-ATA Port 0/1	Enabled**[Default]** Disabled,	Enable/Disable Serial ATA Port0/1

3.6.2.10 LPSS & SCC Configuration

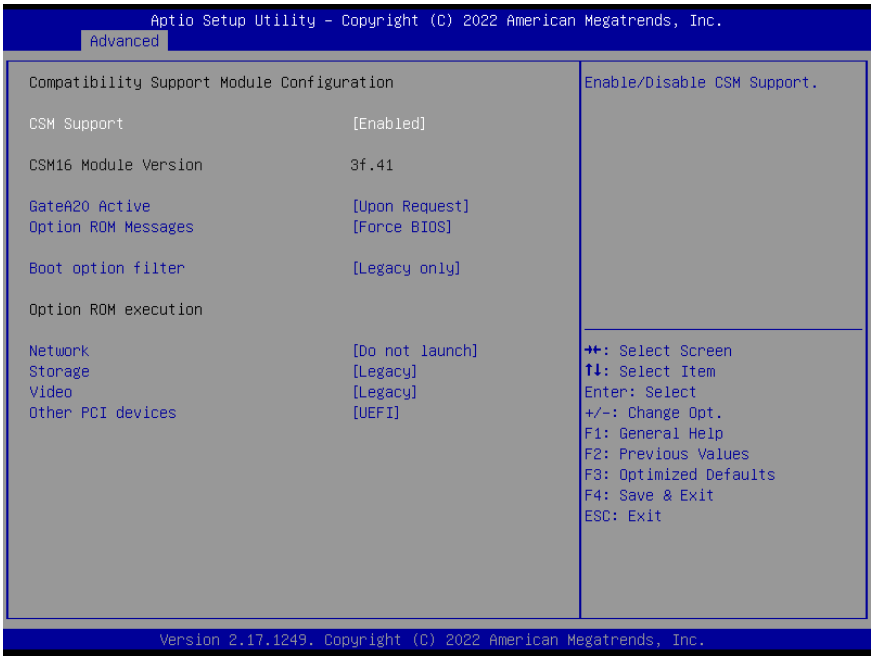


Item	Options	Description
LPSS & SCC Devices Mode	ACPI mode**[Default]** PCI mode	LPSS_SCC Device Mode Settings
SCC eMMC Support	Enable eMMC 4.5 Support Enable eMMC 4.41 Support eMMC AUTO MODE Disabled**[Default]**	SCC eMMC Support Enable/Disable
eMMC Secure Erase	Enabled Disabled**[Default]**	Disable/Enable eMMC Secure Erase. When enabled, all the data on eMMC will be erased
SCC SDIO Support	Enabled**[Default]** Disabled,	SCC SDIO Support Enable/Disable
SCC SD Card Support	Enabled**[Default]** Disabled,	SCC SD Card Support Enable/Disable
SDR25 Support for SDCard	Enabled**[Default]** Disabled,	Disable/Enable SDR25 Capability in SD Card controller

3.6.2.11 Network Stack Configuration

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

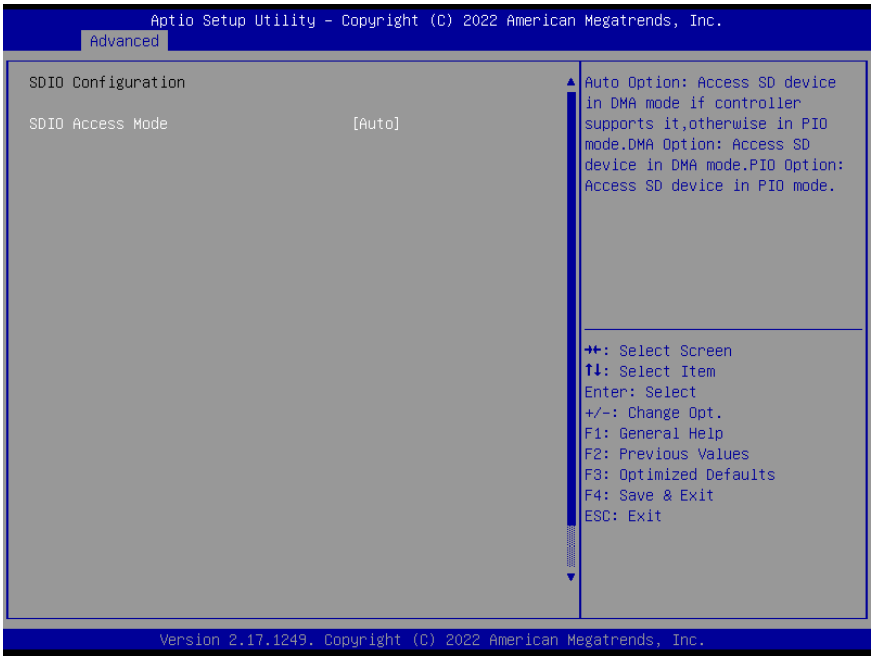
3.6.2.12 CSM Configuration



Item	Options	Description
CSM Support	Disabled, Enabled**[Default]**	Enable/Disable CSM Support

GateA20 Active	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.
Option ROM Messages	Force BIOS**[Default]** Keep Current	Set display mode for Option ROM
Boot option filter	UEFI and Legacy Legacy only**[Default]** UEFI only	This option controls Legacy/UEFI ROMs priority
Network	Do not launch**[Default]** UEFI Legacy	Controls the execution of UEFI and Legacy PXE OpROM
Storage	Do not launch UEFI Legacy**[Default]**	Controls the execution of UEFI and Legacy Storage OpROM
Video	Do not launch UEFI Legacy**[Default]**	Controls the execution of UEFI and Legacy Video OpROM.
Other PCI devices	Do not launch UEFI**[Default]** Legacy	Determines OpROM execution policy for devices other than Network, Storage, or Video.

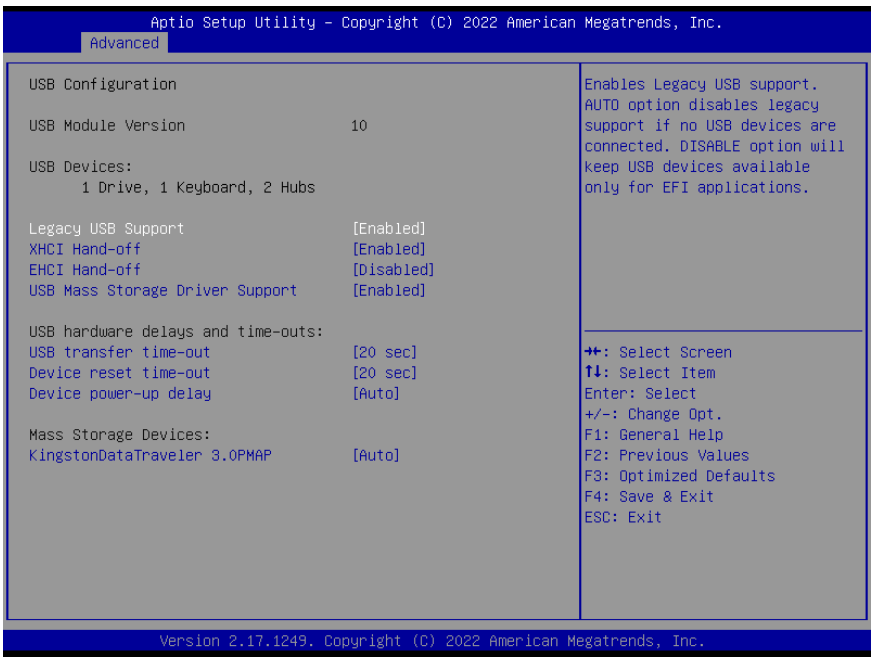
3.6.2.13 SDIO Configuration



Item	Options	Description
SDIO Access Mode	Auto**[Default]** ADMA SDMA PIO	Auto Option: Access SD device in DMA mode if controller supports it,otherwise in PIO mode. DMA Option: Access SD device in DMA mode.PIO Option: Access SD device in PIO mode.

3.6.2.14 USB Configuration

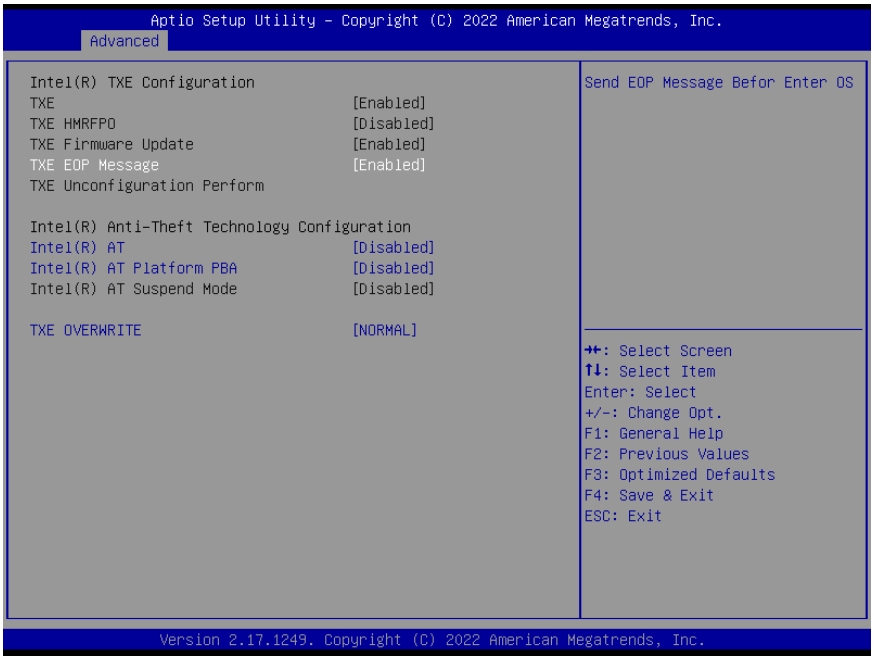
The USB Configuration menu helps read USB information and configures USB settings.



Item	Options	Description
Legacy USB Support	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.
XHCI Hand-off	Enabled**[Default]** Disabled	This is a workaround for OSes without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.
EHCI Hand-off	Disabled**[Default]** Enabled	This is a workaround for OSes without EHCI hand-off support. The EHCI ownership change should be claimed by EHCI driver.
USB Mass Storage Driver Support	Disabled Enabled**[Default]**	Enable/Disable USB Mass Storage Driver Support.
USB transfer time-out	1 sec 5 sec 10 sec 20 sec**[Default]**	The time-out value for Control, Bulk, and Interrupt transfers.
Device reset time-out	10 sec 20 sec**[Default]** 30 sec 40 sec	USB mass storage device Start Unit command time-out.
Device power-up delay	Auto**[Default]** Manual	Maximum time the device will take before it properly reports itself to the Host Controller. 'Auto' uses default value: for a Root port it is 100ms, for a Hub port the delay is taken form

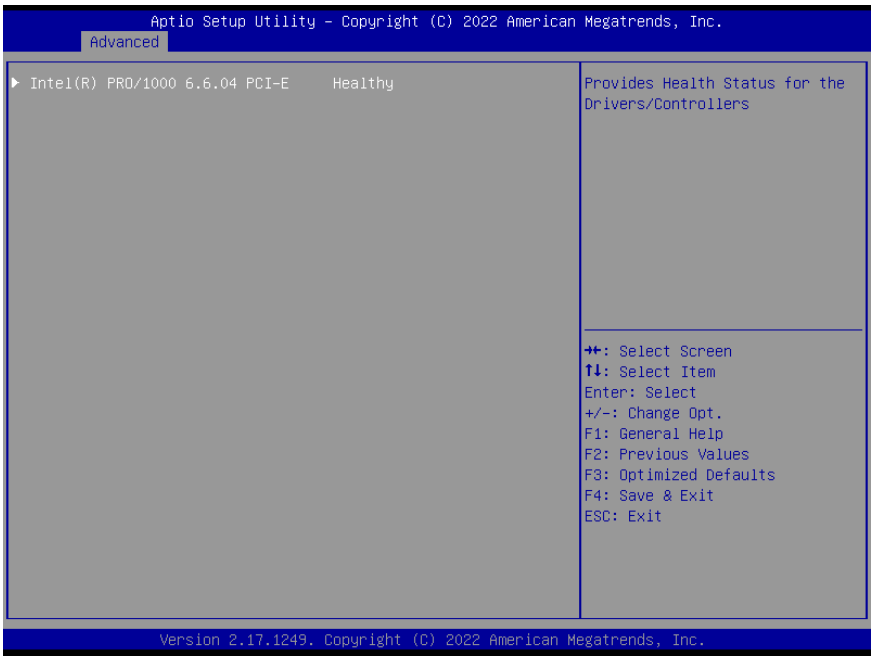
		Hub descriptor.
KingstonDataTraveler 3.0PMAP	Auto**[Default]** Floppy Forced FDD Hard Disk CD-ROM	Mass storage device emulation type. 'AUTO' enumerates devices according to their media format. Optical drives are emulated as 'CDROM', drives with no media will be emulated according to a drive type.

3.6.2.15 Security Configuration



Item	Options	Description
TXE EOP Message	Enabled**[Default]**, Disabled	Send EOP Message Before Enter OS
Intel® AT	Enabled Disabled**[Default]**,	Enable/Disable BIOS AT Code from Running
Inter® AT Platform PBA	Enabled Disabled**[Default]**,	Enable/Disable BIOS AT Code from Running
TXE OVERWRITE	OVERWRITE NORMAL**[Default]**	TXE OVERWRITE. NORMAL: OverWrite Pin as high. (TXE enabled) OVERWRITE:OverWrite Pin as low. (TXE disabled)

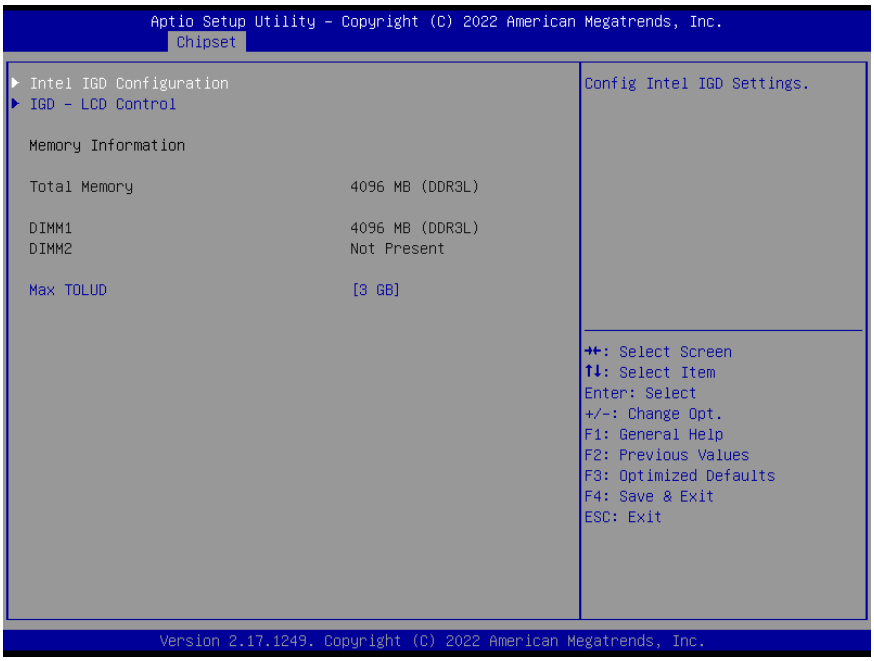
3.6.2.16 Driver Health



3.6.2.16.1 Inter® PRO/1000 6.6.04 PCI-E Healthy

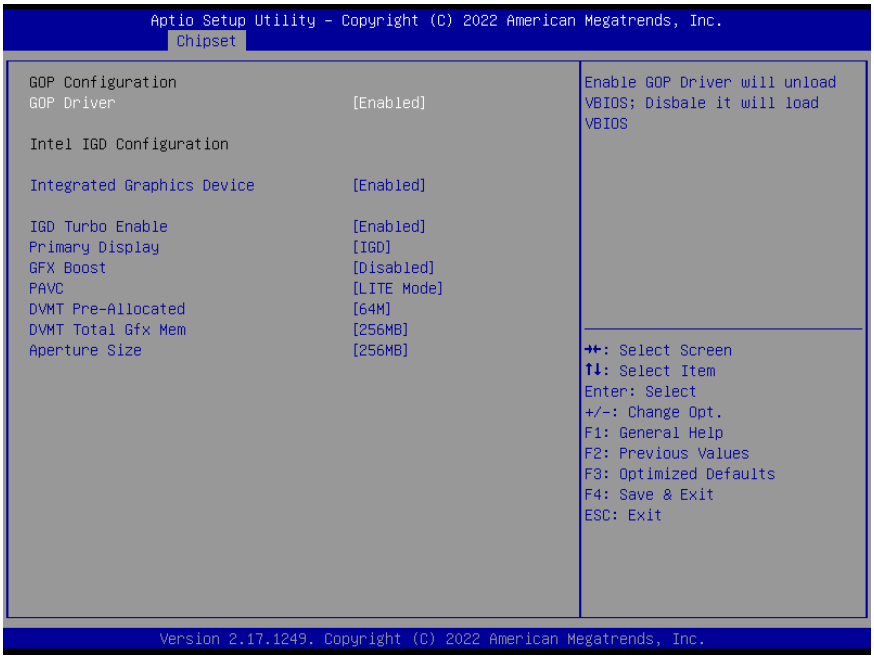
3.6.3 Chipset

3.6.3.1 North Bridge



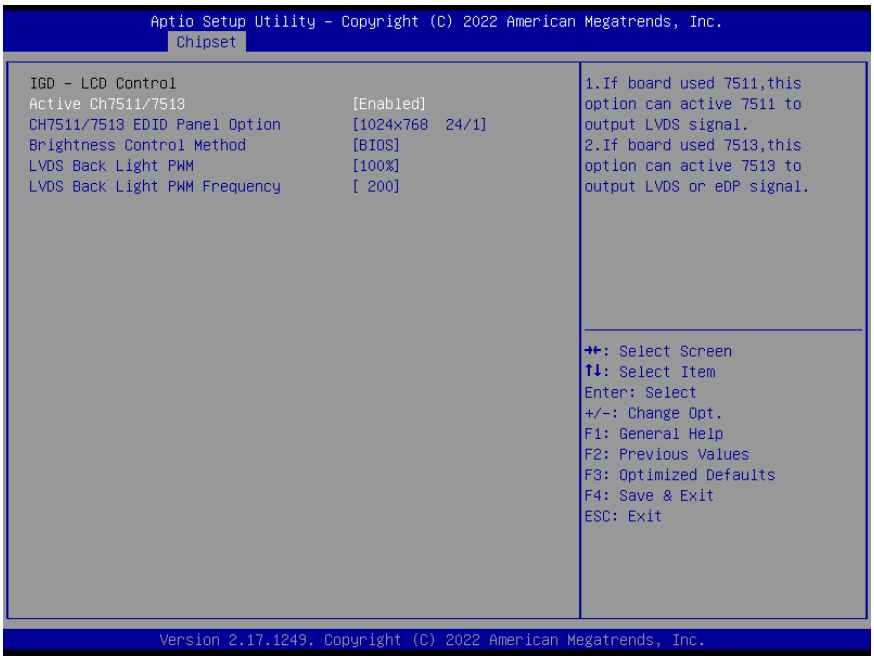
Item	Option	Description
Max TOLUD	Dynamic 2 GB 2.25 GB 2.5 GB 2.75 GB 3 GB**[Default]**	Maximum Value of TOLUD.

3.6.3.1.1 Intel IGD Configuration



Item	Option	Description
GOP Driver	Enabled**[Default]**, Disabled	Enable GOP Driver will unload VBIOS; Disable it will load VBIOS
Integrated Graphics Device	Enabled**[Default]**, Disabled	Enable: Enable Integrated Graphics Device (IGD) when selected as the Primary Video Adaptor. Disable: Always disable IGD
IGD Turbo Enable	Enabled**[Default]**, Disabled	Enable: Enable IGD Turbo Enable. Disable: IGD Turbo Disable.
Primary Display	Auto IGD**[Default]** PCIe	Select which of IGD/PCI Graphics device should be Primary Display.
GFX Boost	Enabled, Disabled**[Default]**	Enable/Disable GFX Boost
PAVC	Disabled LITE Mode**[Default]** SERPENT Mode	Enable/Disable Protected Audio Video Control
DVMT Pre-Allocated	64M**[Default]**/96M/128M/160M/192M/ 224M/256M/288M/320M/352M/ 384M/416M/448M/ 480M/512M	Select DVMT 5.0 Pre-Allocated (Fixed) Graphics Memory size used by the Internal Graphics Device.
DVMT Total Gfx Mem	128MB 256MB**[Default]** Max	Select DVMT 5.0 Total Graphics Memory size used by the Internal Graphics Device.
Aperture Size	128MB 256MB**[Default]**	Select the Aperture Size

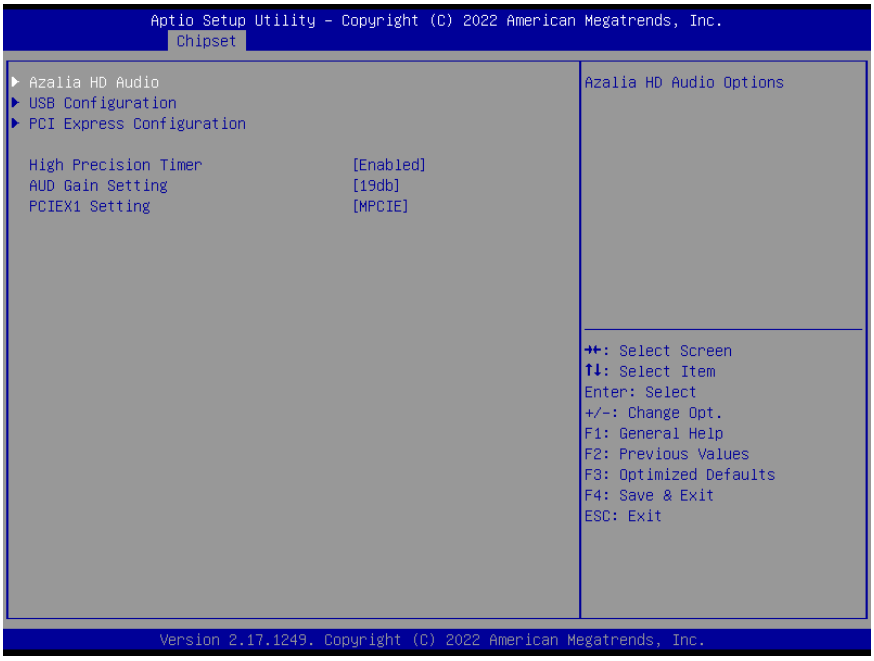
3.6.3.1.2 IGD - LCD Control



Item	Option	Description
Active Ch7511/7513	Enabled**[Default]** Disabled	1.If board used 7511,this option can active 7511 to output LVDS signal. 2.If board used7513,this option can active 7513 to output LVDS or eDP signal.
CH7511/7513 EDID Panel Option	1024x768 24/1**[Default]** 800x600 18/1 1024x768 18/1 1366x768 18/1 1024x600 18/1 1280x800 18/1 1920x1200 24/2 640x480 18/1 800x480 18/1 1920x1080 18/2 1280x1024 24/2 1440x900 18/2 1600x1200 24/2 1366x768 24/1 1920x1080 24/2 1680x1050 24/2 or 7513-eDP	Panel EDID Option. 1.If board used 7511-to-LVDS,these options have total 16 LVDS resolution can be selected. 2.If board used 7513,these options have total 15 LVDS resolution and one eDP can be selected.
Brightness Control Method	BIOS**[Default]** BR Button VR	LVDS Brightness Control Method. 1.BIOS 2.Brightness Button 3.Variable Resistor
LVDS Back Light PWM	00% 25% 50% 75% 100%**[Default]**	Select LVDS back light PWM duty.

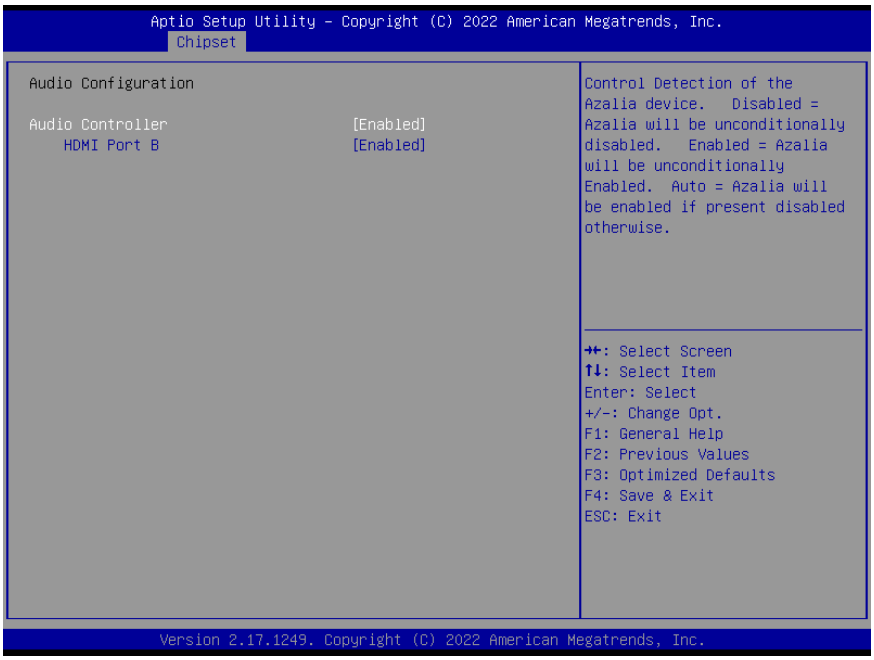
LVDS Back Light PWM Frequency	200**[Default]** 300 400 500 700 1k 2k 3k 5k	Select LVDS back light PWM Frequency.

3.6.3.2 South Bridge



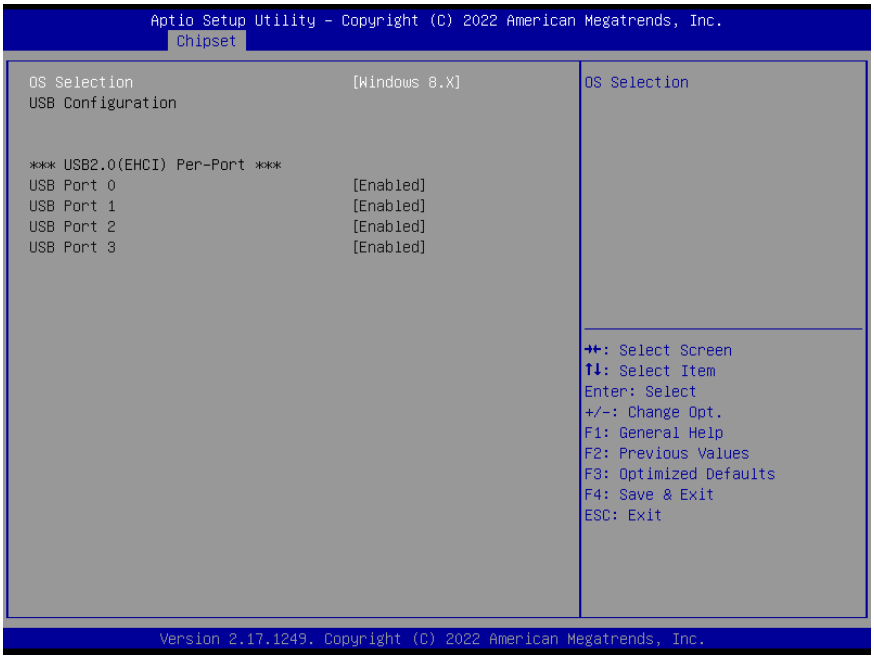
Item	Option	Description
High Precision Timer	Enabled**[Default]** Disabled	Enable or Disable the High Precision Event Timer.
AUD Gain Setting	11db 14db 19db**[Default]** 25db	Select db Value of the AUD Gain
PCIEX1 Setting	PCIE x1 MPCIE**[Default]**	Select PCIE x1/ MPCIE of the PCIEx1_SET

3.6.3.2.1 Azalia HD Audio



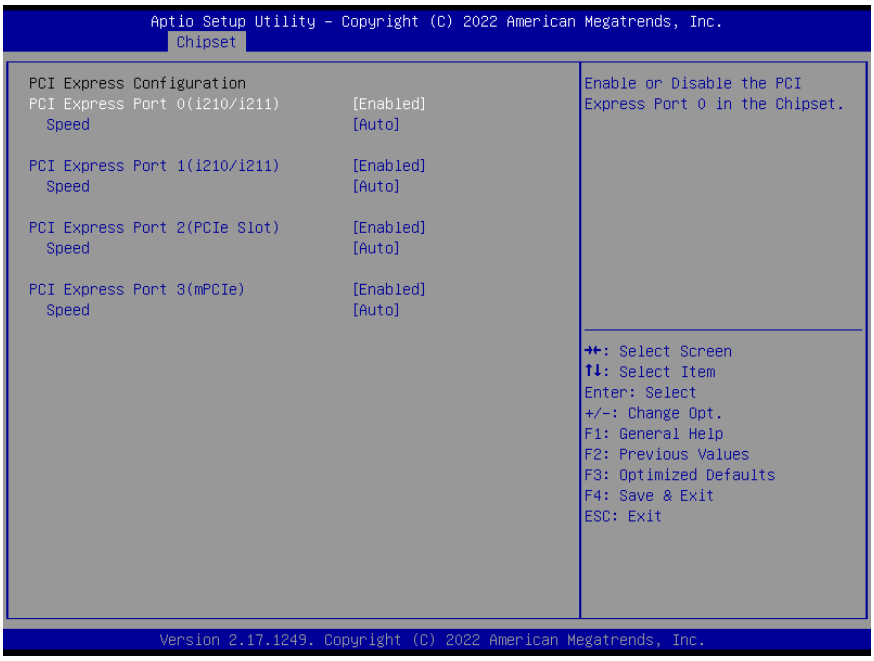
Item	Option	Description
Audio Controller	Disabled Enabled**[Default]**,	Control Detection of the Azalia device. Disabled = Azalia will be unconditionally disabled. Enabled = Azalia will be unconditionally Enabled. Auto = Azalia will be enabled if present disabled otherwise.
HDMI Port B	Disabled Enabled**[Default]**,	Enable/Disable HDMI Port B

3.6.3.2.2 USB Configuration



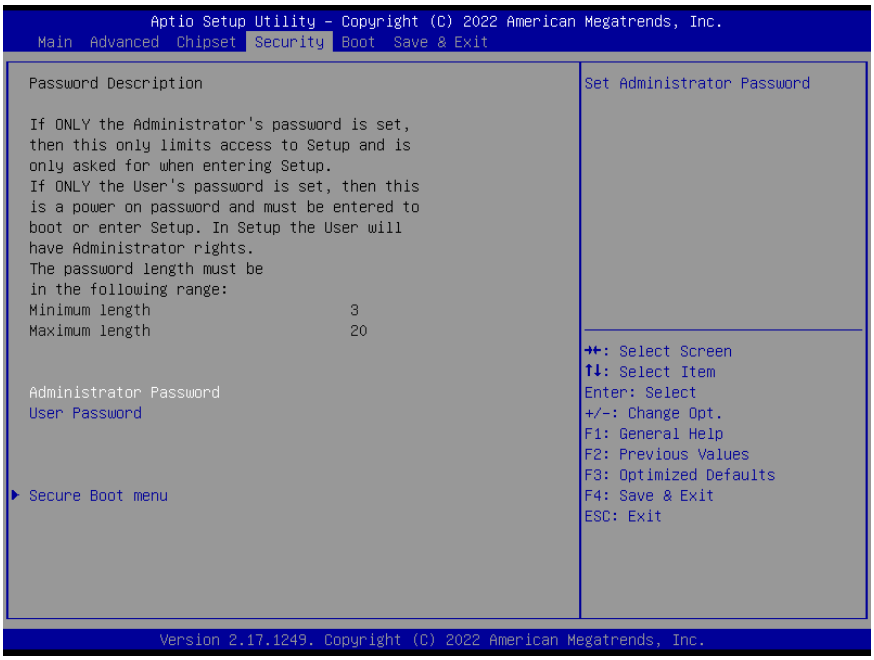
Item	Option	Description
OS Selection	Windows 8.X**[Default]** Android Windows 7	OS Selection

3.6.3.2.3 PCI Express Configuration



Item	Option	Description
PCI Express Port 1(i210/i211) 0/1/2/3	Enabled**[Default]**, Disabled	Enable or Disable the PCI Express Port 0/1/2/3 in the Chipset.
Speed	Auto**[Default]** Gen 2 Gen 1	Configure PCIe Port Speed

3.6.4 Security



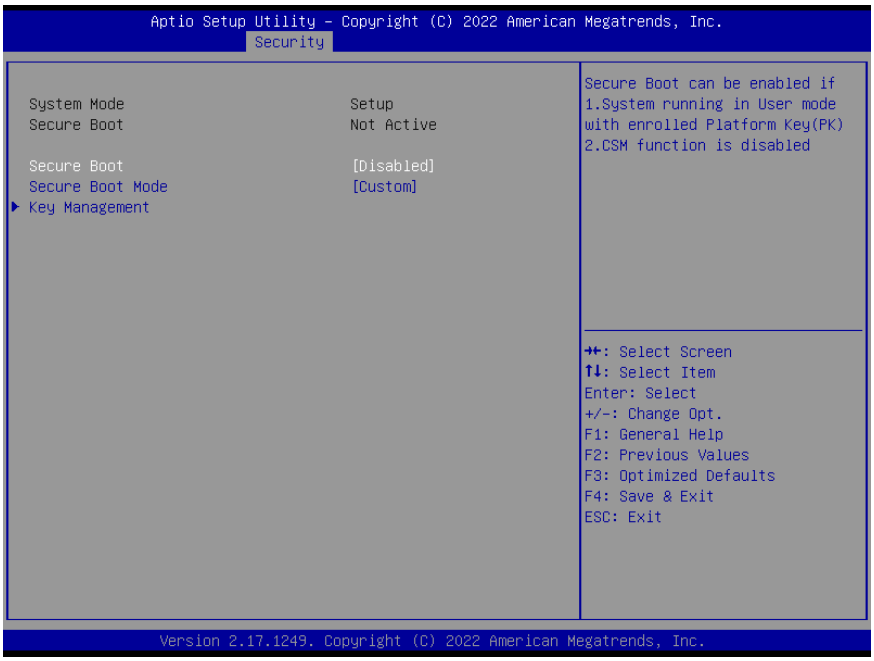
- **Administrator Password**

Set setup Administrator Password

- **User Password**

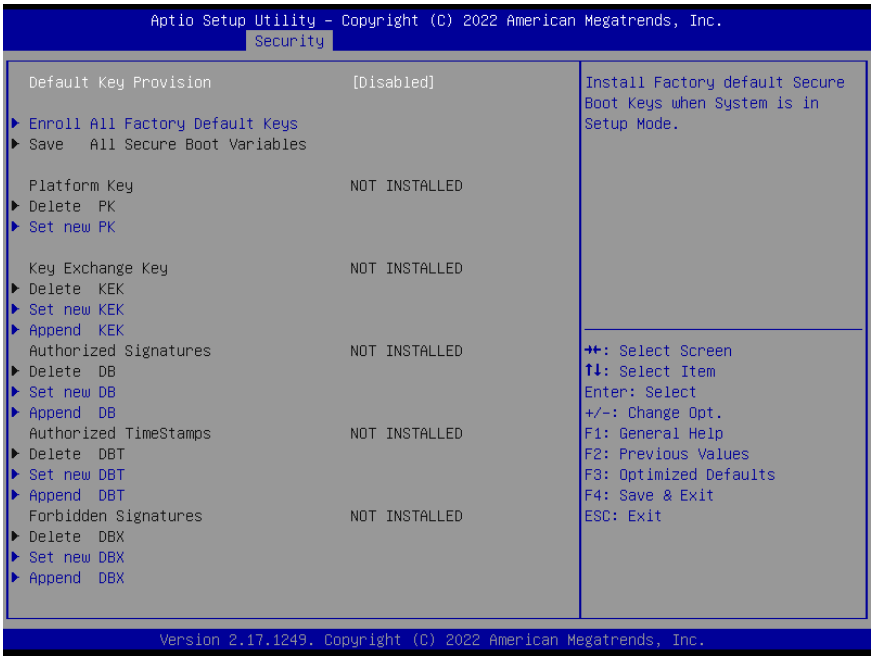
Set User Password

3.6.4.1 Secure Boot menu



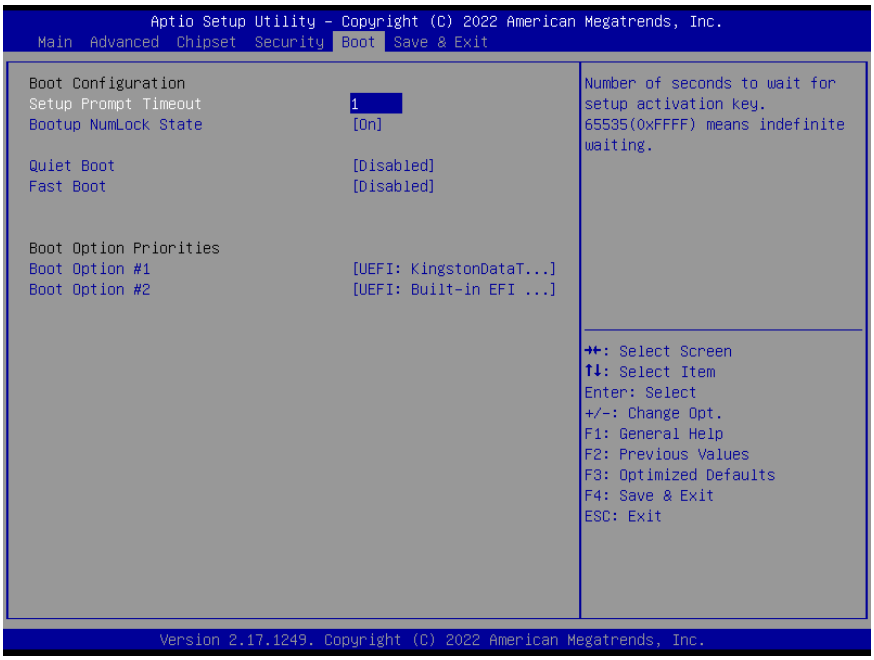
Item	Option	Description
Secure Boot	Disabled**[Default]** Enabled	Secure Boot can be enabled if 1.System running in User mode with enrolled Platform Key(PK) 2.CSM function is disabled
Secure Boot Mode	Standard Custom**[Default]**	Secure Boot mode selector. 'Custom' Mode enables users to change Image Execution policy and manage Secure Boot Keys.

3.6.4.1.1 Key Management



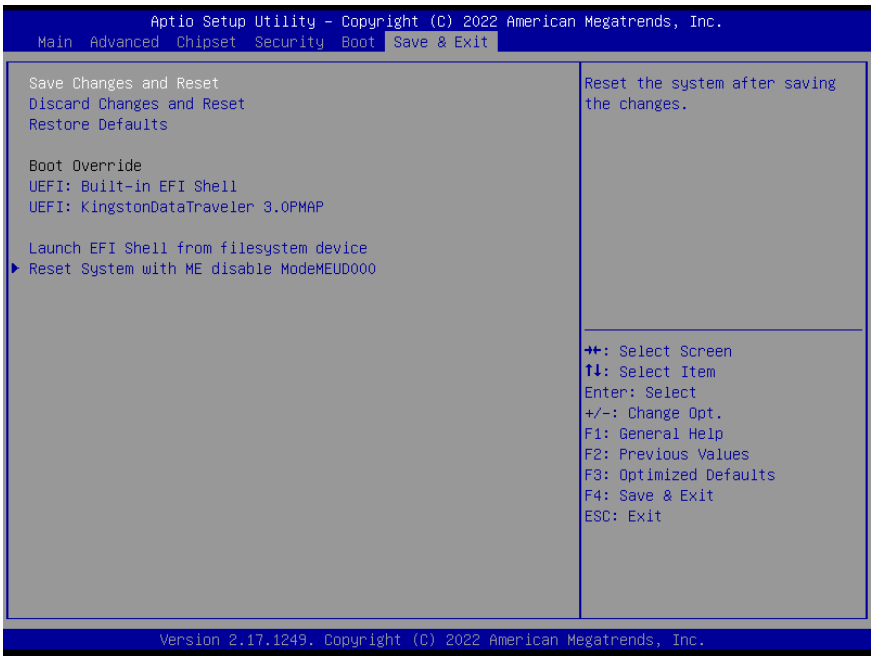
Item	Option	Description
Default Key Provision	Disabled**[Default]** Enabled,	Install Factory default Secure Boot Keys when System is in Setup Mode.

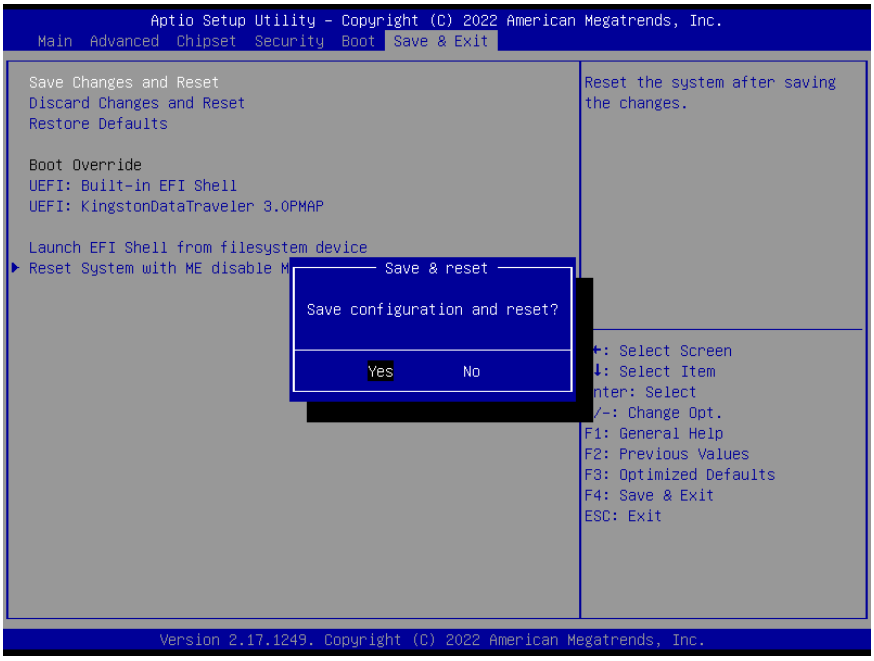
3.6.5 Boot



Item	Option	Description
Setup Prompt Timeout	1~ 65535	Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.
Bootup NumLock State	On**[Default]** Off	Select the Keyboard NumLock state
Quiet Boot	Disabled**[Default]** Enabled	Enables or disables Quiet Boot option
Fast Boot	Disabled**[Default]** Enabled	Enables or disables boot with initialization of a minimal set of devices required to launch active boot option. Has no effect for BBS boot options.
Boot Option #1/2	Set the system boot order.	

3.6.6 Save and exit





Item	Description
Save Changes and Reset	Reset the system after saving the changes.
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.
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.

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

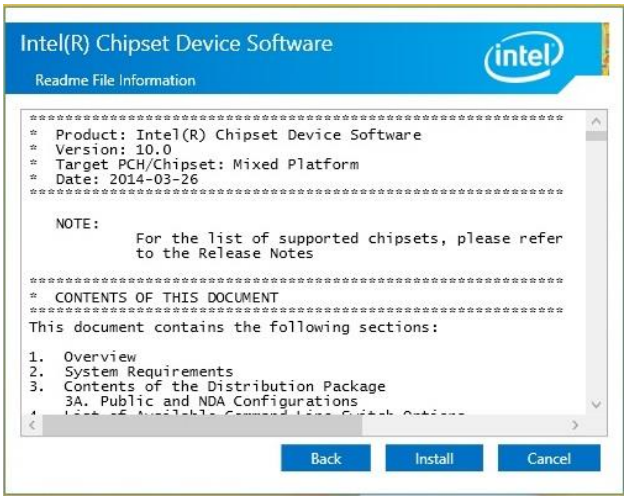
4. Drivers Installation

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

4.1 Install Chipset Driver

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

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



Step 3. Click **Install**.

Step1. Click **Next**.

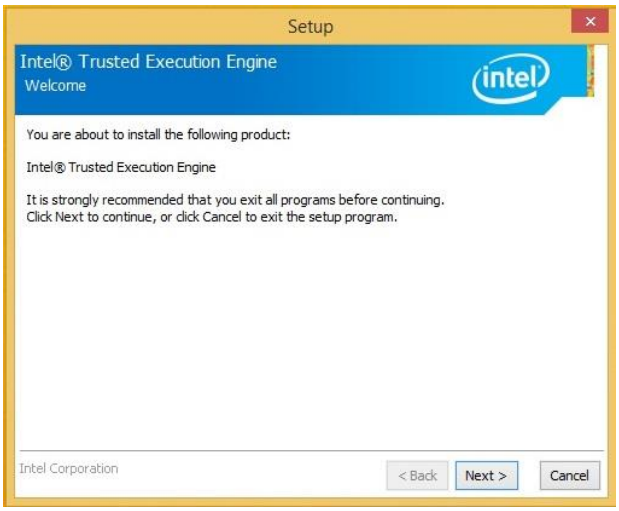
Step 4. Click **Finish** to complete setup.

Step 2. Click **Accept**.

4.2 Install TXE Driver

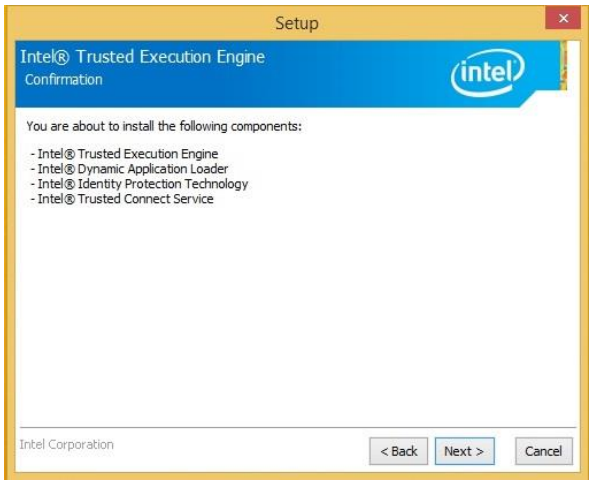
All drivers can be found on the Avalue Official Website: http://www.avalue.com.tw.

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

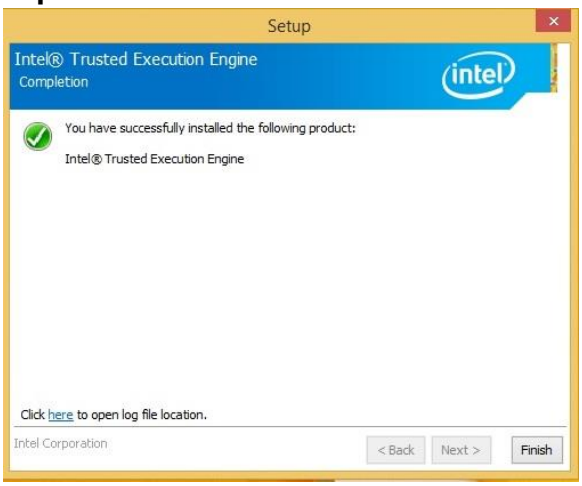


Step1. Click **Next** to start installation.

Step 2. Click **Next**.



Step 3. Click **Next** to continue installation.

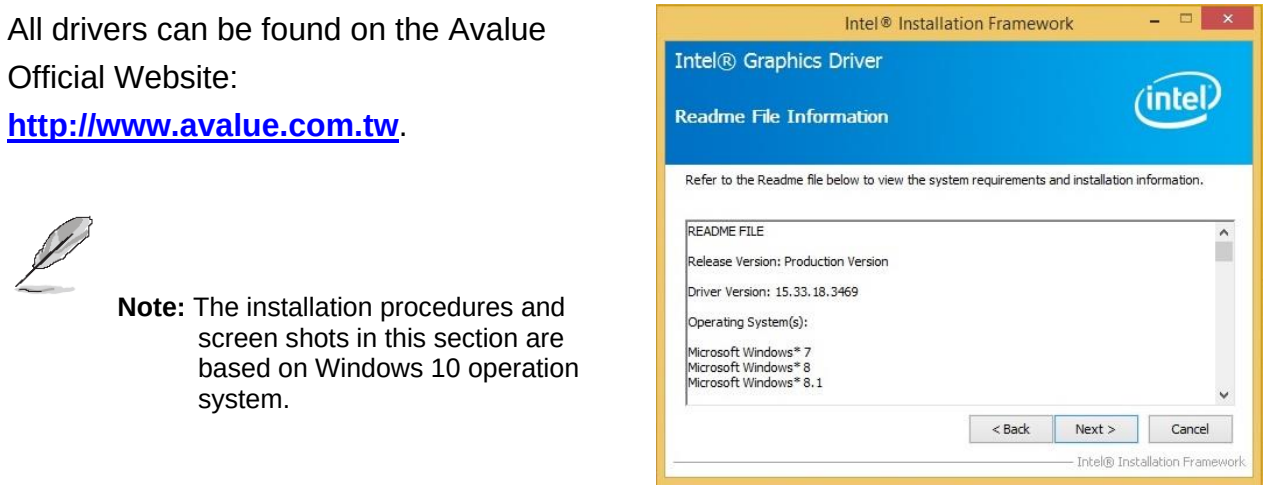


Step 4. Click **Finish** to complete setup.

4.3 Install VGA Driver

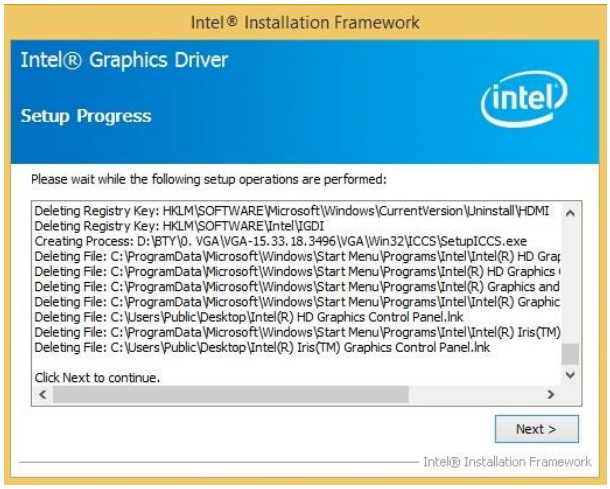
All drivers can be found on the Avalue Official Website: http://www.avalue.com.tw.

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

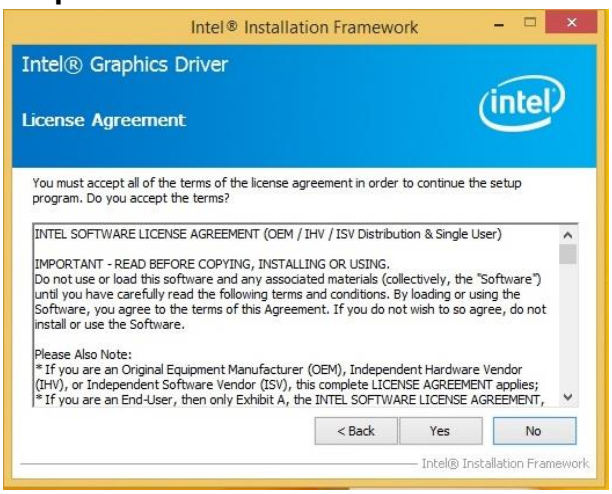


Step 3. Click **Next.**

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

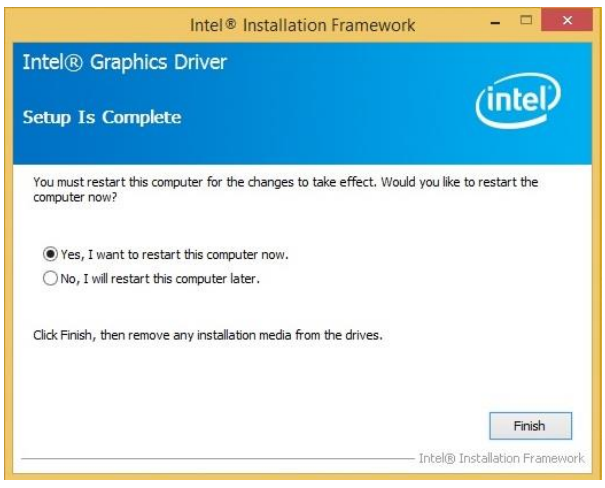


Step 4. Click **Next**.



Step 2.

Click **Yes** to accept license agreement.

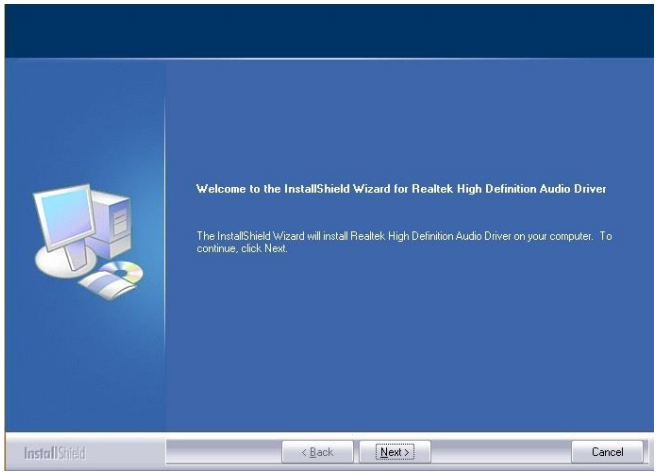


Step 5. Click **Finish** to complete setup.

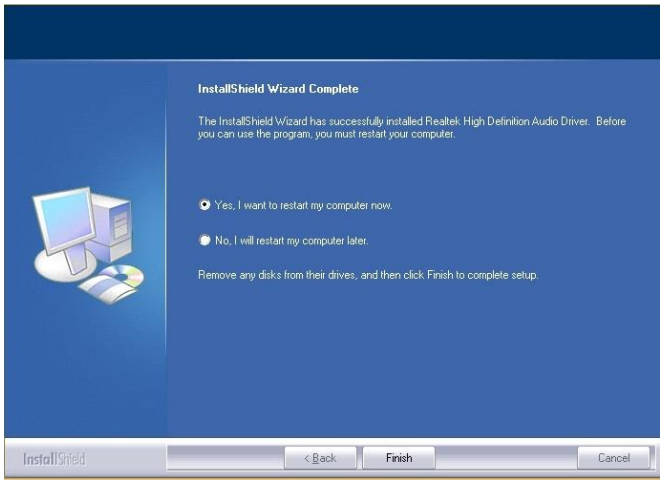
4.4 Install Audio Driver

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 10 operation system.



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



Step 2. Click **Finish** to complete the setup.

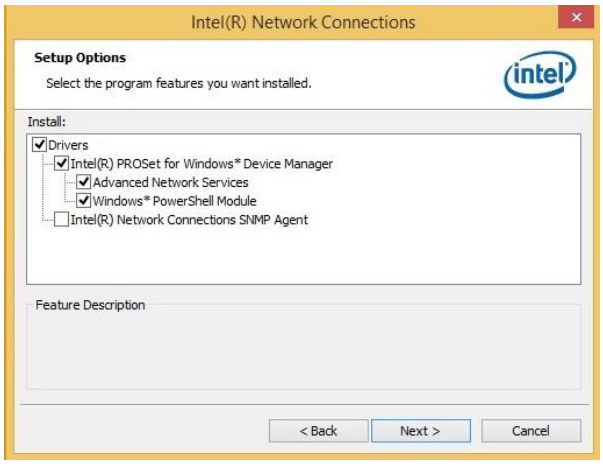
4.5 Install Ethernet Driver

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

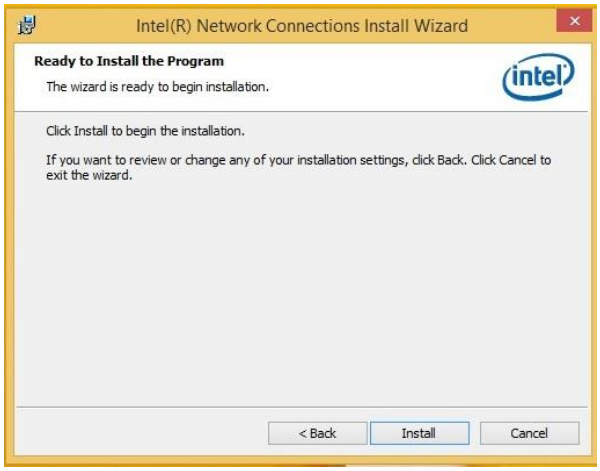
Note: The installation procedures and screen shots in this section are based on Windows 10 operation system.

Step 1. Click **Next**.

Step 2. Click **Next** to accept license agreement.



Step 3. Click **Next**.



Step 4. Click **Install** to proceed.

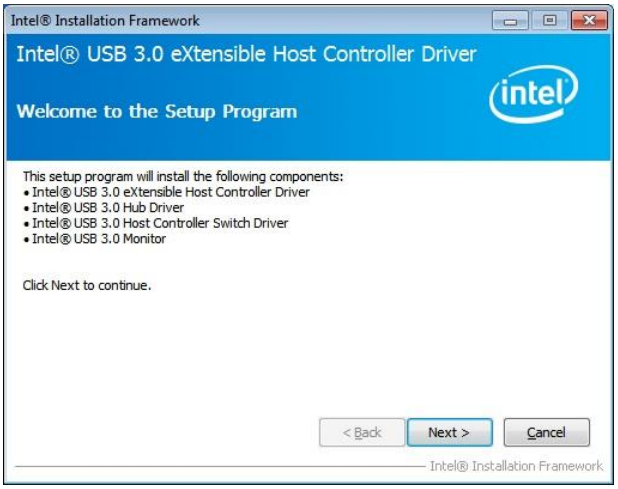
Step 5. Click **Finish** to complete the setup

4.6 Install USB 3.0 Driver

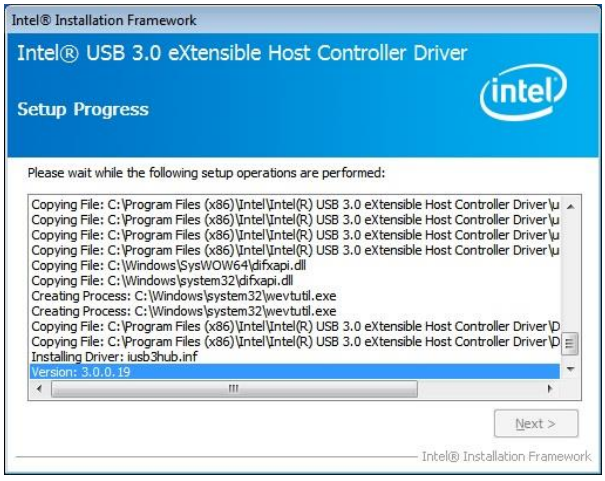
All drivers can be found on the Avalue Official Website: http://www.avalue.com.tw.

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

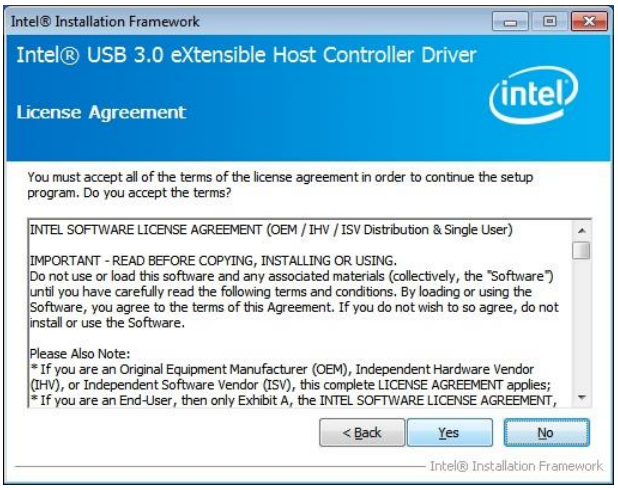
Step 3. Click **Next** to continue installation.



Step1. Click **Next** to start installation.



Step 4. Wait while installing.



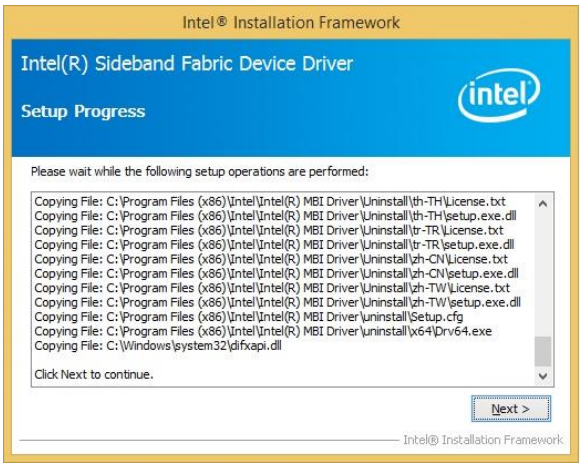
Step 2. Click **Yes**.

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

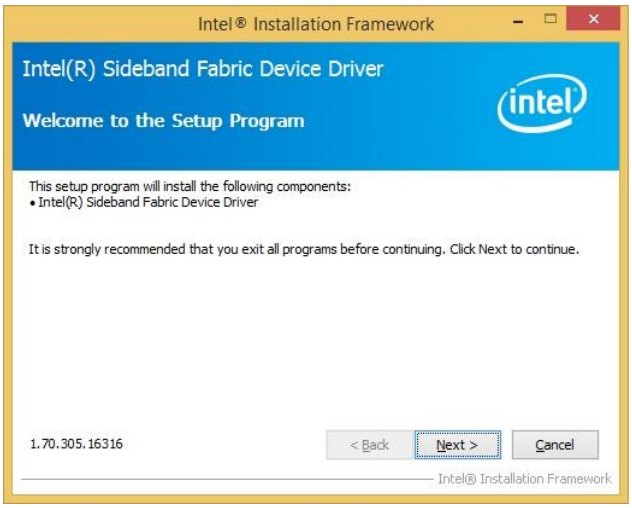
4.7 Install MBI Driver

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

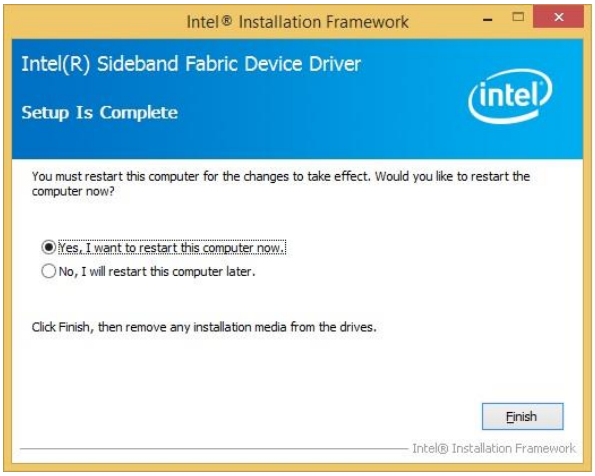
Note: The installation procedures and screen shots in this section are based on Windows 10 operation system.



Step 3. Click **Next** to continue installation.



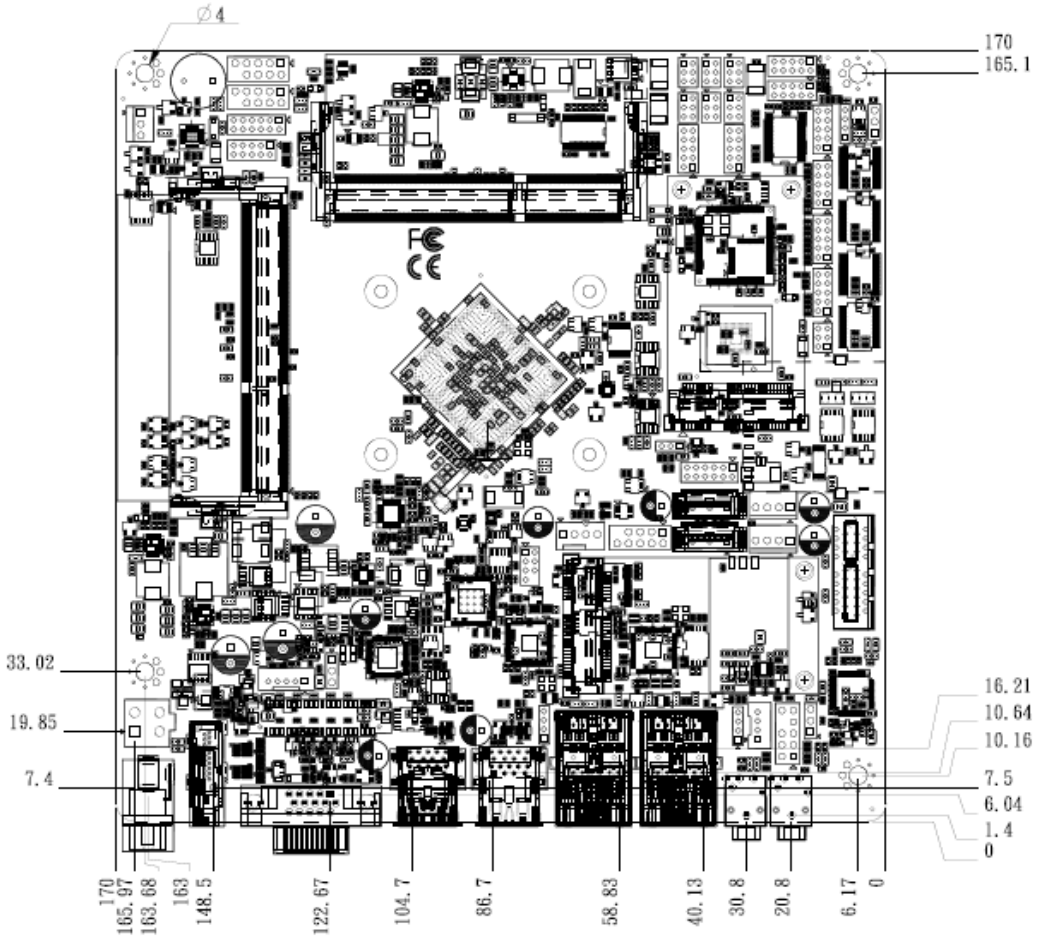
Step1. Click **Next** to start installation.

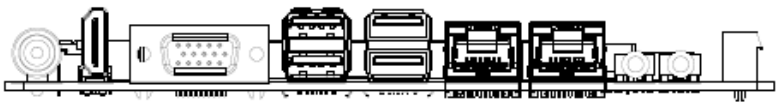


Step 4. Click **Finish** to complete setup.

Step 2. Click **Yes**.

5. Mechanical Drawing


Ø4
170
165.1
33.02
19.85
7.4
16.21
10.64
10.16
7.5
6.04
1.4
0
170
165.97
163.68
163
148.5
122.67
104.7
86.7
58.83
40.13
30.8
20.8
6.17
0
18



Unit: mm