SLP-VX11

兆芯 C Series Fanless Expandable Slot PC

Quick Reference Guide

1st Ed –10 August 2020

Part No. E2017SL11A0R

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.

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CONTENT

1. Getting Started

1.1 Safety Precautions

Warning!

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

Caution!

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

1.2 Packing List

- 1 x TERMINAL 3P 180D(F) 2.5 GRN DINKLE
- 1 x TERMINAL 3P 180D(F) 5.08 w/SCR GRN DINKLE
- 1 x Adapter 120W（24V/5A,Power Din）
- 1 x AC Power Cord（CN）

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

1.3 System Specifications

System	
Mother Board	EMX-VX11P
CPU	Onboard ZX-C S eries Processor with VX11PH
Memory	One x 204-pin DDR3 1333MHz SO-DIMM supports up to 8GB, default 4GB
Adapter	AC Input Optional 120W ~ 150W external AC-DC adapter for AC input (120W or above)
System Fan	Fanless
Operating System	Win7,Win10, NeoKylin 7.0, 64 bit, kernel 3.10.0-862.9.1nd7.zx.4.X86_64
Expansion Card	Daughter board (through PCIe*4 Gold Finger): 1 x PCIe*4 slot support PCIe*1 + 2 x PCI
Storage	
Storage	1 x 2.5” HDD/SSD
External I/O	
PS/2 KB & Mouse	Yes
Serial Port	4 x RS-232
USB Port	3 x USB 3.0, 1 x USB 2.0
DIO Port	16bit GPIO *Motherboard Side
Video Port	1 x HDMI, 1 x VGA
Audio Port	1 x Line-out, 1 x Mic-in
LAN Port	2 x Intel® I210-AT Gigabit Ethernet
Wireless LAN Antenna	2 x Wireless LAN Antenna for optional
Switch	1 x Power-on Switch 1 x Power on SW (Phoenix Connector) 1 x Mini Dim power input
Indicator Light	1 x HDD LED 1 x Power LED
Expansion Slots	Backplane Board: 1 x PCI-e x4 Slot (Broken Hole Type) supports PCIe*1 2 x PCI Slot
Mechanical	
Power Type	AT/ATX Mode, default ATX mode
Power Connector Type	Phoenix Connector Type or Mini Dim power input

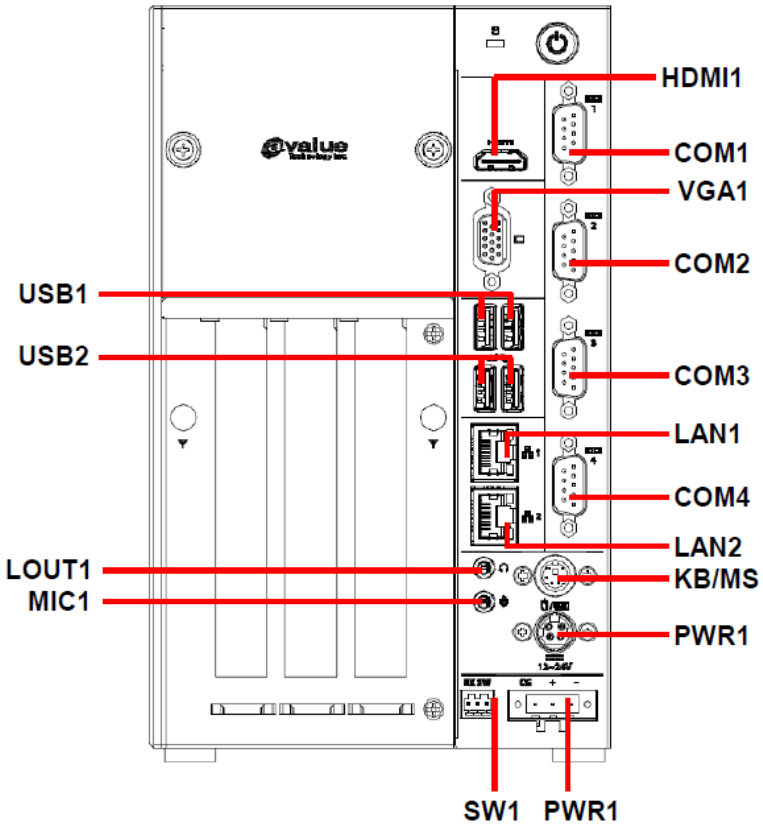
Dimension	(L) 217mm x (W) 135mm x (D) 220mm ± 0.5mm
Weight	3.6kg(TBC)
Color	Black
Fanless	YES
OS Support	Win7,Win10, NeoKylin 7.0, 64 bit, kernel 3.10.0-862.9.1nd7.zx.4.X86_64
Reliability	
EMI Test	Class A
Safety	Avalue Standard
Dust and Rain Test	Avalue Standard
Vibration Test	Random Vibration Operation: PSD: 0.03622G²/Hz , 1.5 Grms operation mode Test Frequency : 5-500Hz Test Axis : X,Y and Z axis 30 minutes per each axis IEC 60068-2-64 Test:Fh Storage : CF or SSD Sine Vibration test (Non-operation) Test Acceleration : 2G Test frequency : 5~500 Hz Sweep：1 Oct/ per one minute. (logarithmic) Test Axis : X,Y and Z axis Test time :10 min. each axis System condition : Non-Operating mode Reference IEC 60068-2-6 Testing procedures Package vibration test PSD: 0.026G²/Hz , 2.16 Grms Non-operation mode Test Frequency : 5-500Hz Test Axis : X,Y and Z axis 30 min. per each axis IEC 60068-2-64 Test:Fh
Mechanical Shock Test	Wave form：Half Sine wave Acceleration Rate：10g for operation mode Duration Time：11ms No. of Shock：Z axis 1000 times Test Axis: Z axis Operation mode Reference IEC 60068-2-29 Testing procedures Test Eb : Bump Test

Drop Test	Package drop test One corner , three edges, six faces ISTA 2A, IEC-60068-2-32 Test:Ed
Operating Temperature	0°C ~55°C (32˚F ~ 131˚F) w/Industrial SSD, ambient w/ air flow (0.5ms)
Operating Humidity	40°C @ 95% Relative Humidity, Non-condensing
Storage Temperature	-40°C ~ 75°C (-40 ~ 167°F)

Note: Specifications are subject to change without notice.

1.4 System Overview

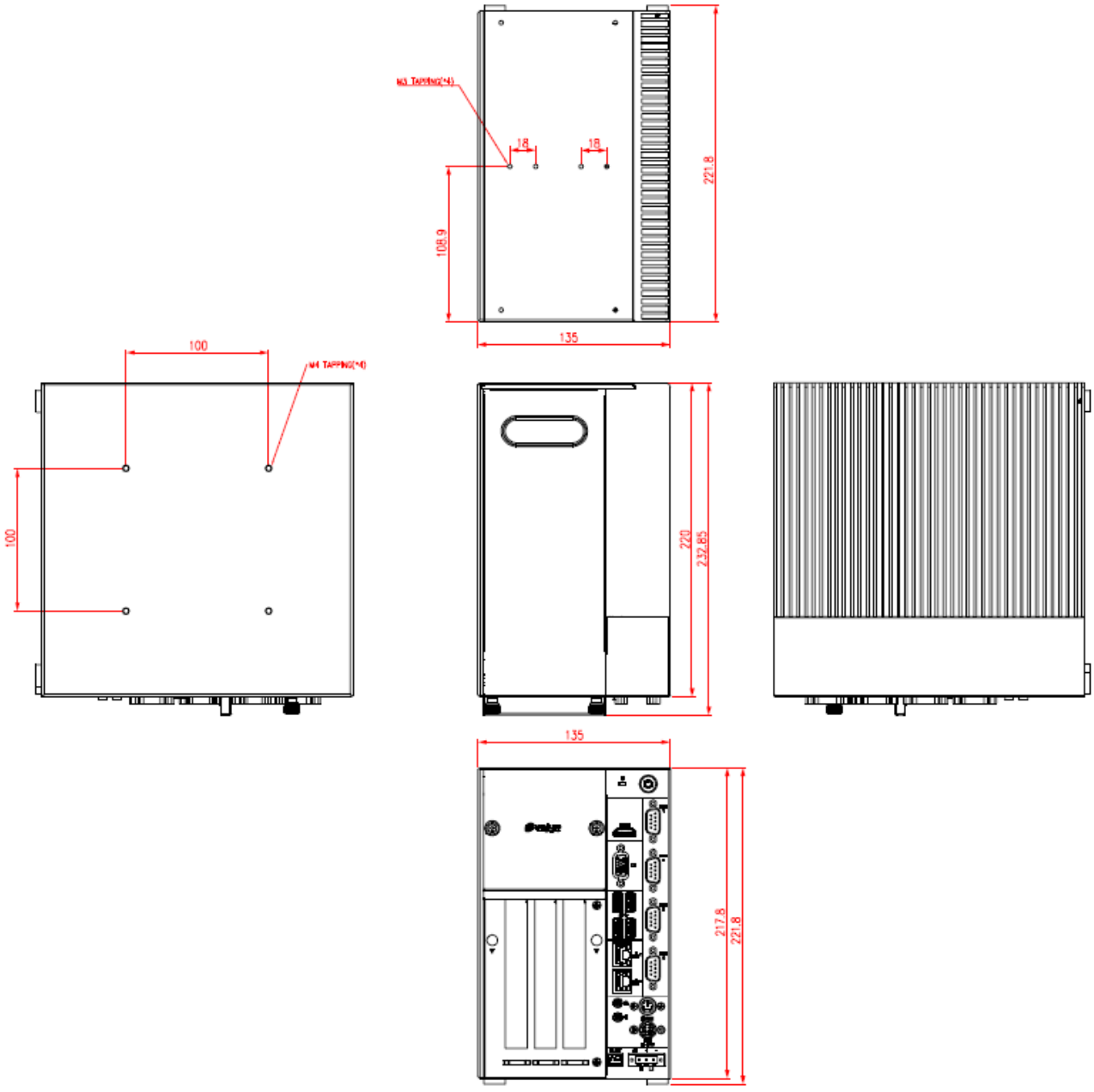
1.4.1 SLP-VX11 Rear View



Connectors

Label	Function	Note
HDMI1	HDMI connector	
USB1/2	USB connector 1/2	
LAN1/2	RJ-45 Ethernet 1/2	
COM1/2	Serial Port 1 connector	5 x 2 header, pitch 2.00mm
COM3/4	Serial Port 3-6 connector	5 x 2 header, pitch 2.00mm
KB&MS	PS/2 keyboard & mouse header	4 x 2 header, pitch 2.00mm
VGA1	VGA connector	
PWR1	Power connector	2 x 2 wafer, pitch 4.20mm
PWR1	DC Input connector	3 x 1 wafer, pitch 5.08mm
SW1	Power Button connector	
LOUT1	Line-out audio jack	
MIC1	Mic-in audio jack	

1.5 System Dimensions



(Unit: mm)

2. Hardware Configuration

For advanced information, please refer to:

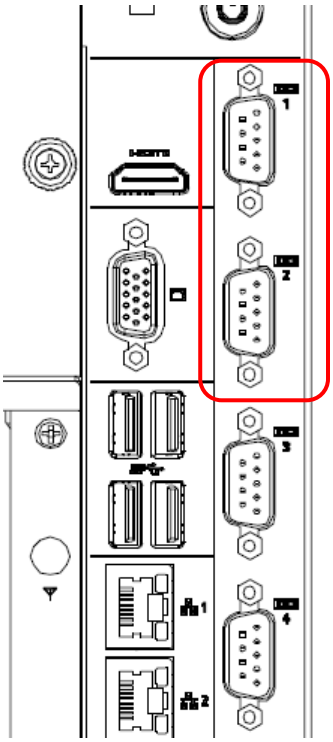
1- EMX-VX11P User's Manual

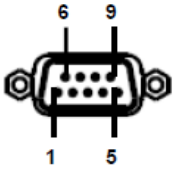
Note: If you need more information, please visit our website:

http://www.avalue.com.tw

2.1 SLP-VX11 connector mapping

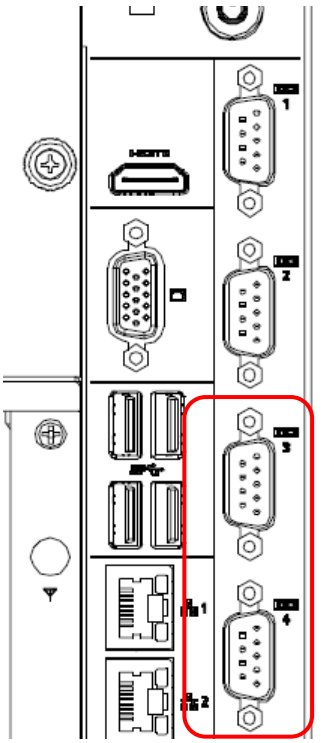
2.1.1 Serial Port 1/2 connector (COM1/2)

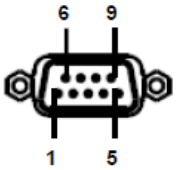




Pin	RS-232	RS-422	RS-485
1	DCD#	TXD422-	485DATA-
2	RXD	TXD422+	485DATA+
3	TXD	RXD422+	
4	DTR#	RXD422-	
5	GND		
6	DSR#		
7	RTS#		
8	CTS#		
9	RI#		

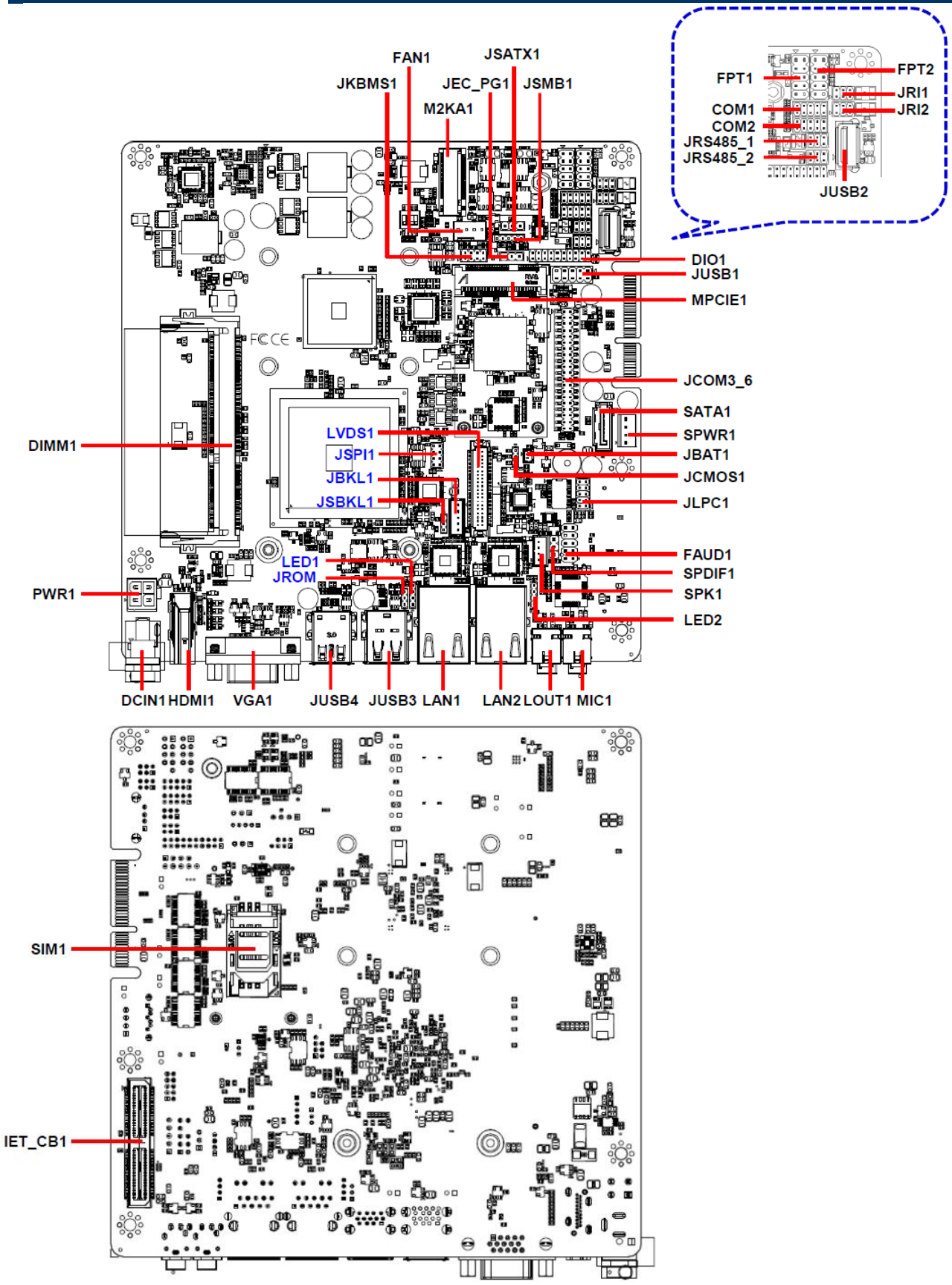
2.1.2 Serial Port 3/4 connector (COM3/4)





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

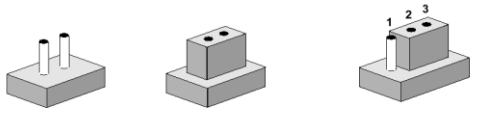
2.2 Product Overview



2.3 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.



Open Closed Closed 2-3

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

Open Closed Closed 2-3

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

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

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

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

Jumpers

Label	Function	Note
JRI1/2	Serial port 1/2 pin9 signal select	3 x 2 header, pitch 2.00mm
JSBKL1	LVDS Back Light power selection	3 x 1 header, pitch 2.00mm
JSATX1	AT/ATX Power Mode Select	3 x 1 header, pitch 2.54mm
JCMOS1	Clear CMOS	3 x 1 header, pitch 2.00mm

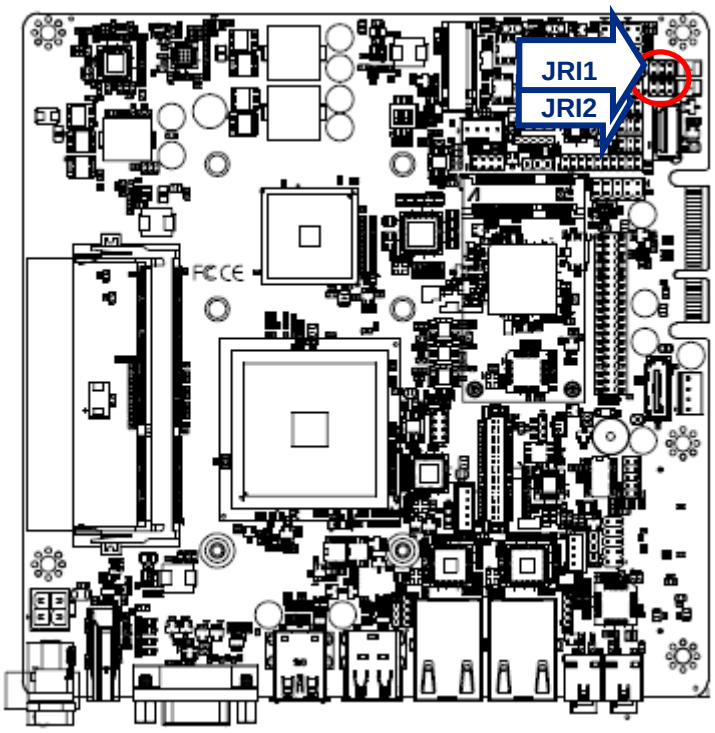
Connectors

Label	Function	Note
FPT1	Miscellaneous setting connector 1	5 x 2 header, pitch 2.54mm
FPT2	Miscellaneous setting connector 2	5 x 2 header, pitch 2.54mm
DIMM1	206-pin DDR4 SO-DIMM socket	
FAUD1	Front Audio connector	5 x 2 header, pitch 2.54mm
VGA	VGA connector	

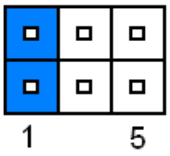
JBKL1	LCD Inverter connector	5 x 1 wafer, pitch 2.00mm
JSPI1	SPI connector	4 x 2 header, pitch 2.00mm
JEC_PG1	EC Debug	3 x 1 header, pitch 2.54mm
COM1	Serial Port 1 connector	5 x 2 header, pitch 2.00mm
COM2	Serial Port 2 connector	5 x 2 header, pitch 2.00mm
COM3-6	Serial Port 3/4/5/6 connector	20 x 2 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	20 x 2 wafer, pitch 1.25mm
JUSB2	USB connector	
JUSB3/4	USB connector 3/4	
SPDIF1	Sony/Philips Digital Interface	3 x 1 header, pitch 2.54mm
LAN1/2	RJ-45 Ethernet 1/2	
MPCIE	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
JBAT1	Battery connector	2 x 1 wafer, pitch 1.25mm
M2KA1	M.2 2230 Type A Slot (default no function)	
JUSB	USB connector	5 x 2 header, pitch 2.54mm
JRS485_1/2	Serial Port 1/2 RS485/422 Mode connector	3 x 2 header, pitch 2.00mm
JLPC1	LPC connector	5 x 2 header, pitch 2.00mm
IET-CB1	IET Module connector (default no function)	
JSMB1	SMBus connector	5 x 1 header, pitch 2.00mm
JKBMS1	PS2 keyboard/mouse connector	4 x 2 header, pitch 2.00mm
FAN1	CPU fan connector	4 x 1 wafer, pitch 2.54mm
DCIN1	DC Power-in connector	
PWR1	Power connector	2 x 2 wafer, pitch 4.20mm
SATA1/2	Serial ATA connector 1	
SPWR1/2	SATA Power connector 1	4 x 1 wafer, pitch 2.54mm
HDMI1	HDMI connector	
LOUT1	Line-out audio jack	
MIC1	Mic-in audio jack	
SIM1	SIM card slot	

2.4 Setting Jumpers & Connectors

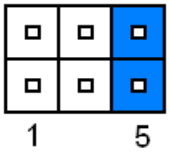
2.4.1 Serial port 1/2 pin9 signal select (JRI1/JRI2)



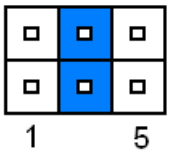
Ring*



+12V

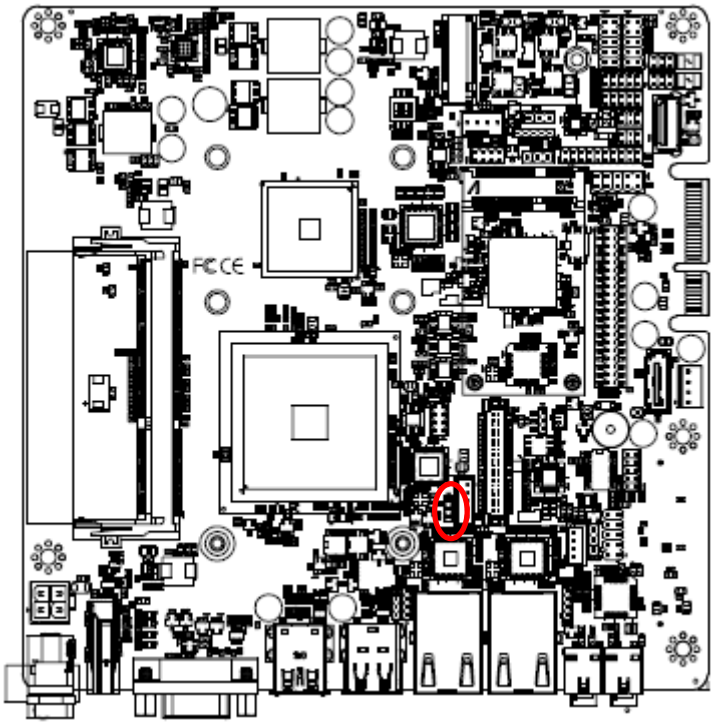


+5V

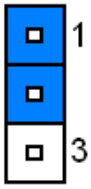


*** Default**

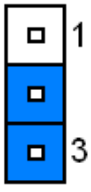
2.4.2 LVDS Back Light power selection (JSBKL1)



PWM Mode*

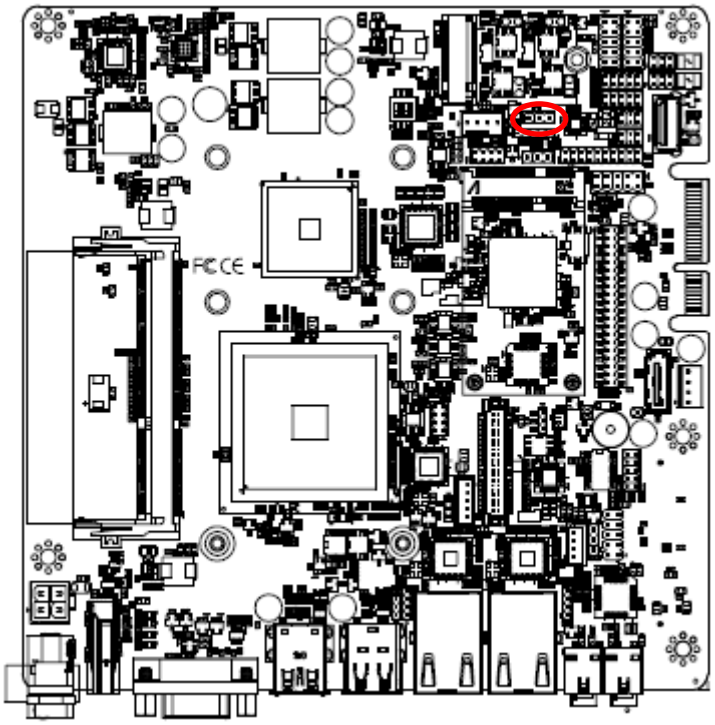


DC Mode

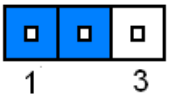


*** Default**

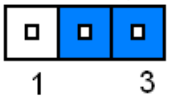
2.4.3 AT/ATX Power Mode Select (JSATX1)



AT

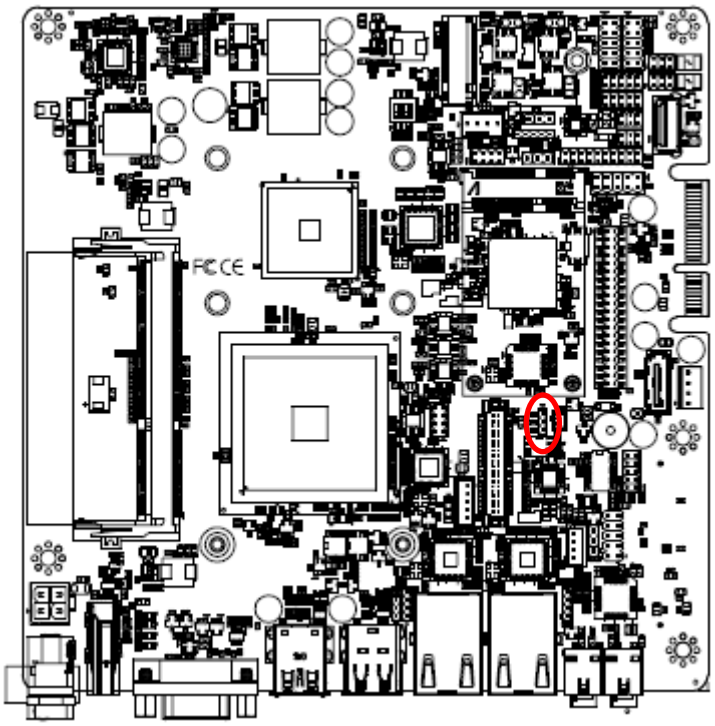


ATX*

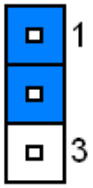


*** Default**

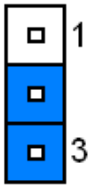
2.4.4 Clear CMOS (JCMOS1)



Protect*

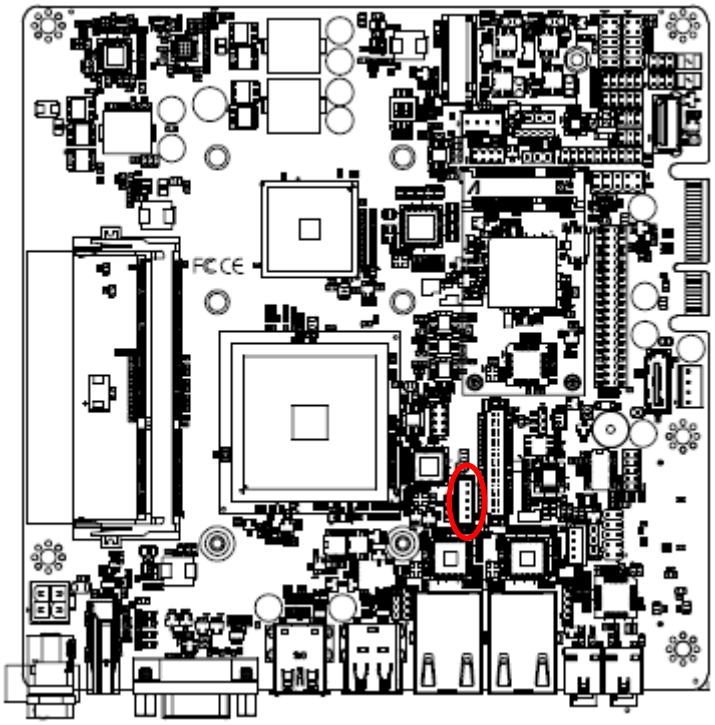


Clear CMOS



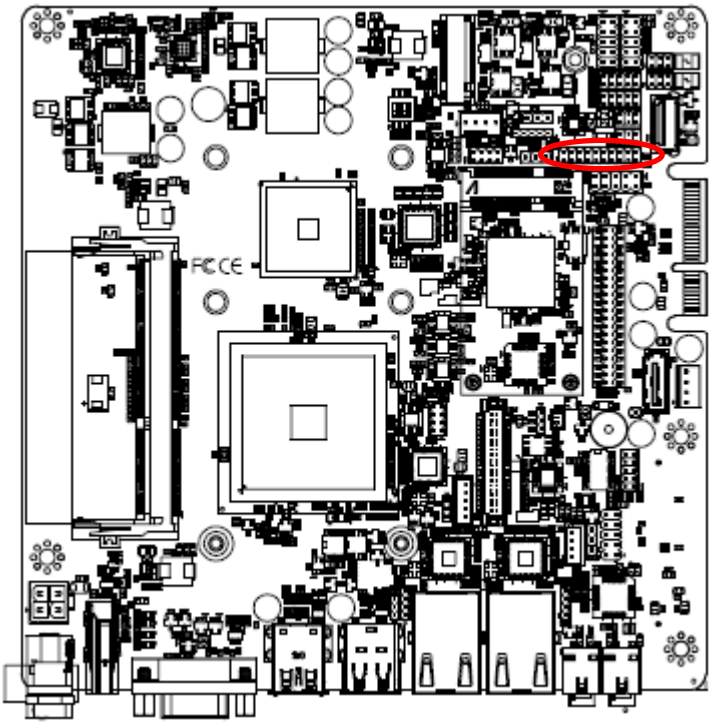
*** Default**

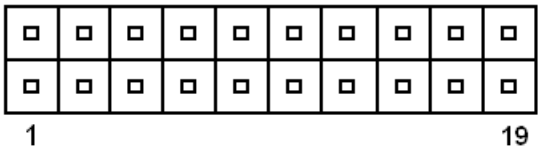
2.4.5 LCD Inverter connector (JBKL1)



PIN	Signal
1	+12V
2	GND
3	LVDS1_BKLT_EN
4	LVDS1_BKLTCTL
5	+5V

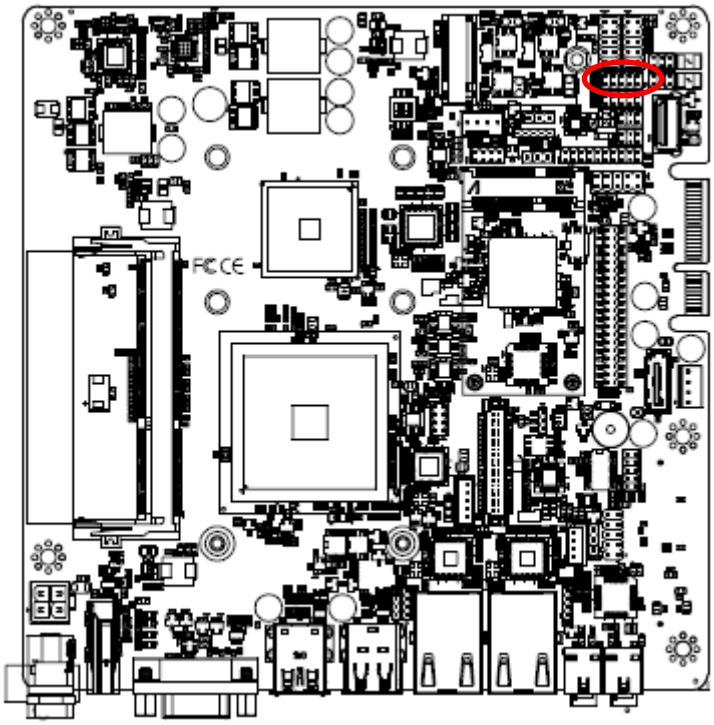
2.4.6 General purpose I/O connector (DIO1)

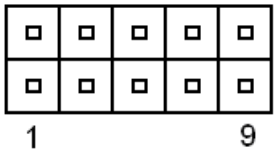




Signal	PIN	PIN	Signal
DI0	1	2	DO0
DI1	3	4	DO1
DI2	5	6	DO2
DI3	7	8	DO3
DI4	9	10	DO4
DI5	11	12	DO5
DI6	13	14	DO6
DI7	15	16	DO7
SMB_CLK_VCC	17	18	SMB_DATA_VCC
GND	19	20	GND

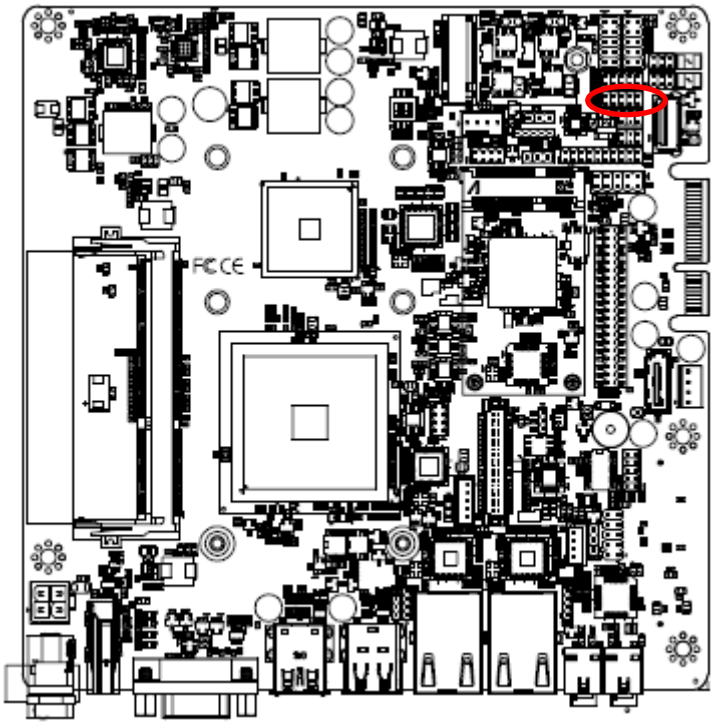
2.4.7 Serial port 1 connector (COM1)

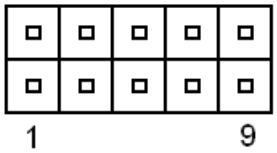




Signal	PIN	PIN	Signal
COM_DCD#_1	1	2	COM_RXD_1
COM_TXD_1	3	4	COM_DTR#_1
GND	5	6	COM_DSR#_1
COM_RTS#_1	7	8	COM_CTS#_1
COM_RI#	9	10	NC

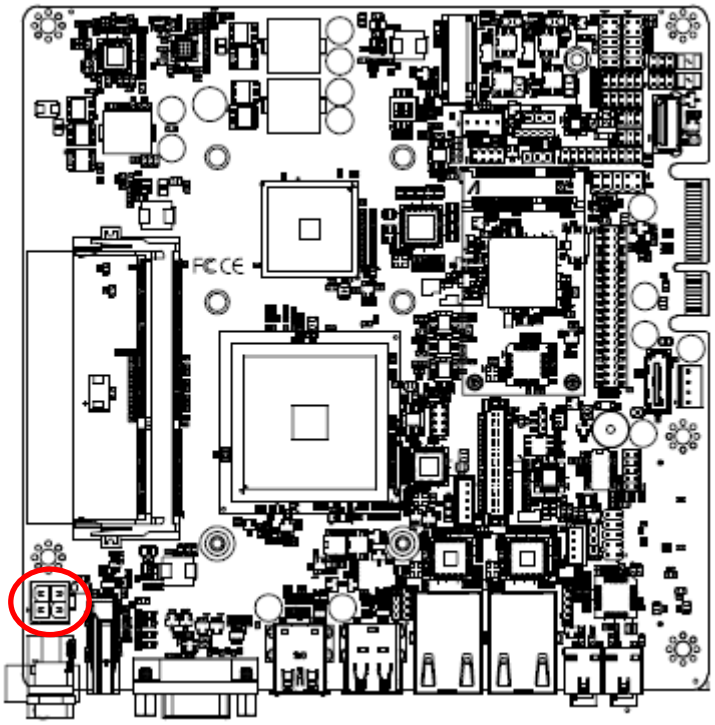
2.4.8 Serial port 2 connector (COM2)

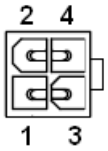




Signal	PIN	PIN	Signal
COM_DCD#_2	1	2	COM_RXD_2
COM_TXD_2	3	4	COM_DTR#_2
GND	5	6	COM_DSR#_2
COM_RTS#_2	7	8	COM_CTS#_2
COM_RI#	9	10	NC

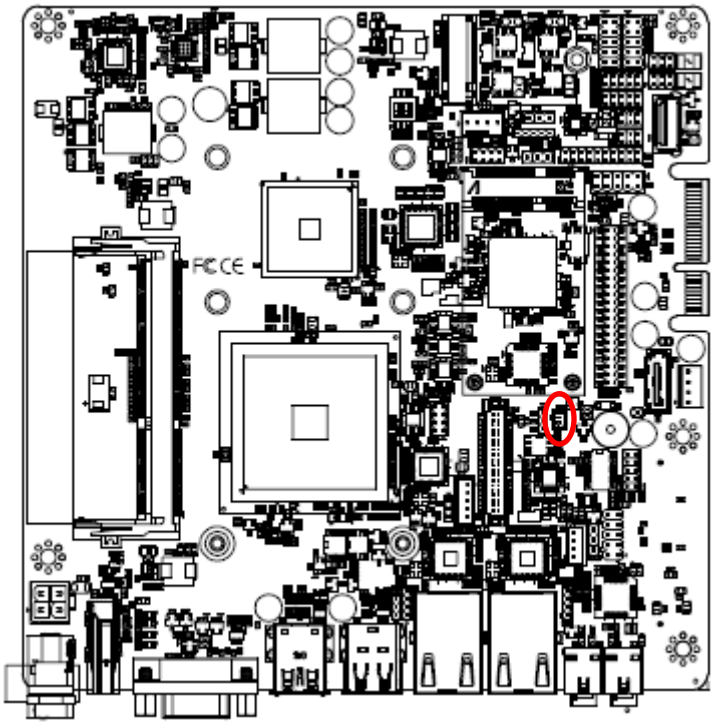
2.4.9 Power connector (PWR1)





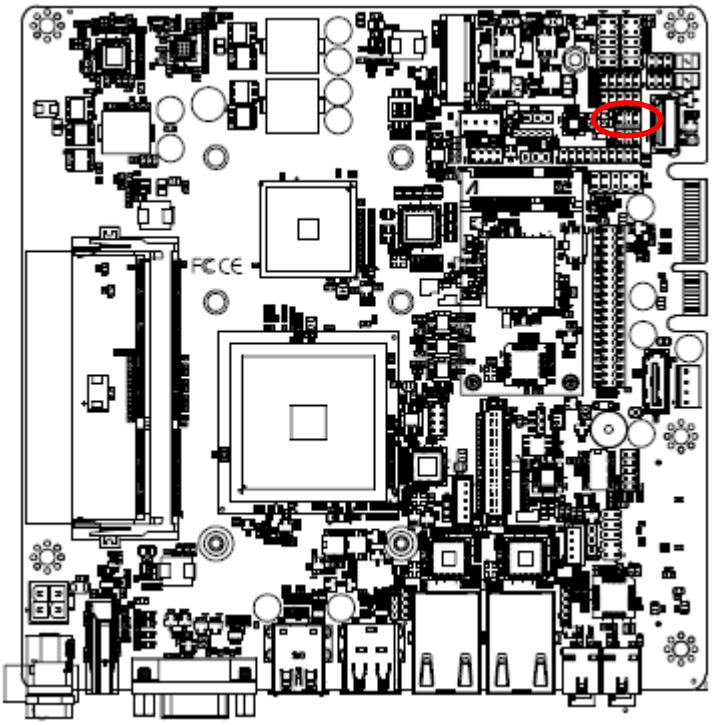
Signal	PIN	PIN	Signal
GND	2	4	+VIN_26V
GND	1	3	+VIN_26V

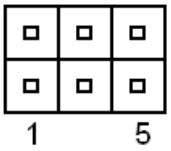
2.4.10 Battery connector (JBAT1)



Signal	PIN
+3V	1
GND	2

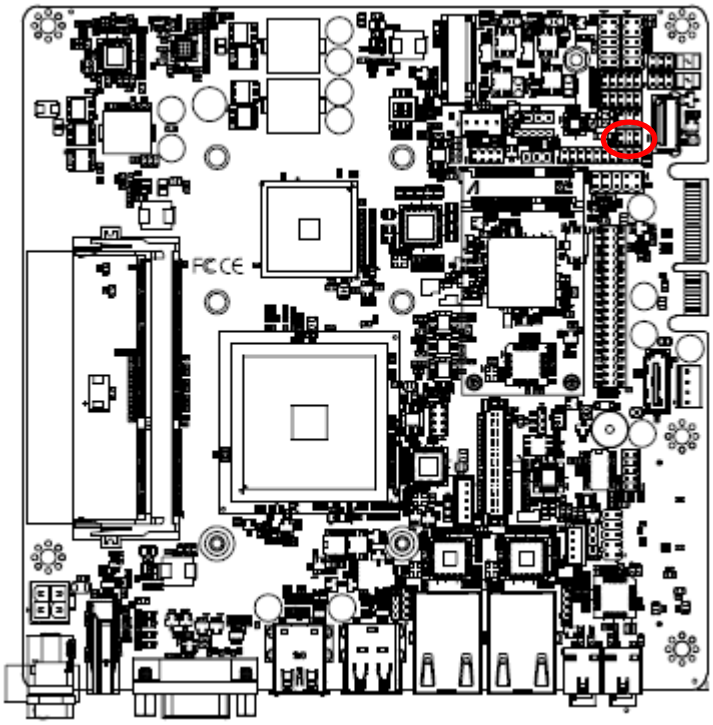
2.4.11 Serial Port 1/2 RS485/422 Mode connector (JRS485_1)

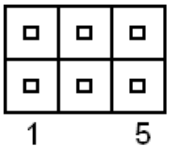




Signal	PIN	PIN	Signal
485_422TX1-	1	2	422RX1-
485_422TX1+	3	4	422RX1+
+5V	5	6	GND

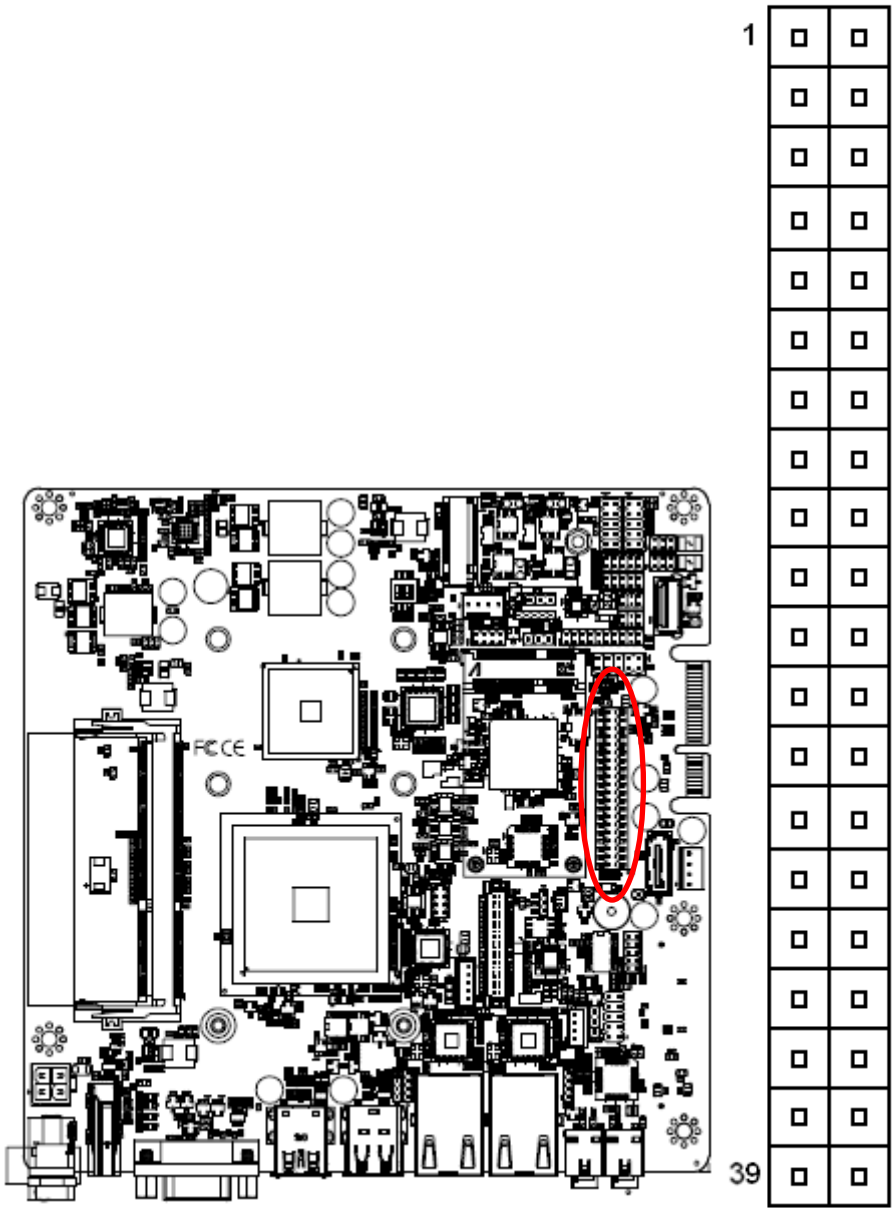
2.4.12 Serial Port 1/2 RS485/422 Mode connector (JRS485_2)





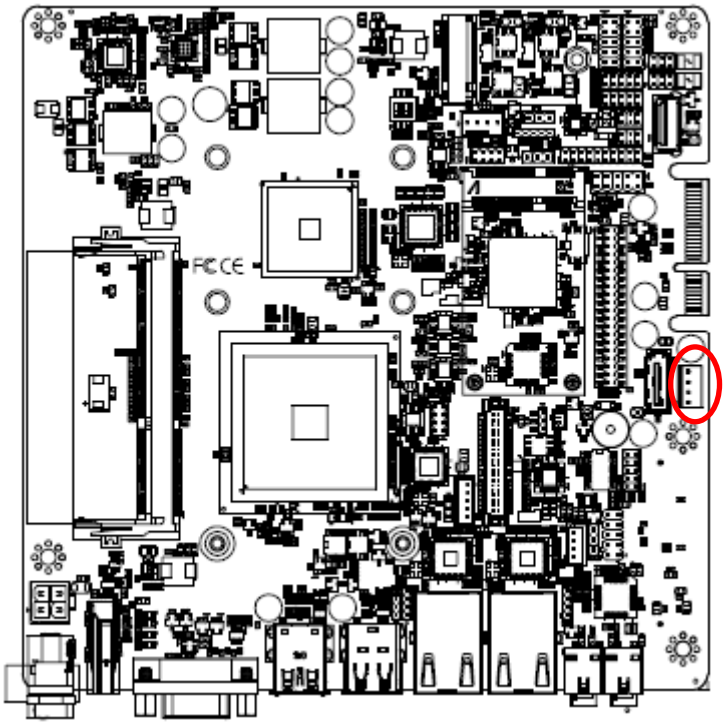
Signal	PIN	PIN	Signal
485_422TX2-	1	2	422RX2-
485_422TX2+	3	4	422RX2+
+5V	5	6	GND

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



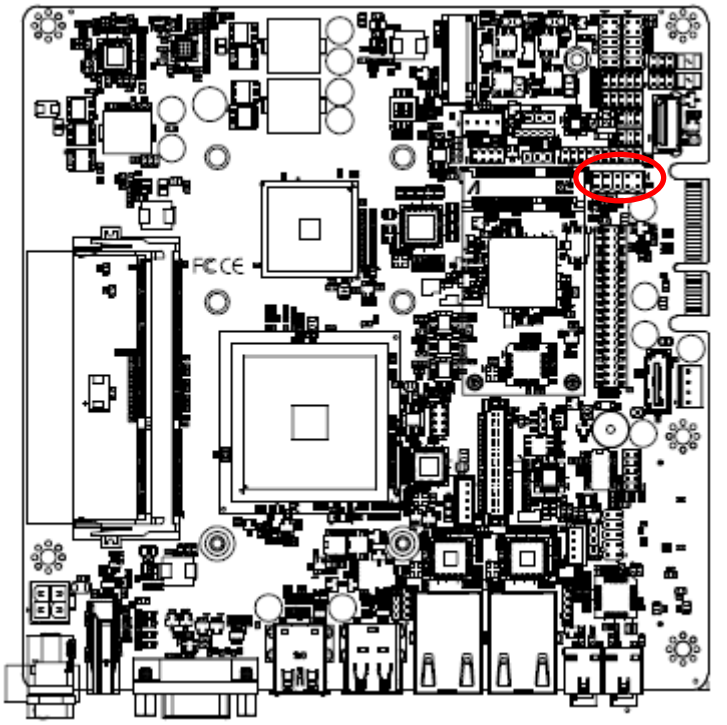
Signal	PIN	PIN	Signal
COM_DCD#_3	1	2	COM_RXD_3
COM_TXD_3	3	4	COM_DTR#_3
GND	5	6	COM_DSR#_3
COM_RTS#_3	7	8	COM_CTS#_3
COM_RI#_3	9	10	NC
COM_DCD#_4	11	12	COM_RXD_4
COM_TXD_4	13	14	COM_DTR#_4
GND	15	16	COM_DSR#_4
COM_RTS#_4	17	18	COM_CTS#_4
COM_RI#_4	19	20	NC
COM_DCD#_5	21	22	COM_RXD_5
COM_TXD_5	23	24	COM_DTR#_5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

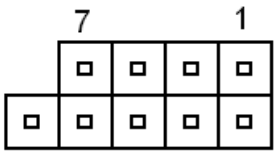
2.4.14 SATA Power connector 1 (SPWR1)



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

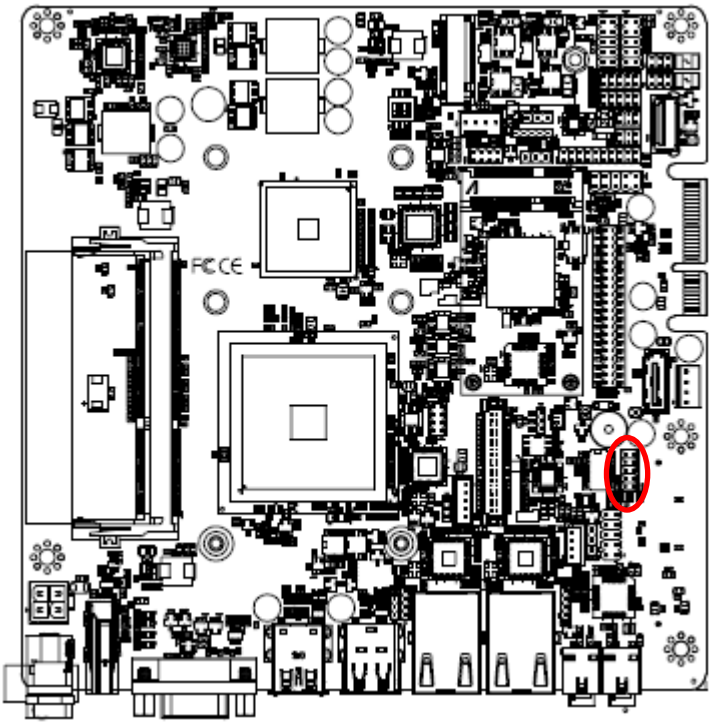
2.4.15 USB connector 1 (JUSB1)

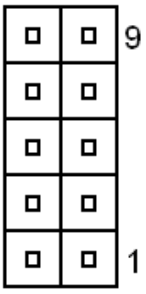




Signal	PIN	PIN	Signal
+5VUSB34	1	2	+5VUSB34
USB_DN3	3	4	USB_DN4
USB_DP3	5	6	USB_DP4
GND	7	8	GND
		10	NC

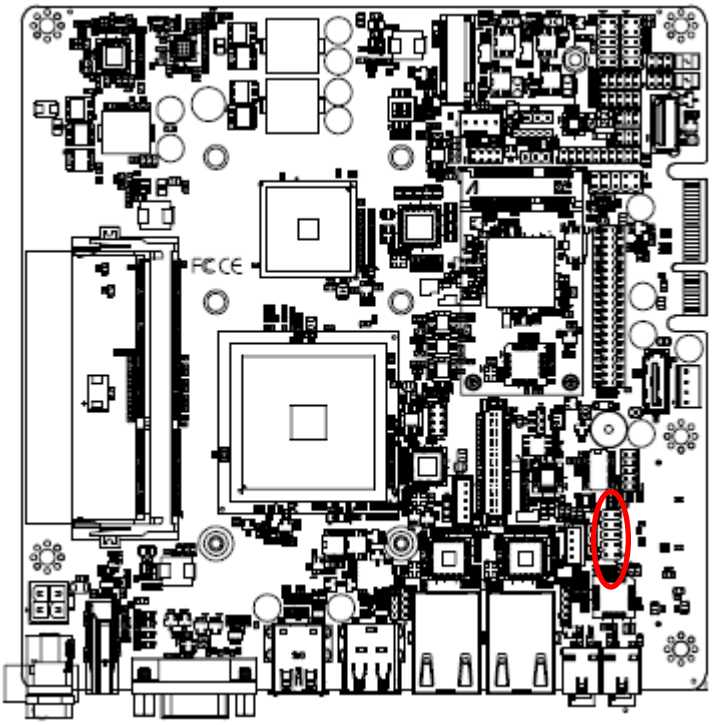
2.4.16 LPC connector (JLPC1)

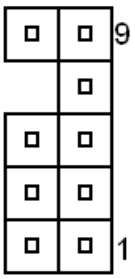




Signal	PIN	PIN	Signal
GND	10	9	SERIRQ
LPC_DEBUG_CLK	8	7	LPCAD3
-LPCFRAME	6	5	LPCAD2
-LPCRST	4	3	LPCAD1
+3.3V	2	1	LPCAD0

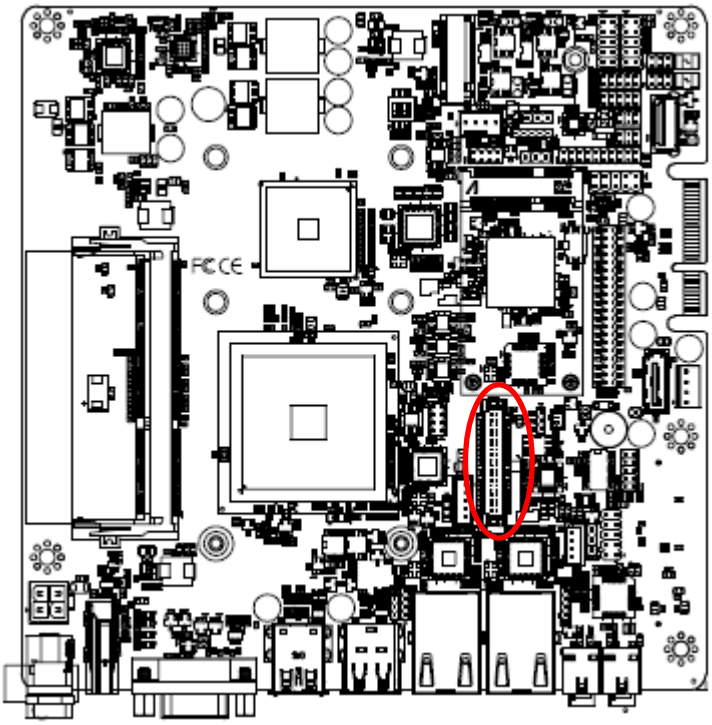
2.4.17 Audio connector (FAUD1)

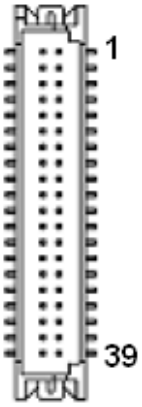




Signal	PIN	PIN	Signal
LINE2_JD	10	9	LINE2_L
		7	SENSE_B
MIC2_JD	6	5	LINE2_R
AUD_FRONT_DET	4	3	MIC2_R
GND	2	1	MIC2_L

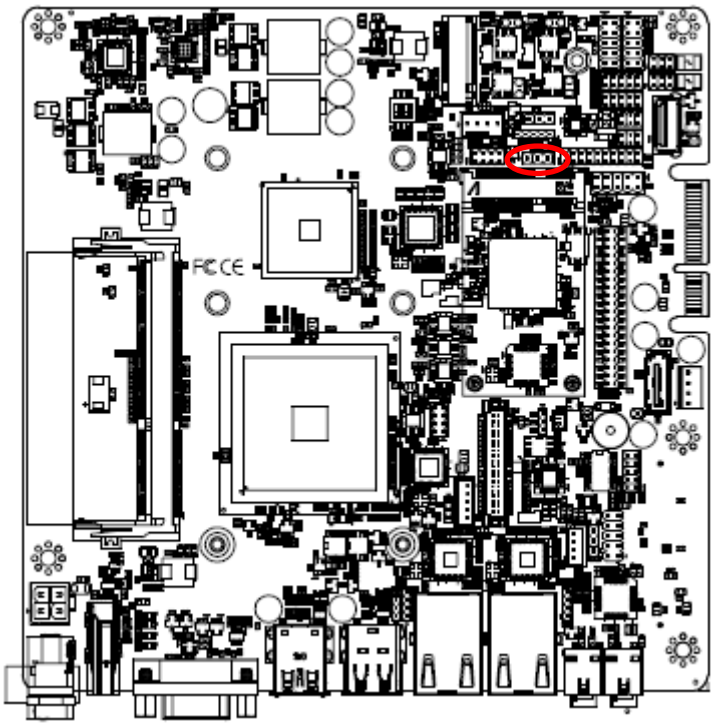
2.4.18 LVDS connector (LVDS1)

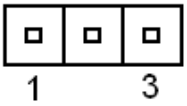




Signal	PIN	PIN	Signal
+V5S_LVDS2	2	1	+V3.3S_LVDS2
GND	4	3	+3.3V
NC	6	5	NC
GND	8	7	GND
LVDS1_DATA0_P	10	9	LVDS1_DATA1_P
LVDS1_DATA0_N	12	11	LVDS1_DATA1_N
GND	14	13	GND
LVDS1_DATA2_P	16	15	LVDS1_DATA3_P
LVDS1_DATA2_N	18	17	LVDS1_DATA3_N
GND	20	19	GND
LVDS1_DATA4_P	22	21	LVDS1_DATA5_P
LVDS1_DATA4_N	24	23	LVDS1_DATA5_N
GND	26	25	GND
LVDS1_DATA6_P	28	27	LVDS1_DATA7_P
LVDS1_DATA6_N	30	29	LVDS1_DATA7_N
GND	32	31	GND
LVDS1_CLK1_P	34	33	LVDS1_CLK2_P
LVDS1_ CLK1_N	36	35	LVDS1_ CLK2_N
GND	38	37	GND
+V12S_LVDS2	40	39	+V12S_LVDS2

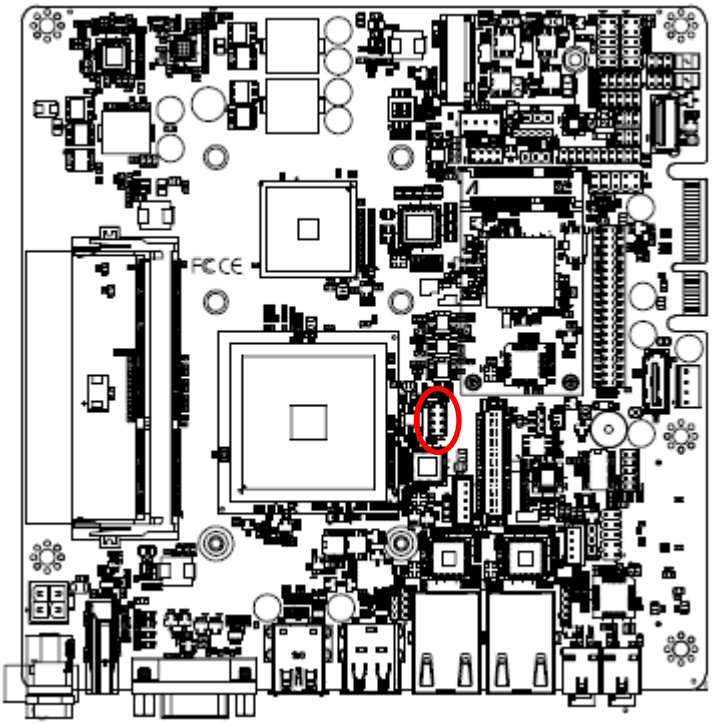
2.4.19 EC Debug (JEC_PG1)

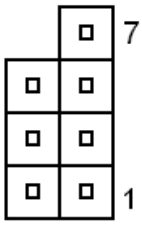




PIN	Signal
1	EC_SMCLK
2	EC_SMDAT
3	GND

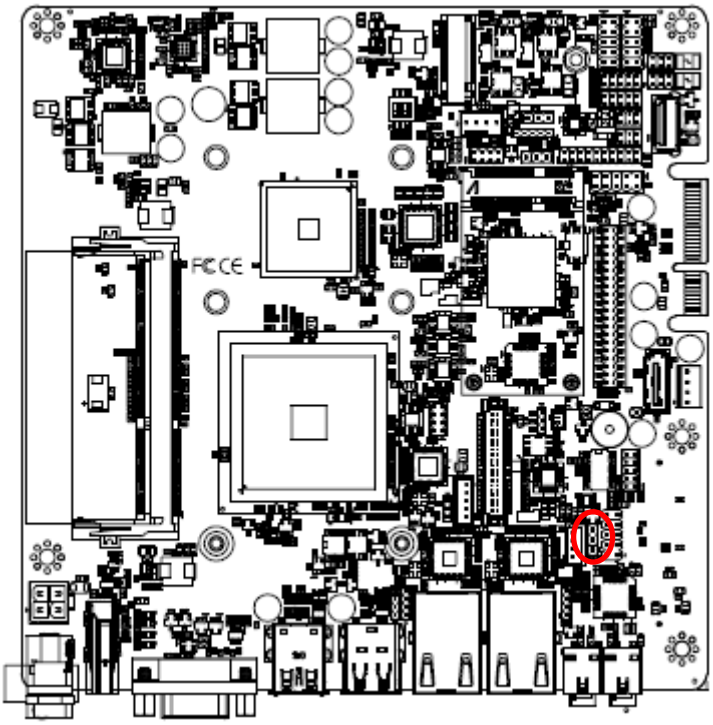
2.4.20 SPI connector (JSPI1)

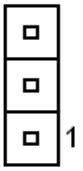




Signal	PIN	PIN	Signal
		7	SSPI_HOLD#0
SSPI_SI_R	6	5	SSPI_SO_R
SSPI_SCLK_R	4	3	SSPI_CS0#_R
GND	2	1	SPIVCC

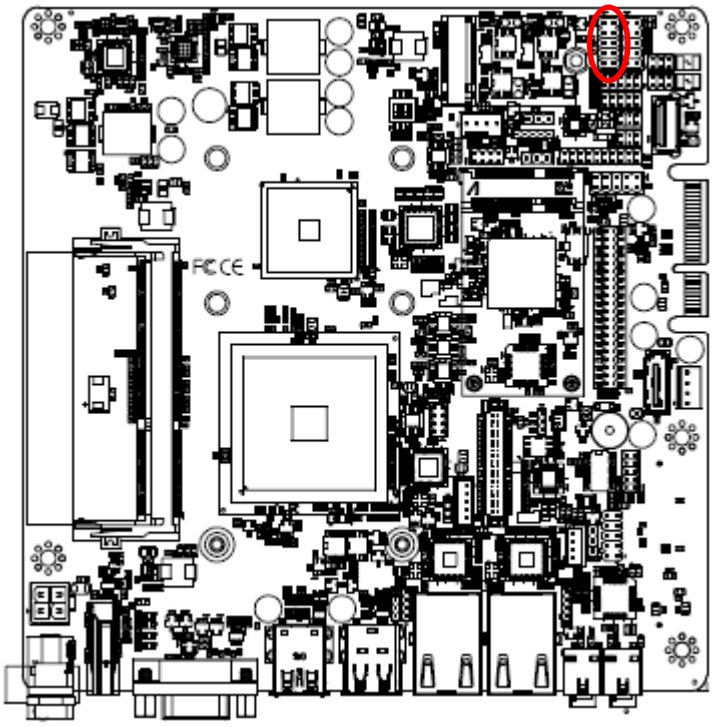
2.4.21 Sony/Philips Digital Interface (SPDIF1)

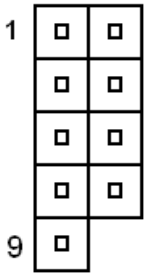




Signal	PIN
GND	3
SPDIF_OUT	2
+5V	1

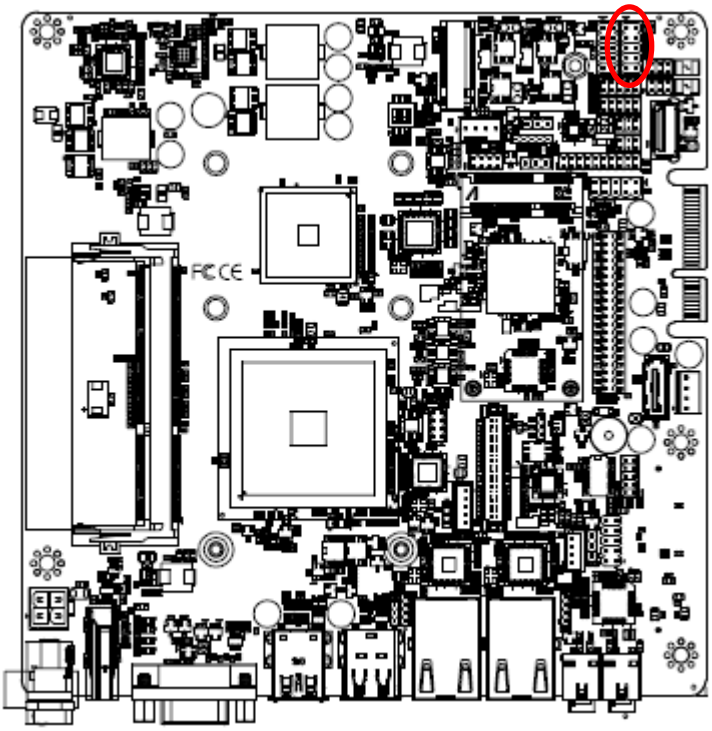
2.4.22 Miscellaneous setting connector 1 (FPT1)

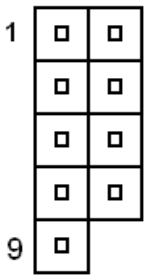




Signal	PIN	PIN	Signal
HDD_LED+	1	2	PWR_LED+
HD_LED-	3	4	PWE_LED-
-RST_SW	5	6	FP_PWR_BTN_EC#
GND	7	8	GND
NC	9		

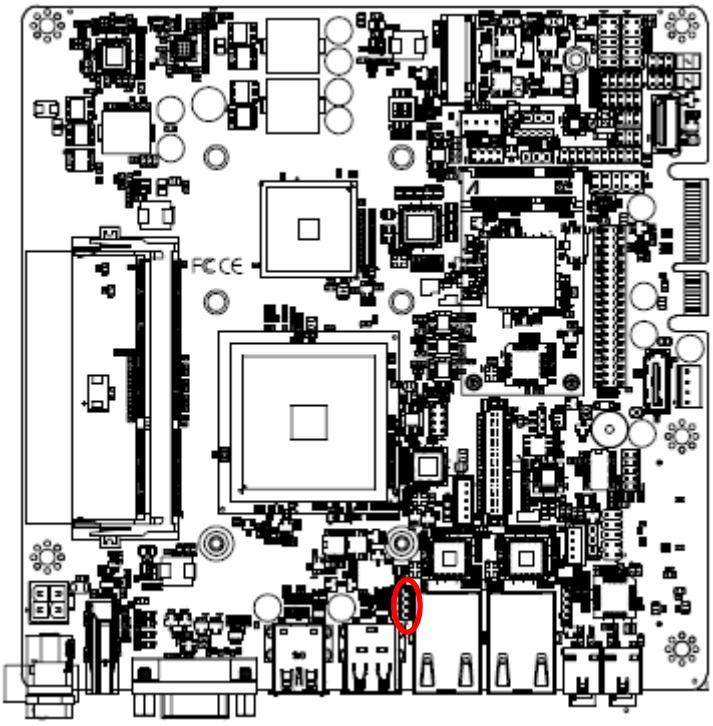
2.4.23 Miscellaneous setting connector 2 (FPT2)





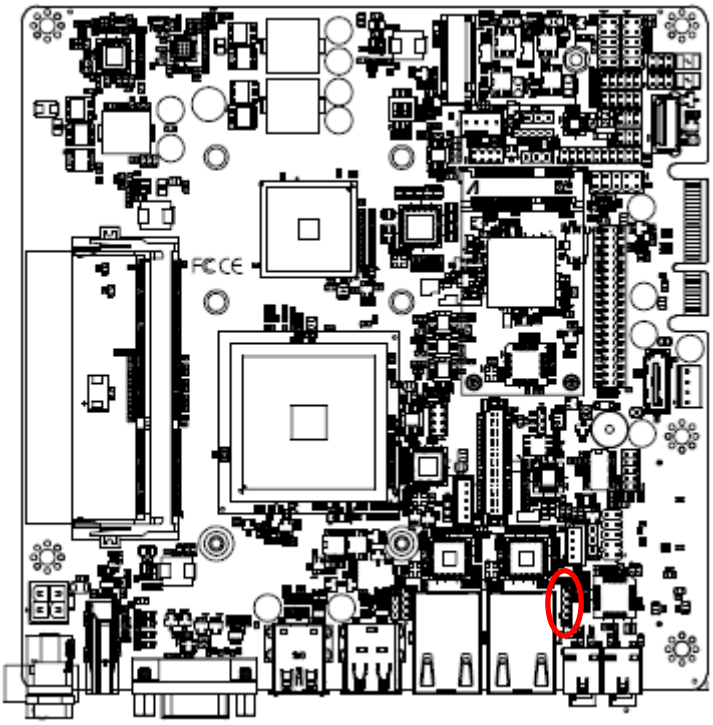
Signal	PIN	PIN	Signal
SPKR+	1	2	BLK_VR_MOD
NC	3	4	BLK_BRI_UP#
NC	5	6	BLK_BRI_DN#
SPKR-	7	8	GND
NC	9	10	

2.4.24 LED indicator connector 1 (LED1)



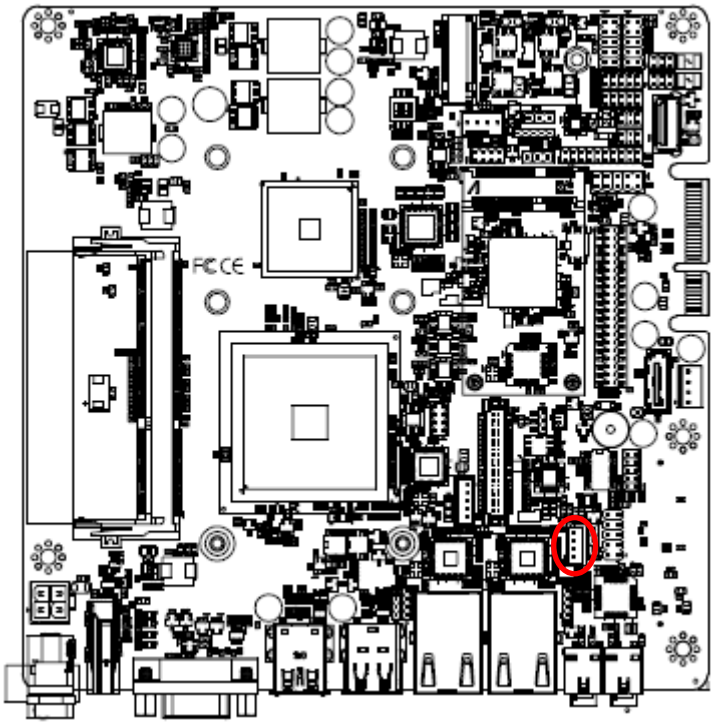
Signal	PIN
LAN1_1000#_LED	4
LAN1_100#_LED	3
LAN1_ACT_N	2
LAN1_ACT_P	1

2.4.25 LED indicator connector 2 (LED2)



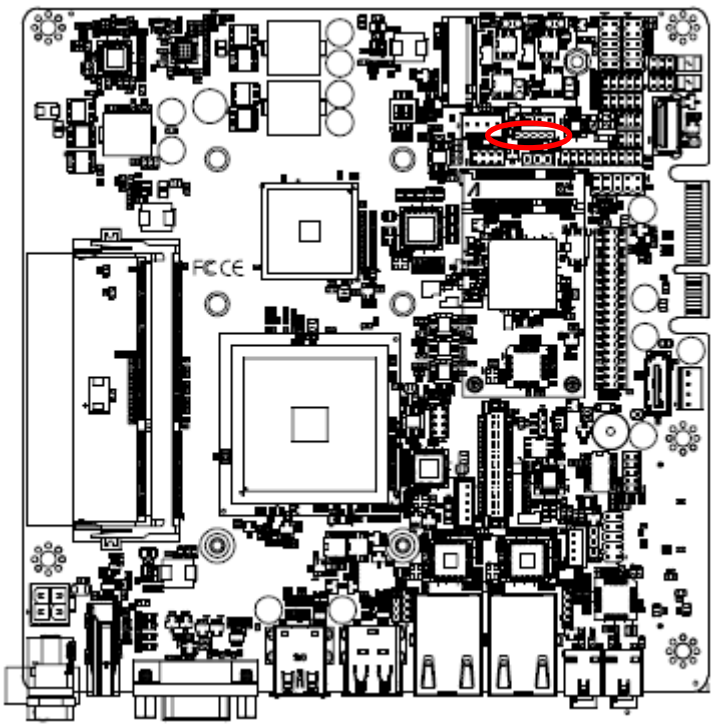
Signal	PIN
LAN2_1000#_LED	4
LAN2_100#_LED	3
LAN2_ACT_N	2
LAN2_ACT_P	1

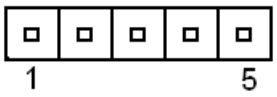
2.4.26 Speaker connector (SPK1)



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

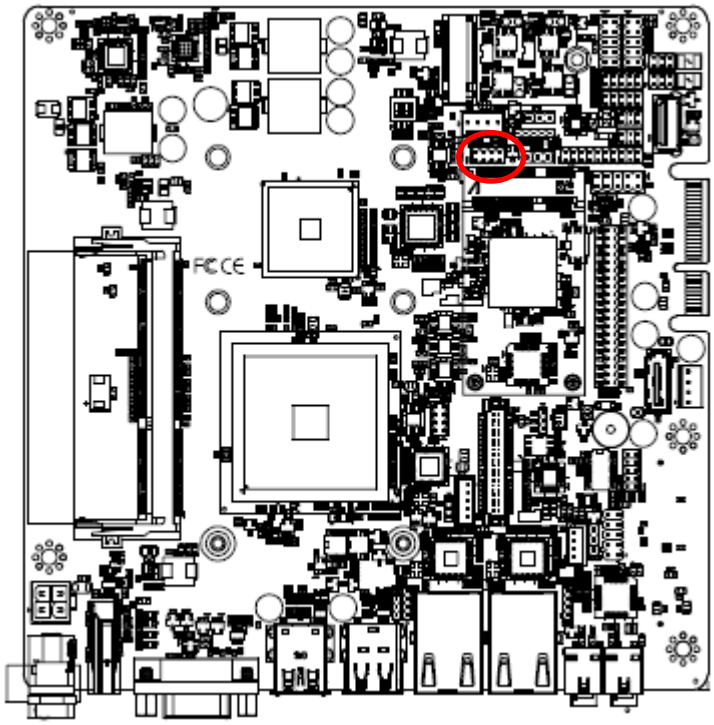
2.4.27 JSMB connector (JSMB1)

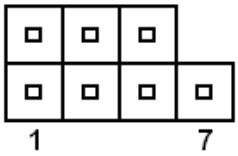




Signal	PIN
+3.3V	1
-SMBALRT_M2_+3.3V	2
SMBCK_+3.3V	3
SMBDT_+3.3V	4
GND	5

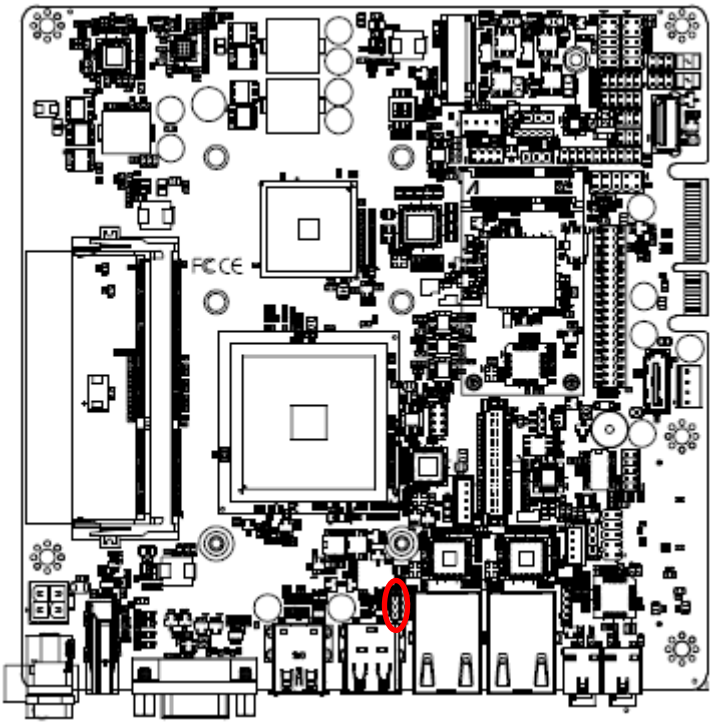
2.4.28 PS2 keyboard/mouse connector (JKBMS)

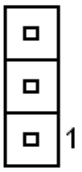




Signal	PIN	PIN	Signal
KB_DT	1	2	KB_CK
GND	3	4	+V5A_KBMS
MS_DT	5	6	MS_CK
NC	7		

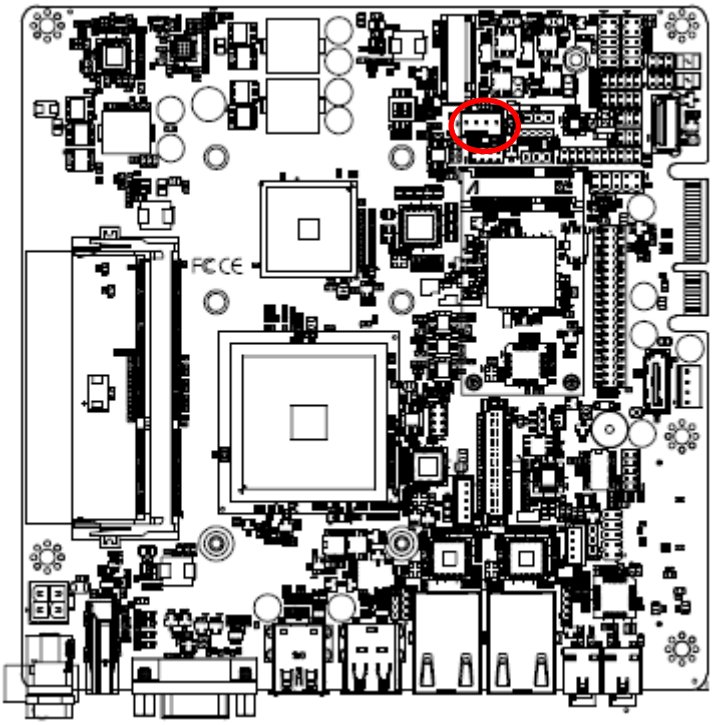
2.4.29 Connector reserved for CH7511 FW flash jig (JROM)

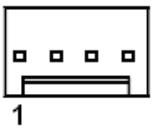




Signal	PIN
GND	3
LVDS1_DOC_DATA	2
LVDS1_DOC_CLK	1

2.4.30 FAN connector (FAN1)





PIN	Signal
4	+3.3V
3	+3.3V
2	GND
1	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
Enter	Select
+/-	Value
Esc	Exit
F1	General Help
F2	Previous Values
F3	Optimized Defaults
F4	Save & Exit Setup
<K>	Scroll help area upwards
<M>	Scroll help area downwards

- **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 <Enter> key.

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.

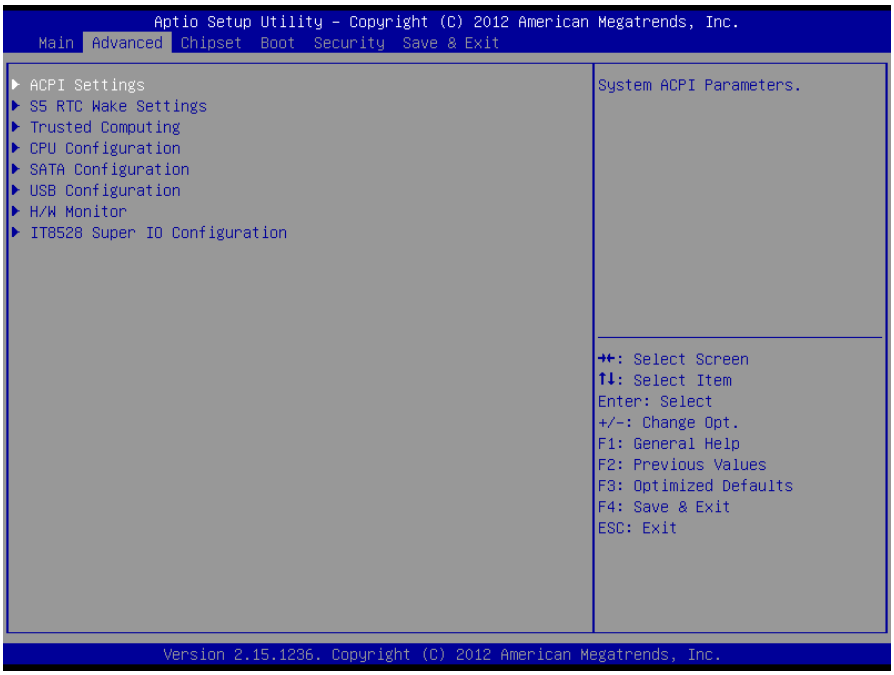
3.6.1.3 System Time

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

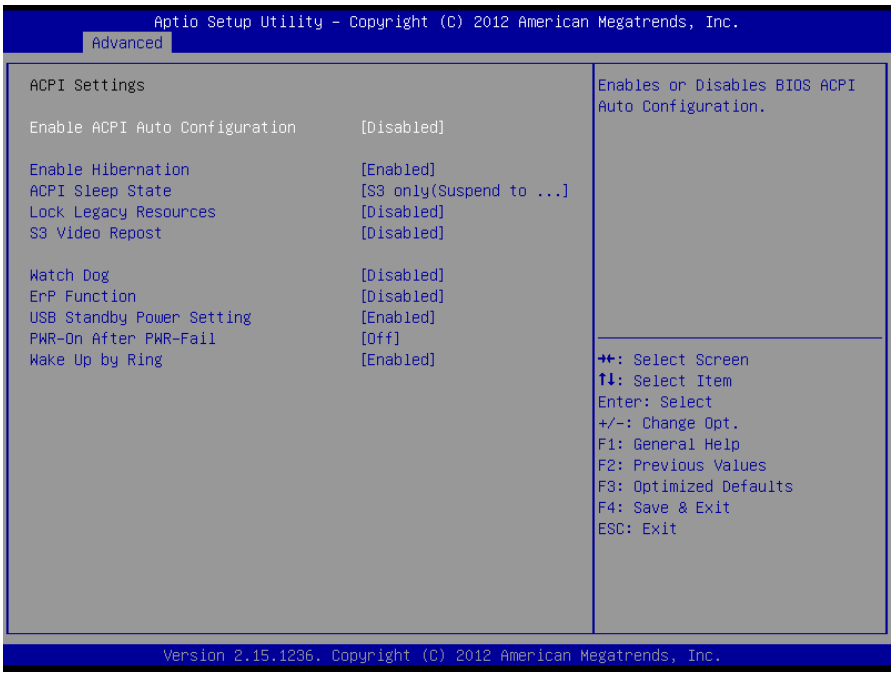
Note: The BIOS setup screens shown in this chapter are for reference purposes only, and may not exactly match what you see on your screen.
Visit the Avalue website (www.avalue.com.tw) to download the latest product and BIOS information.

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.



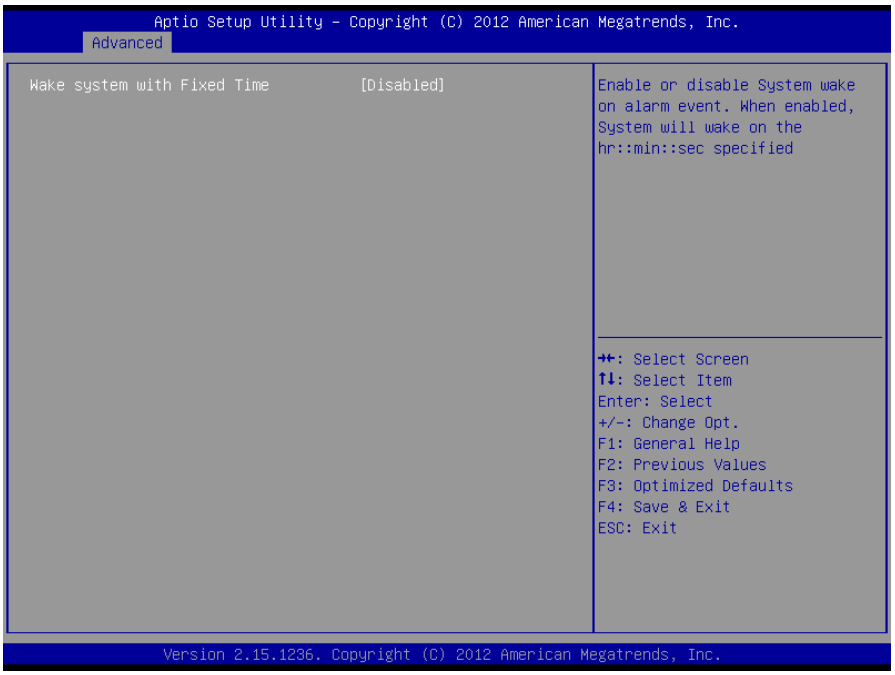
3.6.2.1 ACPI Settings



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

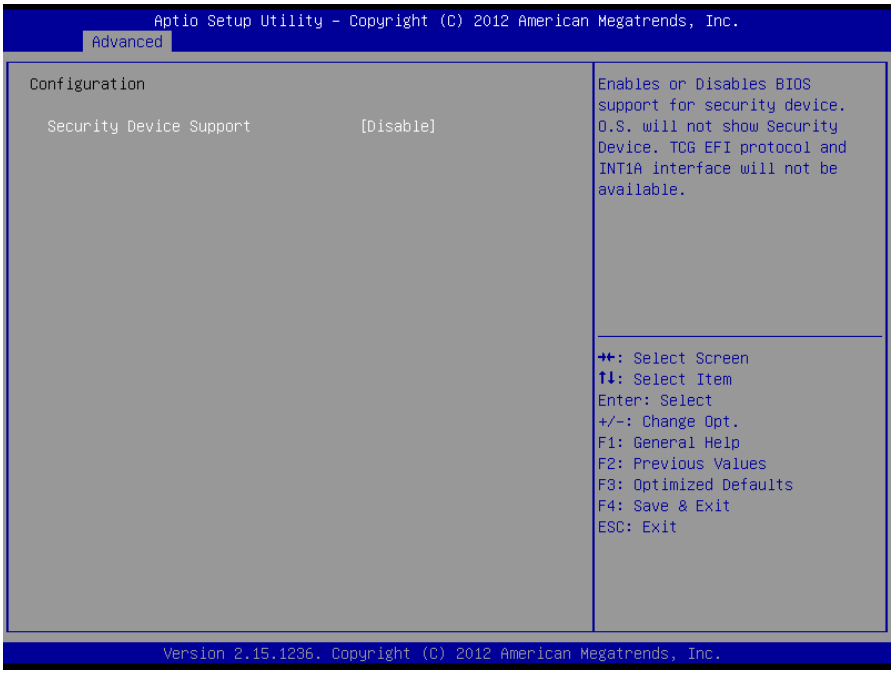
		OS.
ACPI Sleep State	Suspend Disabled, S3 (Suspend to RAM)**[Default]**	Select the highest ACPI sleep state the system will enter when the SUSPEDN button is pressed.
Lock Legacy Resources	Disabled**[Default]** Enabled,	Enable or Disable Lock of Legacy Resources
S3 Video Repost	Disabled**[Default]** Enabled,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

3.6.2.2 S5 RTC Wake Settings



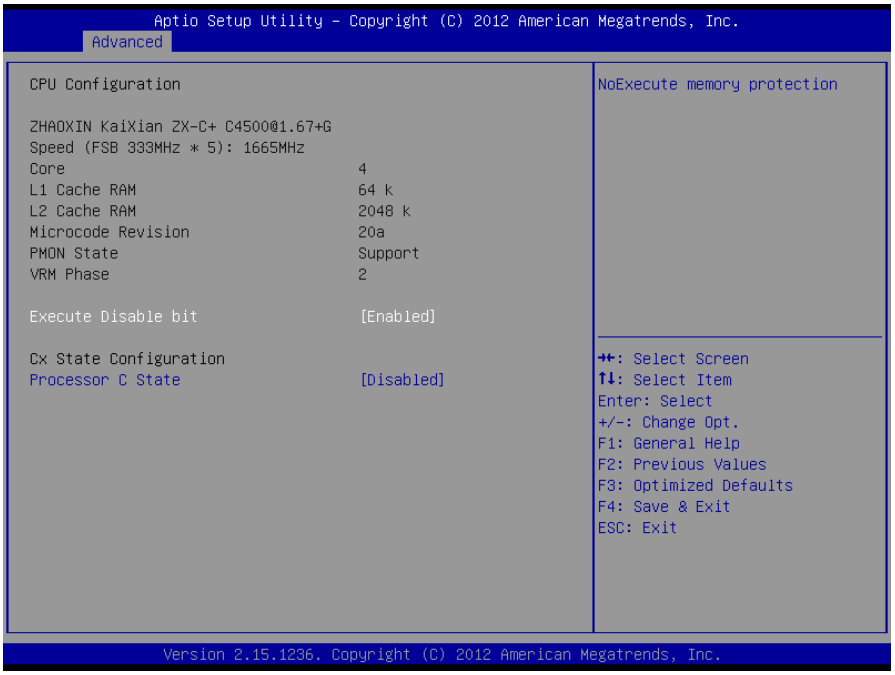
Item	Options	Description
Wake system with Fixed Time	Disable**[Default]** Enable	Enables or Disables System wake on alarm event. When enabled, System will wake on the hr::min::sec specified

3.6.2.3 Trusted Computing



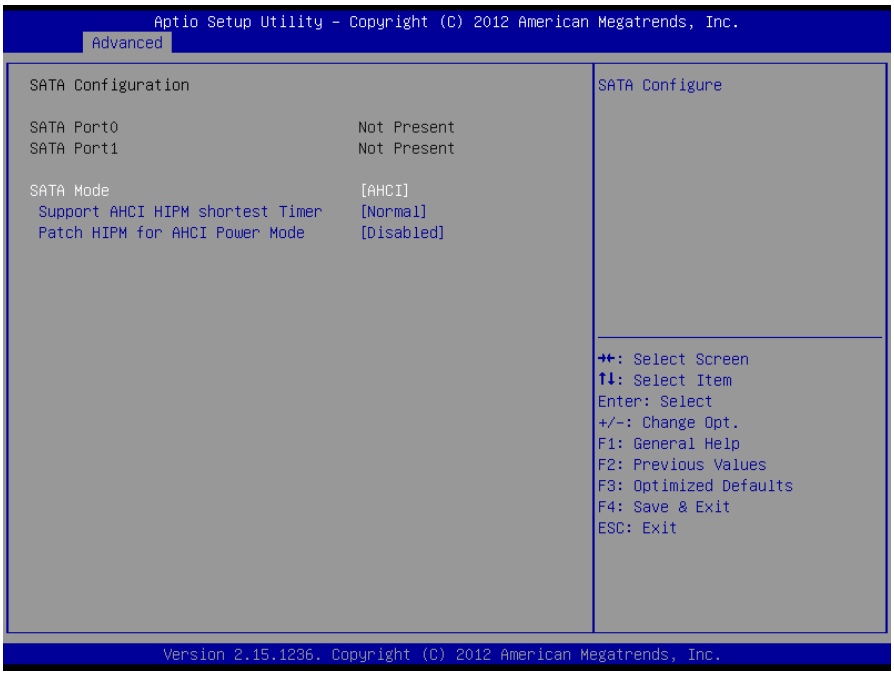
Item	Options	Description
Security Device Support	Disable**[Default]** Enable	Enables or Disables BIOS support for security devices. O.S. will not show Security Device. TCG EFI protocol and INT1A interface will not be available.

3.6.2.4 CPU Configuration



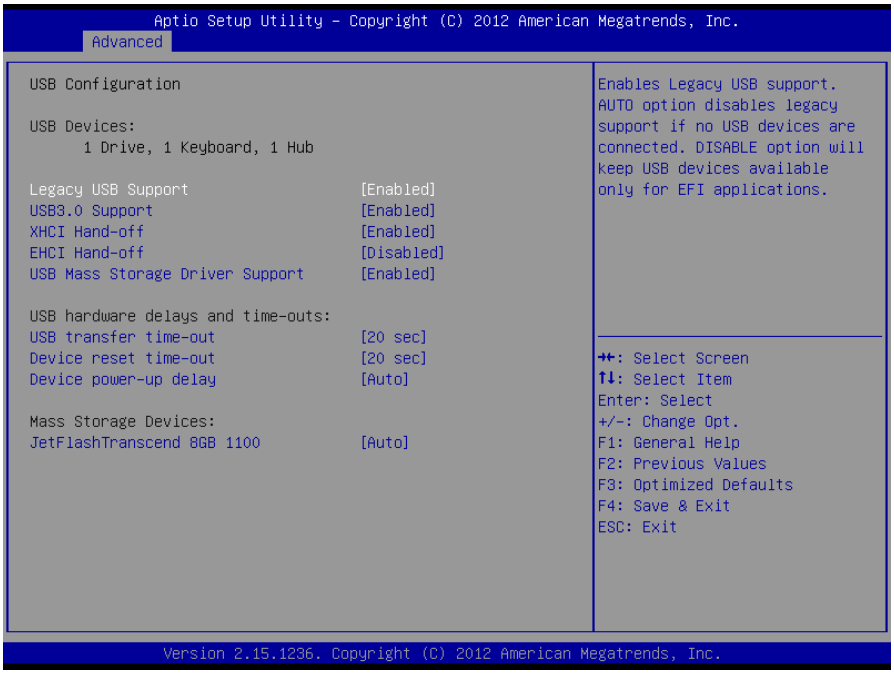
Item	Options	Description
Execute Disable bit	Disabled Enabled**[Default]**,	NoExecute memory protection
Processor C State	Disabled**[Default]** Enabled,	Main switch for enable Processor C State State support

3.6.2.5 SATA Configuration



Item	Options	Description
SATA Mode	IDE AHCI **[Default]**	SATA Configure
Support AHCI HIPM shortest Timer	Normal**[Default]** Shortest Disabled	Support AHCI HIPM shortest Timer select
Patch HIPM for AHCI Power Mode	Disabled**[Default]** Enabled	In the some SATA device, system will random hang during S3 resume in AHCI power mode, So BIOS can offer patch code for AHCI power mode after S3 resume

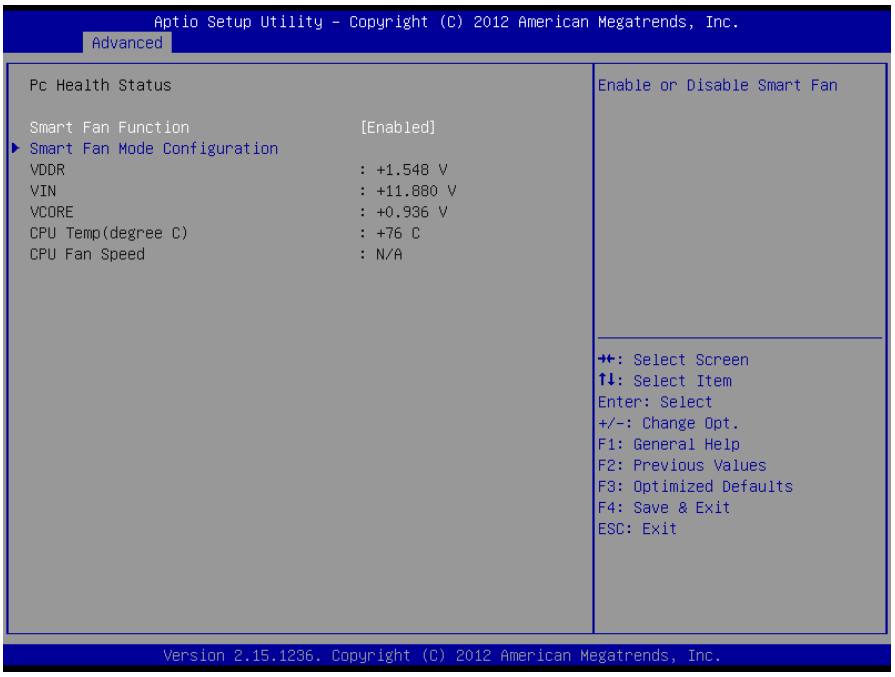
3.6.2.6 USB Configuration



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.
USB3.0 Support	Enabled**[Default]**, Disabled	Enable/Disable USB3.0 (XHCI) Controller support.
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	1 sec 5 sec 10 sec 20 sec**[Default]**,	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 from Hub descriptor.
JetFlashTranscend 8GB 1100	Auto**[Default]**, Floppy	Mass storage device emulation type. 'Auto' enumerates devices according to their media format. Optical drives

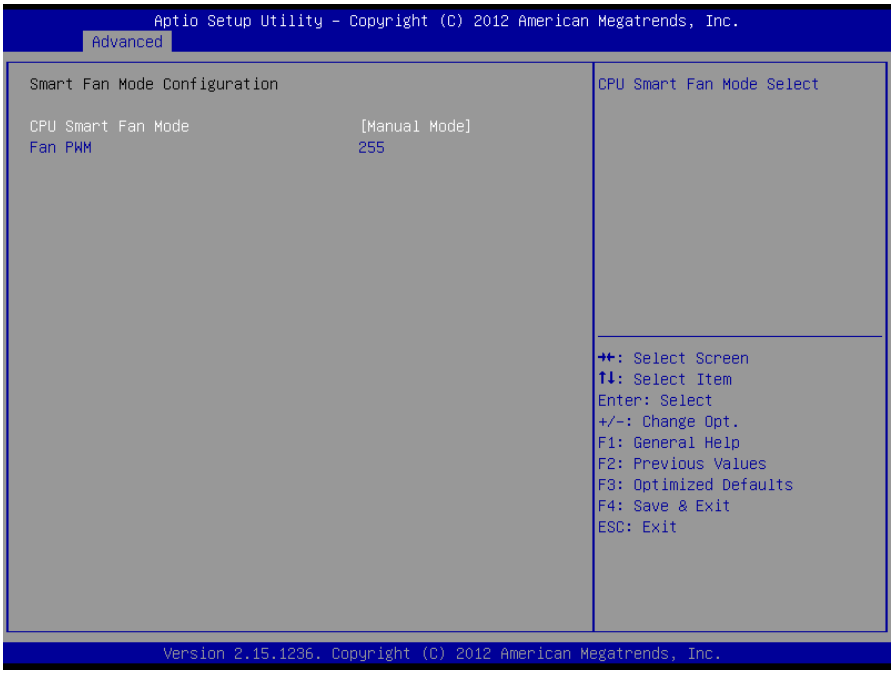
	Forced FDD Hard Disk CD-ROM	are emulated as ‘CDROM’, drives with no media will be emulated according to a drive type.

3.6.2.7 H/W Monitor



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

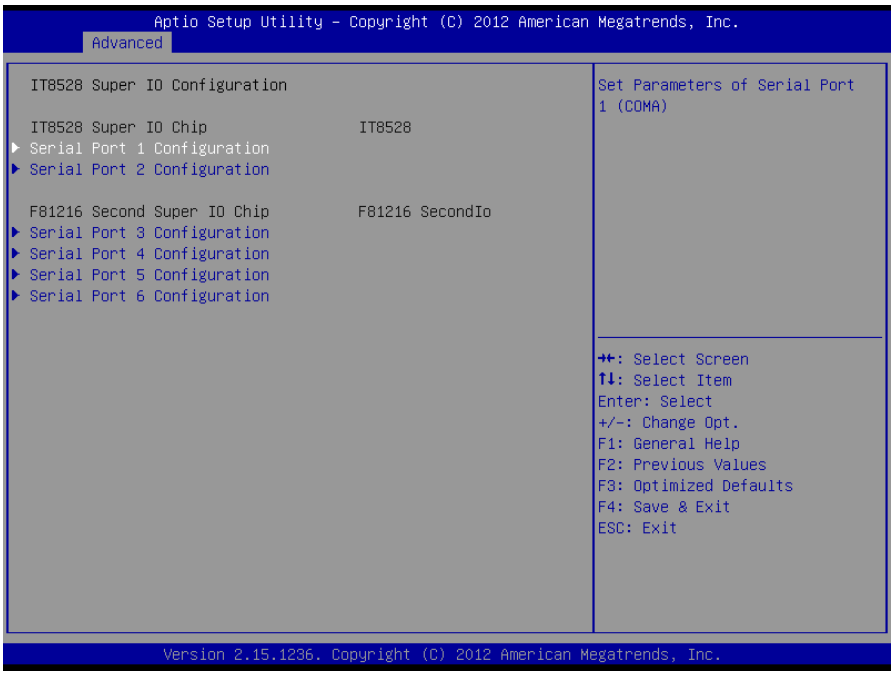
3.6.2.7.1 Smart Fan Mode Configuration



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

3.6.2.8 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 3.6.2.5.1~ 3.6.2.5.6 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).

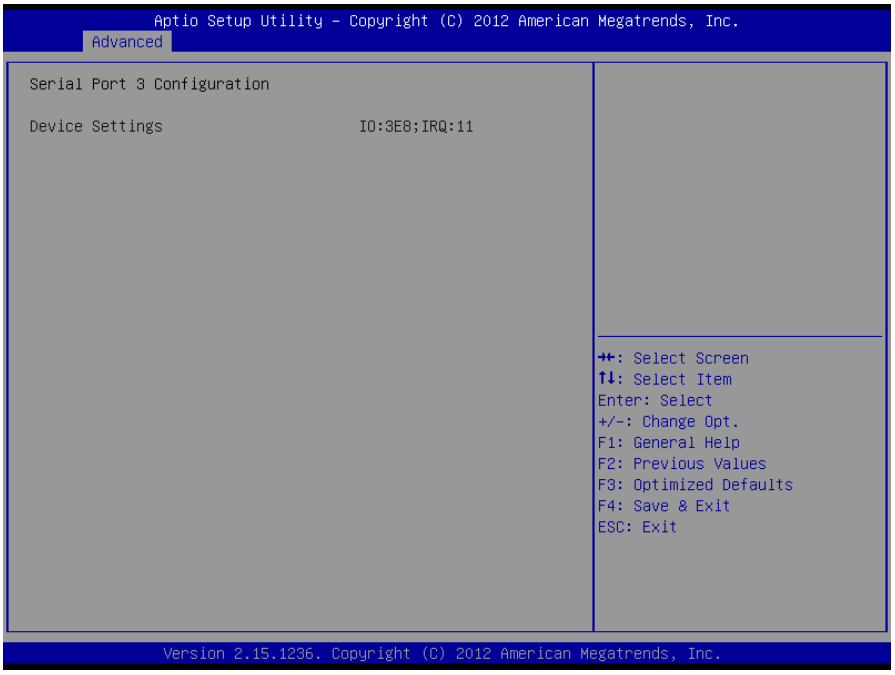
3.6.2.8.1 Serial Port 1 Configuration

Item	Option	Description
UART 232 422 485	UART 232**[Default]**, UART 422, UART 485	Change the Serial Port as RS232/422/485.

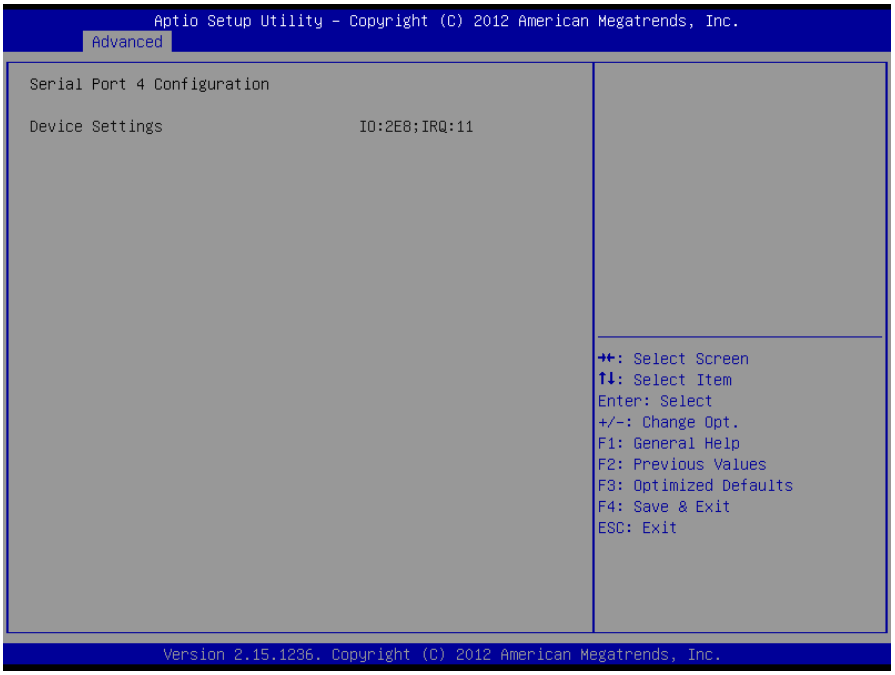
3.6.2.8.2 Serial Port 2 Configuration

Item	Option	Description
UART 232 422 485	UART 232**[Default]**, UART 422, UART 485	Change the Serial Port as RS232/422/485.

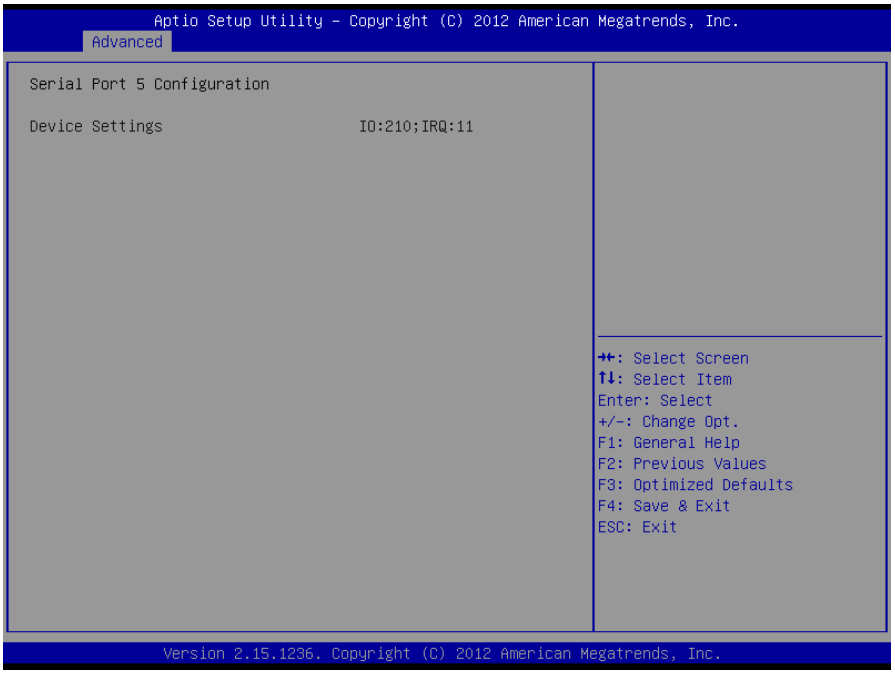
3.6.2.8.3 Serial Port 3 Configuration



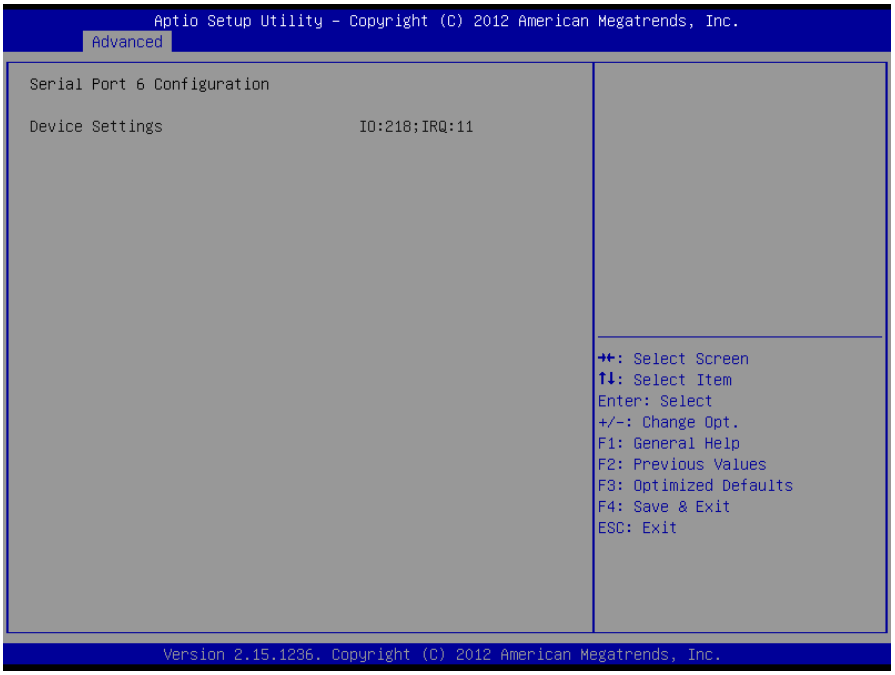
3.6.2.8.4 Serial Port 4 Configuration



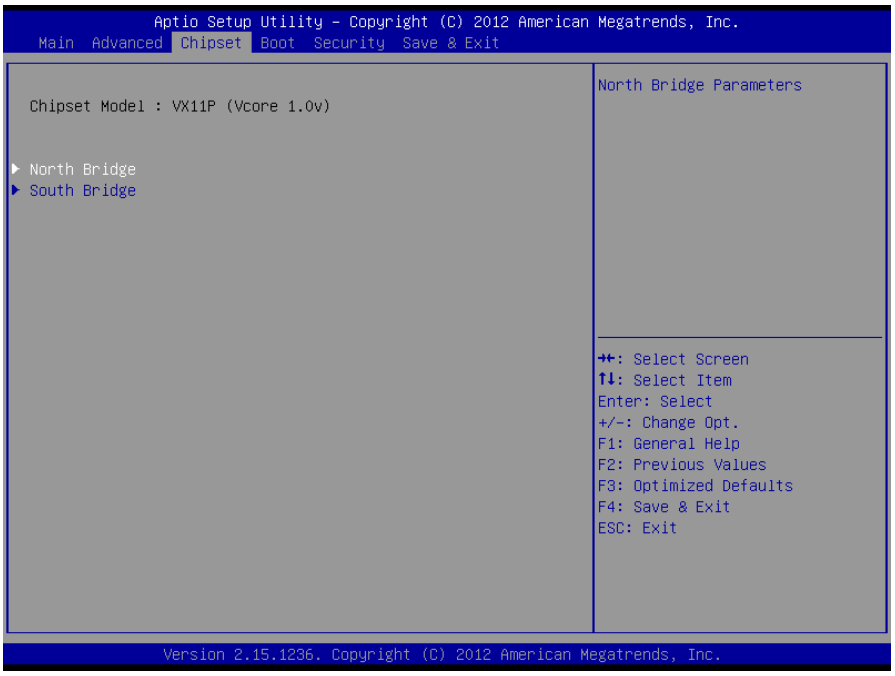
3.6.2.8.5 Serial Port 5 Configuration



3.6.2.8.6 Serial Port 6 Configuration

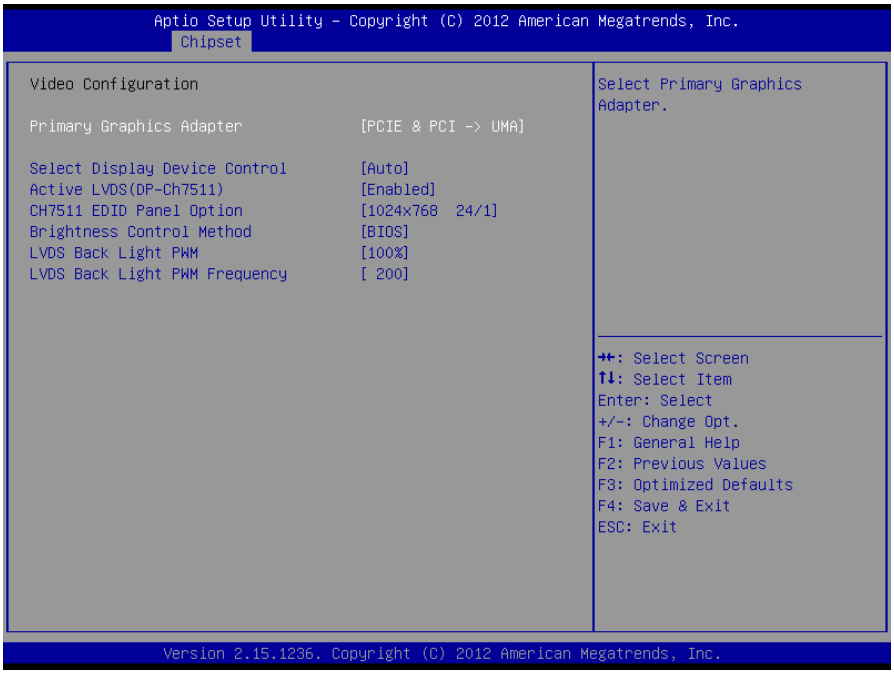


3.6.3 Chipset



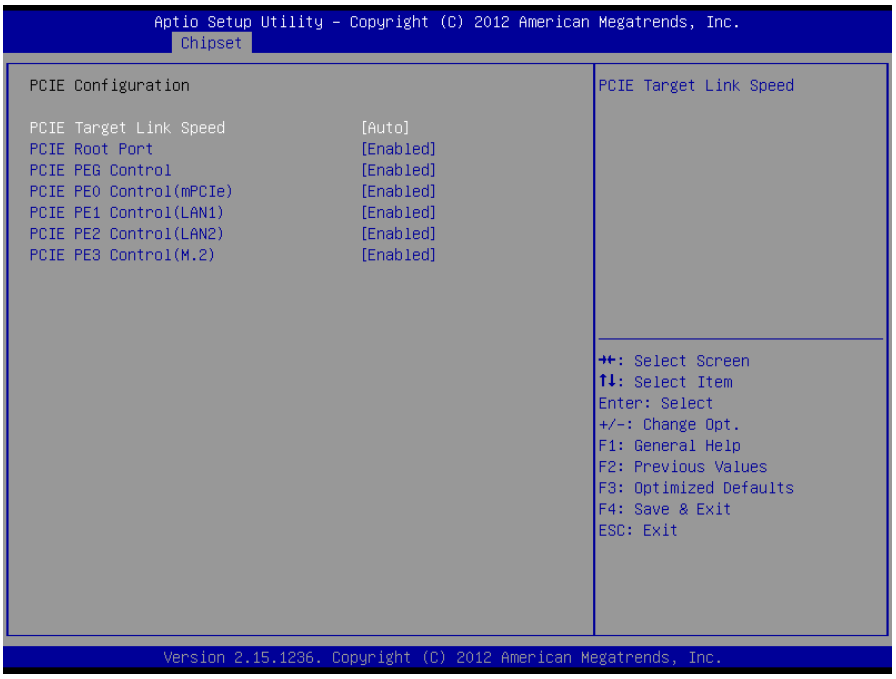
3.6.3.1 North Bridge

3.6.3.1.1 Video Configuration



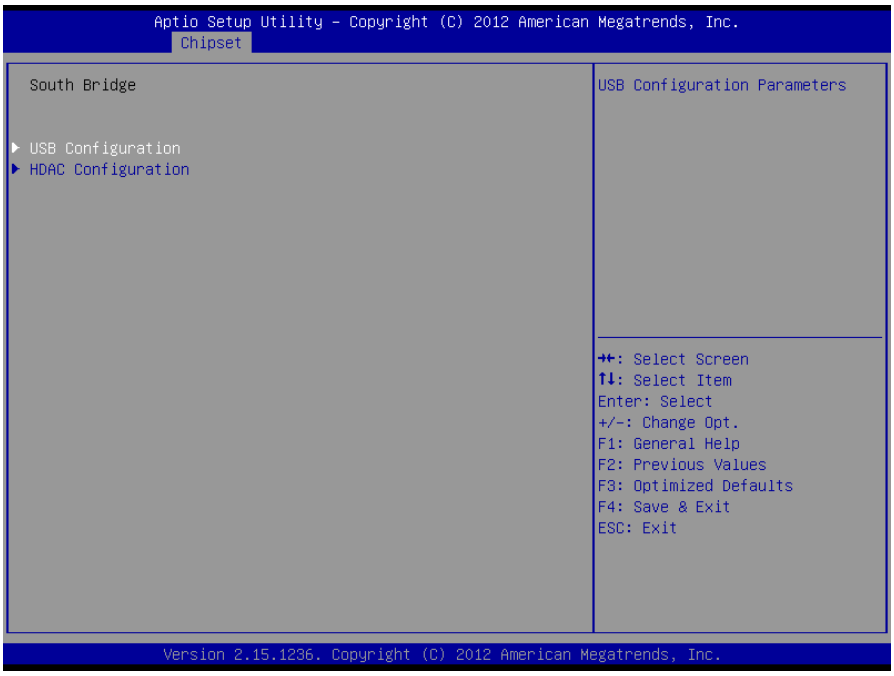
Item	Option	Description
Primary Graphics Adapter	PCIE & PCI -> UMA**[Default]** UMA I -> PCIE & PCI	Select Primary Graphics Adapter.
Select Display Device Control	Auto**[Default]** MANUAL	Select Display Device Control
Active LVDS(DP-Ch7511)	Enabled**[Default]**, Disabled	Active Internal LVDS(eDP->Ch7511-to-LVDS)
CH7511 EDID Panel Option	1024x768 24/1**[Default]**, 1280x1024 24/2 1920x1080 24/2	Port1-EDP to LVDS(Chrotel 7511) Panel EDID Option
Brightness Control Method	BIOS**[Default]**, BR Button VR	LVDS Brightness Control Method 1. BIOS 2.BR Button 3.VR
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 10k 20k	Select LVDS back Light PWM Frequency..

3.6.3.1.2 PCIE Configuration

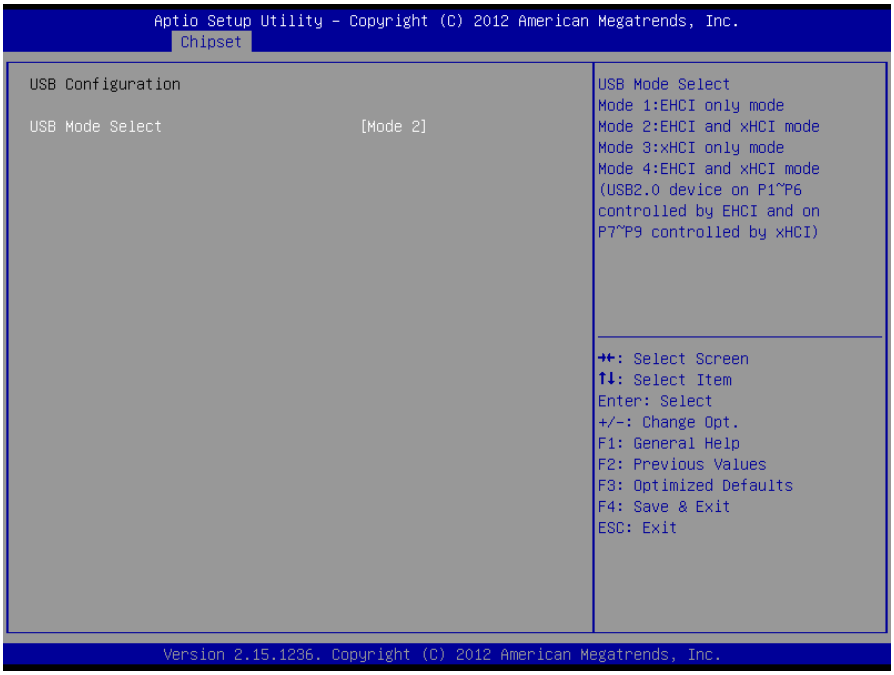


Item	Option	Description
PCIE Target Link Speed	Auto**[Default]** Force Gen 1	PCIE Target Link Speed
PCIE Root Port	Disabled Enabled**[Default]**,	PCIE Root Port
PCIE PEG Control	Disabled Enabled**[Default]**,	PCIE PEG Control
PCIE PE0 Control(mPCIe)	Disabled Enabled**[Default]**,	PCIE PE0 Control(mPCIe)
PCIE PE1 Control(LAN1)	Disabled Enabled**[Default]**,	PCIE PE1 Control(LAN1)
PCIE PE2 Control(LAN2)	Disabled Enabled**[Default]**,	PCIE PE2 Control(LAN2)
PCIE PE3 Control(M.2)	Disabled Enabled**[Default]**,	PCIE PE3 Control(M.2)

3.6.3.2 South Bridge

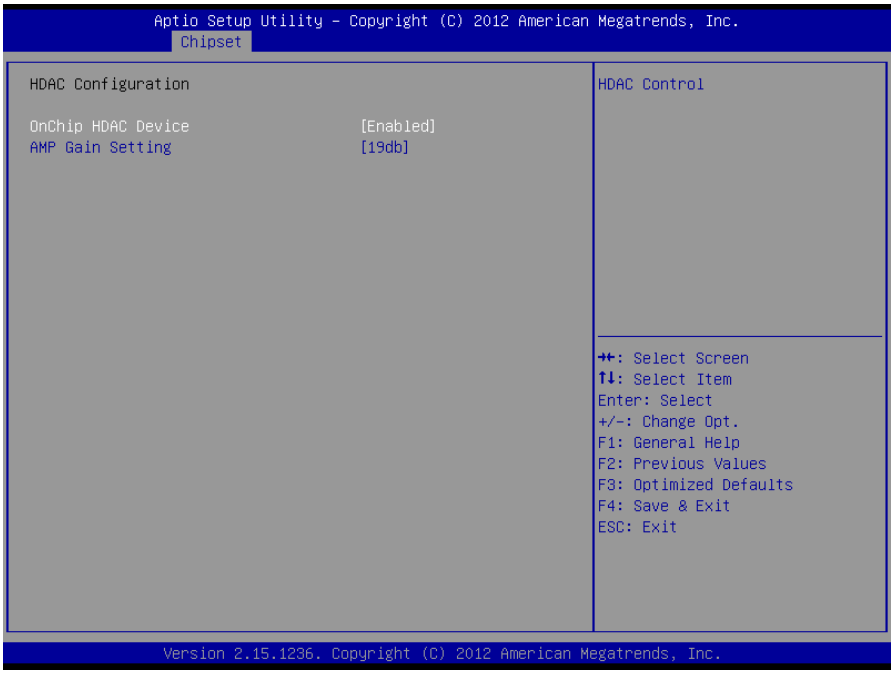


3.6.3.2.1 USB Configuration



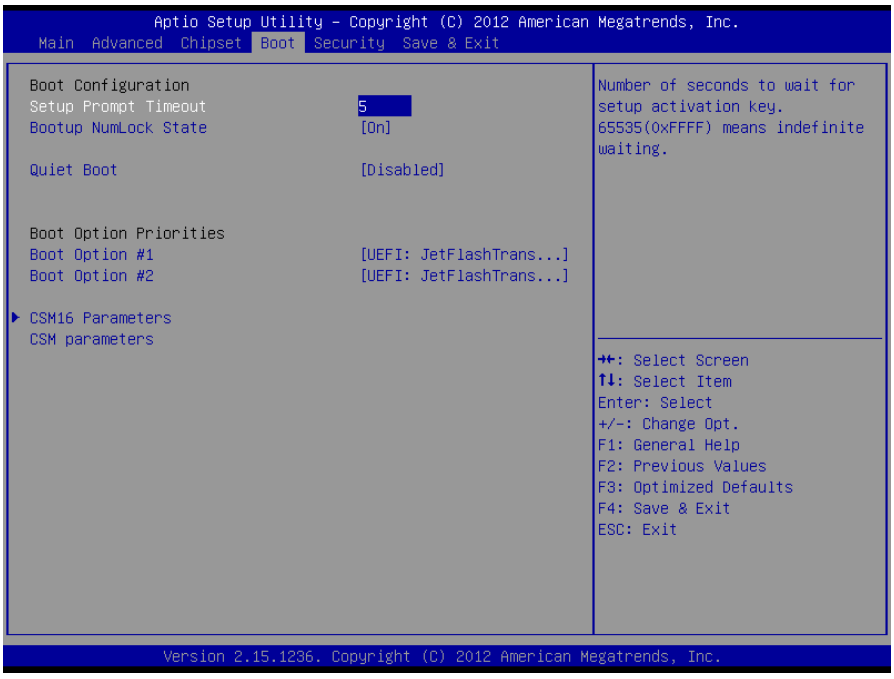
Item	Option	Description
USB Mode Select	Mode 1 Mode 2**[Default]** Mode 3 Mode 4	USB Mode Select Mode 1:EHCI only mode Mode 2:EHCI and xHCI mode Mode 3:xHCI only mode Mode 4:EHCI and xHCI mode (USB2.0 device on P1~P6 controlled by EHCI and on P7~P9 controlled by xHCI)

3.6.3.2.2 HDAC Configuration



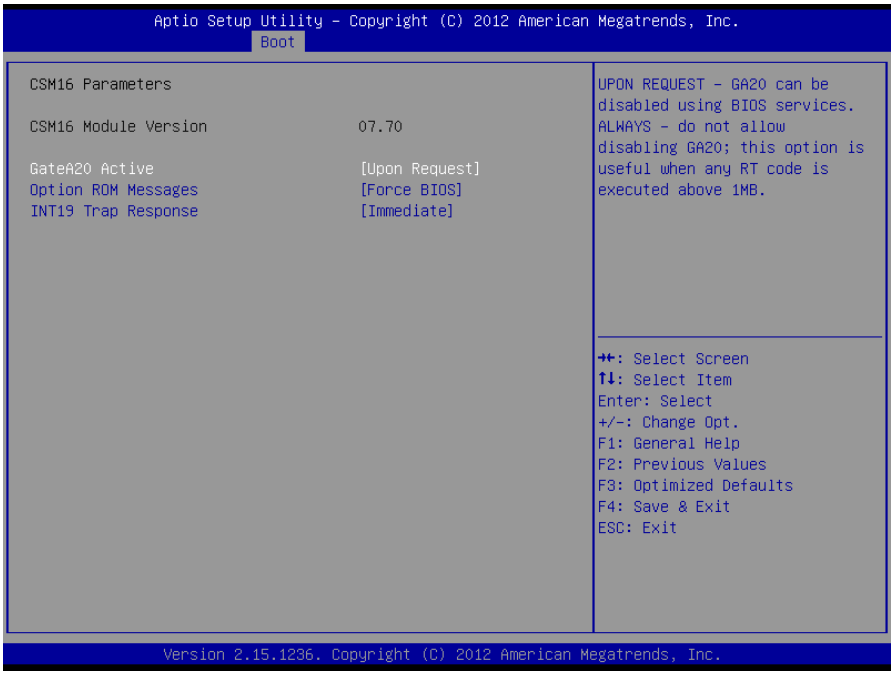
Item	Option	Description
OnChip HDAC Device	Disabled Enabled**[Default]**,	HDAC Control
AMP Gain Setting	11db 14db 19db**[Default]**, 25db	Select AMP Gain db

3.6.4 Boot



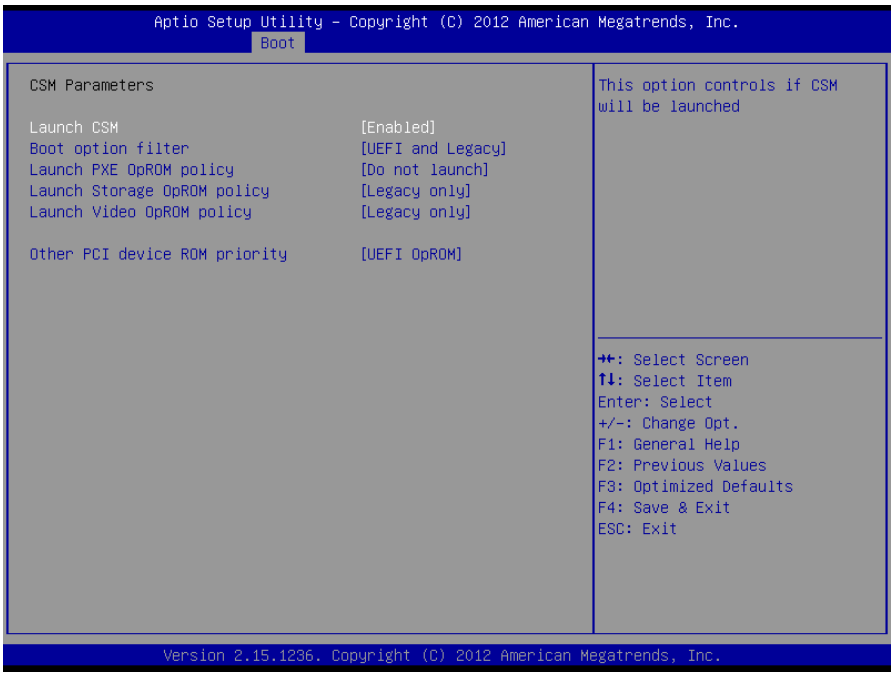
Item	Option	Description
Setup Prompt Timeout	5	Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.
Bootup NumLock State	On**[Default]** Off	Select the Keyboard NumLock state
Qulet Boot	Disabled**[Default]** Enabled	Enables or disables Quiet Boot Option
Boot Option #1	Set the system boot order.	
CSM parameters	OpROM execution, boot options filter, etc.	

3.6.4.1 CSM16 Parameters



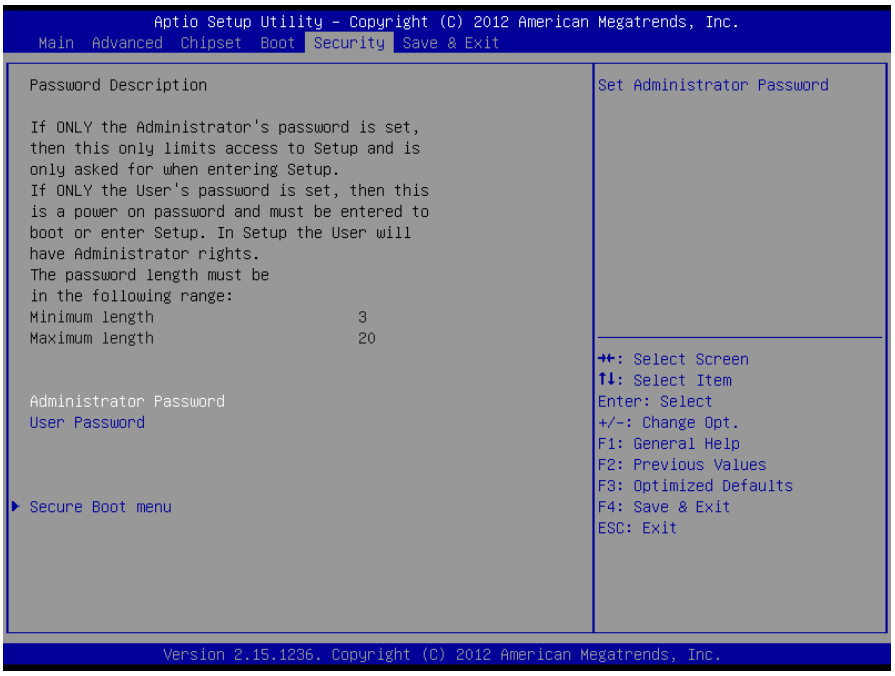
Item	Option	Description
GateA20 Active	Upon Request**[Default]** Always	UPON REQUEST- GA20 can be disabled using BIOS services. ALWAYS - do not allow disbling GA20; this option is useful when any RT code is executed above 1MB.
Option ROM Messages	Force BIOS**[Default]** Keep Current	Set display mode for Option ROM
INT19 Trap Response	Immediate**[Default]** Postponed	BIOS reaction on INT19 trapping by Option ROM: IMMEDIATE - execute the trap right away; POSTPONED - execute the trap during legacy boot.

3.6.4.2 CSM Parameters



Item	Option	Description
Launch CSM	Disabled Enabled**[Default]**	This option controls if CSM will be launched
Boot option filter	UEFI and Legacy**[Default]** Legacy only UEFI only	This option controls what devices system can boot to
Launch PXE OpROM policy	Do not launch**[Default]** Legacy only	Controls the execution of UEFI and Legacy PXE OPROM
Launch Storage OpROM policy	UEFI only Legacy only**[Default]**	Controls the execution of UEFI and Legacy Storage OpROM
Launch Video OpROM policy	UEFI only Legacy only**[Default]**	Controls the execution of UEFI and Legacy Video OpROM
Other PCI device ROM priority	UEFI OpROM**[Default]** Legacy OpROM	For PCI devices other than Network, Mass storage or Video defines which OpROM to launch

3.6.5 Security



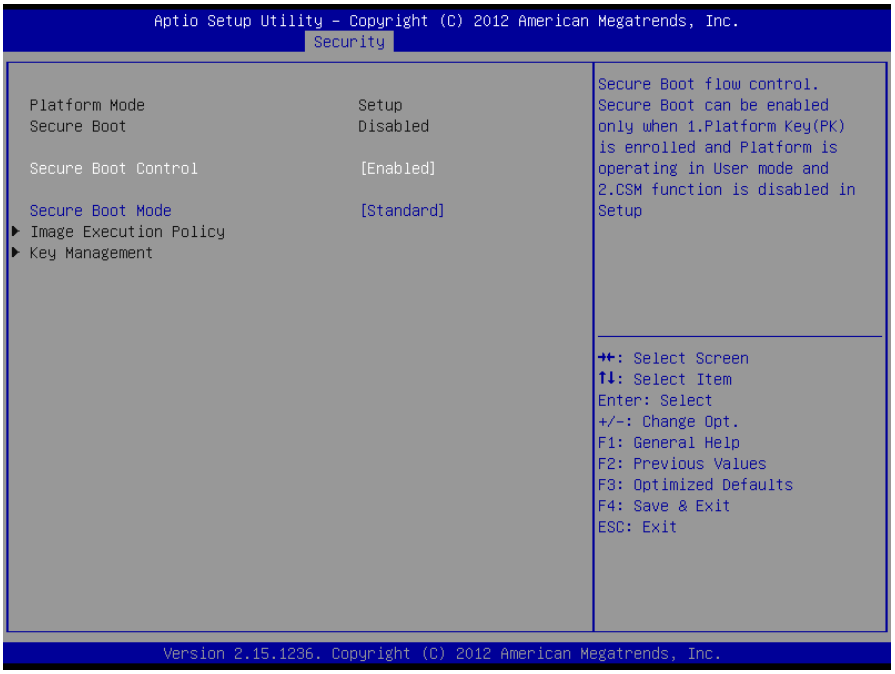
- **Administrator Password**

Set setup Administrator Password

- **User Password**

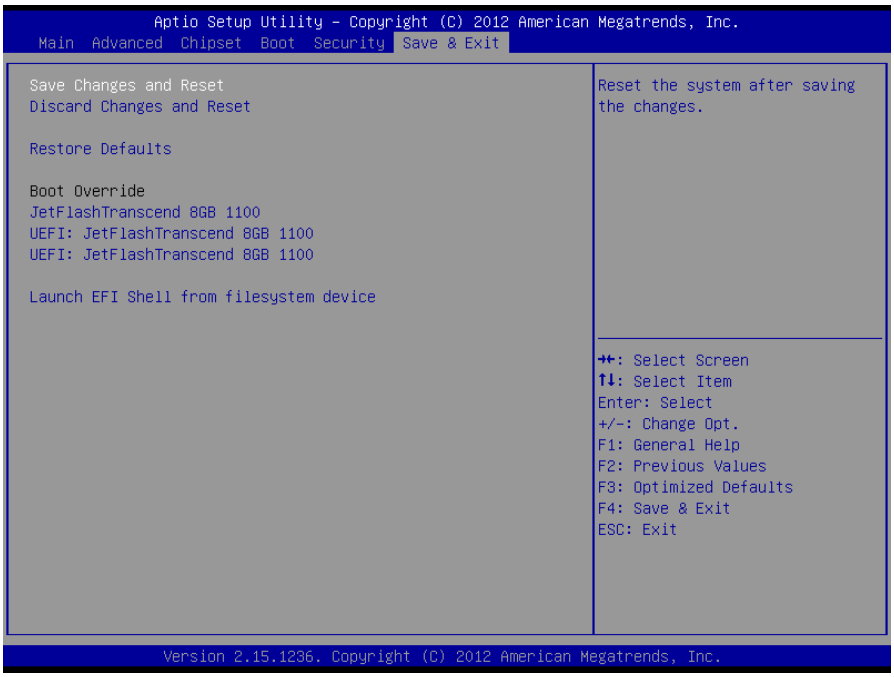
Set User Password

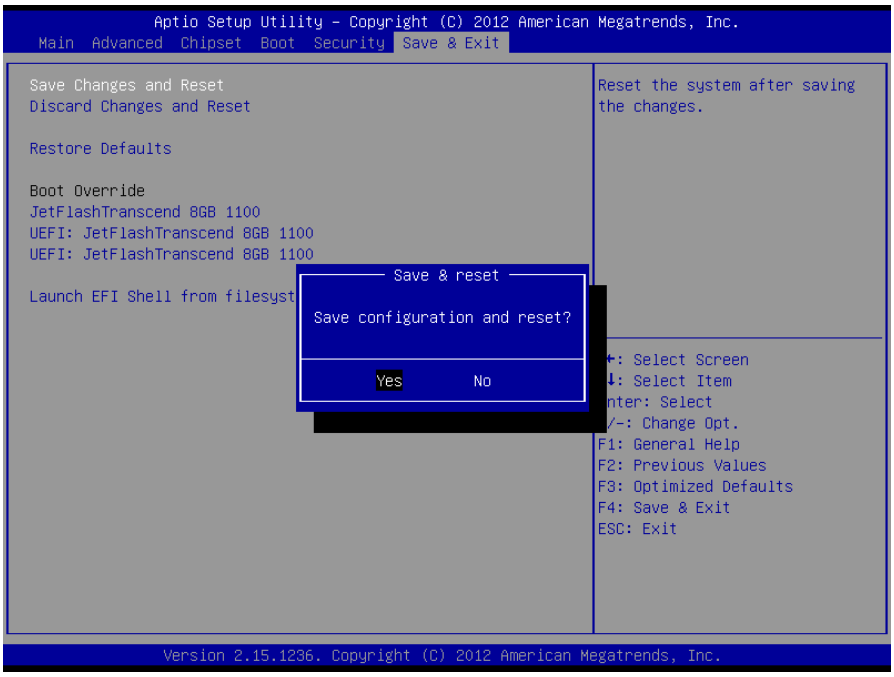
3.6.5.1 Secure Boot menu



Item	Option	Description
Secure Boot Control	Disabled Enabled**[Default]**,	Secure Boot flow control. Secure Boot can be enabled only when 1.Platform Key(PK) is enrolled and Platform is operating in User mode and 2 CSM function is disabled in Setup
Secure Boot Mode	Standard**[Default]** Custom	Secure Boot mode selector. 'Custom' Mode allows for more flexibility changing Image Execution policy and Secure Boot Key management.

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

Reset system setup without saving any changes.

3.6.6.3 Restore Defaults

Restore/Load Default values for all the setup options.

3.6.6.4 Launch EFI Shell from filesystem device

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