

**EBM-CDV** (A2.1)

**5.25" Intel Cedarview Atom Mini Module**

# **User's Manual**

**1<sup>st</sup> Ed – 13 July 2016**

## **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.

## **A Message to the Customer**

### ***Avalue Customer Services***

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

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

### ***Technical Support***

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

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

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

# Content

<b>1. Getting Started.....</b>	<b>6</b>
1.1 Safety Precautions .....	6
1.2 Packing List.....	6
1.3 Document Amendment History .....	7
1.4 Manual Objectives.....	8
1.5 System Specifications .....	9
1.6 Architecture Overview—Block Diagram .....	12
<b>2. Hardware Configuration.....</b>	<b>13</b>
2.1 Product Overview.....	14
2.2 Jumper and Connector List .....	15
2.3 Setting Jumpers & Connectors .....	18
2.3.1 Clear CMOS (JBAT1).....	18
2.3.2 Serial port 1/ 2 RS-232/ 422/ 485 mode select (JP1/ JP2) .....	18
2.3.3 SATA Pin7 select (JP3).....	19
2.3.4 Serial port 1/ 2 – RS232/ 422/ 485 mode select (SW1) .....	19
2.3.5 Multi-function select (SW2) .....	20
2.3.6 Serial port 1/ 2 pin9 signal select (JRI1/ JRI2) .....	20
2.3.7 LCD backlight brightness adjustment (JVR1) .....	21
2.3.8 Handset Speaker Out selector (JHS1).....	22
2.3.9 USB Power select (USB_PWR_SEL1) .....	22
2.3.10 Power connector (PWR2) .....	23
2.3.11 DVI connector (DVI1).....	23
2.3.12 LCD Inverter connector (JBKL1).....	24
2.3.13 LCD Inverter connector (JBKL2).....	25
2.3.14 CPU fan connector (CPU_FAN1) .....	25
2.3.15 Serial port 2 connector (COM2) .....	26
2.3.16 Serial port 3/ 4/ 5/ 6 connector (COM3/ COM4/ COM5/ COM6) .....	26
2.3.17 LED and Power Button connector (JLED1) .....	27
2.3.18 General purpose I/O connector (DIO1).....	28
2.3.19 LVDS connector (JLVDS1) .....	29
2.3.20 LVDS connector (JLVDS2) .....	30
2.3.21 Touch panel connector (JTOUCH) .....	31
2.3.22 USB connector 5&6 (USB56).....	31
2.3.23 USB connector 7&8 (USB78).....	32
2.3.24 Battery connector (BT1).....	32
2.3.25 Audio connector (AUD1).....	33
2.3.26 AMPLIFIER_R1 (AMP_R1).....	33

## **EBM-CDV (A2.1) User's Manual**

2.3.27	AMPLIFIER_L1 (AMP_L1).....	34
2.3.28	VGA connector (JVGA1).....	34
2.3.29	LPC connector (JLPC1).....	35
2.3.30	SPI connector (JSPI1) .....	35
2.3.31	EC_Program (EC_SPI1) .....	36
2.3.32	SATA Power connector 1 (SPWR1) .....	36
<b>3.BIOS Setup .....</b>		<b>37</b>
3.1	Introduction .....	38
3.2	Starting Setup .....	38
3.3	Using Setup .....	39
3.4	Getting Help .....	40
3.5	In Case of Problems.....	40
3.6	BIOS setup.....	41
3.6.1	Main Menu.....	41
3.6.1.1	System Language.....	41
3.6.1.2	System Date .....	41
3.6.1.3	System Time.....	41
3.6.2	Advanced BIOS settings .....	42
3.6.2.1	PCI Subsystem Settings.....	42
3.6.2.2	ACPI Settings .....	43
3.6.2.3	S5 RTC Wake settings .....	44
3.6.2.4	CPU Configuration.....	45
3.6.2.5	Thermal Configuration .....	46
3.6.2.6	IDE Configuration .....	48
3.6.2.7	Intel Fast Flash Standby.....	49
3.6.2.8	USB Configuration .....	49
3.6.2.9	H/W Monitor.....	50
3.6.2.10	Smart settings.....	51
3.6.2.11	Second Super IO Configuration.....	52
3.6.2.12	Super IO Configuration.....	56
3.6.2.13	PPM configuration .....	59
3.6.3	Advanced Chipset Features .....	60
3.6.3.1	Host bridge .....	60
3.6.3.2	South bridge .....	64
3.6.4	Boot settings.....	69
3.6.5	Security.....	70
3.6.5.1	Administrator Password.....	70
3.6.5.2	User Password .....	70
3.6.6	Save & Exit.....	71
3.6.6.1	Save Changes and Exit .....	71

## **User's Manual**

3.6.6.2	Discard Changes and Exit .....	71
3.6.6.3	Save Changes and Reset.....	72
3.6.6.4	Discard Changes and Reset.....	72
3.6.6.5	Save Changes .....	72
3.6.6.6	Discard Changes .....	72
3.6.6.7	Restore Defaults.....	72
3.6.6.8	Save as user defaults .....	72
3.6.6.9	Restore user defaults .....	72
3.6.6.10	Boot override .....	72
<b>4.</b>	<b>Drivers Installation.....</b>	<b>73</b>
4.1	Install VGA Driver.....	74
4.2	Install Chipset Driver (Cedarview) .....	76
4.3	Install Audio Driver (For Realtek ALC892) .....	77
4.4	Install Ethernet Driver (For Realtek 82574L) .....	78
<b>5.</b>	<b>Mechanical Drawing .....</b>	<b>80</b>

# 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 EBM-CDV (A2.1) 5.25" Intel Cedarview Atom Mini Module
- 1 x DVD-ROM or CD-ROM contains the followings:
  - User's Manual (this manual in PDF file)
  - Ethernet driver and utilities
  - VGA drivers and utilities
  - Audio drivers and utilities



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

### 1.3 Document Amendment History

Revision	Date	By	Comment
1 <sup>st</sup>	July 2016	Avalue	Initial Release

## **1.4 Manual Objectives**

This manual describes in details Avalue Technology EBM-CDV (A2.1) 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 EBM-CDV (A2.1) series 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.

## User's Manual

### 1.5 System Specifications

System	
<b>CPU</b>	Onboard Intel Cedarview-M / Cedarview-D DC (Co-layout) N2800/D2550
<b>BIOS</b>	AMI 16M-bit SPI BIOS
<b>System Chipset</b>	Intel NM10 Express Chipset
<b>I/O Chip</b>	E/C IT8518E
<b>System Memory</b>	one 204-pin DDR3 800/1066 SODIMM supports up to 4GB (Single channel)
<b>SSD</b>	One CompactFlash Type I/II socket
<b>Watchdog Timer</b>	Reset: 1 ~255 min. and 1 sec. or 1 min./step
<b>H/W Status Monitor</b>	Monitoring system temperature, voltage, and cooling fan status. Auto trotting control when CPU overheats
<b>Expansion</b>	1 Mini PCI-E slot (Share USB 3 and SATA); SIM card slot
I/O	
<b>MIO</b>	1 x SATA (Cable) 1 x 15+7 pin SATA connector (Direct connection) → either one 2 x RS-232/422/485 (COM1 DB-9, COM2 box header, selected by DIP switch) 4 x RS-232 90-degree box header (COM3~6) COM1~2 pin-9 RI/+5V/+12V selected by jumper COM3~6 pin-9 RI 1 x K/B & Mouse (Co-lay with LAN2) HDMI/ VGA in wafer (same as EBM-A50M) DVI as wafer
<b>USB</b>	Total 8 x USB 2.0 ports (2 x Edge connectors, 2 x dual-row box header(USB 5&6/USB 7&8) USB 7&8 optional support 3.3V (for some low power USB module, ex. BT), USB 3 for mini-PCIe and USB 4 for Touch controller IC
<b>DIO</b>	16-bit General Purpose I/O for DI (8bit) and DO(8bit) (SMBus PCA95555)
<b>Touch Interface</b>	USB 4 (EETI ETP-CP-MER4485XRU support 5 wire)
Display	
<b>Chipset</b>	Intel Cedarview integrated graphics
<b>Resolution</b>	CRT mode: 1920 x 1200 @ 60Hz LCD/Simultaneous mode : 1366 x 768 @ 60 Hz (CDV-M) 1400 x 900 @ 60 Hz (CDV-D)
<b>Dual Display</b>	CRT + LVDS, HDMI + LVDS, CRT + HDMI
<b>LCD Interface</b>	Dual channel 18/24-bit LVDS (with eDP)
Audio	

## EPM-CDV (A2.1) User's Manual

<b>HD Codec</b>	Realtek ALC892 supports 5.1 CH Audio
<b>Audio Interface</b>	Line out, Speak out (2W) connector & pin Jaudio 2x6 header (Line in, Line out & Mic in), headset 3x2 pin header
<b>Ethernet</b>	
<b>LAN Chip</b>	Dual Intel 82574L PCI-E Gigabit LAN
<b>Ethernet Interface</b>	10/100/1000 Base-Tx Fast Ethernet compatible
<b>Touch</b>	
<b>Chipset</b>	EETI ETP-CP-MER4485XRU support 5 wire
<b>Touch Interface</b>	USB (4), With 5-pin 2.0mm box header v
<b>Mechanical &amp; Environmental</b>	
<b>Power Requirement</b>	+12V ~ +26V
<b>Power Type</b>	AT Single +12~26V power input / ATX, optional +24V input (inverter still +12V out)
<b>Operating Temp.</b>	0~60°C (32~140°F)
<b>Operating Humidity</b>	0%~90% relative humidity, non-condensing
<b>Size (L x W)</b>	8" x 5.75"x 0.75" (203 mm x 146 mm x 19mm)
<b>Weight</b>	0.55lb (0.25kg)
<b>Others</b>	
<b>Fan</b>	4 pin x 1
<b>Backlight</b>	Panel backlight configuration setting by BIOS, PWM control as default
<b>Supporting Resolution</b>	<p>LVDS            1366 x 768 @ 60Hz (18 bpps) (CDV-M)            1440 x 900 @ 60Hz (18 &amp; 24 bpps) (CDV-D)</p> <p>eDP            Cedarview-M 1366 x 768 60 Hz            Cedarview-D 1920 x 1080 60 Hz</p> <p>VGA (CRT)            Cedarview-M 1920 x 1200 60 Hz at 267 MHz Max            Cedarview-D 1920 x 1200 60 Hz at 355 MHz Max</p> <p>DP            Cedarview-M 1600 x 1200 60 Hz with 4 lanes at 162 MHz link clock            Cedarview-D 2560 x 1600 60 Hz with 4 lanes at 270 MHz link clock</p> <p>HDMI/ DVI            Cedarview-M 1920 x 1200 60 Hz            Cedarview-D 1920 x 1200 60 Hz</p>

## User's Manual

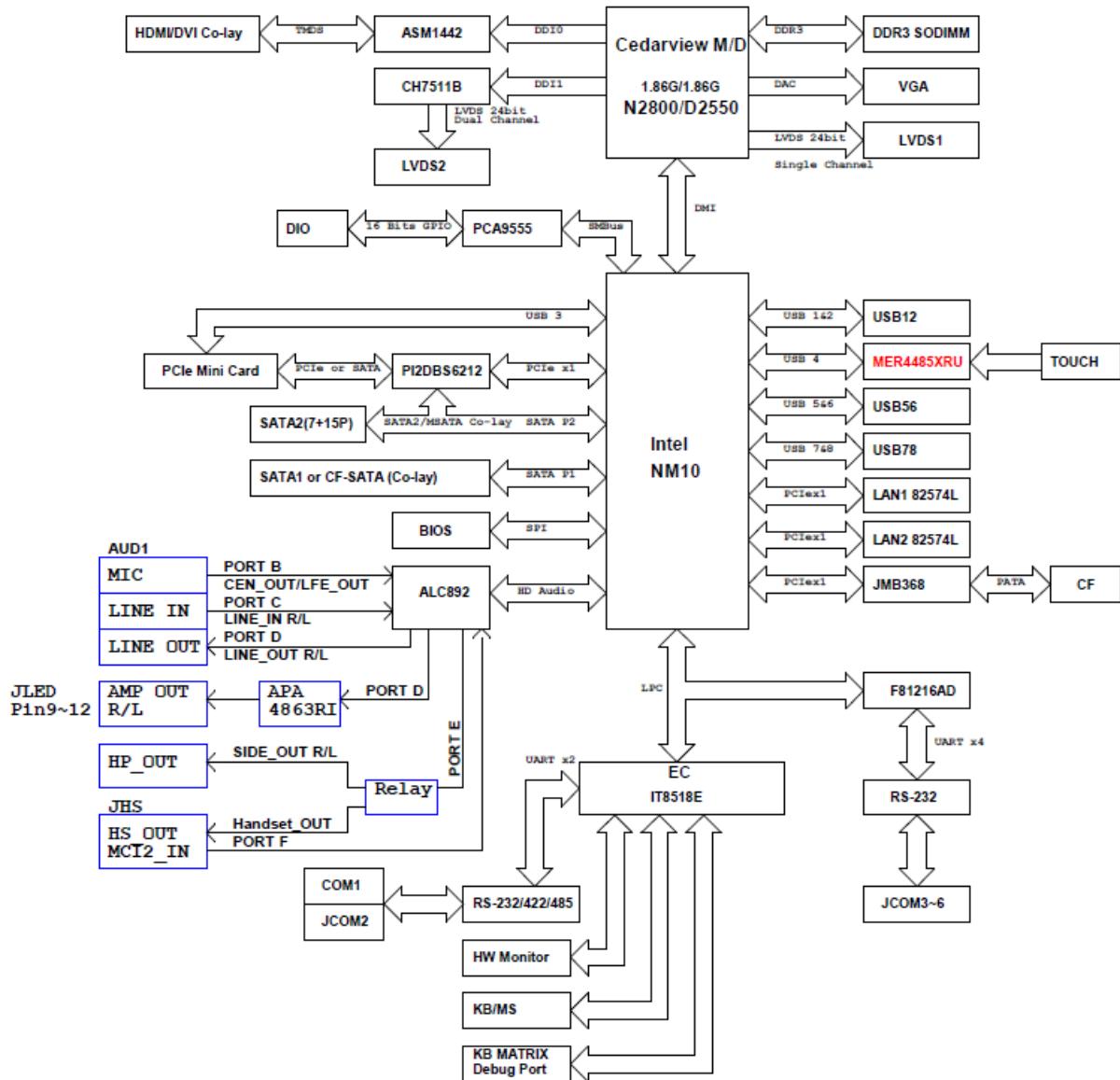
Note	Edge placement must be the same as EBM-PNV except VGA is placed by HDMI. No IDE 44 pint and mini-PCI function
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**Note:** Specifications are subject to change without notice.

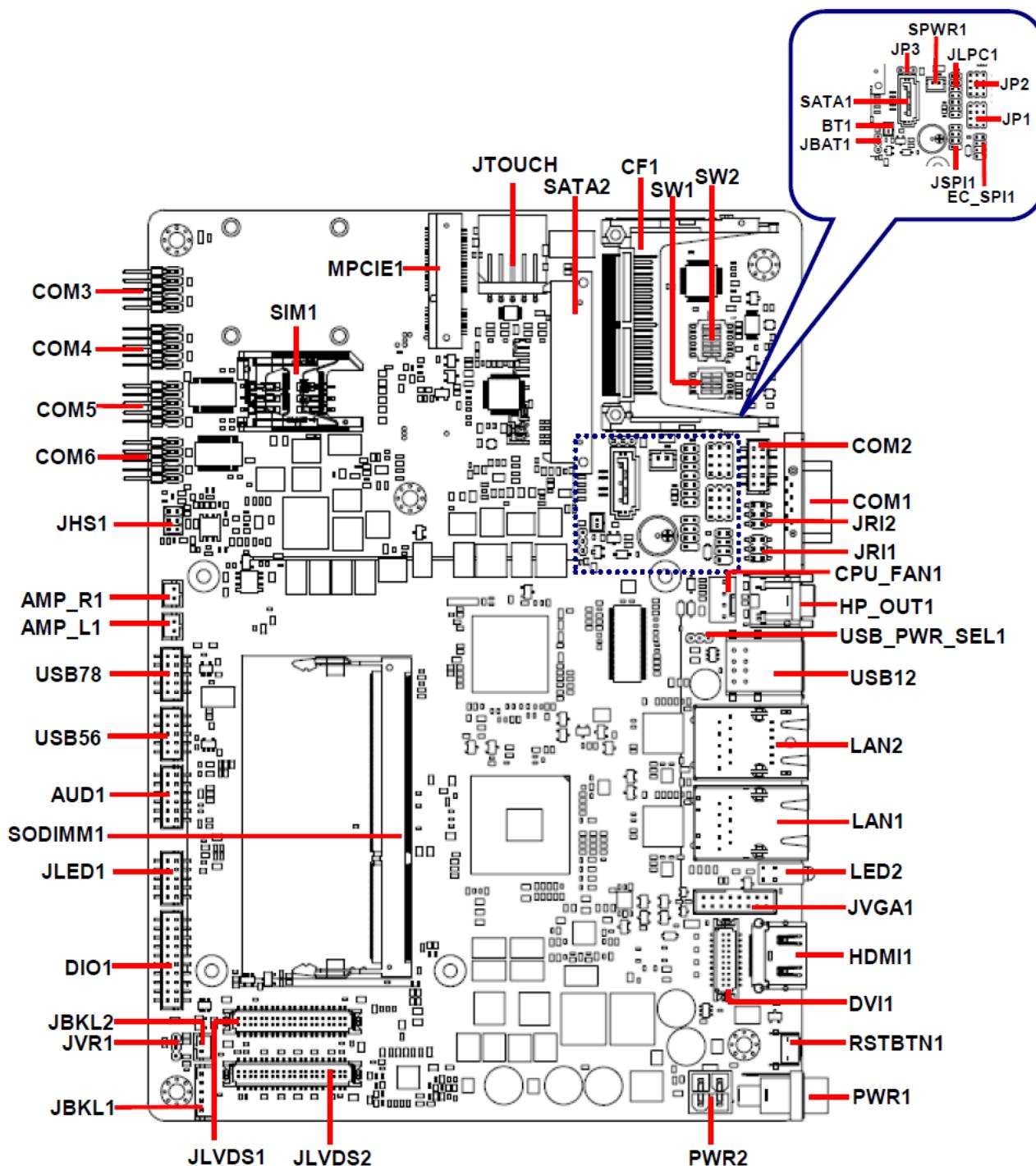
## 1.6 Architecture Overview—Block Diagram

The following block diagram shows the architecture and main components of EBM-CDV (A2.1).



## 2. Hardware Configuration

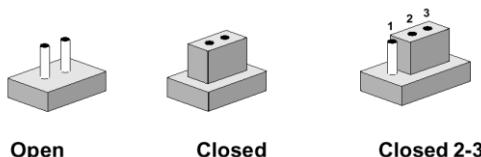
## 2.1 Product Overview



## 2.2 Jumper and Connector List

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

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



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



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

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

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

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

### Jumpers

Label	Function	Note
JBAT1	Clear CMOS	3 x 1 header, pitch 2.00mm
JP1	Serial port 1 – RS232/ 422/ 485 mode select	4 x 3 header, pitch 2.00mm
JP2	Serial port 2 – RS232/ 422/ 485 mode select	4 x 3 header, pitch 2.00mm
JP3	SATA Pin7 select	3 x 1 header, pitch 2.00mm
JRI1	Serial port 1 pin9 signal select	3 x 2 header, pitch 2.00mm
JRI2	Serial port 2 pin9 signal select	3 x 2 header, pitch 2.00mm
JVR1	LCD backlight brightness adjustment	3 x 1 header, pitch 2.00mm
SW1	Serial port 1/ 2 – RS232/ 422/ 485 mode select	DIP switch 4pin
SW2	Multi-function select	DIP switch 6pin
JHS1	Handset Speaker Out selector	3 x 2 header, pitch 2.00mm

USB\_PWR\_SEL1 USB Power select

3 x 1 header, pitch 2.00mm

**Connectors**

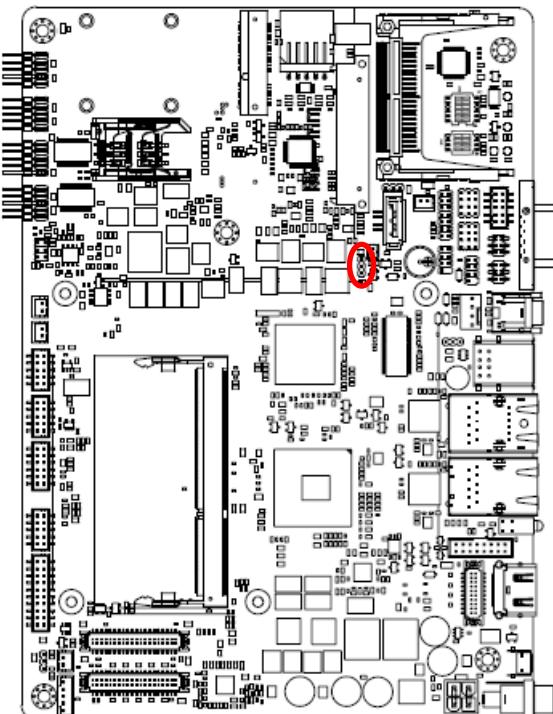
Label	Function	Note
CF1	Compact Flash card connector	
COM1	Serial Port 1 connector	D-sub 9 pin, male
CPU_FAN1	CPU fan connector	4 x 1 wafer, pitch 2.54mm
SODIMM1	204-pin DDR3 SODIMM socket	
AUD1	Audio connector	6 x 2 wafer, pitch 2.00mm
JBKL1	LCD Inverter connector	5 x 1 wafer, pitch 2.00mm
JBKL2	LCD Inverter connector	2 x 1 wafer, pitch 2.00mm
COM2	Serial Port 2 connector	5 x 2 wafer, pitch 2.00mm
COM3	Serial Port 3 connector	5 x 2 wafer, pitch 2.00mm
COM4	Serial Port 4 connector	5 x 2 wafer, pitch 2.00mm
COM5	Serial Port 5 connector	5 x 2 wafer, pitch 2.00mm
COM6	Serial Port 6 connector	5 x 2 wafer, pitch 2.00mm
DIO1	General purpose I/O connector	10 x 2 wafer, pitch 2.00mm
JLED1	LED and Power Button connector	5 x 2 wafer, pitch 2.00mm
LED2	HDD/Power LED indicator	
JLVDS1	LVDS Connector	DIN 40-pin wafer, pitch 1.25mm
JLVDS2	LVDS Connector	DIN 40-pin wafer, pitch 1.25mm
JTOUCH	Touch panel connector	5 x 1 header, pitch 2.54mm
USB12	USB connector 1&2	
USB56	USB connector 5&6	5 x 2 wafer, pitch 2.00mm
USB78	USB connector 7&8	5 x 2 wafer, pitch 2.00mm
DVI1	DVI connector	10 x 2 wafer, pitch 1.25mm
LAN1	RJ-45 Ethernet 1	
LAN2	RJ-45 Ethernet 1	
BT1	Battery connector	2 x 1 wafer, pitch 1.25mm
AMP_R1	AMPLIFIER_R1	2 x 1 wafer, pitch 2.00mm
AMP_L1	AMPLIFIER_L1	2 x 1 wafer, pitch 2.00mm
MPCIE1	Mini-PCI connector 1	
JLPC1	LPC connector	7 x 2 header, pitch 2.00mm
PWR1	Power connector	
PWR2	Power connector	2 x 2 wafer, pitch 4.20mm
RSBTN	Reset button	
JSPI1	SPI connector	4 x 2 header, pitch 2.00mm
EC_SPI1	EC_Program	4 x 2 header, pitch 2.00mm
SPWR1	SATA Power connector 1	2 x 1 wafer, pitch 2.00mm
SATA1	Serial ATA connector 1	

## User's Manual

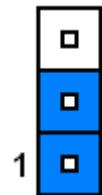
<b>SATA2</b>	Serial ATA connector 2
<b>SIM1</b>	SIM card slot
<b>HDMI1</b>	HDMI connector
<b>HP_OUT1</b>	Handphone_out connector
<b>JVGA1</b>	VGA connector 8 x 2 wafer, pitch 2.00mm

## 2.3 Setting Jumpers & Connectors

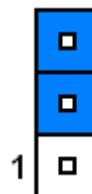
### 2.3.1 Clear CMOS (JBAT1)



Protect\*

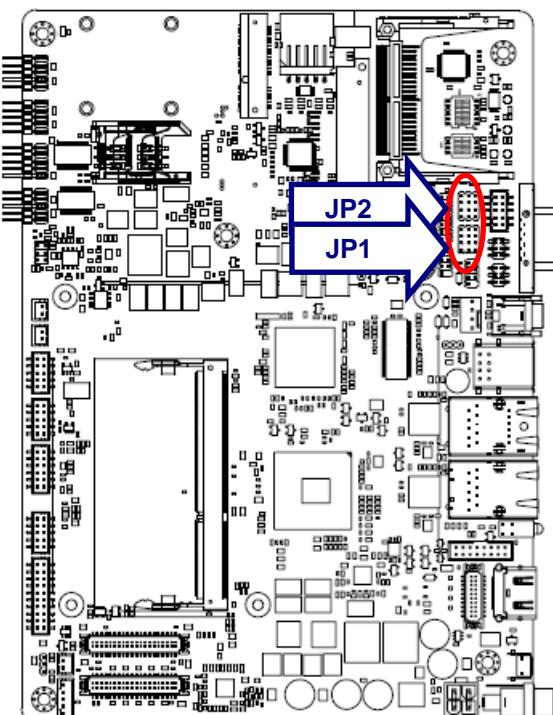


Clear CMOS



\* Default

### 2.3.2 Serial port 1/ 2 RS-232/ 422/ 485 mode select (JP1/ JP2)



RS-232\*

1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3
2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4
9	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	10
10	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	12

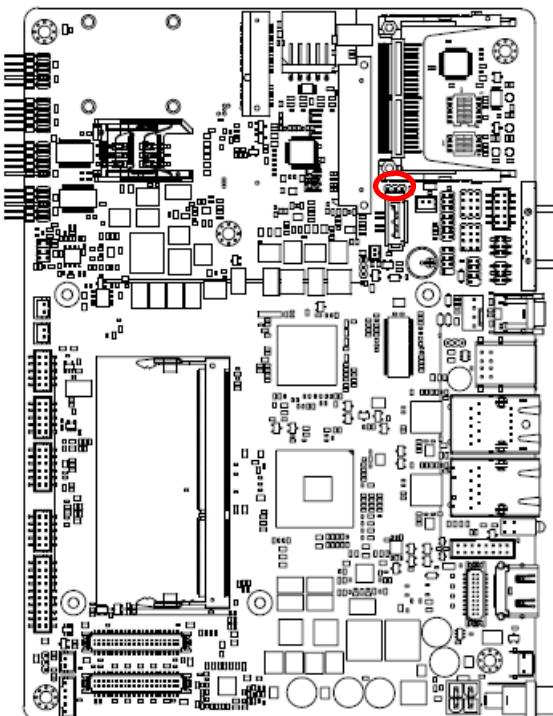
RS-422/ 485

1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	3
2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	4
9	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	10
10	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	12

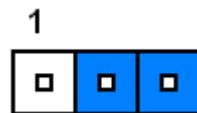
\* Default

## User's Manual

### 2.3.3 SATA Pin7 select (JP3)

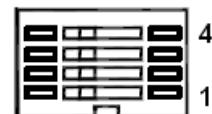
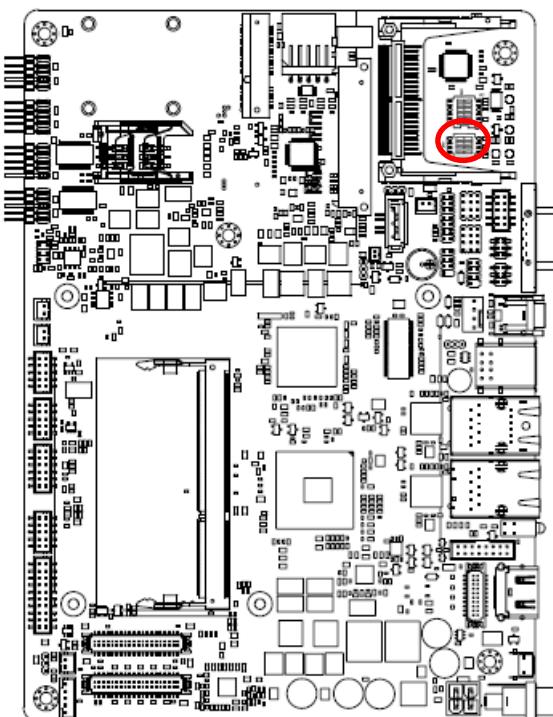


\* Default



Signal	PIN
SATA_PWR1	1
SATA1 P7	2
GND	3

### 2.3.4 Serial port 1/ 2 – RS232/ 422/ 485 mode select (SW1)



In Serial Port 1 mode

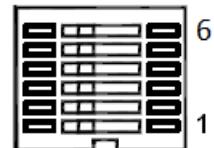
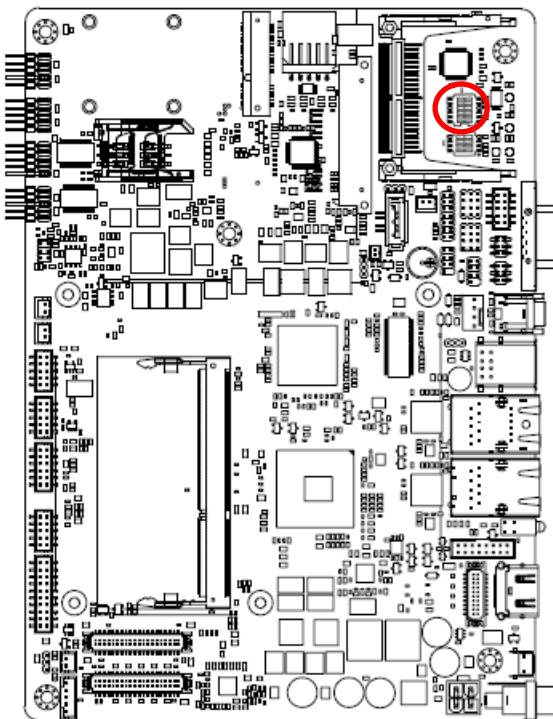
	RS-232	RS-422	RS-485
1	OFF	ON	ON
2	ON	OFF	ON

In Serial Port 2 mode

	RS-232	RS-422	RS-485
3	OFF	ON	ON
4	ON	OFF	ON

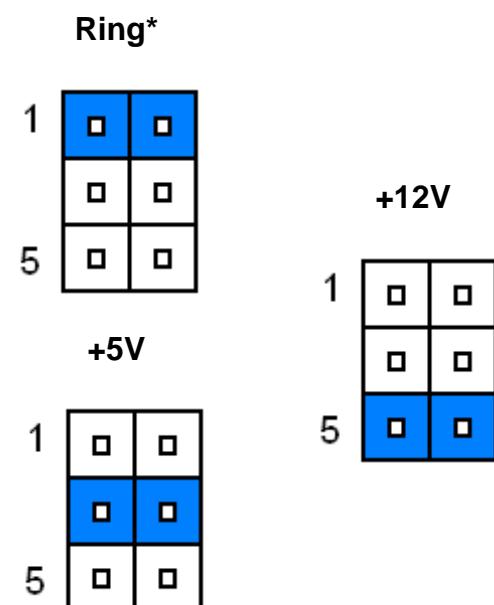
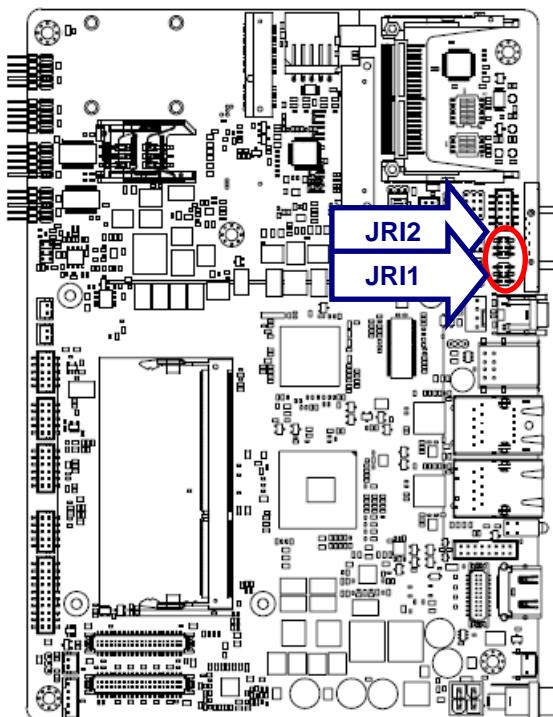
## EBM-CDV (A2.1) User's Manual

### 2.3.5 Multi-function select (SW2)



	ON	OFF
1	AT SEL	ATX SEL
2	CF Master	CF Slave
3	Touch off	Touch on
4	Touch: 4W	Touch: 5W
5	GPIO38:L	GPIO38:H
6	GPIO39:L	GPIO39:H

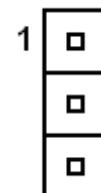
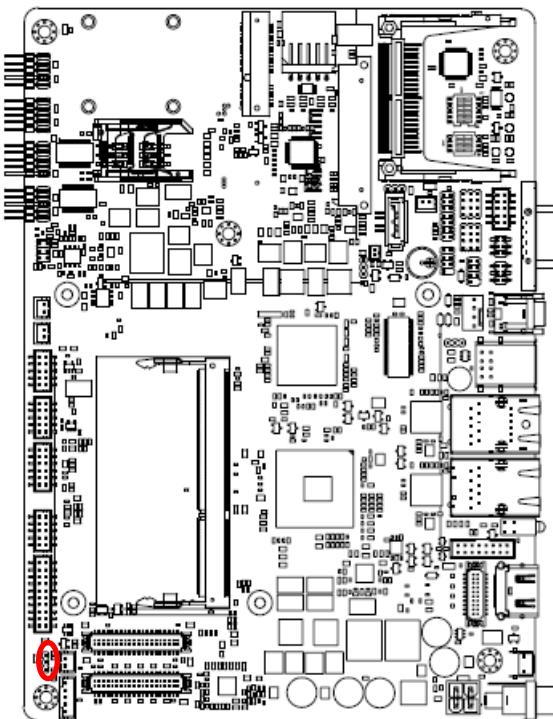
### 2.3.6 Serial port 1/2 pin9 signal select (JRI1/ JRI2)



\* Default

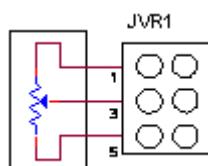
## User's Manual

### 2.3.7 LCD backlight brightness adjustment (JVR1)



Signal	PIN
+5V	1
VBRIGHT	2
GND	3

\* Default



Variation Resistor

(Recommended: 4.7KΩ, >1/16W)

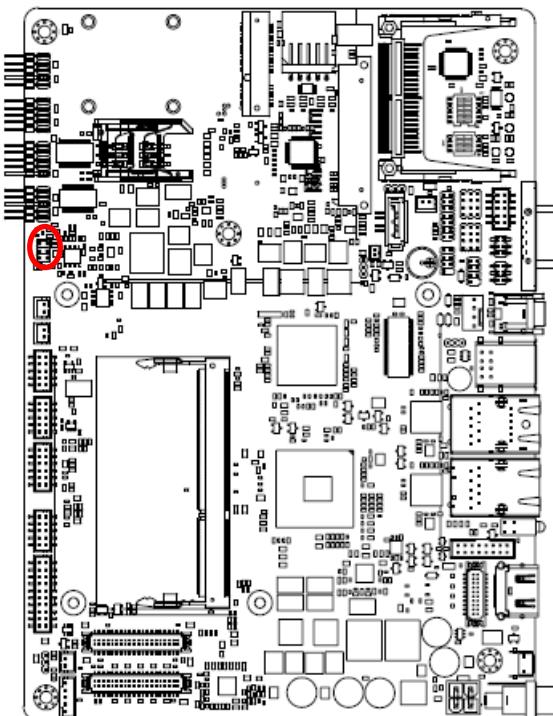


#### Note:

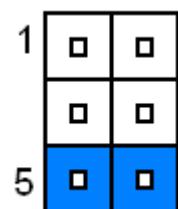
For inverters with adjustable Backlight function, it is possible to control the LCD brightness through the VR signal controlled by JBKL1. Please see the JBKL1 section for detailed circuitry information.

## EBM-CDV (A2.1) User's Manual

### 2.3.8 Handset Speaker Out selector (JHS1)

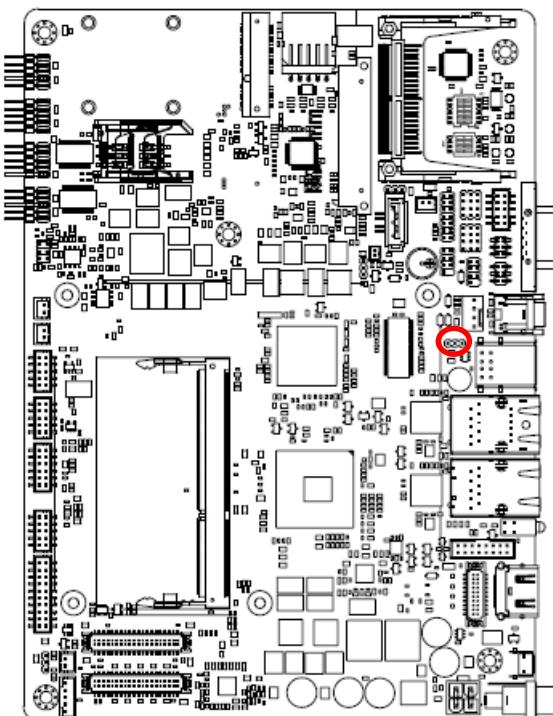


\* Default

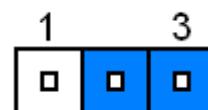
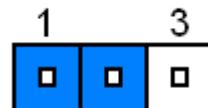


Signal	PIN	PIN	Signal
HS_MIC+	1	2	HS_MIC-
HS_OUT+	3	4	GND
HOOK	5	6	GND

### 2.3.9 USB Power select (USB\_PWR\_SEL1)



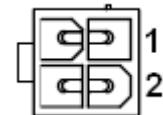
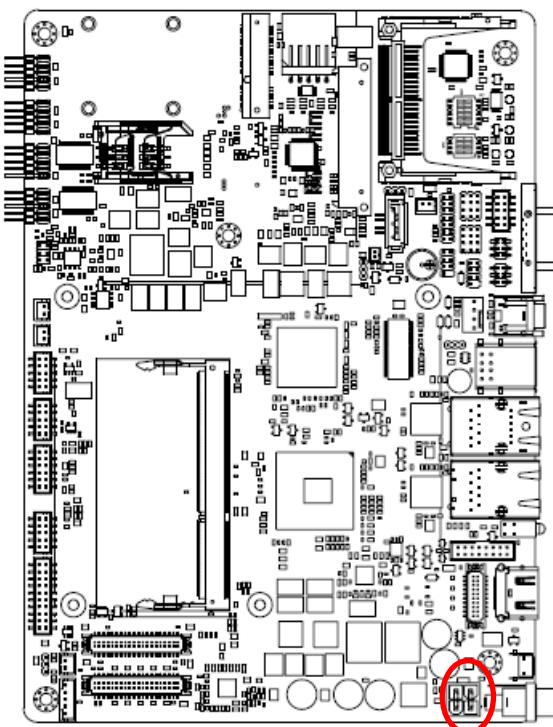
\* Default



Signal	PIN
+5VSB	1
USB_EN	2
+5V	3

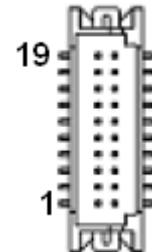
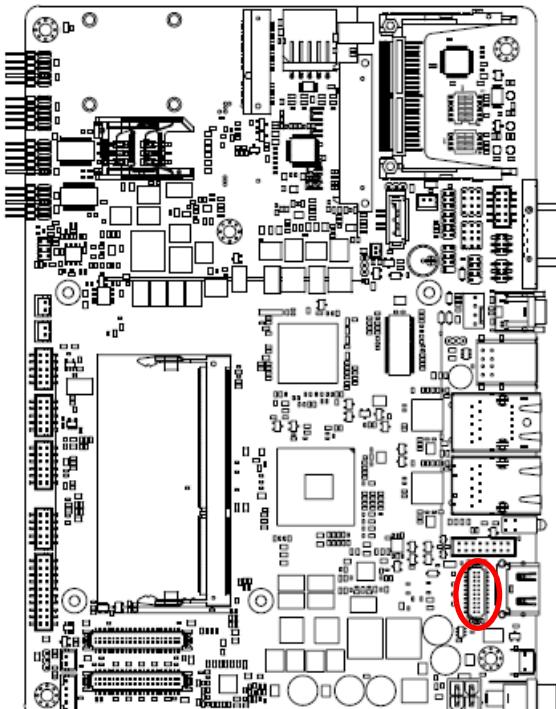
## User's Manual

### 2.3.10 Power connector (PWR2)



Signal	PIN	PIN	Signal
VIN	3	1	GND
VIN	4	2	GND

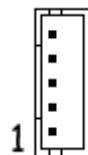
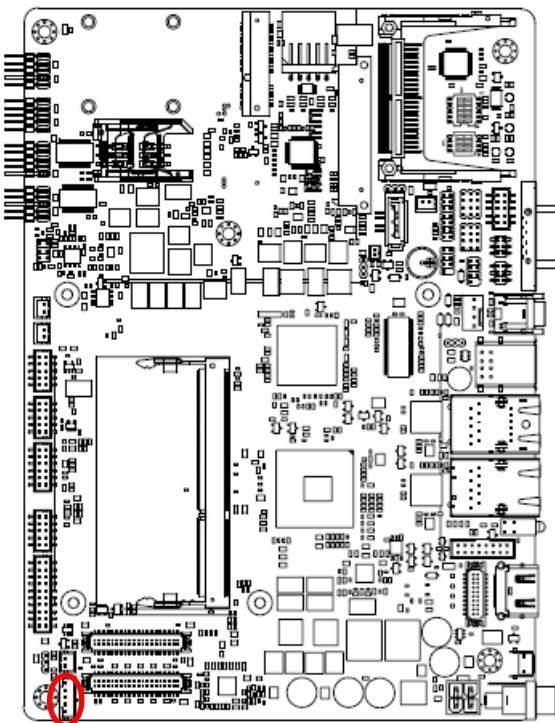
### 2.3.11 DVI connector (DVI1)



Signal	PIN	PIN	Signal
DVI_TXP2	19	20	DVI_CLK_P
DVI_TXN2	17	18	DVI_CLK_N
NC	15	16	GND
NC	13	14	HDMI_SCLK
DVI_TXP1	11	12	HDMI_SDATA
DVI_TXN1	9	10	HDMI_HPD
NC	7	8	NC
NC	5	6	NC
DVI_TXP0	3	4	GND
DVI_TXN0	1	2	+V5_CRT_HDMI

## EBM-CDV (A2.1) User's Manual

### 2.3.12 LCD Inverter connector (JBKL1)



Signal	PIN
+5V	5
VBRIGHT	4
BKLEN	3
GND	2
+12V	1

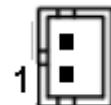
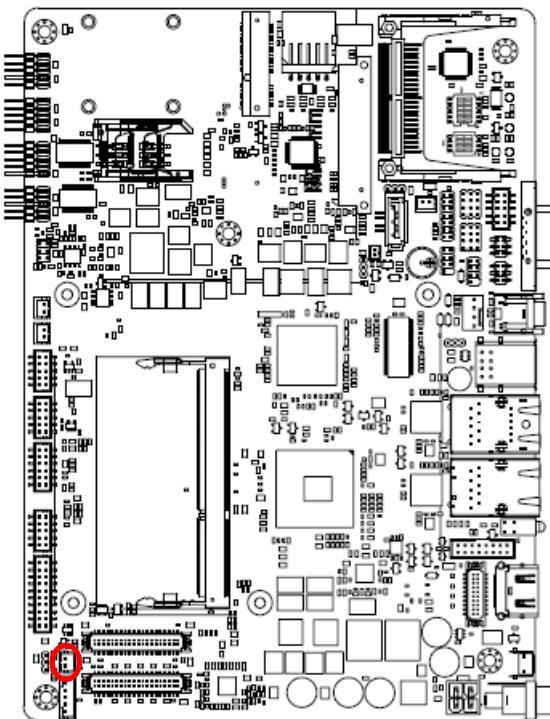
**Note:**



For inverters with adjustable Backlight function, it is possible to control the LCD brightness through the VR signal controlled by **JVR1**. Please see the **JVR1** section for detailed circuitry information.

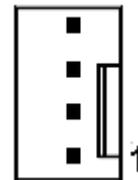
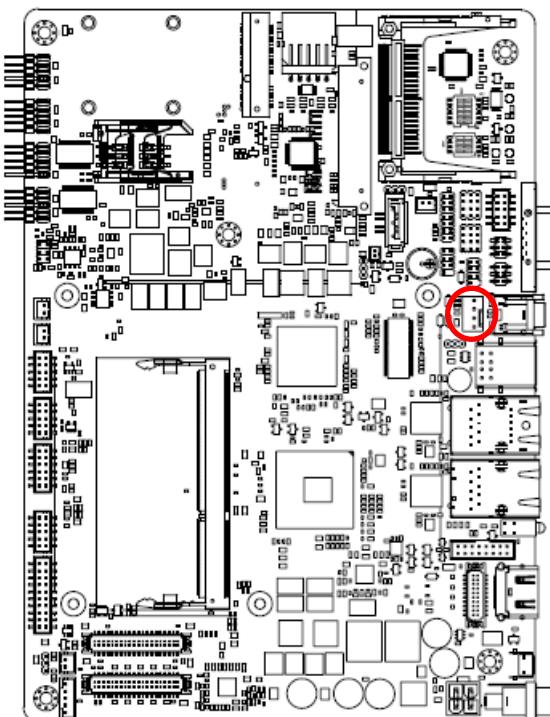
## User's Manual

### 2.3.13 LCD Inverter connector (JBKL2)



Signal	PIN
GND	2
+12V	1

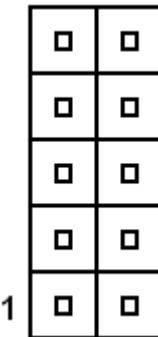
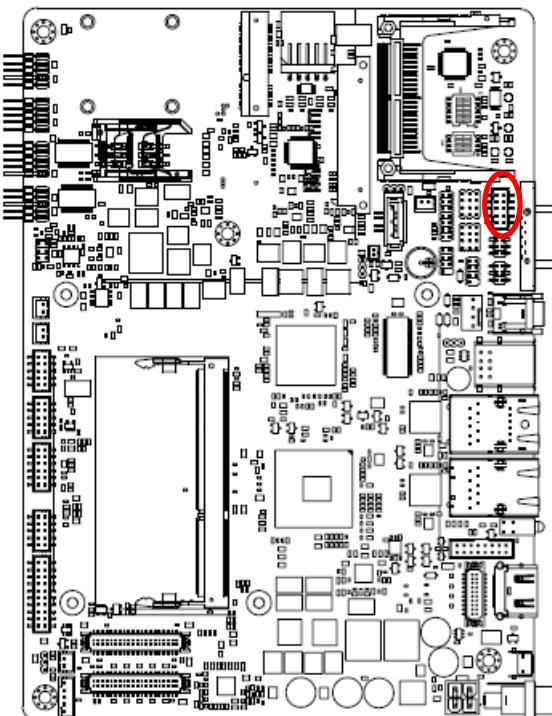
### 2.3.14 CPU fan connector (CPU\_FAN1)



Signal	PIN
+V3P3S	4
EC_TACH0	3
+12V	2
GND	1

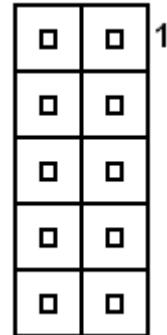
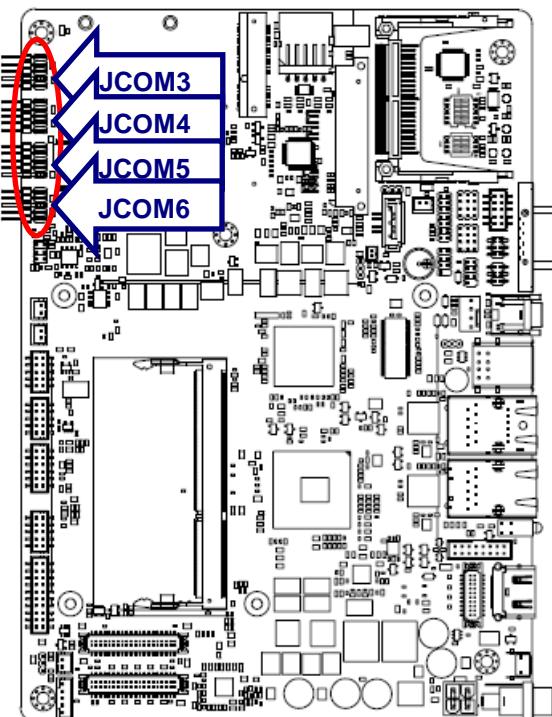
## EBM-CDV (A2.1) User's Manual

### 2.3.15 Serial port 2 connector (COM2)



Signal	PIN	PIN	Signal
NRIB#	9	10	NC
NRTSB#	7	8	NCTS#
GND	5	6	NDSRB#
COM2-3	3	4	COM2-4
COM2-1	1	2	COM2-2

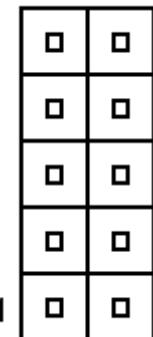
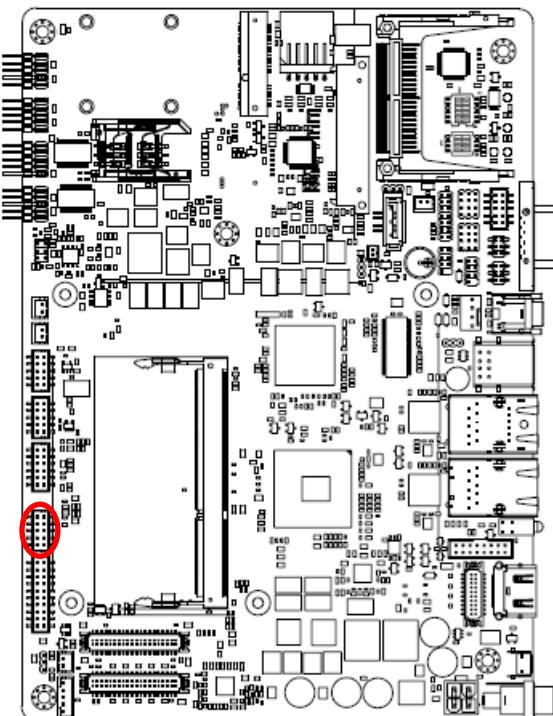
### 2.3.16 Serial port 3/ 4/ 5/ 6 connector (COM3/ COM4/ COM5/ COM6)



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

## User's Manual

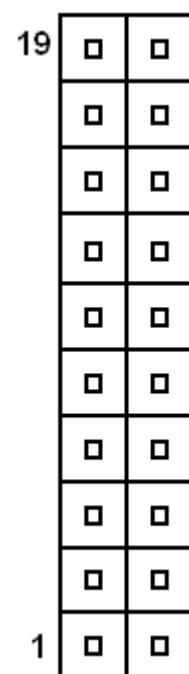
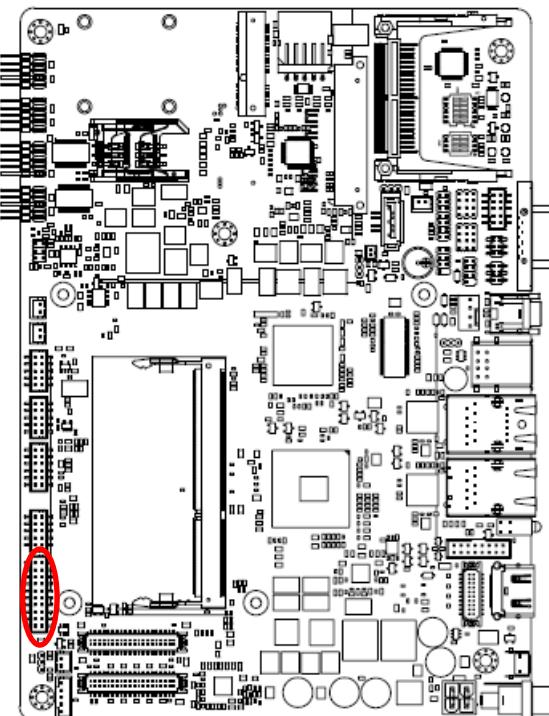
### 2.3.17 LED and Power Button connector (JLED1)



Signal	PIN	PIN	Signal
GND	9	10	PWRBTN#
+V3P3A	7	8	LED2_ACT
+V3P3A	5	6	LED1_ACT
+V3P3S	3	4	HDD_LED#
+V3P3A	1	2	PWR_LED_FP#

## EBM-CDV (A2.1) User's Manual

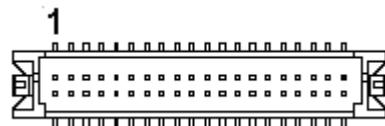
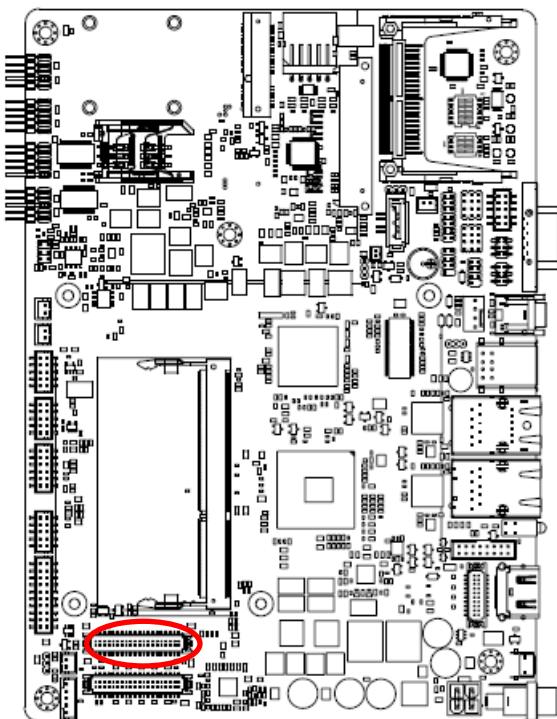
### 2.3.18 General purpose I/O connector (DIO1)



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

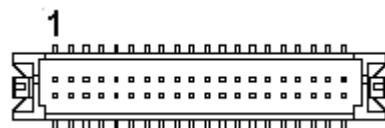
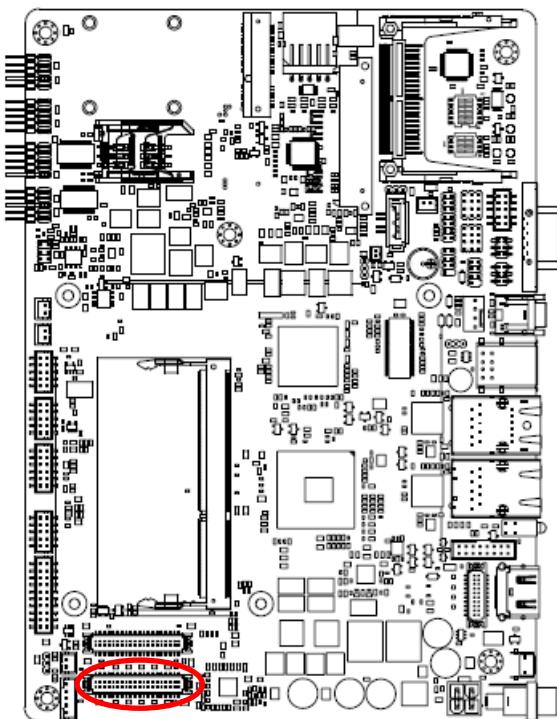
## User's Manual

### 2.3.19 LVDS connector (JLVDS1)



Signal	PIN	PIN	Signal
+5V	2	1	+V3P3S
+5V	4	3	+V3P3S
DDC_DATA	6	5	DDC_CLK
GND	8	7	GND
A_DATA0	10	9	A_DATA1
A_DATA0#	12	11	A_DATA1#
GND	14	13	GND
A_DATA2	16	15	A_DATA3
A_DATA2#	18	17	A_DATA3#
GND	20	19	GND
NC	22	21	NC
NC	24	23	NC
GND	26	25	GND
NC	28	27	NC
NC	30	29	NC
GND	32	31	GND
LVDS1A_CLK	34	33	NC
LVDS1A_CLK#	36	35	NC
GND	38	37	GND
+12V	40	39	+12V

## 2.3.20 LVDS connector (JLVDS2)



Signal	PIN	PIN	Signal
+5V	2	1	+V3P3S
+5V	4	3	+V3P3S
DDC_DATA	6	5	DDC_CLK
GND	8	7	GND
DATA0_P	10	9	DATA1_P
DATA0_N	12	11	DATA1_N
GND	14	13	GND
DATA2_P	16	15	DATA3_P
DATA2_N	18	17	DATA3_N
GND	20	19	GND
DATA4_P	22	21	DATA5_P
DATA4_N	24	23	DATA5_N
GND	26	25	GND
DATA6_P	28	27	DATA7_P
DATA6_N	30	29	DATA7_N
GND	32	31	GND
CLK1_P	34	33	CLK2_P
CLK1_N	36	35	CLK2_N
GND	38	37	GND
+12V	40	39	+12V



**Note:** Single/Dual 24-bit LVDS

1. CRT's resolution < LCD's resolution.

If we boot from CRT & LCD, the resolution is fixed by CRT's resolution.

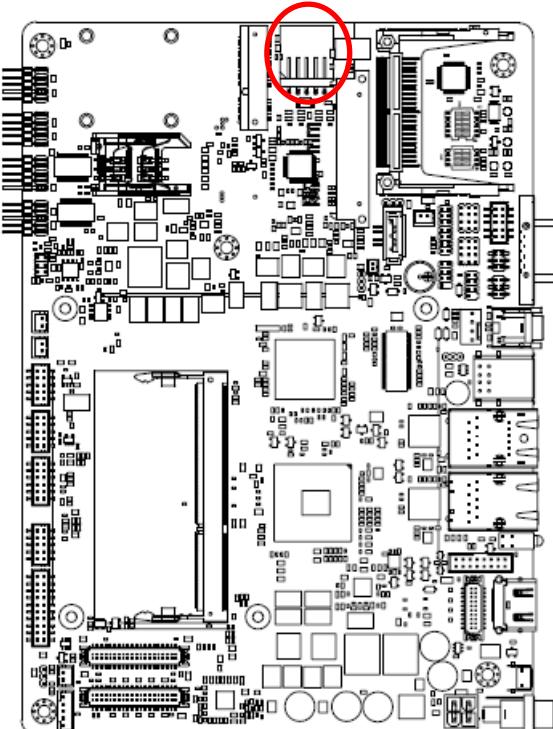
If we boot from LCD only and plug the CRT in the OS, LCD works well but the CRT will have wrong resolution.

2. CRT's resolution > LCD's resolution.

Everything is fine.

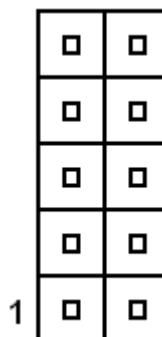
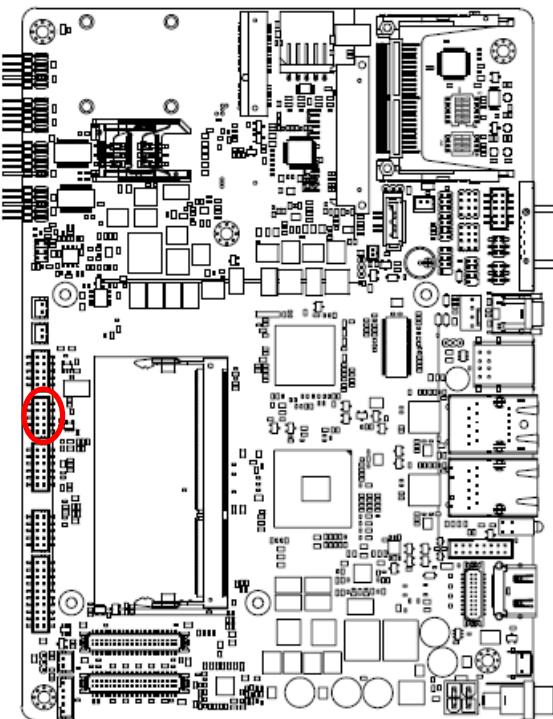
## User's Manual

### 2.3.21 Touch panel connector (JTOUCH)



Signal	PIN
THX+	1
THX-	2
THPROBE_R	3
THY+	4
THY-	5

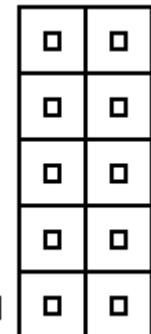
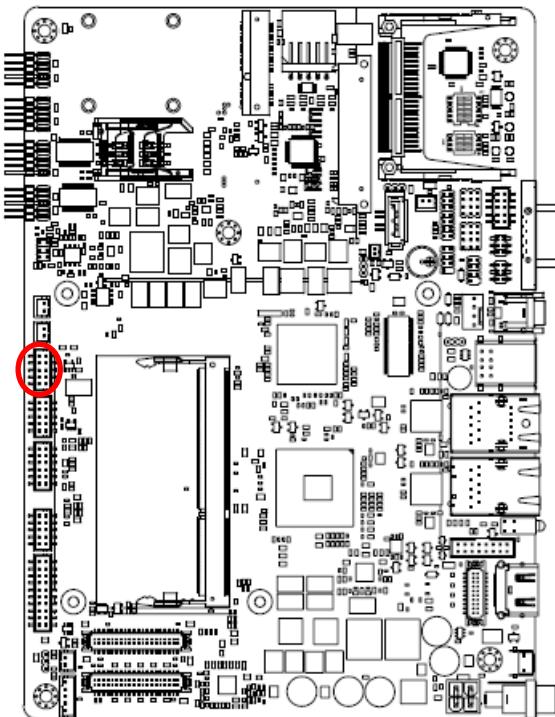
### 2.3.22 USB connector 5&6 (USB56)



Signal	PIN	PIN	Signal
GND	9	10	GND
GND	7	8	GND
USB_PP5	5	6	USB_PP4
USB_NP5	3	4	USB_NP4
+VCC_USB45	1	2	+VCC_USB45

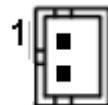
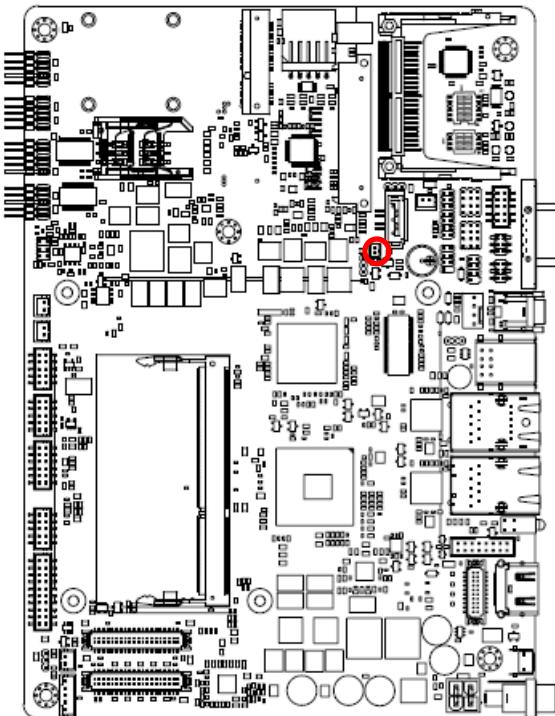
## EBM-CDV (A2.1) User's Manual

### 2.3.23 USB connector 7&8 (USB78)



Signal	PIN	PIN	Signal
GND	9	10	GND
GND	7	8	GND
USB_PP7	5	6	USB_PP6
USB_NP7	3	4	USB_NP6
+VCC_USB6	1	2	+VCC_USB6

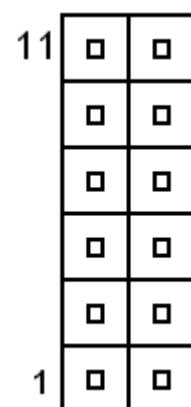
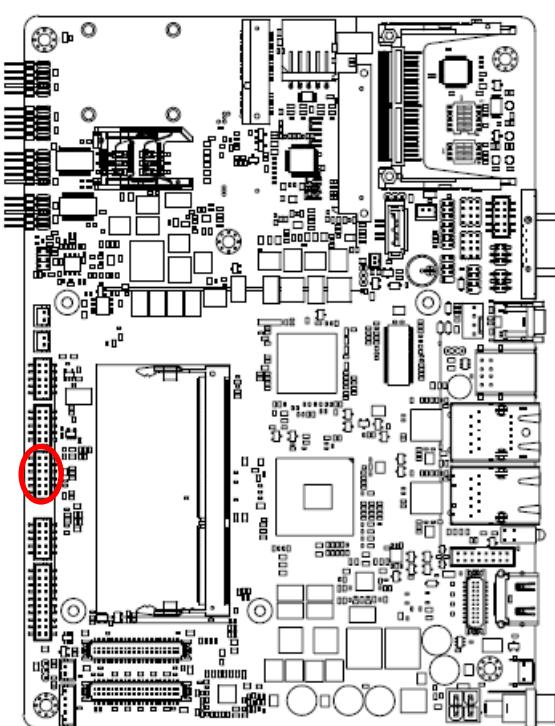
### 2.3.24 Battery connector (BT1)



Signal	PIN
VBAT	1
GND	2

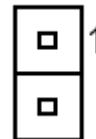
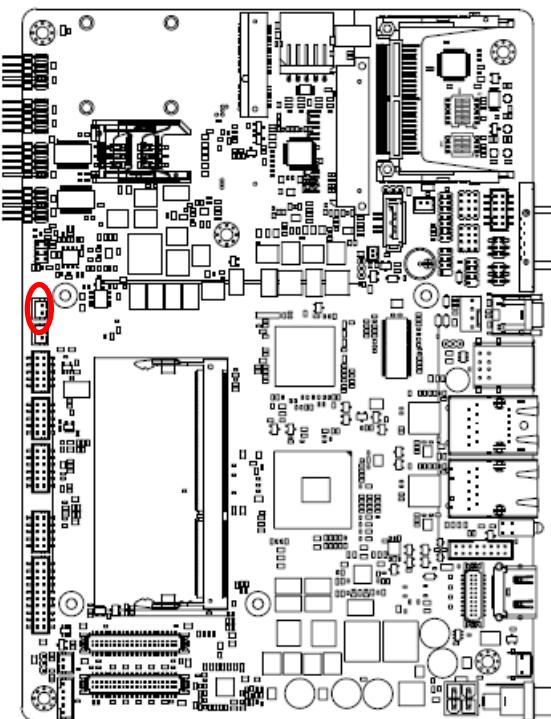
## User's Manual

### 2.3.25 Audio connector (AUD1)



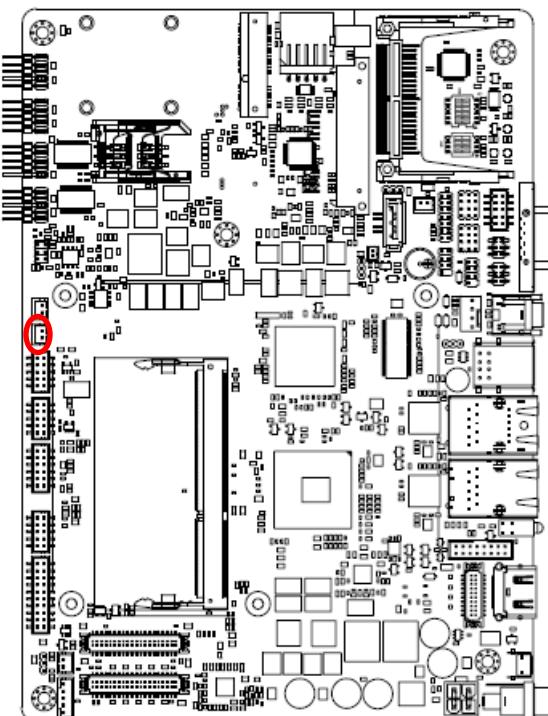
Signal	PIN	PIN	Signal
GND	11	12	MIC1_JD
LINE1_JD	9	10	FRONT_JD
MIC_LIN	7	8	MIC_RIN
LINE1_LIN	5	6	LINE1-RIN
GND	3	4	GND
LINEOUT_L	1	2	LINEOUT_R

### 2.3.26 AMPLIFIER\_R1 (AMP\_R1)



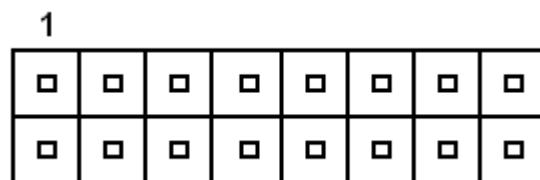
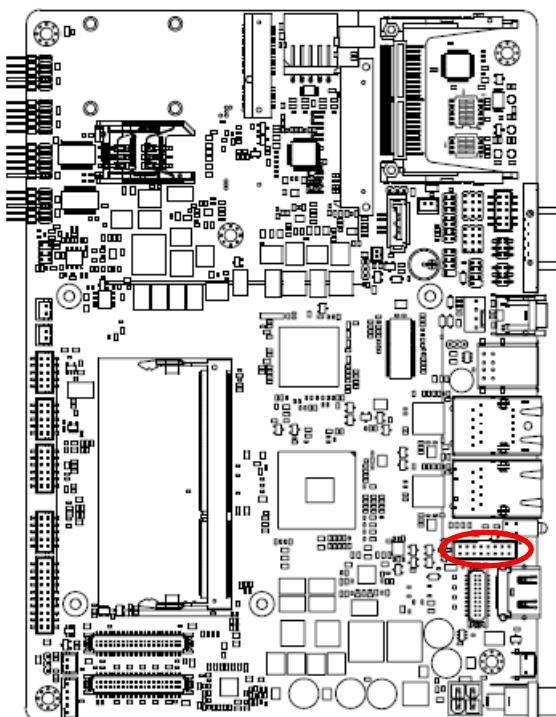
Signal	PIN
AMP_ROUT+	1
AMP_ROUT-	2

### 2.3.27 AMPLIFIER\_L1 (AMP\_L1)



Signal	PIN
AMP_LOUT+	1
AMP_LOUT-	2

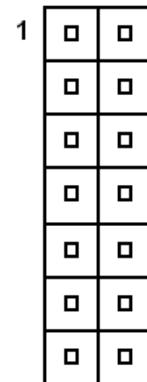
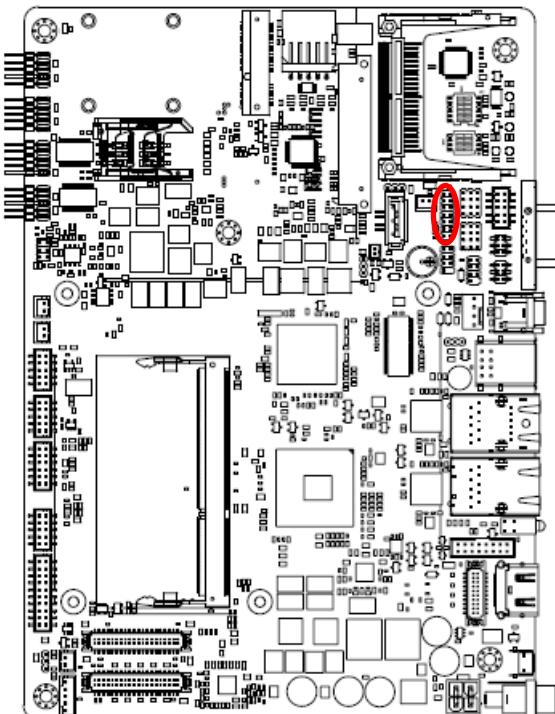
### 2.3.28 VGA connector (JVGA1)



Signal	PIN	PIN	Signal
CRT_R	2	1	+V5_CRT_HDMI
CRT_G	4	3	GND
CRT_B	6	5	NC
NC	8	7	SDT_DDC
GND	10	9	VGA_HS
GND	12	11	VGA_VS
GND	14	13	SCK_DDC
GND	16	15	GND

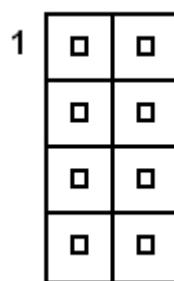
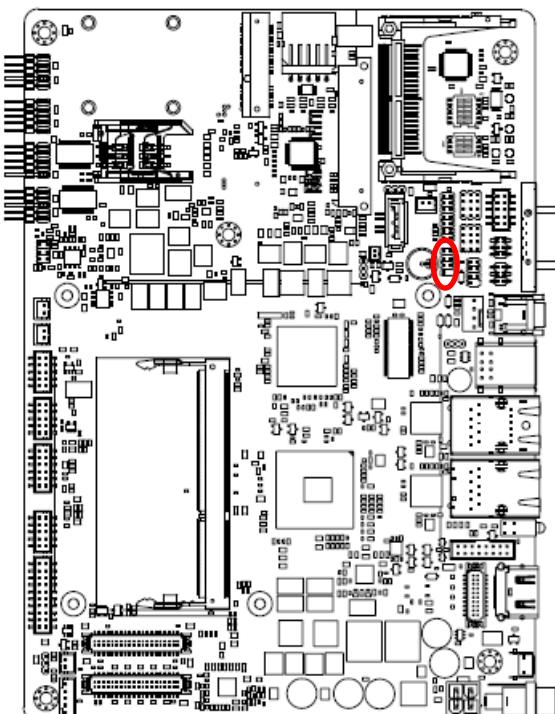
## User's Manual

### 2.3.29 LPC connector (JLPC1)



Signal	PIN	PIN	Signal
LPC_AD0	1	2	+V3P3S
LPC_AD1	3	4	PLTRST#
LPC_AD2	5	6	LPC_LFRAME#
LPC_AD3	7	8	CLK_PCI_JLPC
SERIRQ	9	10	GND
+5V	11	12	GND
+5VSB	13	14	LPC_LDRQ0#

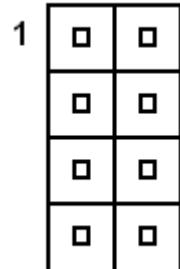
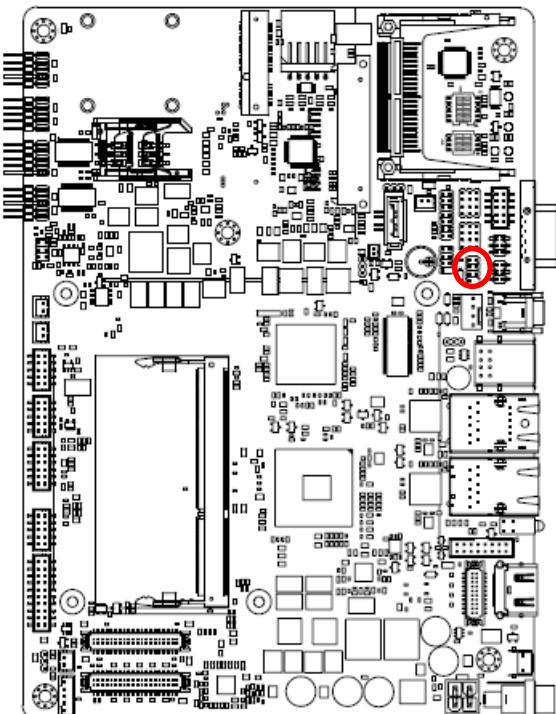
### 2.3.30 SPI connector (JSPI1)



Signal	PIN	PIN	Signal
+V3P3A_SPI	1	2	GND
SPI_R_CS#	3	4	SPI_CLK
SPI_SO	5	6	SPI_SI
SPI_HOLD#	7	8	

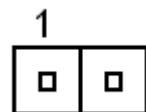
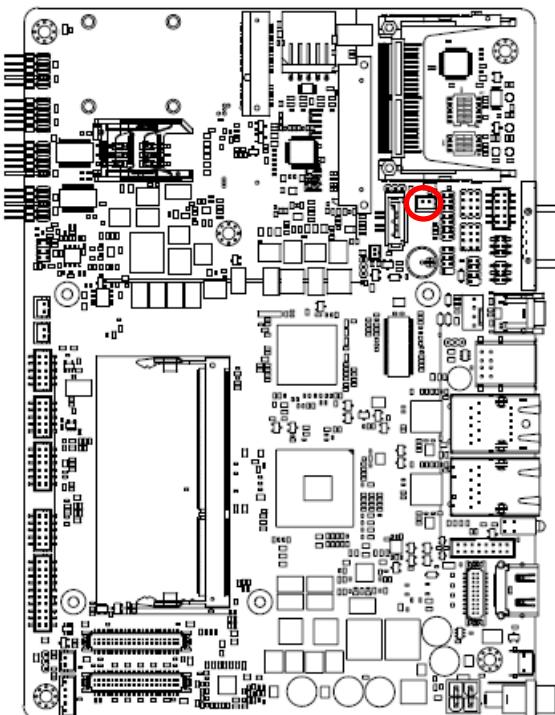
## EBM-CDV (A2.1) User's Manual

### 2.3.31 EC\_Program (EC\_SPI1)



Signal	PIN	PIN	Signal
+VSPI_EC	1	2	GND
EC_FSCE#	3	4	EC_FSCK
EC_FMISO	5	6	EC_FMOSI
EC_HOLD#	7		

### 2.3.32 SATA Power connector 1 (SPWR1)



Signal	PIN
SATA_PWR1	2
GND	1

## 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 CMOS 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> immediately after switching the system on, or

By pressing the <Del> key when the following message appears briefly at the bottom of the screen during the POST (Power On Self Test).

**Press DEL 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 CMOS Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu
PgUp key	Increase the numeric value or make changes
PgDn key	Decrease the numeric value or make changes
+ 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 CMOS settings which resets your system to its defaults.

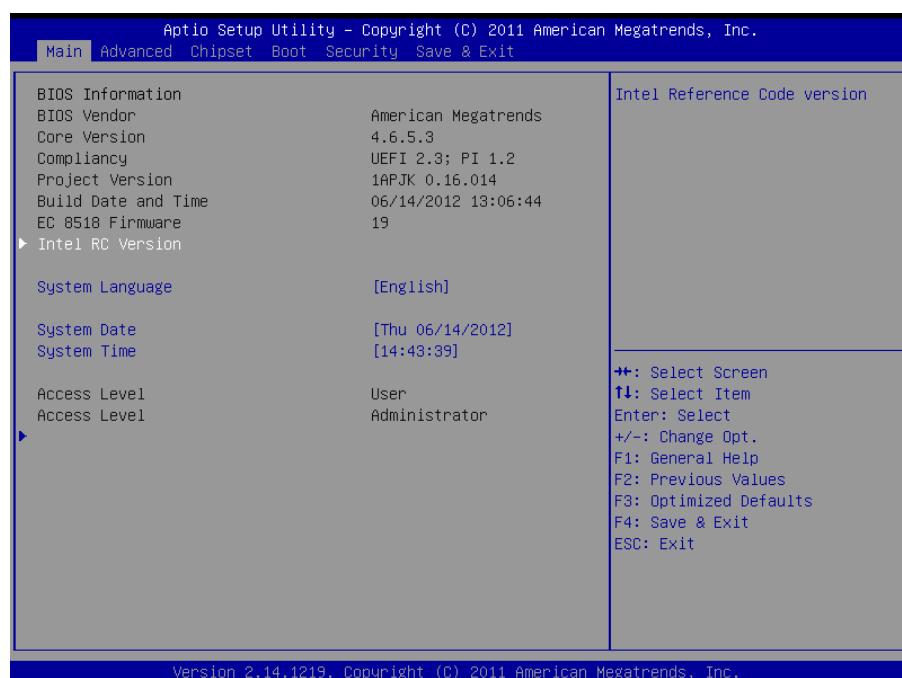
The best advice is to only alter settings which you thoroughly understand. To this end, we strongly recommend that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both Award and your systems manufacturer to provide the absolute maximum performance and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

Use this option to select system language

##### 3.6.1.2 System Date

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

##### 3.6.1.3 System Time

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

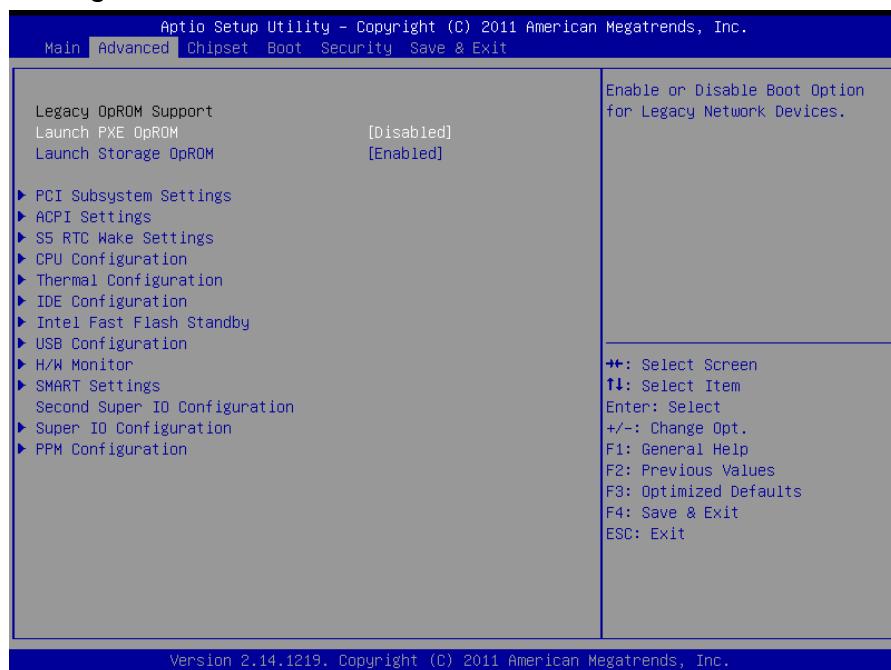


**Note:** BIOS setup screens shown in this chapter are for reference only, and may not exactly match what you see on your screen. Visit the Avalue website ([www.alue.com.tw](http://www.alue.com.tw)) to download the latest product and BIOS information.

## EBM-CDV (A2.1) User's Manual

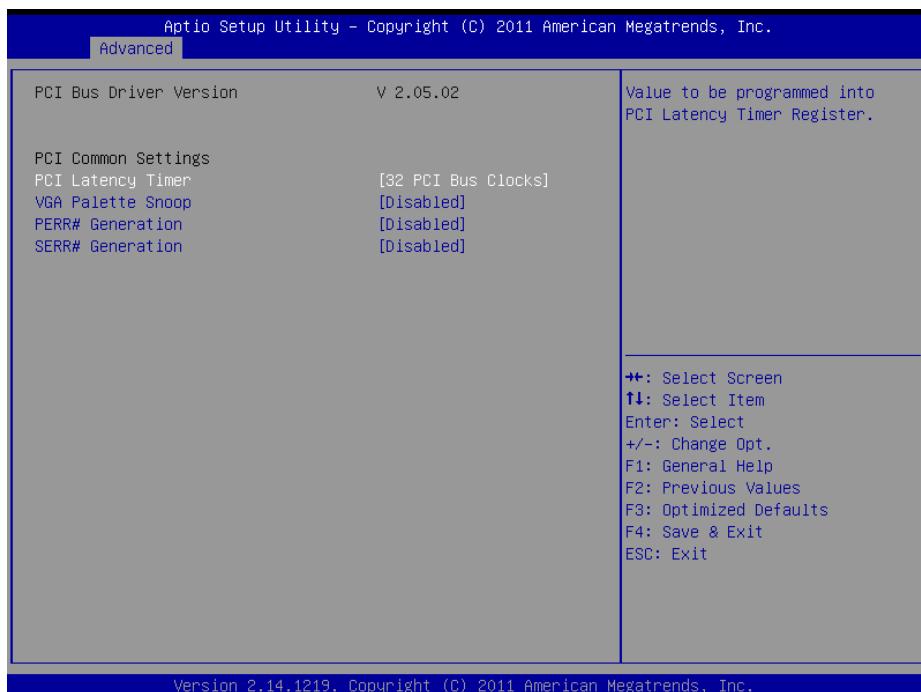
### 3.6.2 Advanced BIOS settings

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



Item	Options	Description
Launch PXE OpROM	Disabled, Enabled[Default]	Enable or disable Boot Option for Legacy Network Devices
Launch Storage OpROM	Disabled, Enabled[Default]	Enable or disable Boot Option for Legacy Mass storage devices With Option ROM.

#### 3.6.2.1 PCI Subsystem Settings

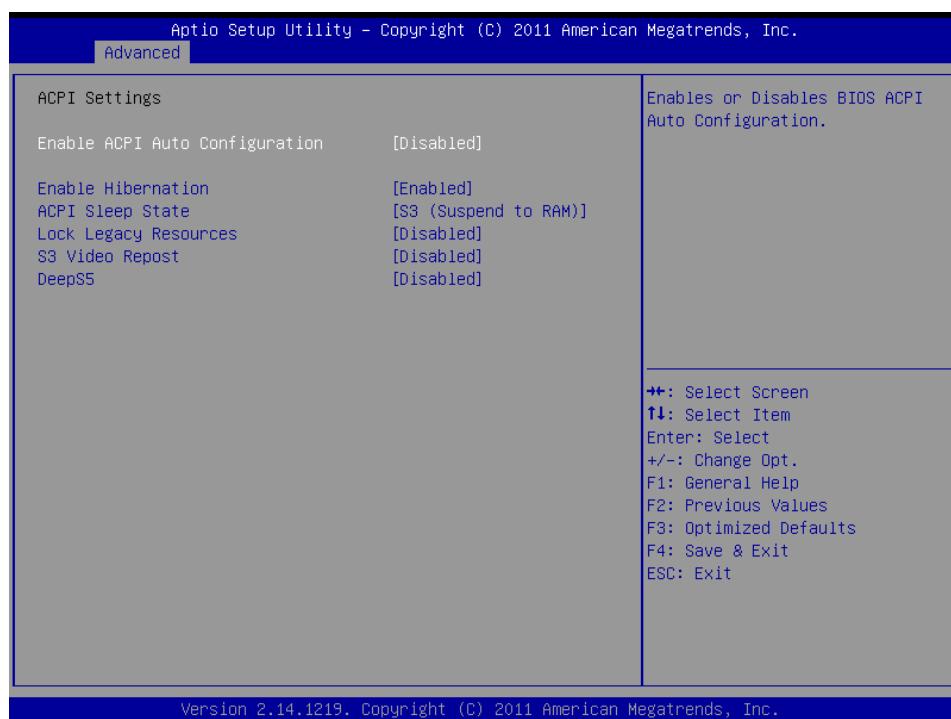


## User's Manual

Item	Options	Description
<b>PCI Latency Timer</b>	32 PCI Bus Clocks <b>[Default]</b> 64 PCI Bus Clocks 96 PCI Bus Clocks 128 PCI Bus Clocks 160 PCI Bus Clocks 192 PCI Bus Clocks 224 PCI Bus Clocks 248 PCI Bus Clocks	Value to be programmed into PCI Latency Timer Register.
<b>VGA Palette Snoop</b>	Disabled <b>[Default]</b> Enabled	Enables or Disables VGA Palette registers Snooping.
<b>PERR# Generation</b>	Disabled <b>[Default]</b> Enabled	Enables or Disables PCI Device to Generate PERR#
<b>SERR# Generation</b>	Disabled <b>[Default]</b> Enabled	Enables or Disables PCI Device to Generate SERR#

### 3.6.2.2 ACPI Settings

You can use this item to set up ACPI Configuration.



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

## EBC-CDV (A2.1) User's Manual

S3 video Repost	Disabled[ <b>Default</b> ] Enabled	Enable or Disable S3 video repost
DeepS5	Disabled[ <b>Default</b> ], Enabled	Enter DeepS5.

### 3.6.2.3 S5 RTC Wake settings

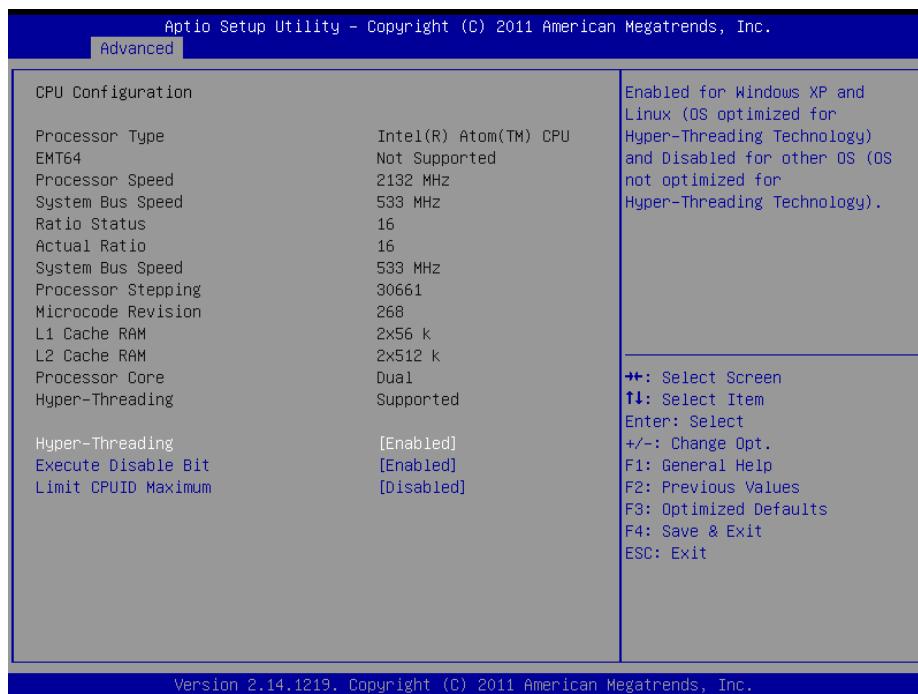


Item	Options	Description
<b>Wake system with Fixed Time</b>	Disabled[ <b>Default</b> ], Enabled	Enables or Disables wake on alarm event. When enabled, System will wake on the hr::min::sec specified.
<b>Wake system with Dynamic Time</b>	Disabled[ <b>Default</b> ], Enabled	Enables or Disables wake on alarm event. When enabled, System will wake on the current time + Increase minutes (s)

## User's Manual

### 3.6.2.4 CPU Configuration

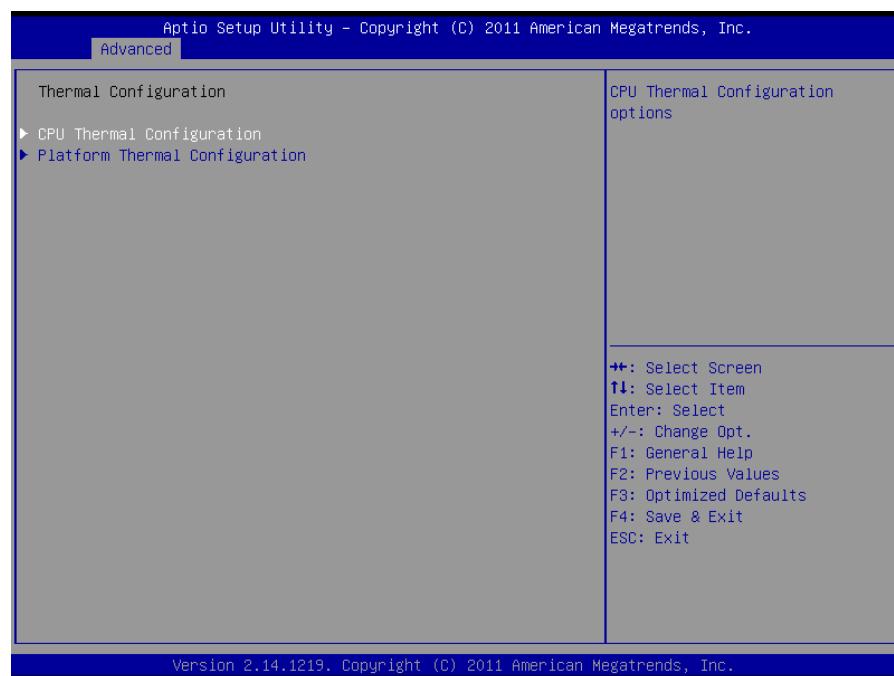
Use the CPU configuration menu to view detailed CPU specification and configure the CPU.



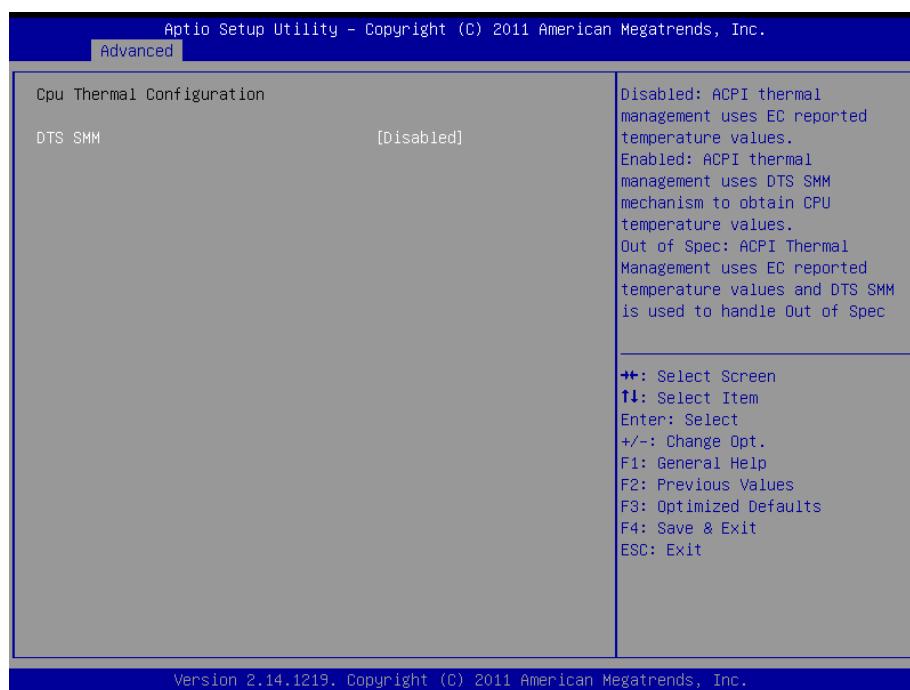
Item	Options	Description
<b>Hyper-Threading</b>	Disabled[ <b>Default</b> ], Enabled	This item allows you to enable or disable Intel® Hyper Threading technology.
<b>Execute Disable Bit</b>	Disabled[ <b>Default</b> ], Enabled	This item allows you to enable or disable the No-Execution page protection technology.
<b>Limit CPUID Maximum</b>	Disabled[ <b>Default</b> ], Enabled	This item allows you to limit CPUID maximum Value.

## EBM-CDV (A2.1) User's Manual

### 3.6.2.5 Thermal Configuration



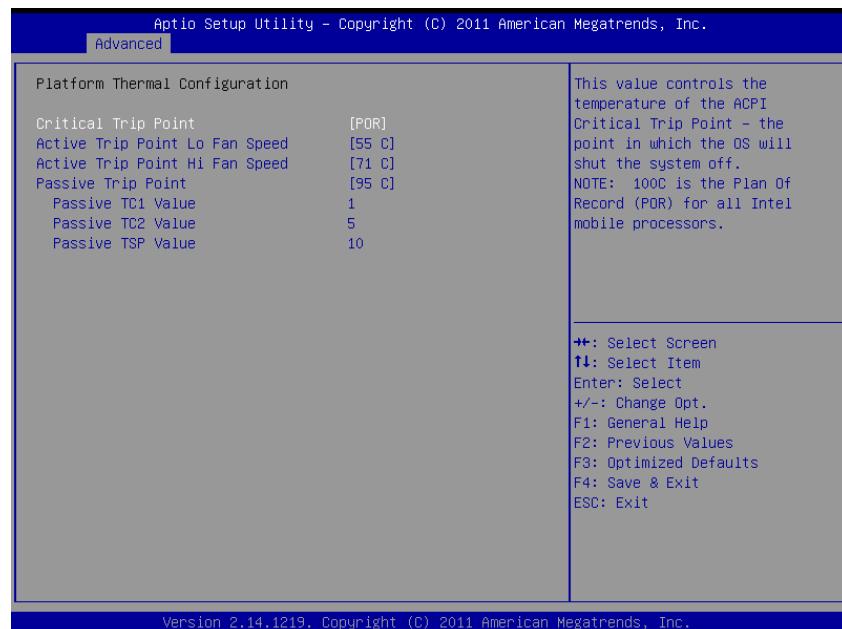
#### 3.6.2.5.1 CPU Thermal Configuration



Item	Options	Description
DTS SMM	Enabled Disabled[Default] Critical Temp reporting (Out of Spec)	<p>Disabled: ACPI thermal management uses EC reported temperature values.</p> <p>Enabled: ACPI thermal management uses DTS SMM mechanism to obtain CPU temperature values.</p> <p>Out of spec: ACPI thermal management uses EC reported temperature values and DTS SMM is used to handle Out of spec condition.</p>

## User's Manual

### 3.6.2.5.2 Platform Thermal Configuration

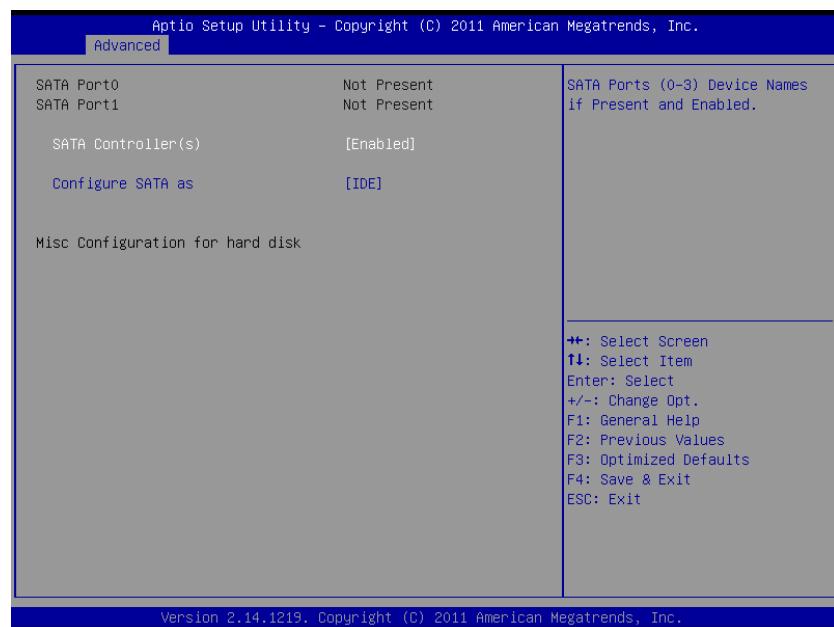


Item	Options	Description
<b>Critical Trip Point</b>	POR[Default] 15C 23C 31C 39C 47C 55C 63C 71C 79C 87C 95C 103C 111C 119C 127C	This value controls the temperature of the ACPI Critical Trip Point – the point in which the OS will shut the system off. NOTE: 100C is the Plan Of Record (POR) for all Intel mobile processors.
<b>Active Trip Point Lo Fan Speed</b>	Disabled 15C 23C	This value controls the temperature of the ACPI Active Trip Point – the point in which the OS will turn the processor fan on low.
<b>Active Trip Point Hi Fan Speed</b>	31C 39C 47C 55C 63C 71C 79C 87C 95C 103C 111C 119C	
<b>Passive Trip Point</b>	71C 79C 87C 95C 103C 111C 119C	This value controls the temperature of the ACPI Passive Trip Point - the point in which the OS will begin throttling the processor.

## EBC-CDV (A2.1) User's Manual

<b>Passive TC1 Value</b>	1 – 16	This value sets the TC1 -2 value for the ACPI Passive Cooling Formula. Range 1 - 16
<b>Passive TC2 Value</b>		
<b>Passive TSP Value</b>	2 - 32	This item sets the TSP value for the ACPI Passive Cooling Formula. It represents in tenths of a second how often the OS will read the temperature when passive cooling is enabled Range 2- 32

### 3.6.2.6 IDE Configuration



Item	Options	Description
<b>SATA Controller(s)</b>	Disabled Enabled <b>[Default]</b>	SATA Ports (0-3) Device Names if Present and Enabled.
<b>Configure SATA as</b>	<b>IDE</b> <b>[Default]</b> AHCI	Select a configuration for SATA Controller

## User's Manual

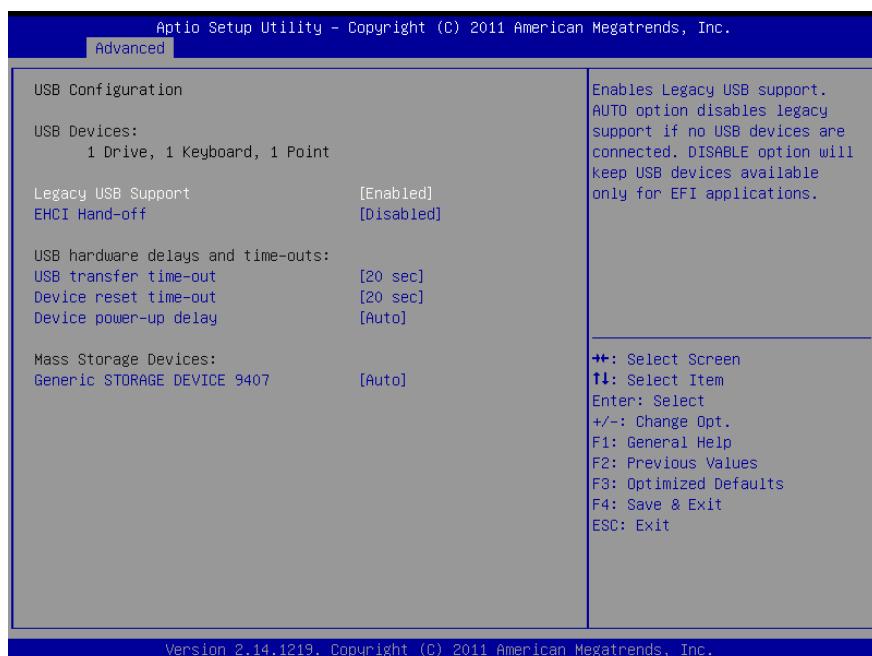
### 3.6.2.7 Intel Fast Flash Standby



Item	Options	Description
iFFS Support	Enabled Disabled[Default]	Enable or Disable iFFS

### 3.6.2.8 USB Configuration

The USB configuration menu is used to read USB configuration information and configure USB.

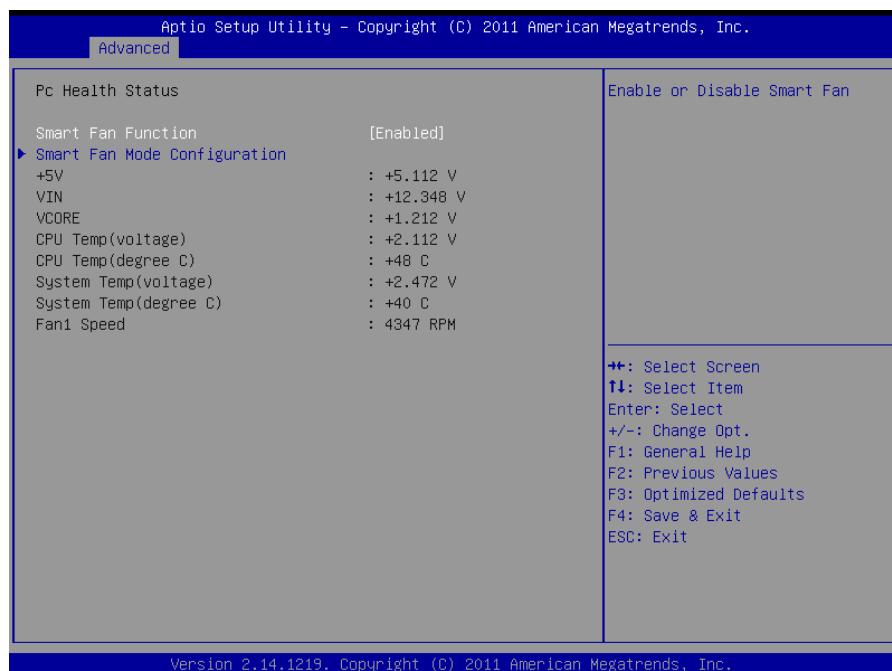


## EBC-CDV (A2.1) User's Manual

Item	Options	Description
<b>Legacy USB support</b>	Enabled[ <b>Default</b> ] Disabled Auto	Enables Legacy USB support. AUTO disables legacy support if no USB devices are connected. DISABLE will keep USB devices available only for EFI applications.
<b>ECHI Hand-off</b>	Enabled Disabled[ <b>Default</b> ]	This is a workaround for OSes without EHCI hand-off support. The EHCI ownership change should be claimed by EHCI driver.
<b>USB transfer time-out</b>	1sec / 5sec 10sec / 20sec[ <b>Default</b> ]	The time-out value for Control, Bulk, and Interrupt transfers.
<b>Device reset time-out</b>	10sec / 20sec[ <b>Default</b> ] 30sec / 40sec	USB mass storage device Start Unit command time-out.
<b>Device power-up delay</b>	Auto[ <b>Default</b> ] Manual	Maximum time the device will take before it properly reports itself to the Host Controller. "Auto" uses default value: for a Root port it is 100ms, for a Hub port the delay is taken from Hub descriptor.
<b>Generic STORAGE DEVICE 9407</b>	Auto Floppy Forced FDD Hard Disk CD-ROM	Mass storage device emulation type. 'AUTO' enumerates devices less than 530MB as floppies. Forced FDD option can be used to force HDD formatted drive to boot as FDD (e.g. ZIP drive).

### 3.6.2.9 H/W Monitor

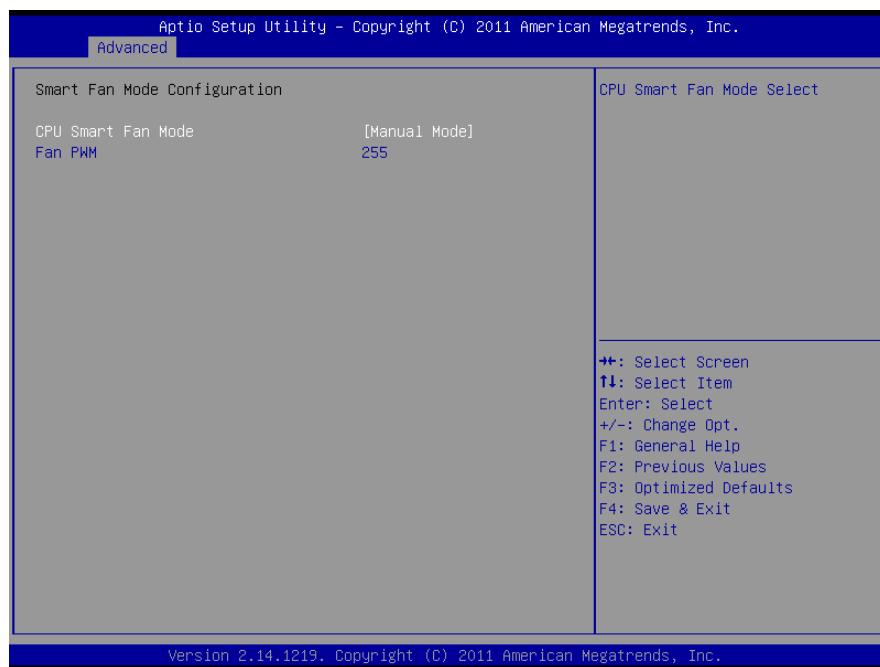
The H/W Monitor shows the operating temperature, fan speeds and system voltages.



Item	Option	Description
<b>Smart Fan Function</b>	Enabled, Disabled[ <b>Default</b> ]	Enables or Disables Smart Fan
<b>Smart Fan Mode Configuration</b>	Smart Fan Mode Select	

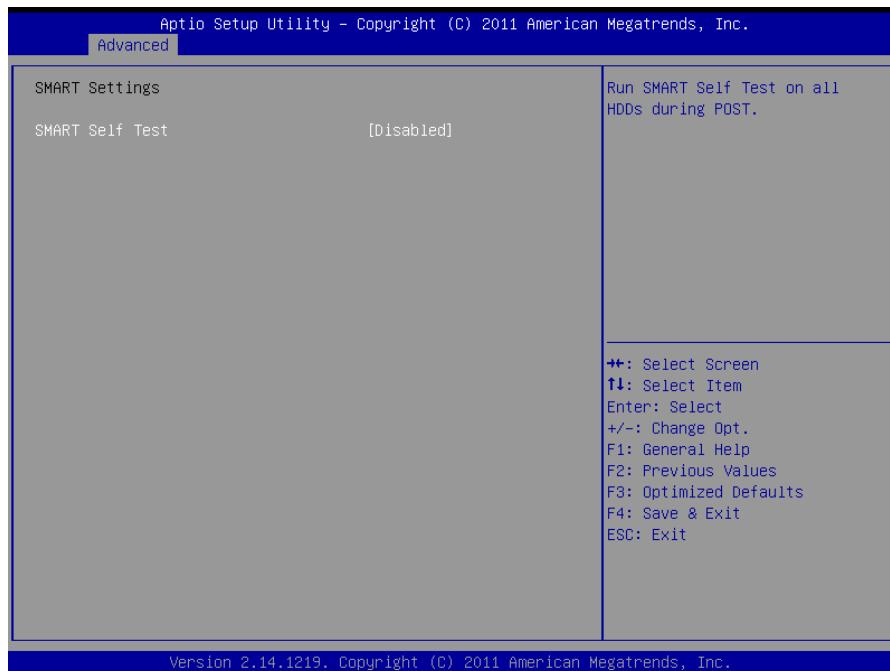
## User's Manual

### 3.6.2.9.1 Smart Fan Mode Configuration



Item	Option	Description
CPU Smart Fan Mode	Manual Mode[Default] Mode 01-20	CPU Smart Fan Mode Select
Fan PWM	0 - 255	Fan PWM duty

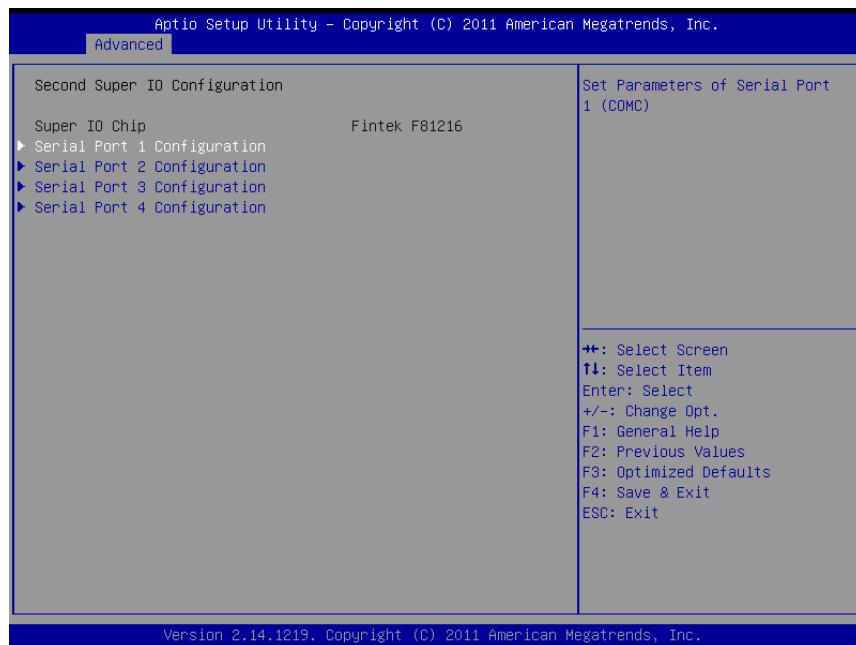
### 3.6.2.10 Smart settings



Item	Options	Description
SMART Self Test	Enabled[Default] Disabled	Run SMART Self Test on all HDDs during POST.

### 3.6.2.11 Second Super IO Configuration

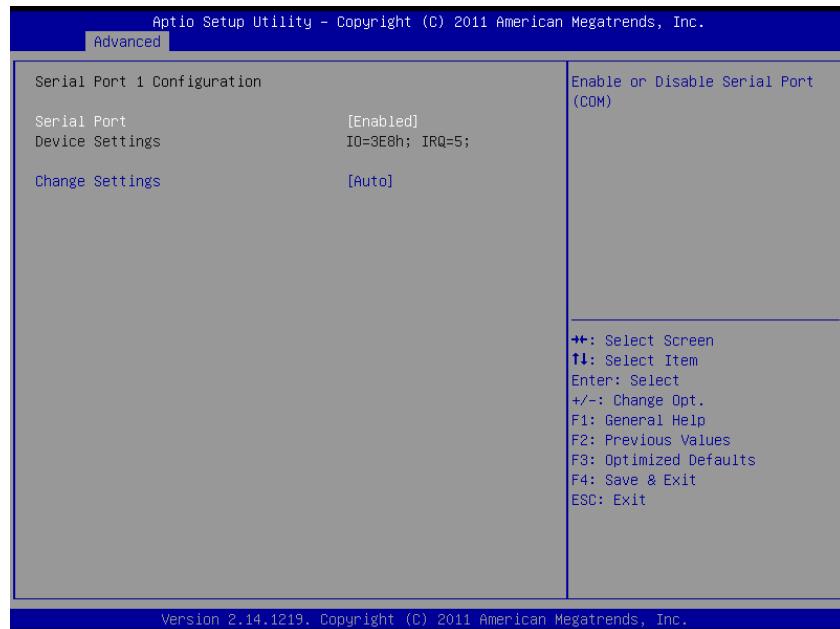
You can use this item to set up or change the Second Super IO configuration for FDD controllers, parallel ports and serial ports. Please refer to 3.6.2.9.1-4 for more information.



Item	Description
Serial Port1 Configuration	Set Parameters of Serial Port 1 (COMC)
Serial Port1 Configuration	Set Parameters of Serial Port 2 (COMD)
Serial Port1 Configuration	Set Parameters of Serial Port 3 (COME)
Serial Port1 Configuration	Set Parameters of Serial Port 4 (COMF)

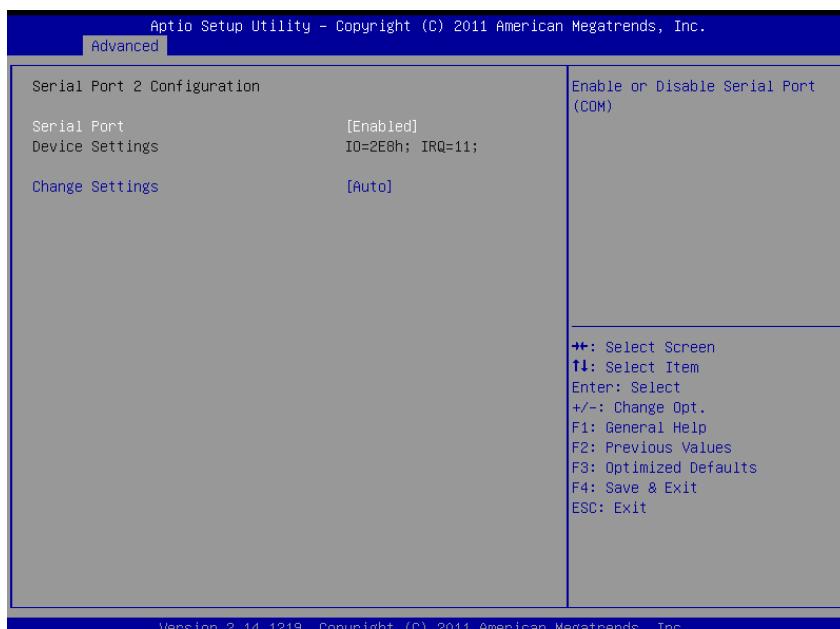
## User's Manual

### 3.6.2.11.1 Serial Port 1 Configuration



Item	Option	Description
<b>Serial Port</b>	Enabled, Disabled[ <b>Default</b> ]	Enable or Disable Serial Port (COM)
<b>Change Settings</b>	Auto[ <b>Default</b> ] IO=3F8h; 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.

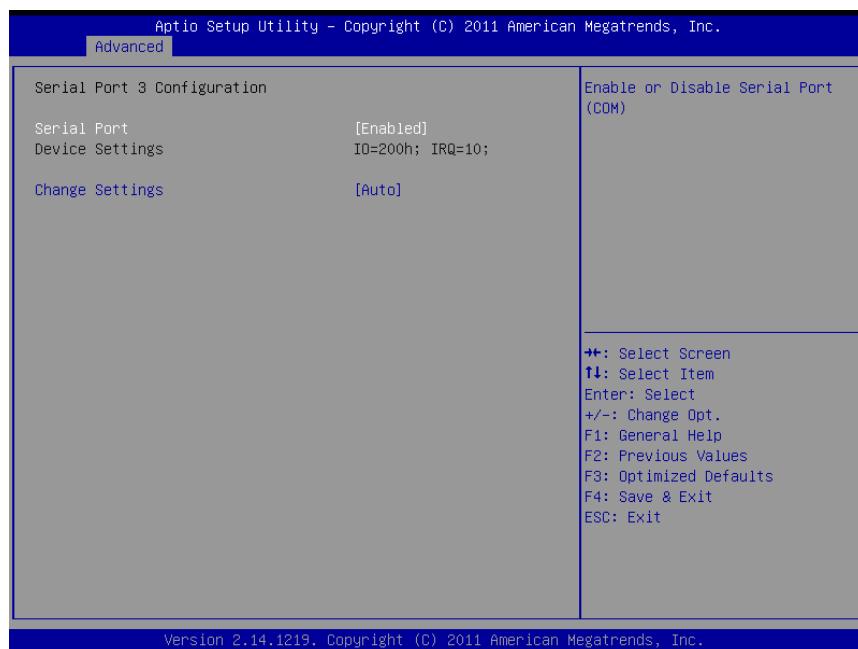
### 3.6.2.11.2 Serial Port 2 Configuration



## EBM-CDV (A2.1) User's Manual

Item	Option	Description
<b>Serial Port</b>	Enabled, Disabled[ <b>Default</b> ]	Enable or Disable Serial Port (COM)
<b>Change Settings</b>	Auto[ <b>Default</b> ] 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.

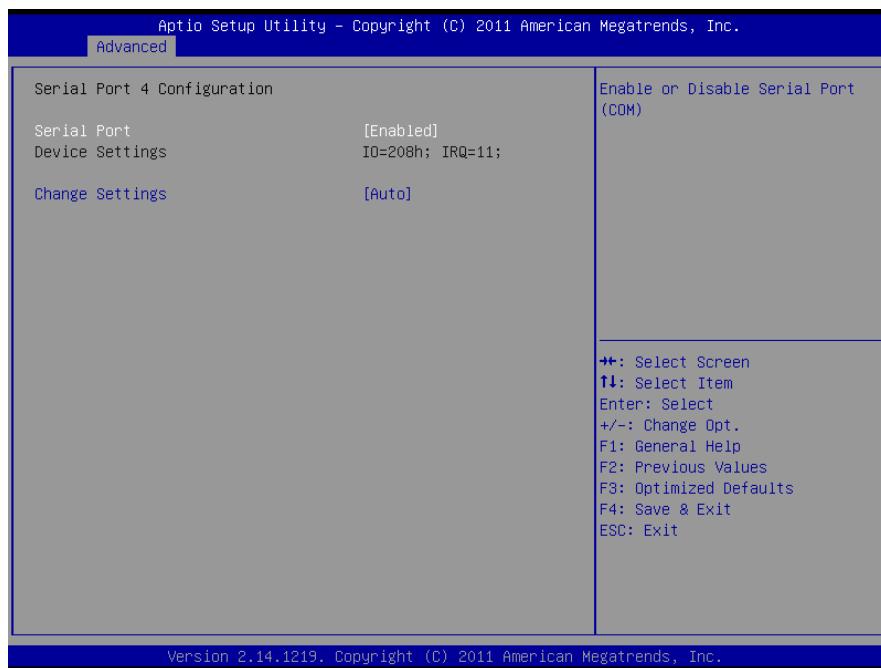
### 3.6.2.11.3 Serial Port 3 Configuration



Item	Option	Description
<b>Serial Port</b>	Enabled, Disabled[ <b>Default</b> ]	Enable or Disable Serial Port (COM)
<b>Change Settings</b>	Auto[ <b>Default</b> ] IO=3E8h; 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 IO=2F0h; IRQ=3,4,5,6,7,9,10,11,12 IO=2E0h; IRQ=3,4,5,6,7,9,10,11,12	Select an optimal setting for Super IO device.

## User's Manual

### 3.6.2.11.4 Serial Port 4 Configuration



Item	Option	Description
<b>Serial Port</b>	Enabled, Disabled[Default]	Enable or Disable Serial Port (COM)
<b>Change Settings</b>	Auto[Default] IO=2E8h; 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 IO=2F0h; IRQ=3,4,5,6,7,9,10,11,12 IO=2E0h; IRQ=3,4,5,6,7,9,10,11,12	Select an optimal setting for Super IO device.

### 3.6.2.12 Super IO Configuration

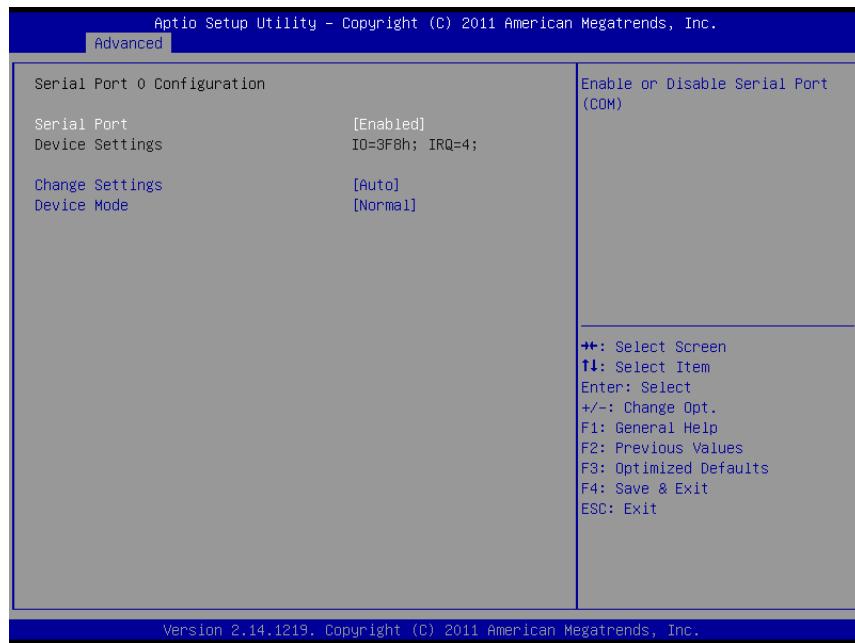
You can use this item to set up or change the Super IO configuration for FDD controllers, parallel ports and serial ports. Please refer to 3.6.2.10.1 and 3.6.2.10.2 for more information.



Item	Option	Description
<b>Watch Dog</b>	Disabled[ <b>Default</b> ] 30sec 40sec 50sec 1min 2min 10min 30min	Select WatchDog.
<b>PWRON After PWR-Fail</b>	Off[ <b>Default</b> ] On Former-Sts	Select PWRON After PWR-Fail.

## User's Manual

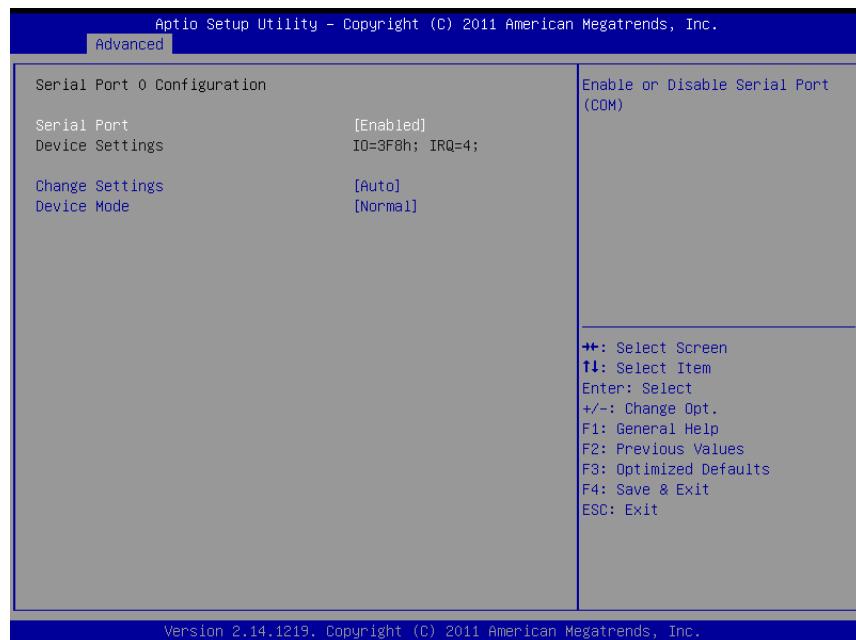
### 3.6.2.12.1 Serial Port 0 Configuration



Item	Option	Description
<b>Serial Port</b>	Disabled[ <b>Default</b> ] Enabled,	Enable or Disable Serial Port (COM)
<b>Change Settings</b>	Auto[ <b>Default</b> ] IO=3F8h; IRQ=4, 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.
<b>Device Mode</b>	Normal[ <b>Default</b> ] High Speed	Change the Serial Port mode. Select <High Speed> or <Normal mode> mode

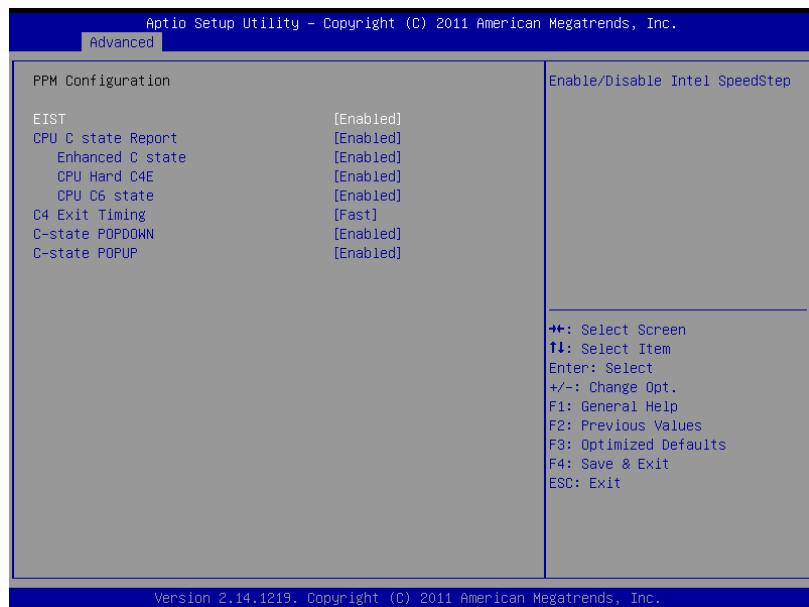
## EBM-CDV (A2.1) User's Manual

### 3.6.2.12.2 Serial Port 1 Configuration



Item	Option	Description
<b>Serial Port</b>	Disabled[ <b>Default</b> ] Enabled,	Enable or Disable Serial Port (COM)
<b>Change Settings</b>	Auto[ <b>Default</b> ] 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.
<b>Device Mode</b>	Normal[ <b>Default</b> ] High Speed	Change the Serial Port mode. Select <High Speed> or <Normal mode> mode

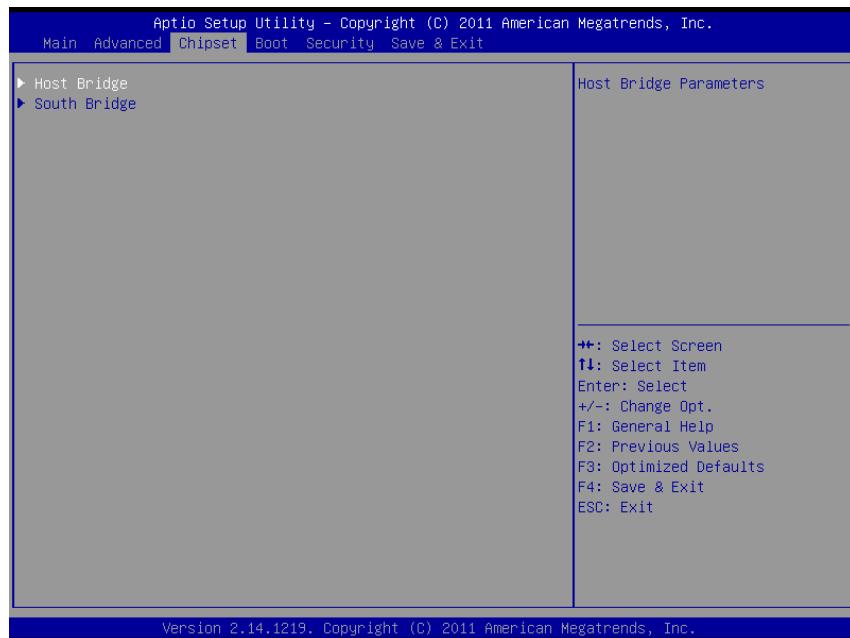
## 3.6.2.13 PPM configuration



Item	Option	Description
<b>EIST</b>	Disabled[ <b>Default</b> ] Enabled	Enable/Disable Intel SpeedStep.
<b>CPU C state Report</b>	Disabled[ <b>Default</b> ] Enabled	Enable/Disable CPU C state report to OS.
<b>Enhanced C state</b>	Disabled[ <b>Default</b> ] Enabled	Enable/Disable Enhanced CPU C state.
<b>CPU Hard C4E</b>	Disabled[ <b>Default</b> ] Enabled	Enable/Disable CPU Hard C4E function.
<b>CPU C6 state</b>	Disabled[ <b>Default</b> ] Enabled	Enable/Disable CPU C6 state.
<b>C4 Exit Timing</b>	Default[ <b>Default</b> ] Fast Slow	This option controls a programmable time for the CPU voltage to stabilize when exiting from a C4 state.
<b>C-state POPDOWN</b>	Disabled[ <b>Default</b> ] Enabled	Disabling the option, prevents automatic return to a previous C3 or C4 state.
<b>C-state POPUP</b>	Disabled[ <b>Default</b> ] Enabled	On enabled, SB observes bus master request, will take system from a C3/C4 state to a C2 state and auto enables bus masters.

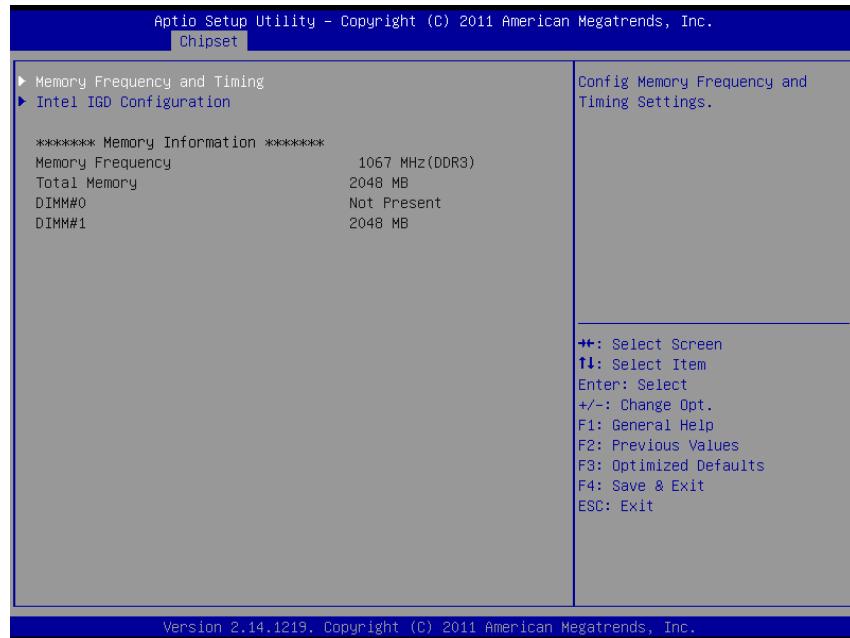
## EBM-CDV (A2.1) User's Manual

### 3.6.3 Advanced Chipset Features



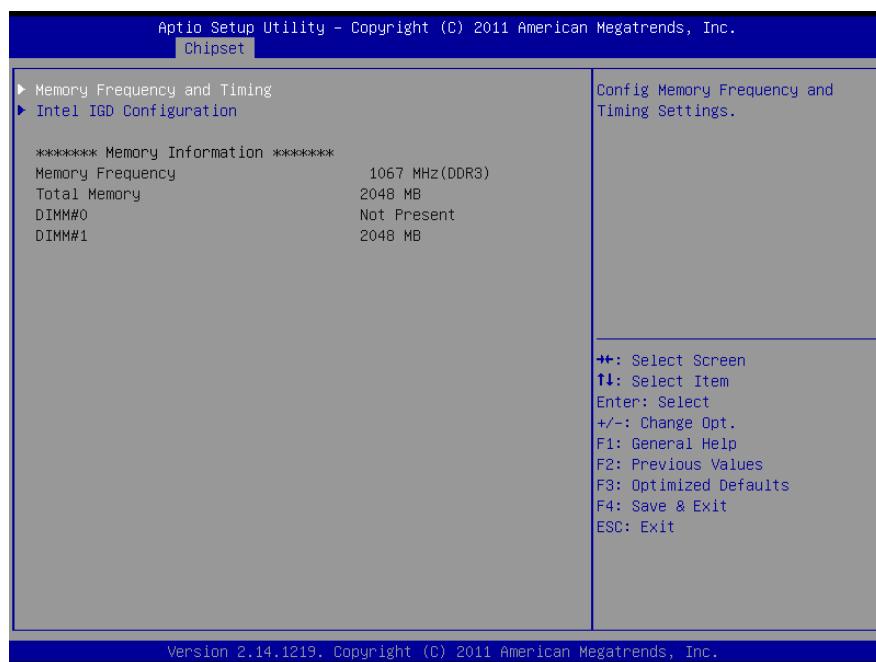
Item	Description
<b>Host Bridge</b>	Host Bridge Parameters
<b>South Bridge</b>	South Bridge Parameters

#### 3.6.3.1 Host bridge



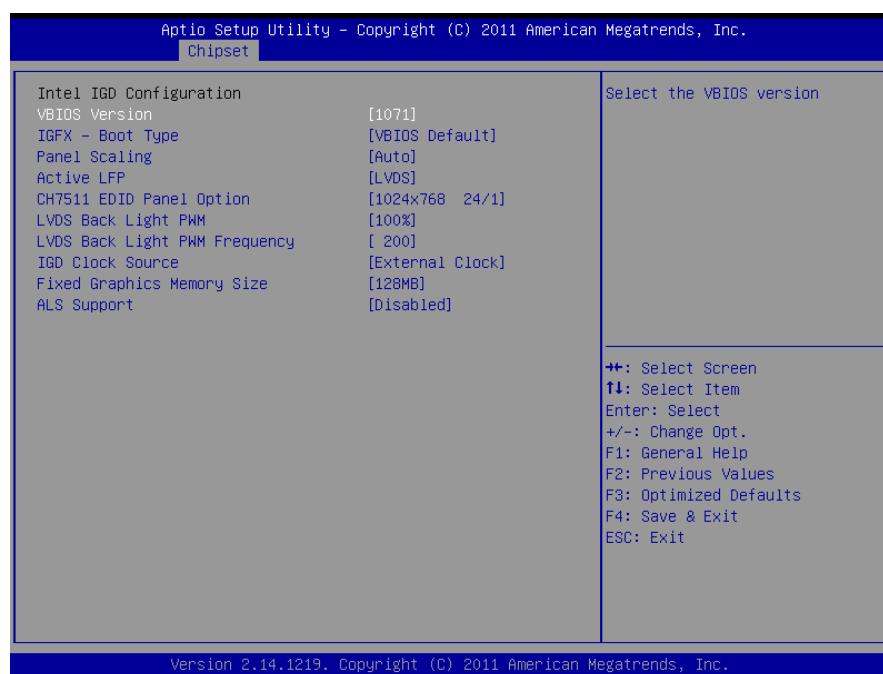
## User's Manual

### 3.6.3.1.1 Host Bridge



Item	Description
<b>Memory Frequency and Timing</b>	Config Memory Frequency and Timing Settings.
<b>Intel IGD Configuration</b>	Config Intel IGD Settings.

#### 3.6.3.1.1.1 Intel IGD Configuration



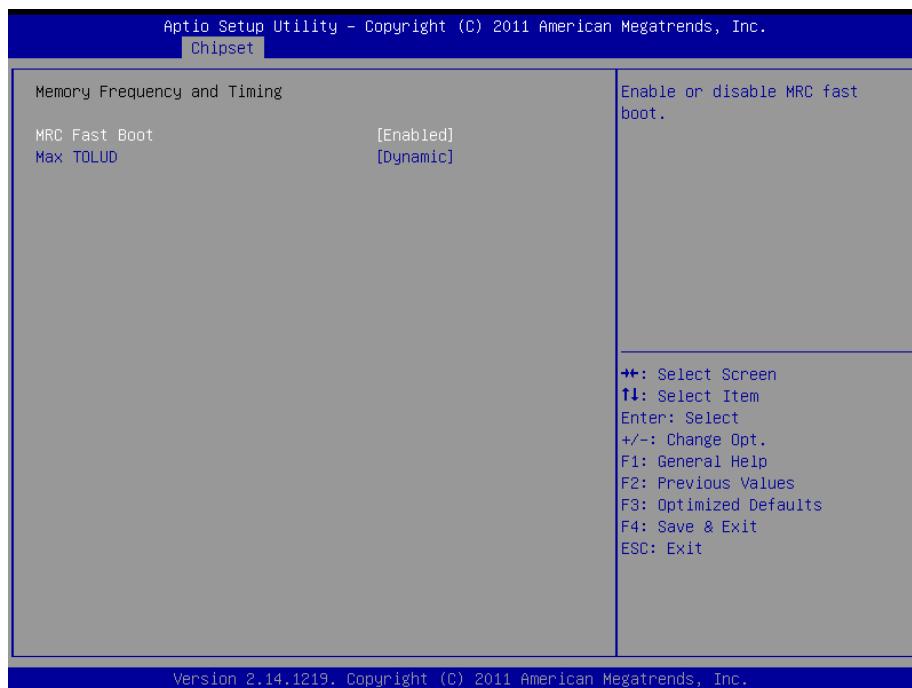
## EPM-CDV (A2.1) User's Manual

Item	Option	Description
<b>VBIOS Version</b>	1053 1059 <b>1071[Default]</b>	Select the VBIOS version.
<b>IGFX – Boot Type</b>	VBIOS Default <b>[Default]</b> CRT CRT + LVDS CRS + HDMI (Twin) LVDS LVDS + CRT HDMI HDMI + LVDS	Select the Video Device which will be activated during POST. This has no effect if external graphics present.
<b>Panel Scaling</b>	<b>Auto[Default]</b> Force Scaling Off Maintain Aspect Ratio	Select the LCD panel scaling option used by the Internal Graphics Device.
<b>Active LFP</b>	No LVDS <b>LVDS[Default]</b>	Select the Active LFP Configuration. No LVDS:VBIOS does not enable LVDS. Int-LVDS:VBIOS enables LVDS driver by Integrated encoder. SDVO LVDS:VBIOS enables LVDS driver by SDVO encoder. eDP Port-A:LFP Driven by Int-DisplayPort encoder from Port-A. eDP Port-D:LFP Driven by Int-DisplayPort encoder from Port-D(through PCH).
<b>CH7511 EDID Panel Option</b>	1024x768 24/1 <b>[Default]</b> 800x600 18/1 1024x768 18/1 1366x768 18/1 1024x600 18/1 1280x800 18/1 1920x1200 24/2 640x840 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	Port1-EDP to LVDS(Chrotel 7511) Panel EDID Option
<b>LVDS Back Light PWM</b>	<b>100%[Default]</b> 75% 50% 25% 0%	Select LVDS back light PWM duty.
<b>LVDS Back Light PWM Frequency</b>	<b>200[Default]</b> 300 400 500 700 1K 2K 3K 5K	Select LVDS back light PWM Frequency.
<b>IGD Clock Source</b>	External Clock <b>[Default]</b> Internal Clock	IGD clock selection.

## User's Manual

<b>Fixed Graphics Memory Size</b>	128MB[ <b>Default</b> ] 256MB	Configure Fixed Graphics Memory Size
<b>ALS Support</b>	Disabled[ <b>Default</b> ] Enabled	Valid only for ACPI. Legacy=ALS Support through the IGD INT10 function. ACPI=ALS support through an ACPI ALS driver.

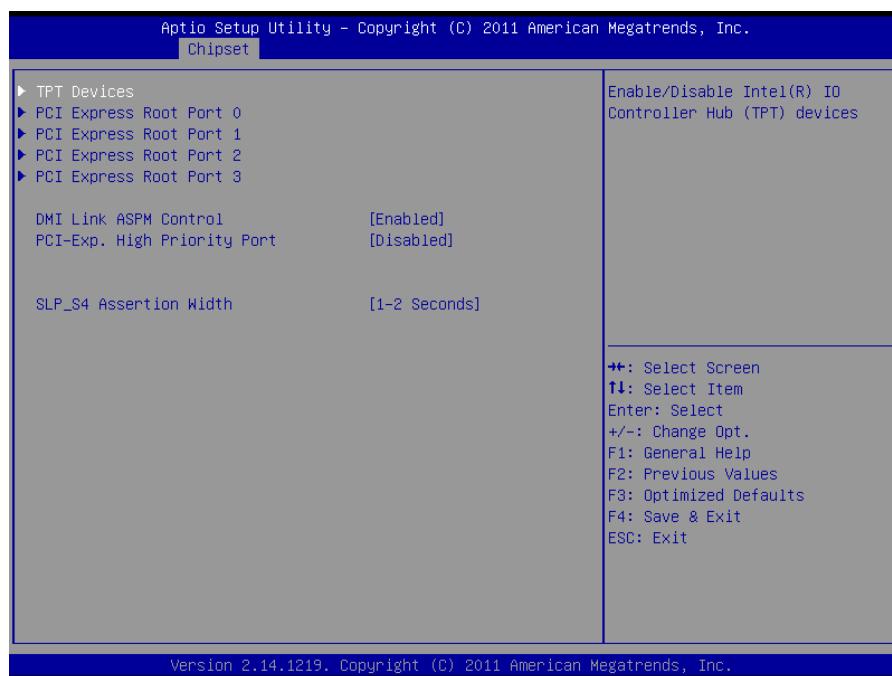
### 3.6.3.1.1.2 Memory Frequency and Timing



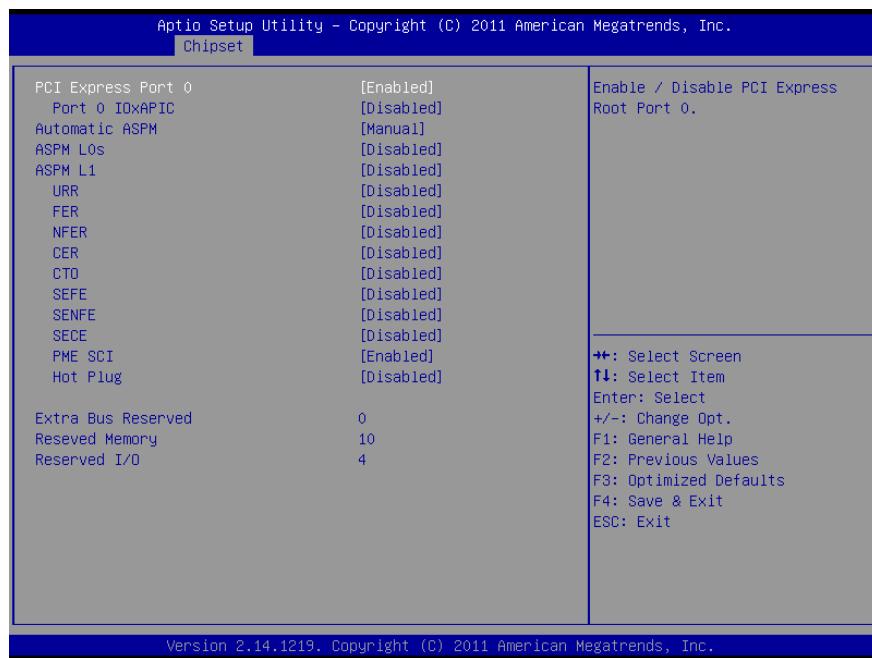
Item	Option	Description
<b>MRC Fast Boot</b>	Disabled <b>Enabled[Default]</b>	Enalbe or disable MRC fast boot.
<b>Max TOLUD</b>	Dynamic[ <b>Default</b> ] 1GB 1.25GB 1.5GB 1.75GB 2GB 2.25GB 2.5GB 2.75GB 3GB 3.25GB	Maximum Value of TOLUD. Dynamic assignment would adjust TOLUD automatically based on largest MMIO length of installed graphic controller.

# EBM-CDV (A2.1) User's Manual

## 3.6.3.2 South bridge



### 3.6.3.2.1 PCI Express Root Port 0



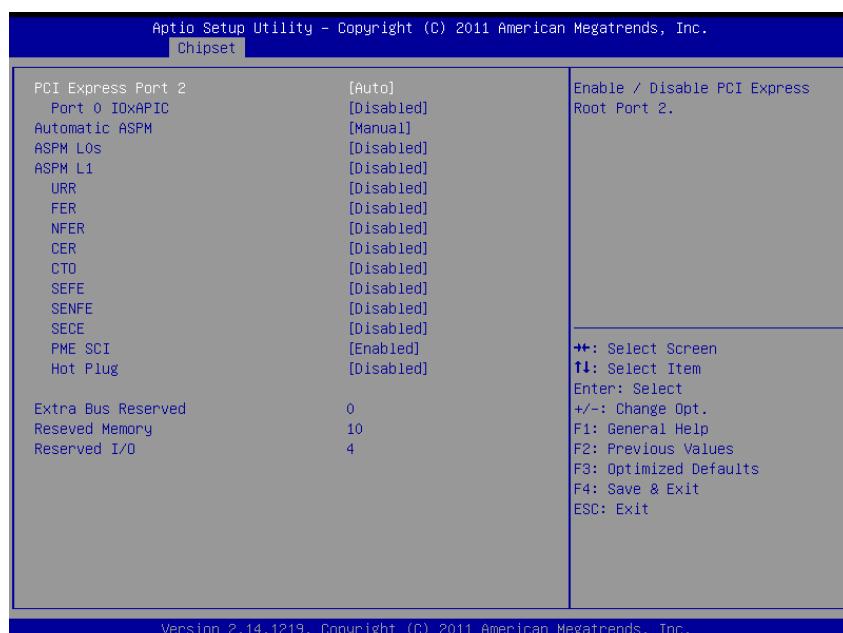
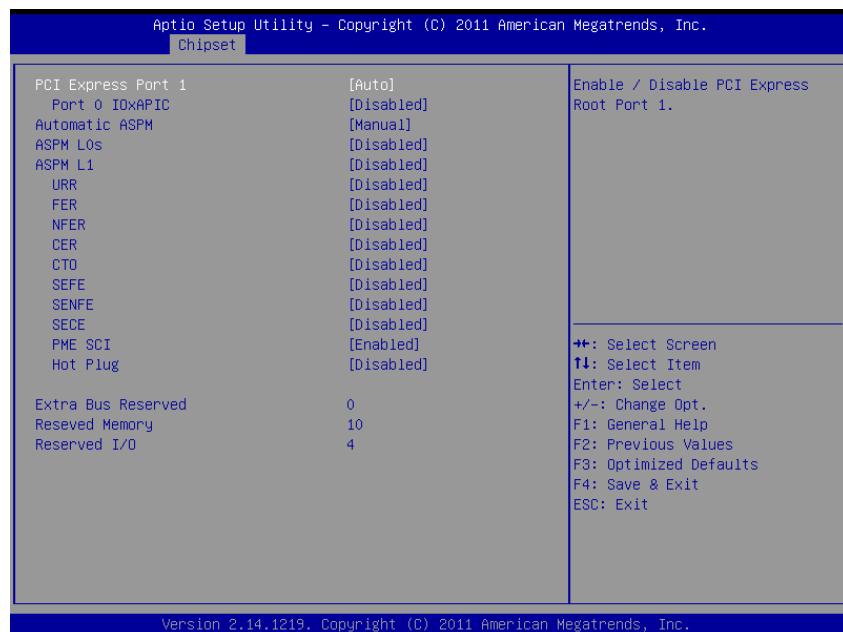
Item	Option	Description
<b>PCI Express Port 0</b>	Disabled Enabled <b>[Default]</b>	Enable / Disable PCI Express Root Port 0.
<b>Port 0 IOxAPIC</b>	Disabled <b>[Default]</b> Enabled	Enable / Disable PCI Express Root Port 0 I/O APIC
<b>Automatic ASPM</b>	Manual <b>[Default]</b> Auto	Automatically enable ASPM based on reported capabilities and known issues

## User's Manual

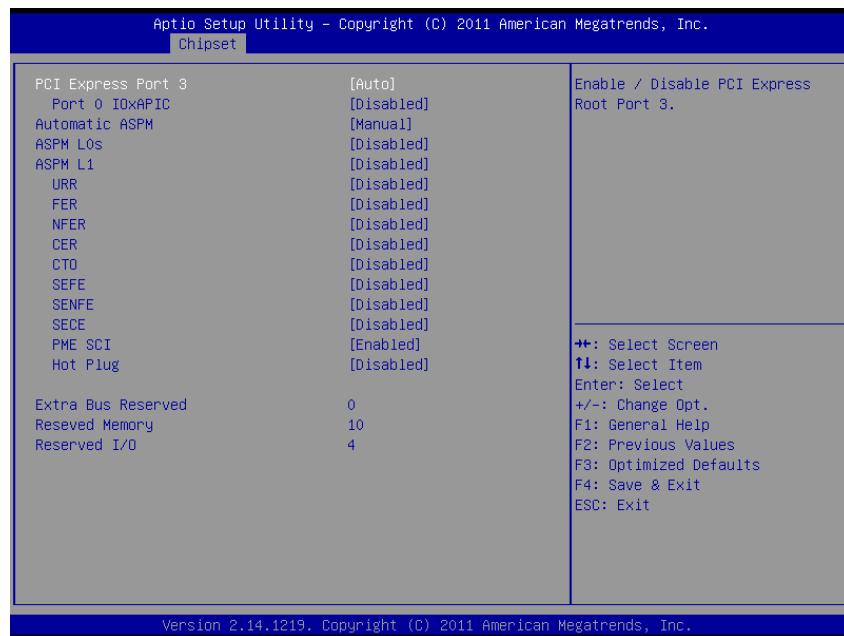
<b>ASPM L0s</b>	Disabled[ <b>Default</b> ] Root Port Only End point Port Only Both Root And Endpoint Ports	Enable PCIe ASPM L0s
<b>ASPM L1</b>	Disabled[ <b>Default</b> ] Enabled	Enable PCIe ASPM L1
<b>URR</b>	Disabled[ <b>Default</b> ] Enabled	PCI Express Unsupported Request Reporting Enable/Disable.
<b>FER</b>	Disabled[ <b>Default</b> ] Enabled	PCI Express Device Fatal Error Reporting Enable/Disable
<b>NFER</b>	Disabled[ <b>Default</b> ] Enabled	PCI Express Device Non-Fatal Error Reporting Enable/Disable.
<b>CER</b>	Disabled[ <b>Default</b> ] Enabled	PCI Express Device correctable Error Reporting Enable/Disable
<b>CTO</b>	Disabled[ <b>Default</b> ] Enabled	PCI Express Completion Timer TO Enable/Disable
<b>SEFE</b>	Disabled[ <b>Default</b> ] Enabled	Root PCI Express System Error on Fatal Error Enable/Disable
<b>SENFE</b>	Disabled[ <b>Default</b> ] Enabled	Root PCI Express System Error on Non-Fatal Error Enable/Disable
<b>SECE</b>	Disabled[ <b>Default</b> ] Enabled	Root PCI Express Error on Correctable Error Enable/Disable
<b>PME SCI</b>	Disabled Enabled[ <b>Default</b> ]	PCI Express PME SCI Enable/Disable.
<b>Hot Plug</b>	Disabled[ <b>Default</b> ] Enabled	PCI Express Hot Plug Enable/Disable
<b>Extra Bus Reserved</b>	0 - 7	Extra Bus Reserved (0 -7)for bridges behind this Root Bridge.
<b>Reserved Memory</b>	1 – 20MB	Reserved memory and Prefetchable Memory (1-20MB) Range for this Root Bridge.
<b>Reserved I/O</b>	4K/8K/12K/16K/20K	Reserved I/O (4K/8K/12K/16K/20K) Range for this Root Bridge.

### 3.6.3.2.2 PCI Express Root Port 1/2/3

## EBM-CDV (A2.1) User's Manual



## User's Manual

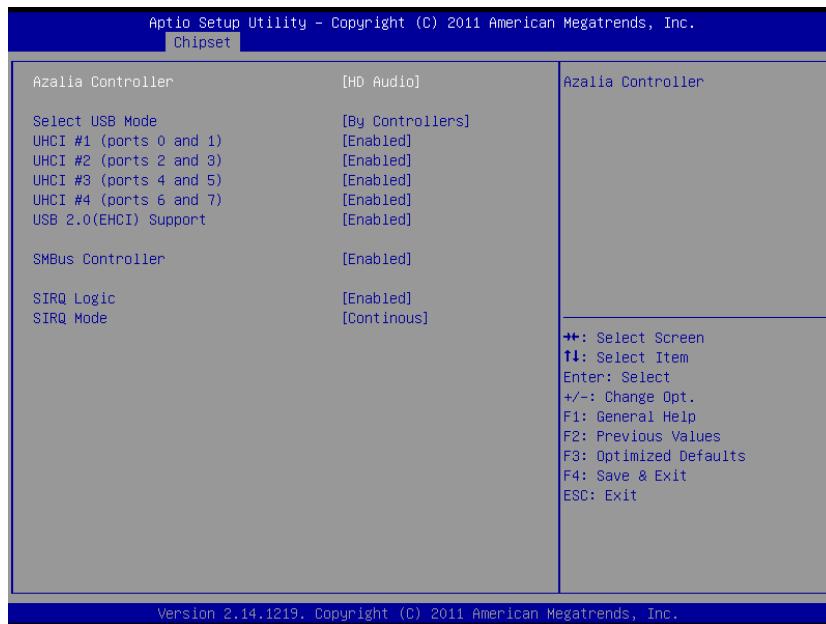


Item	Option	Description
<b>PCI Express Port 0</b>	Auto[ <b>Default</b> ] Enabled Disabled	Enable / Disable PCI Express Root Port 0.
<b>Port 0 IOxAPIC</b>	Enabled Disabled[ <b>Default</b> ]	Enable / Disable PCI Express Root Port 0 I/O APIC
<b>Automatic ASPM</b>	Manual[ <b>Default</b> ] Auto	Automatically enable ASPM based on reported capabilities and known issues
<b>ASPM L0s</b>	Disabled[ <b>Default</b> ] Root Port Only Endpoint Port Only Both Root And Endpoint Ports	Enable PCIe ASPM L0s
<b>ASPM L1</b>	Enabled Disabled[ <b>Default</b> ]	Enable PCIe ASPM L1
<b>URR</b>	Enabled Disabled[ <b>Default</b> ]	PCI Express Unsupported Request Reporting Enable/Disable.
<b>FER</b>	Enabled Disabled[ <b>Default</b> ]	PCI Express Device Fatal Error Reporting Enable/Disable
<b>NFER</b>	Enabled Disabled[ <b>Default</b> ]	PCI Express Device Non-Fatal Error Reporting Enable/Disable.
<b>CER</b>	Enabled Disabled[ <b>Default</b> ]	PCI Express Device correctable Error Reporting Enable/Disable
<b>CTO</b>	Enabled Disabled[ <b>Default</b> ]	PCI Express Completion Timer TO Enable/Disable
<b>SEFE</b>	Enabled Disabled[ <b>Default</b> ]	Root PCI Express System Error on Fatal Error Enable/Disable
<b>SENFE</b>	Enabled Disabled[ <b>Default</b> ]	Root PCI Express System Error on Non-Fatal Error Enable/Disable
<b>SECE</b>	Enabled Disabled[ <b>Default</b> ]	Root PCI Express System Error on Correctable Error Enable/Disable
<b>PME SCI</b>	Enabled[ <b>Default</b> ] Disabled	PCI Express PME SCI Enable/Disable.
<b>Hot Plug</b>	Enabled Disabled[ <b>Default</b> ]	PCI Express Hot Plug Enable/Disable

## EBM-CDV (A2.1) User's Manual

<b>Extra Bus Reserved</b>	0 - 7	Extra Bus Reserved (0 -7)for bridges behind this Root Bridge.
<b>Reserved Memory</b>	1 – 20MB	Reserved Memory and Prefetchable Memory (1-20MB) Range for this Root Bridge.
<b>Reserved I/O</b>	4K/8K/12K/16K/20K	Reserved I/O (4K/8K/12K/16K/20K) Range for this Root Bridge.

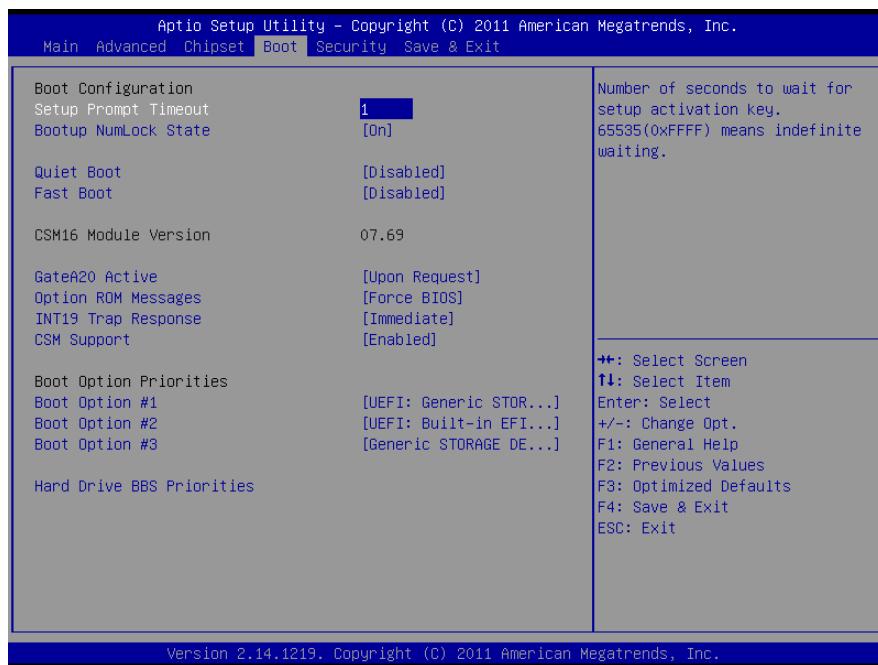
### 3.6.3.2.3 TPT Devices



Item	Option	Description
<b>Azalia Controller</b>	Disabled HD Audio[ <b>Default</b> ]	Azalia controller
<b>Select USB Mode</b>	By Ports By controllers[ <b>Default</b> ]	Select USB mode to control USB ports
<b>UHCI #1 (ports 0 and 1)</b>	Enabled[ <b>Default</b> ] Disabled	Control the USB UHCI (USB1.1) functions. Disable from highest to lowest controller.
<b>UHCI #2 (ports 2 and 3)</b>	Enabled[ <b>Default</b> ] Disabled	
<b>UHCI #3 (ports 4 and 5)</b>	Enabled[ <b>Default</b> ] Disabled	
<b>UHCI #4 (ports 6 and 7)</b>	Enabled[ <b>Default</b> ] Disabled	
<b>USB 2.0(EHCI) Support</b>	Enabled[ <b>Default</b> ] Disabled	Enable or Disable USB 2.0 (EHCI) Support.
<b>SMBus Controller</b>	Enabled[ <b>Default</b> ] Disabled	Enable or Disable OnChip SMBus Controller.
<b>SIRQ Logic</b>	Enabled[ <b>Default</b> ] Disabled	Enable or Disable SIRQ logic
<b>SIRQ Mode</b>	Quiet Continous[ <b>Default</b> ]	Set SIRQ mode.

## User's Manual

### 3.6.4 Boot settings



Item	Option	Description
<b>Setup Prompt Timeout</b>	1~65535	Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.
<b>Bootup NumLock State</b>	On Off[Default]	Select the keyboard NumLock state
<b>Quiet Boot</b>	Enabled Disabled[Default]	Enables or Disables Quiet Boot Option
<b>Fast Boot</b>	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	
<b>GateA20 Active</b>	Upon Request[Default] Always	UPON REQUEST –GA20 can be disabled using BIOS services.  ALWAYS- do not allow disabling GA20; this option is useful when any RT code is executed above 1MB
<b>Option ROM Messages</b>	Force BIOS[Default] Keep current	Set display mode for Option ROM
<b>INT19 Trap Response</b>	Immediate[Default] Postponed	BIOS reaction on INT19 trapping by Option ROM: IMMEDIATE-execute the trap right away; POSTPONED-execute the trap during legacy boot.
<b>CSM Support</b>	Disabled Enabled[Default] Auto	Enable/Disable CSM Support. If Auto is selected, based on OS, CSM will be enabled/disabled automatically.
<b>Boot Option #1/2/3</b>	Sets the system boot order	

## **EBM-CDV (A2.1) User's Manual**

### **3.6.5 Security**

Use the Security menu to set system and user password.



#### **3.6.5.1 Administrator Password**

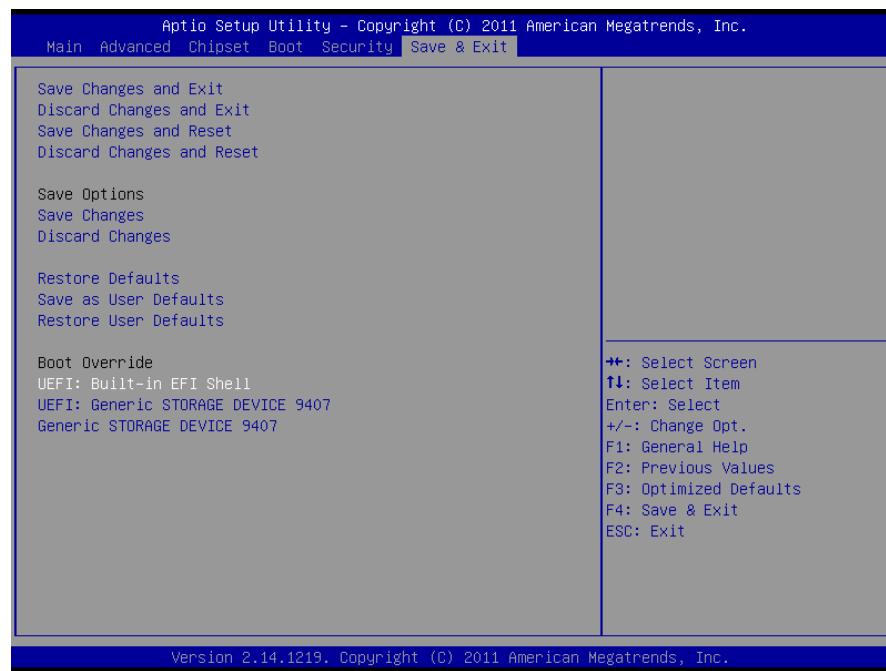
This setting specifies a password that must be entered to access the BIOS Setup Utility. If only the Administrator's password is set, then this only limits access to the BIOS setup program and is only asked for when entering the BIOS setup program. By default, no password is specified.

#### **3.6.5.2 User Password**

This setting specifies a password that must be entered to access the BIOS Setup Utility or to boot the system. If only the User's password is set, then this is a power on password and must be entered to boot or enter the BIOS setup program. In the BIOS setup program, the User will have Administrator rights. By default, no password is specified.

## User's Manual

### 3.6.6 Save & Exit



#### 3.6.6.1 Save Changes and Exit

Use the save changes and reset option to save the changes made to the BIOS options and to exit the BIOS configuration setup program.



#### 3.6.6.2 Discard Changes and Exit

Use the Discard changes and Exit option to exit the system without saving the changes made to the BIOS configuration setup program.

## **EBM-CDV (A2.1) User's Manual**

### **3.6.6.3 Save Changes and Reset**

Any changes made to BIOS settings are stored in NVRAM. The setup program then exits and reboots the controller.

### **3.6.6.4 Discard Changes and Reset**

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

### **3.6.6.5 Save Changes**

Changes made to BIOS settings during this session are committed to NVRAM. The setup program remains active, allowing further changes.

### **3.6.6.6 Discard Changes**

Any changes made to BIOS settings during this session of the BIOS setup program are discarded. The BIOS setup continues to be active.

### **3.6.6.7 Restore Defaults**

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

### **3.6.6.8 Save as user defaults**

This option saves a copy of the current BIOS settings as the User Defaults. This option is useful for preserving custom BIOS setup configurations.

### **3.6.6.9 Restore user defaults**

This option restores all BIOS settings to the user defaults. This option is useful for restoring previously preserved custom BIOS setup configurations.

### **3.6.6.10 Boot override**

This option lists all possible bootable devices and allows the user to override the **Boot Option Priorities** list for the current boot. If no changes have been made to the BIOS setup options, the system will continue booting to the selected device without first rebooting. If BIOS setup options have been changed and saved, a reboot will be required and the boot override selection will not be valid.

# 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.

# EBM-CDV (A2.1) User's Manual

## 4.1 Install VGA Driver

Insert the Supporting DVD-ROM to DVD-ROM drive, click on “start” icon and it should show the index page of Avalue’s products automatically. If not, locate the folder HTML and choose the product from the targeted folder.



**Note:** The installation procedures and screen shots in this section are based on W7 operating system.

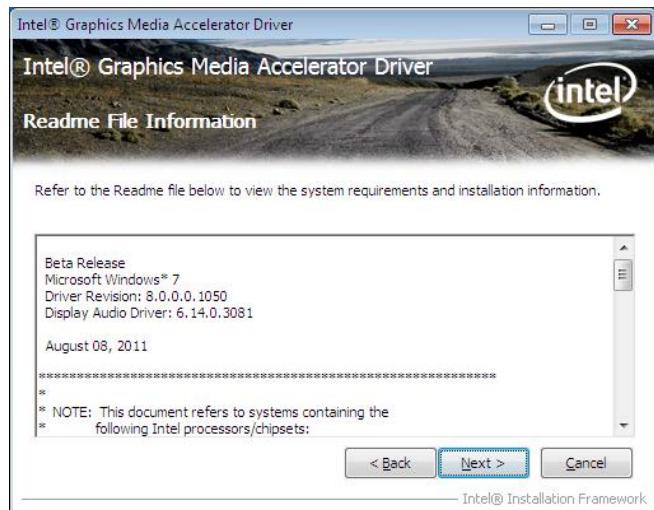
**Step 1.** Locate 「\VGA\EBM-CDV\_VGA」.



**Step 2.** Select **Next** to start setup.



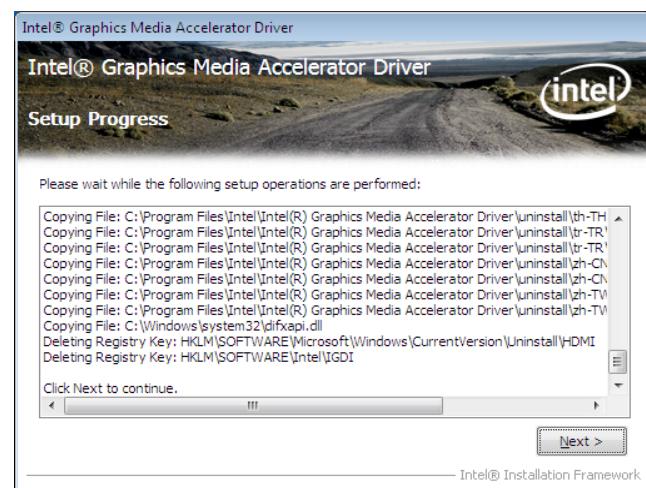
**Step 3.** Select **Yes** to the next step.



**Step 4.** Select **Next** to continue installation.

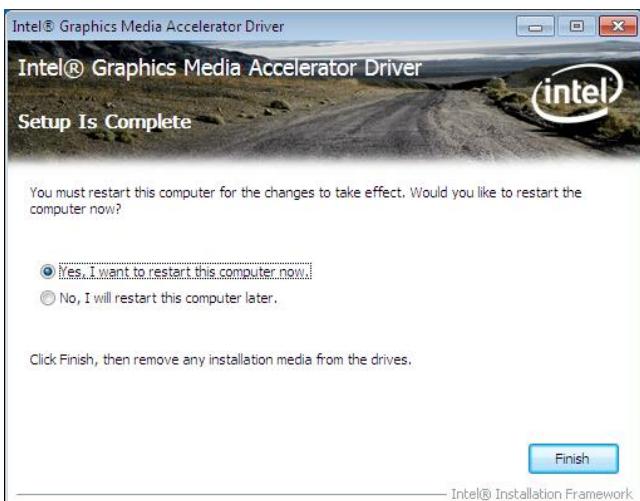


**Step 5.** Select **Install** to continue installation.



**Step 6.** Select **Next** to continue installation.

## User's Manual



**Step 7.** Select **Finish** to complete installation

### 4.2 Install Chipset Driver (Cedarview)

Insert the Supporting DVD-ROM to DVD-ROM drive, click on “start” icon and it should show the index page of Avalue’s products automatically. If not, locate the folder HTML and choose the product from the targeted folder.



**Note:** The installation procedures and screen shots in this section are based on W7 operating system.

#### Step 1. Locate

「\Driver\_Chipset\Intel\EBM-CDV-INF」.



#### Step 2. Select Next to start setup.



#### Step 3. Select Yes to the next step.



#### Step 4. Select Next to continue installation.



#### Step 5. Select Next to continue installation.



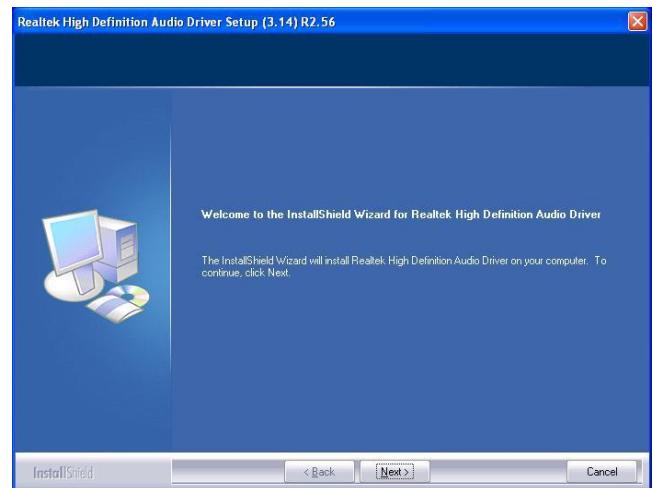
#### Step 6. Select Finish to complete installation

### 4.3 Install Audio Driver (For Realtek ALC892)

Insert the Supporting DVD-ROM to DVD-ROM drive, click on “start” icon and it should show the index page of Avalue’s products automatically. If not, locate the folder HTML and choose the product from the targeted folder.

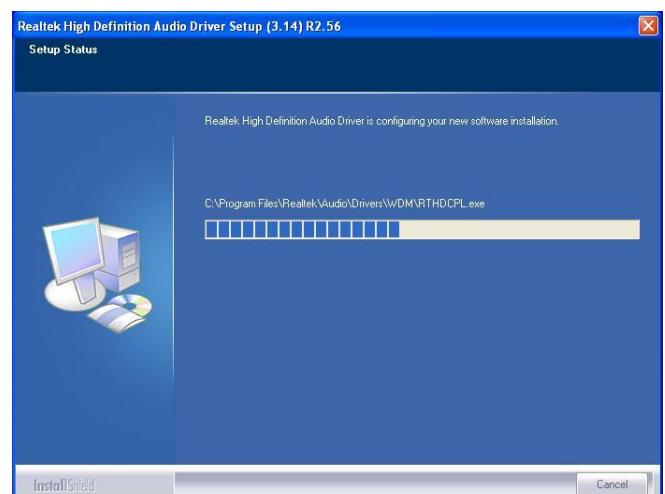


**Note:** The installation procedures and screen shots in this section are based on W7 operating system.



**Step 2.** Select **Next** to the next step.

**Step 1.** Locate  
『\Driver\_Audio\Realtek\ALC892\EBM-CDV-audio』.



**Step 3.** Installing.

### 4.4 Install Ethernet Driver (For Realtek 82574L)

Insert the Supporting DVD-ROM to DVD-ROM drive, click on “start” icon and it should show the index page of Avalue’s products automatically. If not, locate the folder HTML and choose the product from the targeted folder.



**Note:** The installation procedures and screen shots in this section are based on W7 operating system.



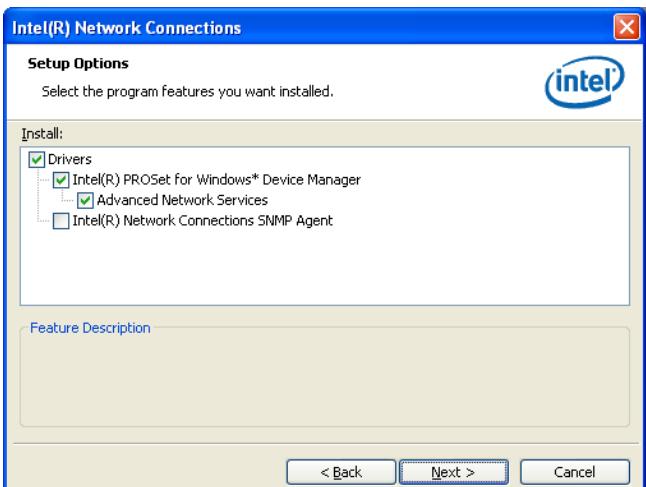
#### Step 3. Click Next.



#### Step 4. Click Next to accept licence agreement.

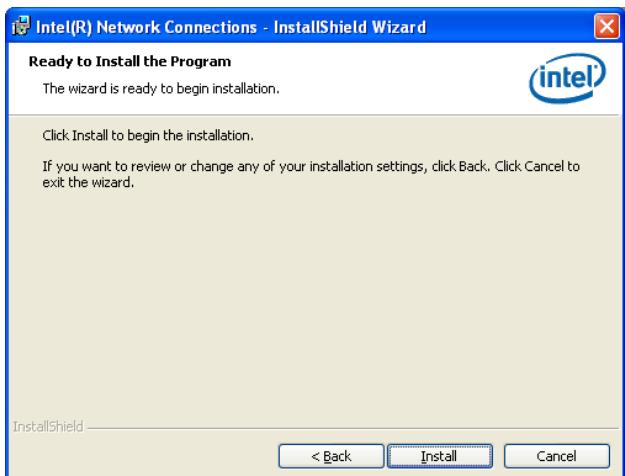


#### Step 2. Click Yes.Next.

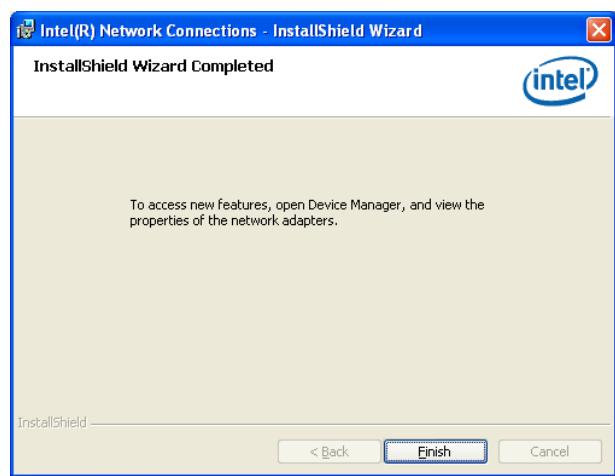


#### Step 5. Click Next after selecting programs to install.

# User's Manual



**Step 6.** Click **Install** to begin installation



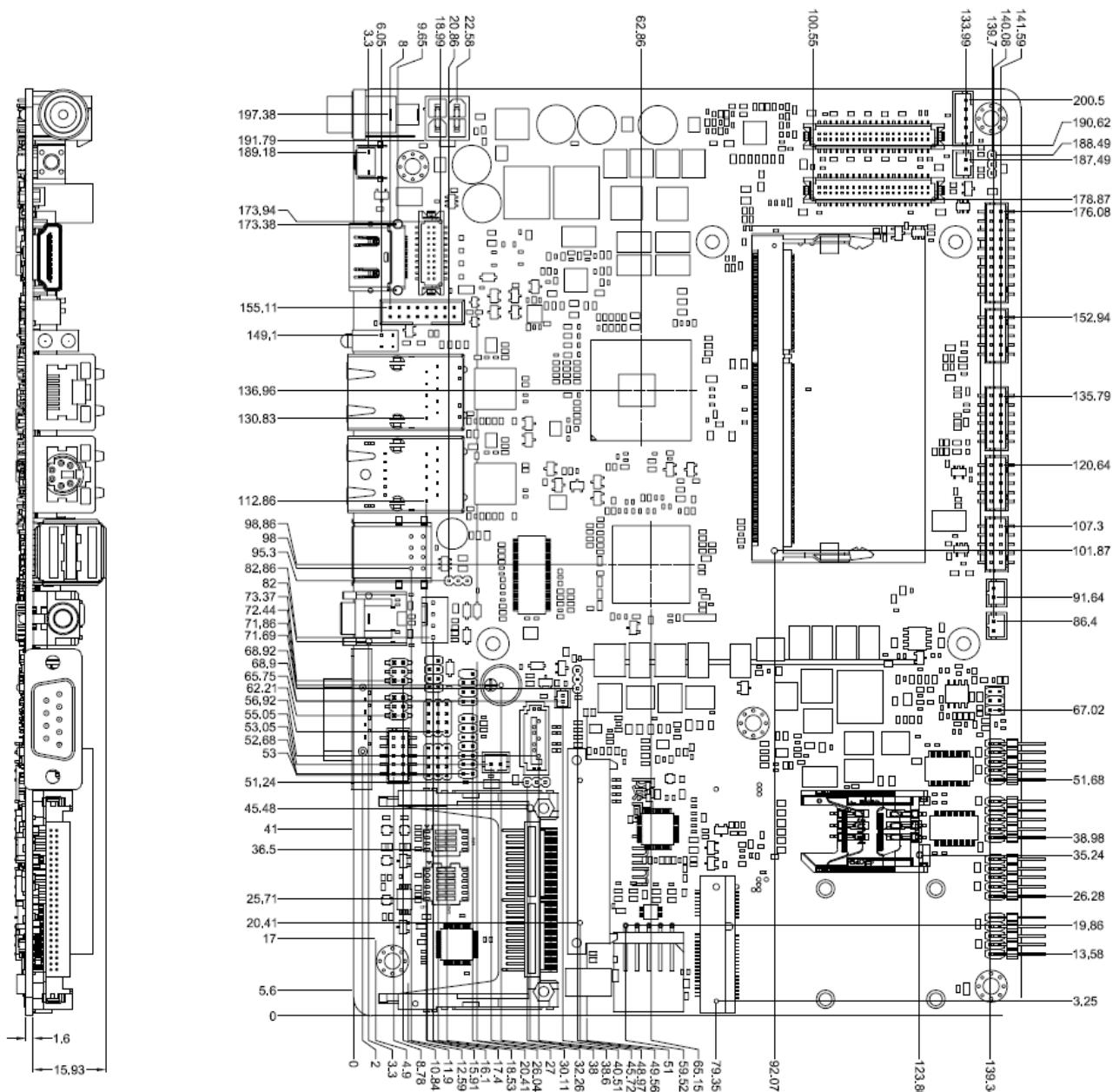
**Step 8.** Click **Finish** to complete installation



**Step 7.** Wait while installing.

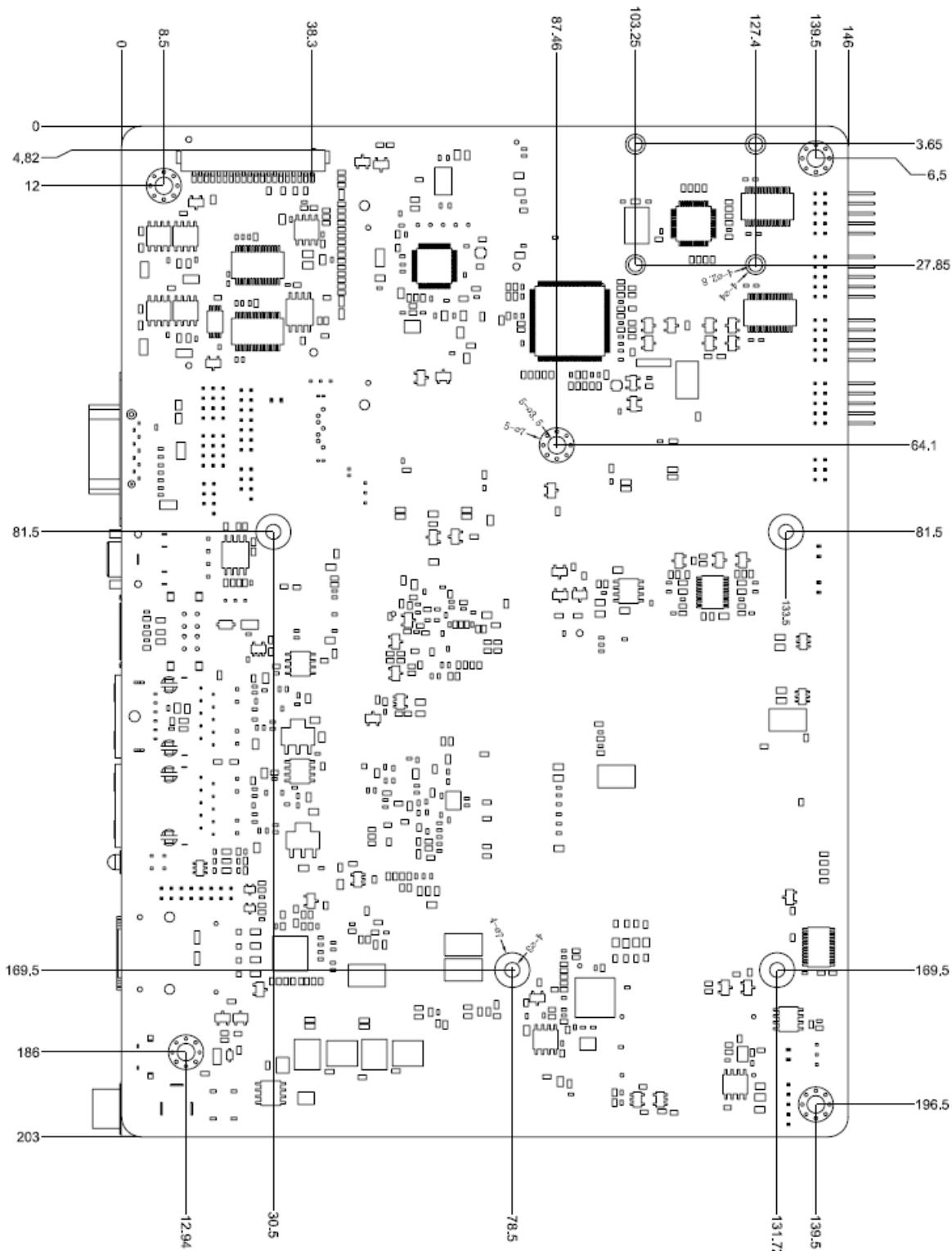
# 5. Mechanical Drawing

## User's Manual



Unit: mm

## EBM-CDV (A2.1) User's Manual



Unit: mm

