EQM-CDV (for Rev. B01)

Intel Cedarview Qseven Module

User's Manual

2nd Ed – 31 October 2013

Part No. E2047221102R

FCC Statement

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

(1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE.

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

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

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

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

Notice

This guide is designed for experienced users to setup the system within the shortest time. For detailed information, please always refer to the electronic user's manual.

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This warranty does not apply to any products that have been repaired or altered by people other than repair personnel authorized by Avalue, or that have been subject of misuse, abuse, accident or improper installation. Avalue assumes no liability under the terms of this warranty as a consequence of such events. Because of Avalue's high quality-control standards and rigorous testing, most of our customers never need to use our repair service. If any of Avalue's products is defective, it will be repaired or replaced at no charge during the warranty period. For out-of-warranty repairs, you will be billed according to the cost of replacement materials, service time, and freight. Please consult your dealer for more details. If you think you have a defective product, follow these steps:

1. Collect all the information about the problem encountered. (For example, CPU type and speed, Avalue's products model name, hardware & BIOS revision number, other hardware and software used, etc.) Note anything abnormal and list any on-screen messages you get when the problem occurs.
2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information available.
3. If your product is diagnosed as defective, obtain an RMA (return material authorization) number from your dealer. This allows us to process your good return more quickly.
4. Carefully pack the defective product, a complete Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.
5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

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.

- 1x EQM-CDV Intel Cedarview Qseven Module
- 1 x Quick Installation Guide
- 1 x DVD-ROM contains the followings:
  - User's Manual (this manual in PDF file)
  - Ethernet driver and utilities
  - VGA drivers and utilities
  - Audio drivers and utilities

1.2 Document Amendment History

Revision	Date	By	Comment
1st	June 2013	Avalue	Initial Release
2nd	October 2013	Avalue	Update Connector Signal

1.3 Manual Objectives

This manual describes in details Avalue Technology EQM-CDV QSeven Module.

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 EQM-CDV QSeven Module or change the standard configurations. Whilst all the necessary information is available in this manual we would recommend that unless you are confident, you contact your supplier for guidance.

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

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

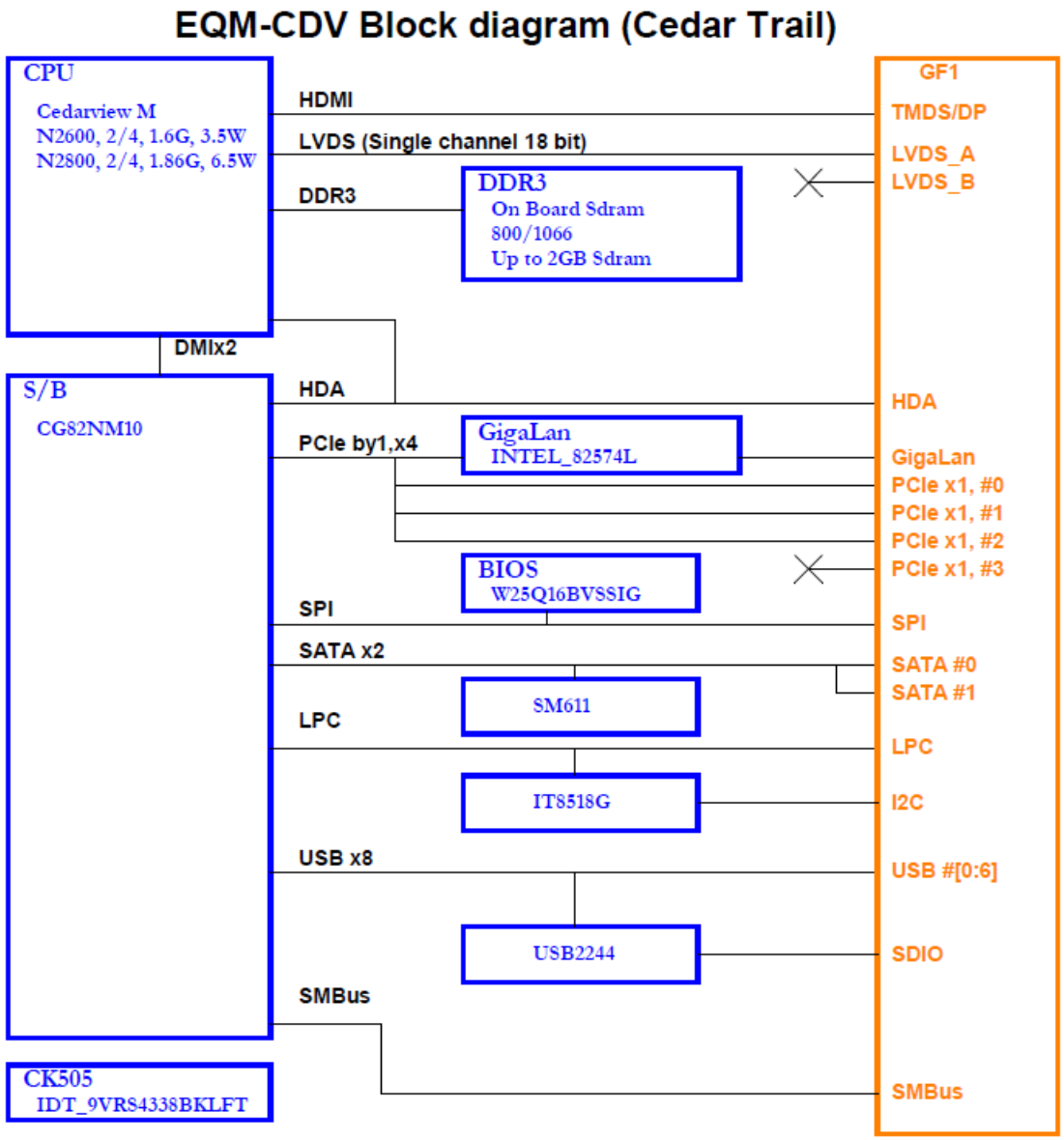
1.4 System Specifications

System	
CPU	Onboard Intel CDV-M N2600 1.6GHz or N2800 1.86GHz CPU
BIOS	AMI 16M-bit SPI BIOS
System Chipset	Intel NM10 Express Chipset
I/O Chip	N/A
System Memory	Onboard DDR3 800/1066, up to 2GB DDR3 800/1066 SDRAM
SSD	Optional On board 2GB NAND Flash up to 16GB
Watchdog Timer	Reset: 1 sec.~65535 sec./min. and 1 sec. or 1 min./step
H/W Status Monitor	Monitoring system temperature, voltage. Auto trotting control when CPU overheats
I/O	
MIO	1 x SATA port to baseboard if support SSD ,else 2 x SATA ports to baseboard.
USB	7 x USB 2.0 ports to baseboard
IrDA	N/A
Others	LPC, SMBus, I2C,SDIO
External I/O Connector	Qseven spec 2.0 connector for expansions
Display	
Chipset	Intel Cedarview integrated graphics
Resolution	HDMI mode: 1920 x 1200 @ 60Hz
	LCD/Simultaneous mode : 1366 x 768 @ 60 Hz (CDV-M)
Multiple Display	HDMI + LVDS to baseboard
LCD Interface	Single channel 18-bit LVDS
TV-out	N/A
Audio	
Audio Interface	HD audio I/F
Ethernet	
LAN Chip	1 x Intel 82574L Gigabit Ethernet
Ethernet Interface	10/100/1000 Base-Tx Gigabit Ethernet Compatible
Mechanical & Environmental	
Power Requirement	+5V
ACPI	Single power ATX Support S0, S3, S4, S5 ACPI 3.0 Compliant
Power Type	Qseven power spec
Operating Temp.	0 to 60°C
Storage Temp.	-40 to 75

Operating Humidity	0%~90% relative humidity, non-condensing
Size (L x W)	70mm x 70mm
Weight	TBD

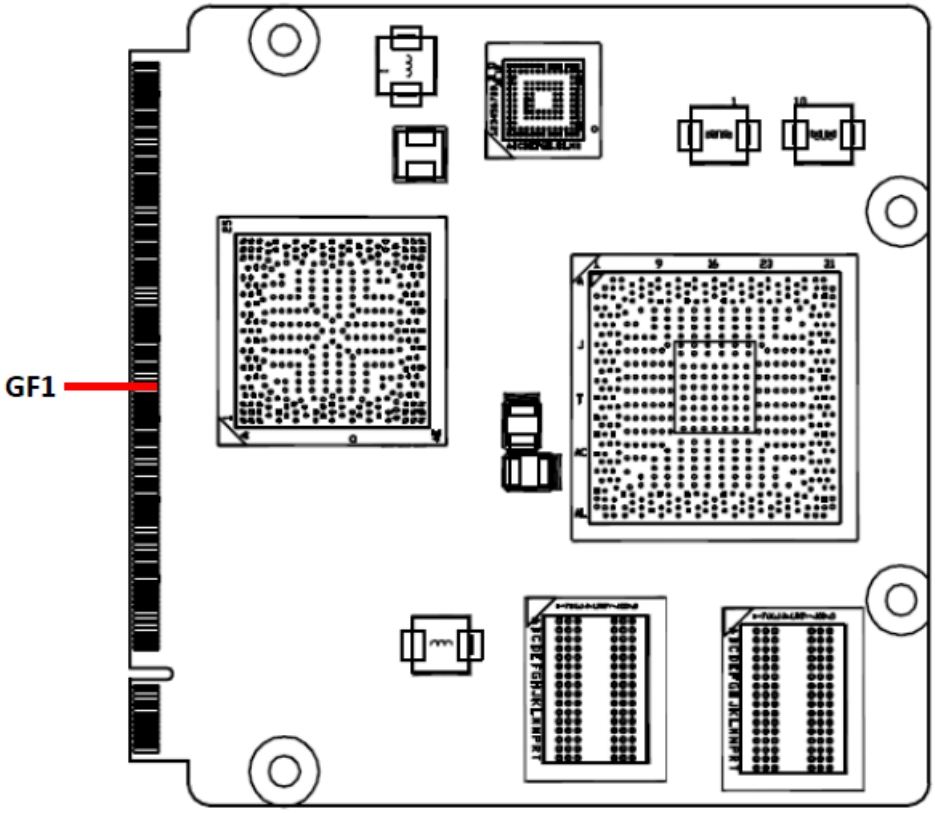
1.5 Architecture Overview—Block Diagram

The following block diagram shows the architecture and main components of EQM-CDV QSeven Module.



2 Hardware Configuration

2.1 Product Overview



2.2 Installation Procedure

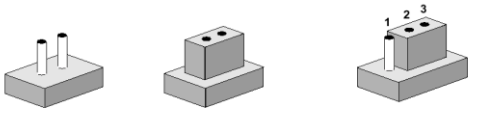
This chapter explains you the instructions of how to setup your system.

1. Turn off the power supply.
2. Insert the Q7 module into the carrier board (be careful with the orientation).
3. Insert all external cables for hard disk, floppy, keyboard, mouse, USB etc. except for flat panel. A CRT monitor must be connected in order to change CMOS settings to support flat panel.
4. Connect power supply to the board via the ATXPWR.
5. Turn on the power.
6. Enter the BIOS setup by pressing the delete key during boot up. Use the "LOAD BIOS DEFAULTS" feature. The ***Integrated Peripheral Setup*** and the ***Standard CMOS Setup*** Window must be entered and configured correctly to match the particular system configuration.
7. If TFT panel display is to be utilized, make sure the panel voltage is correctly set before connecting the display cable and turning on the power.

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.

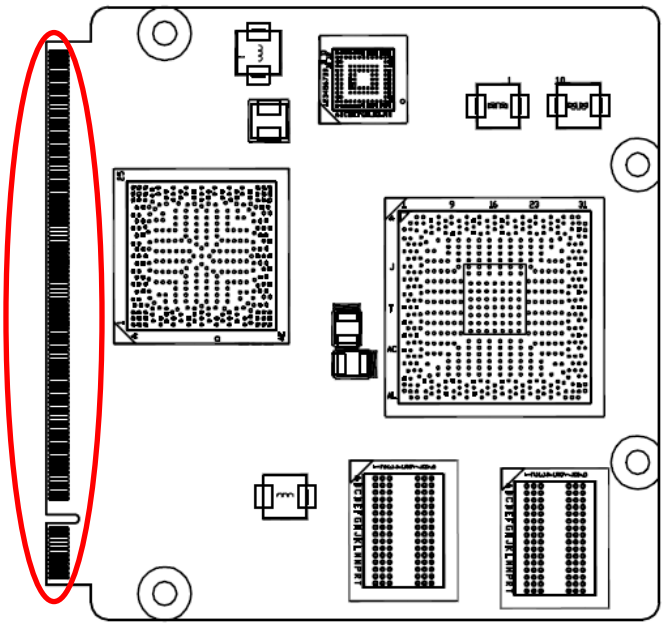
The following tables list the function of each of the board's jumpers and connectors.

Connectors

Label	Function	Note
GF1	QSeven connector	

2.4 Setting Jumpers & Connectors

2.4.1 QSeven connector (GF1)



*Default

Signal	PIN	PIN	Signal
GND	1	2	GND
MDI1_N3	3	4	MDI1_N2
MDI1_P3	5	6	MDI1_P2
LED1_S100	7	8	LED1_S1000
MDI1_N1	9	10	MDI1_N0
MDI1_P1	11	12	MDI1_P0
NC	13	14	LED1_ACT
+LAN1_V1P9	15	16	SLP_S5#
RING#	17	18	SLP_S3#
SUS_STAT	19	20	PWRBTN#
SLP_BTN#	21	22	LID_BTN#
GND	23	24	GND
GND	25	26	PWGIN
BATLOW#	27	28	RSTBTN#
SATA0_TXDP	29	30	SATA1_TXDP
SATA0_TXDN	31	32	SATA1_TXDN
SATA_LED#	33	34	GND
SATA0_RXDP	35	36	SATA1_RXDP
SATA0_RXDN	37	38	SATA1_RXDN

Signal	PIN	PIN	Signal
GND	39	40	GND
BIOS_DISABLE#	41	42	SD_CLK
SD_CD#	43	44	SD_LED
SD_CMD	45	46	SD_WP
SD_PWR#	47	48	SD_DAT1
SD_DAT0	49	50	SD_DAT3
SD_DAT2	51	52	SD_DAT5
SD_DAT4	53	54	SD_DAT7
SD_DAT6	55	56	NC
GND	57	58	GND
AUD_AZ_SYNC	59	60	SMB_CLK
AUD_AZ_RST#	61	62	SMB_DATA
AUD_AZ_BCLK	63	64	SMB_ALERT#
AUD_AZ_SDI0	65	66	I2C_CLK
AUD_AZ_SDO	67	68	I2C_DAT
THRM#	69	70	WDTRIG#
NC	71	72	WDOUT
GND	73	74	GND
NC	75	76	USBN_P6
NC	77	78	USBP_P6
USBHOC67#	79	80	USBHOC45#
USBN_P5	81	82	USBN_P4
USBP_P5	83	84	USBP_P4
USBHOC23#	85	86	USBHOC01#
USBN_P3	87	88	USBN_P2
USBP_P3	89	90	USBP_P2
NC	91	92	NC
USBN_P1	93	94	USBN_P0
USBP_P1	95	96	USBP_P0
GND	97	98	GND
LVDS_DATA0_P	99	100	NC
LVDS_DATA0_N	101	102	NC
LVDS_DATA1_P	103	104	NC

Signal	PIN	PIN	Signal
LVDS_DATA1_N	105	106	NC
LVDS_DATA2_P	107	108	NC
LVDS_DATA2_N	109	110	NC
LVDS_VDDEN	111	112	LVDS_BKLTEN
LVDS_DATA3_P	113	114	NC
LVDS_DATA3_N	115	116	NC
GND	117	118	GND
LVDS_CLK_P	119	120	NC
LVDS_CLK_N	121	122	NC
LVDS_BKLTCTL	123	124	NC
LVDS_DDC_DATA	125	126	LVDS_CTRL_DATA
LVDS_DDC_CLK	127	128	LVDS_CTRL_CLK
NC	129	130	NC
HDMI_CLKP	131	132	NC
HDMI_CLKN	133	134	NC
GND	135	136	GND
HDMI_TXDP1	137	138	NC
HDMI_TXDN1	139	140	NC
GND	141	142	GND
HDMI_TXDP0	143	144	NC
HDMI_TXDN0	145	146	NC
GND	147	148	GND
HDMI_TXDP2	149	150	HDMI_DDC_SDA
HDMI_TXDN2	151	152	HDMI_DDC_SCL
HDMI_HPD_N	153	154	NC
PCIE_CLK_REF+	155	156	PCIE_WAKE#
PCIE_CLK_REF-	157	158	PCIE_RST#
GND	159	160	GND
NC	161	162	NC
NC	163	164	NC
GND	165	166	GND
PET_P2	167	168	PER_P2
PET_N2	169	170	PER_N2

Signal	PIN	PIN	Signal
UART_TX	171	172	UART_RTS
PET_P1	173	174	PER_P1
PET_N1	175	176	PER_N1
UART_RX	177	178	UART_CTS
PET_P0	179	180	PER_P0
PET_N0	181	182	PER_N0
GND	183	184	GND
LPC_AD0	185	186	LPC_AD1
LPC_AD2	187	188	LPC_AD3
LPC_CLK	189	190	LPC_LFRAME#
SERIRQ	191	192	LPC_LDRQ0#
+VRTC	193	194	SPKR
FAN_TACHOIN	195	196	FAN_PWMOUT
GND	197	198	GND
SPI_MOSI	199	200	SPI_CS#
SPI_MISO	201	202	NC
SPI_CLK	203	204	NC
+5V_STANDBY	205	206	+5V_STANDBY
NC	207	208	NC
NC	209	210	NC
+5V	211	212	+5V
+5V	213	214	+5V
+5V	215	216	+5V
+5V	217	218	+5V
+5V	219	220	+5V
+5V	221	222	+5V
+5V	223	224	+5V
+5V	225	226	+5V
+5V	227	228	+5V
+5V	229	230	+5V

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
←	Select screen
→	Select screen
↑	Select item
↓	Select item
Enter	Select
+/-	Change option
F1 key	General help
F2 key	Previous values
F3 key	Optimized defaults
F4 key	Save & Exit Setup
ESC	Exit

- **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.

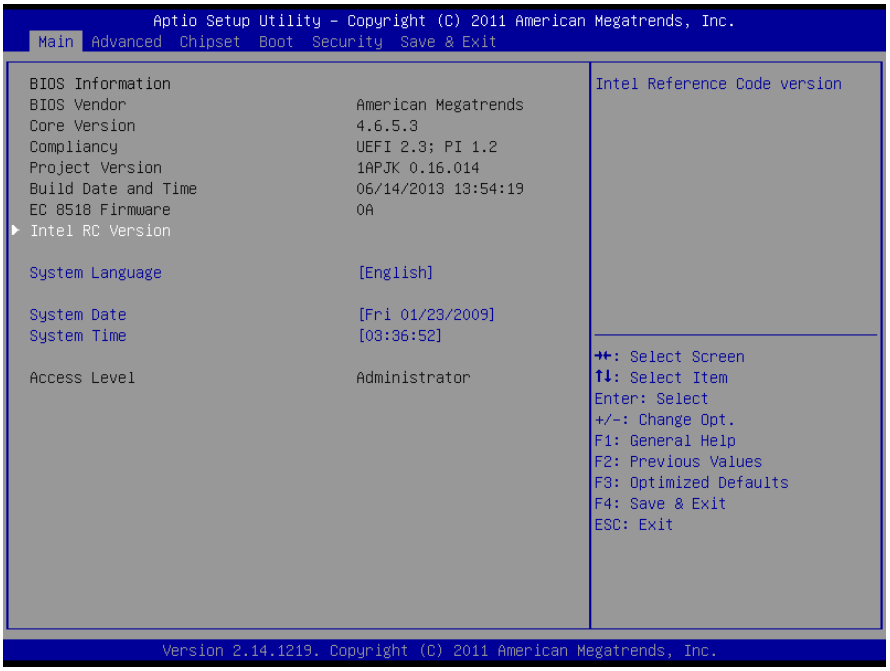
The best advice is to only alter settings which you thoroughly understand. To this end, we strongly recommend that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both AMI and your systems manufacturer to provide the absolute maximum performance and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

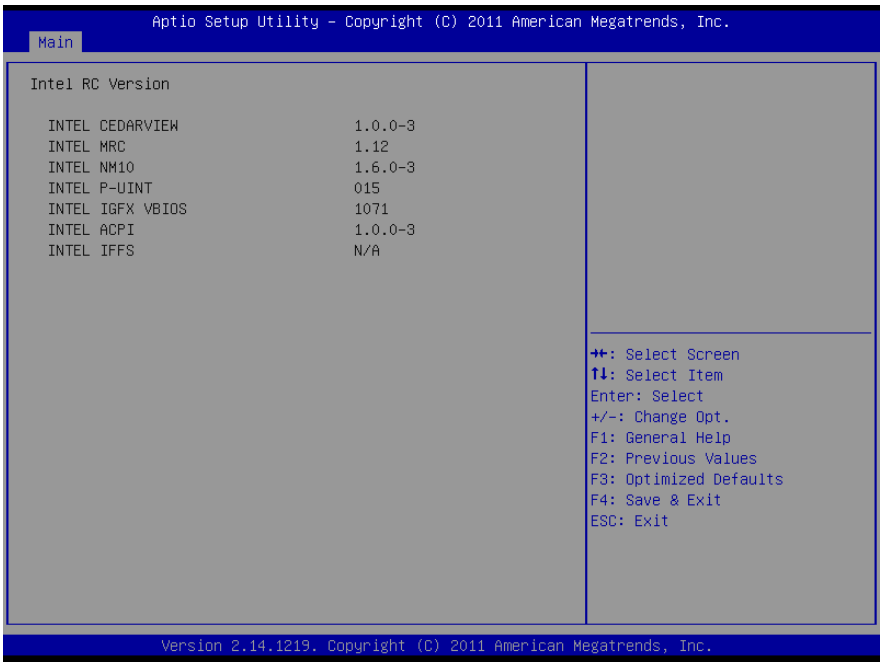
Use the system time option to set the system time. Manually enter the hours, minutes and seconds.

3.6.1.3 System Time

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

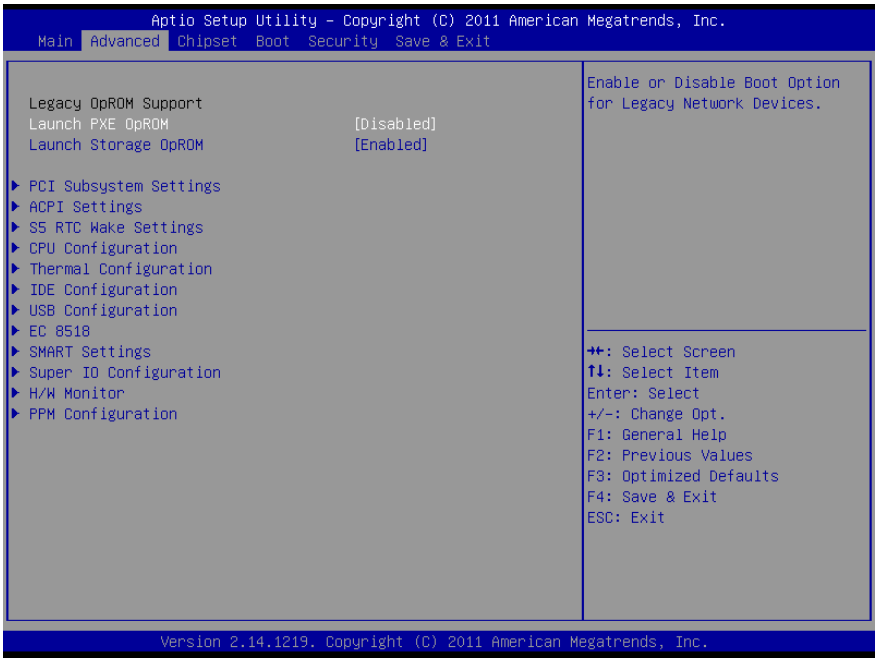
Note: BIOS setup screens shown in this chapter are for reference only, and may not exactly match what you see on your screen. Visit the Avalue website (www.avalue.com.tw) to download the latest product and BIOS information.

3.6.1.4 Intel RC Version



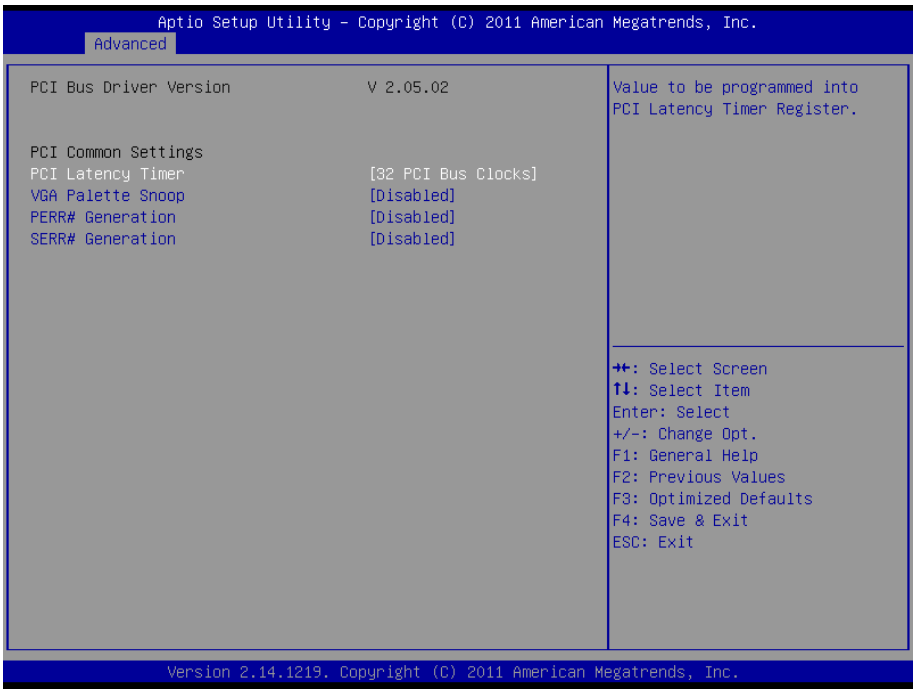
3.6.2 Advanced BIOS settings

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.

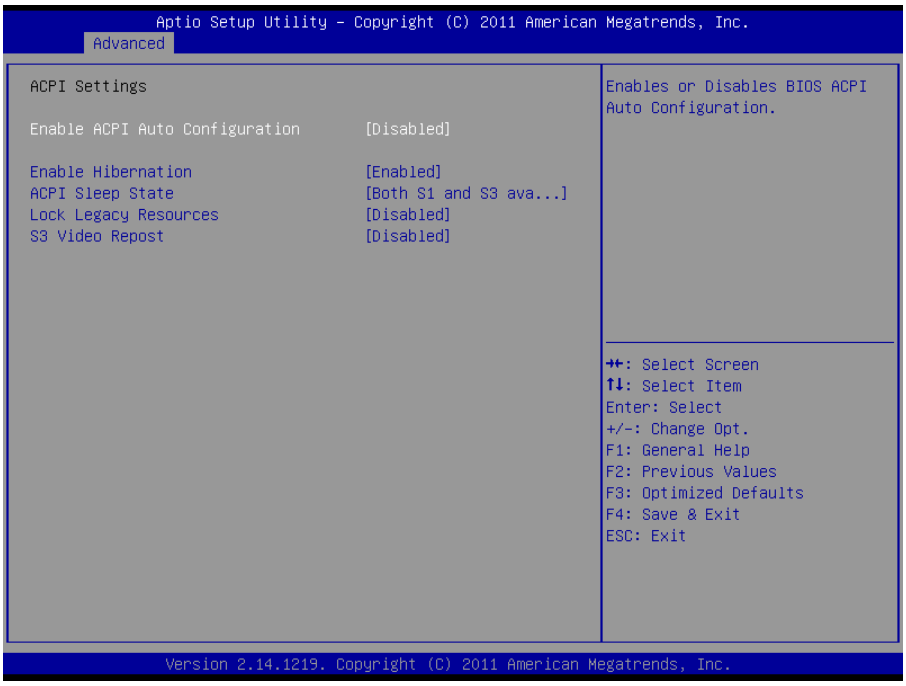
3.6.2.1 PCI Subsystem Settings



Item	Options	Description
PCI Latency Timer	32 PCI Bus Clocks**[Default]** 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.
VGA Palette Snoop	Disabled**[Default]** Enabled	Enables or Disables VGA Palette Registers Snooping.
PERR# Generation	Disabled**[Default]** Enabled	Enables or Disables PCI Device to Generate PERR#
SERR# Generation	Disabled**[Default]** Enabled	Enables or Disables PCI Device to Generate SERR#

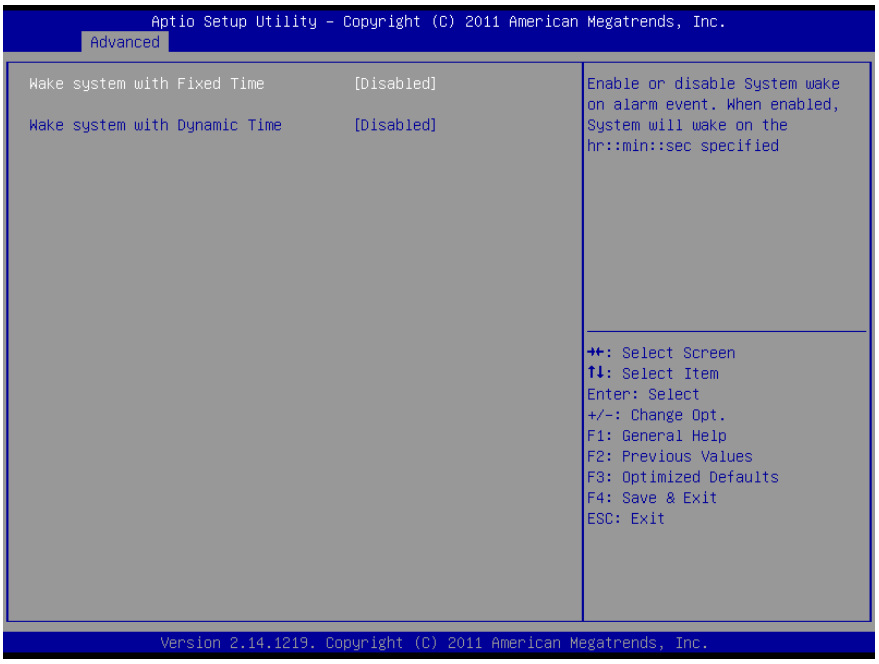
3.6.2.2 ACPI Settings

You can use this item to set up ACPI Configuration.



Item	Options	Description
Enable ACPI Auto Configuration	Disabled, Enabled**[Default]**	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, S1 only (CPU Stop Clock) S3 only (Suspend to RAM) Both S1 and S3 available for OS to Choose from**[Default]**	Select ACPI sleep state the system will enter, when the SUSPEND button is pressed.
Lock Legacy Resources	Disabled, Enabled**[Default]**	Enables or Disables Lock of Legacy Resources.
S3 video Repost	Disabled**[Default]**, Enabled	Enable or Disable S3 Video Repost

3.6.2.3 S5 RTC Wake settings



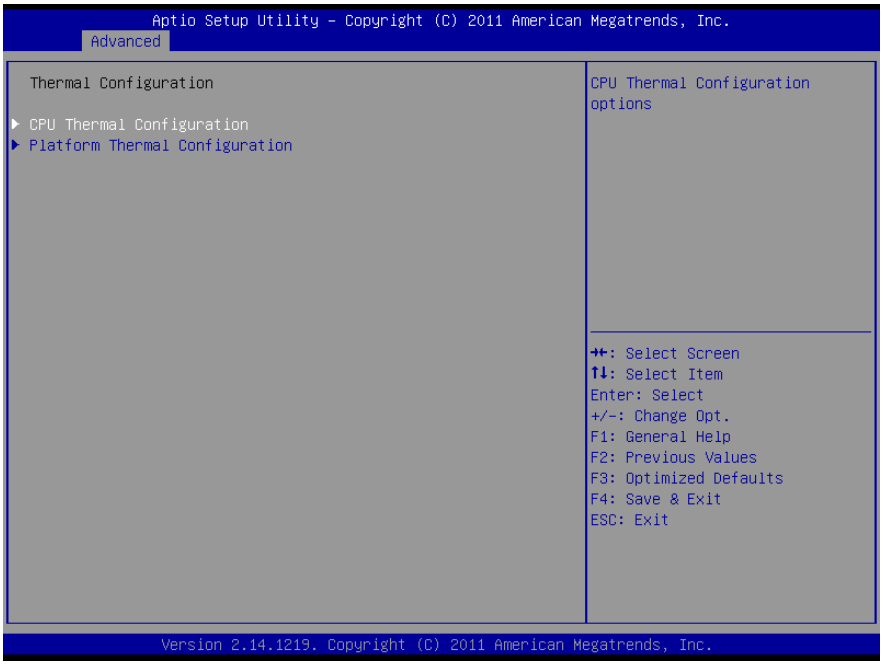
Item	Options	Description
Wake system with Fixed Time	Disabled**[Default]**, Enabled	Enable or disable wake on alarm event. When enabled, System will wake on the hr::min::sec specified.
Wake system with Dynamic Time	Disabled**[Default]**, Enabled	Enable or disable wake on alarm event. When enabled, System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

3.6.2.4 CPU Configuration

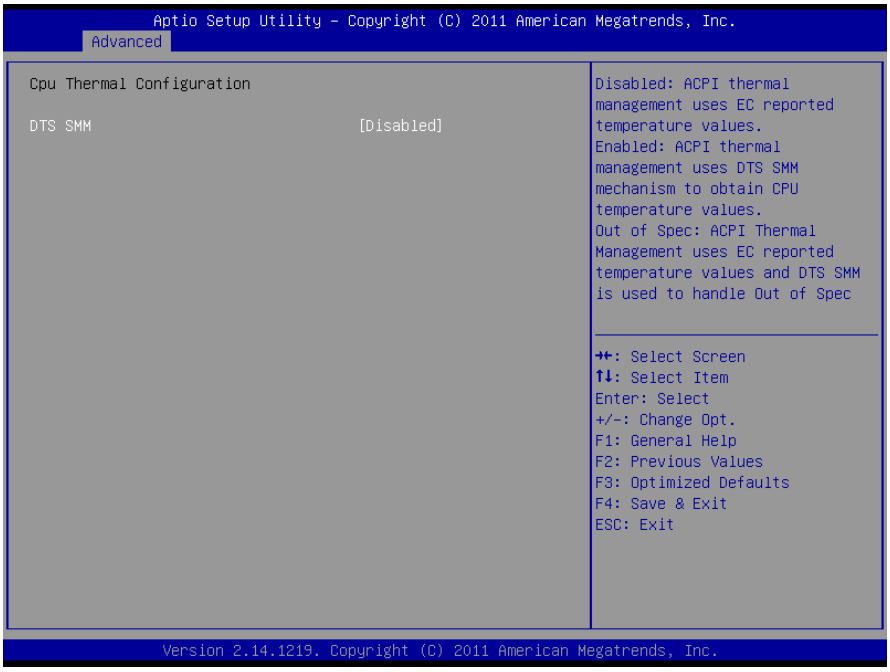
Use the CPU configuration menu to view detailed CPU specification and configure the CPU.

Item	Options	Description
Hyper-Threading	Disabled**[Default]**, Enabled	Enables for Windows XP and Linux (OS optimized for Hyper – Threading Technology) and Disabled for other OS (OS not optimized for Hyper – Threading Technology).
Execute Disable Bit	Disabled**[Default]**, Enabled	XD can prevent certain classes of malicious buffer overflow attacks when combined with a supporting OS (Windows Server 2003 SP1, Windows XP SP2, SuSE Linux 9.2, RedHat Enterprise 3 Update 3.)
Limit CPUID Maximum	Disabled**[Default]**, Enabled	Disabled for Windows XP.

3.6.2.5 Thermal Configuration

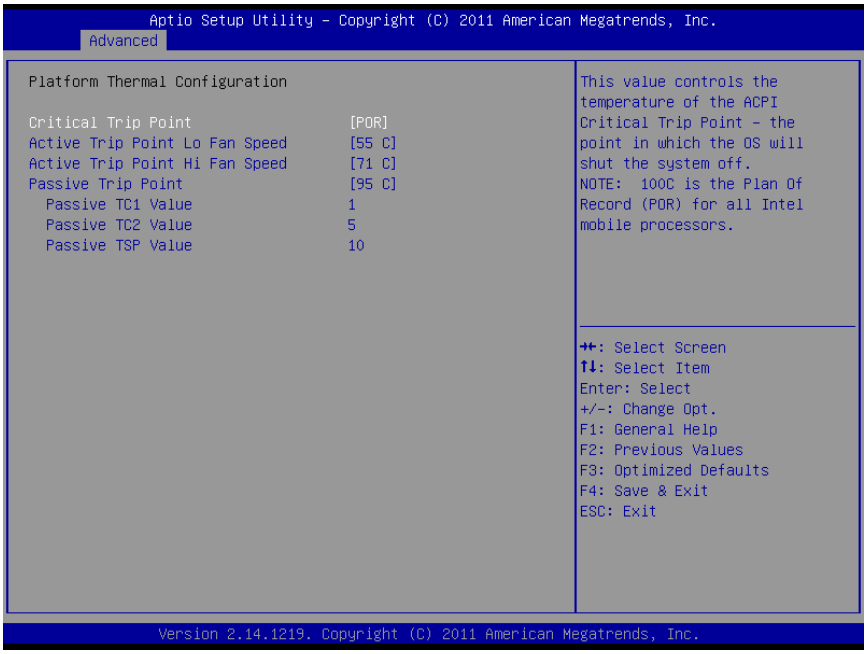


3.6.2.5.1 CPU Thermal Configuration



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

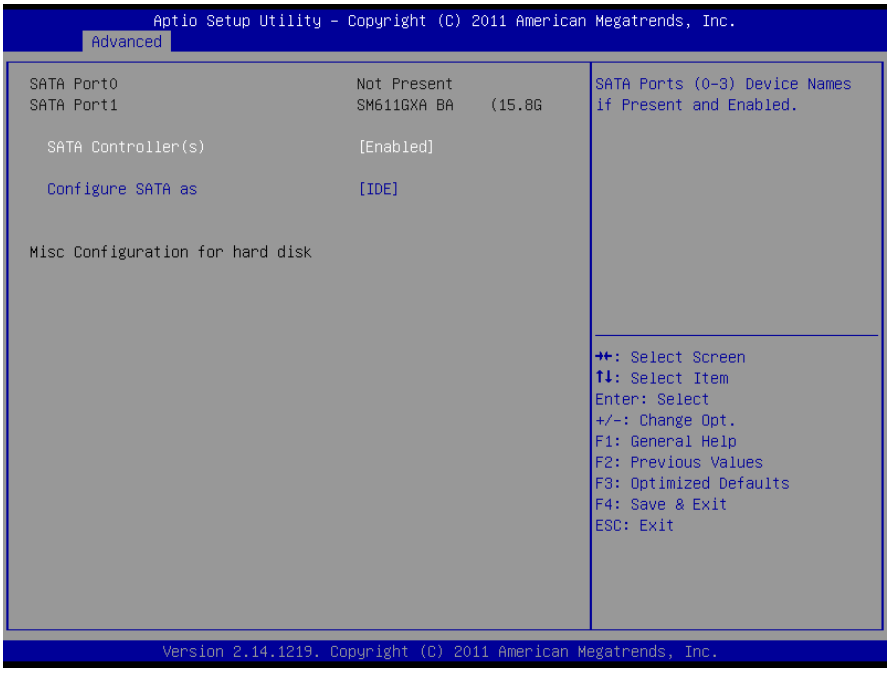
3.6.2.5.2 Platform Thermal Configuration



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

Active Trip Point Hi Fan Speed	Disabled 15C 23C 31C 39C 47C 55C 63C 71C**[Default]** 79C 87C 95C 103C 111C 119C	This value controls the temperature of the ACPI Active Trip Point – the point in which the OS will turn the processor fan on hign
Passive Trip Point	Disabled 15C 23C 31C 39C 47C 55C 63C 71C 79C 87C 95C**[Default]** 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.
Passive TC1 Value	1 – 16	This value sets the TC1 -2 value for the ACPI passive cooling Formula. Range 1 - 16
Passive TC2 Value		
Passive TSP Value	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

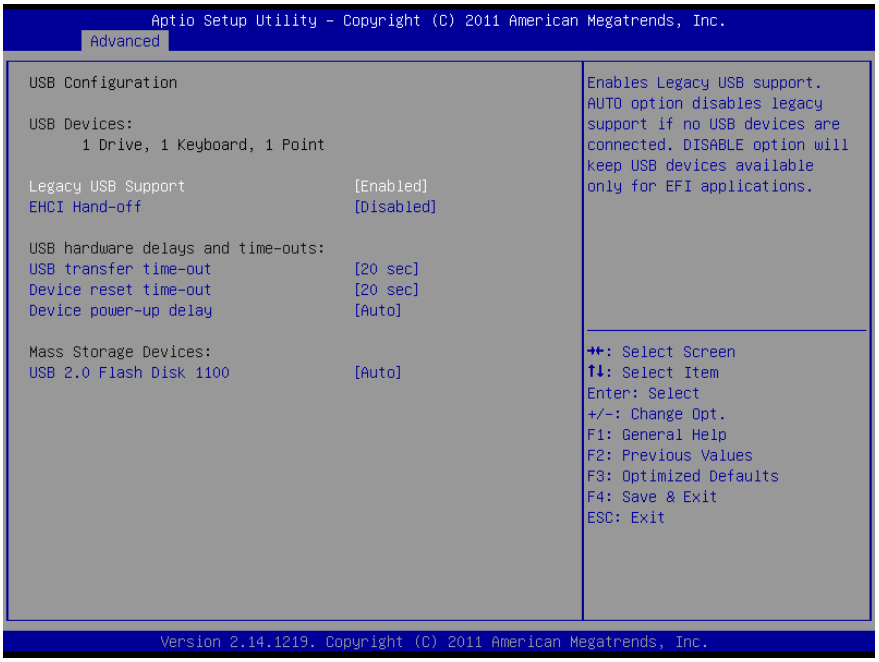
3.6.2.6 IDE Configuration



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

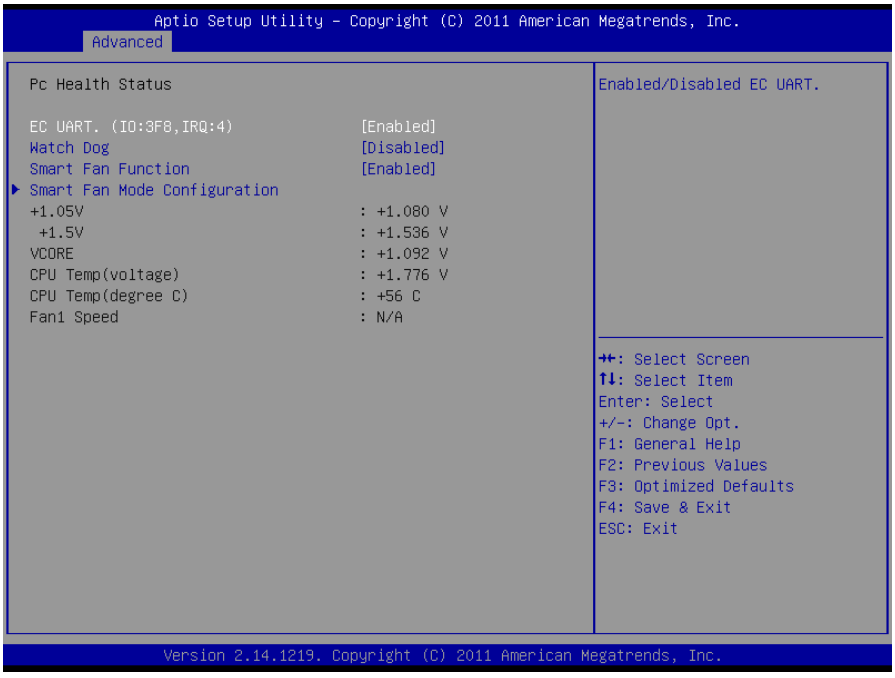
3.6.2.7 USB Configuration

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



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 will keep USB devices available only for EFI applications.
ECHI 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 transfer time-out	1sec / 5sec 10sec / 20sec**[Default]**	The time-out value for Control, Bulk, and Interrupt transfers.
Device reset time-out	10sec / 20sec**[Default]** 30sec / 40sec	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.
Mass Storage Devices	Auto**[Default]** 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).
Generic Ultra HS-COMBO	Generic Ultra HS-COMBO is onboard SSD. (Option)	

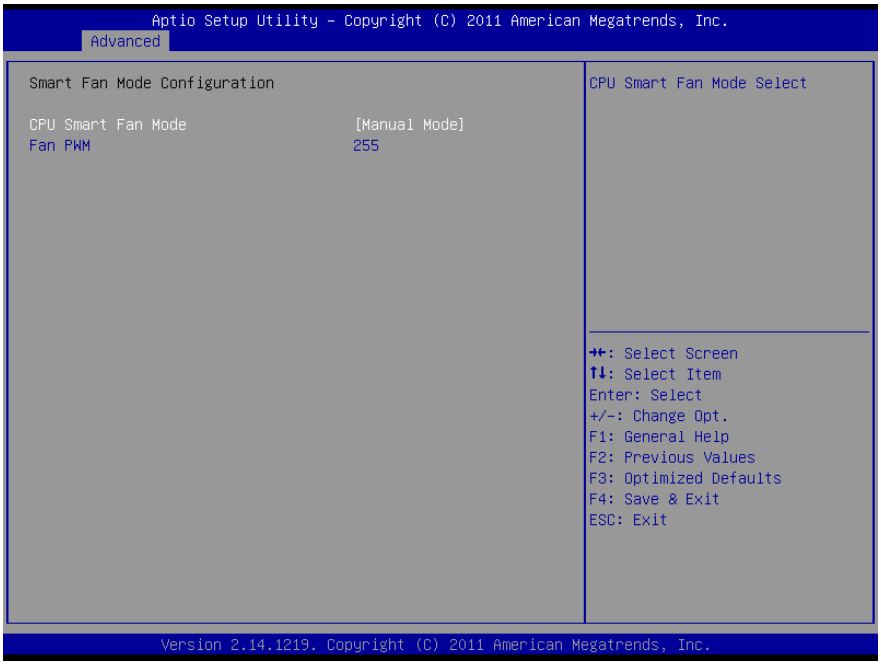
3.6.2.8 EC 8518



Item	Options	Description
EC UART. (IO:3F8,IRQ:4)	Disabled**[Default]** Enabled	Enabled/Disabled EC UART.
Watch Dog	Disabled**[Default]** 30 Sec 40 Sec	Set SIO watch dot timer.

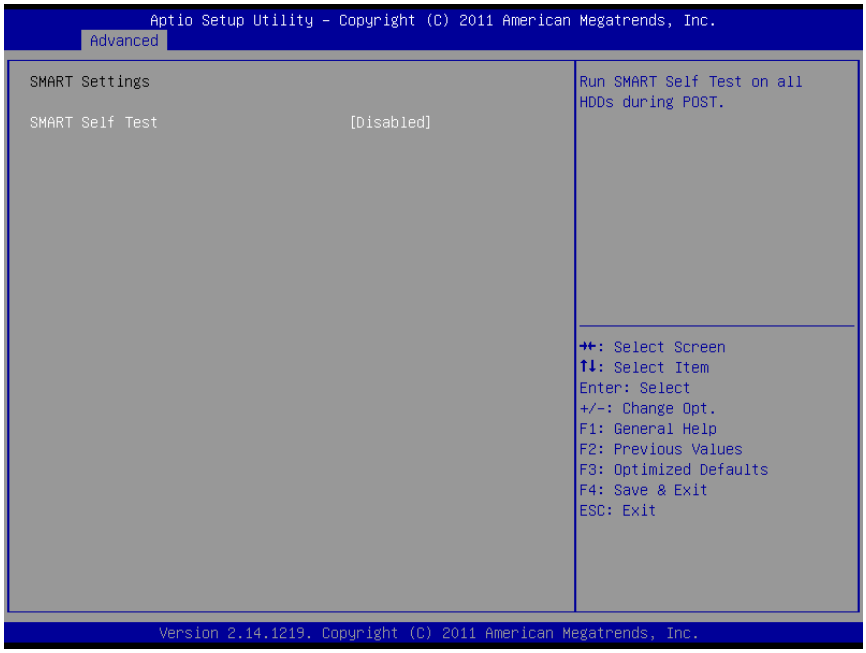
	50 Sec 60 Sec 2 Min 10 Min 30 Min	
Smart Fan Function	Disabled**[Default]** Enabled	Enable or Disable Smart Fan.

3.6.2.8.1 Smart Fan Mode Configuration



Item	Options	Description
CPU Smart Fan Mode	Manual Mode**[Default]** Mode 01~20	CPU Smart Fan Mode Select.
Fan PWM	0	Fan PWM duty.

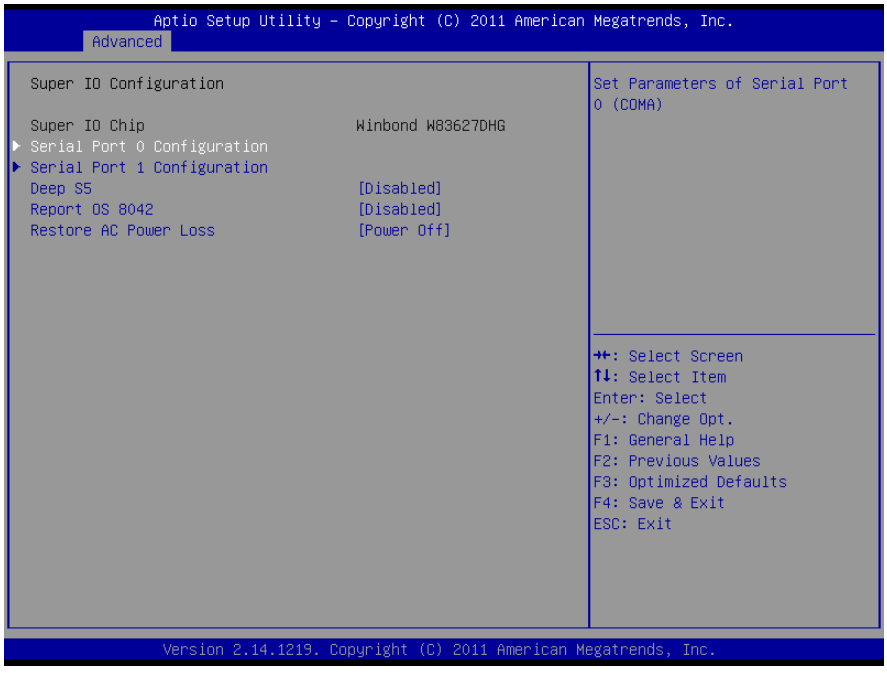
3.6.2.9 Smart settings



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

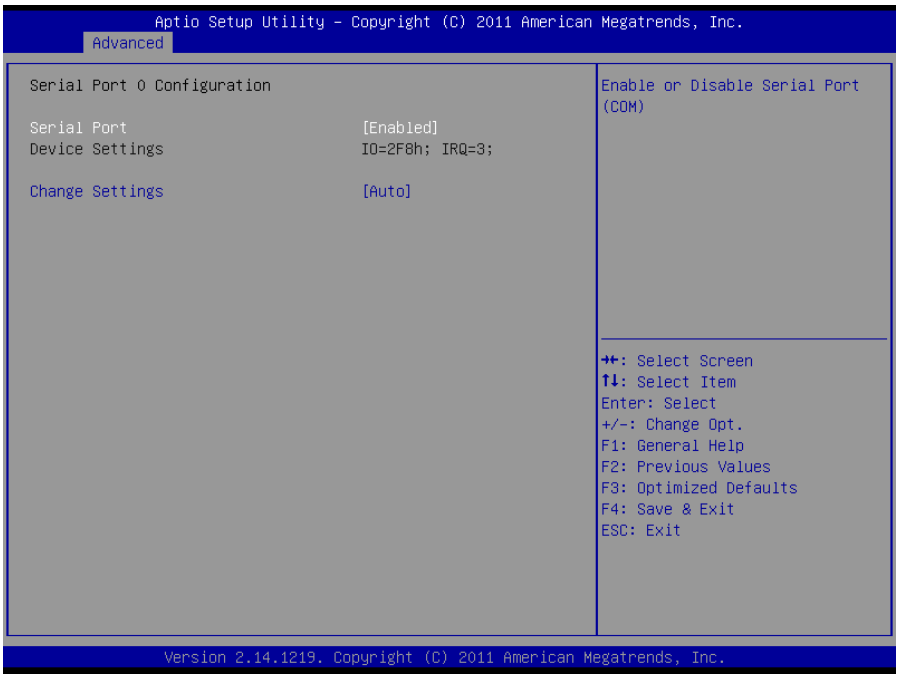
3.6.2.10 Super IO Configuration

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



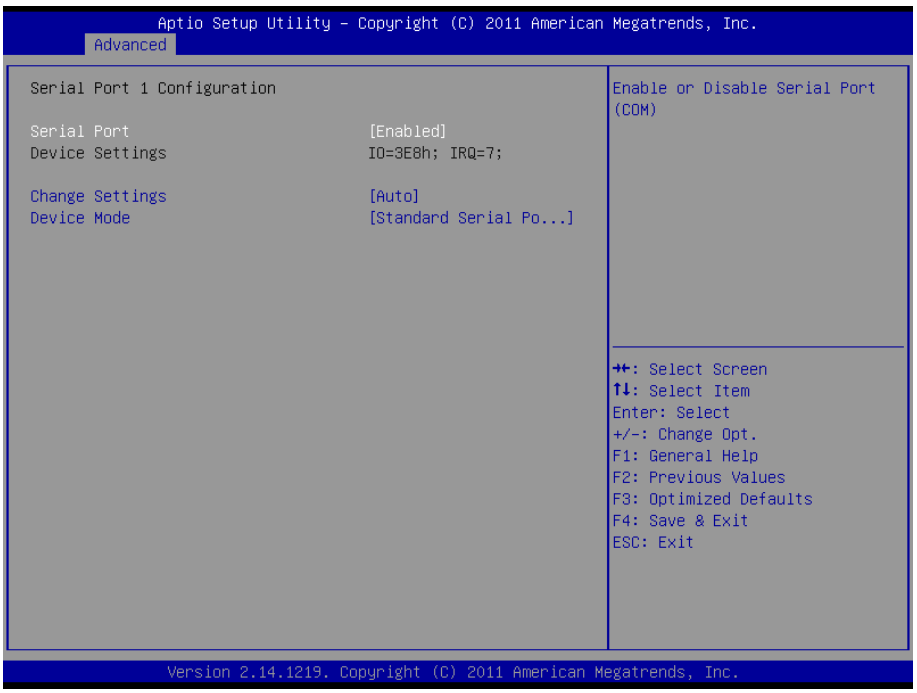
Item	Option	Description
Deep S5	Disabled**[Default]** Enabled	Deep S5 for power saving
Report OS 8042	Disabled**[Default]** Enabled	Q7 not define KB_RST# which will cause some OS can't reboot. Set 'Report OS 8042' as 'disabled' will disabled PS2KB force reboot command as CF9 reset.
Restore AC Power Loss	Power Off**[Default]** Power On Last State	Specify what state to go when power is re-applied after a power failure (G3 state).

3.6.2.10.1 Serial Port 0 Configuration



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

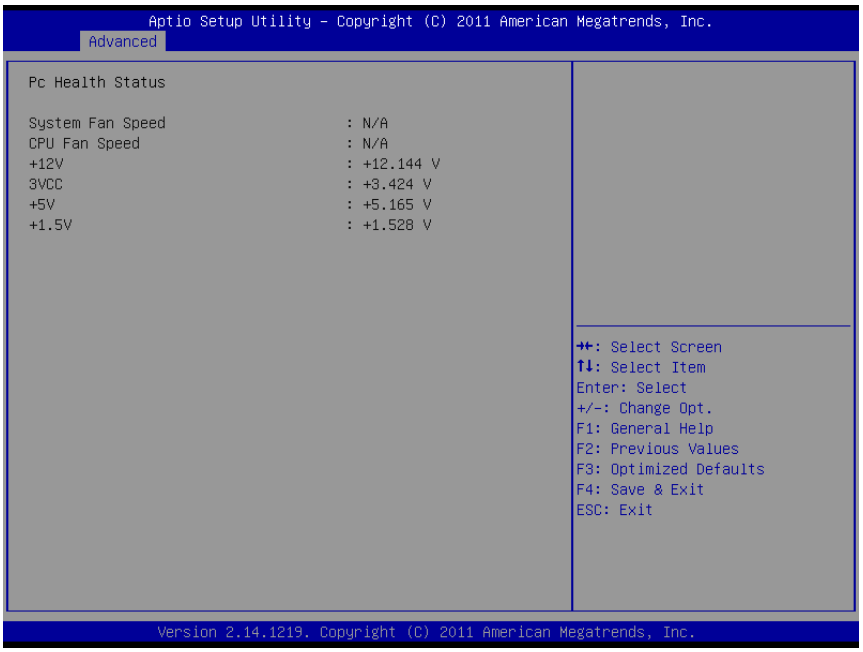
3.6.2.10.2 Serial Port 1 Configuration



Item	Option	Description
Serial Port	Disabled**[Default]** Enabled	Enable or Disable Serial Port (COM).
Change Settings	Auto**[Default]** IO=3E8h; IRQ=7, IO=3F8h; IRQ=3,4,5,6,7,10,11,12 IO=2F8h; IRQ=3,4,5,6,7,10,11,12 IO=3E8h; IRQ=3,4,5,6,7,10,11,12 IO=2E8h; IRQ=3,4,5,6,7,10,11,12	Select an option setting for Super IO device.
Device Mode	Standard Serial Port Mode**[Default]** IrDA 1.0 (HP SIR) Mode ASKIR Mode	Change the Serial Port mode. Select <High Speed> or <Normal mode> mode

3.6.2.11 H/W Monitor

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



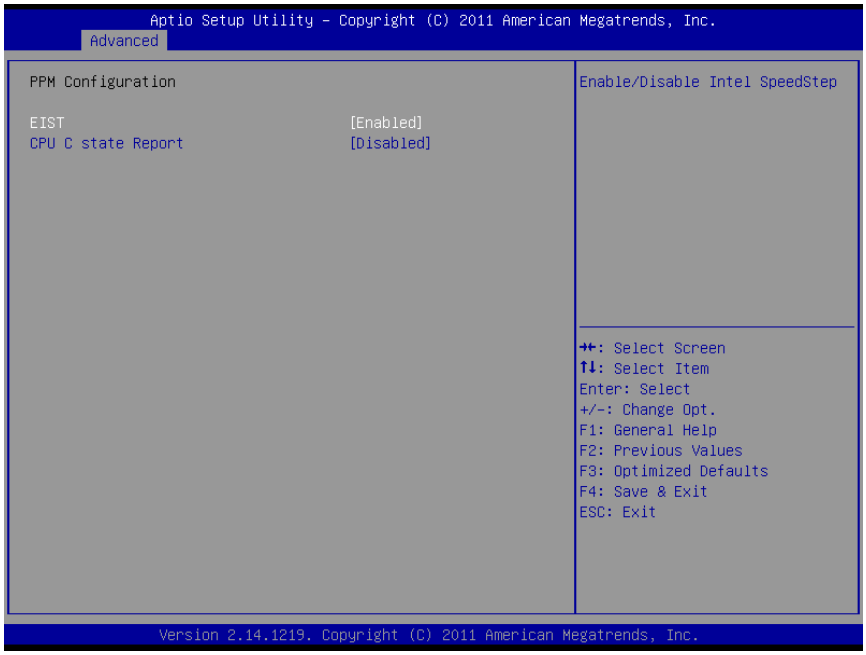
Fan speed

- System Fan speed
- CPU Fan Speed

Voltage

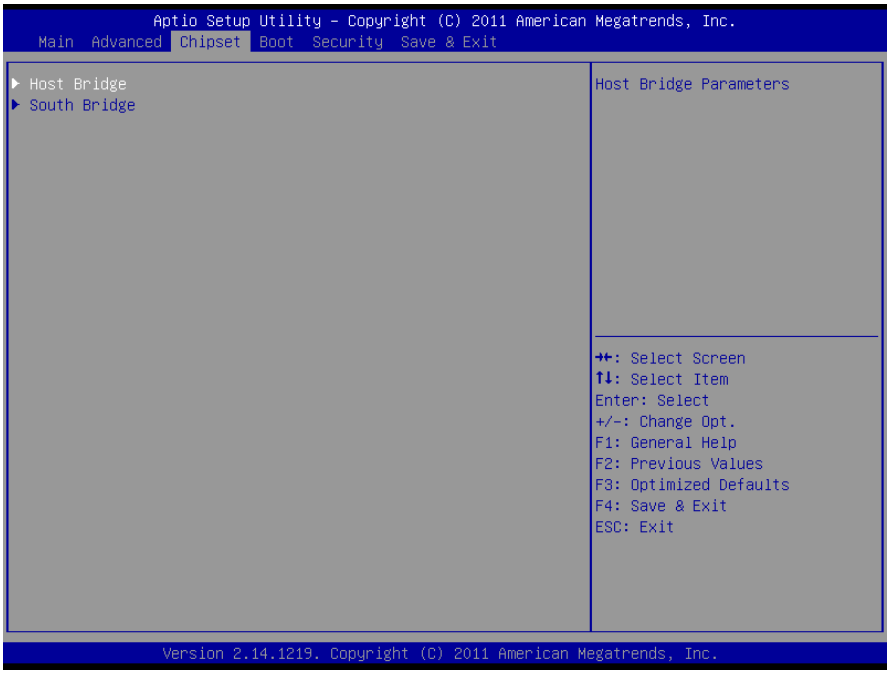
- +12V
- 3VCC
- +5V
- +1.5V

3.6.2.12 PPM configuration

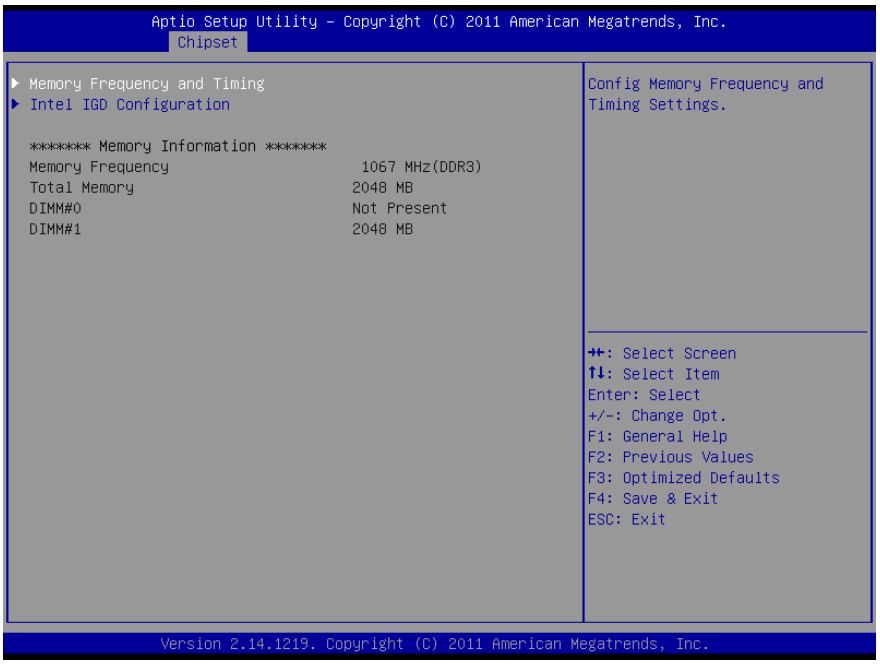


Item	Option	Description
EIST	Disabled**[Default]** Enabled	Enable/Disable Intel SpeedStep.
CPU C state Report	Disabled**[Default]** Enabled	Enable/Disable CPU C State report to OS.

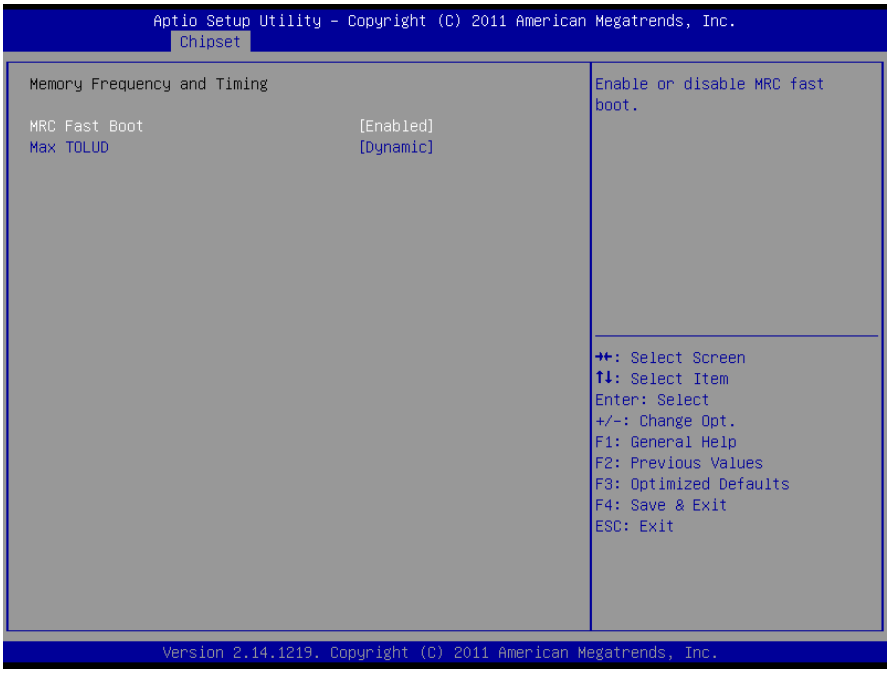
3.6.3 Advanced Chipset Features



3.6.3.1 Host bridge

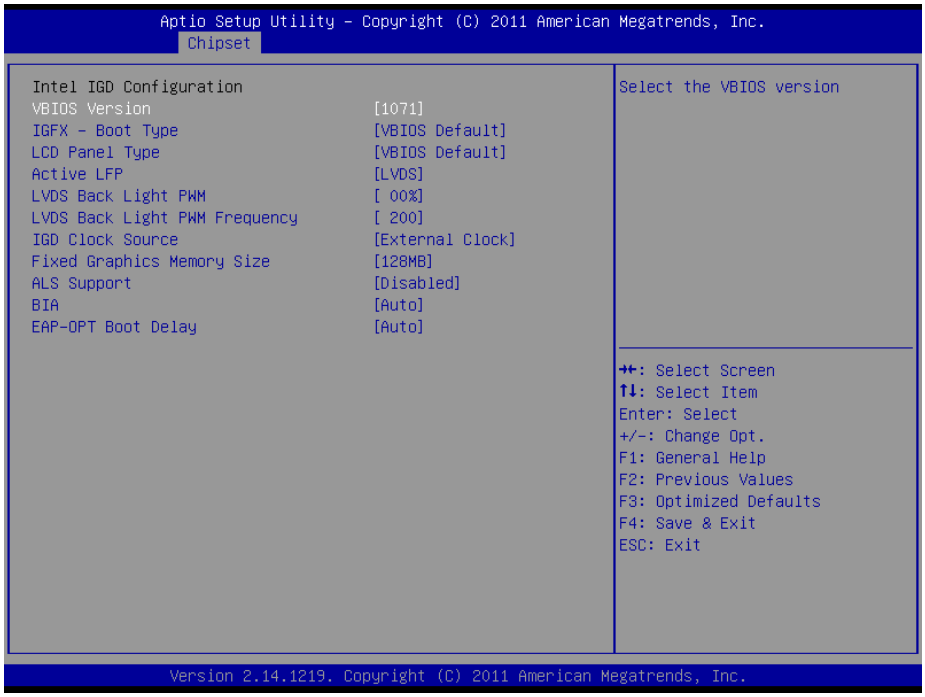


3.6.3.1.1 Memory Frequency and Timing



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

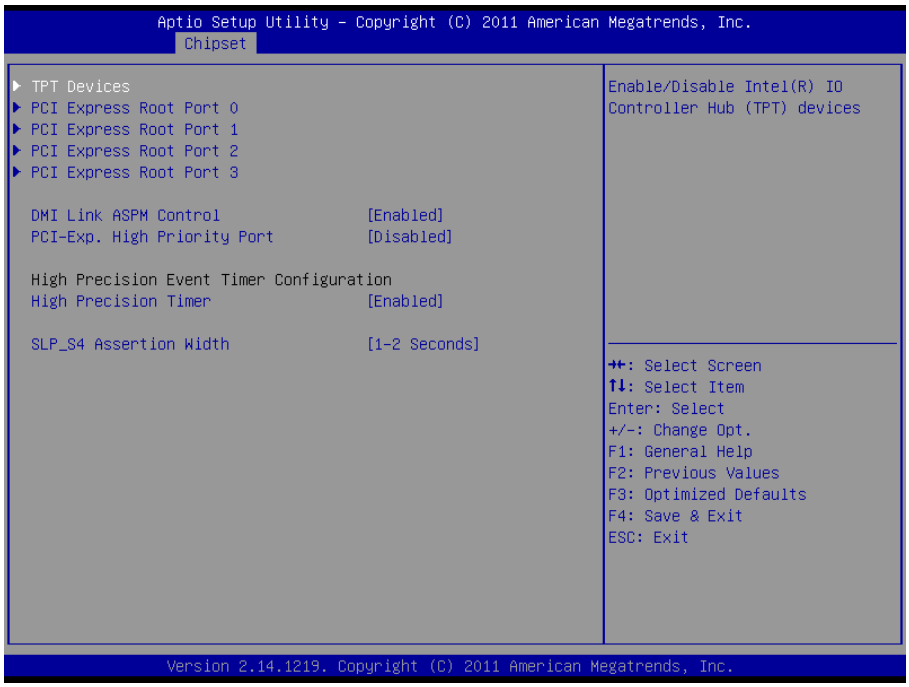
3.6.3.1.2 Intel IGD Configuration



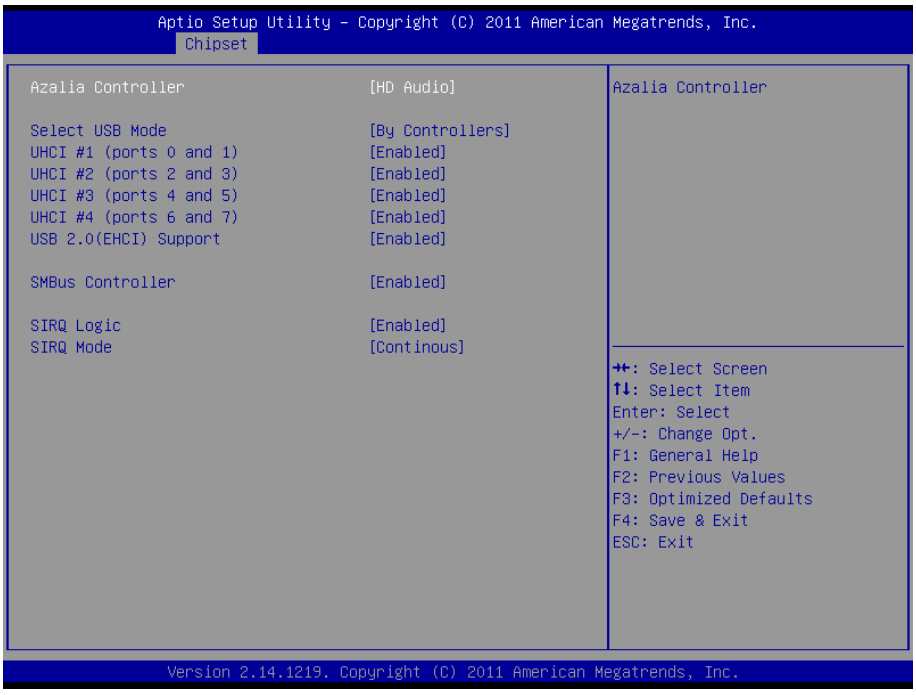
Item	Option	Description
VBIOS Version	1053/1059/1071**[Default]**	Select the VBIOS version
IGFX - Boot Type	VBIOS Default**[Default]** CRT CRT + LVDS CRT + HDMI (Twin) LVDS LVDS + CRT HDMI HDMI + LVDS	Select the Video Device which will be activated during POST. This has no effect if external graphics present.
LCD Panel Type	VBIOS Default**[Default]** 640x480 LVDS 800x600 LVDS 1024x768 LVDS 1280x1024 LVDS	Select LCD panel used by Internal Graphics Device by selecting the appropriate setup item.

	1366x768 LVDS 1024x600 LVDS 1280x800 LVDS	
Active LFP	No LVDS LVDS**[Default]**	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).
LVDS Back Light PWM	00%**[Default]** 25% 50% 75% 100%	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
IGD Clock Source	External Clock**[Default]** Internal Clock	IGD clock selection
Fixed Graphics Memory Size	128MB**[Default]** 256MB	Configure Fixed Graphics Memory Size
ALS Support	Enabled Disabled**[Default]**	Valid only for ACPI. Legacy=ALS Support through the IGD INT10 function. ACPI=ALS support through an ACPI ALS driver
BIA	Auto**[Default]** Disabled Level1/2/3/4/5	>>Auto: GMCH Use VBT Default; >>Level n: Enabled with Selected Aggressiveness Level.
EAP-OPT Boot Delay	Disabled/Auto**[Default]**/ 2~15sec	EAP-OPT Delay for HDMI

3.6.3.2 South bridge



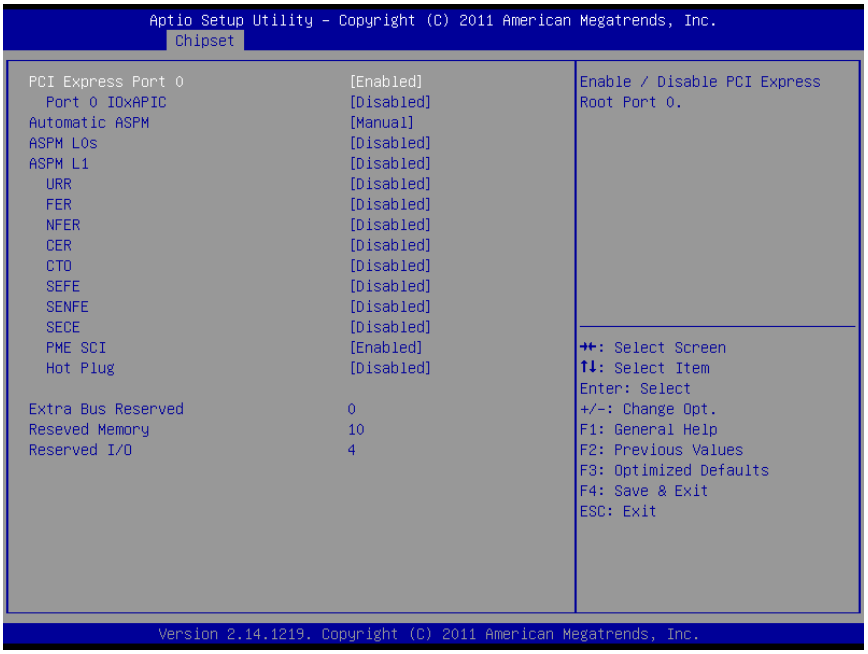
3.6.3.2.1 TPT Devices



Item	Option	Description
Azalia Controller	Disabled HD Audio**[Default]**	Azalia Controller
Select USB Mode	By Ports By Controllers**[Default]**	Select USB mode to connect USB ports

UHCI #1 (ports 0 and 1)	Disabled Enabled**[Default]**	Control the USB UHCI (USB1.1) functions. Disable from highest to lowest controller.
UHCI #2 (ports 2 and 3)	Disabled Enabled**[Default]**	
UHCI #3 (ports 4 and 5)	Disabled Enabled**[Default]**	
UHCI #4 (ports 6 and 7)	Disabled Enabled**[Default]**	
USB 2.0(EHCI) Support	Disabled Enabled**[Default]**	Enable or Disable USB 2.0 (EHCI) Support.
SMBus Controller	Disabled Enabled**[Default]**	Enable or Disable OnChip SMBus Controller.
SIRQ Logic	Disabled Enabled**[Default]**	Enable or Disable SIRQ logic
SIRQ Mode	Quiet Continuous**[Default]**	Set SIRQ mode.

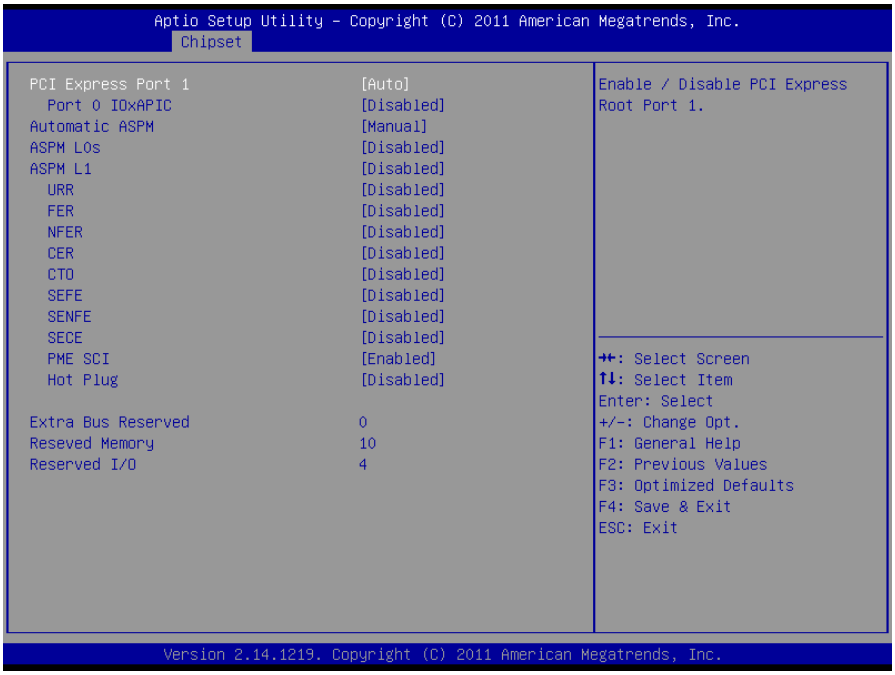
3.6.3.2.2 PCI Express Root Port 0

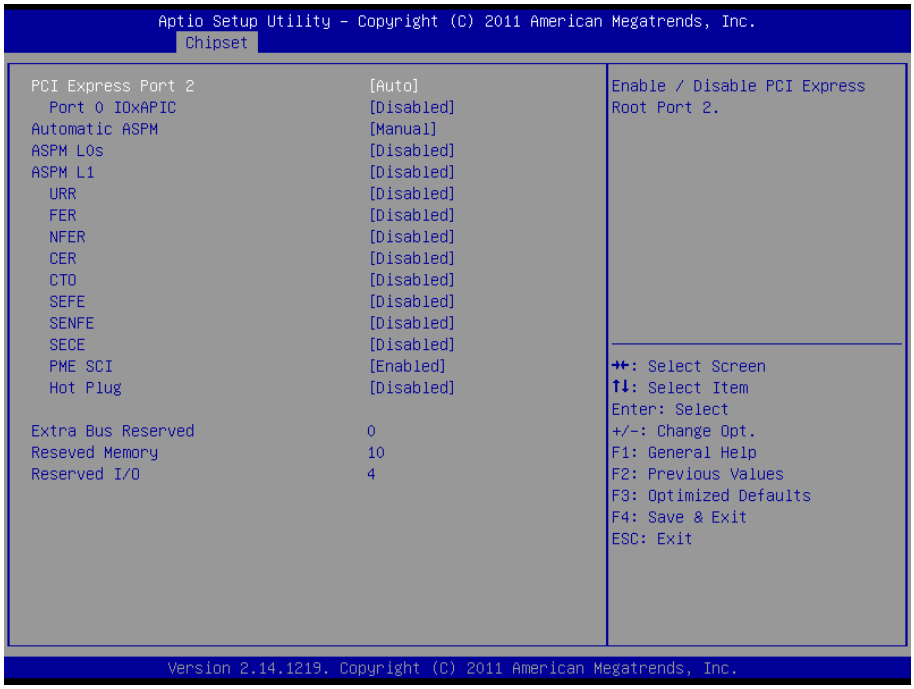


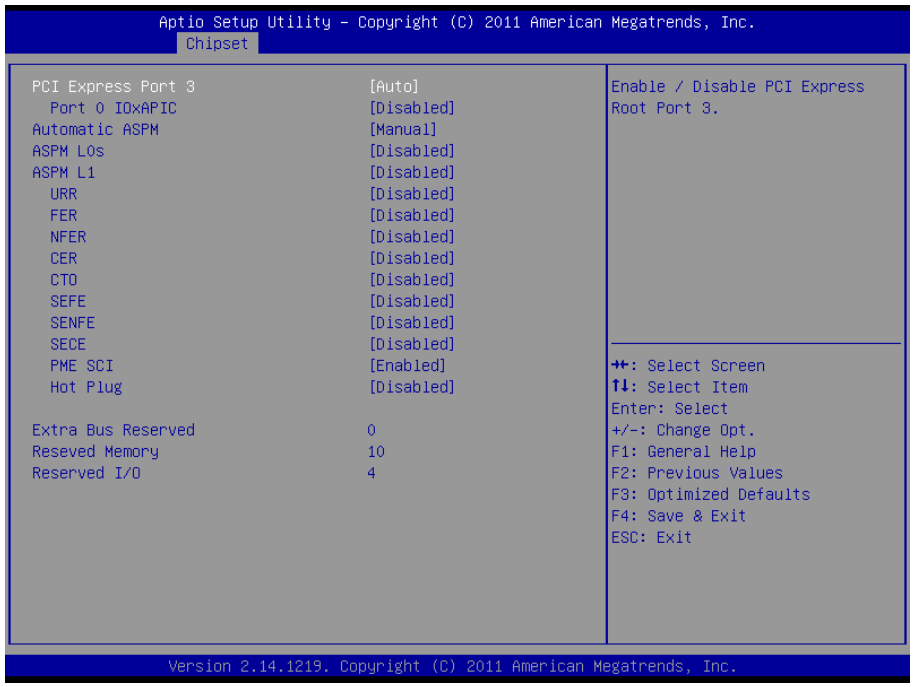
Item	Option	Description
PCI Express Port 0	Disabled Enabled**[Default]**	Enable / Disable PCI Express Root Port 0.
Port 0 IOxAPIC	Disabled**[Default]** Enabled	Enable / Disable PCI Express Root Port 0 I/O APIC
Automatic ASPM	Manual**[Default]** Auto	Automatically enable ASPM based on reported capabilities and known issues
ASPM L0s	Disabled**[Default]** Root Port Only End point Port Only Both Root And Endpoint Ports	Enable PCIe ASPM L0s
ASPM L1	Disabled**[Default]** Enabled	Enable PCIe ASPM L1

URR	Disabled**[Default]** Enabled	PCI Express Unsupported Request Reporting Enable/Disable.
FER	Disabled**[Default]** Enabled	PCI Express Device Fatal Error Reporting Enable/Disable
NFER	Disabled**[Default]** Enabled	PCI Express Device Non-Fatal Error Reporting Enable/Disable.
CER	Disabled**[Default]** Enabled	PCI Express Device Correctable Error Reporting Enable/Disable
CTO	Disabled**[Default]** Enabled	PCI Express Completion Timer TO Enable/Disable
SEFE	Disabled**[Default]** Enabled	Root PCI Express System Error on Fatal Error Enable/Disable
SENFE	Disabled**[Default]** Enabled	Root PCI Express System Error on Non-Fatal Error enable/Disable
SECE	Disabled**[Default]** Enabled	Root PCI Express Error on Correctable Error Enable/Disable
PME SCI	Disabled Enabled**[Default]**	PCI Express PME SCI Enable/Disable.
Hot Plug	Disabled**[Default]** Enabled	PCI Express Hot Plug Enable/Disable
Extra Bus Reserved	0 - 7	Extra Bus Reserved (0 -7)for bridges behind this Root Bridge.
Reserved Memory	1 – 20MB	Reserved memory and Prefetchable Memory (1-20MB) Range for this Root Bridge.
Reserved I/O	4K/8K/12K/16K/20K	Reserved I/O (4K/8K/12K/16K/20K) Range for this Root Bridge.

3.6.3.2.3 PCI Express Root Port 1/2/3



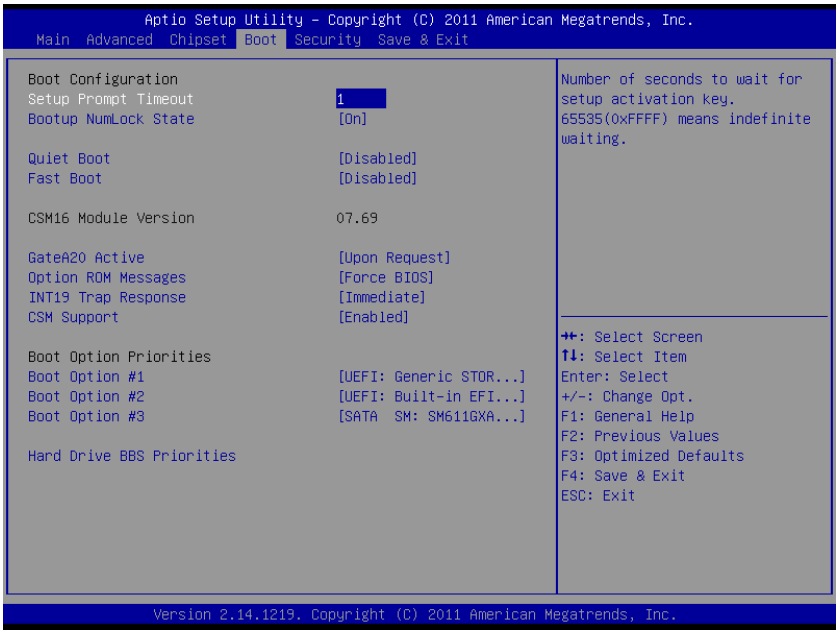




Item	Option	Description
PCI Express Port 1/2/3	Auto**[Default]** Enabled Disabled	Enable / Disable PCI Express Root Port 1/2/3.
Port 0 IOxAPIC	Disabled**[Default]** Enabled	Enable / Disable PCI Express Root Port 0 I/O APIC
Automatic ASPM	Manual**[Default]** Auto	Automatically enable ASPM based on reported capabilities and known issues
ASPM L0s	Disabled**[Default]** Root Port Only End point Port Only	Enable PCIe ASPM L0s

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

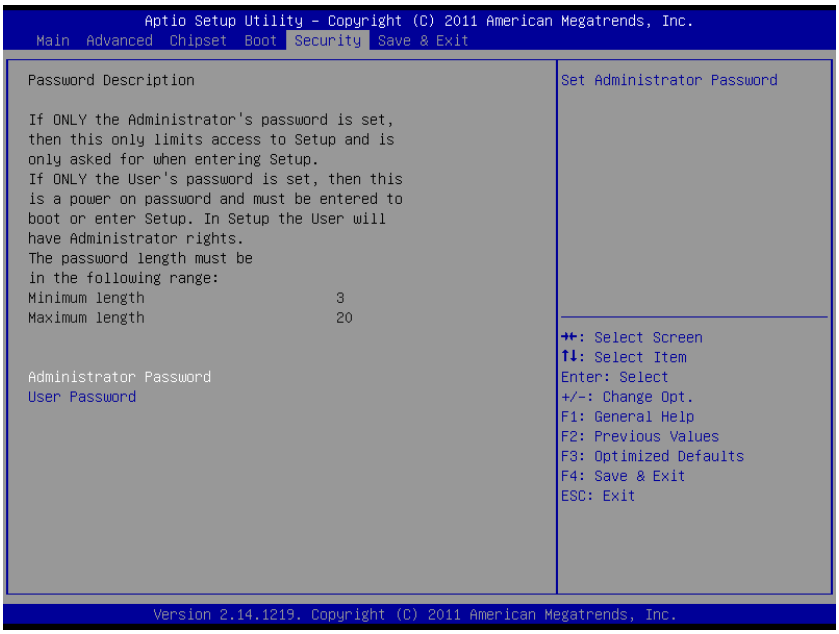
3.6.4 Boot settings



Item	Option	Description
Setup Prompt Timeout	1~65535	Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.
Bootup NumLock State	On Off**[Default]**	Select the keyboard NumLock state
Quiet Boot	Disabled**[Default]** Enabled	Enables or disables Quiet Boot Option
Fast Boot	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	
GateA20 Active	Upon request**[Default]** Always	UPON REQUEST –GA20 can be disabled using BIOS services. ALWAYS- do not allow disabling GA20; this option is useful when any RT code is executed above 1MB
Option ROM Messages	Force BIOS**[Default]** Keep Current	Set display mode for Option ROM
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.
CSM Support	Disabled Enabled**[Default]** Auto	Enable/Disable CSM Support. If Auto is selected, based on OS, CSM will be enabled/disabled automatically.
Boot Option #1/2/3	Sets the system boot order	

3.6.5 Security

Use the Security menu to set system and user password.



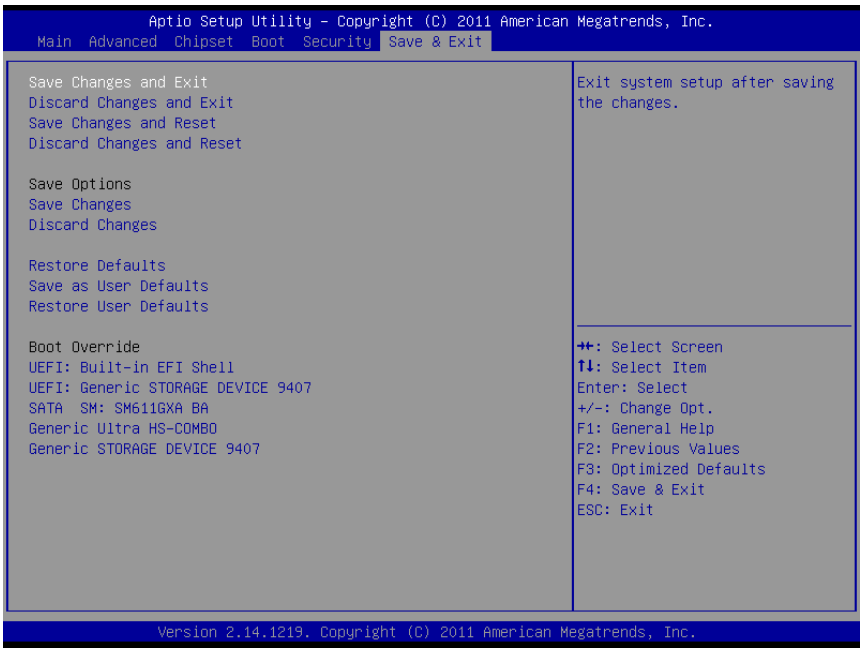
3.6.5.1 Administrator Password

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

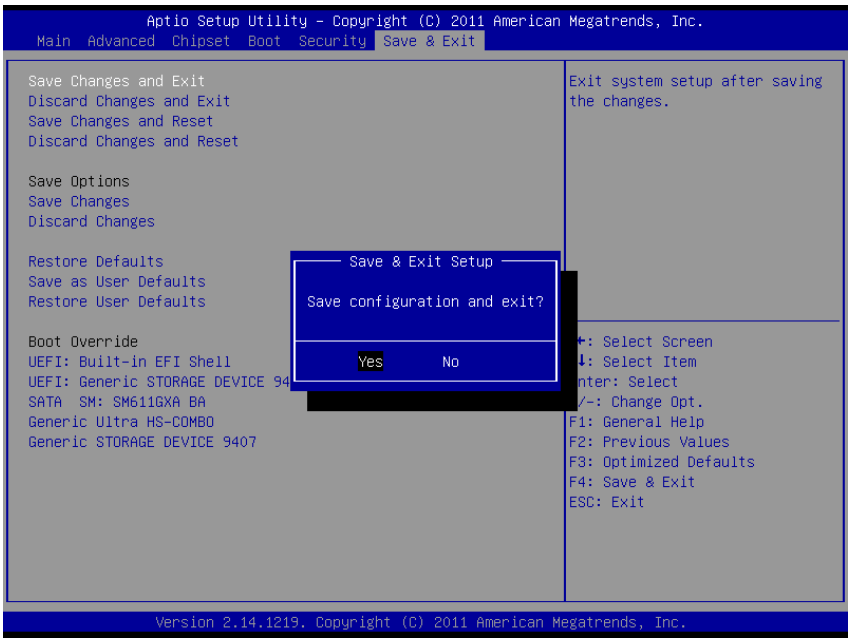
This setting specifies a password that must be entered to access the BIOS Setup Utility or to boot the system. If only the User's password is set, then this is a power on password and must be entered to boot or enter the BIOS setup program. In the BIOS setup program, the User will have Administrator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

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.

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 as 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.

4.1 Install Chipset Driver (Cedarview) W7

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.

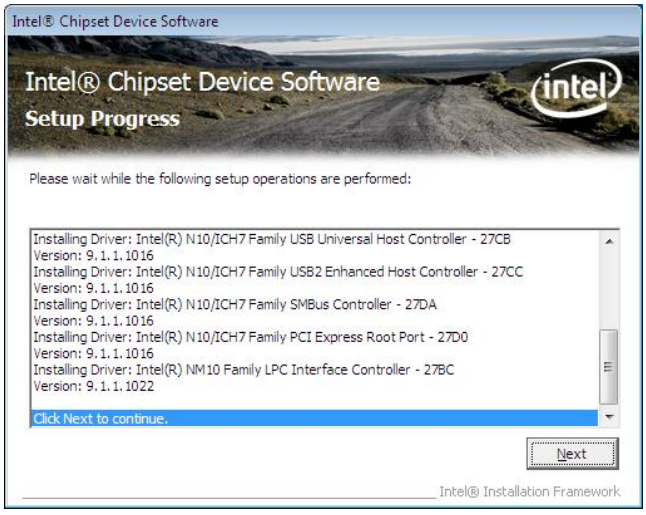
Note: The installation procedures and screen shots in this section are based on W7 operating system.

Step 1. Locate 「Driver_Chipset Intel\Cedarview\W7\INF」

Step 2. Click **Next** to start setup program

Step3. Click **Yes** to accept license agreement.

Step 4. Click **Next** to continue



Step 5. Click **Next** to continue

Step 6. Click **Yes** to finish installation

4.2 Install VGA Driver (For Cedarview)

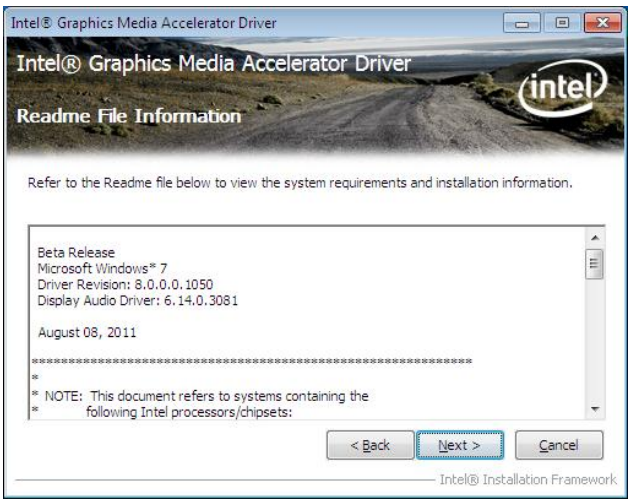
Insert the Supporting DVD-ROM to DVD-ROM drive, click on “start” icon and it should show the index page of Avalue’s products automatically. If not, locate the folder HTML and choose the product from the targeted folder.

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

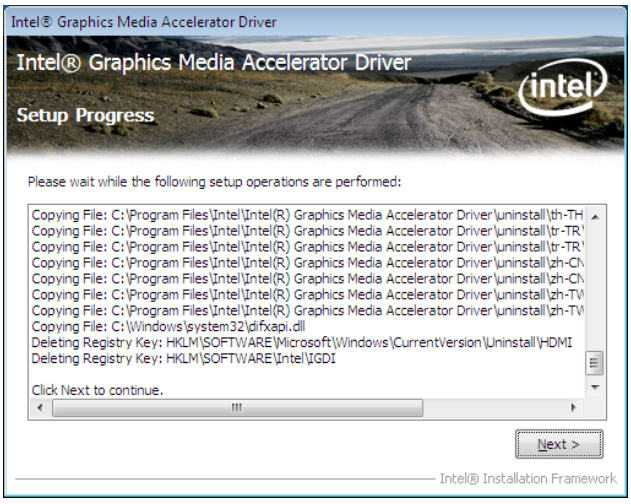
Step 1. Locate 「VGA\Cedarview\W7\VGA」

Step 2. Click **Next** to start setup program

Step 3. Click **Yes** to accept license agreement.



Step 4. Click **Next** to continue



Step 5. Click **Next** to continue

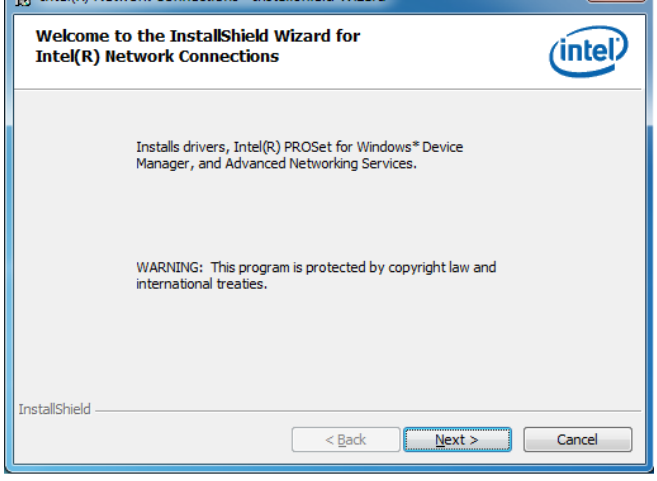
Step 6. Click **Yes** to finish installation

4.3 Install Ethernet Driver (For Realtek 82574L)

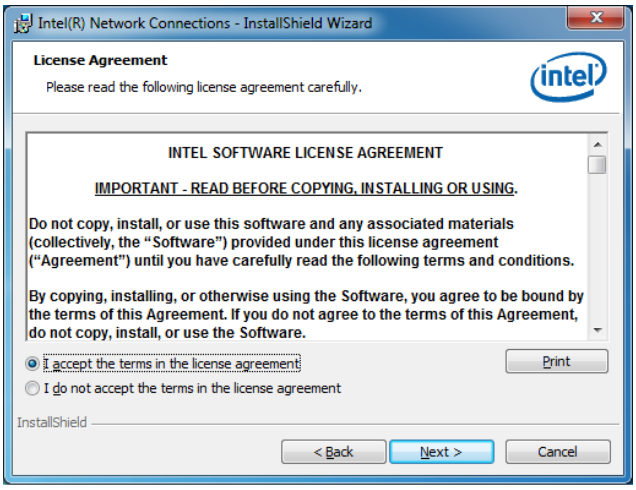
Insert the Supporting DVD-ROM to DVD-ROM drive, click on "start" icon and it should show the index page of Avalue's products automatically. If not, locate the folder HTML and choose the product from the targeted folder.

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

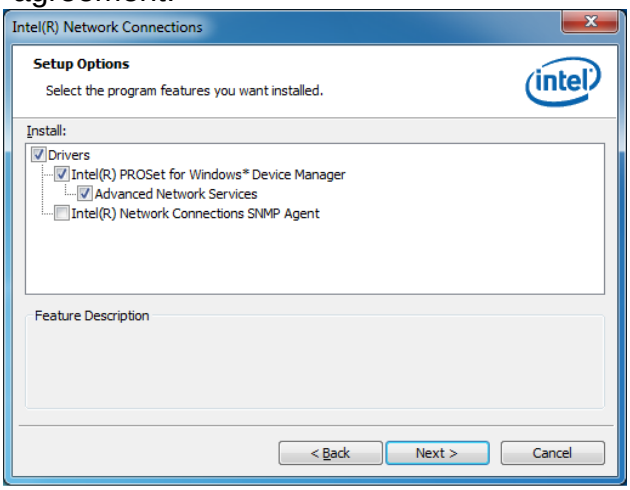
Step 1. Locate 「Realtek\82574L\W7\LAN」



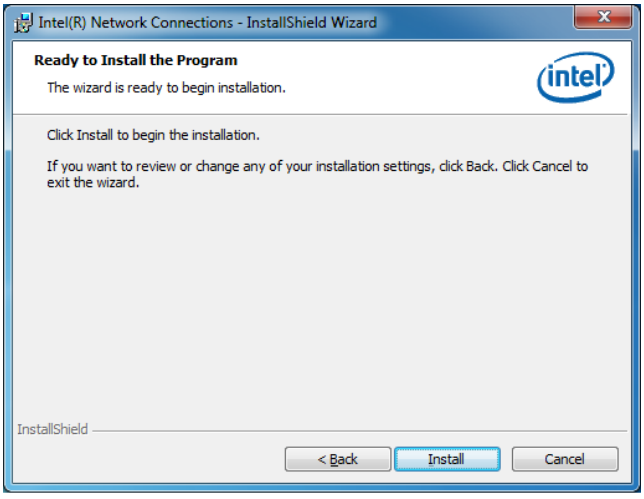
Step 2. Click **Next**.



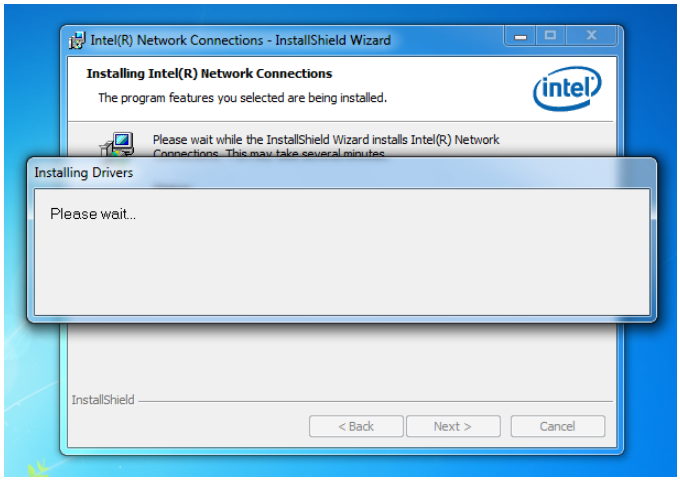
Step 3. Click **Next** to accept licence agreement.



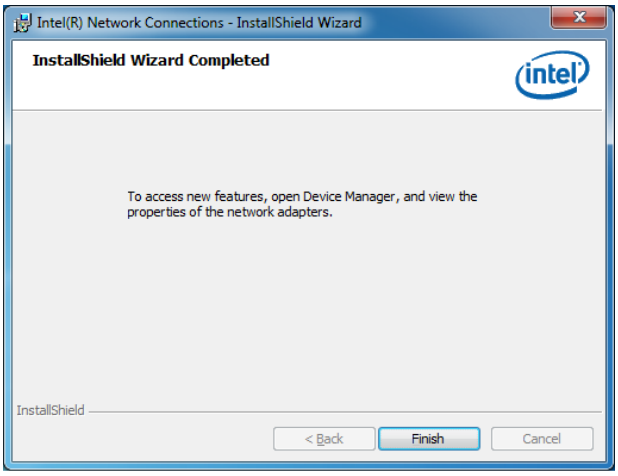
Step 4. Click **Next** after selecting programs to install.



Step 5. Click **Install** to begin installation

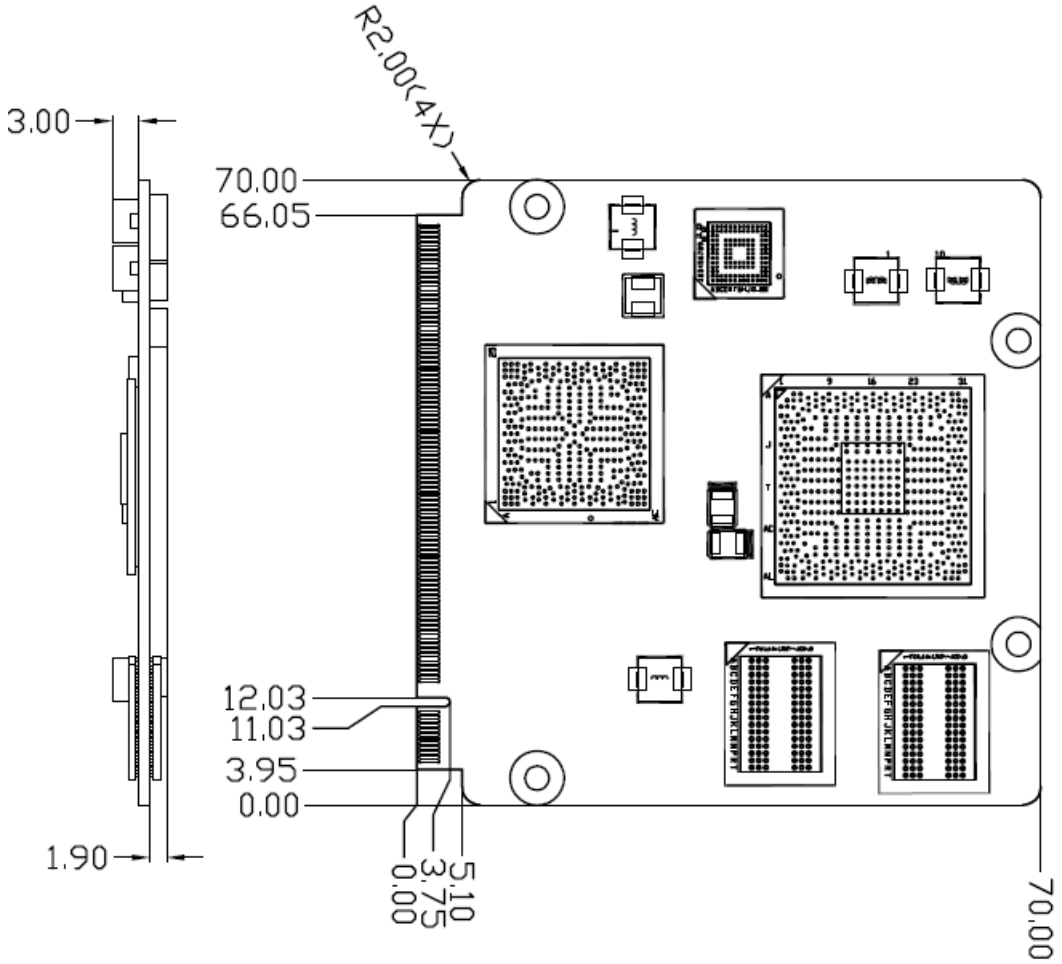


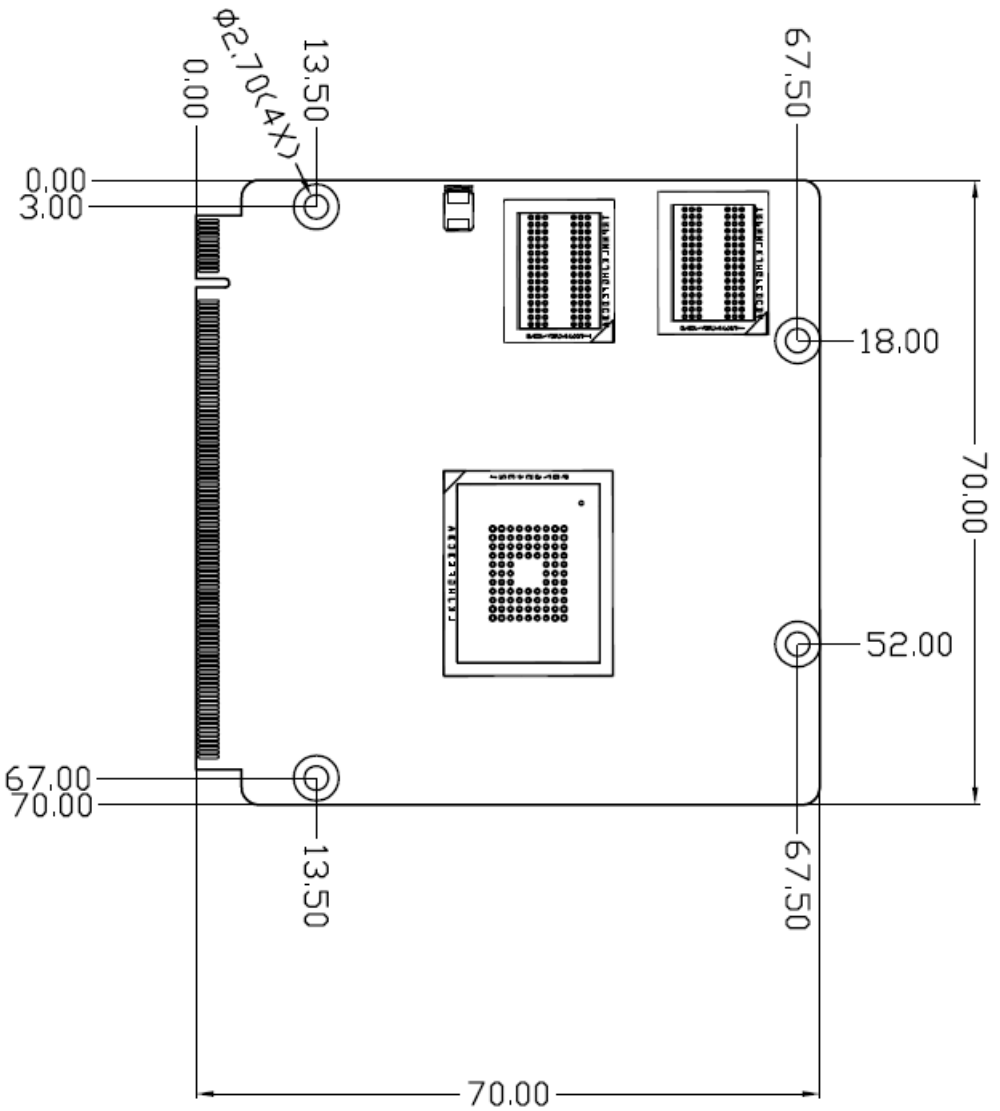
Step 6. Wait while installing.



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

4. Mechanical Drawing


R2.00(4X)
3.00
70.00
66.05
12.03
11.03
3.95
0.00
1.90
0.00
3.75
5.10
70.00


Φ2.70(4X)
0.00
13.50
67.50
0.00
3.00
18.00
70.00
52.00
67.00
70.00
13.50
67.50
70.00