

EQM-BYT

Intel® Atom™ SoC Processors Qseven Module

User's Manual

2nd Ed – 01 September 2014

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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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

- 1x EQM-BYT Intel® Atom™ SoC Processors 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

1.3 Document Amendment History

Revision	Date	By	Comment
1 st	June 2014	Avalue	Initial Release
2 nd	September 2014	Avalue	Update BIOS Setup

1.4 Manual Objectives

This manual describes in details Avalue Technology EQM-BYT 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-BYT 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.

1.5 System Specifications

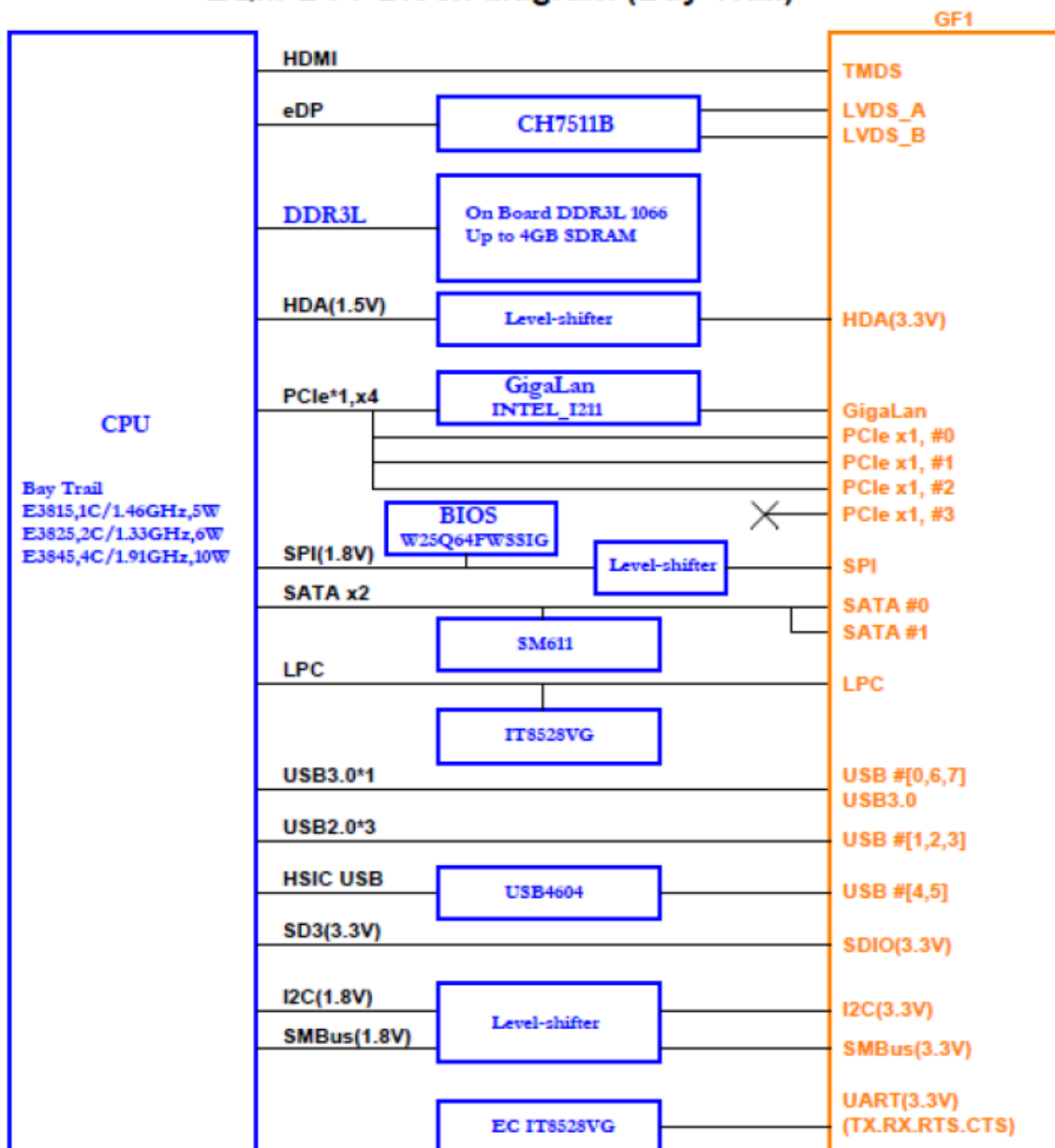
System	
CPU	Intel® Atom™ SoC Processor E3800 Product Family
BIOS	AMI 64Mbit SPI BIOS
System Memory	Onboard DDR3L 1066/1333, Up to 4GB
Watchdog Timer	Reset: 1sec. ~ 65535sec. and 1sec/step
H/W Status Monitor	Monitoring System Temperature, Voltage with Auto Throttling Control
SSD	Optional Onboard 4GB Up to 64GB
I/O Interface	
MIO	2 x SATA Ports to Baseboard (1 is Option If has SSD)
USB	5 x USB 2.0 (2 From USB HUB: SMSC) and 1 x USB 3.0 to Baseboard
SD	SDIO Supported
PCI Express	3 PCIe1 Supported
Others	LPC, SMBus, I2C, UART
External I/O Connector	Qseven Spec 2.0 Connector for Expansions
Display	
Chipset	Intel® Atom™ SoC Integrated Graphics
Resolution	HDMI Mode: 1920 x 1200 @ 60Hz LVDS Mode: 1920 x 1080 @ 60Hz
Multiple Display	HDMI + LVDS to Baseboard
LCD Interface	Dual-channel 24-bit LVDS (CH7511)
Audio	
Chipset	Valleyview SoC Integrated
Interface	Intel® High Definition Audio
Ethernet	
LAN Chip	1 x Intel® I211AT 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.	Standard: 0 ~ 60°C Extended: -40 ~ 85°C

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Storage Temp.	-55°C ~ 85°C
Operating Humidity	0% ~ 90% Relative Humidity, Non-condensing
Size (L x W)	2.8" x 2.8" (70mm x 70mm)
Weight	TBD

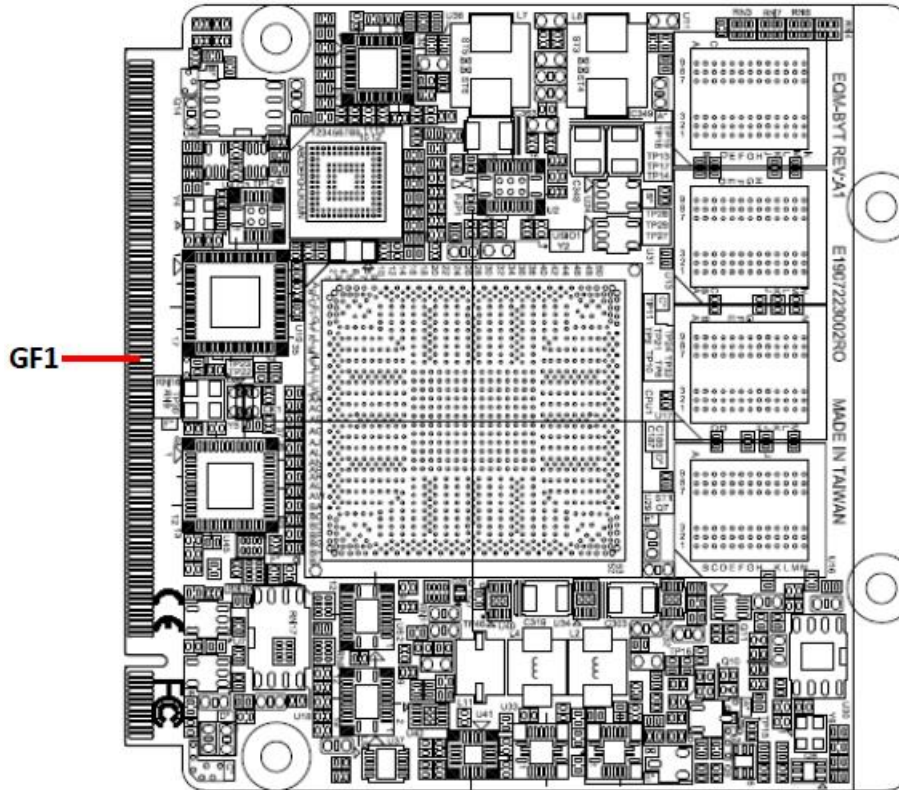
1.6 Architecture Overview—Block Diagram

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



2. Hardware Configuration

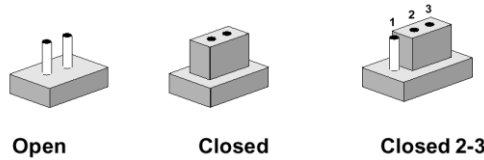
2.1 Product Overview



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.

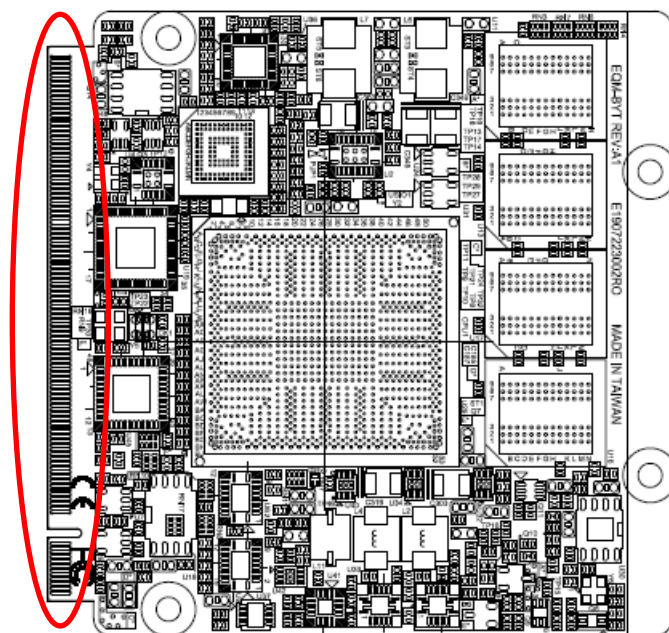
The following tables list the function of each of the board's jumpers and connectors.

Connectors

Label	Function	Note
GF1	QSeven connector	

2.3 Setting Jumpers & Connectors

2.3.1 QSeven connector (GF1)



*Default

Signal	PIN	PIN	Signal
GND1	1	2	GND2
GBE_MDI3-	3	4	GBE_MDI2-
GBE_MDI3+	5	6	GBE_MDI2+
GBE_LINK100#	7	8	GBE_LINK1000#
GBE_MDI1-	9	10	GBE_MDI0-
GBE_MDI1+	11	12	GBE_MDI0+
NC	13	14	GBE_ACT#
NC	15	16	SUS_S4#
WAKE#	17	18	SUS_S3#
NC	19	20	PWRBTN#
SLP_BTN#	21	22	LID_BTN#
GND3	23	24	GND4
GND5	25	26	PWGIN
BATLOW#	27	28	RSTBTN#
SATA0_TX+	29	30	SATA1_TX+
SATA0_TX-	31	32	SATA1_TX-
SATA_ACT#	33	34	GND6
SATA0_RX+	35	36	SATA1_RX+
SATA0_RX-	37	38	SATA1_RX-

Signal	PIN	PIN	Signal
GND7	39	40	GND8
BIOS_DISABLE#	41	42	SDIO_CLK#
SDIO_CD#	43	44	NC
SDIO_CMD	45	46	SDIO_WP
SDIO_PWR#	47	48	SDIO_DAT1
SDIO_DAT0	49	50	SDIO_DAT3
SDIO_DAT2	51	52	NC
NC	53	54	NC
NC	55	56	NC
GND9	57	58	GND10
HDA_SYNC	59	60	SMB_CLK
HDA_RST#	61	62	SMB_DAT
HDA_BCLK	63	64	SMB_ALERT#
HDA_SDI	65	66	I2C_CLK
HDA_SDO	67	68	I2C_DAT
NC	69	70	WDTRIG#
THRMTRIP#	71	72	WDOUT
GND11	73	74	GND12
USB3_TXN0	75	76	USB3_RXN0
USB3_TXP0	77	78	USB3_RXP0
USB_6_7_OC#	79	80	USB_4_5_OC#
USB_P5-	81	82	USB_P4-
USB_P5+	83	84	USB_P4+
USB_2_3_OC#	85	86	USB_0_1_OC#
USB_P3-	87	88	USB_P2-
USB_P3+	89	90	USB_P2+
NC	91	92	NC
USB_P1-	93	94	USB_P0-
USB_P1+	95	96	USB_P0+
GND13	97	98	GND14
LVDS_A0+	99	100	LVDS_B0+
LVDS_A0-	101	102	LVDS_B0-
LVDS_A1+	103	104	LVDS_B1+

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Signal	PIN	PIN	Signal
LVDS_A1-	105	106	LVDS_B1-
LVDS_A2+	107	108	LVDS_B2+
LVDS_A2-	109	110	LVDS_B2-
LVDS_PPEN	111	112	LVDS_BLEN
LVDS_A3+	113	114	LVDS_B3+
LVDS_A3-	115	116	LVDS_B3-
GND15	117	118	GND16
LVDS_A_CLK+	119	120	LVDS_B_CLK+
LVDS_A_CLK-	121	122	LVDS_B_CLK-
LVDS_BLT_CTRL	123	124	NC
NC	125	126	NC
NC	127	128	NC
RSVD129	129	130	RSVD130
DP_TXP3_HDMI_CLK_P	131	132	NC
DP_TXP3_HDMI_CLK_N	133	134	NC
GND17	135	136	GND18
DP_TXP1_HDMI_TXP_1	137	138	DP_AUXP
DP_TXN1_HDMI_TXN_1	139	140	DP_AUXN
GND19	141	142	GND20
DP_TXP2_HDMI_TXP_0	143	144	NC
DP_TXN2_HDMI_TXN_0	145	146	NC
GND21	147	148	GND22
DP_TXP0_HDMI_TXP_2	149	150	HDMI_DDC_SDA
DP_TXN0_HDMI_TXN_2	151	152	HDMI_DDC_SCL
DP_HDMI_HPD_N	153	154	DP_HPD#
PCIE_CLK_REF+	155	156	PCIE_WAKE#
PCIE_CLK_REF-	157	158	PCIE_RST#
GND23	159	160	GND24
NC	161	162	NC
NC	163	164	NC
GND25	165	166	GND26
PCIE2_TX+	167	168	PCIE2_RX+
PCIE2_TX-	169	170	PCIE2_RX-

Signal	PIN	PIN	Signal
UART_TX	171	172	UART_RTS
PCIE1_TX+	173	174	PCIE1_RX+
PCIE1_TX-	175	176	PCIE1_RX-
UART_RX	177	178	UART_CTS
PCIE0_TX+	179	180	PCIE0_RX+
PCIE0_TX-	181	182	PCIE0_RX-
GND27	183	184	GND28
LPC_AD0	185	186	LPC_AD1
LPC_AD2	187	188	LPC_AD3
LPC_CLK	189	190	LPC_FRAME#
SERIRQ	191	192	LPC_LDRQ#
VCC_RTC	193	194	SPKR
FAN_TACHOIN	195	196	FAN_PWMOUT
GND29	197	198	GND30
SPI_MOSI	199	200	SPI_CS#
SPI_MISO	201	202	NC
SPI_CLK	203	204	NC
VCC_5V_SB1	205	206	VCC_5V_SB2
MFG_NC0	207	208	MFG_NC2
MFG_NC1	209	210	MFG_NC3
VCC1	211	212	VCC2
VCC3	213	214	VCC4
VCC5	215	216	VCC6
VCC7	217	218	VCC8
VCC9	219	220	VCC10
VCC11	221	222	VCC12
VCC13	223	224	VCC14
VCC15	225	226	VCC16
VCC17	227	228	VCC18
VCC19	229	230	VCC20

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 immediately after switching the system on, or

By pressing the 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 NVRAM Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu
+ key	Increase the numeric value or make changes
- key	Decrease the numeric value or make changes
F1 key	General help, only for Status Page Setup Menu and Option Page Setup Menu
F2 key	Previous Values.
F3 key	Optimized defaults
F4 key	Save & Exit Setup

- **Navigating Through The Menu Bar**

Use the left and right arrow keys to choose the menu you want to be in.



Note: Some of the navigation keys differ from one screen to another.

- **To Display a Sub Menu**

Use the arrow keys to move the cursor to the sub menu you want. Then press <Enter>. A “>” pointer marks all sub menus.

3.4 Getting Help

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window press <Esc> or the F1 key again.

3.5 In Case of Problems

If, after making and saving system changes with Setup, you discover that your computer no longer is able to boot, the AMI BIOS supports an override to the CMOS settings which resets your system to its defaults.

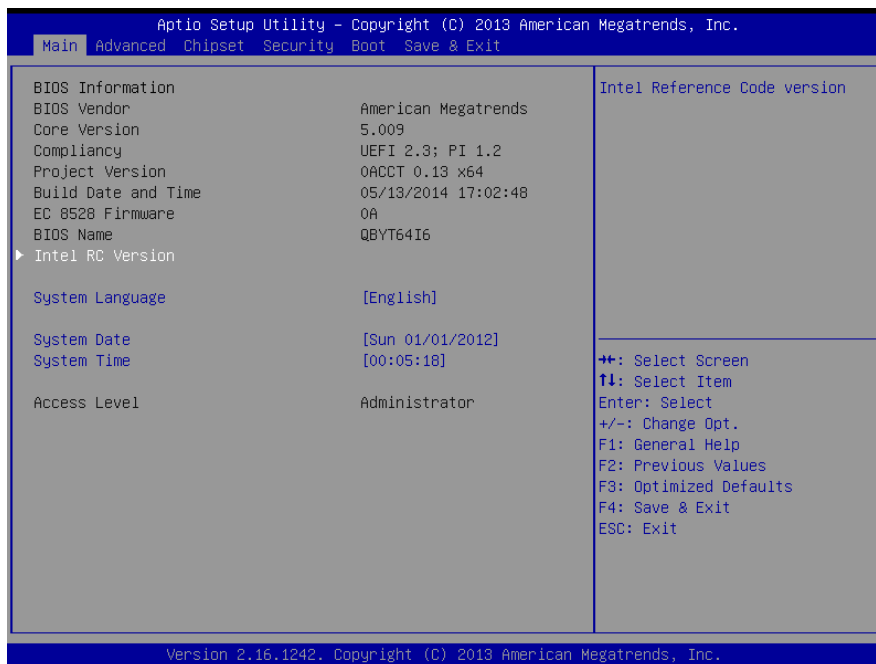
The best advice is to only alter settings which you thoroughly understand. To this end, we strongly recommend that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both Award and your systems manufacturer to provide the absolute maximum performance and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

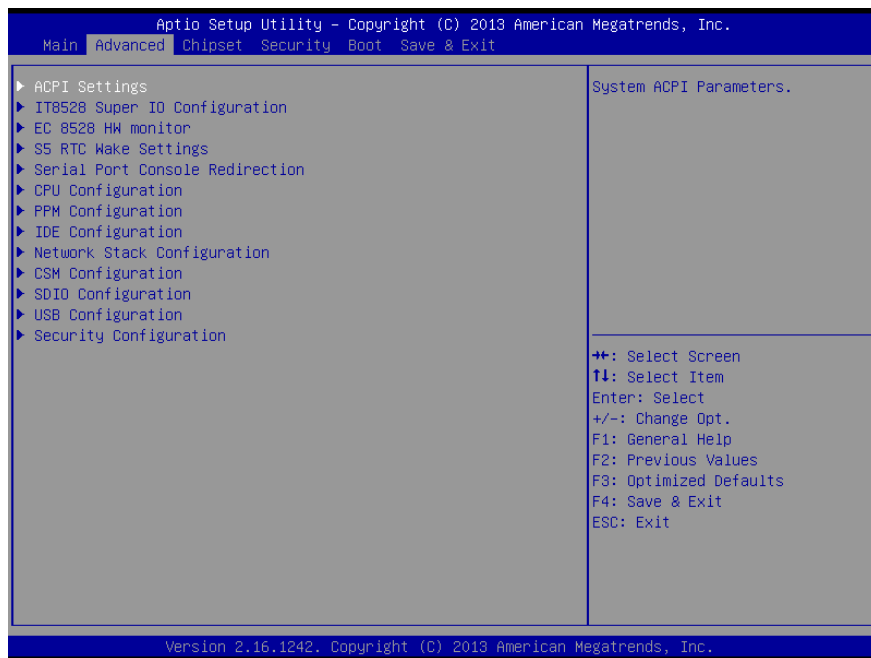


Note: BIOS setup screens shown in this chapter are for reference only, and may not exactly match what you see on your screen. Visit the Avalue website (www.avalue.com.tw) to download the latest product and BIOS information.

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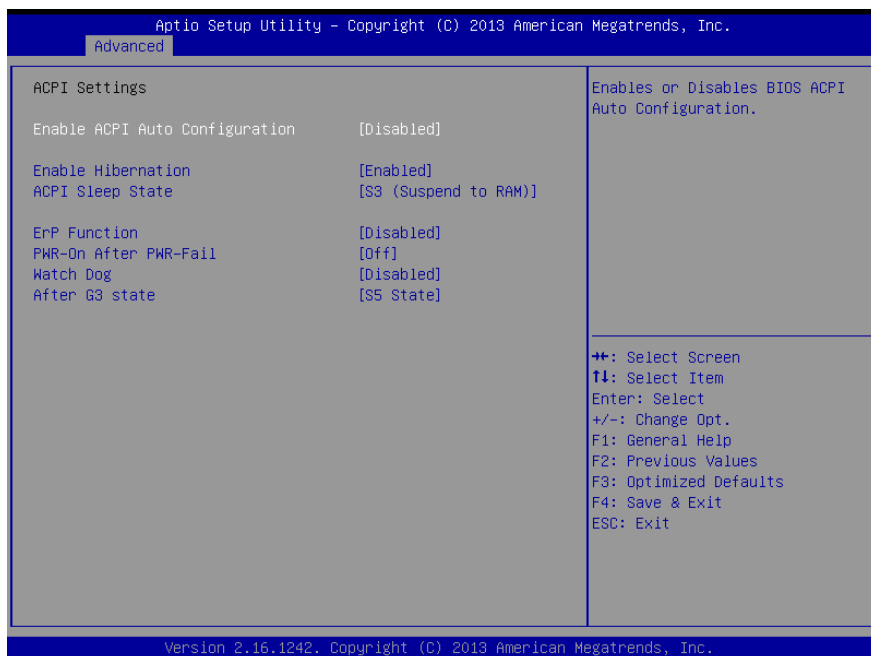
3.6.2 Advanced BIOS settings

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



3.6.2.1 ACPI Settings

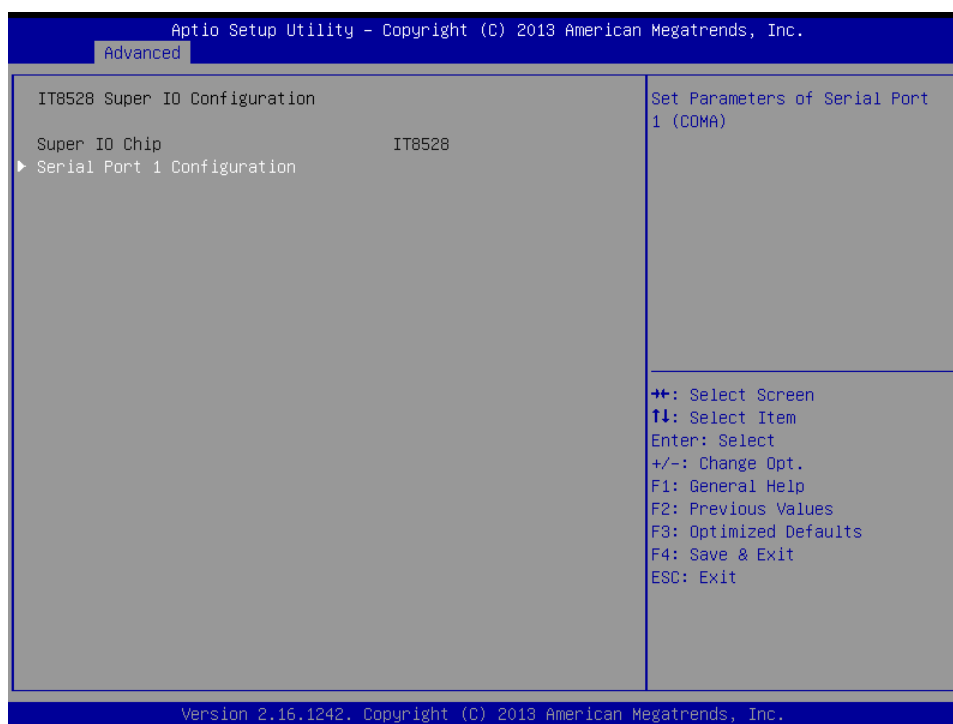
You can use this item to set up ACPI Configuration.



Item	Options	Description
Enable ACPI Auto Configuration	Disabled[Default], Enabled	Enables or Disables BIOS ACPI Auto Configuration.
Enable Hibernation	Disabled,	Enables or Disables System ability to

	Enabled[Default]	Hibernate (OS/S4 Sleep State). This option may be not effective with some OS.
ACPI Sleep State	Suspend Disabled, S3 (Suspend to RAM) [Default]	Select the highest ACPI sleep state the system will enter, when the SUSPEND button is pressed.
ErP Function	Disabled[Default], Enabled	ErP Function (Deep S5).
PWR-On After PWR-Fail	Off[Default] On	AC loss resume.
Watch Dog	Disabled[Default] 30 sec 40 sec 50 sec 1 min 2 min 10 min 30 min	Select WatchDog.
After G3 state	S5 State[Default] S0 State	System will return to S0 or S5 state after G3.

3.6.2.2 IT8528 Super IO Configuration



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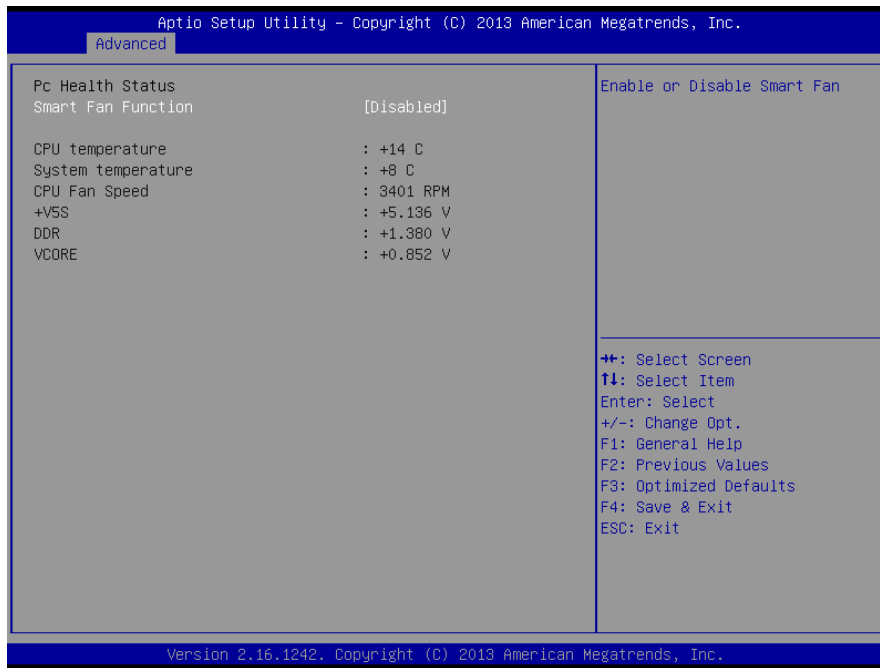
3.6.2.2.1 Serial Port 1 Configuration



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

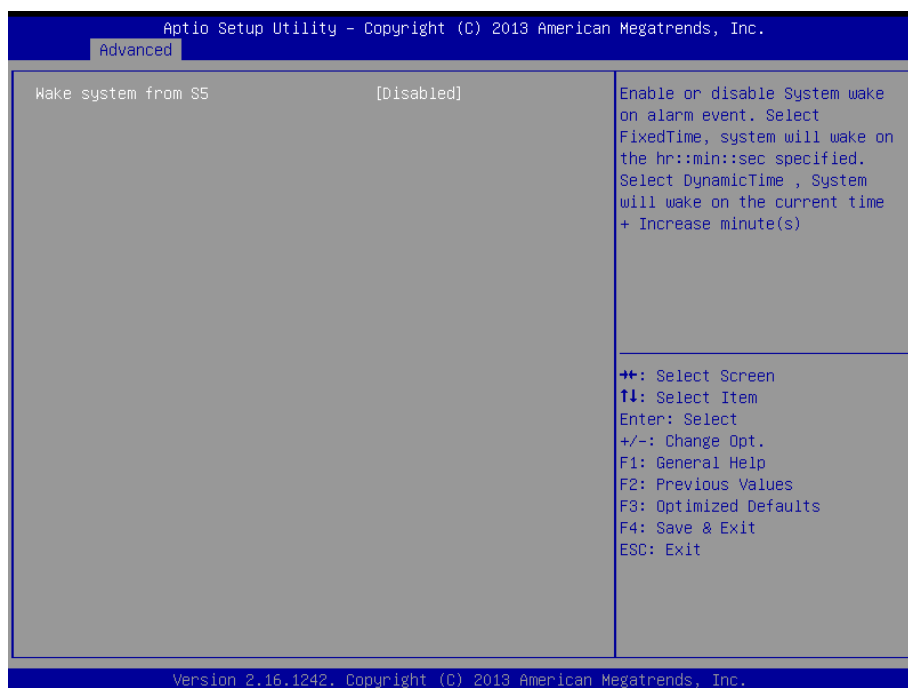
3.6.2.3 H/W Monitor

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



Item	Option	Description
Smart Fan Function	Enabled, Disabled[Default]	Enables or Disables Smart Fan

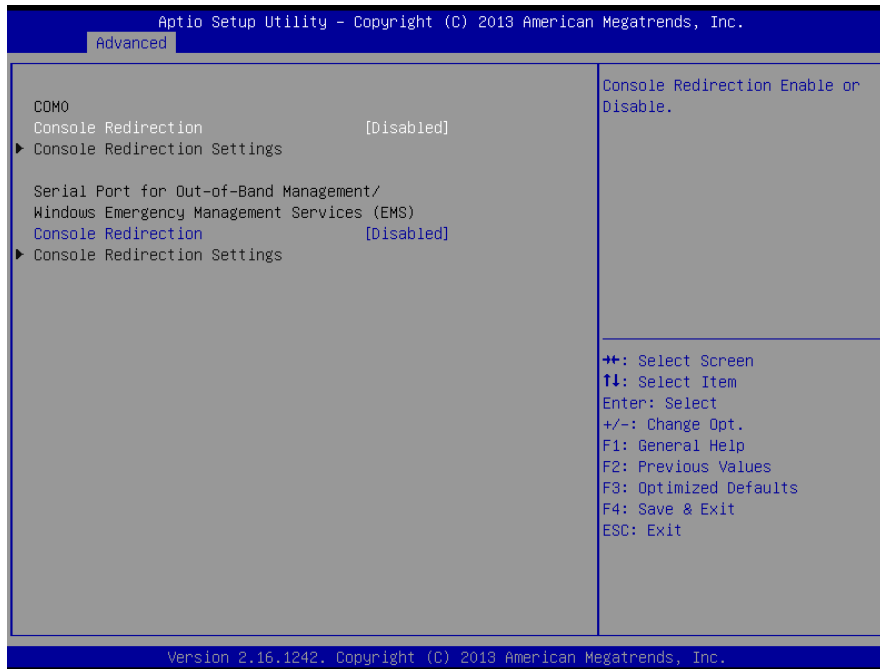
3.6.2.4 S5 RTC Wake settings



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

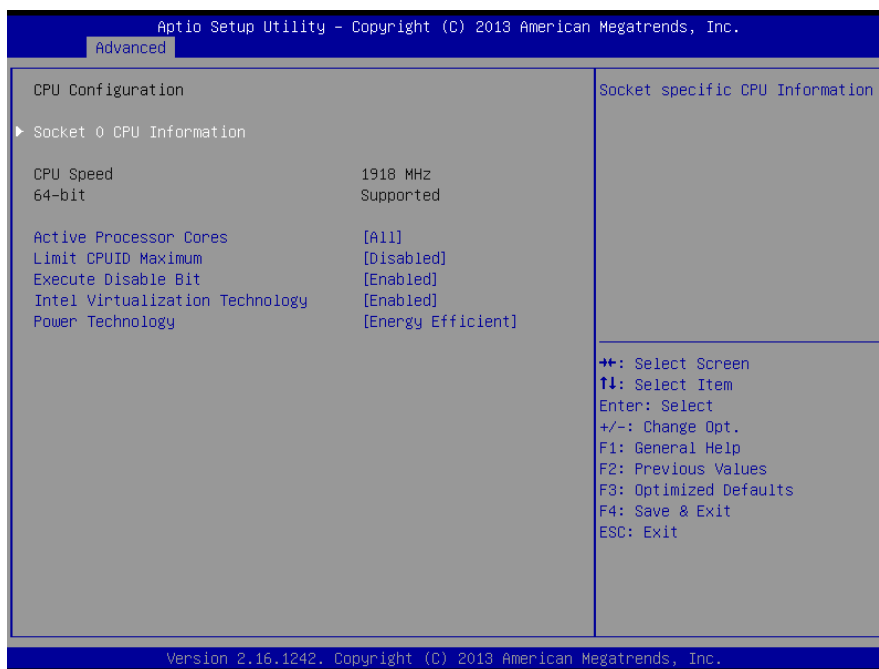
3.6.2.5 Serial Port Console Redirection



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

3.6.2.6 CPU Configuration

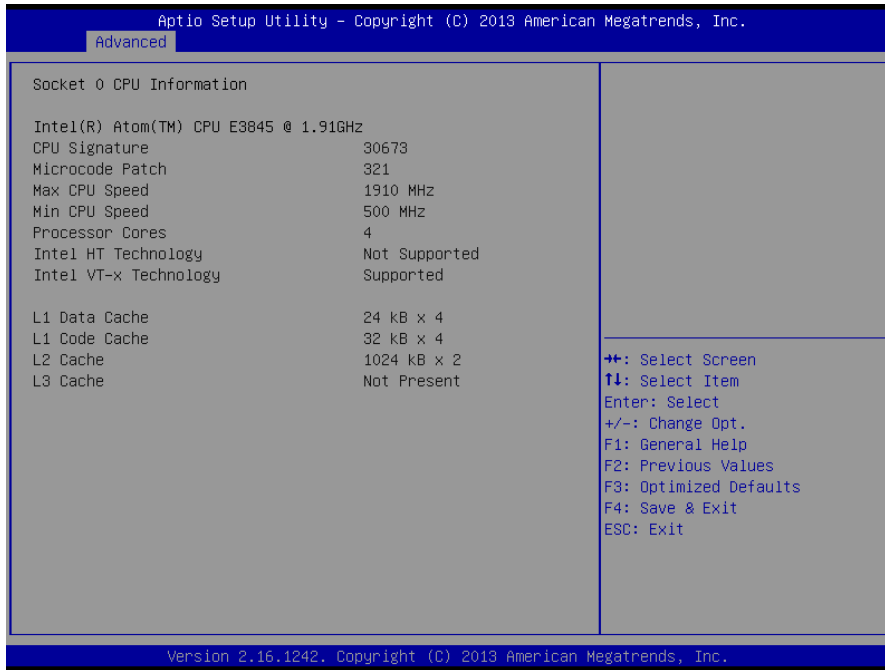
Use the CPU configuration menu to view detailed CPU specification and configure the CPU.



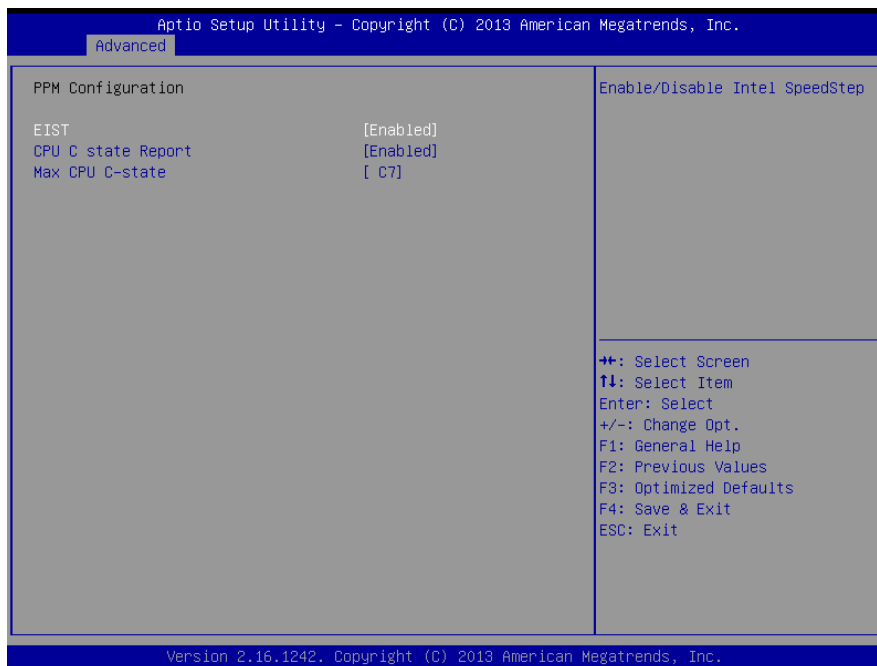
Item	Options	Description
Active Processor Cores	All[Default] 1	Number of cores to enable in each processor package.
Limit CPUID Maximum	Disabled[Default], Enabled	Disabled for Windows XP.
Execute Disable Bit	Disabled, Enabled[Default]	XD can prevent certain classes of malicious buffer overflow attacks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

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3.6.2.6.1 Socket 0 CPU Information

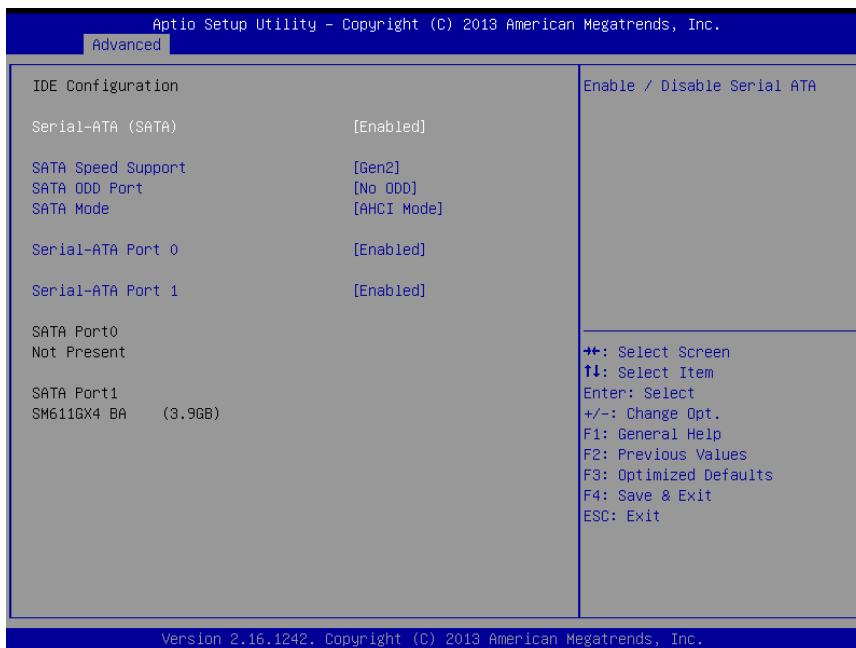


3.6.2.7 PPM configuration



Item	Option	Description
EIST	Enabled[Default] Disabled	Enable/Disable Intel SpeedStep.
CPU C state Report	Enabled[Default] Disabled	Enable/Disable CPU C State report to OS.
Max CPU C-state	C7[Default] C6 C1	This option controls Max C state that the processor will support.

3.6.2.8 IDE Configuration



Item	Options	Description
Serial-ATA (SATA)	Enabled[Default] Disabled	Enable/Disable Serial ATA.
SATA Speed Support	Gen1 Gen2[Default]	SATA Speed Support Gen1 or Gen2.
SATA ODD Port	Port0 ODD Port1 ODD No ODD[Default]	SATA ODD is Port0 or Port1.
SATA Mode	IDE Mode AHCI Mode[Default]	Select IDE / AHCI.
Serial-ATA Port 0/1	Enabled[Default] Disabled	SATA Ports (0-3) Device Names if Present and Enabled.

3.6.2.9 Network Stack Configuration



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

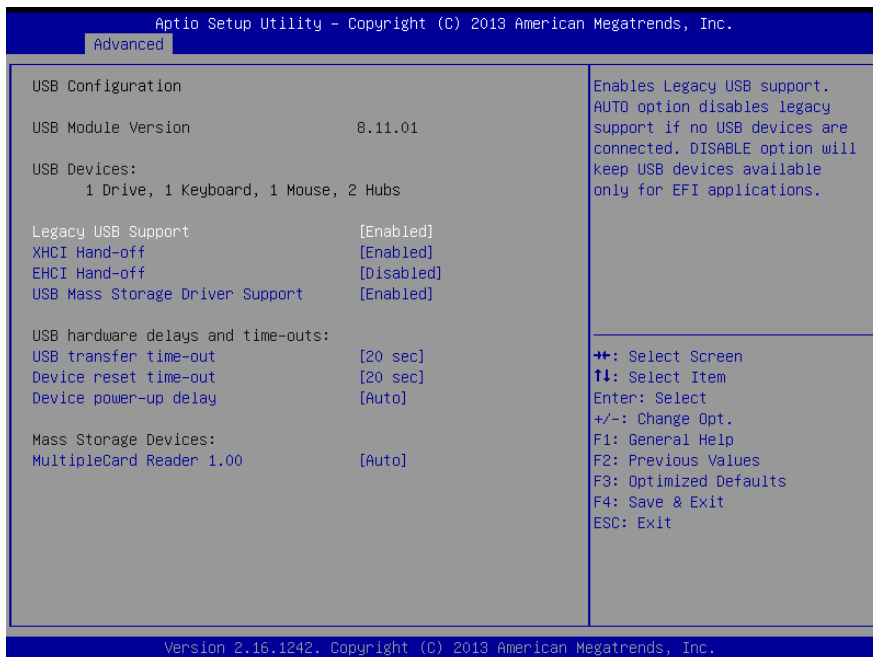
3.6.2.10 SDIO Configuration



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

3.6.2.11 USB Configuration

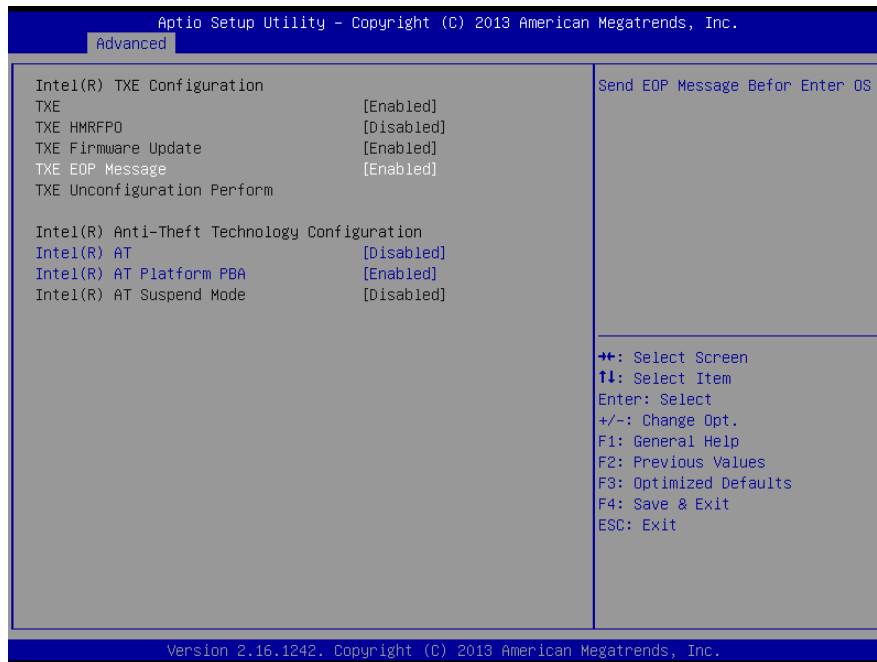
The USB configuration menu is used to read USB configuration information and configure USB.



Item	Options	Description
Legacy USB support	Enabled [Default] Disabled Auto	Enables Legacy USB support. AUTO disables legacy support if no USB devices are connected. DISABLE will keep USB devices available only for EFI applications.
XHCI Hand-off	Enabled [Default] Disabled	This is a workaround for OSES without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.
EHCI Hand-off	Enabled Disabled [Default]	This is a workaround for OSES without EHCI hand-off support. The EHCI ownership change should be claimed by EHCI driver.
USB Mass Storage Driver Support	Enabled [Default] Disabled	Enable/Disable USB Mass Storage Driver Support.
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.

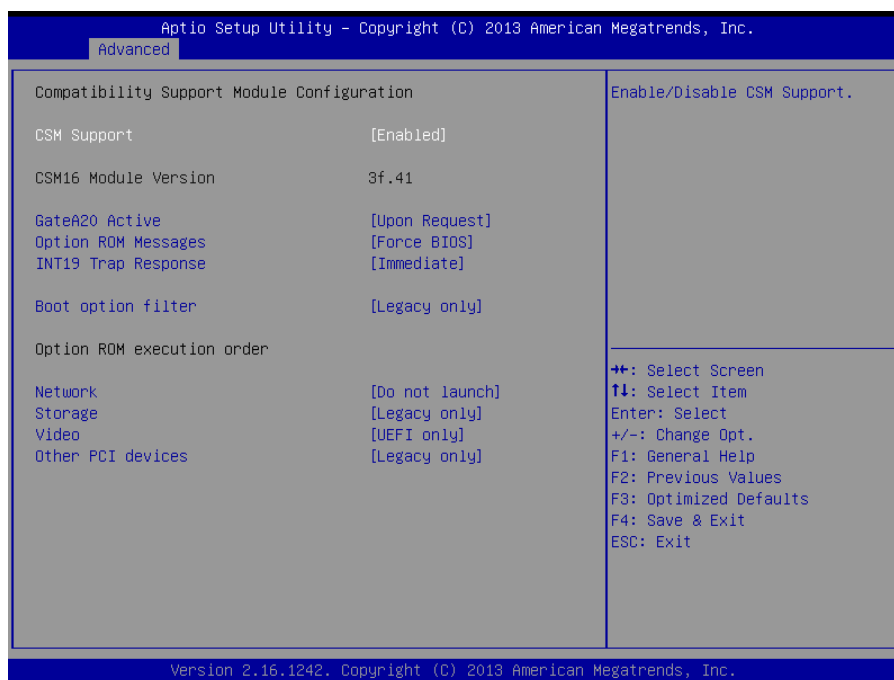
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3.6.2.12 Security Configuration



Item	Options	Description
TXE EOP Message	Enabled[Default] Disabled	Send EOP Message Before Enter OS.
Intel® AT	Enabled Disabled[Default]	Enable/Disable BIOS AT Code from Running.
Intel® AT Platform PBA	Enabled[Default] Disabled	Enable/Disable BIOS AT Code from Running.

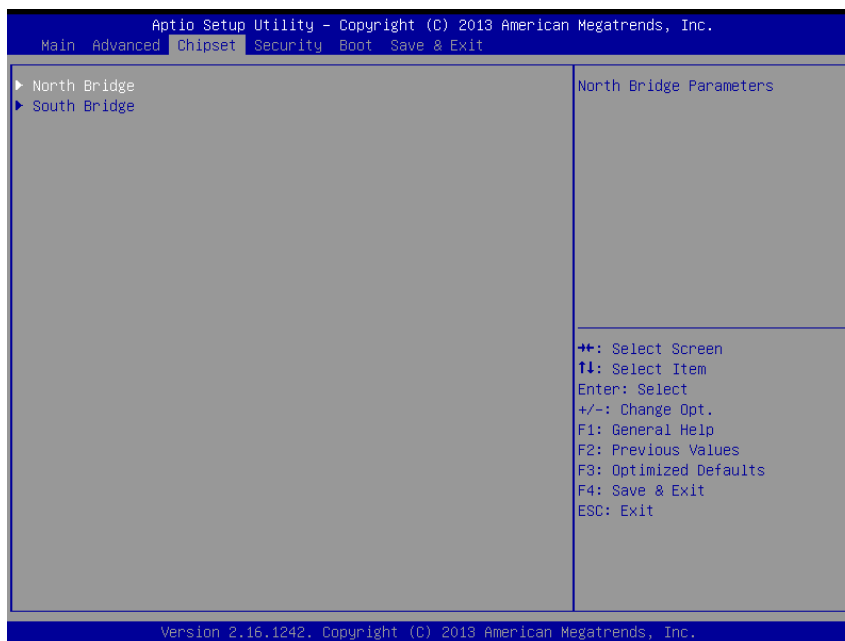
3.6.2.13 CSM Configuration



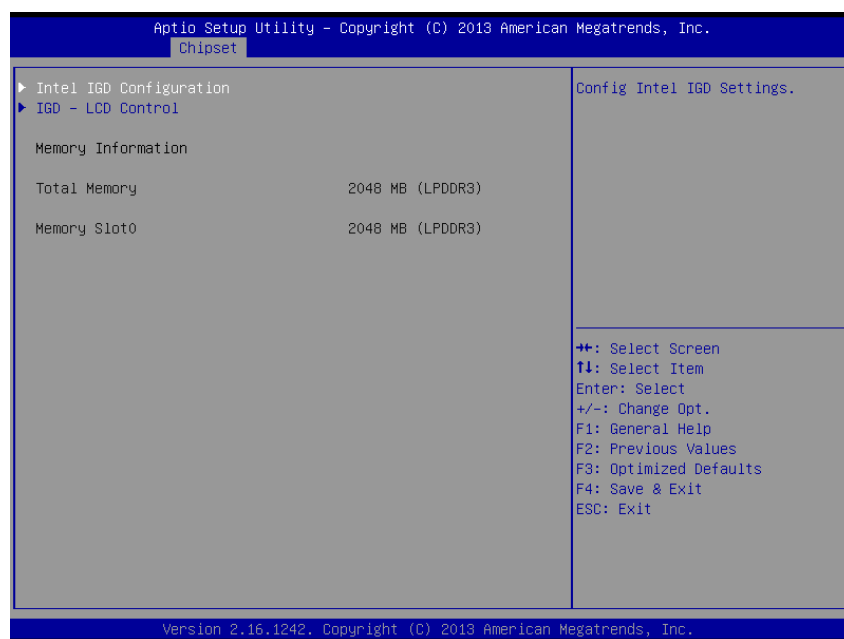
Item	Options	Description
CSM Support	Enabled[Default] Disabled,	Enable/Disable CSM Support.
GateA20 Active	Upon Request[Default] Always	UPON REQUEST – GA20 can be disabled using BIOS services. ALWAYS – go not allow disabling GA20; this option is useful when any RT code is executed above 1MB.
Option ROM 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 traps during legacy boot.
Boot option filter	UEFI and Legacy Legacy only[Default] UEFI only	This option controls Legacy/UEFI ROMs priority.
Network	Do not launch[Default] UEFI only Legacy only	Controls the execution of UEFI and Legacy PXE OpROM.
Storage	Do not launch UEFI only Legacy only[Default]	Controls the execution of UEFI and Legacy Storage OpROM.
Video	Do not launch UEFI only Legacy only[Default]	Controls the execution of UEFI and Legacy Video OpROM.
Other PCI devices	UEFI only Legacy only[Default],	Determines OpROM execution policy for devices other than Network, Storage, or Video.

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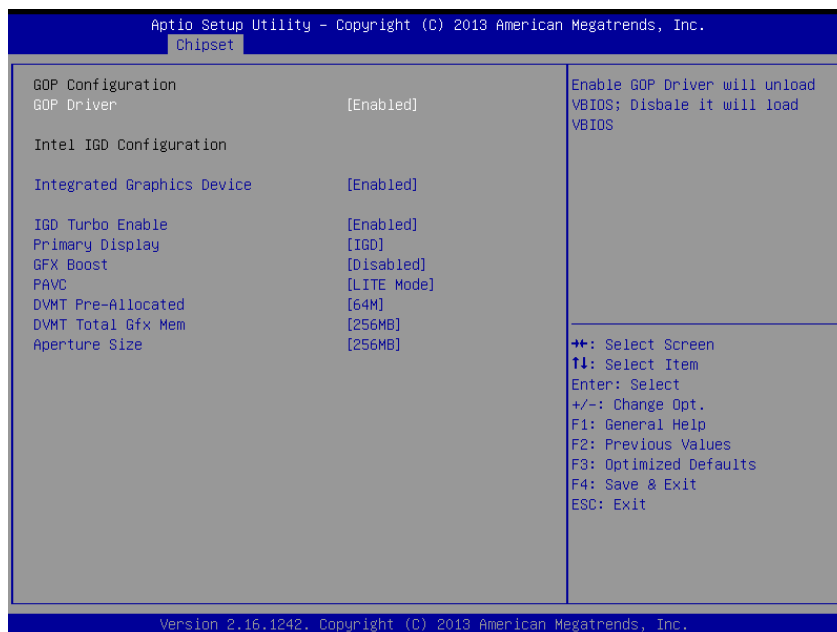
3.6.3 Chipset



3.6.3.1 North Bridge



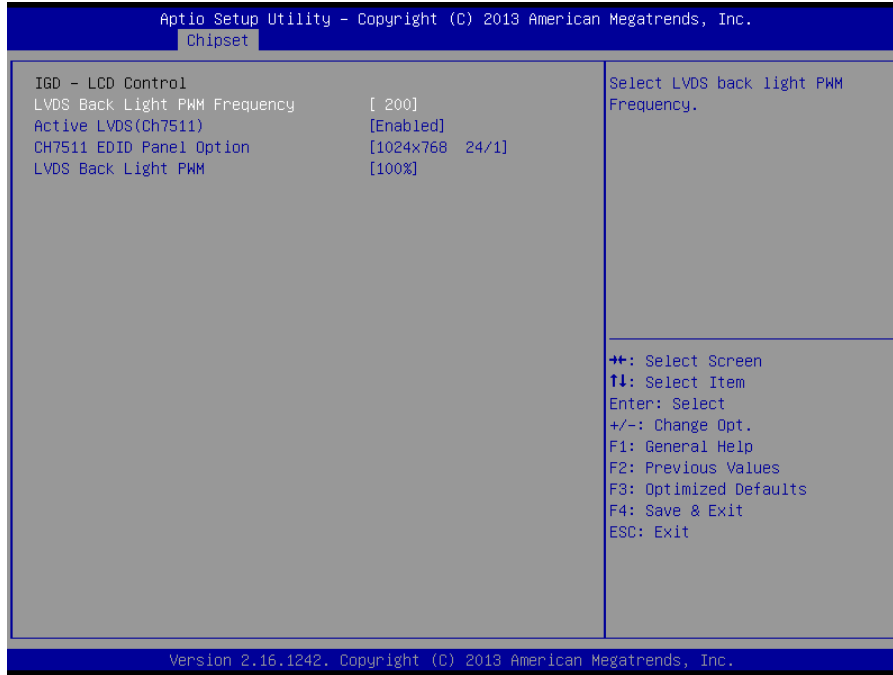
3.6.3.1.1 Intel IGD Configuration



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

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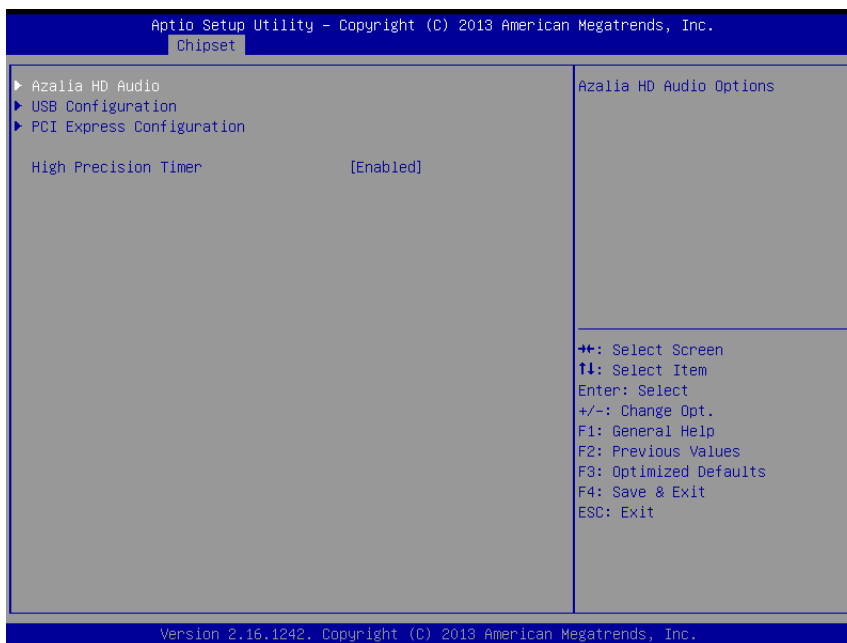
3.6.3.1.2 IGD-LCD Control



Item	Option	Description
LVDS Back Light PWM Frequency	200[Default]	Select LVDS back light PWM Frequency.
	300	
	400	
	500	
	700	
	1k	
	2k	
	3k	
	5k	
Active LVDS (Ch7511)	Enabled[Default] Disabled	Active Internal LVDS(eDP->Ch7511-to-LVDS).
CH7511 EDID Panel Option	1024x768 24/1[Default]	Port1-EDP to LVDS(Chrotel 7511) Panel EDID Option.
	800x600 18/1	
	1024x768 18/1	
	1366x768 18/1	
	1024x600 18/1	
	1280x800 18/1	
	1920x1200 24/2	
	640x480 18/1	
	800x480 18/1	
	1920x1080 18/2	
	1280x1024 24/2	
	1440x900 18/2	
	1600x1200 24/2	
	1366x768 24/1	
1920x1080 24/2		
1680x1050 24/2		
LVDS Back Light PWM	00%	Select LVDS back light PWM duty.
	25%	
	50%	
	75%	

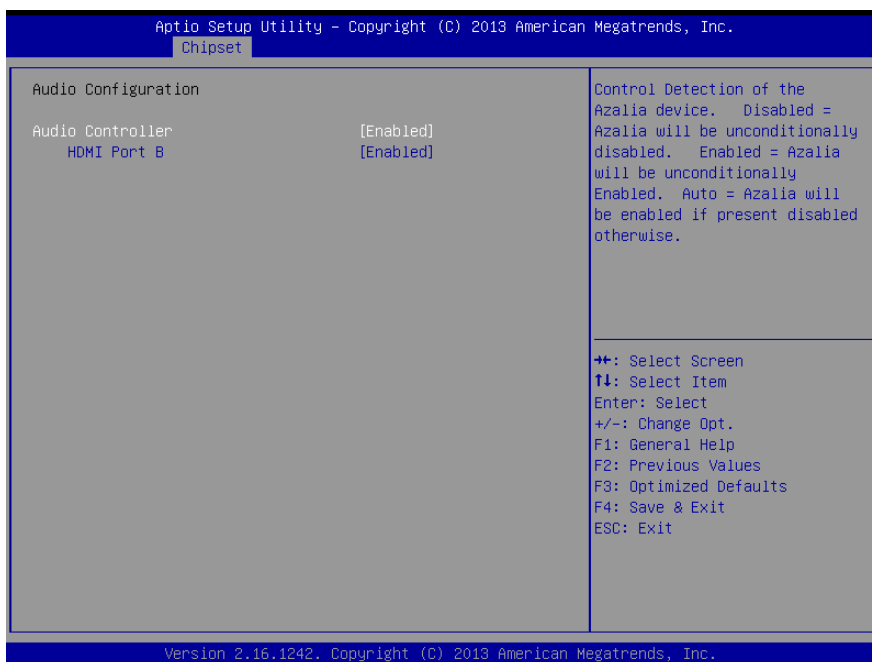
	100% [Default]	
--	-----------------------	--

3.6.3.2 South Bridge



Item	Option	Description
High Precision Timer	Enabled [Default] Disabled	Enable or Disable the High Precision Event Timer.

3.6.3.2.1 Azalia HD Audio

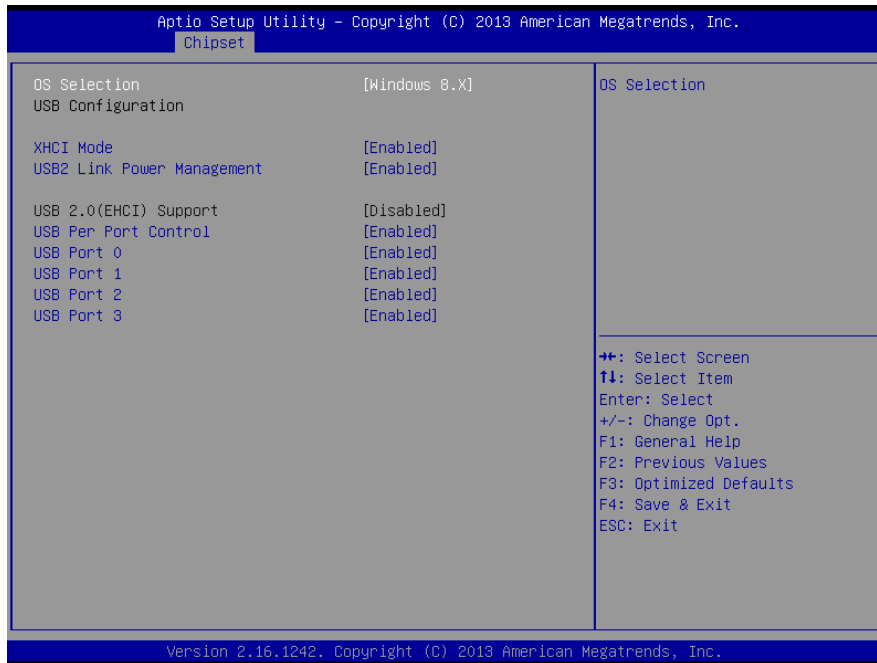


Item	Option	Description
Audio Controller	Enabled [Default] Disabled	Control Detection of the Azalia device. Disabled = Azalia will be unconditionally

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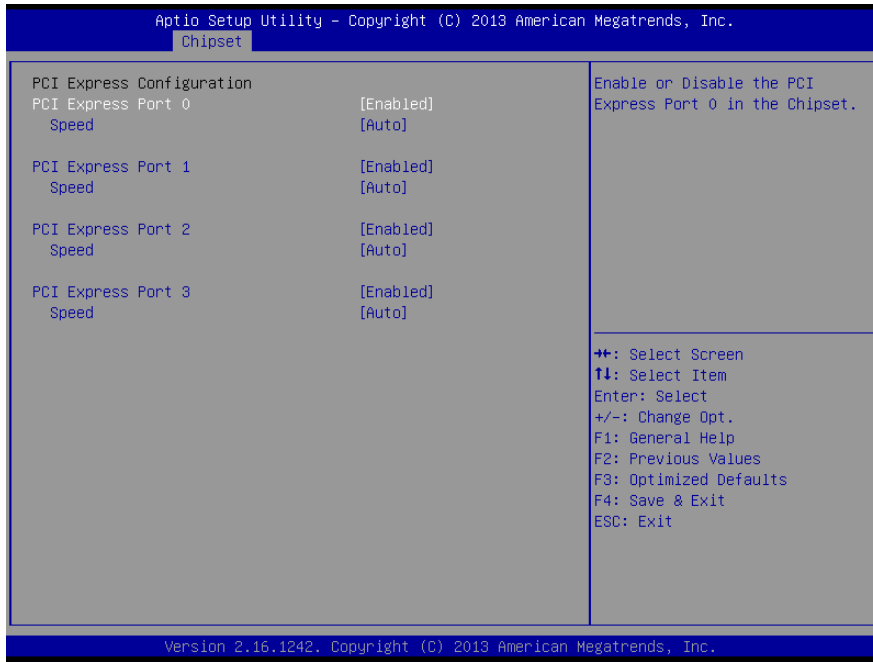
		disabled. Enabled = Azalia will be unconditionally Enabled. Auto = Azalia will be enabled if present disabled otherwise
HDMI Port B	Enabled[Default] Disabled	Enable/Disable HDMI Port B.

3.6.3.2.2 USB Configuration



Item	Option	Description
OS Selection	Windows 8.X[Default] Android Window 7	Please select the corresponding type of Windows for OS installation. Please change the item of OS selection to Windows 7 if you intend to install Windows 7 OS; Please change the item of OS selection to Windows 8.X if you intend to install Windows 8 OS.
XHCI Mode	Enabled[Default] Disabled	Mode of operation of xHCI controller.
USB2 Link Power Management	Enabled[Default] Disabled	Enable/Disable USB2 Link Power Management.
USB Per Port Control	Enabled[Default] Disabled	Control each of the USB ports (0~3). Enable: Enable USB per port; Disable: Use USB port X settings.
USB Port 0/1/2/3	Enabled[Default] Disabled	Enable/Disable USB Port 0/1/2/3.

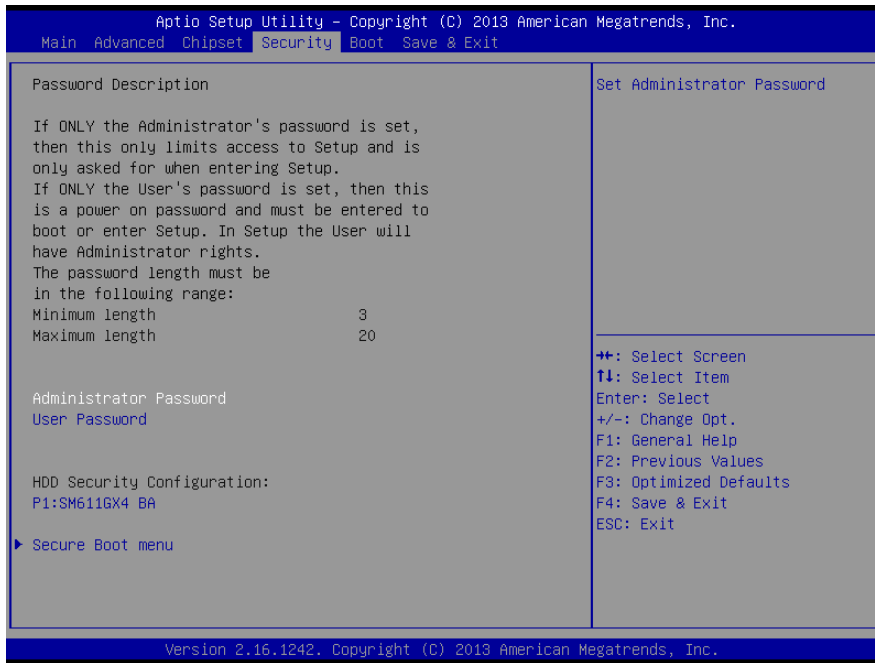
3.6.3.2.3 PCI Express Configuration



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

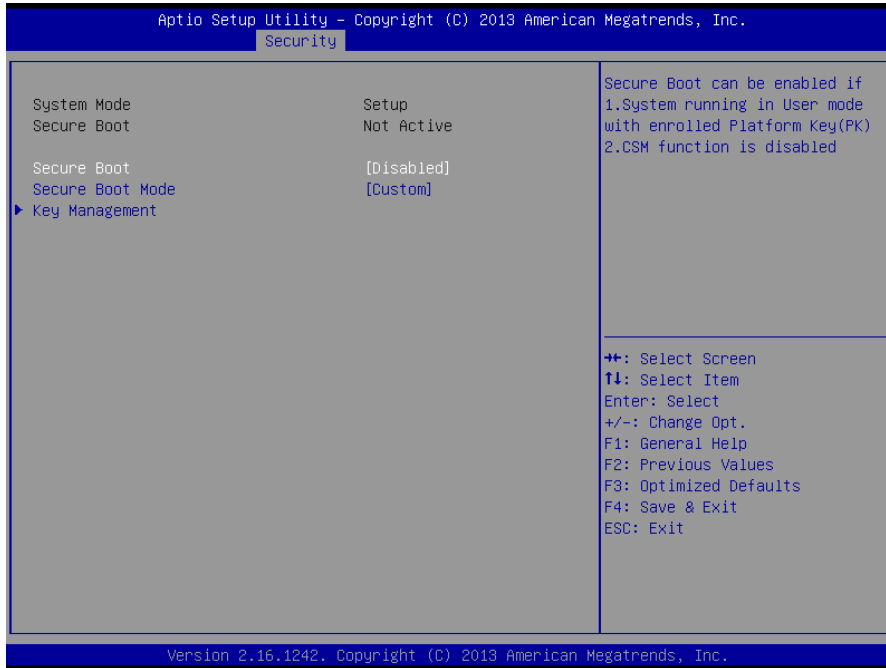
3.6.4 Security

Use the Security menu to set system and user password.



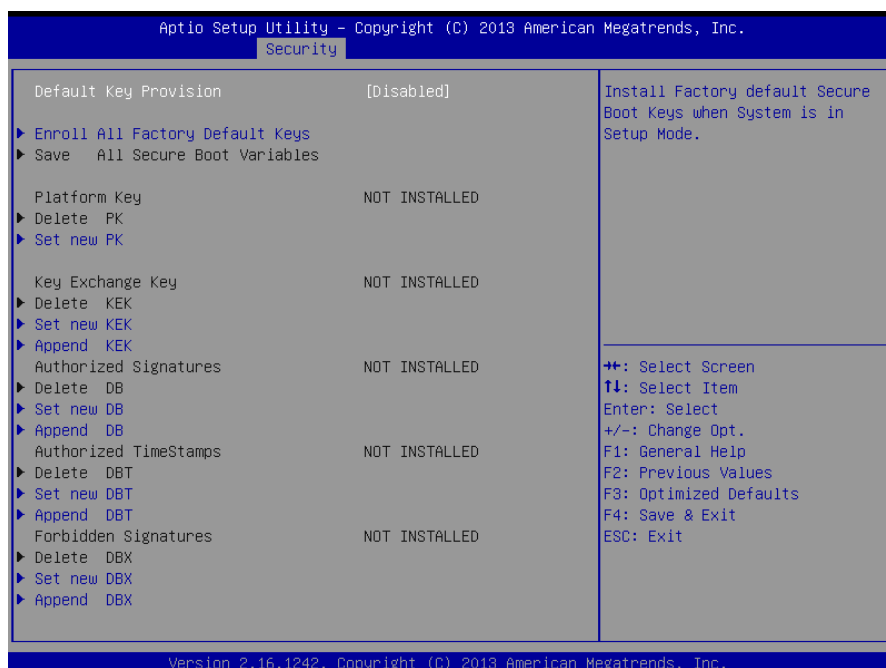
Item	Description
Administrator Password	This setting specifies a password that must be entered to access the BIOS Setup Utility. If only the Administrator's password is set, then this only limits access to the BIOS setup program and is only asked for when entering the BIOS setup program. By default,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

3.6.4.1 Secure Boot menu



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

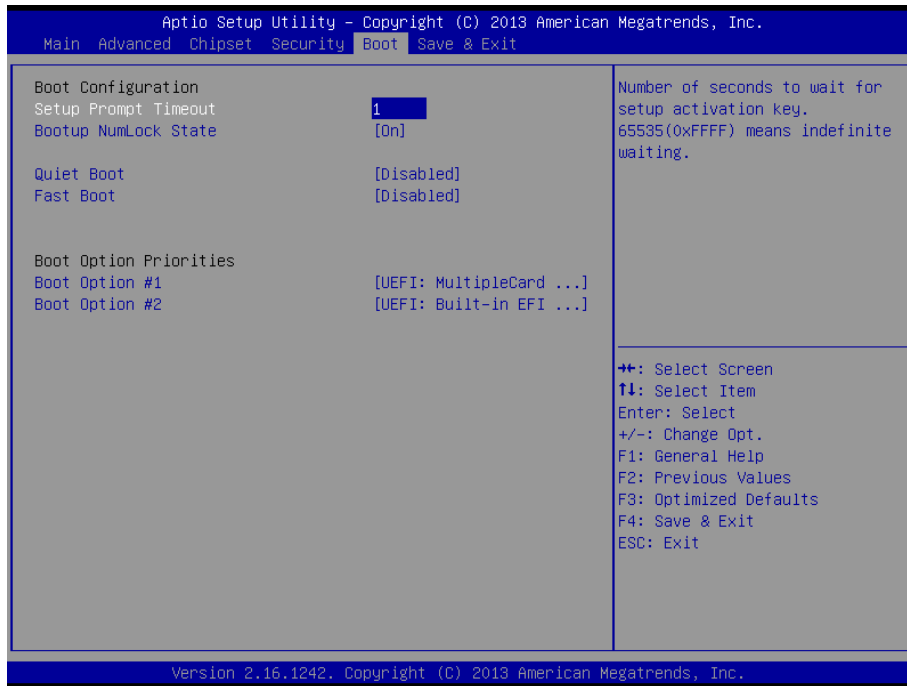
3.6.4.1.1 Key Management



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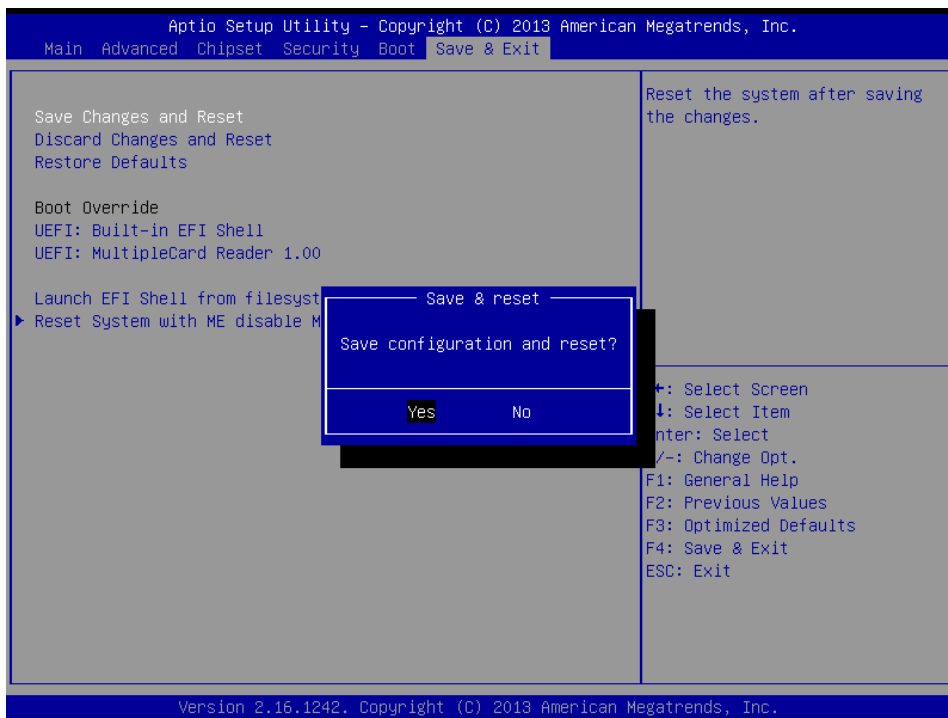
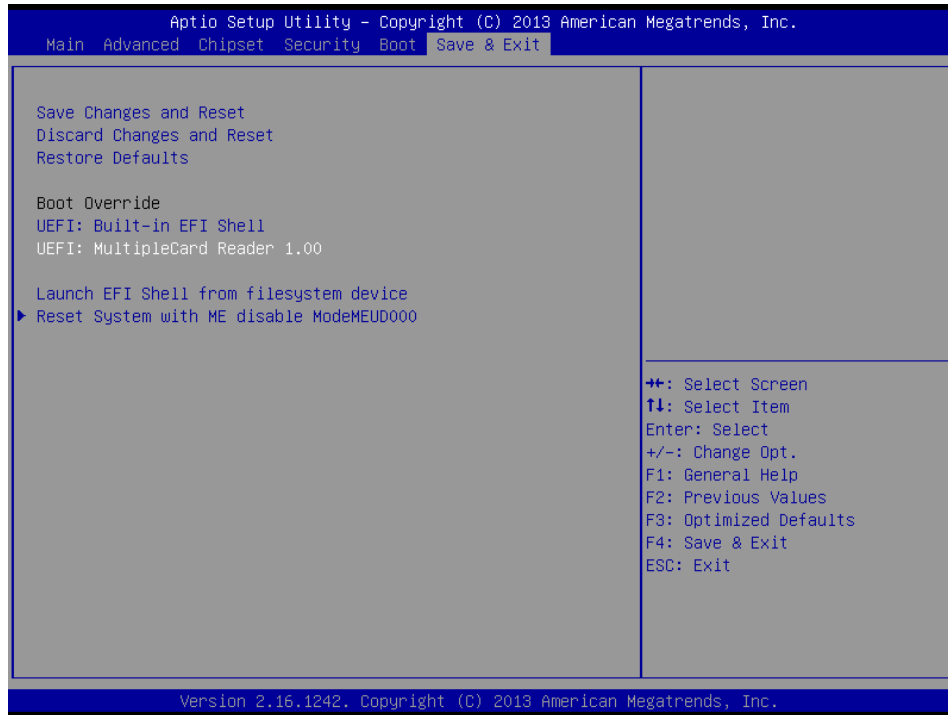
Item	Option	Description
Default Key Provision	Enabled Disabled[Default]	Install Factory default Secure Boot Keys when System is in Setup Mode.

3.6.5 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[Default] Off	Select the keyboard NumLock state
Quiet Boot	Enabled Disabled[Default]	Enables or Disables Quiet Boot Option
Fast Boot	Enabled Disabled[Default]	Enables or Disables boot with initialization of a minimal set of devices required to launch active boot option. Has no effect for BBS boot options
Boot Option #1/2	Sets the system boot order	

3.6.6 Save & Exit



3.6.6.1 Save Changes and Reset

Reset the system after saving the changes.

3.6.6.2 Discard Changes and Reset

Any changes made to BIOS settings during this session of the BIOS setup program are

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discarded. The setup program then exits and reboots the controller.

3.6.6.3 *Restore Defaults*

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

3.6.6.4 *Launch EFI Shell from filesystem device*

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

4. Drivers Installation



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

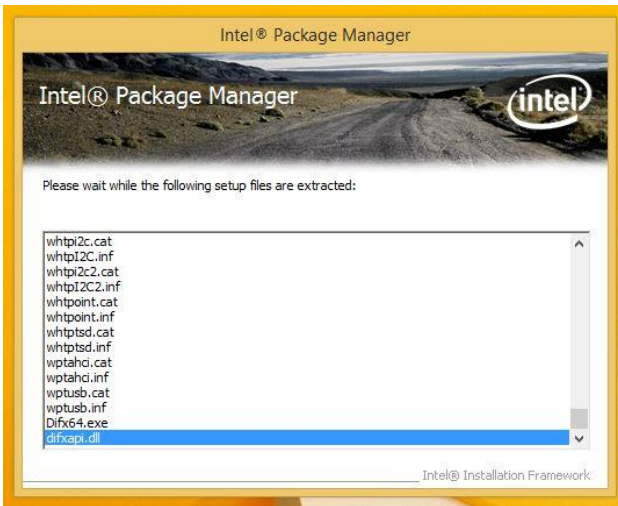
Insert the Supporting DVD-ROM to DVD-ROM drive, and it should show the index page of Avalue's products automatically. If not, locate Index.htm and choose the product from the menu left, or link to `\\Driver_Chipset\\Intel\\EQM-BYT`.



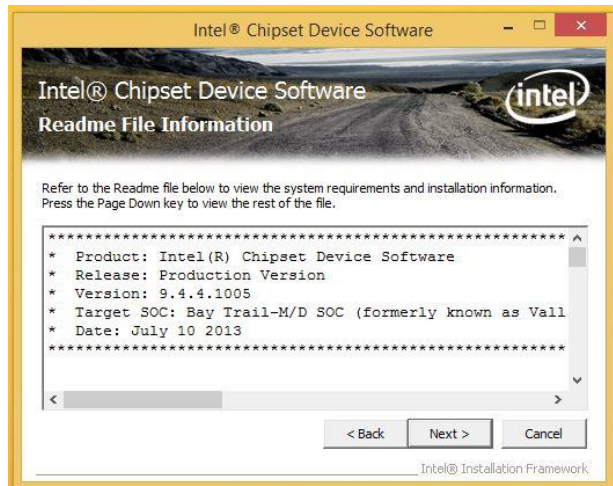
Note: The installation procedures and screen shots in this section are based on Windows 7 operation system. If the warning message appears while the installation process, click Continue to go on.



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



Step 1. Start setup program.



Step 4. Click **Next** to continue



Step2. Click **Next** to continue.



Step 5. Click **Next**.



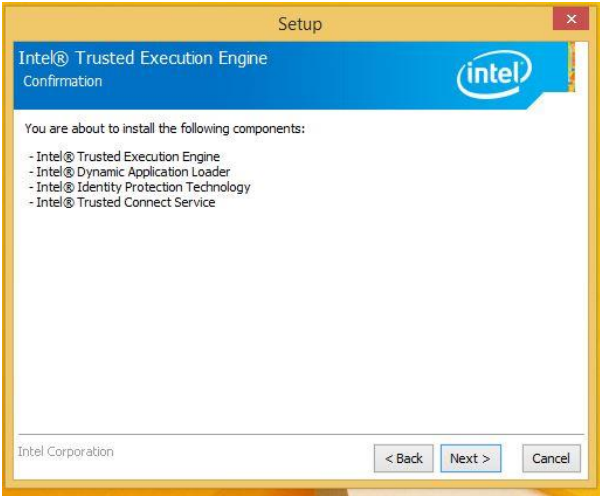
Step 6. Click **Finish** to complete installation.

4.2 Install TXE Driver

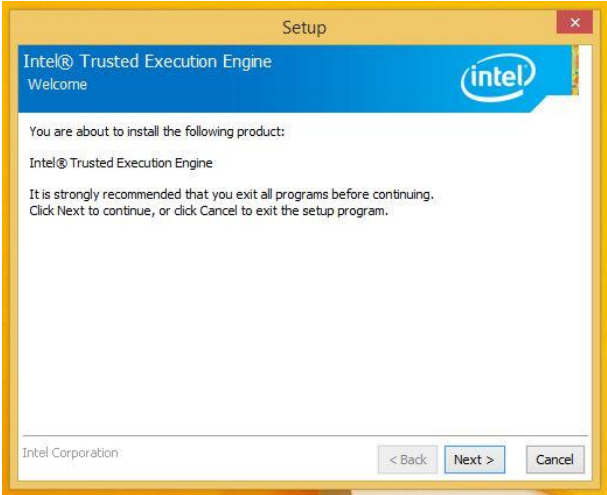
Insert the Supporting DVD-ROM to DVD-ROM drive, and it should show the index page of Avalue's products automatically. If not, locate Index.htm and choose the product from the menu left, or link to \Utility\EQM-BYT_TXE.



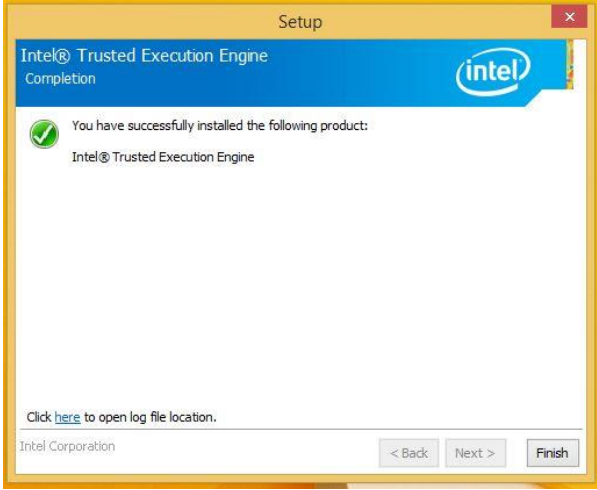
Note: The installation procedures and screen shots in this section are based on Windows 7 operation system. If the warning message appears while the installation process, click Continue to go on.



Step 3. Click **Next** to proceed setup.



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



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



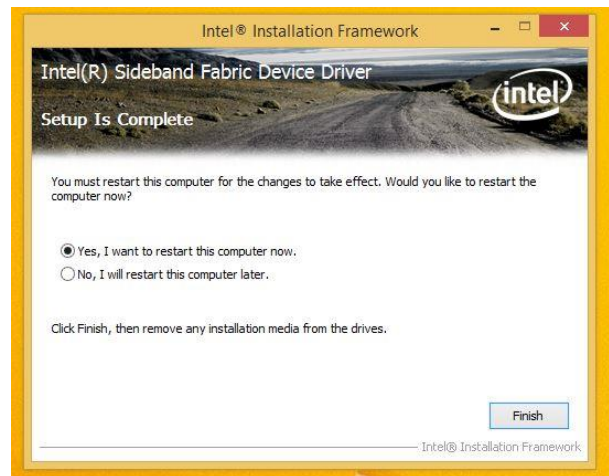
Step 2. Click **Yes** to accept license agreement.

4.3 Install MBI Driver

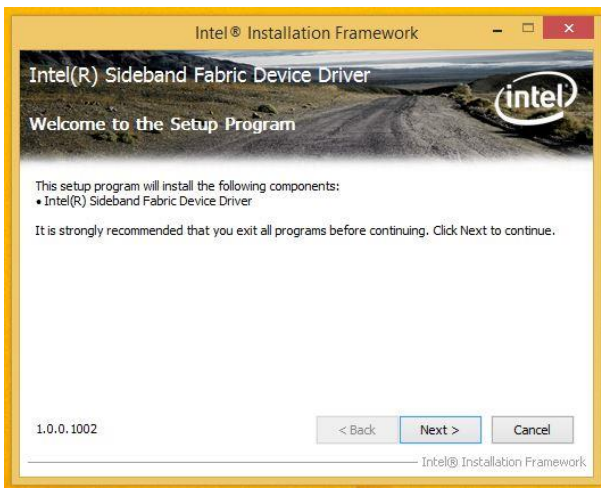
Insert the Supporting DVD-ROM to DVD-ROM drive, and it should show the index page of Avalue's products automatically. If not, locate Index.htm and choose the product from the menu left, or link to \Utility\EQM-BYT_MBI.



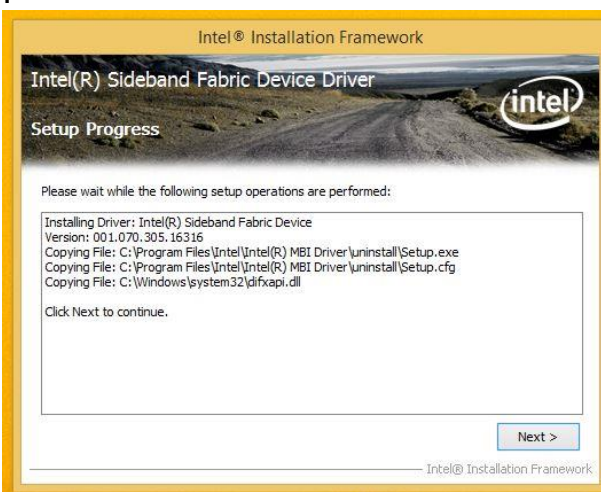
Note: The installation procedures and screen shots in this section are based on Windows 7 operation system. If the warning message appears while the installation process, click Continue to go on.



Step 3. Click **Finish** to complete setup.



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



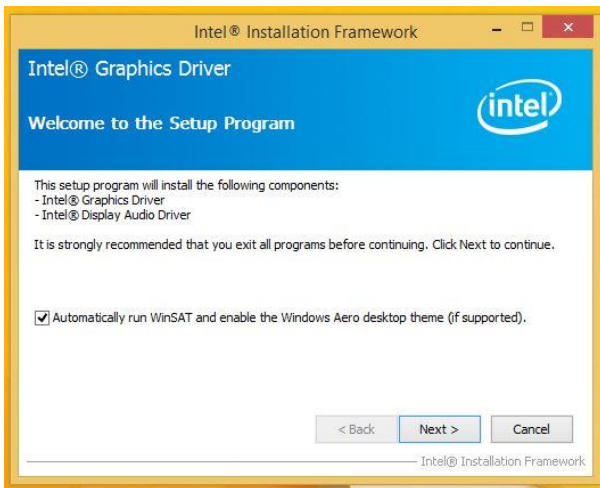
Step 2. Click **Next**.

4.4 Install VGA Driver

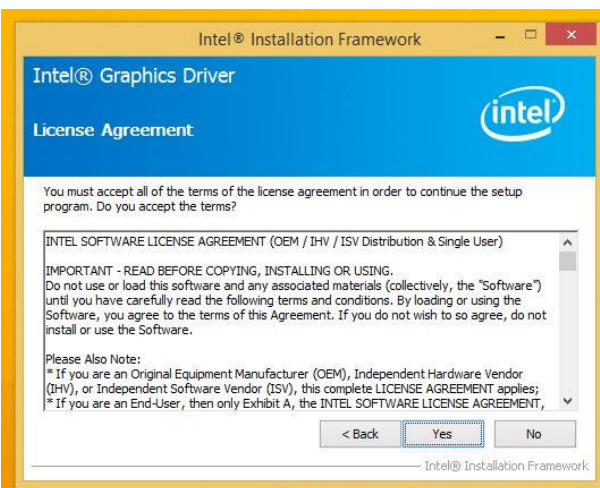
Insert the Supporting DVD-ROM to DVD-ROM drive, and it should show the index page of Avalue's products automatically. If not, locate Index.htm and choose the product from the menu left, or link to **VGA\EQM-BYT**.



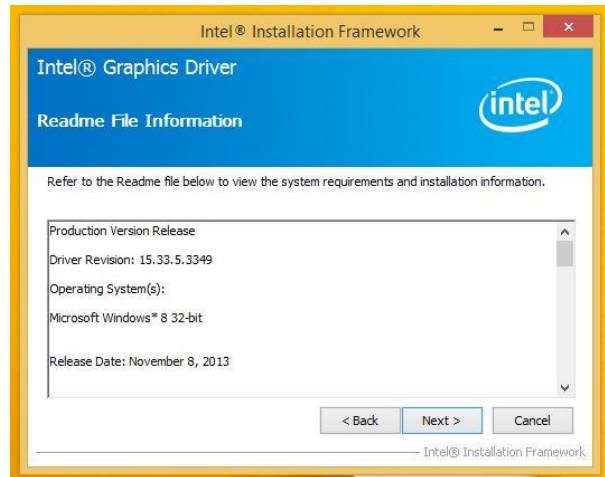
Note: The installation procedures and screen shots in this section are based on Windows XP operation system.



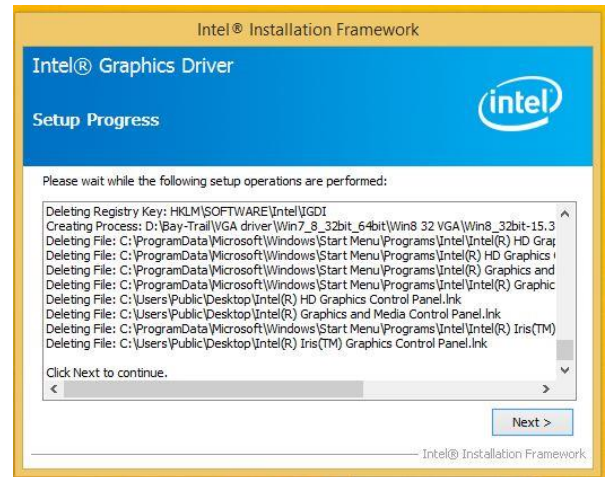
Step 1. Click **Next** to continue installation.



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



Step 3. Click **Next**.



Step 4. Click **Next**.



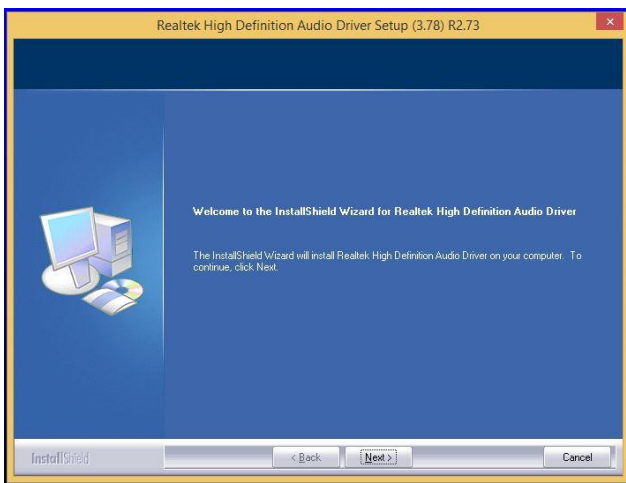
Step 5. Click **Finish** to complete setup.

4.5 Install Audio Driver

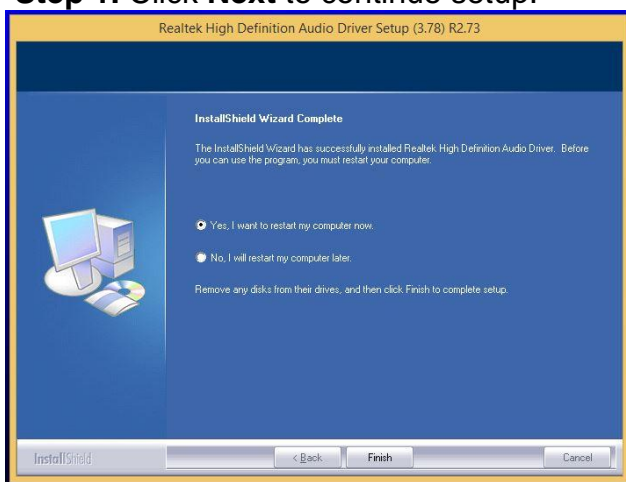
Insert the Supporting CD-ROM to CD-ROM drive, and it should show the index page of Avalue's products automatically. If not, locate Index.htm and choose the product from the menu left, or link to **\\Driver_Audio\Intel\EQM-BYT-Audio**.



Note: The installation procedures and screen shots in this section are based on Windows 7 operation system.



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



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

4.6 Install Ethernet Driver (For Intel I211AT)

Insert the Supporting DVD-ROM to DVD-ROM drive, and it should show the index page of Avalue's products automatically. If not, locate Index.htm and choose the product from the menu left, or link to

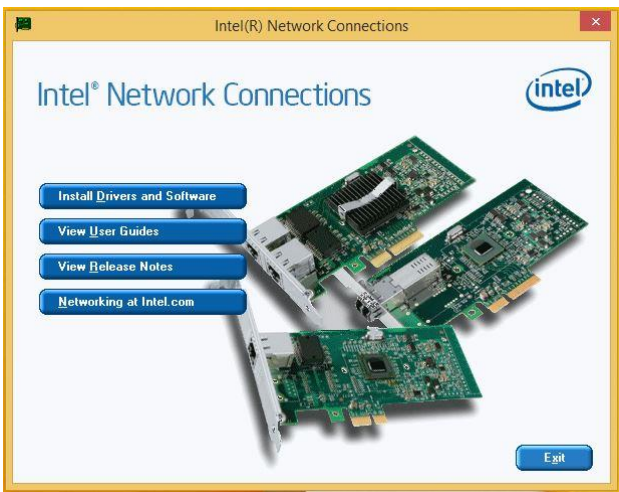
`\\Driver_Gigabit\Intel\I211AT\EQM-BYT.`



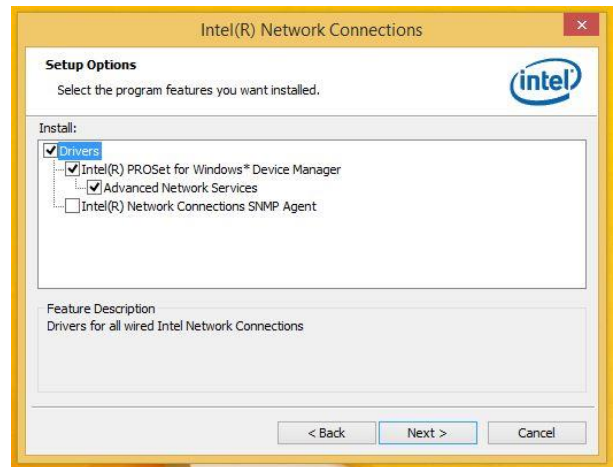
Note: The installation procedures and screen shots in this section are based on Windows 7 operation system.



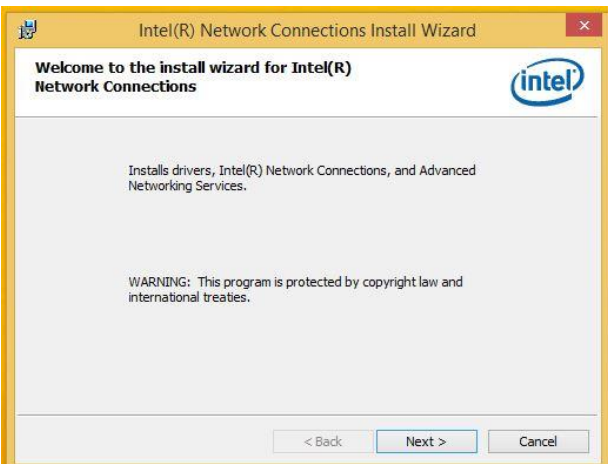
Step 3. Click **Next**.



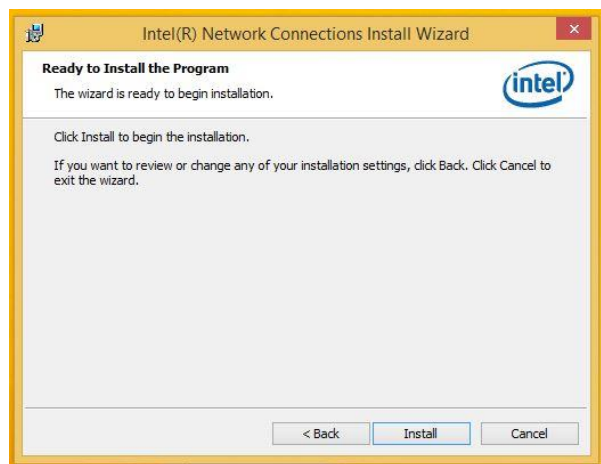
Step 1. Click **Exit** to continue setup.



Step 4. Click **Next** to proceed.



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



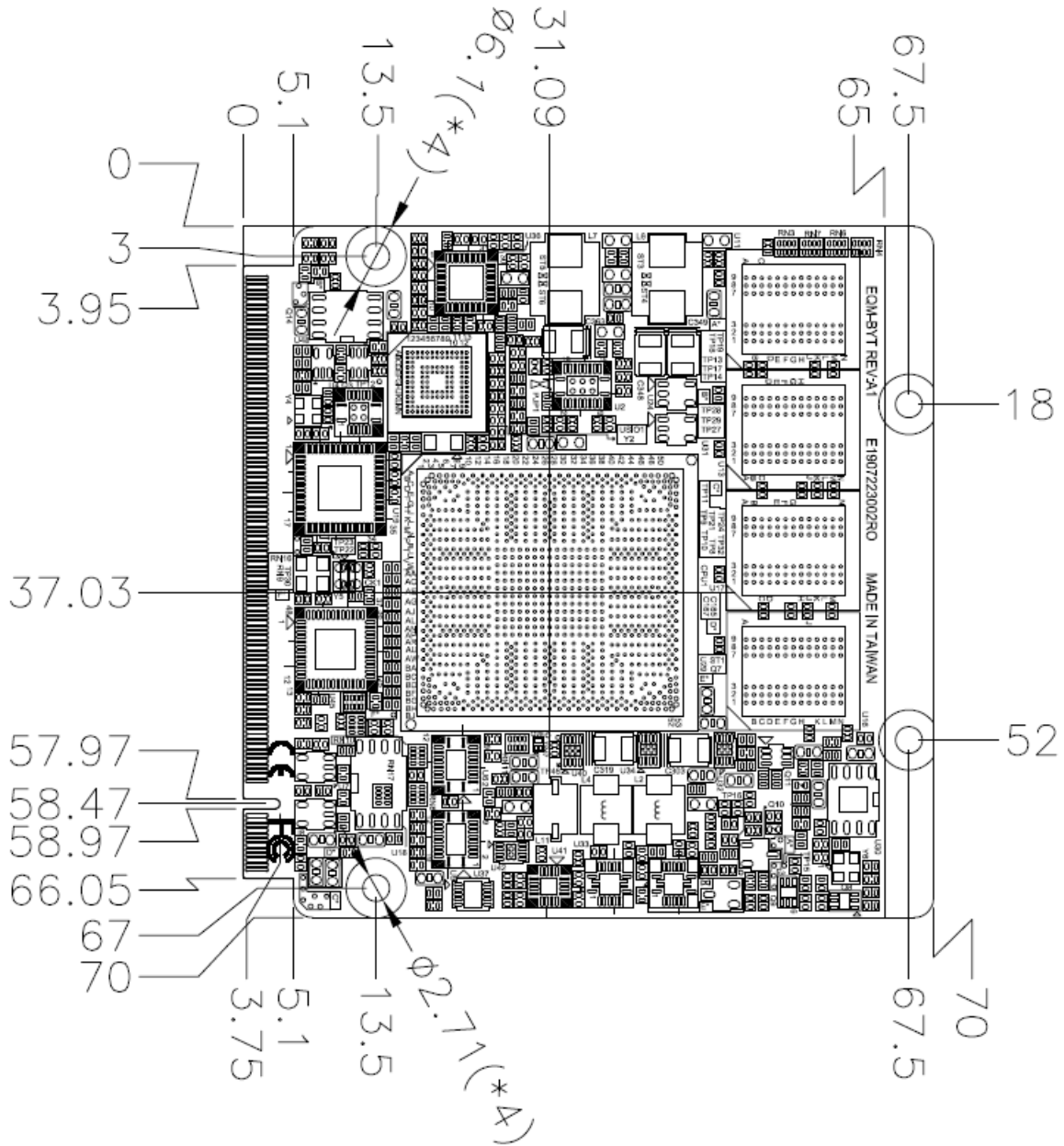
Step 5. Click **Install**.



Step 6. Click **Finish** to complete installation.

4. Mechanical Drawing





Unit: mm

