EPI-QM67

Intel® Huron River QM67 EPIC Module with Intel® QM67 Chipset

User's manual

4th Ed – 22 May 2015

Part No. E2047382603R

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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1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into body, or (b) support or sustain life and whose failure to perform, when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in significant injury to the user.
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This warranty does not apply to any products which have been repaired or altered by persons other than repair personnel authorized by Avalue, or which have been subject to 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.

1.2 Packing List

Before you begin installing your single board, please make sure that the following materials have been shipped:

- 1 x Quick Installation Guide for EPI-QM67
- 1 x Cable set contains the followings:
  - 1 x COM port cable (20-pin to 2 x DB9(M))
  - 1 x Serial ATA cable (7-pin, standard)
  - 1 x Serial ATA power cable

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

1.3 Document Amendment History

Revision	Date	Comment
1st	November 2011	Initial Release
2nd	August 2012	Update Signal Description
3rd	January 2013	Increase Installing the CPU
4th	May 2015	Update Connector Function

1.4 Manual Objectives

This manual describes in detail the Avalue Technology EPI-QM67 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 interface with EPI-QM67 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 concerning this manual and want to inform us of these, please contact our Customer Service department with the relevant details.

1.5 System Specifications

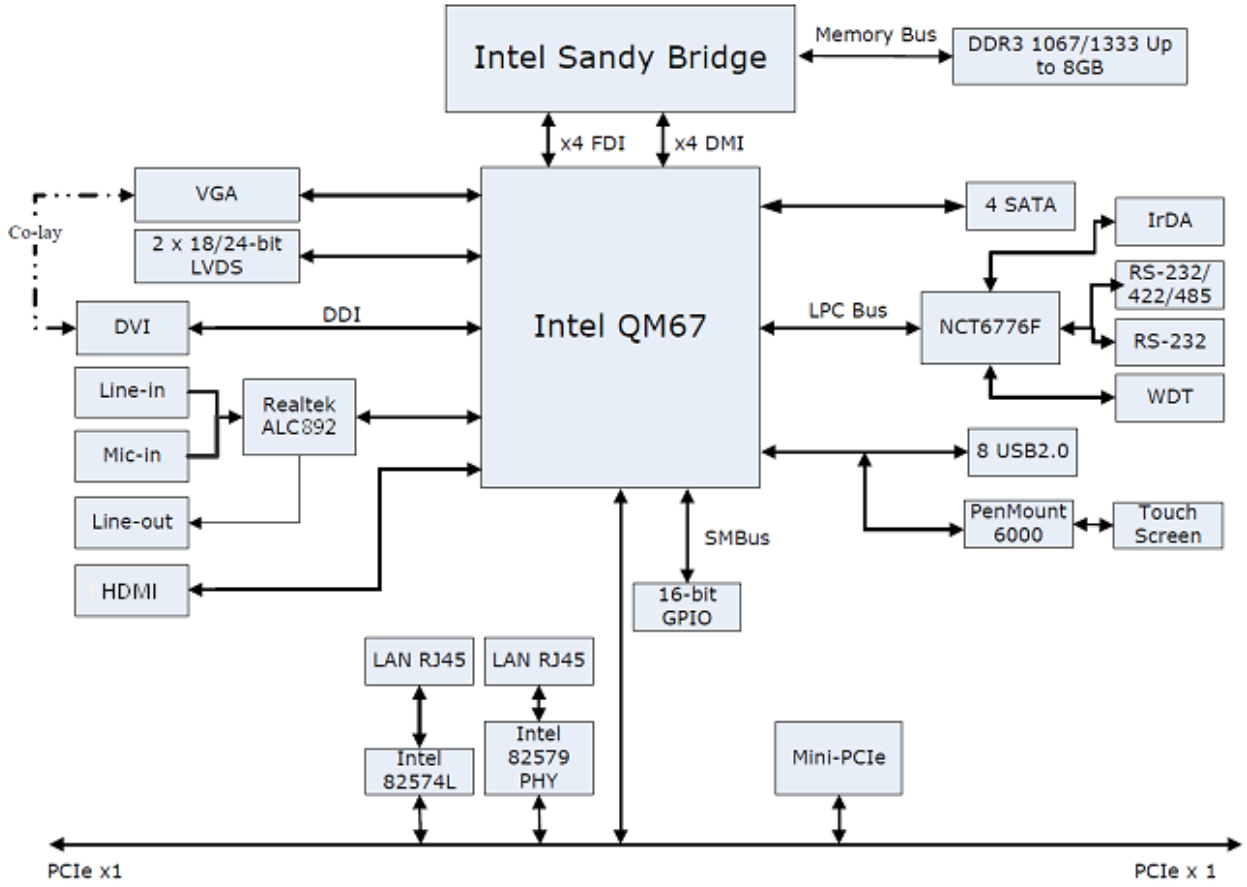
System	
CPU	Intel Sandy Bridge Processor (35W~45W CPU)
BIOS	AMI 8M-bit SPI BIOS
System Chipset	Intel Cougar Point-Mbl (QM67)
I/O Chip	Nuvoton NTC6776F
System Memory	One 204-pin DDR3 SODIMM socket, supports up to 8GB DDR3 1066/1333 SDRAM
SSD	1 x mSATA (from mini-PCIe slot)
Watchdog Timer	Reset: 1 sec.~65535 sec./min. and 1 sec. or 1 min./step
H/W Status Monitor	Monitoring system temperature, voltage. Auto trotting control when CPU overheats
Expansion	1 x mini PCIe (Support mSATA)
I/O	
MIO	2 x SATA III, 1 x RS232, 1 x RS232/422/485, LPC
USB	10 x USB 2.0 ports (6 for pin header, 4 for edge Connectors)
IrDA	Nuvoton NTC6776F (share with COM2)
DIO	8-bit GPI, 8-bit GPO
Display	
Chipset	Intel QM67
Display Memory	Share system memory up to 512MB
Resolution	DVI mode: 1920 x 1200 at 60Hz
	LCD/Simultaneous mode : 18 or 24 bits/pixel; Pixel clock 25-112 MHz
	HDMI mode : 1920 x 1200 at 60Hz
Multiple Display	DVI + LVDS, DVI + HDMI, LVDS + HDMI
LCD Interface	Dual channel 18/24-bit LVDS
TV-out	N/A
	One DVI port co-lay with VGA, one for hirose pin header
Built-in Touch Screen (Optional)	
Chipset	PenMount 6000
Touch Screen Interface	With 9-pin 2.0mm box header (can be selected to support 4/5/8-wire touch screen)
Audio	
AC97 Codec	Realtek ALC892 supports 5.1-CH Audio
Audio Interface	Min In, Line in, Line out (Pin Head 6X2)

EPI-QM67

Ethernet	
LAN Chip	1 x Intel 82574L
	1 x Intel 82579 Gigabit PHY
Ethernet Interface	1000 Base-Tx Gigabit Ethernet compatible
Mechanical & Environmental	
Power Requirement	+12V~19V
ACPI	Single power ATX Support S0, S3, S4, S5 ACPI 1.0b and 2.0 Compliant
Power Type	AT/ATX
Operating Temp.	32 to 140°F (0 to 60°C)
Operating Humidity	0%~90% relative humidity, non-condensing
Size (L x W)	165mm x 115mm
Weight	TBD

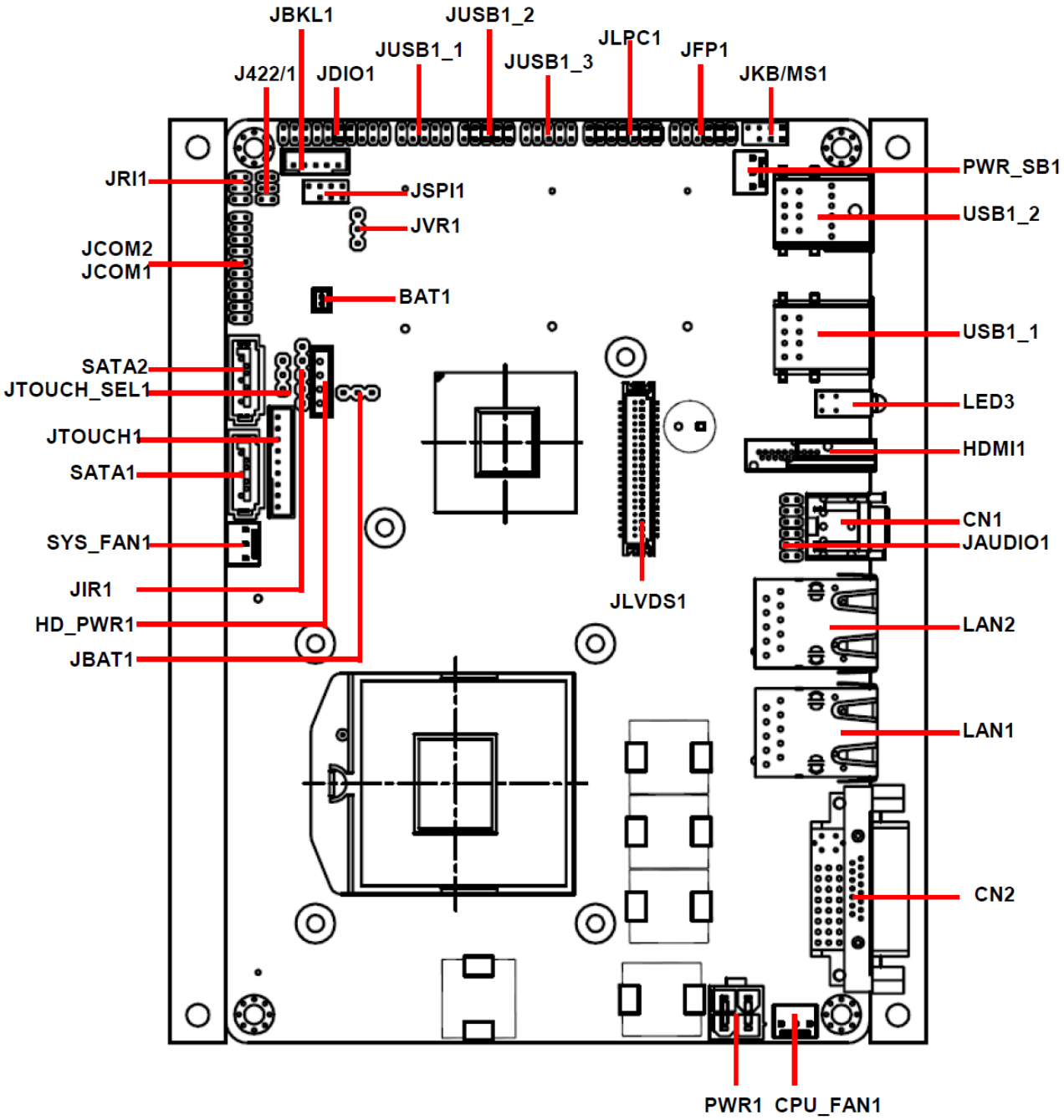
1.6 Architecture Overview – Block Diagram

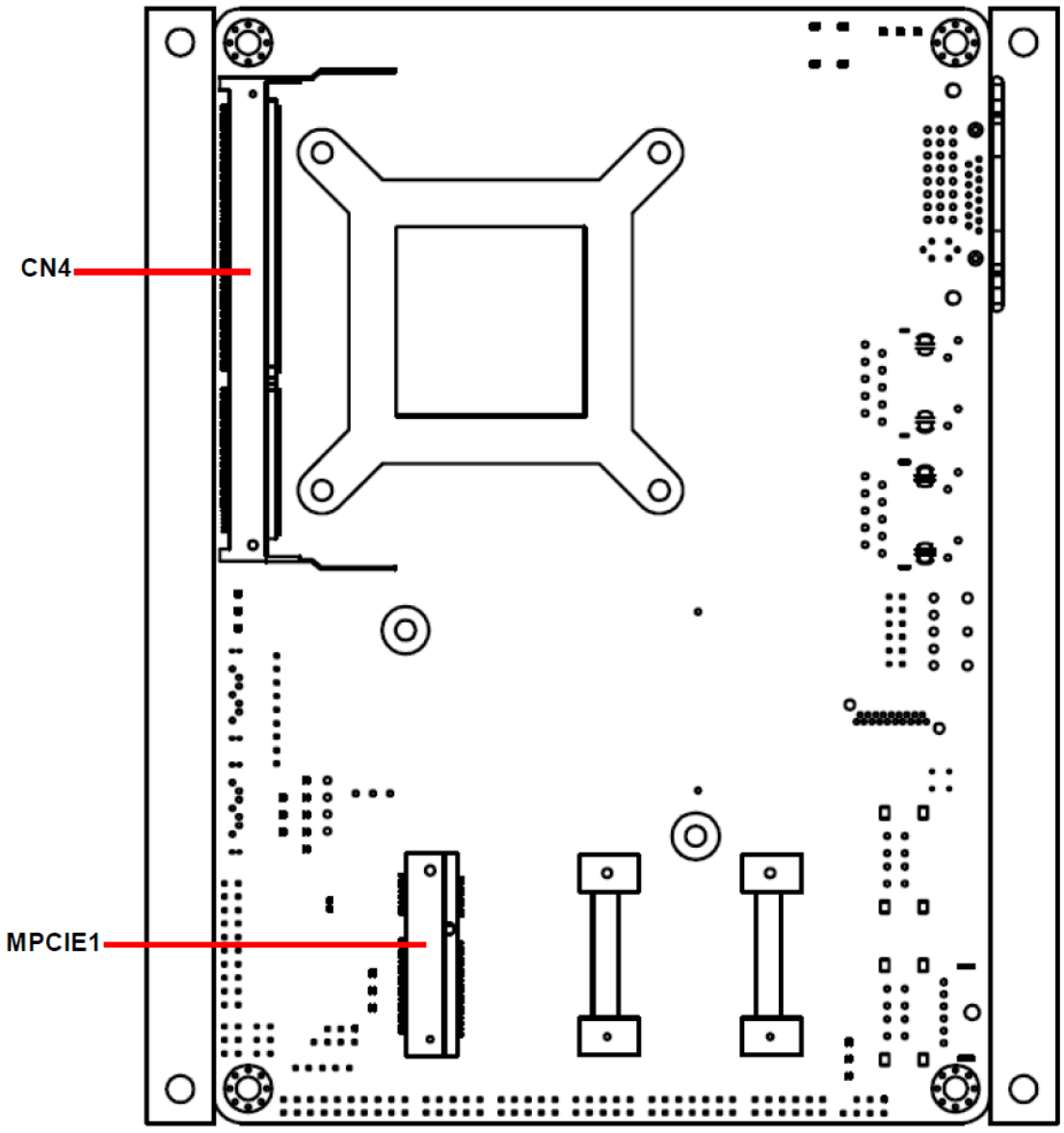
The following block diagram shows the architecture and main components of EPI-QM67.



2. Hardware Configuration

2.1 Product Overview




CN4
MPCIE1

2.2 Installation Procedure

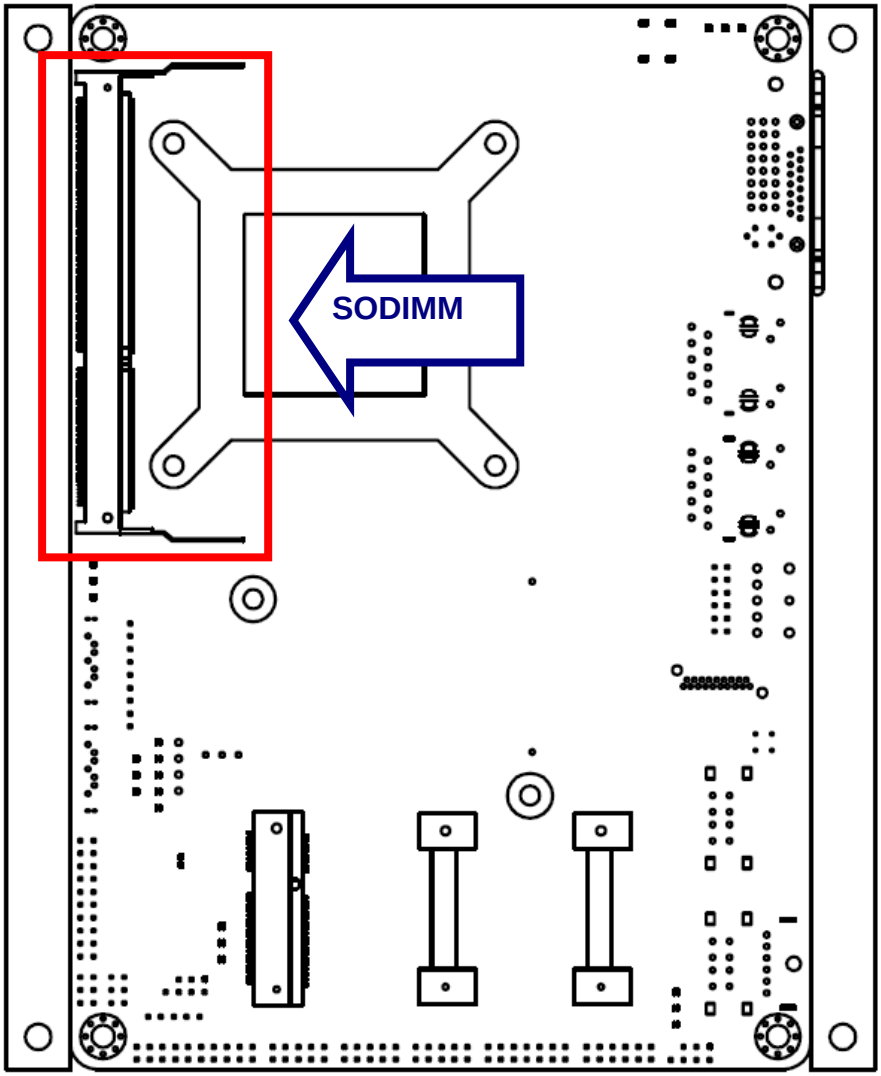
This chapter explains you the instructions of how to setup your system.

1. Turn off the power supply.
2. Insert the SODIMM module (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.

Note: Make sure the heat sink and the CPU top surface are in total contact to avoid CPU overheating problem that would cause the system to hang or unstable

2.2.1 Main Memory

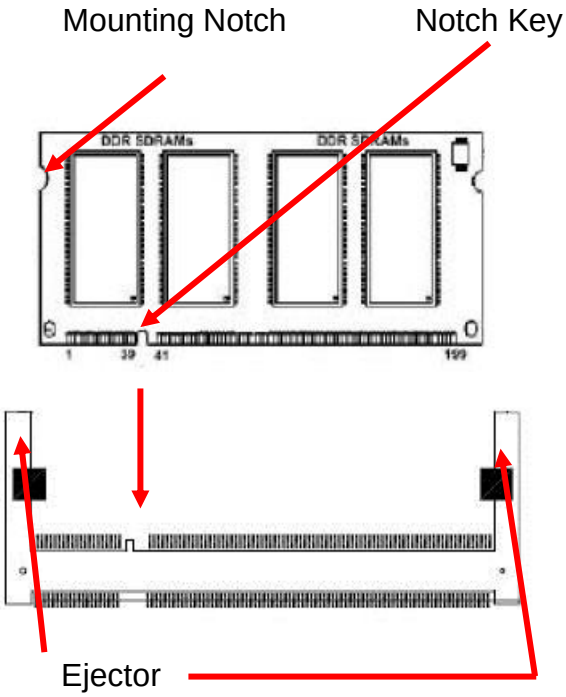
EPI-QM67 provides one 204-pin DDR3 SODIMM socket, supports up to 8GB DDR3 1066/1333 SDRAM.



(Rear side)

Make sure to unplug the power supply before adding or removing SODIMMs or other system components. Failure to do so may cause severe damage to both the board and the components.

- Locate the SODIMM socket on the board.
- Hold two edges of the SODIMM module carefully. Keep away of touching its connectors.
- Align the notch key on the module with the rib on the slot.
- Firmly press the modules into the socket automatically snaps into the mounting notch. Do not force the SODIMM module in with extra force as the SODIMM module only fit in one direction.



204-pin DDR3 SODIMM

- To remove the SODIMM modules, push the two ejector tabs on the slot outward simultaneously, and then pull out the SODIMM module.

Note:

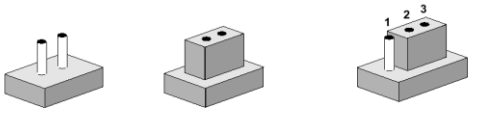
(1) Please do not change any DDR3 SDRAM parameter in BIOS setup to increase your system's performance without acquiring technical information in advance.

(2) Static electricity can damage the electronic components of the computer or optional boards. Before starting these procedures, ensure that you are discharged of static electricity by touching a grounded metal object briefly.

2.3 Jumper and Connector List

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

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



Open Closed Closed 2-3

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

Open Closed Closed 2-3

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

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

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

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

Jumpers

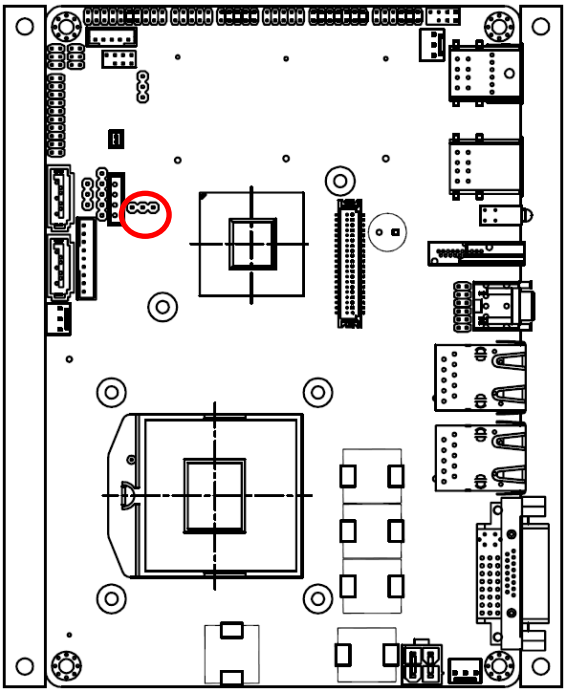
Label	Function	Note
JBAT1	Clear CMOS	3 x 1 header, pitch 2.54mm
JFP1	AT/ATX mode selector, Front panel & LED settings	6 x 2 header, pitch 2.0mm
JRI1	Serial port 1 - Ring, +5V, +12V power selector	3 x 2 header, pitch 2.54mm
JTOUCH_SEL1	Touch panel connector	3 x 1 header, pitch 2.54mm

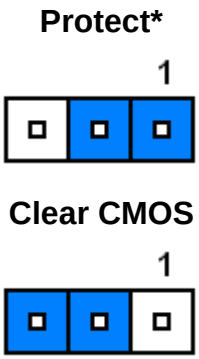
Connectors

Label	Function	Note
BAT1	Battery connector	2 x 1 wafer, pitch 1.25mm
CN1	Audio out connector	Audio jack
CN2	DVI connector	
CN4	204-pin DDR3 SODIMM	
CPU_FAN1	CPU Fan connector	3 x 1 wafer, pitch 2.54mm
HDMI	HDMI connector	
HD_PWR1	HD power connector	4 x 1 wafer, pitch 2.50mm
J422/1	Serial port 1 in RS-422/485 mode	3 x 2 header, pitch 2.0mm
JAUDIO1	Audio Connector	6 x 2 header, pitch 2.0mm
JBKL1	LCD Inverter connector 1	5 x 1 wafer, pitch 2.0mm
JCOM1/ 2	Serial port 1/2 connector	10 x 2 header, pitch 2.0mm
JDIO1	General purpose I/O connector	10 x 2 header, pitch 2.0mm
JIR1	IrDA connector	5 x 1 header, pitch 2.54mm
JKB/MS1	PS/2 keyboard & mouse connector	4 x 2 header, pitch 2.0mm
JLPC1	(Reversed for BIOS programming)	7 x 2 header, pitch 2.0mm
JLVDS1	LVDS connector	DIN 40-pin wafer, pitch 1.25mm
JSPI1	SPI connector	4 x 2 header, pitch 2.0mm
JTOUCH1	Touch panel connector	9 x 1 wafer, pitch 2.0mm
JUSB1_1	USB connector 4 & 5	5 x 2 header, pitch 2.0mm
JUSB1_2	USB connector 6 & 7	5 x 2 header, pitch 2.0mm
JUSB1_3	USB connector 8 & 9	5 x 2 header, pitch 2.0mm
JVR1	LCD Backlight brightness adjustment	3 x 1 header, pitch 2.54mm
LAN1	RJ-45 Ethernet connector 1	
LAN2	RJ-45 Ethernet connector 2	
LED3	Power & HDD indicator	
MPCIE1	Mini PCIEXPRESS connector	
PWR_SB1	5VSB connector in ATX	3 x 1 wafer, pitch 2.54mm
PWR1	Power connector	2 x 2 wafer, pitch 4.2mm
SATA1	Serial ATA connector 1	
SATA2	Serial ATA connector 2	
SYS_FAN1	System Fan connector	3 x 1 wafer, pitch 2.54mm
USB1_1	USB connector 0&1	
USB1_2	USB connector 2&3	

2.4 Setting Jumpers & Connectors

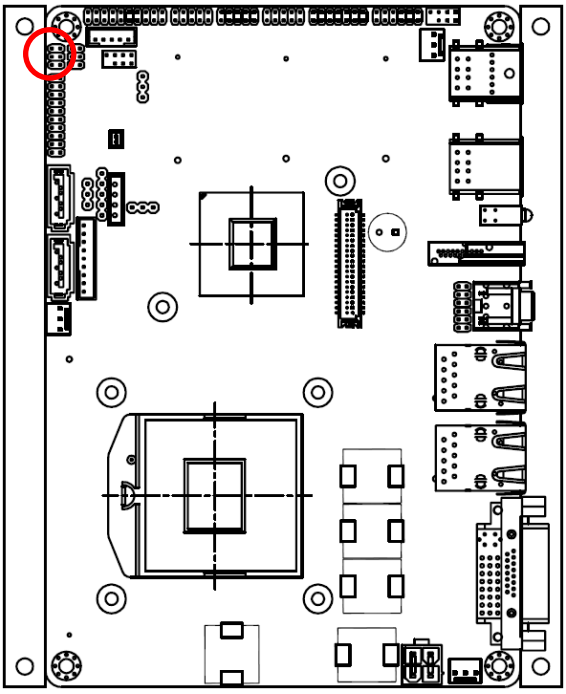
2.4.1 Clear CMOS (JBAT1)

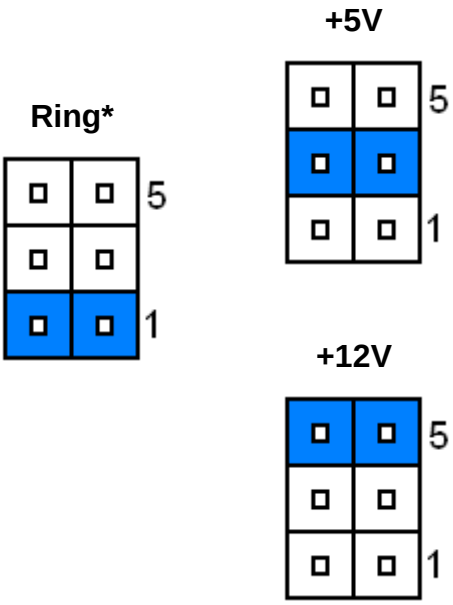




***Default**

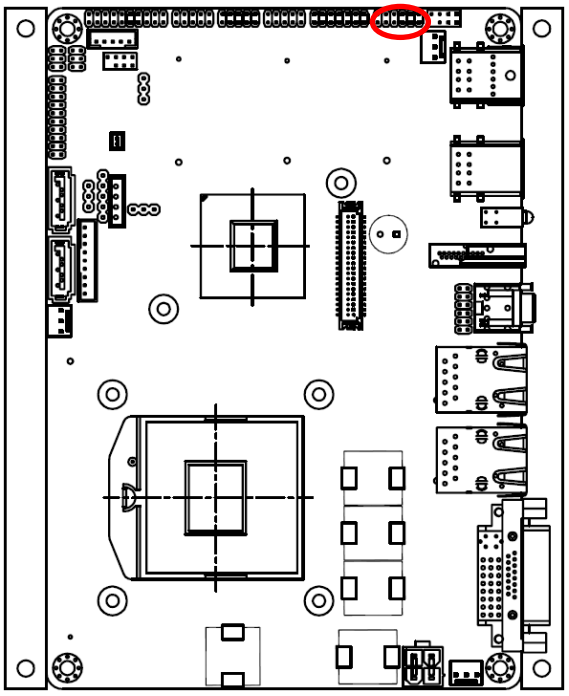
2.4.2 Serial port 1 - Ring, +5V, +12V power selector (JRI1)



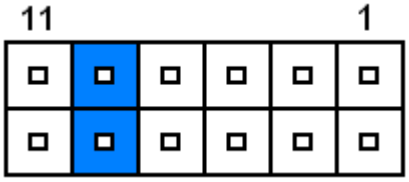


*** Default**

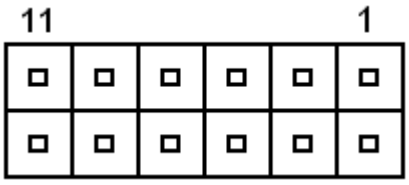
2.4.3 AT/ATX mode selector, Front panel & LED settings (JFP1)



AT*



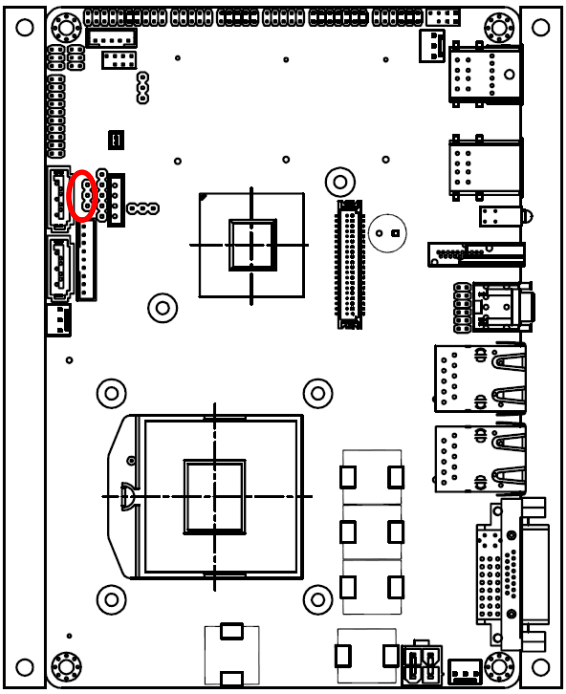
ATX



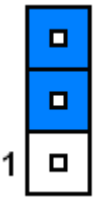
***Default**

Signal	PIN
PWBT	1, 2
RST#	3, 4
PWR-LED	5, 6
HDD-LED	7, 8
Short: AT MODE Open: ATX MODE	9, 10
COPEN#	11, 12

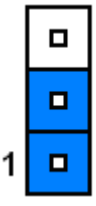
2.4.4 Touch panel connector (JTOUCH_SEL1)



5W*

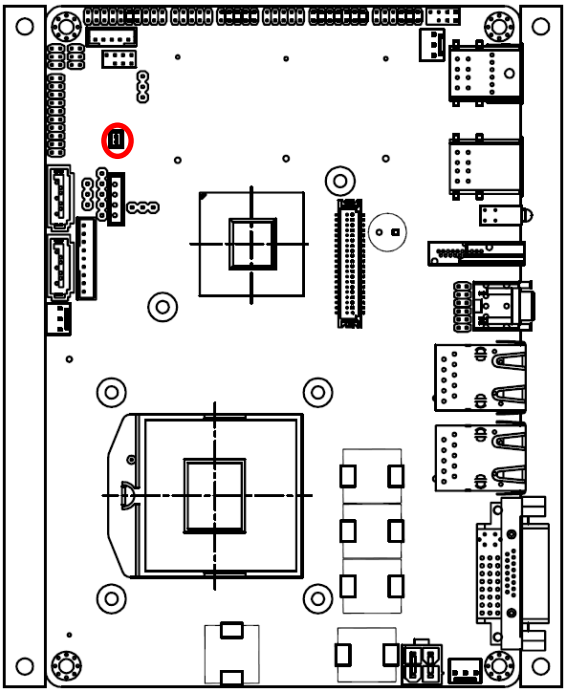


4/ 8W



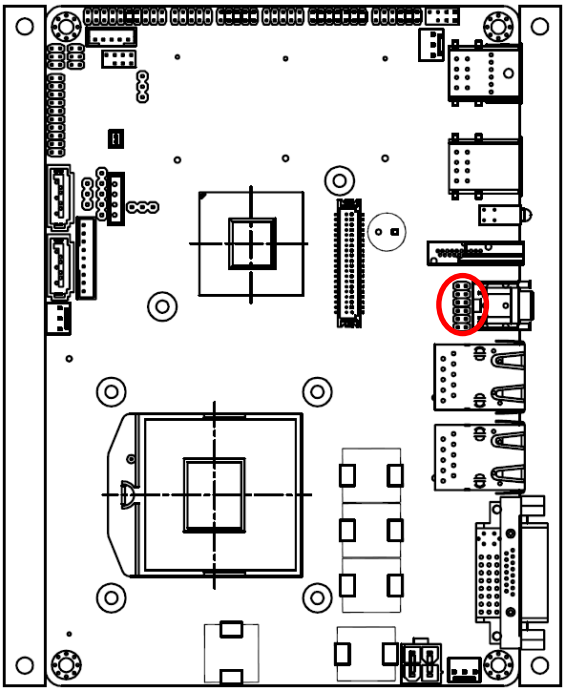
*** Default**

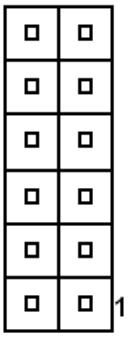
2.4.5 Battery connector (BAT1)



Signal	PIN
GND	2
VBAT	1

2.4.6 Audio connector (JAUDIO1)



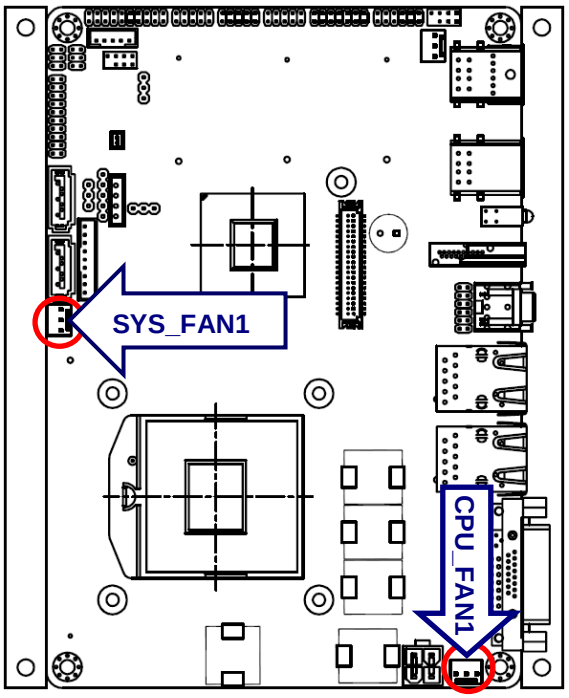


Signal	PIN	PIN	Signal
GND	12	11	MIC1_JD
LINE1_JD	10	9	FRONT_JD
MIC_LIN	8	7	MIC_RIN
LINE_LIN	6	5	LINE_RIN
GND	4	3	GND
LOUT	2	1	ROUT

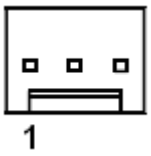
2.4.6.1 Signal Description –Audio connector (JAUDIO1)

Signal	Signal Description
FRONT_JD	AUDIO Out (ROUT/LOUT) sense pin
LINE1_JD	AUDIO IN (LINE_RIN/LINE_LIN) sense pin
MIC1_JD	MIC IN (MIC_RIN/MIC_LIN) sense pin

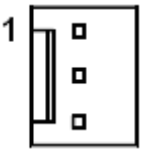
2.4.7 CPU fan / System fan connector (CPU_FAN1/ SYS_FAN1)



CPU_FAN

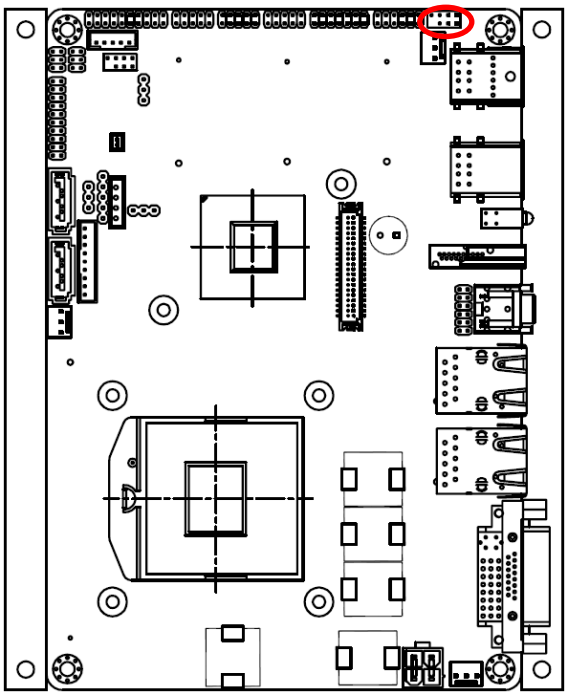


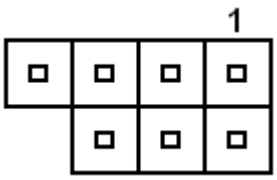
SYS_FAN



Signal	PIN
GND	1
CPU_FAN_PWR/ SYS_FAN_PWR	2
CPUFANIN/ SYSFANIN	3

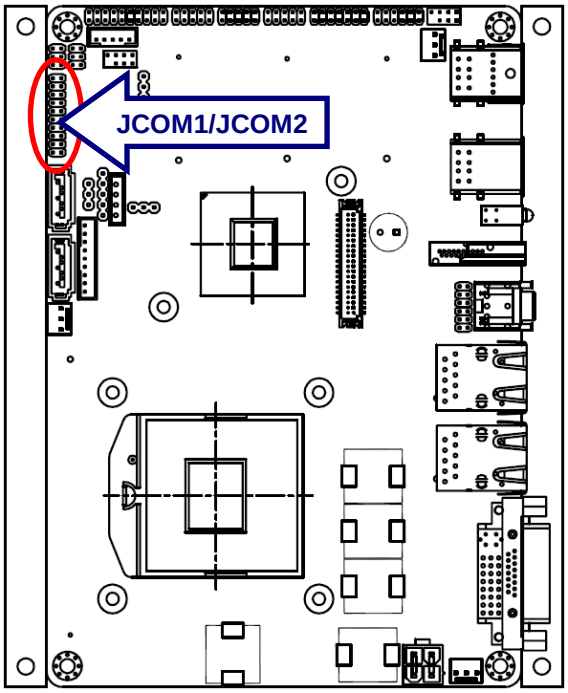
2.4.8 PS/2 keyboard & mouse connector (JKB/MS1)

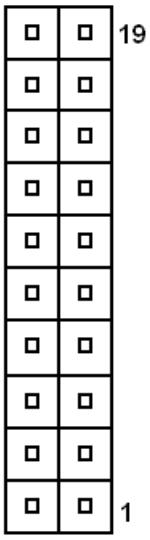




Signal	PIN	PIN	Signal
		7	NC
MCK	6	5	MDT
VDD	4	3	GND
KCK	2	1	KDT

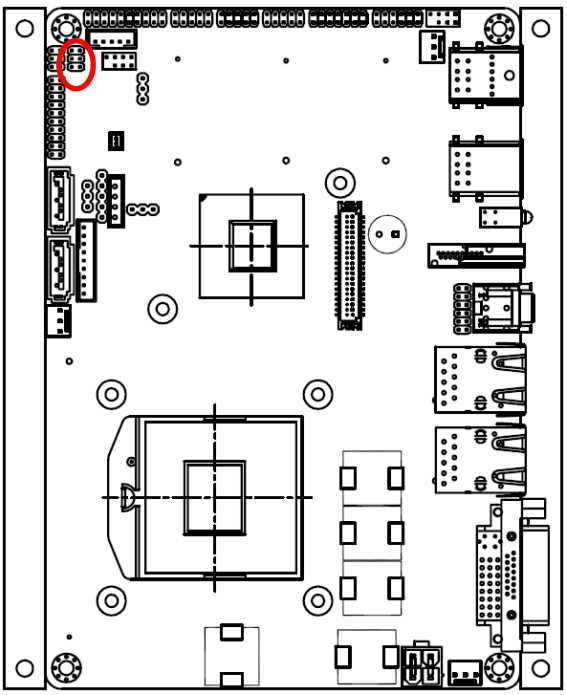
2.4.9 Serial port 1/ 2 connector (JCOM1/ JCOM2)

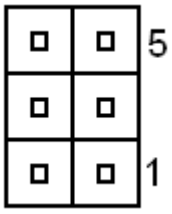




Signal	PIN	IN	Signal
NC	20	19	RI2
CTS2	18	17	RST2
DSR2	16	15	GND
DTR2	14	13	TXD2
RXD2	12	11	DCD2
NC	10	9	RI1
CTS1	8	7	RST1
DSR1	6	5	GND
DTR1	4	3	TXD1
RXD1	2	1	DCD1

2.4.10 Serial port 1 in RS-422/485 mode connector (J422/1)

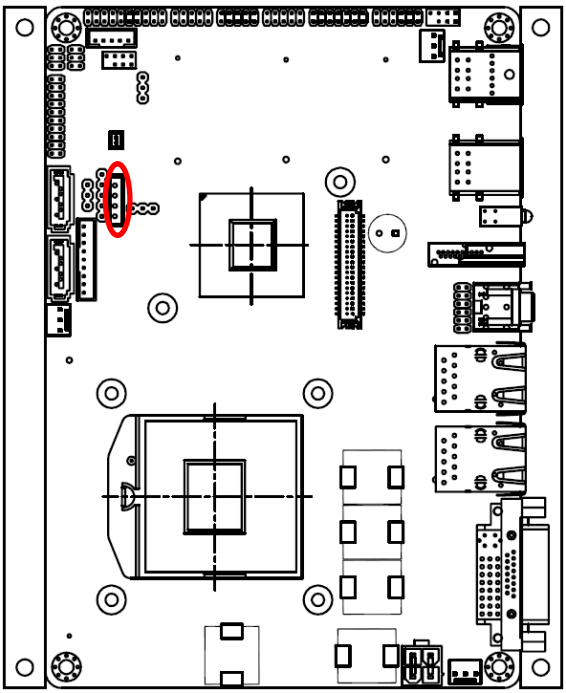




Signal	PIN	PIN	Signal
GND	6	5	+5V
RX+	4	3	TX+
RX-	2	1	TX-

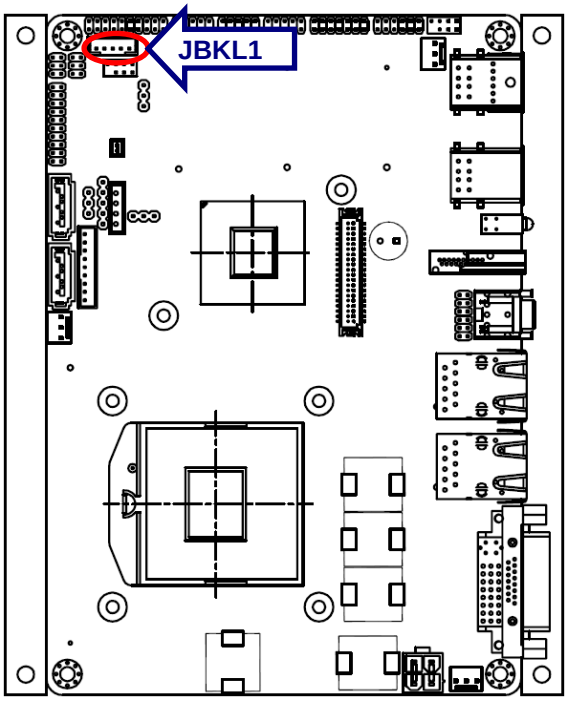
Note: J422/1 is available after modifying the mode of COM1 in BIOS setting.

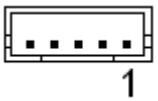
2.4.11 HD power connector (HD_PWR1)



Signal	PIN
+5V	4
+5V	3
GND	2
GND	1

2.4.12 LCD Inverter Connector 1 (JBKL1)



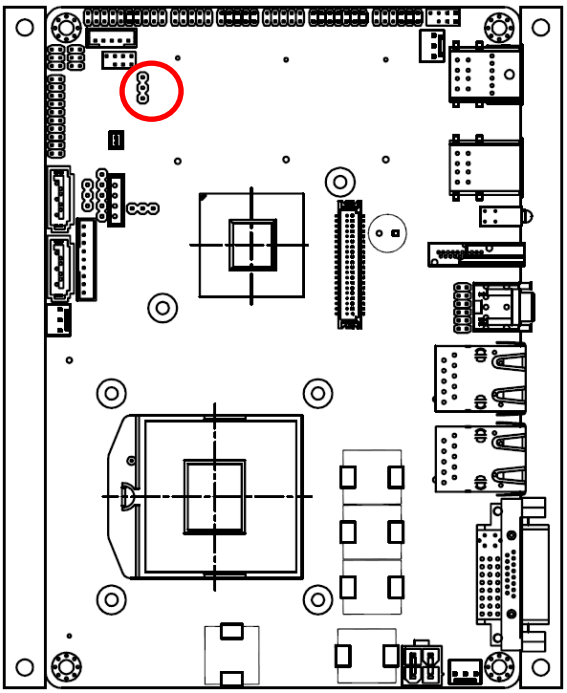


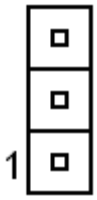
Signal	PIN
+5V	5
BRIGHT	4
BLK_ON	3
GND	2
+12V	1

2.3.12.1 Signal Description – LCD Inverter Connector (JBKL1)

Signal	Signal Description
BRIGHT	Vadj = 0.75V ~ 4.25V (Recommended: 4.7KΩ, >1/16W)
BLK_ON	LCD backlight ON/OFF control signal

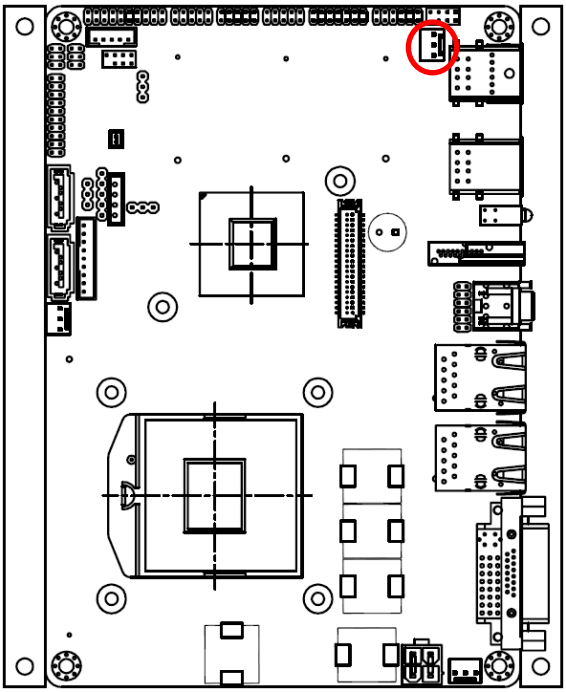
2.4.13 LCD Backlight brightness adjustment (JVR1)

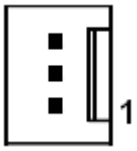




Signal	PIN
GND	3
BRIGHT	2
+5V	1

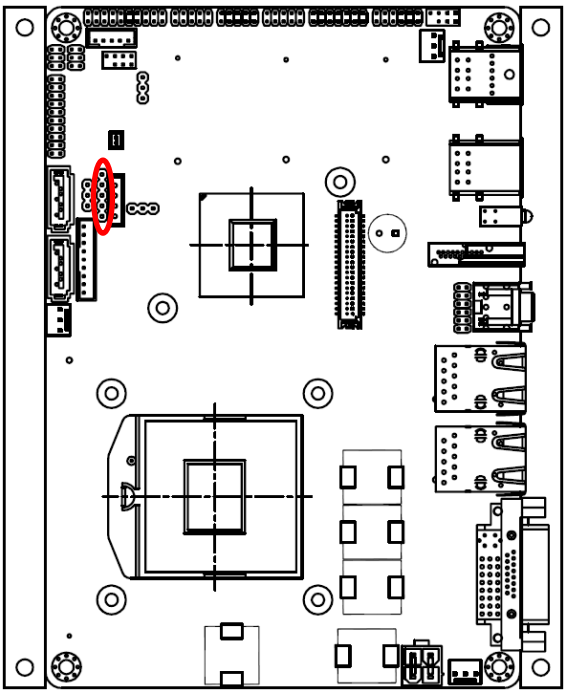
2.4.14 5VSB connector in ATX (PWR_SB1)

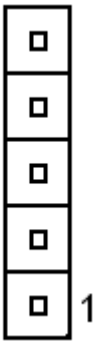




Signal	PIN
ATX5VSB	3
GND	2
PS_ON#	1

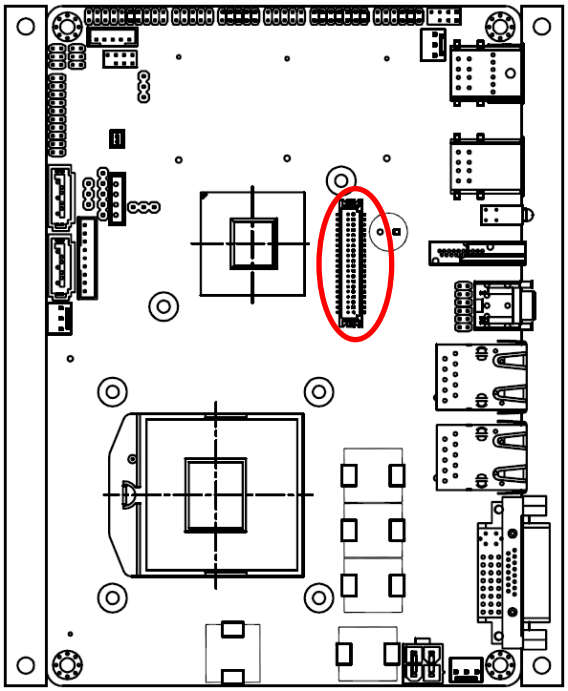
2.4.15 IrDA connector (JIR1)

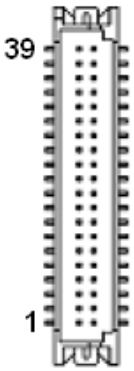




Signal	PIN
TX	5
GND	4
RX	3
NC	2
+5V	1

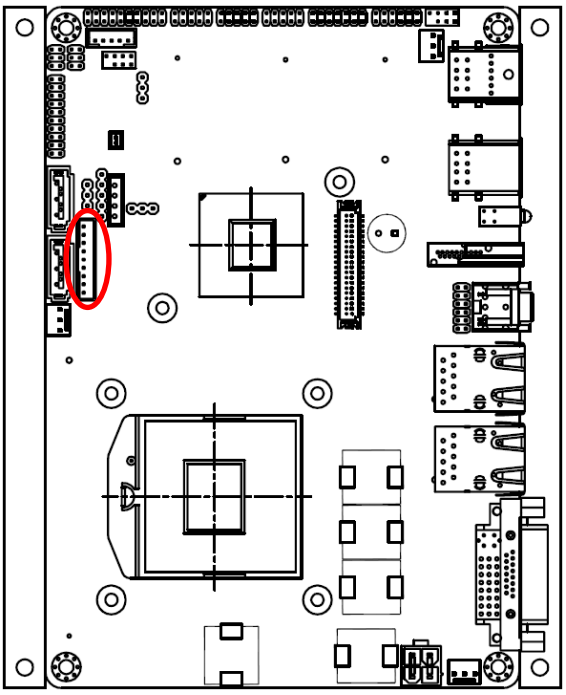
2.4.16 LVDS connector (JLVDS1)



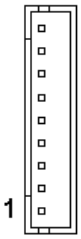


Signal	PIN	PIN	Signal
+12V	39	40	+12V
GND	37	38	GND
CLK2M	35	36	CLK1M
CLK2P	33	34	CLK1P
GND	31	32	GND
YA7M	29	30	YA6M
YA7P	27	28	YA6P
GND	25	26	GND
YA5M	23	24	YA4M
YA5P	21	22	YA4P
GND	19	20	GND
YA3M	17	18	YA2M
YA3P	15	16	YA2P
GND	13	14	GND
YA1M	11	12	YA0M
YA1P	9	10	YA0P
GND	7	8	GND
SPCLK	5	6	SPDATA
+3.3V	3	4	+5V
+3.3V	1	2	+5V

2.4.17 Touch panel connector (JTOUCH1)

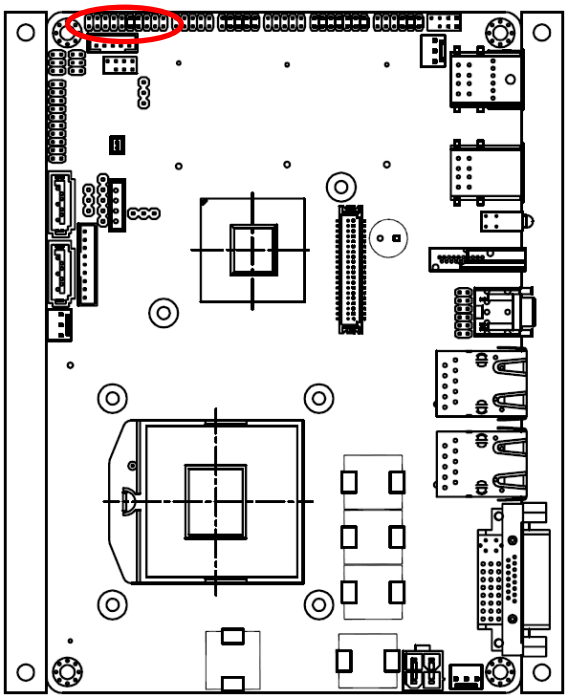


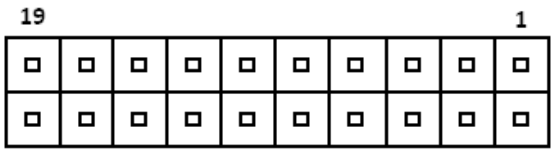
Signal	PIN
TOUCH_GND	9
Y-	8
Y+	7
X-	6
X+	5
SENSE	4
Y+	3
X-	2
X+	1



PIN	4-WIRE	5-WIRE	8-WIRE
9	GND	GND	GND
8	Top	UL	Top Excite
7	Bottom	UR	Bottom Excite
6	Left	LL	Left Excite
5	Right	LR	Right Excite
4	N/A	Sense	Top Sense
3	N/A	N/A	Bottom Sense
2	N/A	N/A	Left Sense
1	N/A	N/A	Right Sense

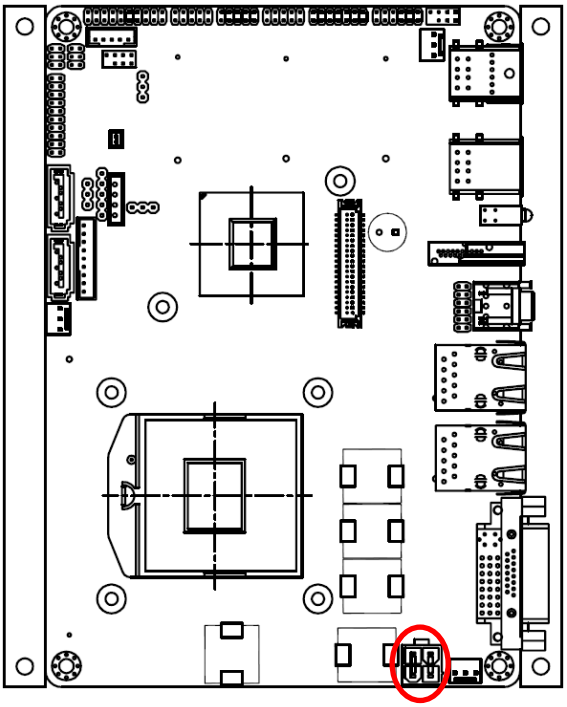
2.4.18 General purpose I/O connector (JDIO1)

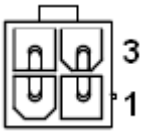




Signal	PIN	PIN	Signal
+5V	20	19	GND
SMBDATA_MAIN	18	17	SMBCLK_MAIN
DIO_GP17	16	15	DIO_GP27
DIO_GP16	14	13	DIO_GP26
DIO_GP15	12	11	DIO_GP25
DIO_GP14	10	9	DIO_GP24
DIO_GP13	8	7	DIO_GP23
DIO_GP12	6	5	DIO_GP22
DIO_GP11	4	3	DIO_GP21
DIO_GP10	2	1	DIO_GP20

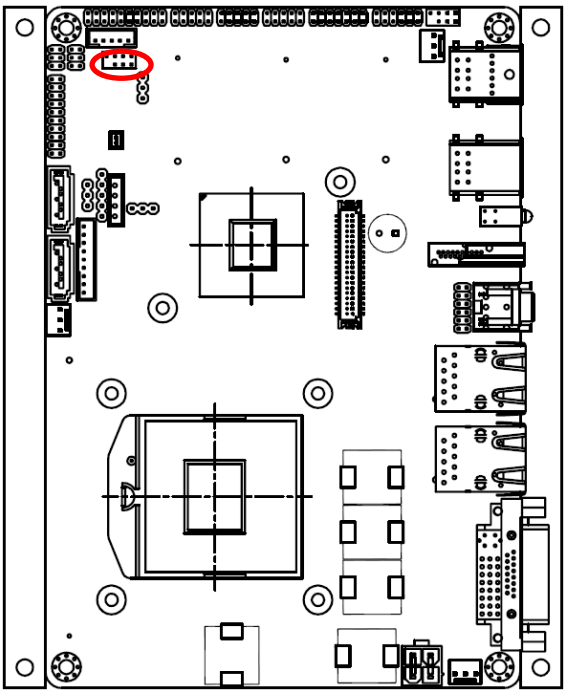
2.4.19 Power connector (PWR1)

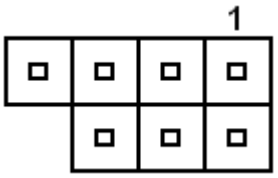




Signal	PIN	PIN	Signal
VIN	4	3	VIN
GND	2	1	GND

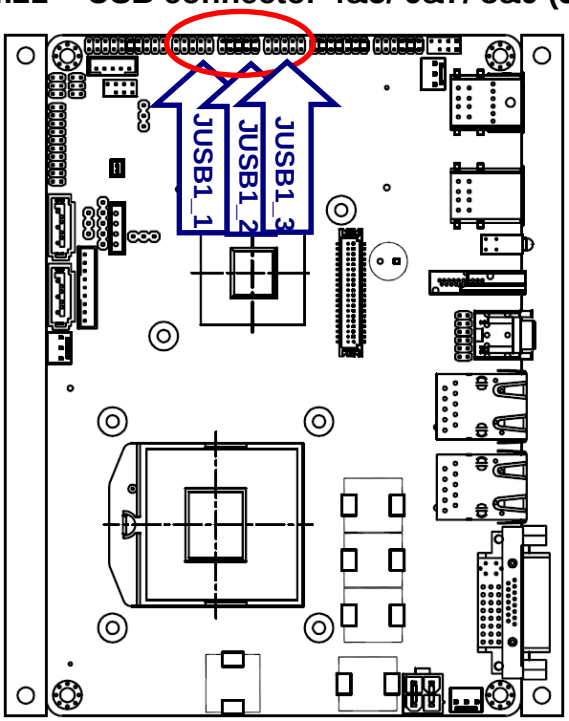
2.4.20 SPI connector (JSPI1)

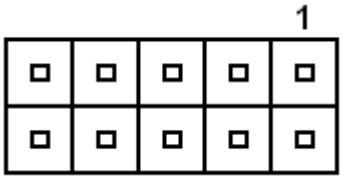




Signal	PIN	PIN	Signal
		7	HOLD#
SPI_SI	6	5	SPI_SO
SPI_CLK	4	3	SPI_CS#0
GND	2	1	+3.3V

2.4.21 USB connector 4&5/ 6&7/ 8&9 (JUSB1_1/ JUSB1_2/ JUSB1_3)



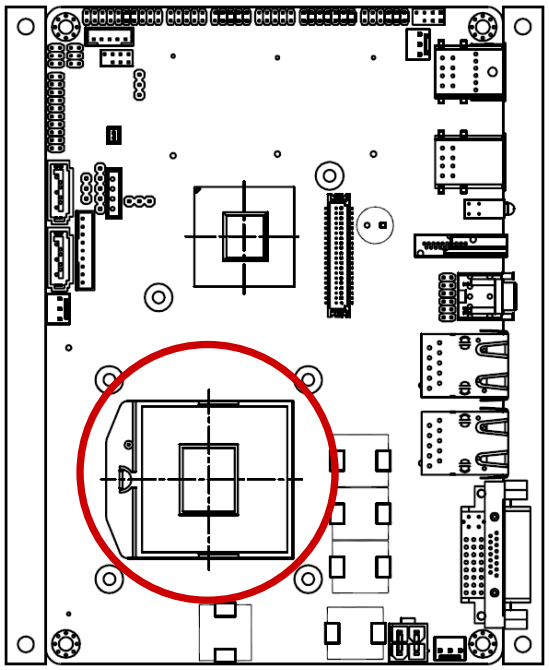


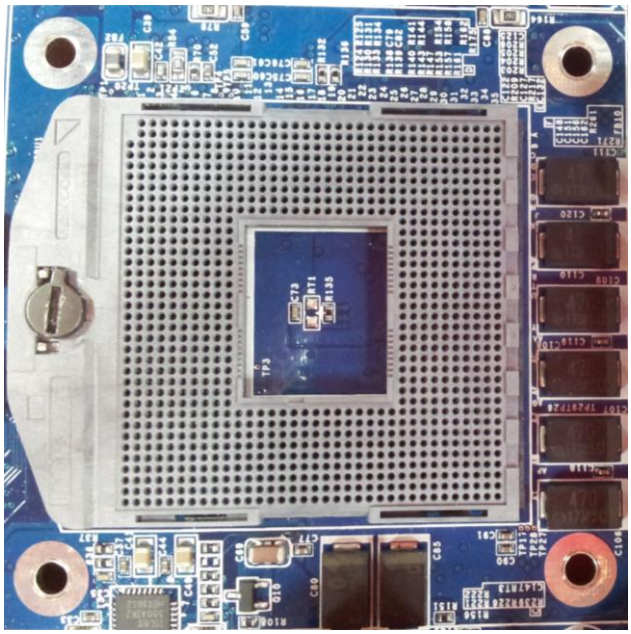
Signal	PIN	PIN	Signal
+5V	1	2	GND
USB_DN4/6/8	3	4	GND
USB_DP4/6/8	5	6	USB_DP5/7/9
GND	7	8	USB_DN5/7/9
GND	9	10	+5V

Note: Wrong USB cable configuration with USB devices might damage USB devices.

2.5 Installing the CPU

2.5.1 Locate the CPU socket on the board.

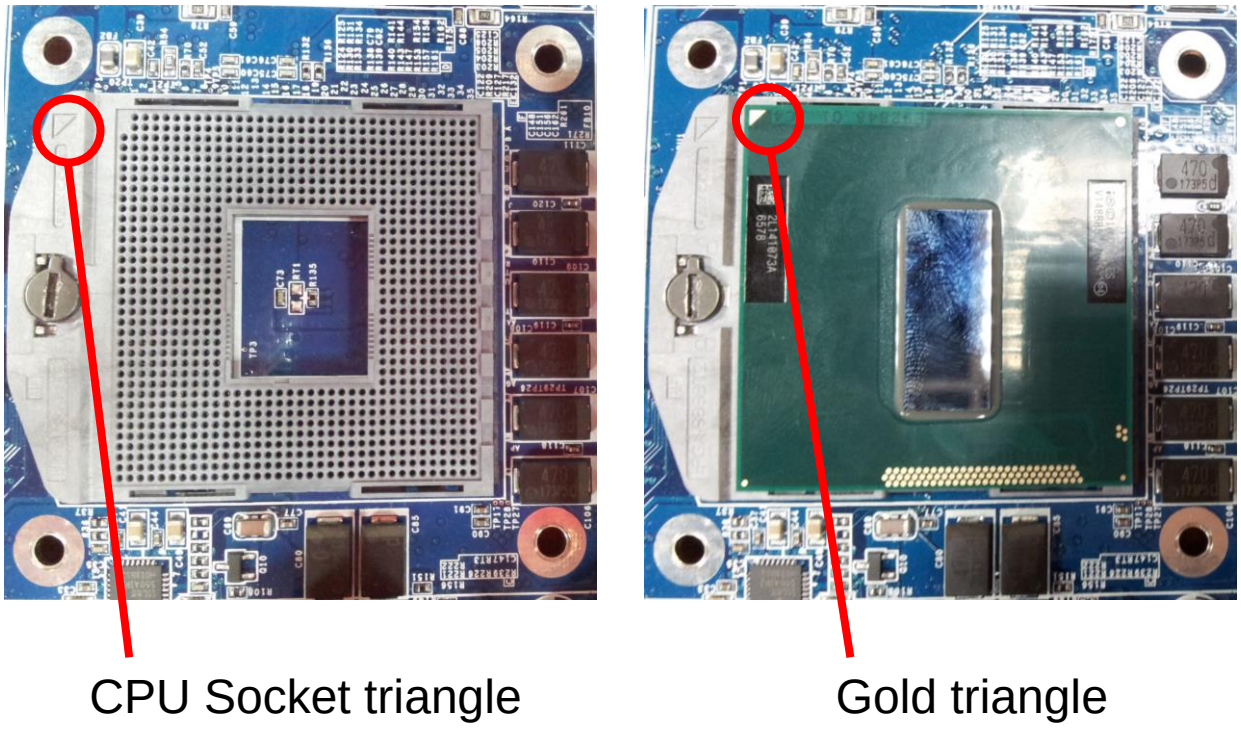




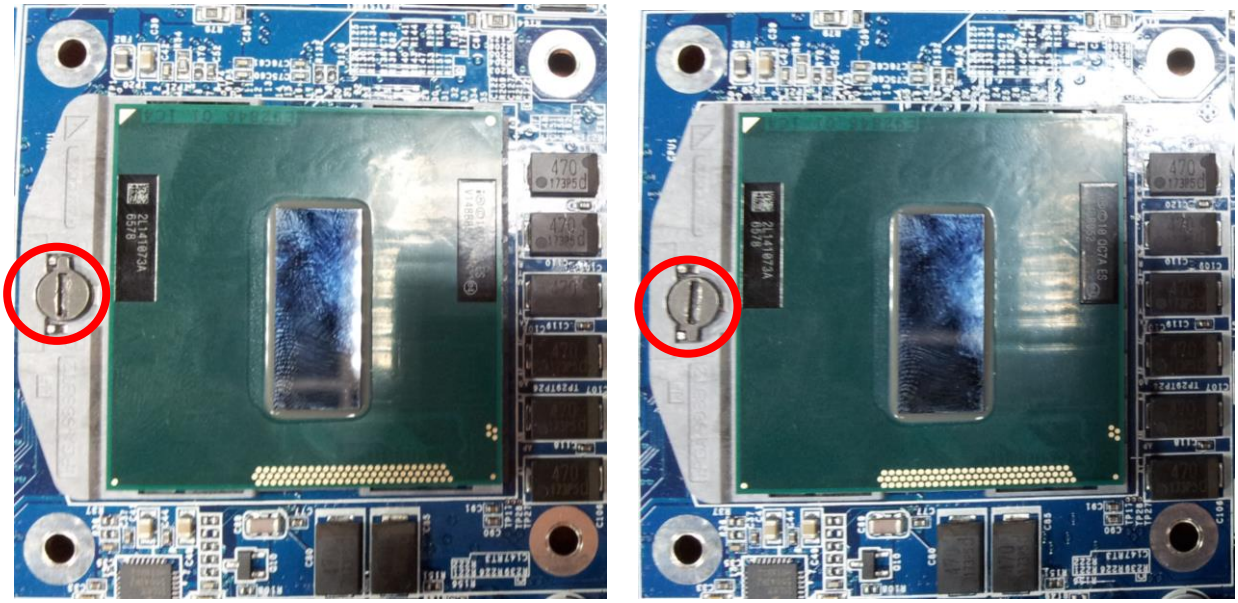
Before installing the CPU, make sure that the socket box is facing towards you and the load lever is on your left.

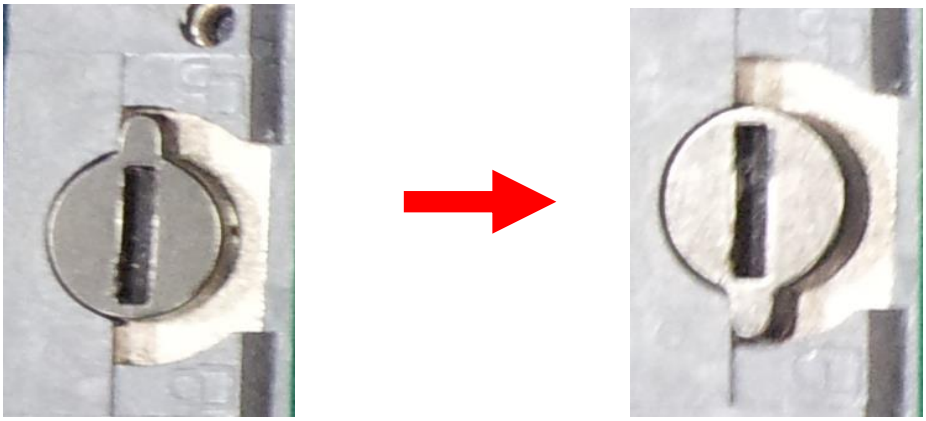
2.5.2 Separate CPU cooler and its base first by screw drawer

1. Position the CPU over the socket, making sure that the gold triangle is the same side as CPU Socket triangle



2. turn the CPU lock clockwise to lock CPU





The CPU fits in only one correct orientation. DO NOT force the CPU into the socket to prevent bending the connectors on the socket and damaging the CPU!

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
(Shift) F2 key	Change color from total 16 colors. F2 to select color forward, (Shift) F2 to select color backward
F3 key	Calendar, only for Status Page Setup Menu
F4 key	Reserved
F5 key	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
F6 key	Load the default CMOS value from BIOS default table, only for Option Page Setup Menu
F7 key	Load the default
F8 key	Reserved
F9 key	Reserved
F10 key	Save all the CMOS changes, only for Main Menu

- **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.

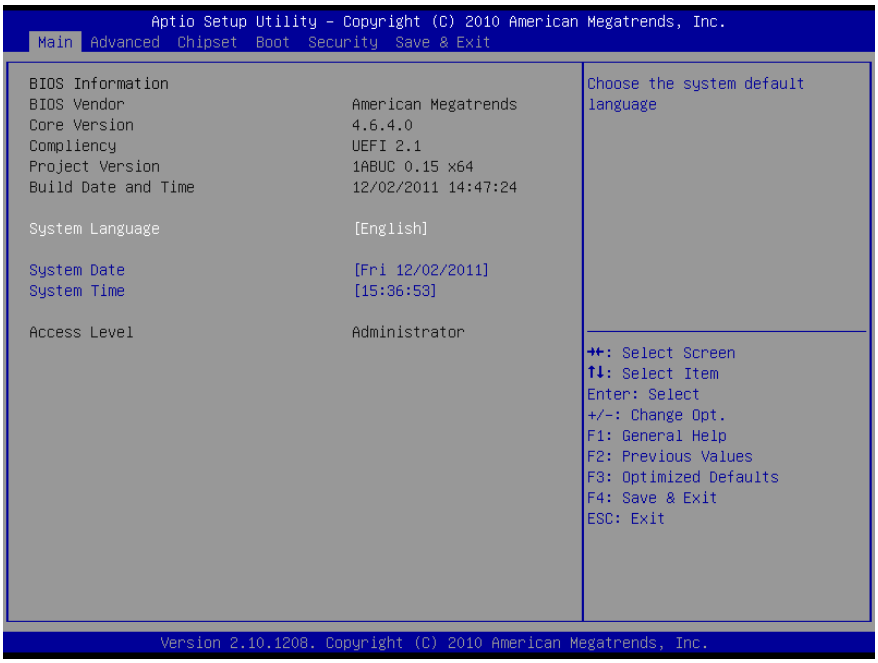
The best advice is to only alter settings which you thoroughly understand. To this end, we strongly recommend that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both Award and your systems manufacturer to provide the absolute maximum performance and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

This option allows choosing the system default language.

3.6.1.2 System Date

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

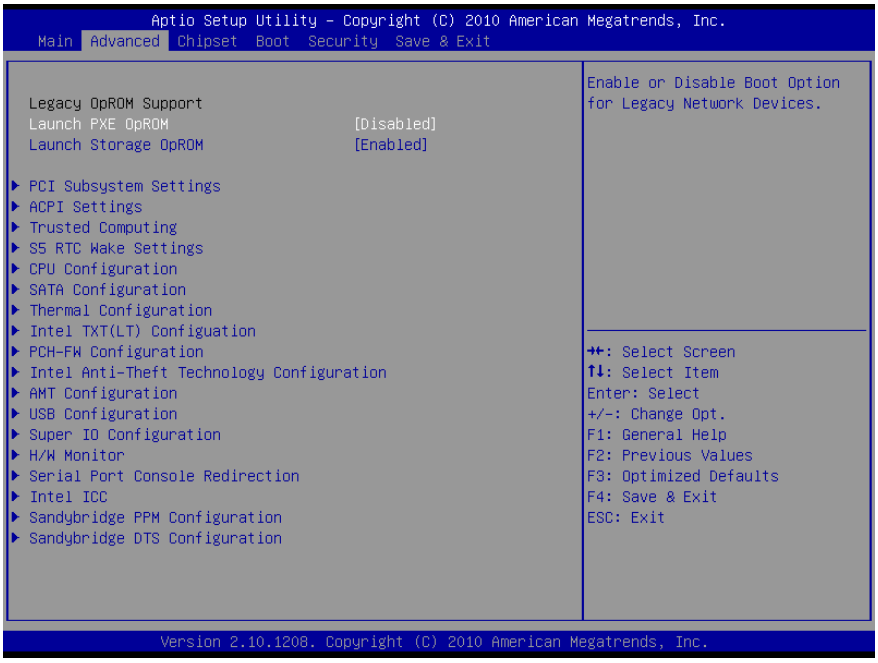
3.6.1.3 System Time

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

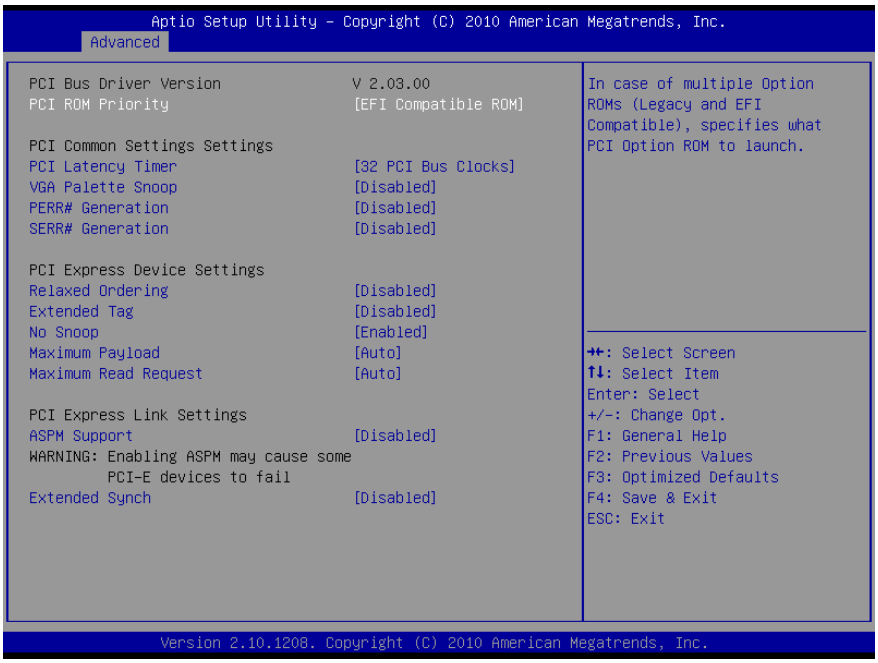
Note: The BIOS setup screens shown in this chapter are for reference purposes only, and may not exactly match what you see on your screen.
Visit the Avalue website (www.avalue.com.tw) to download the latest product and BIOS information.

3.6.2 Advanced Menu

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



3.6.2.1 PCI subsystem Settings

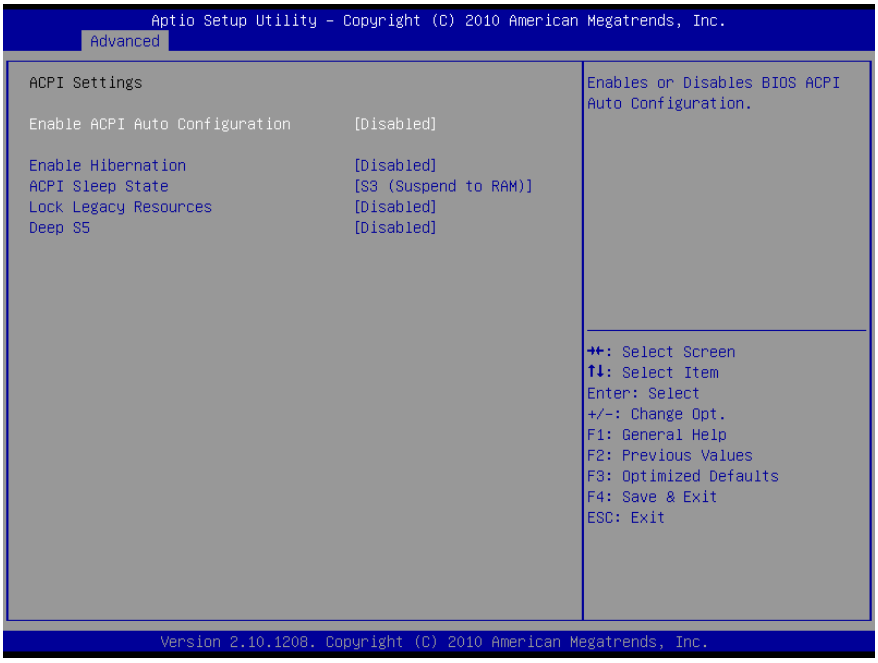


Item	Options	Description
PCI ROM Priority	Legacy ROM, EFI Compatible ROM	In case of multiple Optional ROMs (Legacy and EFI Compatible), specifies what PCI Option ROM to launch.

PCI Latency Timer	32 PCI Bus Clocks, 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 Register.
VGA Palette Snoop	Enabled, Disabled	Enable or Disable VGA Palette Registers Snooping.
PERR# Generation		If ENABLED allows generation of Extended Synchronization patterns.
SERR# Generation		Enables or Disables PCI Devices to Generate SERR#.
Relaxed Ordering		Enables or Disables PCI Express Device Relaxed Ordering.
Extended Tag		If ENABLED allows Devices to use 8-bit Tag field as a requester.
No Snoop		Enables or Disables PCI Express Devices No Snoop option.
Maximum Payload	Auto 128 Bytes, 256 Bytes, 512 Bytes, 1024 Bytes, 2048 Bytes, 4096 Bytes	Set Maximum Payload of PCI Express Device or allow System BIOS to select the value.
Maximum Read Request	Auto 128 Bytes, 256 Bytes, 512 Bytes, 1024 Bytes, 2048 Bytes, 4096 Bytes	Set Maximum Read Request Size of PCI Express Device or allow System BIOS to select the value.
ASPM Support	Disable, Auto, Force L0	Set the ASPM Level: Force L0 – Force all links to L0 State: Auto – BIOS auto configure: DISABLE – Disables ASPM
Extended Synch	Enable, Disable	If ENABLED allows generation of Extended Synchronization patterns.

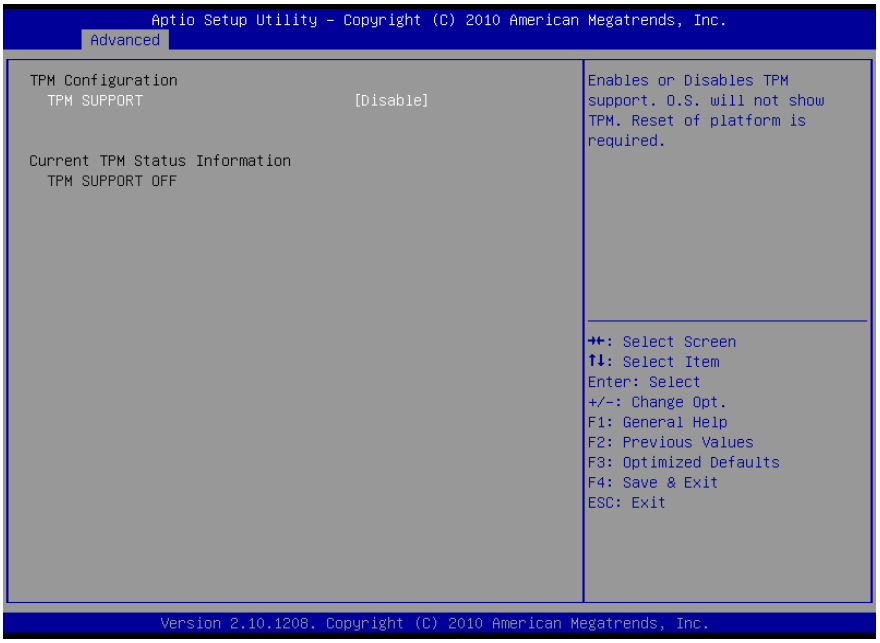
3.6.2.2 ACPI Settings

You can use this item to set up ACPI Configuration.



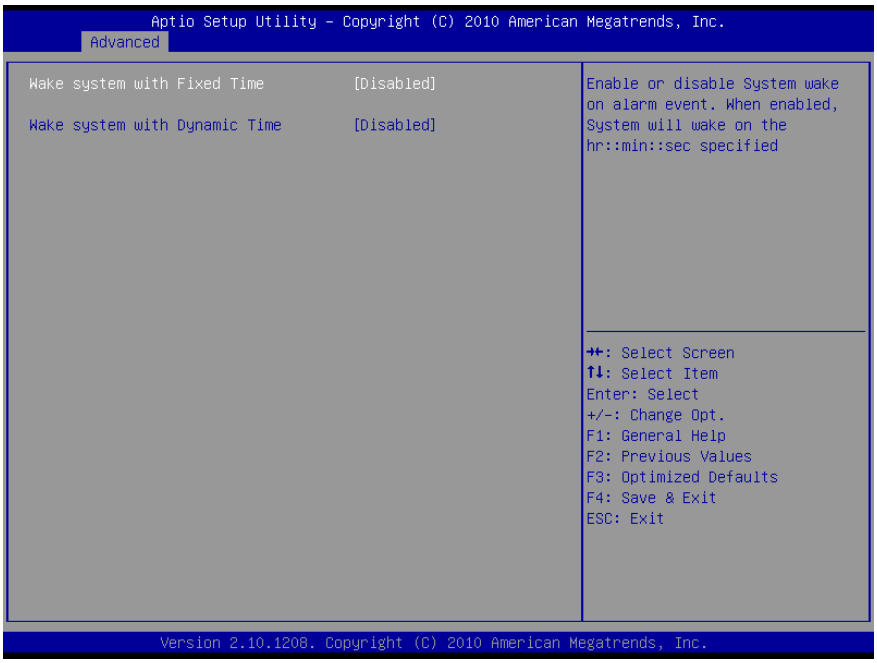
Item	Options	Description
Enable ACPI Auto Configuration	Disabled, Enabled	Enables or Disables BIOS ACPI Auto Configuration.
Enable Hibernation		Enables or Disables System ability to Hibernate (OS/S4 Sleep State). This option may be not effective with some OS.
ACPI Sleep State	Suspend Disable, S1 (CUP Stop Clock), S3 (Suspend to RAM)	Select the highest ACPI sleep state the system will enter, when the SUSPEND button is pressed.
Lock Legacy Resources	Disabled, Enabled	Enables or Disables lock of legacy resources
Deep S5		Deep S5 for power saving

3.6.2.3 Trusted Computing



Item	Options	Description
TPM SUPPORT	Disabled, Enabled	Enables or Disables TPM support. O.S will not show TPM. Reset of platform is required.
Current TPM Status Information	Displays the TPM status information [No TPM Hardware]	

3.6.2.4 S5 RTC Wake settings



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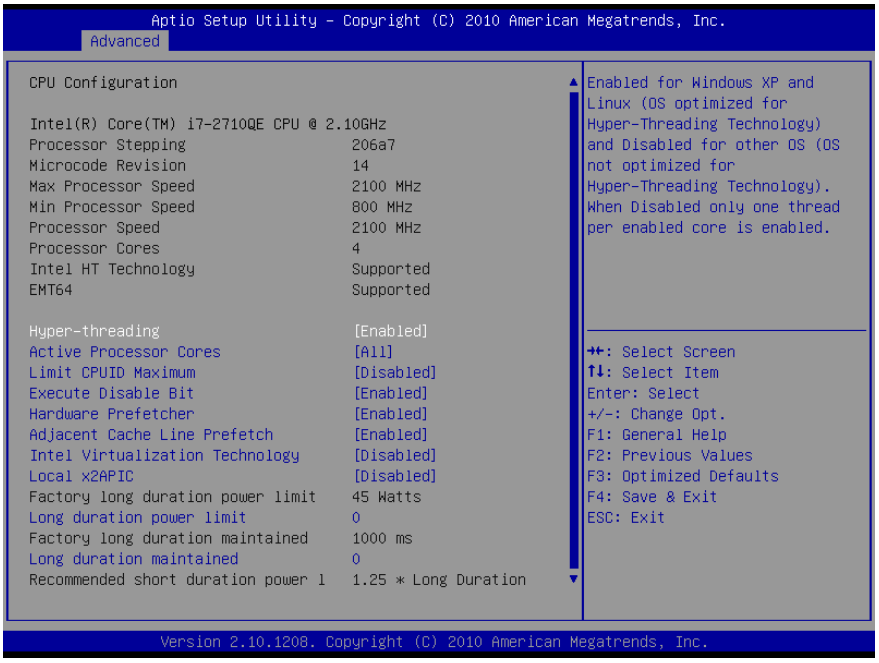
Item	Options	Description
Wake system with Fixed Time	Disabled, Enabled	Enables or disables system wake on alarm event. When enabled, System will wake on the hr::min::sec specified
Wake system with Dynamic Time		Enables or disables system wake on alarm event. When enabled, System will wake on the current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

3.6.2.5 CPU Configuration

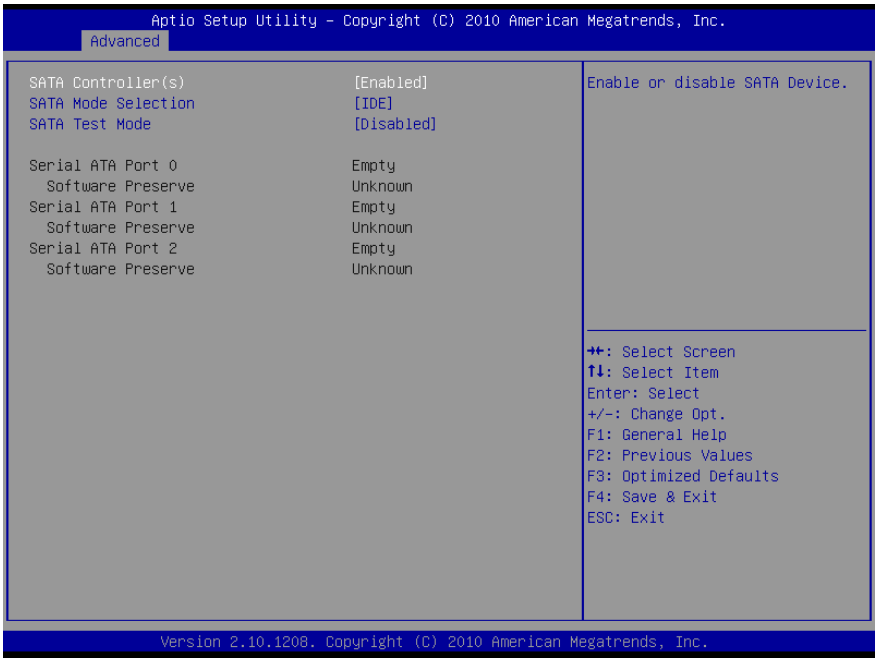
Use the CPU configuration menu to view detailed CPU specification and configure the CPU.



Item	Options	Description
Hyper-threading	Disabled Enabled	Enabled for Windows XP and Linux (OS optimized for hyper-threading technology) and disabled for other OS (OS not optimized for hyper-threading technology). When disabled only one thread per enabled core is enabled.
Active Processor Cores	All 1/2/3	Number of cores to enable in each processor package
Limit CPUID Maximum	Disabled Enabled	Disabled for Windows XP
Execute Disable Bit		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.)
Hardware Prefetcher		To turn on/off the Mid Level cache (L2) streamer prefetcher.
Adjacent Cache Line Prefetch		To turn on/off prefetching of adjacent cache lines
Intel Virtualization Technology		When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool technology.
Local x2APIC		Enables Local x2APIC. Some OSes do not support this function
Long duration power limit	Long duration power limit in Watts	
Long duration maintained	Time window which the long duration power is maintained	
Short duration power limit	Short duration power limit in Watts	
1-2-3-4-5-6-7-8-Core Ratio Limit	This limit is for 1 core active. 0 means using the factory-configured value.	

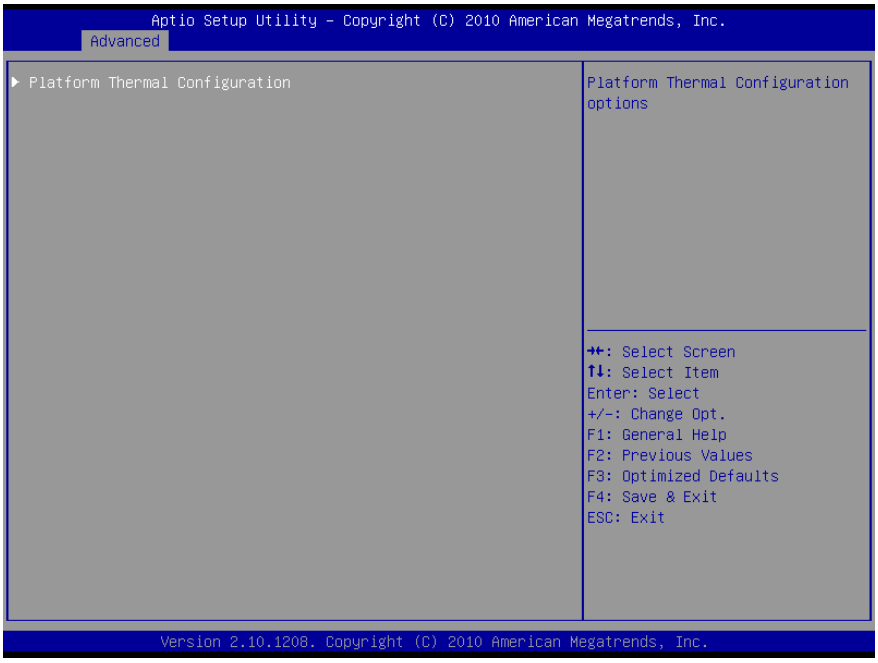
3.6.2.6 SATA Configuration

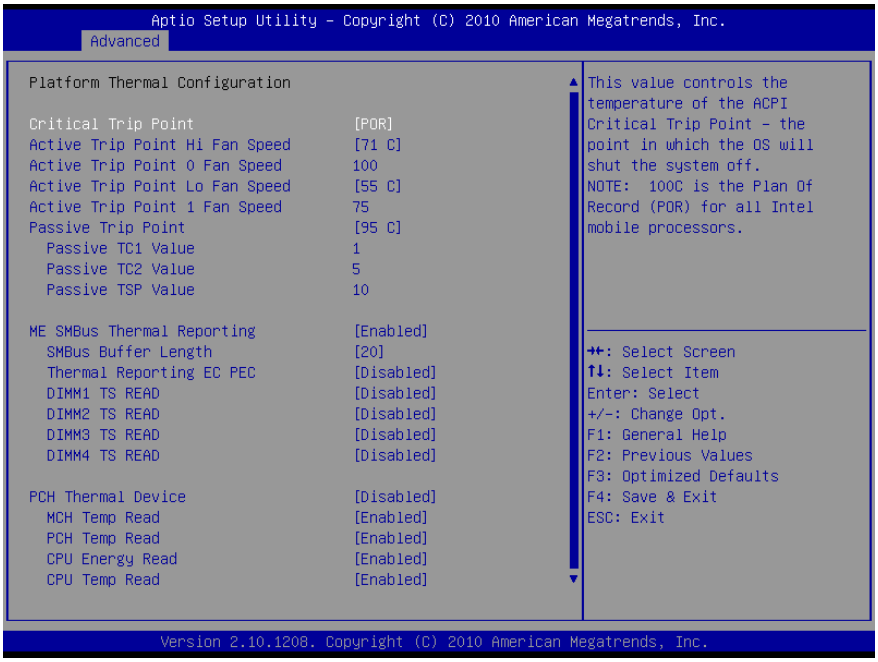
It allows you to select the operation mode for SATA controller.



Item	Options	Description
SATA Controller(s)	Enabled Disabled	Enables or Disables SATA Device
SATA Mode Selection	IDE AHCI RAID	Determines how SATA controller (s) operate
SATA Test Mode	Enabled Disabled	Enables or Disables Test Mode

3.6.2.7 Thermal Configuration

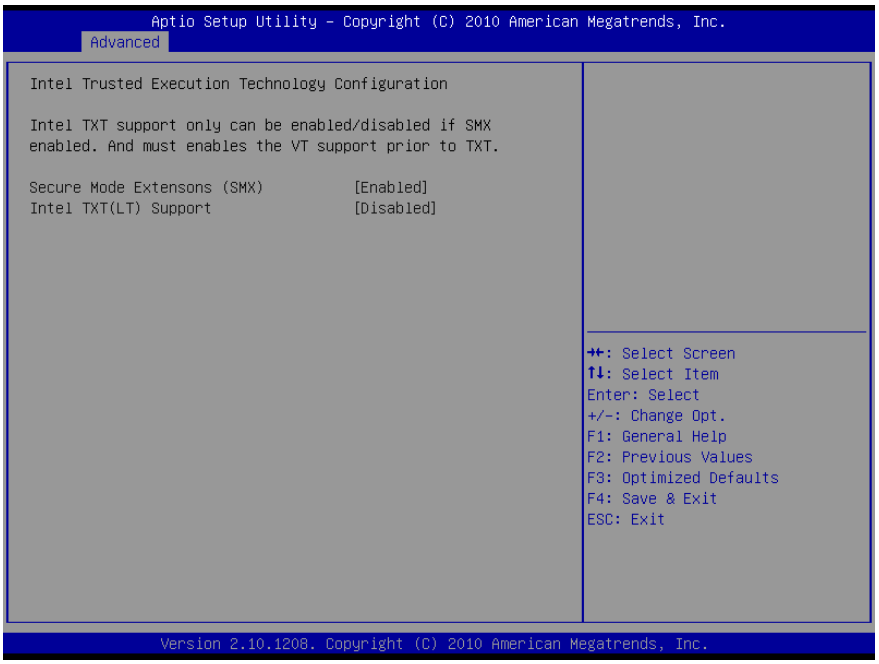




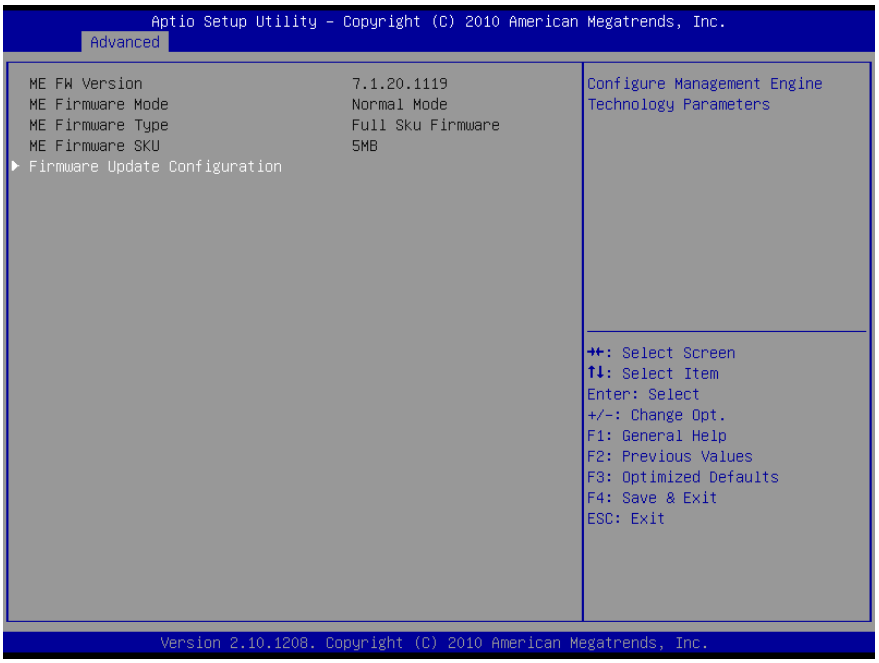
Item	Options	Description
Critical Trip Point	POR 15/23/31/39/47/55/63/71/ 79/87/95/103/111/119C	This value controls the temperature of the ACPI critical Trip Point- the point in which the OS will shut the system off. NOTE: 100C is the Plan Of Record (POR) for all Intel mobile processors.
Active Trip Point Hi Fan Speed	Disabled 15/23/31/39/47/55/63/71/ 79/87/95/103/111/119C	This value controls the temperature of the ACPI Active Trip Point- the point in which the OS will turn the processor fan high.
Active Trip Point 0 Fan Speed	0 ~ 100	Active Trip Point 0 Fan Speed in percentage. Value must be between 0 (Fan off) -100 (Max fan speed). This is the speed at which fan will run when Active Trip Point 0 is crossed.
Active Trip Point Lo Fan Speed	Disabled 15/23/31/39/47/55/63/71/ 79/87/95/103/111/119C	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 1 Fan Speed	0 ~ 100	Active Trip Point 1Fan speed in percentage. Value must be between 0 (Fan off) – 100 (Max fan speed). This value must be less than Active Trip Point 0 Fan speed. This is the speed at which fan will run when Active Trip 1 is crossed.
Passive Trip Point	Disabled 15/23/31/39/47/55/63/71/ 79/87/95/103/111/119C	This value controls the temperature of the ACPI Passive Trip Point- the point in which the OS will begin throttling the processor
Passive TC1 / TC2 Value	1-16	This value sets the TC1 value for the ACPI Passive Cooling Formula. Range 1-16
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 in enabled. Range 2- 32
ME SMBus Thermal Reporting	Disabled, Enabled	Enable/ Disable ME SMBus Thermal Reporting Configuration.
SMBus Buffer Length	1/2/5/9/10/14/20	SMBus Block Read message length for EC.
Thermal Reporting EC PEC	Disabled, Enabled	Enable Packet Error Checking (PEC) for SMBus Block Read.

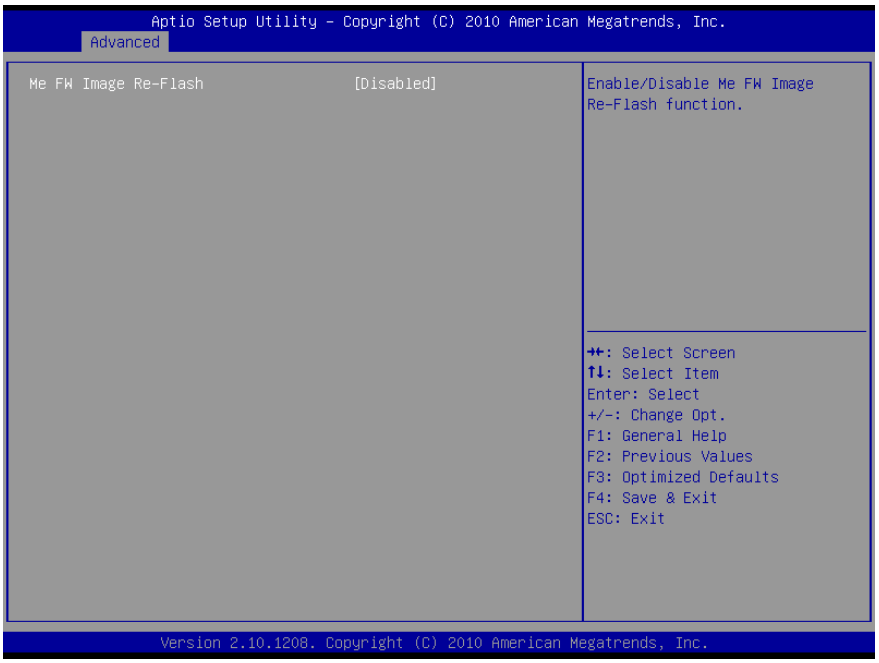
DIMM1/2/3/4 TS READ	Disabled, Enabled	DIMM1/2/3/4 Thermal Sensor Read Enable
PCH Thermal Device		Enable or Disable PCH Thermal Device (D31:F6)
MCH Temp Read		MCH Temperature Read Enable
PCH Temp Read		PCH Temperature Read Enable
CPU Energy Read		CPU Energy Read Enable
CPU Temp Read		CPU Temperature Read Enable
Alert Enable Lock		Lock all Alert Enable settings
PCH Alert		PCH Alert pin enable
DIMM Alert		DIMM Alert pin enable
PCH Hot Level Select	PCHHOT#: this signal is used to indicate a PCH temperature out of bounds condition to an external EC, when PCH temperature is greater than value programmed by BIOS. An external pull-up resistor is required in this signal.	

3.6.2.8 Intel TXT (LT) Configuration

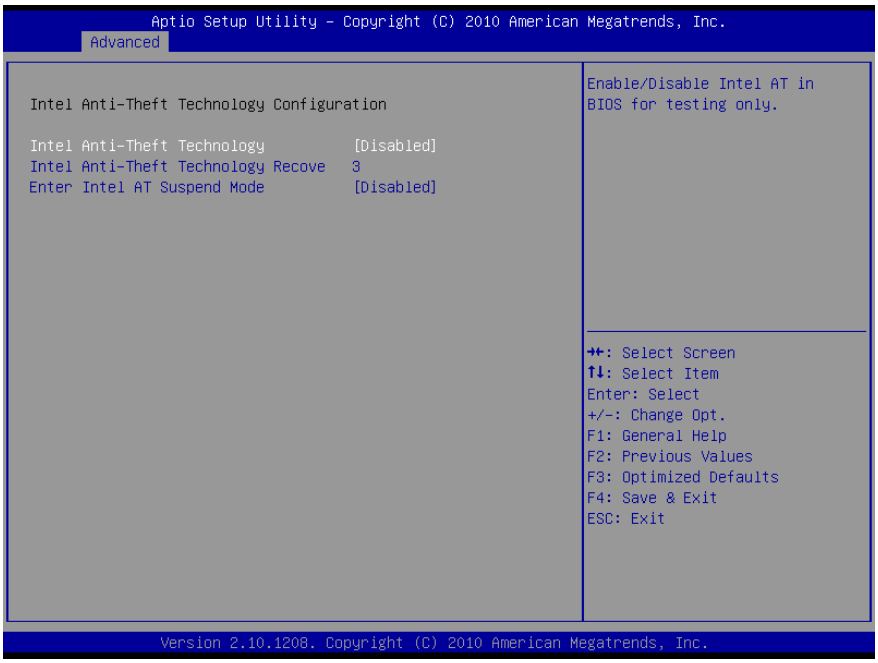


3.6.2.9 PCH-FW Configuration





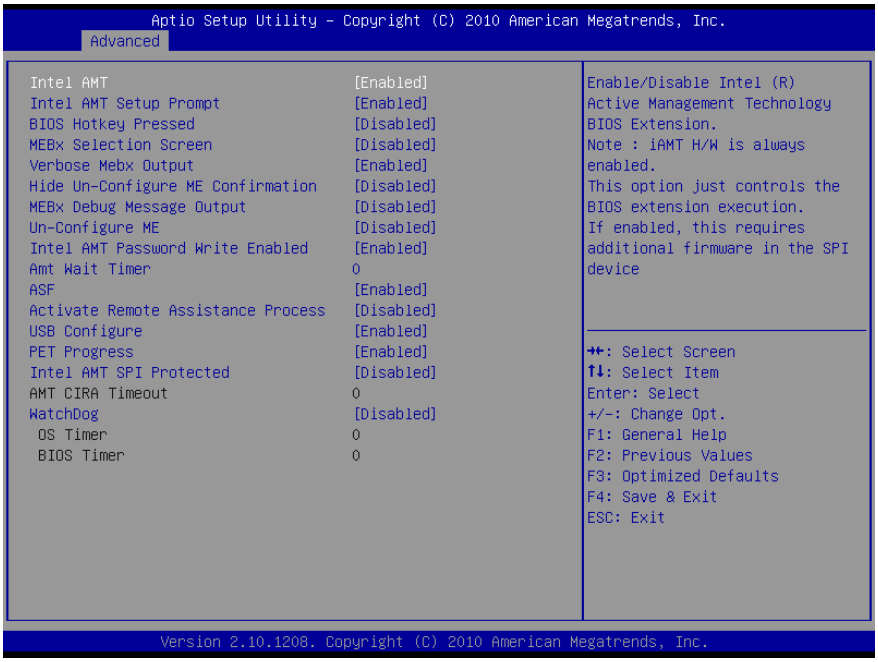
3.6.2.10 Intel Anti-Theft Technology Configuration



Item	Options	Description
Intel Anti-Theft Technology	Enabled Disabled	Enable/Disable Intel AT in BIOS for testing only
Intel Anti-Theft Technology Recovery	1 ~ 64	Set the number of times Recovery attempts will be allowed
Enter Intel AT Suspend Mode	Enabled Disabled	Request that platform to enter Intel AT Mode

3.6.2.11 AMT Configuration

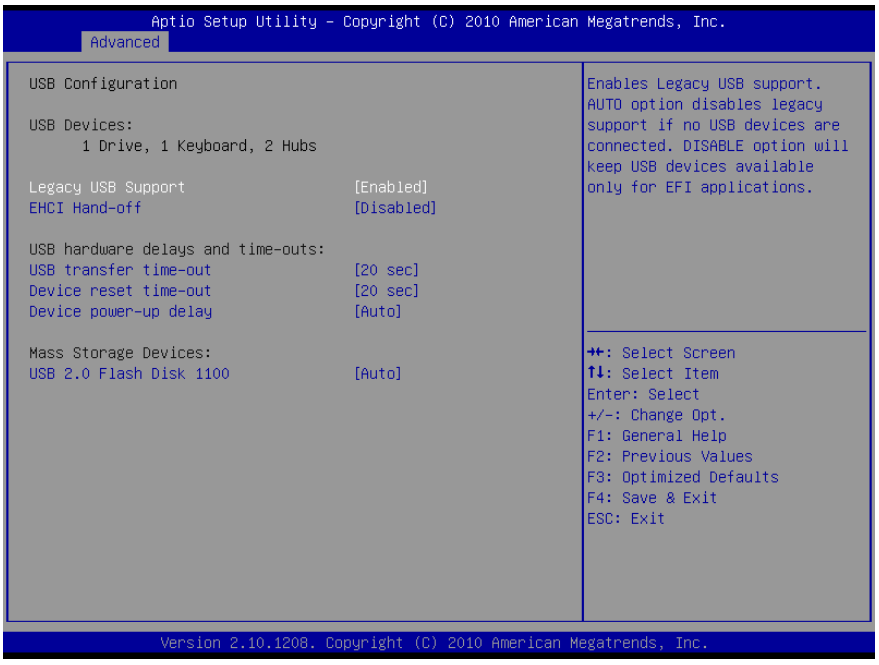
Intel AMT allows hardware-based remote management, security, power-management, and remote-configuration features.



Item	Options	Description
Intel AMT	Disabled Enabled	Enable/Disable Intel ® Active Management Technology BIOS Extension. Note: iAMT H/W is always enabled. This option just controls the BIOS extension execution. If Enabled, this requires additional firmware in the SPI device
Intel AMT Setup Prompt		Enable/Disable Intel AMT Setup Prompt to wait for hot-key to enter setup.
BIOS Hotkey Pressed		Enable/Disable BIOS Hotkey Pressed
MEBx Selection Screen		Enable/Disable MEBx Selection Screen
Verbose MEBx Output		Enable/Disable Verbose MEBx Output
Hide Un-configure ME Configuration		Hide Un-configure ME without password Confirmation Prompt.
MEBx Debug Message Output		Enable MEBx Debug Message Output
Un-configure ME		Un-configure ME without password
Intel AMT Password Write Enable		Enable/Disable Intel AMT Password Write. Password is writable when set to Enable
AMT Wait time	Set time to wait before sending ASF_GET_BOOT_OPTIONS.	
ASF	Disabled Enabled	Enabled/Disabled alert specification Format.
Active Remote Assistance Process		Trigger CIRA boot.
USB Configure		Enabled/Disabled USB configure function.
PET progress		User can Enabled/Disabled PET Events progress to receive PET events or not..
Intel AMT SPI Protected		Enabled/Disabled Intel AMT SPI write protect.
WatchDog Timer		Enable/Disable Watchdog Timer.

3.6.2.12 USB Configuration

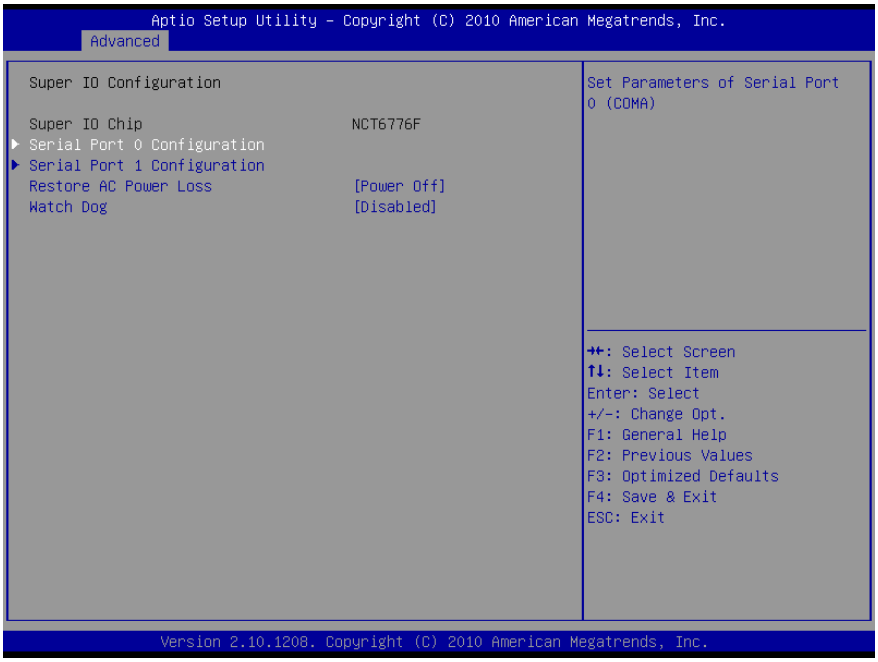
The USB Configuration menu helps read USB information and configures USB settings.



Item	Options	Description
USB Device	Display how many devices are connected.	
Legacy USB Support	Enabled Disabled Auto	Enables Legacy USB support. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications.
EHCI Hand-off	Disabled 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	1 sec 5 sec 10 sec 20 sec	The time-out value for Control, Bulk, and Interrupt transfers.
Device reset time-out	10 sec 20 sec 30 sec 40 sec	The time-out value for Control, Bulk, and Interrupt transfers.
Device Power-up delay	Auto Manual	Maximum time the device will take before it properly reports itself to the Host Controller. 'Auto' uses default value: for a Root port it is 100ms, for a Hub port the delay is taken form Hub descriptor.
Mass Storage Devices	Auto Floppy Forced FDD Hard Disk CD-ROM	Mass storage device emulation type."AUTO" enumerates devices according to their media format. Optical drives are emulated as "CDROM", drives with no media will be emulated according to a drive type.

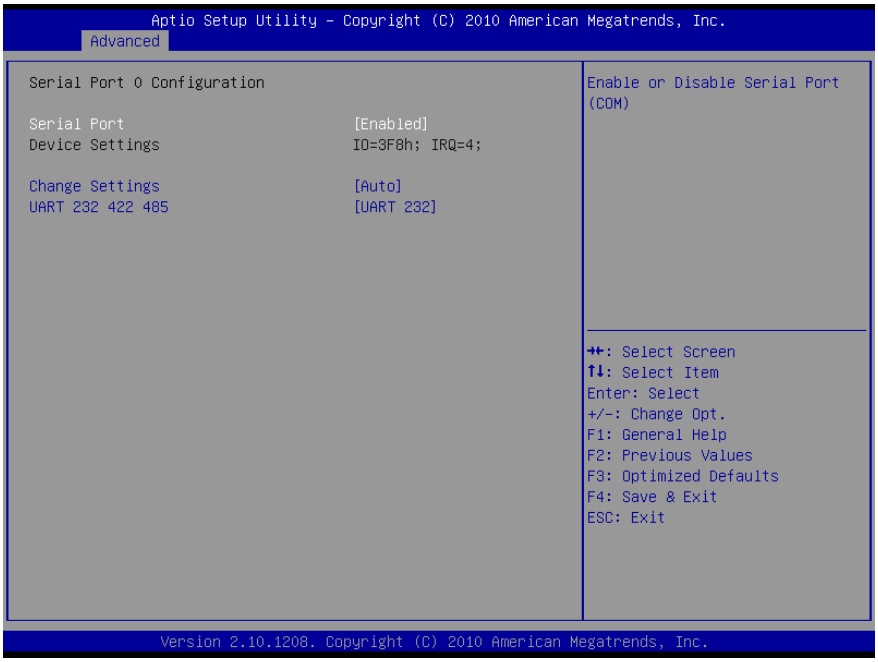
3.6.2.13 Super IO Configuration

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 3.5.2.13.1 and 3.5.2.13.2 for more information.



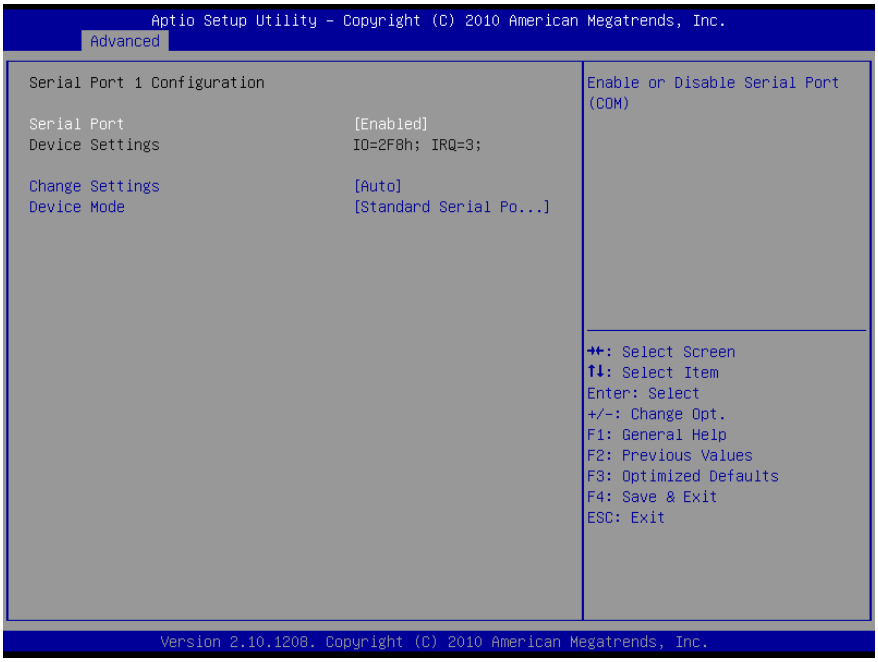
Item	Options	Description
Restore AC Power Loss	Power Off Power On	Specify what state to go when power is re-applied after a power failure (G3 state)
Watch Dog	Disabled 30 sec 40 sec 50 sec 60 sec 2 min 10 min 30 min	Set SIO watchdog timer

3.6.2.13.1Serial Port 0 Configuration



Item	Option	Description
Serial Port	Enabled, Disabled	Use the Serial port option to enable or disable the serial port.
Device Settings	IO=3F8h; IRQ=4,	Enable or Disable Serial Port (COM)
Change Settings	Auto IO=3F8h; IRQ=4, 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 optimal setting for super IO Device.
UART 232 422 485	UART 232, UART 422, UART485	Change the Serial Port as RS232/ 422/ 485

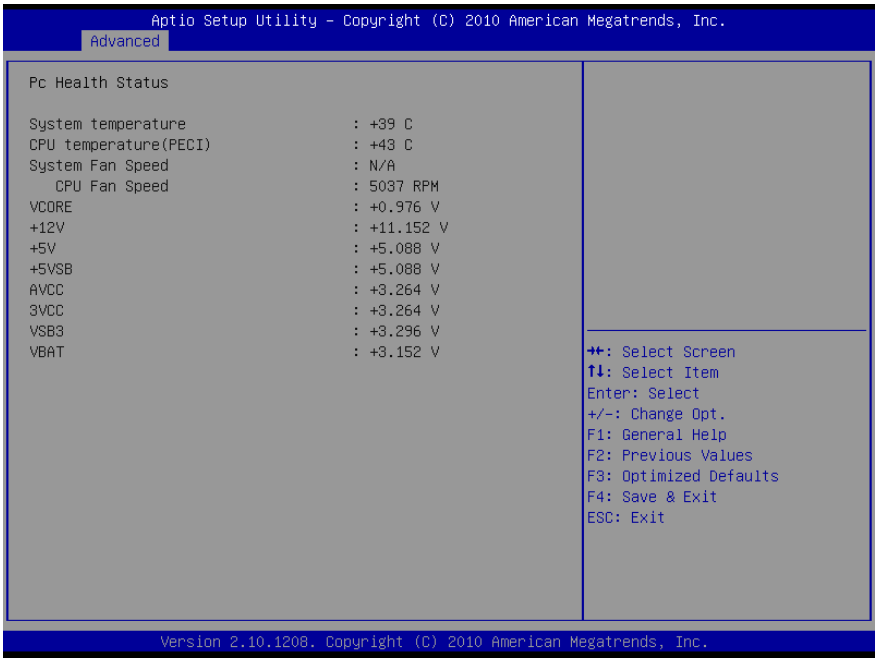
3.6.2.13.2Serial Port 1 Configuration



Item	Option	Description
Serial Port	Enabled, Disabled	Enable or Disable Serial Port (COM)
Device Settings	IO=2F8h; IRQ=3	
Change Settings	Auto 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 optimal setting for super IO Device.
Device mode	Standard Serial Port Mode IrDA 1.0 (HP SIR) Mode ASKIR Mode	Change the Serial Port mode. Select <High Speed> or <Normal mode> mode.

3.6.2.14 Hardware Monitor

Displays system health status



The following system temperature, fan speed and voltage are monitored.

Temperature:

- System Temperature
- CPU Temperature

Fan Speed:

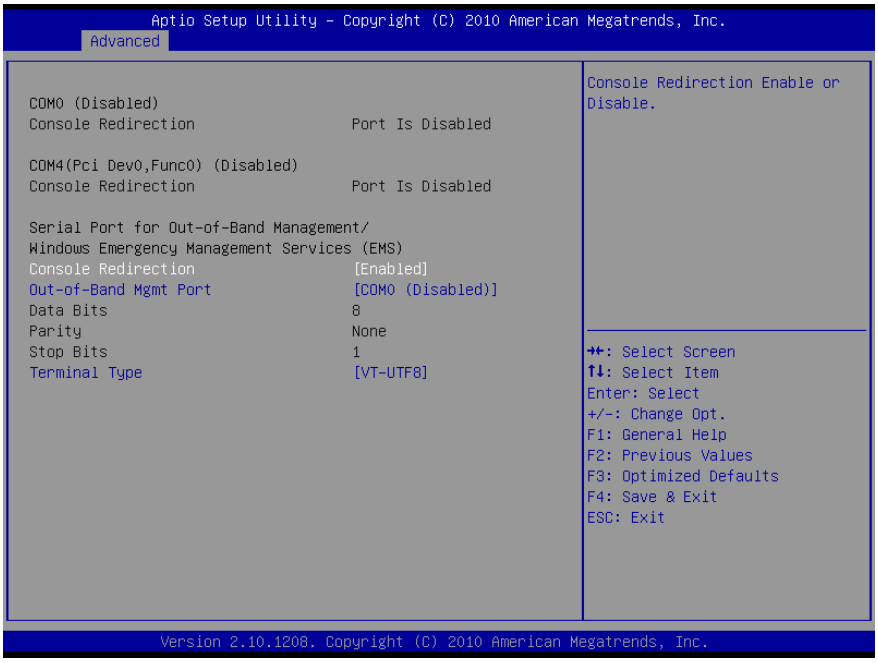
- System Fan Speed
- CPU Fan speed

Voltage:

- VCORE
- +12V
- +5V
- +5VSB
- AVCC
- 3VCC
- VSB3
- VBAT

3.6.2.15 Serial port Console Redirection

Displays COM console information.



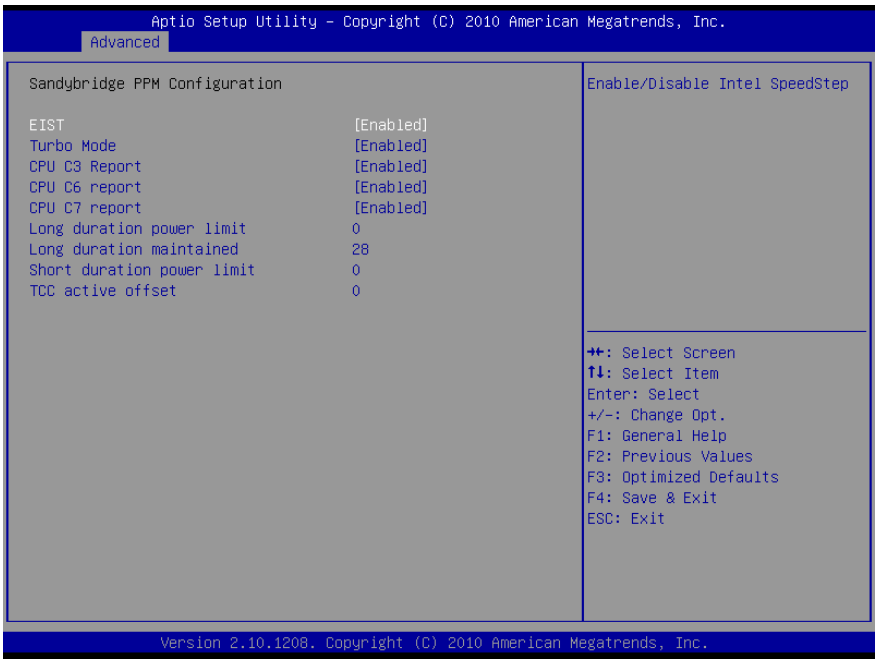
Item	Option	Description
Console Redirection	Enabled Disabled	Console Redirection Enable or Disable.
Out-of-Band Mgmt Port	COM0 COM4	Microsoft Windows Emergency Management Services (EMS) allows for remote management of a Windows Server OS through a serial port.
Terminal Type	VT100 VT100+ VT-UTF8 ANSI	VT-UTF8 is the preferred terminal type for out-of-band management. The next best choice is VT100+ and then VT100. See above, in Console Redirection settings page, for more Help with Terminal Type/ Emulation.

3.6.2.16 Intel ICC

This Integrated Clock Control option.

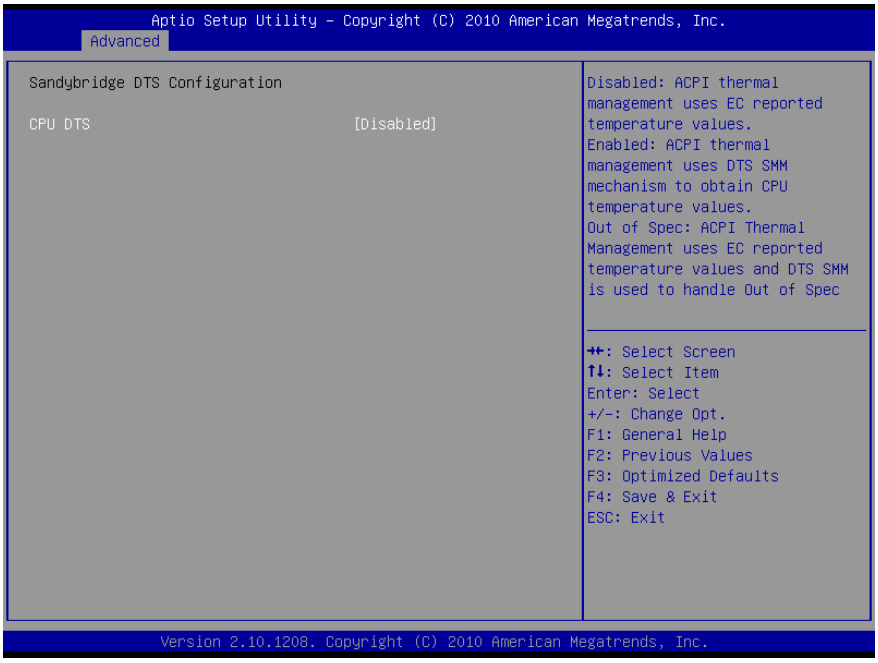
Item	Option	Description
Use Watchdog Timer for ICC [Disable]	Disabled Enabled	Enable Watchdog Timer operation for ICC. If enabled, watchdog Timer will be started after ICC-related changes. This timer detects platform instability caused by wrong clock settings.
Turn off unused PCI/PCIe clocks [Enable]		Disabled: all clocks turned on: clocks for empty PCI/PCIe slots will be turned off to save power. Platform must be powered off for changes to take effect.
Lock ICC registers[Static only]	All registers Static only	All registers: all ICC registers will be locked. Static only: only static ICC registers will be locked

3.6.2.17 Sandybridge PPM Configuration



Item	Option	Description
EIST	Disabled Enabled	Enable or Disable Intel Speedstep.
Turbo Mode		Enable or Disable Intel Turbo Mode.
CPU C3/6/7 Report		Enable or Disable CPU C3/6/7 report to SO.
Long Duration power limit	Long duration power limit in watts, 0 means use factory default.	
Long Duration maintained	Time window which long duration power is maintained.	
Short Duration power limit	Short duration power limit in watts, 0 means use factory default.	
TCC active offset	Offset from the factory TCC activation temperature.	

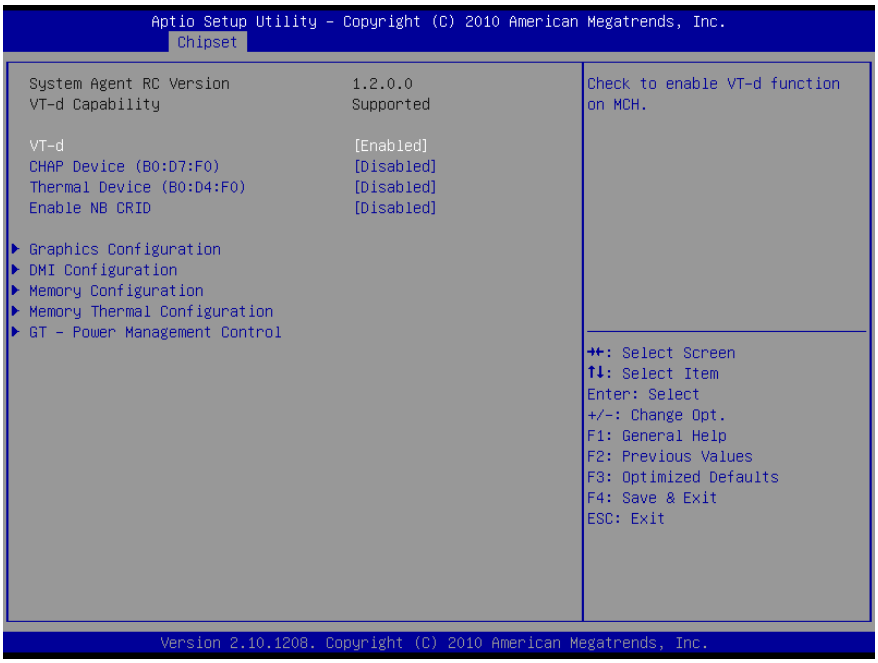
3.6.2.18 Sandybridge DTS Configuration



Item	Option	Description
CPU DTS	Disabled Enabled	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.

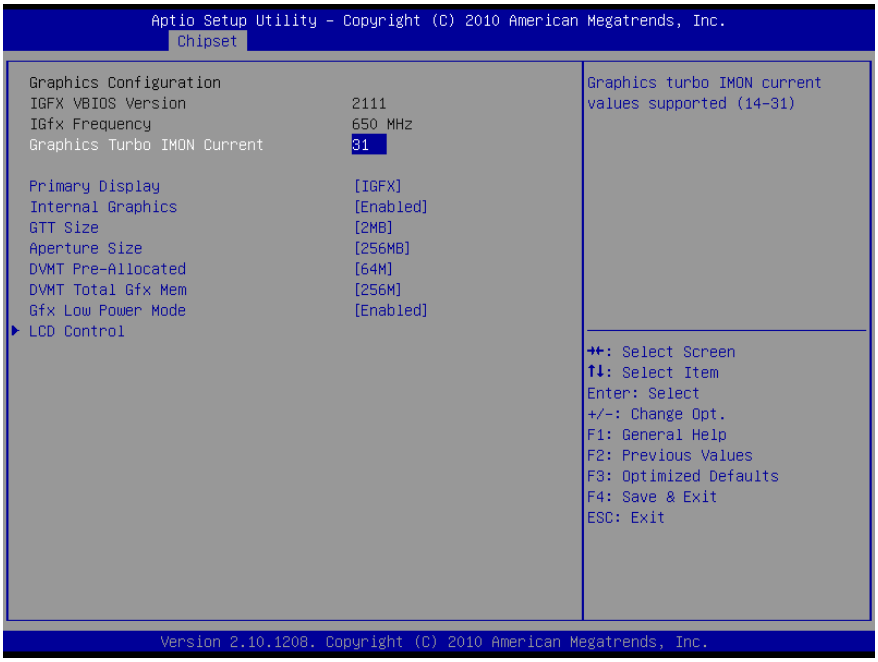
3.6.3 Chipset

3.6.3.1 System Agent (SA) Configuration



Item	Option	Description
System Agent RC version	Display System Agent RC information.	
VT-d	Disabled Enabled	Check to enable VT-d function on MCH.
CHAP Device (B0:D7:F0)	Disabled Enabled	Enable or Disable SA CHAP Device.
Thermal Device (B0:D4:F0)		Enable or Disable SA Thermal Device.
Enable NB CRID		Enable or Disable NB CRID workaround.

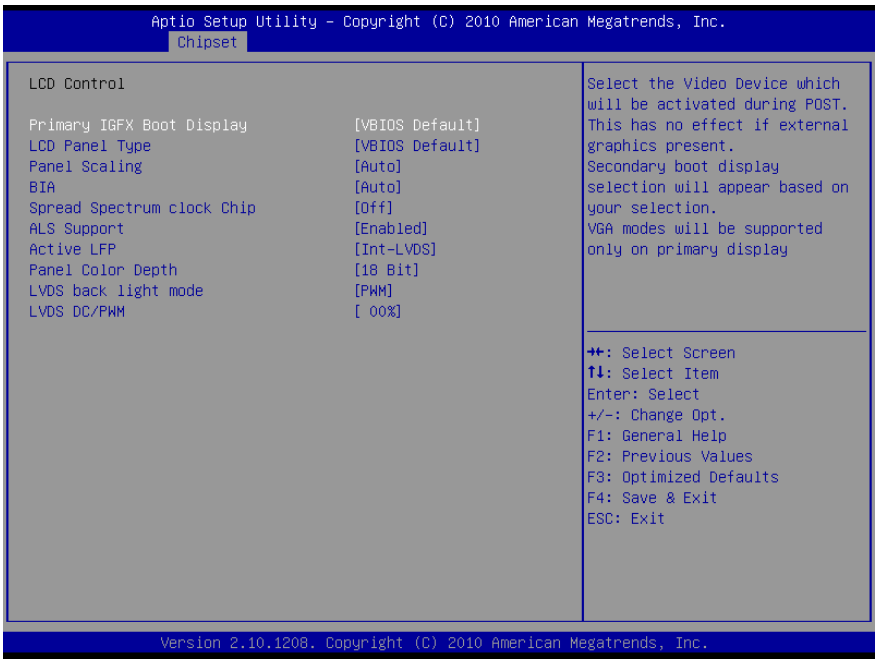
3.6.3.1.1 Graphics Configuration



Item	Option	Description
Graphics Turbo IMON Current	14 ~31	Graphics turbo IMON current values (14 -31)
Primary Display	Auto IGFX PEG PCI	Select which of IGFX/PEG/PCI Graphics device should be Primary Display Or select SG for Switchable Gfx.
Internal Graphics	Auto Disabled Enabled	Keep IGD enabled based on the setup options.
GTT Size	1MB 2MB	Select the GTT size
Aperture Size	[128MB] [256MB] [512MB]	Select Aperture Size
DVMT Pre-Allocated	[0][32M] [64M] [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] [MAX]	Select DVMT5.0 total graphic memory size used by the internal Graphics Device.
Gfx Low Power Mode	Disabled Enabled	This option is applicable for SFF only.

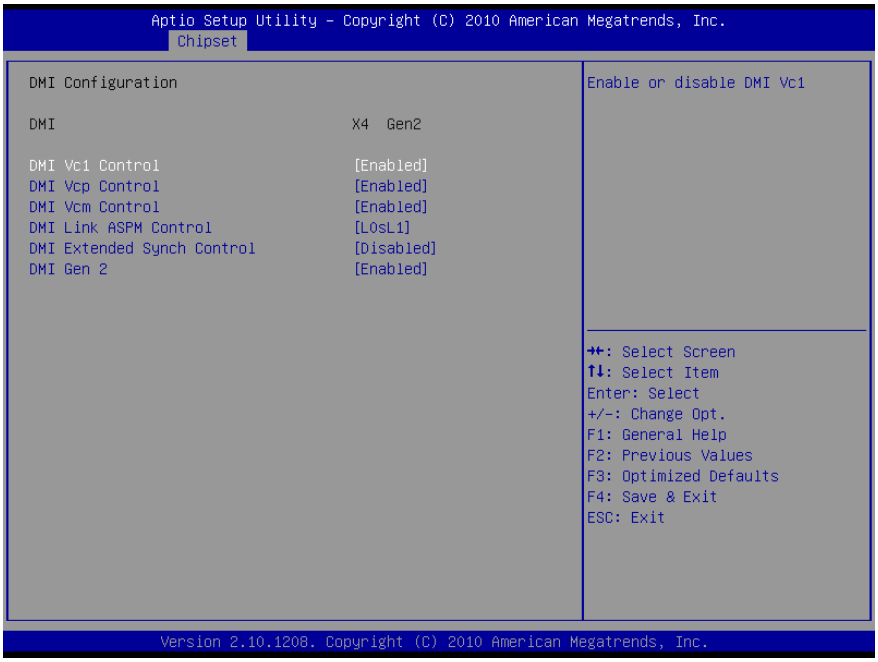
3.6.3.1.1.1 LCD Control



Item	Option	Description
Primary IGFX Boot Display	VBIOS Default CRT DVI LVDS HDMI	Select the video Device which will be activated during POST. This has no effect if external graphics present. Secondary boot display selection will appear based on your selection. VGA modes will be supported only on primary display.
LCD Panel Type	VBIOS Default [640x480] [800x600 LVDS][1024x768 LVDS] [1280x1024 LVDS] [1400x1050 LVDS1] [1400x1050 LVDS2] [1600x1200 LVDS] [1366x768 LVDS] [1920x1080 LVDS] [1440x900 LVDS] [1600x900 LVDS] [1280x800 LVDS] [1680x1050 LVDS] [1920x1080 LVDS] [2048x1536 LVDS]	Select LCD panel used by Internal Graphics Device by selecting the appropriate setup item

Panel Scaling	[Auto] [Off] [Force Scaling]	Select the LCD panel scaling option used by the Internal Graphics Device.
BIA	[Auto] [Disabled] [Level 1] [Level 2] [Level 3] [Level 4] [Level 5]	Auto: GMCH use VBT Default Level n: Enabled with selected Aggressiveness level.
Spread Spectrum clock Chip	[Off] [Hardware] [Software]	Hardware: Spectrum is controlled by Chip. Software: Spectrum is controlled by BIOS.
ALS Support	[Disabled] [Enabled]	Valid only for ACPI.
Active LFP	[No LVDS] [Int-LVDS]	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).
Panel Color Depth	[18 Bit] [24 Bit]	Select the LFP panel color depth
LVDS back light mode	PWM DC	Select LVDS back light mode
LVDS DC/PWM	00% 25% 50% 75% 100%	Select LVDS backlight DC/PWM duty

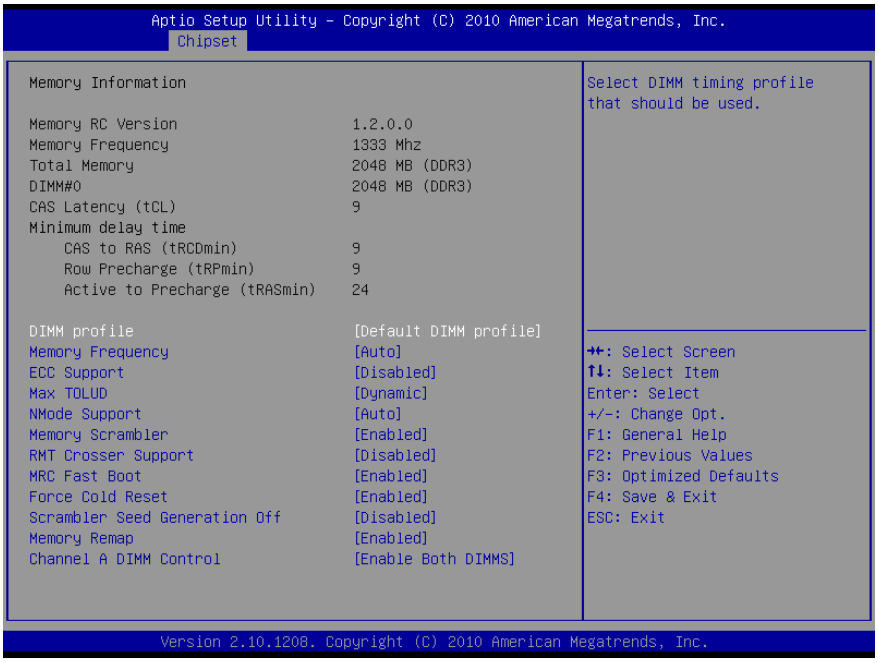
3.6.3.1.2 DMI Configuration



Item	Option	Description
DMI Vc1 Control	Enabled Disabled	Enable or Disable DMI Vc1
DMI Vcp Control		Enable or Disable DMI Vcp
DMI Vcm Control		Enable or Disable DMI Vcm
DMI Link ASPM Control	Disabled L0s L1 L0sL1	Enable or Disable the control of Active State Power Management on SA side of the DMI Link.
DMI Extended Synch Control	Enabled Disabled	Enable or Disable Extended Synchronization
DMI Gen 2		Enable or Disable DMI Gen 2

3.6.3.1.3 Memory Configuration

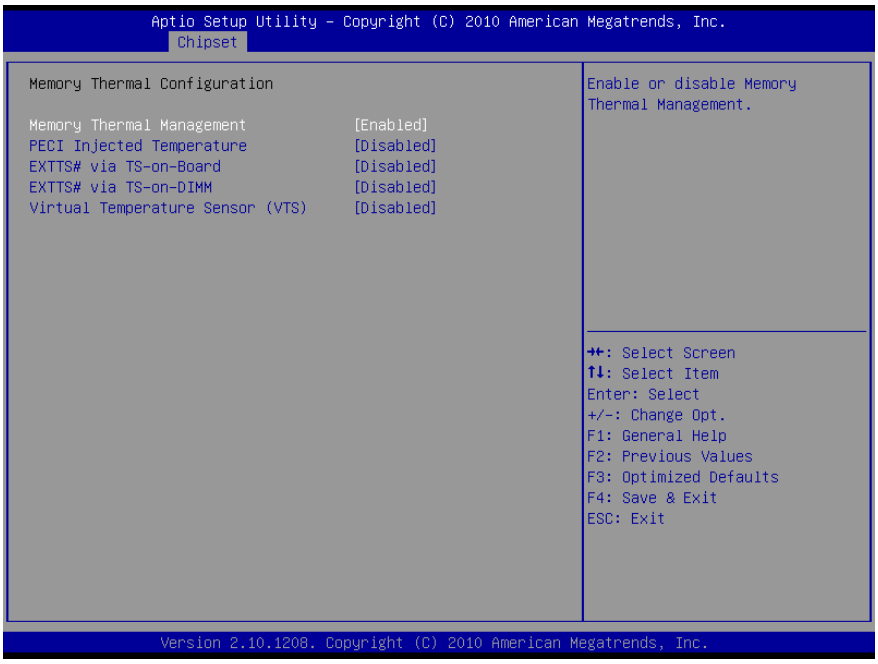
Displays system memory information



Item	Option	Description
DIMM profile	[Default DIMM profile] [XMP profile 1] [XMP profile 2]	Select DIMM timing profile that should be used.
Memory Frequency	[Auto] [1067] [1333] [1600] [1867] [2133]	Select Memory Frequency in Mhz.
ECC Support	[Disabled] [Enabled]	Enable or Disable DDR Ecc Support
Max TOLUD	[Dynamic] [1 GB] [1.25 GB][1.5 GB] [1.75 GB] [2 GB] [2.25 GB] [2.5 GB] [2.75 GB] [3 GB]	Maximum Value of TOLUD. Dynamic assignment would adjust TOLUD automatically based on largest MMIO length of installed graphic controller.
NMode Support	[Auto] [1N Mode] [2N Mode]	NMode support Option.
Memory Scrambler	[Disabled] [Enabled]	Enable or Disable Memory Scrambler support.
RMT Crosser Support		Enable or Disable RMT Crosser Support.

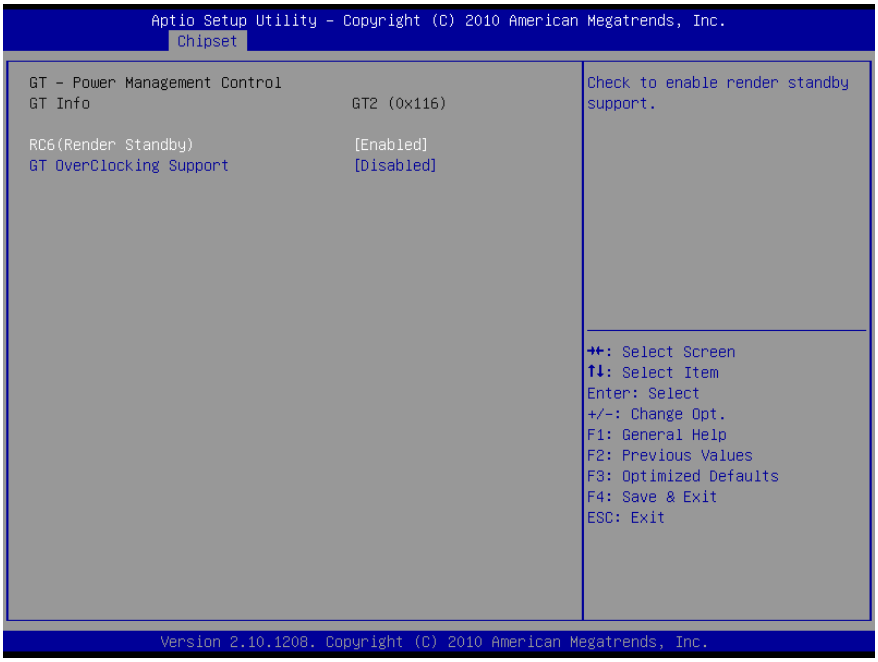
MRC Fast Boot	[Disabled] [Enabled]	Enable or Disable MRC fast boot.
Force Cold Reset		Force cold reset or choose MRC cold reset mode, when cold boot is required during MRC execution. Note: If ME 5.0MB is present, Force cold reset is required!
Scrambler Seed Generation Off		Control Memory Scrambler Seed Generation. Enable- do not generation scrambler seed. Disable-Generation scrambler seed always.
Memory Remap		Enable or disable memory remap above 4G.
Channel A DIMM Control	Enable both DIMMS Enable DIMM0 Enable DIMM1 Disable both DIMMS	Enable or Disable DIMMs on channel A.

3.6.3.1.4 Memory Thermal Configuration



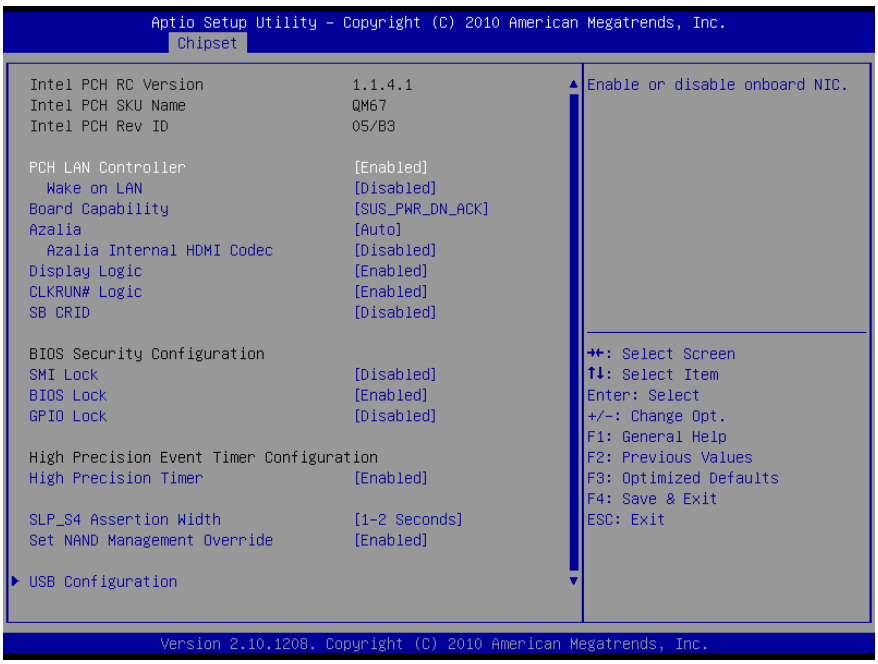
Item	Option	Description
Memory Thermal Management	Enabled Disabled	Enable or Disable Memory Thermal Management
PECI Injected Temperature		Enable or Disable memory temperature to be injected to the processor vie PECI
EXTTS# via TS-on-Board		Enable or Disable routing TS-on-Board's ALERT# and THERM# to EXTTS# pins on the PCH.
EXTTS# via TS-on-DIMM		Enable or Disable routing TS-on-DIMM's ALERT# to EXTTS# pin on the PCH
Virtual Temperature Sensor (VTS)		Enable or Disable Virtual Temperature Sensor (VTS)

3.6.3.1.5 GT – Power management Control



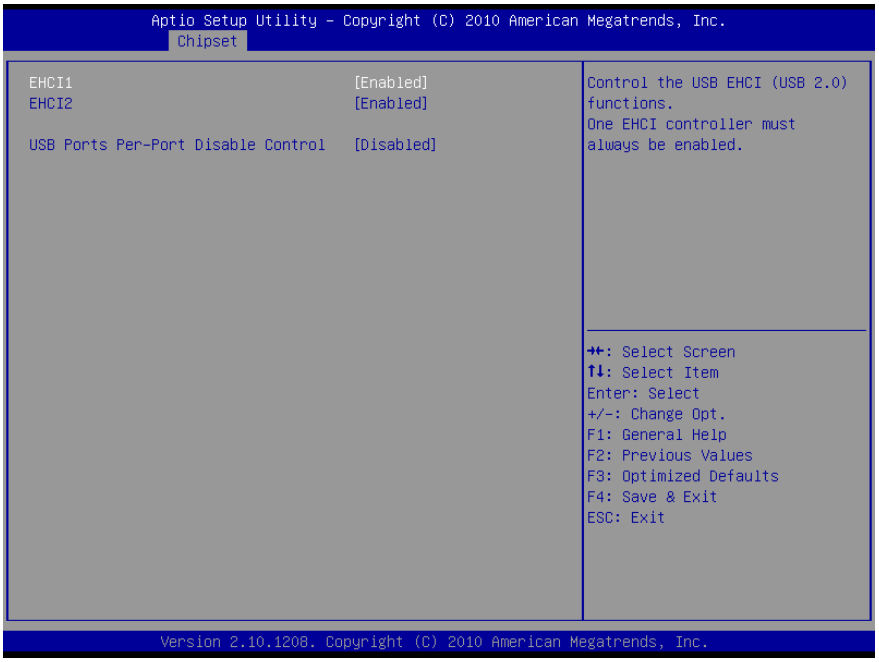
Item	Option	Description
GT Info	Processor GT info. Only valid if SNB stepping is DO or above	
RC6 (Pender Standby)	[Disabled] [Enabled]	Check to enable render standby support.
GT Overclocking Support		Enable or Disable GT overclocking support.

3.6.3.2 PCH-IO Configuration



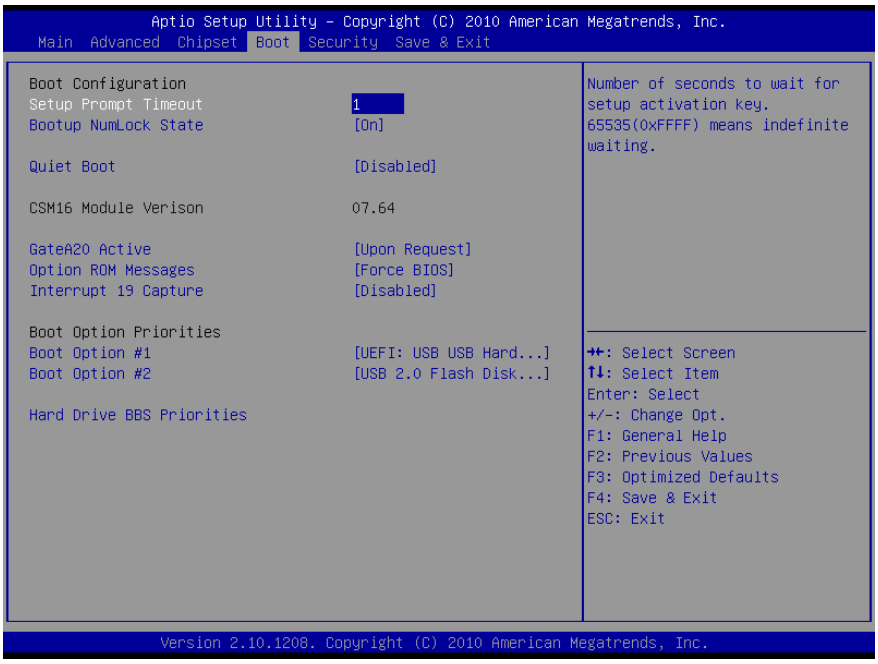
Item	Option	Description
PCH LAN Controller	[Disabled] [Enabled]	Enable or disable onboard NIC
Wake on LAN		Enable or disable integrated LAN to wake the system
Board Capability	SUS_PWR_DN_ACK DeepSx	Board Capability – SUS_PWR_DN_ACK → Send Disabled to PCH. DeepSx → Show DeepSx Policies
Azalia	[Disabled] [Enabled] [Auto]	Control Detection of the Azalia device. Disabled=Azalia will be unconditionally disabled Enabled=Azalia will be unconditionally Enabled Auto= Azalia will be enabled if present, disabled otherwise.
Azalia Internal HDMI Codec	[Disabled] [Enabled]	Enable or Disable internal HDMI codec for Azalia.
Display Logic		Enable or Disable the PCH Display logic.
CLKRUN# Logic		Enable the CLKRUN# logic to stop the PCI clocks.
SB CRID		Enable or Disable SB Compatible Revision ID.
SMI Lock		Enable or Disable SMI lockdown
BIOS Lock		Enable or Disable BIOS Interface lockdown.
GPIO Lock		Enable or Disable GPIO lockdown.
High Precision Timer		Enable or Disable High Precision Event Timer
SLP_S4 Assertion Width	1-2 seconds 2-3 seconds 3-4 seconds 4-5 seconds	Select a minimum assertion width of the SLP_S4# signal
Set NAND Management Override	[Disabled] [Enabled]	Option to override NAND Management to allow driver or 3rd parties software to configure the NAND module after POST.

3.6.3.2.1 USB Configuration



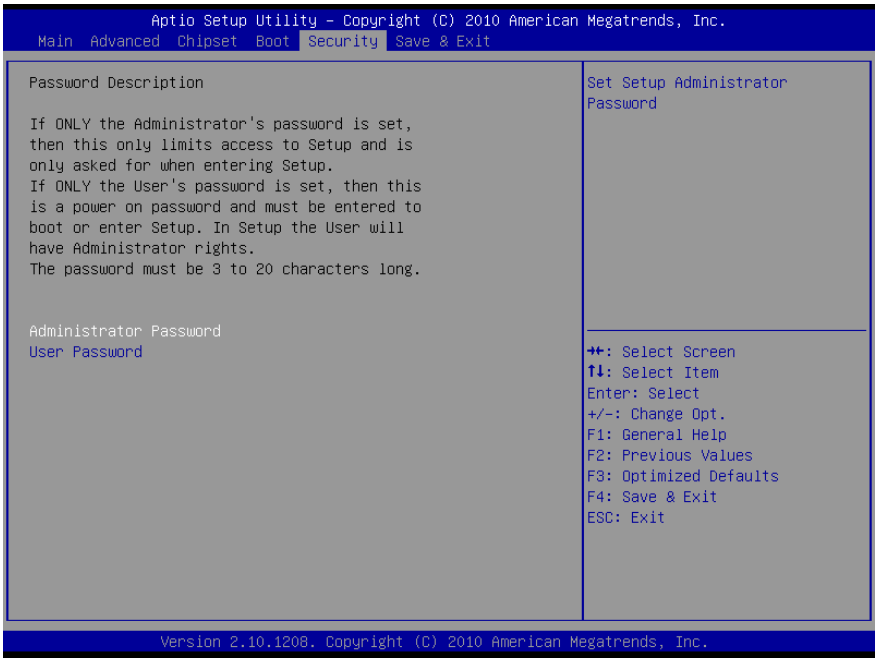
Item	Option	Description
EHCI1	[Disabled] [Enabled]	Control the USB EHCI (USB 2.0)functions. One
EHCI2		
USB Ports Per-Port Disable Control		Control each of the USB ports (0~9) disabling

3.6.4 Boot



Item	Option	Description
Setup Prompt Timeout	1~ 65535	Number of seconds to wait for setup activation key. 65535(0xFFFF)
Bootup NumLock State	On Off	Select the Keyboard NumLock state
Quiet Boot	[Disabled] [Enabled]	Enables or Disables Quiet Boot option
GateA20 Active	Upon Request 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 Keep Current	Set display mode for Option ROM
Interrupt 19 Capture	[Disabled] [Enabled]	Enabled: allows Option ROMs to trap Int 19.
Boot Option #1/2	Sets the system boot order	

3.6.5 Security



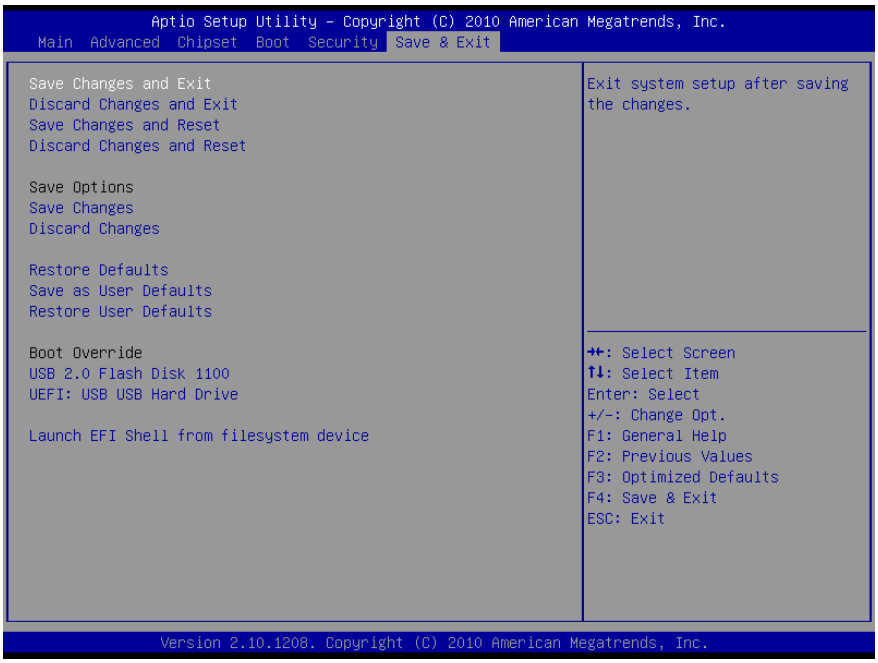
- **Administrator Password**

Set setup Administrator Password

- **User Password**

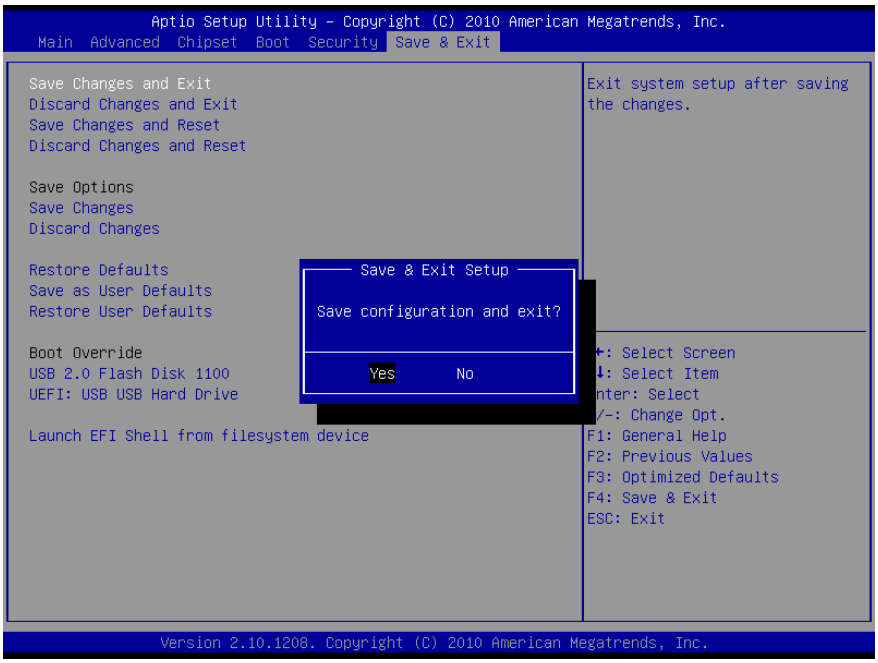
Set User Password

3.6.6 Save and exit



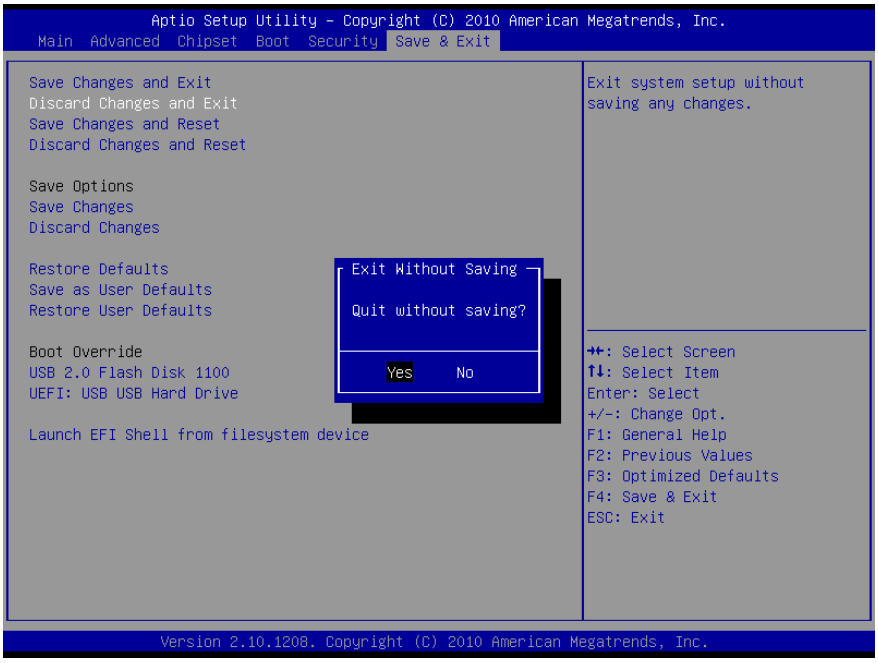
- **Save changes and Exit**

Exit system setup after saving the changes.



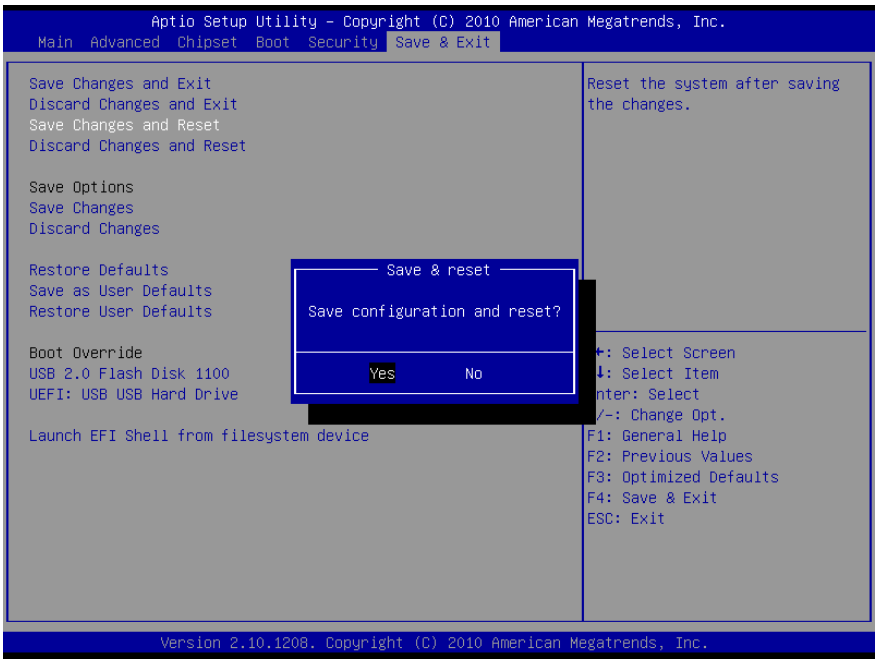
- **Discard changes and Exit**

Exit system setup without saving the changes.



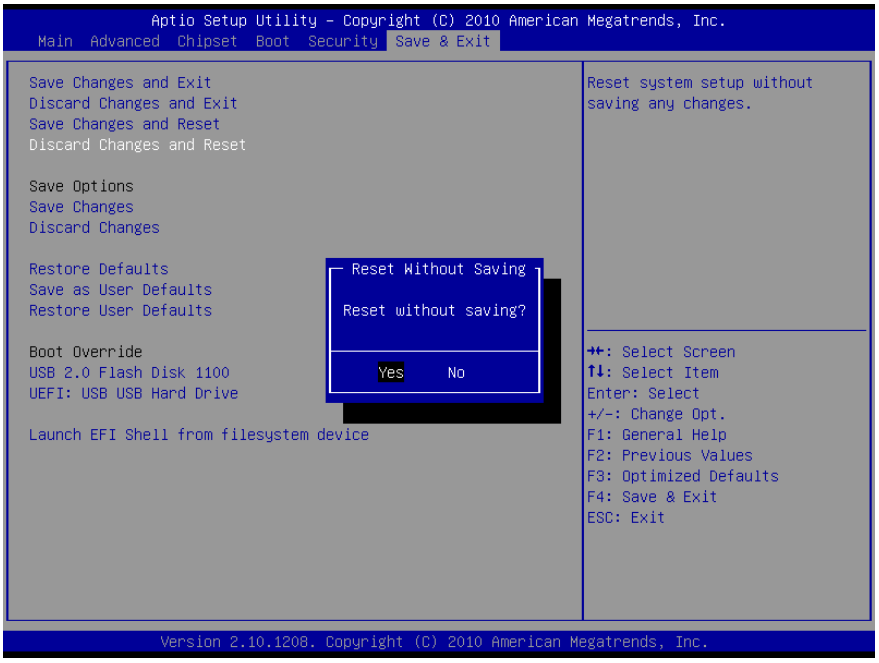
- **Save changes and Reset**

Reset the system after saving the changes.



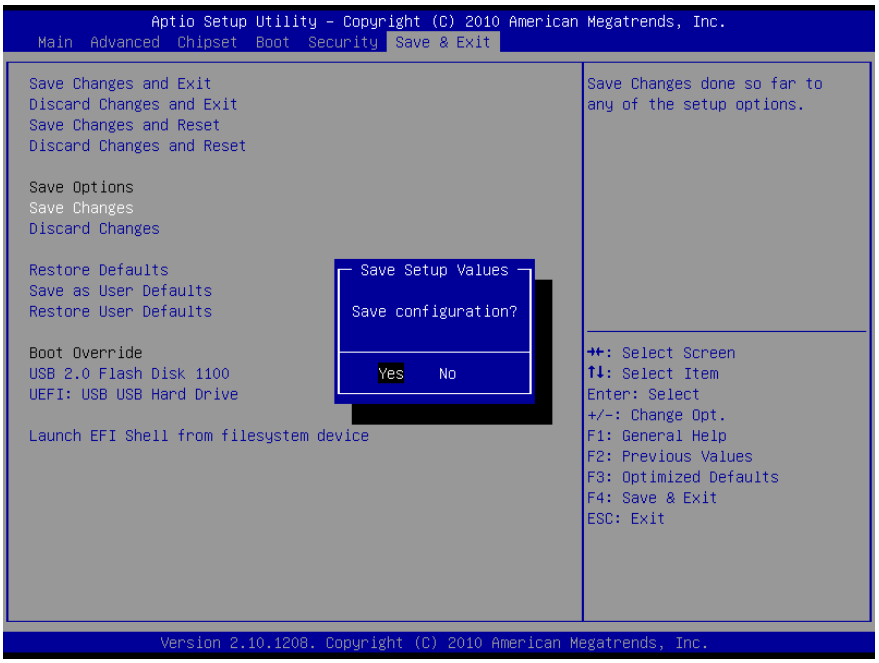
- **Discard changes and Reset**

Reset the system without saving the changes.



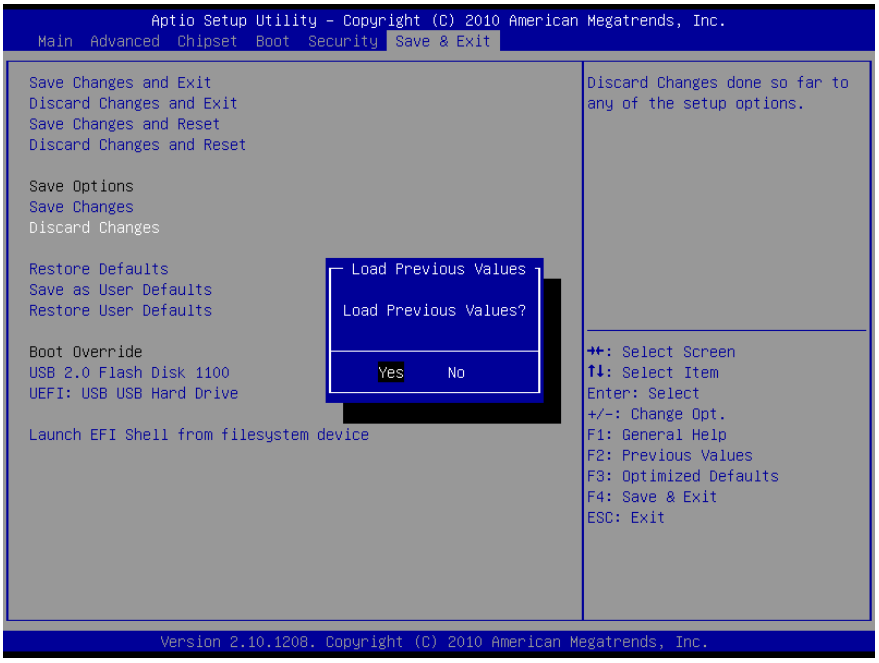
- **Save changes**

Save changes done so for to any of the setup option.



- **Discard changes**

Discard changes done so for to any of the setup option.



- **Restore Defaults**

Restore/Load default values for all the setup option.

- **Save as User Defaults**

Save the changes done so far as User Defaults.

- **Restore User Defaults**

Restore the user defaults to all the setup options

- **Launch EFI Shell from filesystem device**

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

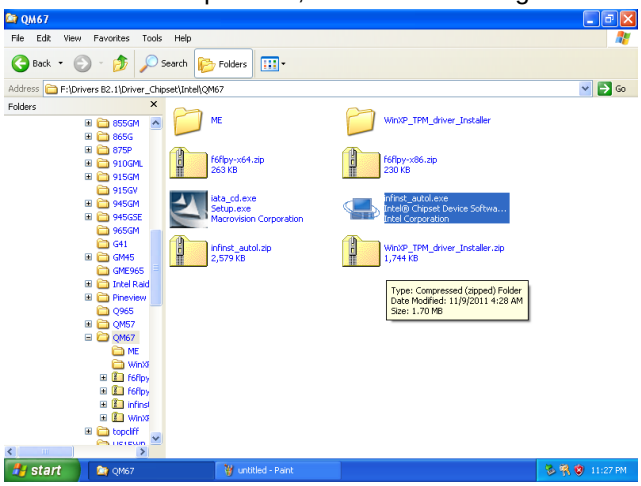
4. Drivers Installation

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 (For Intel QM67)

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\QM67\Intel® Chipset Software Installation Utility**.

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



Step1. Locate 「\Driver_Chipset\Intel\QM67\Intel® Chipset Software Installation Utility\infinst_autol.exe」.

Step 2. Click **Next**.

Step 3. Click **Next**.

Step 4. Click **Next**.

Step 5. Select **Setup files** to proceed setup.

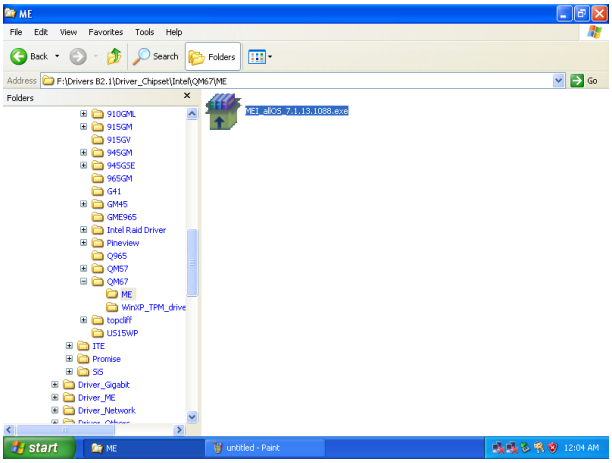
Step 6. Click **Next** to continue

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

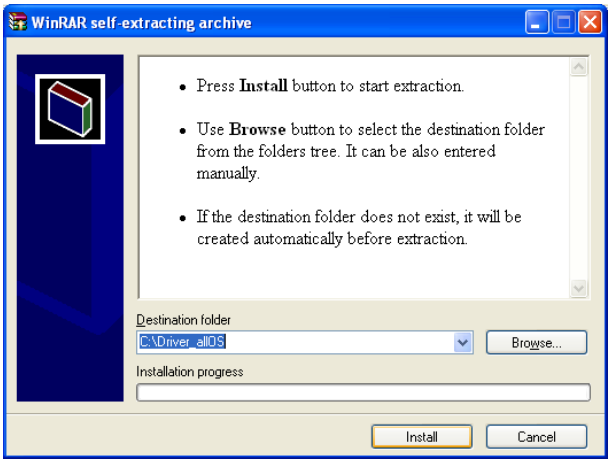
4.2 Install ME Driver (For Intel QM67)

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\QM67\ME**

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

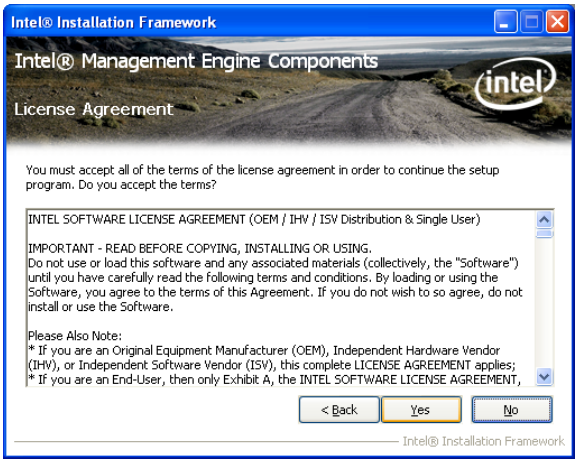


Step1. Locate 「\Driver_Chipset\Intel\QM67\ME.

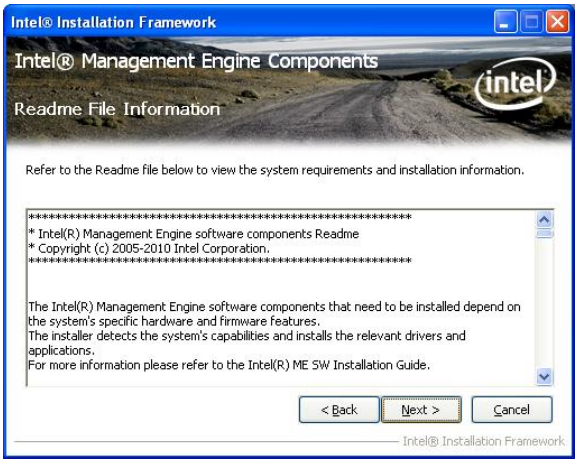


Step 2. Click **Install** to start extraction

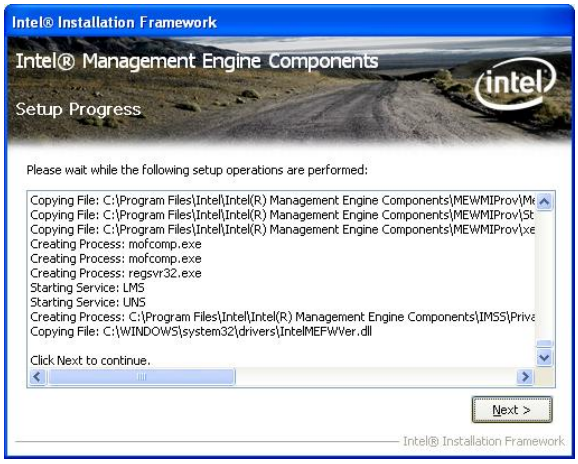
Step 3. Click **Next**.



Step 4. Click **Yes** to accept license agreement.



Step 5. Click **Next** to proceed setup.



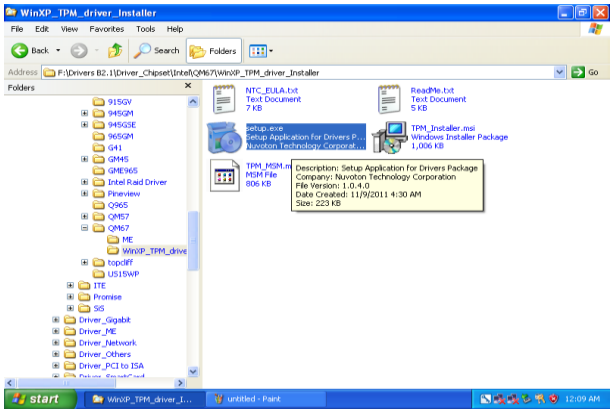
Step 6. Click **Next** to continue

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

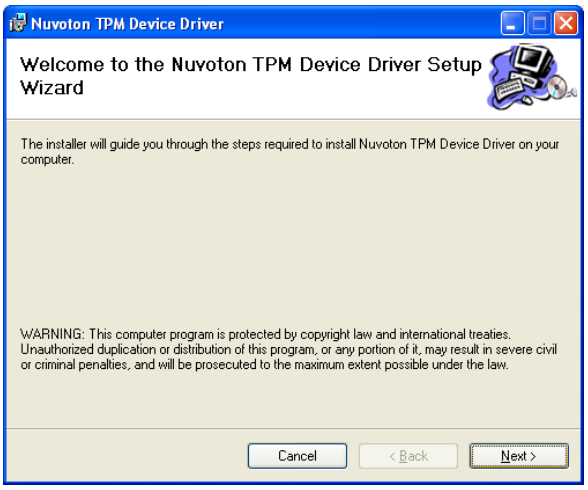
4.3 Install Nuvoton TPM Driver (For Intel QM67)

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\QM67\WinxP_TPM_driver_Installer.**

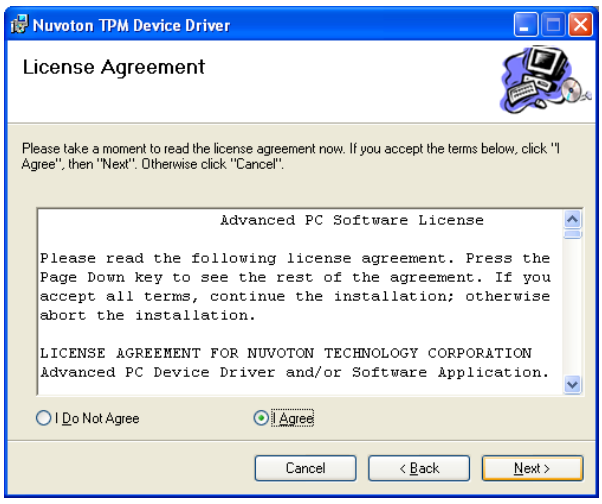
Note: The installation procedures and screen shots in this section are based on Windows XP operation system. If the warning message appears while the installation process, click Continue to go on.



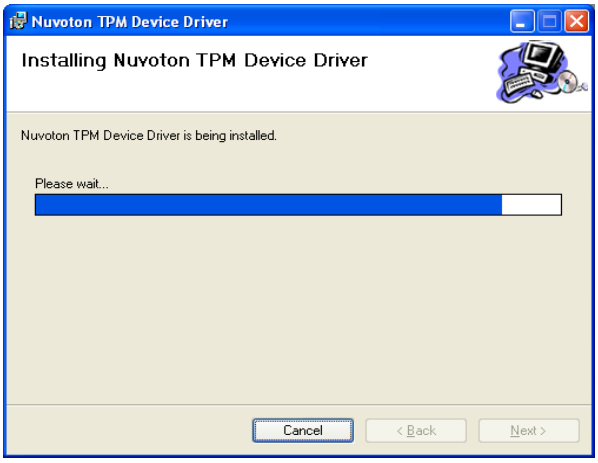
Step1. Locate 「\Driver_Chipset\Intel\ QM67\ WinxP_TPM_driver_Installer .



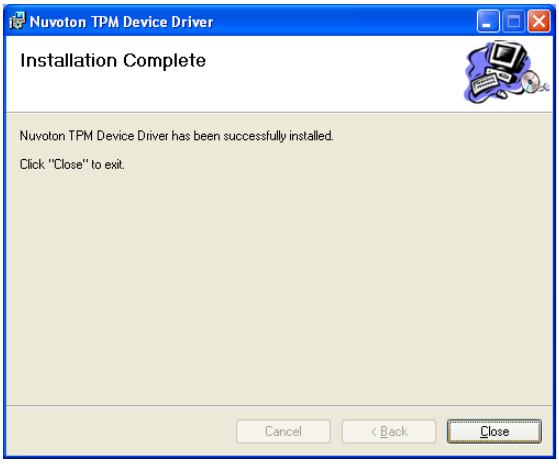
Step 2. Click **Next** to start installation.



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



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

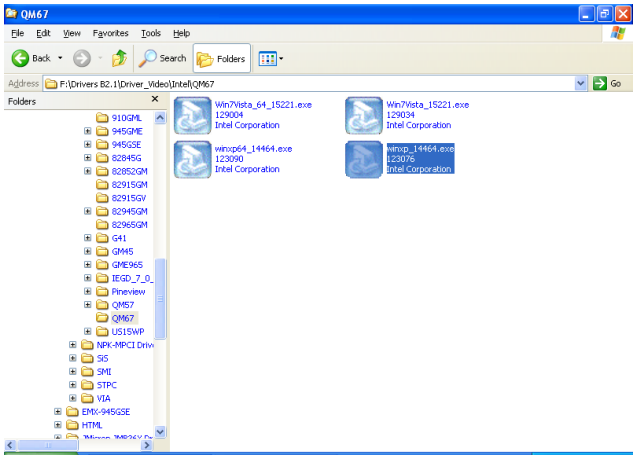


Step 5. Click **Close** to finish installation.

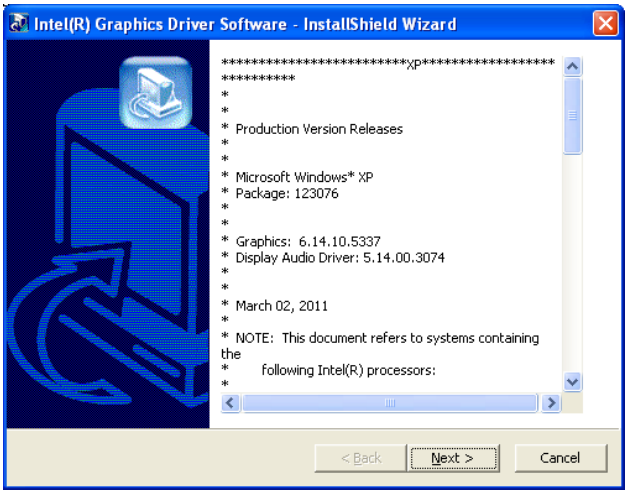
4.4 Install Display Driver (For Intel QM67)

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_Video\Intel\QM67**.

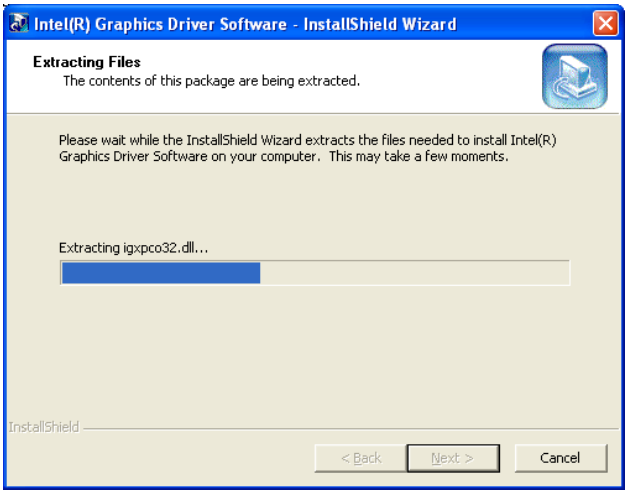
Note: The installation procedures and screen shots in this section are based on Windows XP operation system.



Step 1. Locate「Driver_Video\Intel\QM67\Setup.exe」.

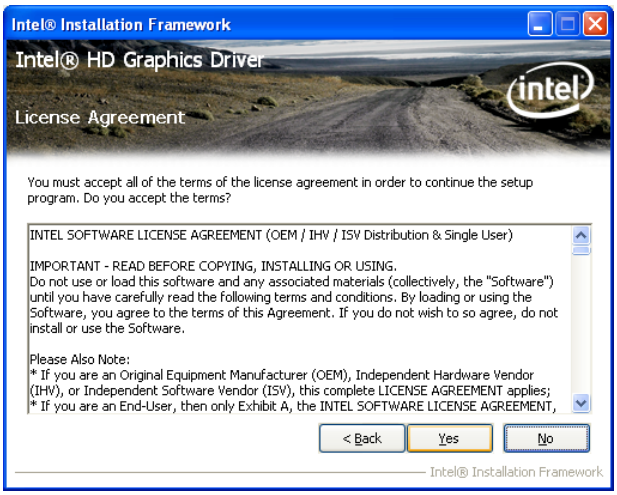


Step 2. Click **Next** to extract files.



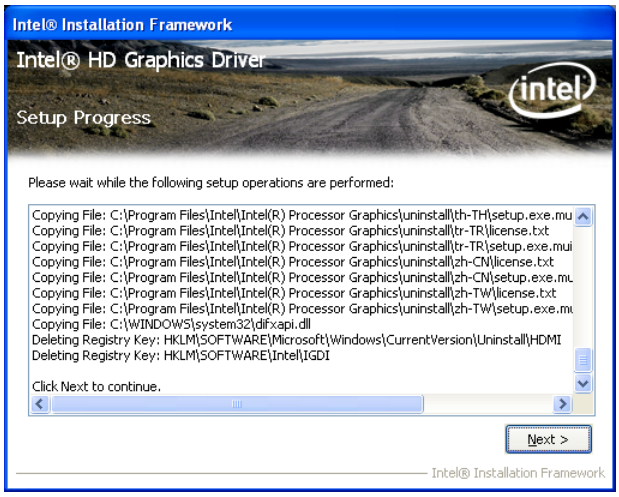
Step 3. Click **Next** to proceed

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



Step 5. Click **Yes** to accept license agreement.

Step 6. Click **Next.**



Step 8. Click **Next** to continue

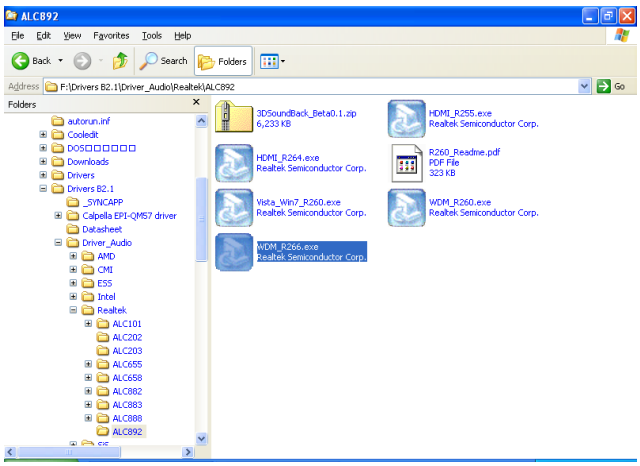
Step7. Click **Next.**

Step 9. Click **Finish** to complete setup.

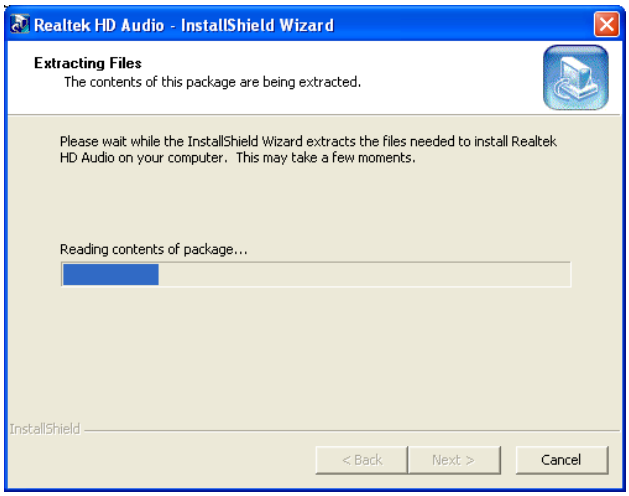
4.5 Install Audio Driver (For Realtek ALC892)

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\Realtek\ALC892.**

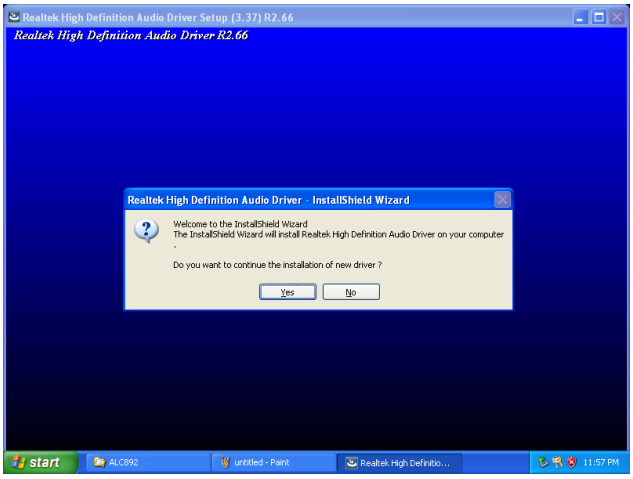
Note: The installation procedures and screen shots in this section are based on Windows 2000 operation system.



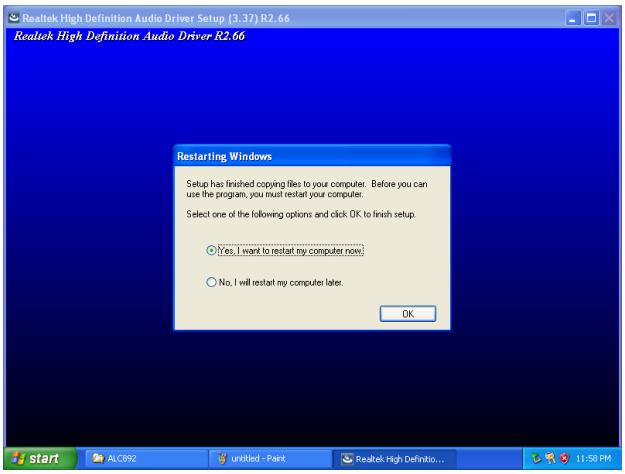
Step 1. Locate 「\Driver_Audio\Realtek\ALC892\setup.exe 」



Step 2. Select **Next** to extract files



Step 3. Click **Yes** to continue setup.

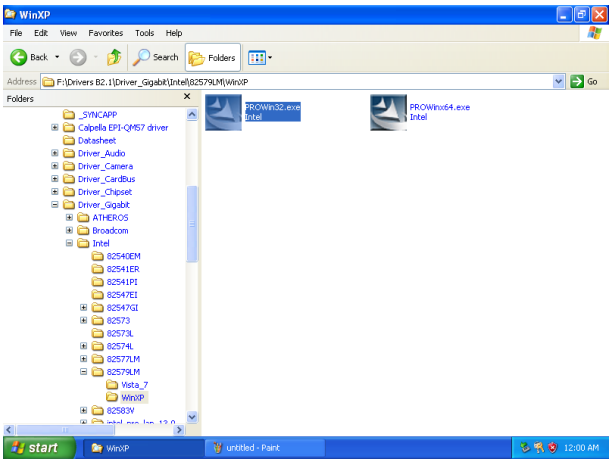


Step 4. Click **OK** to complete the setup.

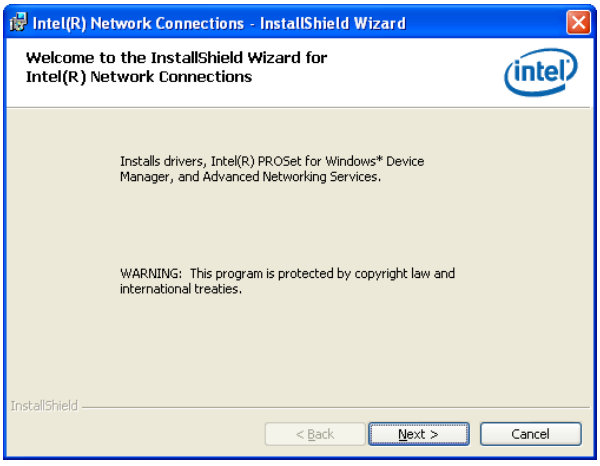
4.6 Install Ethernet Driver (For Intel 82579LM)

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 **D:\Driver_Gigabit\Intel\82579LM**.

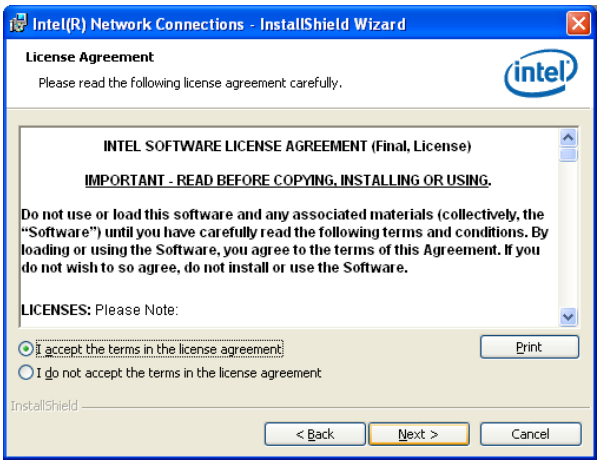
Note: The installation procedures and screen shots in this section are based on Windows XP operation system.



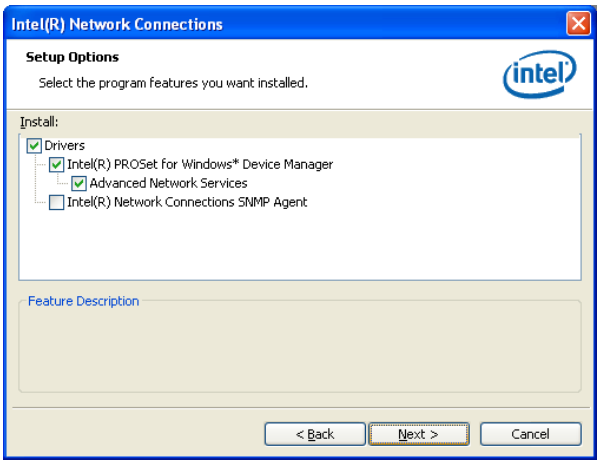
Step 1. Locate 「\Driver_Gigabit\Intel\82579LM」and choose your system OS.



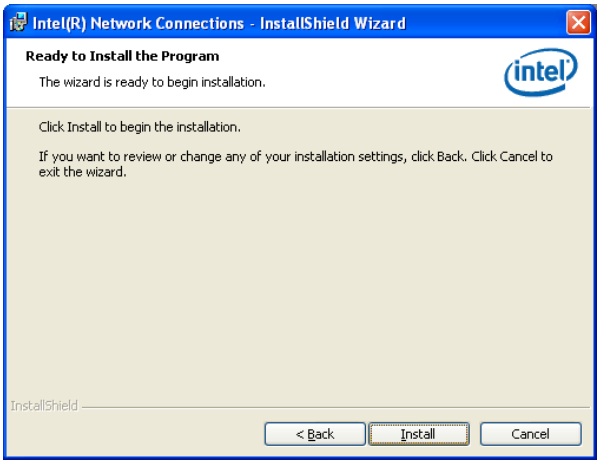
Step 2. Click **Next**.



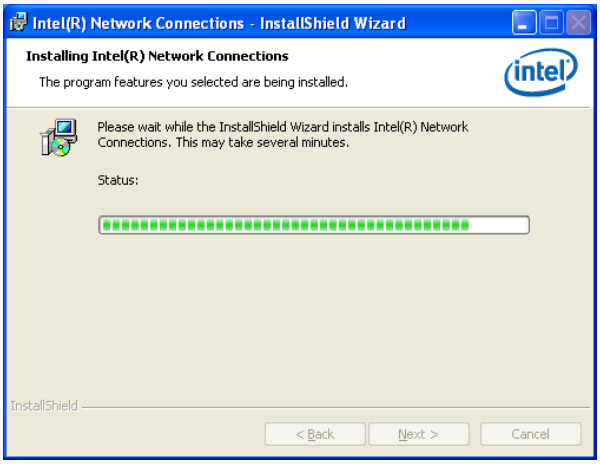
Step 3. Click **Next** to accept license agreement.



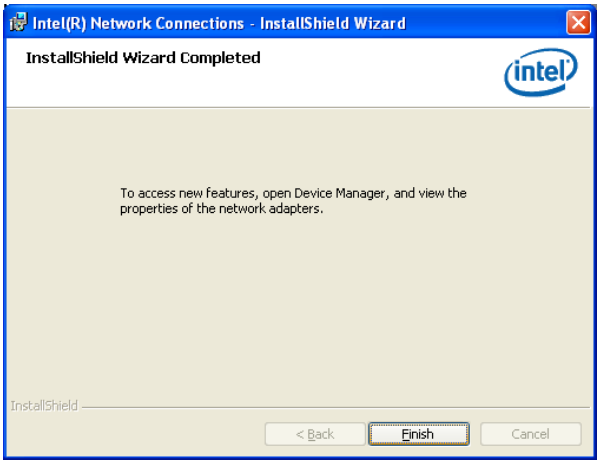
Step 4. Click **Next** after choosing features to install.



Step 5. Click **Install** to proceed.

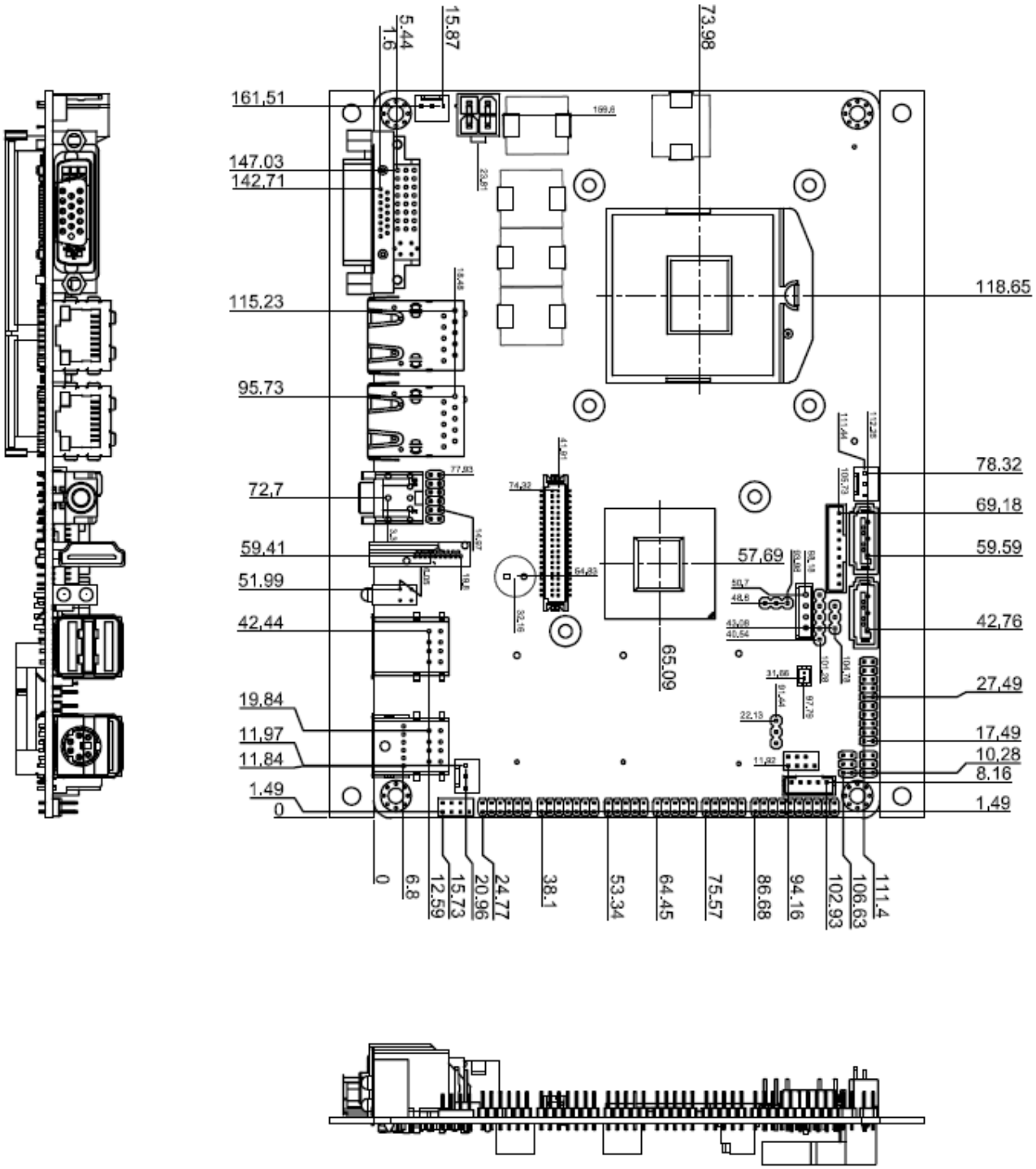


Step 6. Click **Next** to continue installation

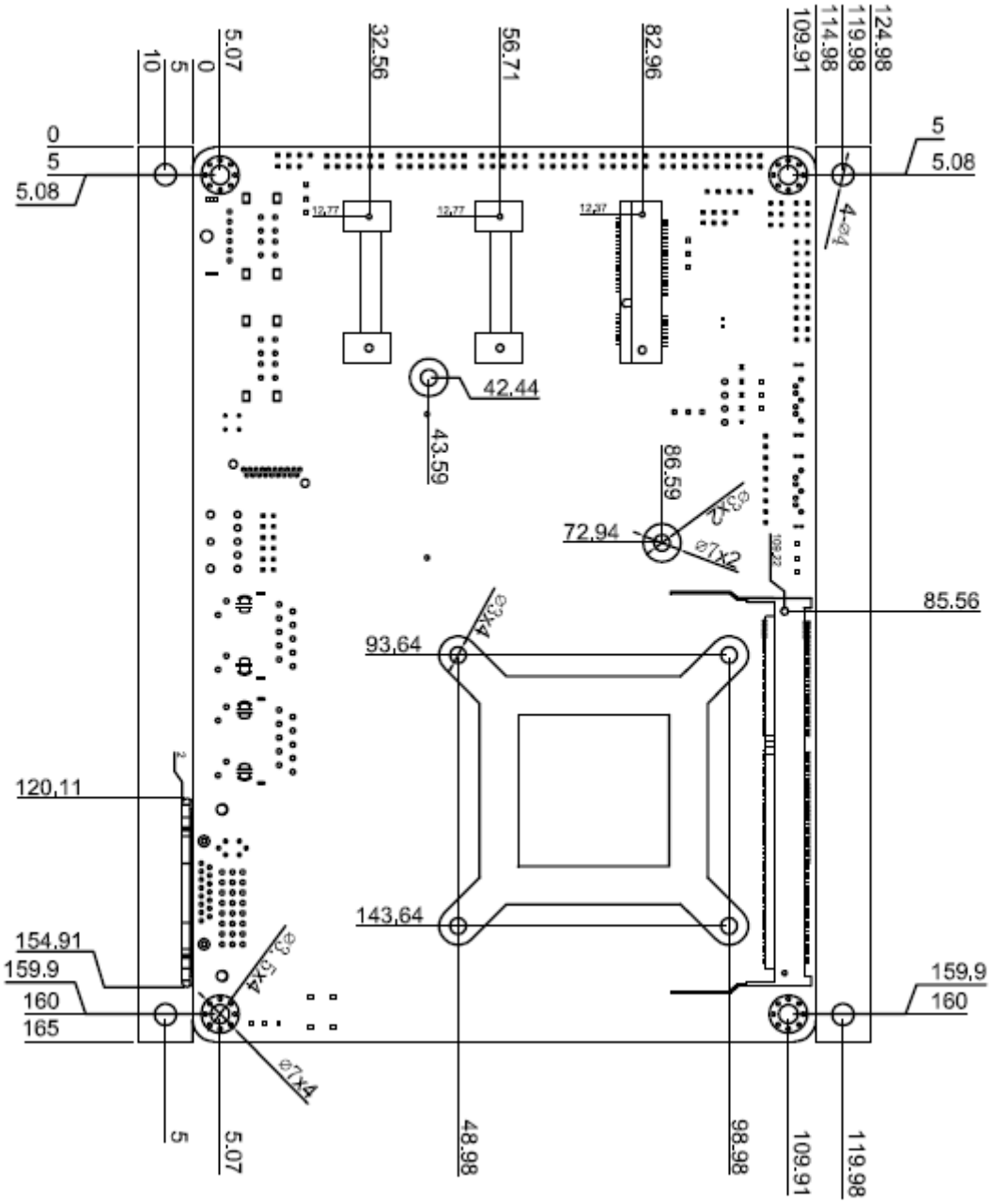


Step 7. Click **Finish** to complete the setup.

5. Mechanical Drawing


161,51
147.03
142,71
115.23
95.73
72,7
59,41
51.99
42,44
19,84
11,97
11,84
1,49
0
5.44
1.6
15.87
73.98
118.65
78,32
69,18
59.59
42,76
27,49
17,49
10,28
8.16
1,49
57,69
65.09
0
6.8
12.59
15.73
20.96
24.77
38.1
53.34
64.45
75.57
86.68
94.16
102.93
106.63
111.4

Unit: mm


0
5
10
5.07
32.56
56.71
82.96
109.91
114.98
119.98
124.98
5
5.08
4-ø4
42.44
43.59
86.59
72.94
85.56
93,64
120,11
143,64
154.91
159.9
160
165
159,9
48.98
98.98
109.91
119.98

Unit: mm