CSB110-902

User Manual

2014 Mar Ver. A1

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Safety Information

Your CSB110-902 is designed and tested to meet the latest standards of safety for information technology equipment. However, to ensure your safety, it is important that you read the following safety instructions

Setting up your system

- Read and follow all instructions in the documentation before you operate your system.
- Do not use this product near water.
- Set up the system on a stable surface. Do not secure the system on any unstable plane.
- Do not place this product on an unstable cart, stand, or table. The product may fall, causing serious damage to the product.
- Slots and openings on the chassis are for ventilation. Do not block or cover these openings. Make sure you leave plenty of space around the system for ventilation. ***Never insert objects of any kind into the ventilation openings***.
- This system should be operated from the type of power indicated on the marking label. If you are not sure of the type of power available, consult your dealer or local power company.
- Use this product in environments with ambient temperatures between 0˚C and 40˚C.
- If you use an extension cord, make sure that the total ampere rating of the devices plugged into the extension cord does not exceed its ampere rating.
- DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT WHERE THESTORAGE TEMPERATURE MAY GO BELOW -20° C (-4° F) OR ABOVE 80° C (176° F). THIS COULD DAMAGE THE EQUIPMENT. THE EQUIPMENT SHOULD BE IN A CONTROLLED ENVIRONMENT.

Care during use

- Do not walk on the power cord or allow anything to rest on it.
- Do not spill water or any other liquids on your system.
- When the system is turned off, a small amount of electrical current still flows. Always unplug all power, and network cables from the power outlets before cleaning the system.
- If you encounter the following technical problems with the product, unplug the power cord and contact a qualified service technician or your retailer.
  - The power cord or plug is damaged.
  - Liquid has been spilled into the system.
  - The system does not function properly even if you follow the operating instructions.
  - The system was dropped or the cabinet is damaged.

Lithium-Ion Battery Warning

CAUTION: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

NO DISASSEMBLY

The warranty does not apply to the products that have been disassembled by users

WARNING
HAZARDOUS MOVING PARTS
KEEP FINGERS AND OTHER BODY PARTS AWAY

Acknowledgments

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CHAPTER 1 INTRODUCTION

1.1 General Description

CSB110-902 digital signage player comes with 2nd/3rd Gen. Intel Core i7/i5/i3 Celeron Quad Core/Dual Core processors and Intel HD Integrated Graphics Engine. It supports DVI-I and HDMI output, 2 x USB 3.0, 1x RJ45 for RS-232, 1x Gigabit LAN giving a great selection for data communication in display applications. The compact design 180 x 150 x 40 mm chassis enables the unit to easily fit into the tightest spaces behind displays. This new signage player is an ideal solution for graphics intensive digital signage applications within retail, commerce, education, healthcare and entertainment.

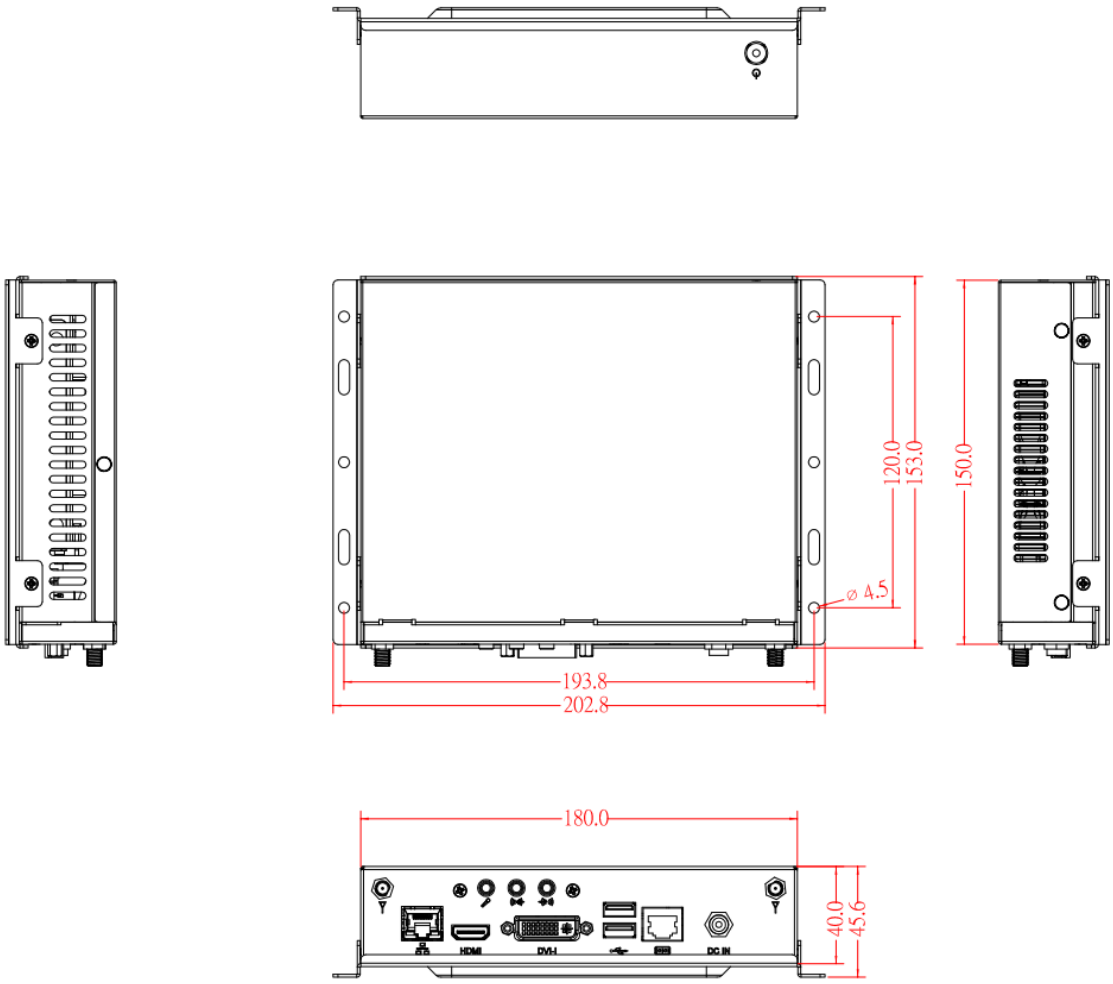
1.2 System Specifications

1.2.1 Hardware Specifications

Model Name	CSB110-902
System Mainboard	IB902
CPU	2nd/3rd Generation Intel® Mobile Core™ i7/i5/i3/ Celeron® QC/ DC processors (TDP <= 35W)
Chipset	Intel® HM76 PCH
Memory	2x DDR3 1066/1333/1600 MHz SO-DIMM, Max. 16GB (Non-ECC)
I/O Interface	1x HDMI, 1x DVI-I 1x Gigabit LAN 2x USB 3.0, 1x RS-232 (RJ45 connector) 1x Power Button with LED light 1x DC Jack 1 x Audio port for Mic-in + Line-in / Line-out
Storage	1x mSATA 1x SATA 3.0 2.5” HDD Dock
Expansion Slots	1x Mini PCI-E(x1) slots for WiFi, 3G and TV tuner options
Power Supply	60W power adaptor
Construction	SGCC
Chassis Color	Black
Mounting	Standard system bracket
Dimensions	178mm(W) x 150mm(D) x 35mm(H)
Operating Temperature	0°C~ 45°C (32°F~113°F)
Storage Temperature	-20° ~ 80°C (-4°F~176°F)
Relative Humidity	5~90% @45°C (non-condensing)
RoHS	Yes
Certification	CE, FCC class B

·This specification is subject to change without prior notice.

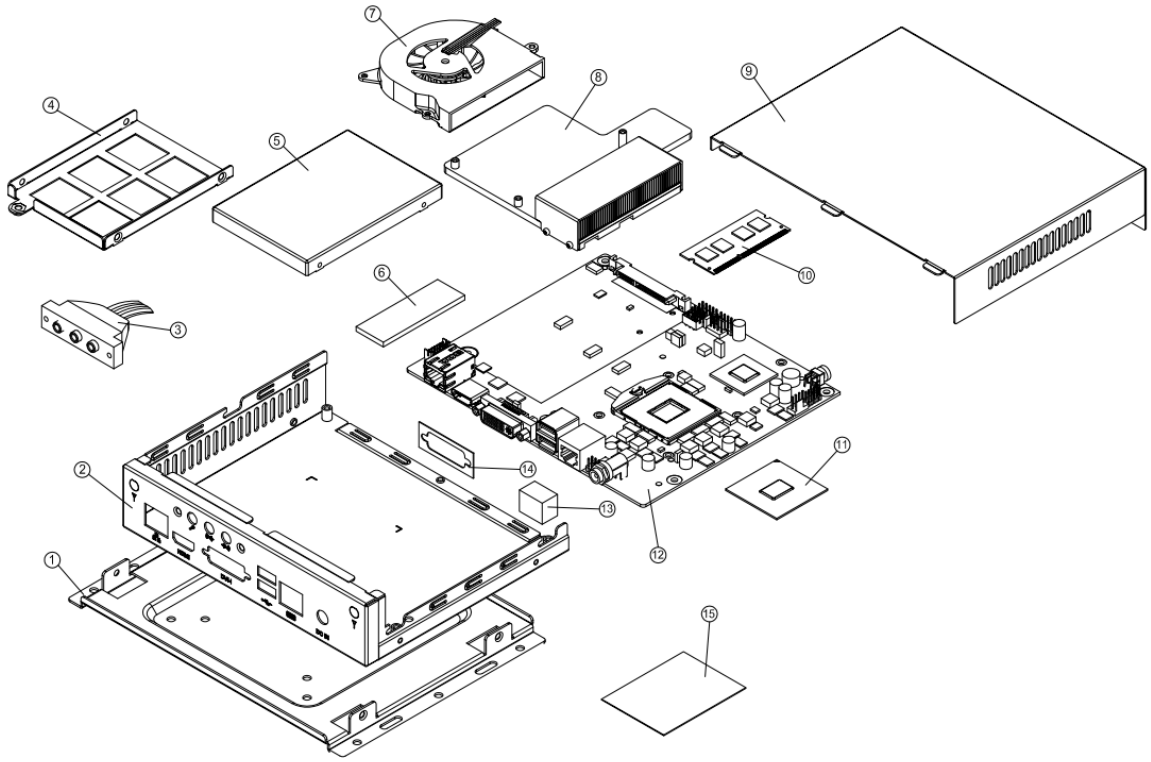
1.2.2 Dimensions



1.2.3 I/O View

Item	Connector	Item	Connector
1	Gigabit LAN	5	2 x USB 3.0
2	HDMI	6	RJ45 for RS-232
3	Mic-in / Line-in / Line-out	7	12V DC in
4	DVI-I		

1.3 Exploded View of the CSB110-902 Assembly



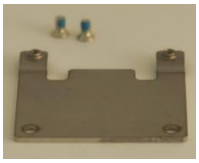
1.3.1 Parts Description

Part No.	Description	Part No.	Description
1	CSB110-902 VESA bracket	2	Base
3	CBL; Audio 18A	4	2.5” HDD bracket
5	2.5” HDD	6	Thermal pad
7	Fan 70*70*12mm	8	Heatsink
9	Top Cover	10	Memory
11	CPU	12	DIP PCBA, IB902
13	LAN Gasket	14	Gasket
15	Label, CE/FCC		

1.4 Packing List

Item No.	Description	Qty
1	Driver CD	1
2	Adaptor	1
3	Power Cord	1

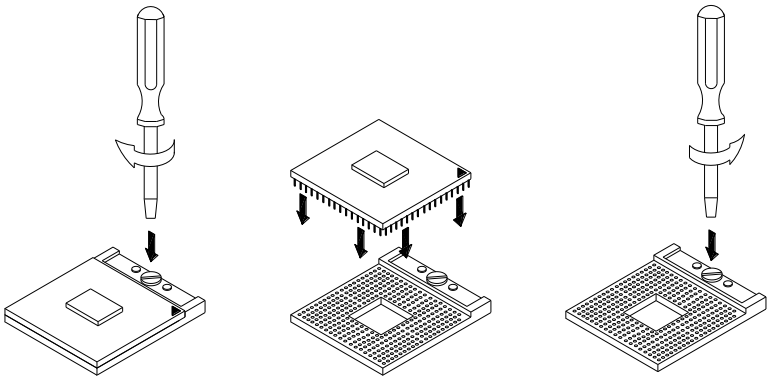
1.4.1 Optional Items

WiFi Solution	Description	
QCOM WiFi module	Wireless LAN Card; 802.11 B/G/N+BT HALF Card [Q802XKN3B] RoHS (A008WIRELESS00700P)	
External Antenna	Wifi Antenna (A055RFA02C2M20800P)	
Internal cable-1/2	From Wifi module to Rear/Front panel (A055RFA0000021000P/A055RFA0000032000P)	 
Bracket	MPCIE-EXT V-B1 Bracket, RoHS; Extend Half to Full size. (SC2MPCIEEXT0B1100P)	
3G Solution	**Description**	
ZU 202	Wireless; 3.75G UMTS/HSPA [ZU202] RoHS (A008WIRELESS00520P)	
ZU 200	Wireless; 3.75G UMTS/HSPA & GPS Module [ZU200] RoHS (A008WIRELESS00510P)	
Cable	Cable; Antenna-2 30CM P 2pcs (C501ANT0200300000P)	
Antenna	Antenna; 3G, P, 2pcs (A055ANT0921Q2P000P)	
COM Port Cable	**Description**	
EXT-311	Cable; EXT-311 2-HD 10C, 150CM; DSUB-9F => RJ45-10M RoHS (C501EXT3110A12000P)	
EXT-312	Cable; EXT-312 2-HD 10C, 150CM; DSUB-9M => RJ45-10M RoHS (C501EXT3120A12000P)	

2 HARDWARE INSTALLATION

2.1 Installing the CPU

The IB902 board supports rPGA988B socket for Intel® Ivy Bridge Dual Core mobile processors. The processor socket comes with a screw to secure the processor. As shown in the picture below, loosen the screw first before inserting the processor. Place the processor into the socket by making sure the notch on the corner of the CPU corresponds with the notch on the inside of the socket. Once the processor has slide into the socket, fasten the screw. Refer to the figures below.



***NOTE**: Ensure that the CPU heat sink and the CPU top surface are in total contact to avoid CPU overheating problem that would cause your system to hang or be unstable.*

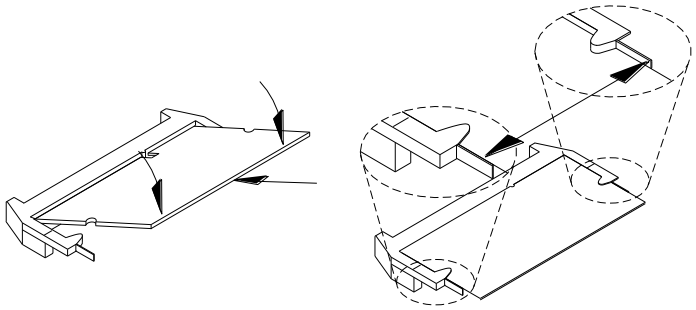
2.2 Installing the Memory

The IB902 board supports two DDR3 memory sockets for a maximum total memory of 16GB in DDR3 SO-DIMM memory type.

Installing and Removing Memory Modules

To install the DDR3 modules, locate the memory slot on the board and perform the following steps:

1. Hold the DDR3 module so that the key of the DDR3 module aligned with that on the memory slot.
2. Gently push the DDR3 module in an upright position until the clips of the slot close to hold the DDR3 module in place when the DDR3 module touches the bottom of the slot.
3. To remove the DDR3 module, press the clips with both hands.

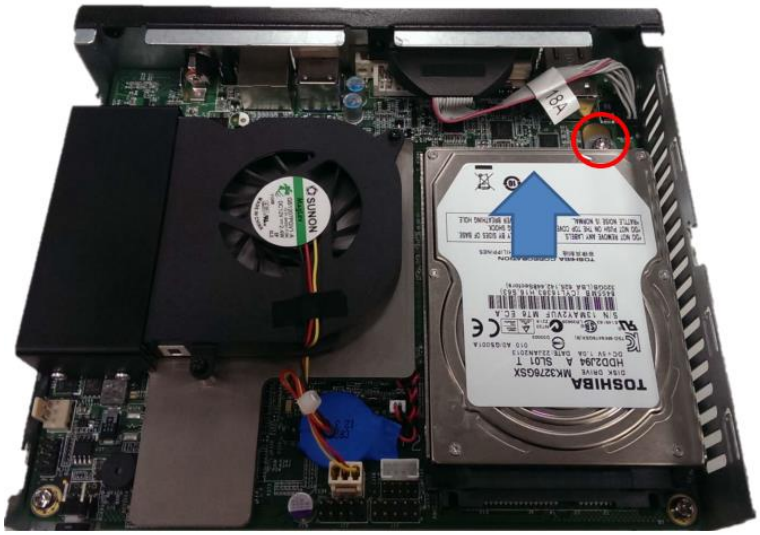


2.3 Installing the HDD Module

HDD Module:

1. Remove the three screws on the sides that are used to secure the top cover to the chassis. Once all the screws are removed, from the side, push the cover forward to remove it. See the step in the pictures below.

2. Loosen the mounting screws that secure the HDD to the bracket.
3. As in the following the picture's arrowed direction, push out the HDD module.



4. Loosen the four screws and then replace the HDD module.

CHAPTER 3 MOTHERBOARD INTRODUCTION

3.1 Introduction

The IB902 motherboard is based on the latest Intel® HM76 chipset. The platform supports 3rd generation Intel® Core processor family with rPGA988B packing and features an integrated dual-channel DDR3 memory controller as well as a graphics core.

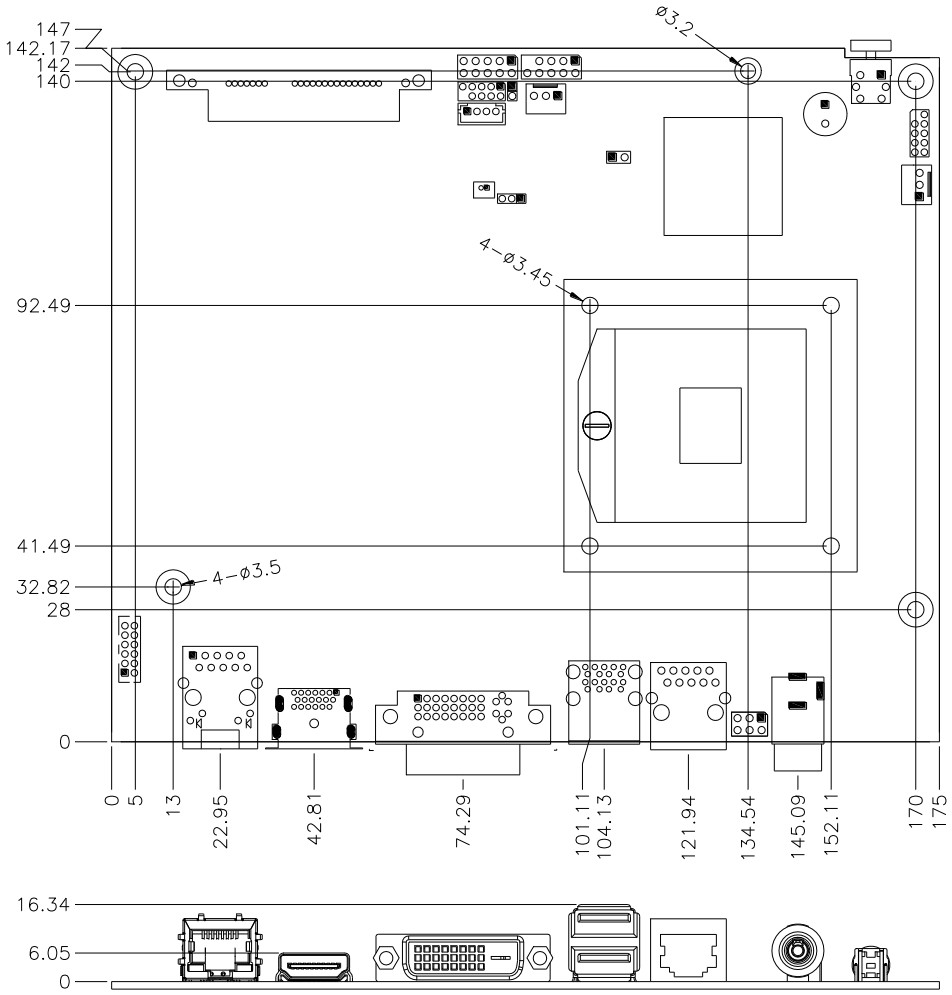
The latest Intel® processors provide advanced performance in both computing and graphics quality. This meets the requirement of customers in the gaming, POS, digital signage and server market segment.

The HM76 chipset is made with 22-nanometer technology that supports Intel's first processor architecture to unite the CPU and the graphics core on the transistor level. The IB902 board utilizes the dramatic increase in performance provided this Intel's latest cutting-edge technology. Measuring 175mm x 147mm, the IB902 offers fast 6Gbps SATA support (1 ports), USB3.0 (2 ports) and interfaces for DVI-I and HDMI displays.

Specification – Mainboard	
Model	IB902
Form Factor	Customized
CPU	
Model	- Intel® 3rd Generation Core™ I7/I5/I3 mobile processors - rPGA package, 37.5 mm x 37.5mm
Speed	Up to 3.3GHz
Cache	Up to 6MB
Socket	rPGA 988B (Socket G2)
TDP	35W
Chipset	
Model	Intel® HM76 Platform Controller Hub 25 x 27 mm package size
BIOS	
Model	AMI BIOS [16MB SPI ROM]
Memory	
Max. Support	Intel® Ivy-Bridge mobile processors integrated memory controller DDRIII 1066/1333/1600 MHz - SO-DIMM [204-pin parallel type] x 2 (Non-ECC), Max. 16GB

Functionality	
Display	- Intel 3rd Generation Core™ mobile processor integrated Gfx, Direct X 11, OpenGL 3.1, Open CL 1.1 DVI-I X 1 (thru Level shifter ASM1442) HDMI X 1(thru Level shifter ASM1442)
LAN / PHY	Intel 82579V PCI-E Gigabit LAN for HM76 (Real panel) for single GbE (Rear)
USB	USB 2.0 host controller [Panther Point integrated] - 1 port via MiniPCIe socket; 2 ports via pin-header USB 3.0 host controller [Panther Point integrated] - 2 ports in the rear panel
Serial ATA	Intel® HM76 PCH built-in SATA controller 1x SATA 3.0 2.5” HDD Dock
Audio	Intel® HM76 PCH built-in High Definition Audio controller + Realtek ALC892 w/ 7.1 channels (Line In/Mic In/Line Out)
LPC I / O	Fintek F81866AD-I (128-pin LQFP [14mm x 14 mm]) RJ45 connector x1 for COM 1 (RS232) (Rear) CPU fan & SYS fan (4-pin connector x 2, supports PWM)
iAMT	None
Expansion slot	Mini PCI-Express x 1 port [Full-sized] w/mSATA +USB 2.0 support
Edge I/O	
Display	1x DVI-I connector (Rear); 1x HDMI connector (Rear)
LAN / PHY	1x RJ-45 connector (Rear)
USB	1x USB (3.0) dual stack (Rear)
LPC I / O	1x RS-232 (RJ45) (Rear)
Other	1x Power Jack (+12V DC) (Rear); 1x Power On/Reset button with LED (Front)
Internal I/O	
FAN	CPU fan & SYS fan (4-pin connector x2
Serial ATA	Intel® HM76 PCH built-in SATA controller 1x SATA 3.0 2.5” HDD Dock
Memory	2x DDR 3 SO-DIMM parallel memory slots
Expansion slot	Mini PCI-Express x 1 port [Full-sized] w/mSATA +USB 2.0 supporting
Other	iSMART function, Auto-scheduler, Power resume
Add-On Feature	
Watchdog	Yes (256 segments, 0, 1, 2…255 sec/min)
AMT	N/A
Other	iSMART function
Dimensions	
PCB	175mm x 147mm
Power Supply	
Power	Power Jack (+12V DC)
Environmental	
Temperature	Operating: 0°C~ 40°C (32°F~104°F) Storage: -20oC to 80oC(-4oF~167oF)
Humidity	10%~90% (non-condensing)
Shock	IBASE Standard Test
Vibration	IBASE Standard Test
Certification	RoHS
Other	CE/FCC

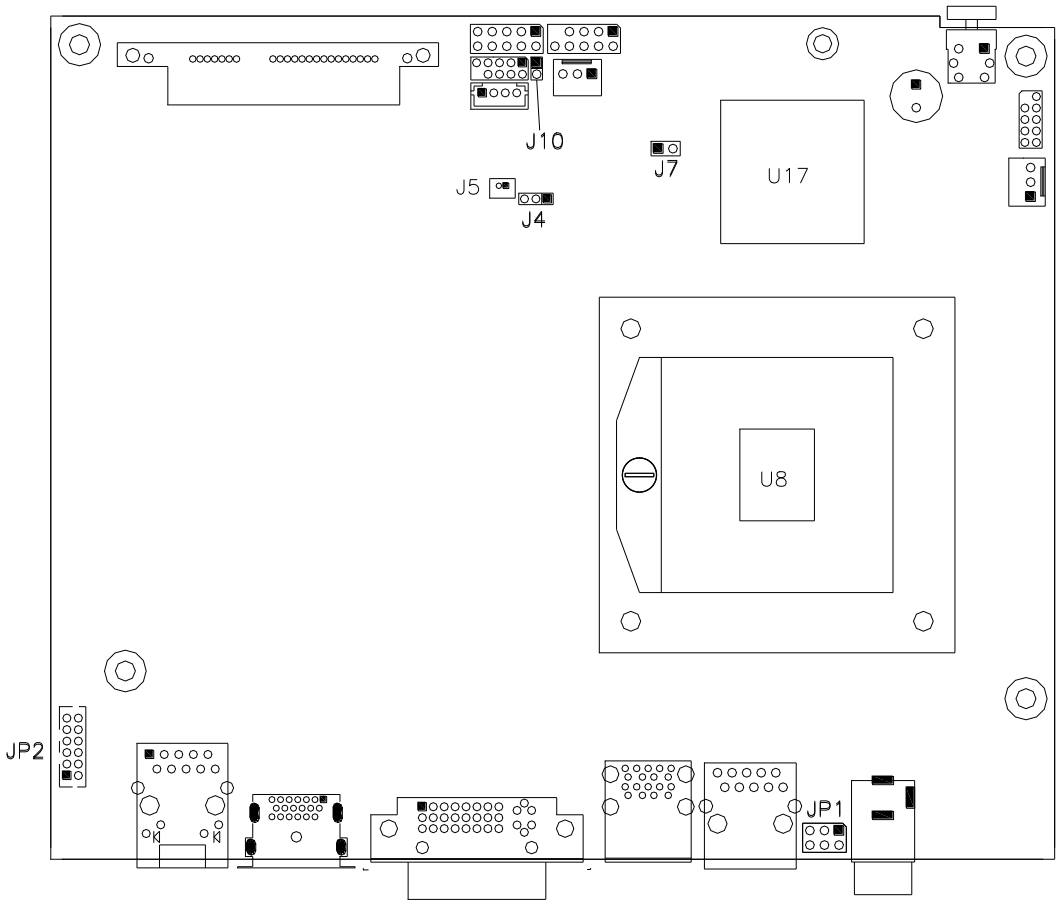
Board Dimensions



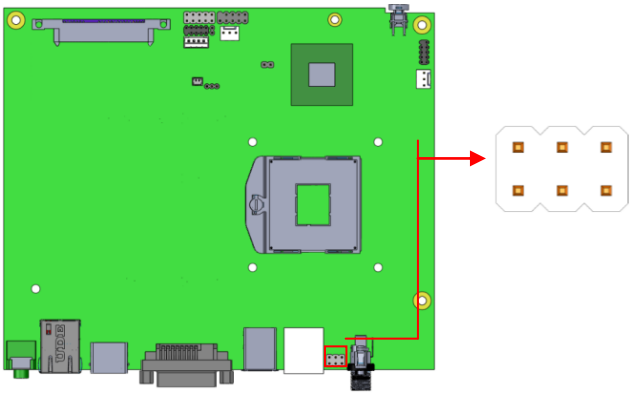
3.2 Setting the Jumpers

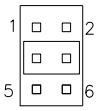
Jumpers are used on IB902 to select various settings and features according to your needs and applications. Contact your supplier if you have doubts about the best configuration for your needs.

Jumper Locations on IB902

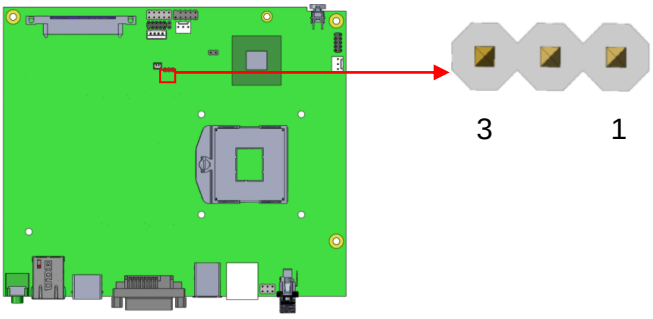


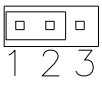
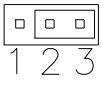
JP1: COM1 RS232 RI/+5V/+12V Power Setting



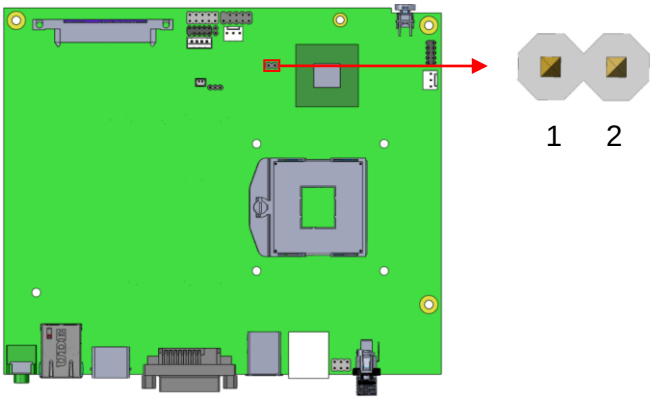
JP1	Setting	Function
	Pin 1-3 Short/Closed	+12V
	Pin 3-4 Short/Closed	RI
	Pin 3-5 Short/Closed	+5V

J4: Clear CMOS Contents



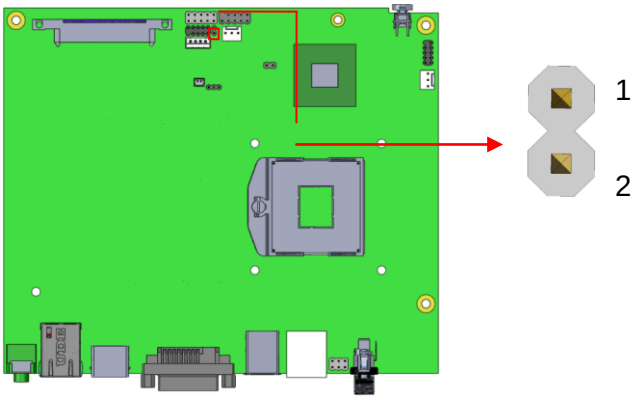
J4	Setting	Function
	Pin 1-2 Short/Closed	Normal
	Pin 2-3 Short/Closed	Clear CMOS

J7: Flash Descriptor Security Override (Factory use only)



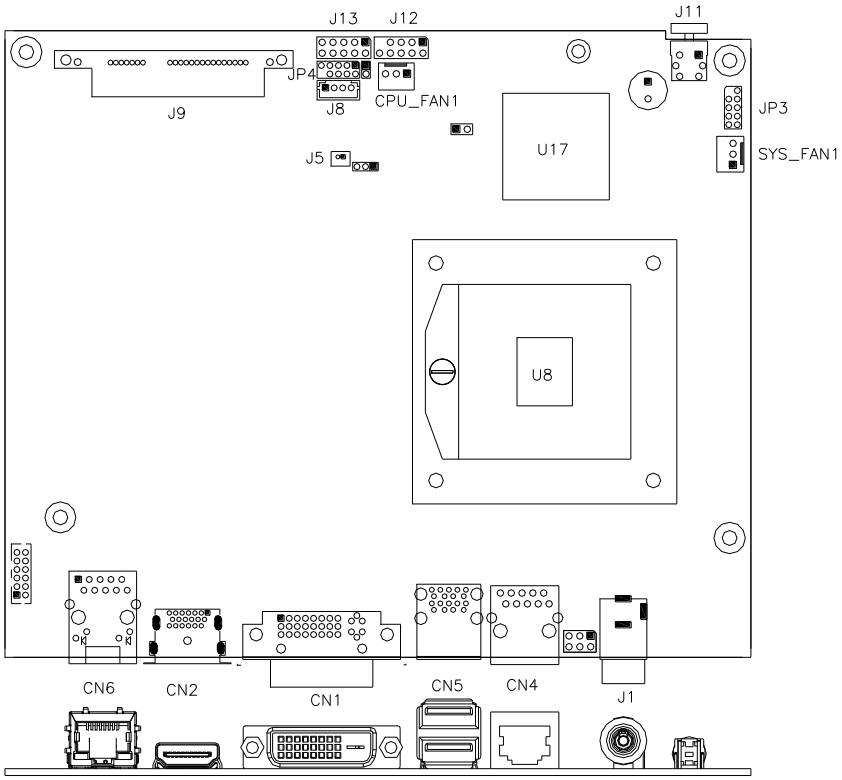
J7	Flash Descriptor Security Override
Open	Disabled (Default)
Close	Enabled

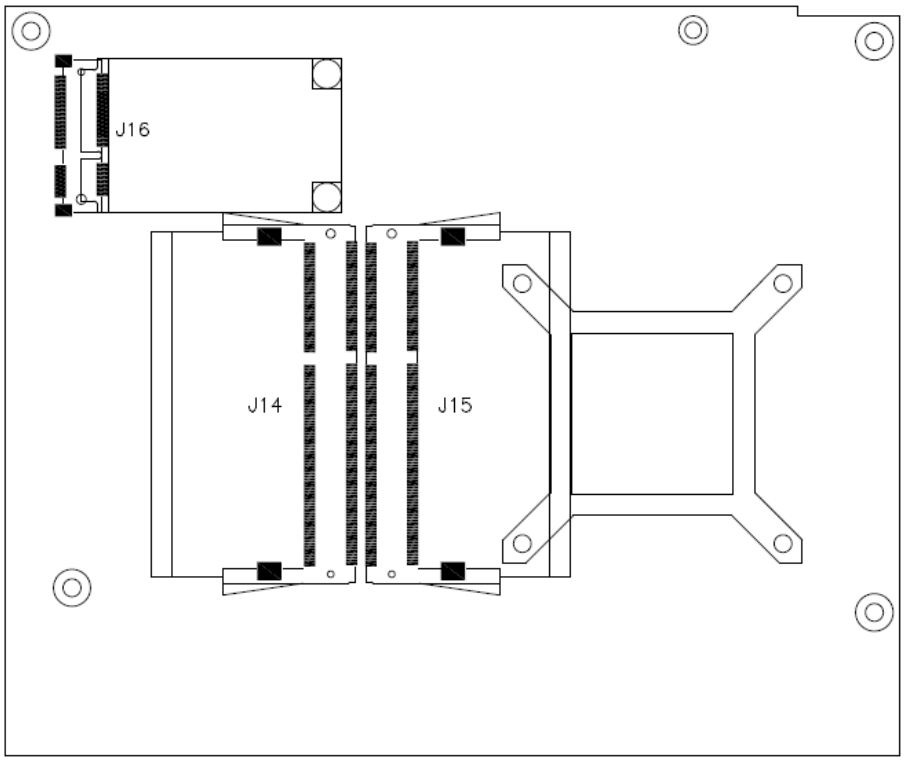
J10: Reset BTN



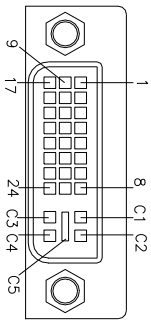
J10	Reset BTN
Open	Disabled (Default)
Close	Enabled

3.3 Connector Locations on IB902





CN1: DVI-I Connector



Signal Name	Pin #	Pin #	Signal Name
DATA 2-	1	16	HOT POWER
DATA 2+	2	17	DATA 0-
Shield 2/4	3	18	DATA 0+
DATA 4-	4	19	SHIELD 0/5
DATA 4+	5	20	DATA 5-
DDC CLOCK	6	21	DATA 5+
DDC DATA	7	22	SHIELD CLK
N.C	8	23	CLOCK -
DATA 1-	9	24	CLOCK +
DATA 1+	10	C1	Analog Red
SHIELD 1/3	11	C2	Analog Green
DATA 3-	12	C3	Analog Blue
DATA 3+	13	C4	Analog HYNC
DDC POWER	14	C5	A GROUND2
A GROUND 1	15	C6	A GROUND3

CN2: HDMI Connector

CN3: HDA Audio Connector

CN4: LAN Port To COM1

CN5: USB3 Connector

CN6: Gigabit LAN (82579V)

J1: +12V Power Supply Connector

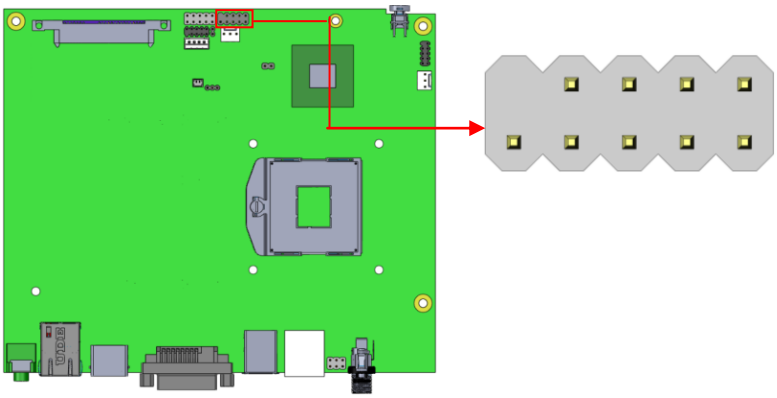
J5: Battery 1/2AA Connector

Pin #	Signal Name
1	BAT
2	Ground

J9: SATA3 Connector

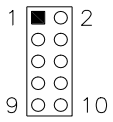
J11: Power Button

J12: USB2 Connector



Signal Name	Pin #	Pin #	Signal Name
Vcc	1	2	Vcc
D0-	3	4	D1-
D0+	5	6	D1+
Ground	7	8	Ground
Key	9	10	NC

J13: Digital I/O Connector (4 in, 4 out)



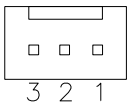
Signal Name	Pin #	Pin #	Signal Name
Ground	1	2	+5V
Out3	3	4	Out1
Out2	5	6	Out0
IN3	7	8	IN1
IN2	9	10	IN0

J14: DDR3 SO-DIMM Channel A

J15: DDR3 SO-DIMM Channel B

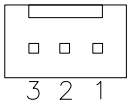
J16: Mini-PCIE Connector and mSATA

CPU_FAN1: CPU Fan Power Connector



Pin #	Signal Name
1	Ground
2	+12V
3	Rotation detection

SYS_FAN2: System Fan Power Connector



Pin #	Signal Name
1	Ground
2	+12V
3	Rotation detection

JP3: SPI Flash connector (Factory use only)

JP4: LPC debug Connector (Factory use only)

CHAPTER 4 BIOS SETUP

This chapter describes the different settings available in the AMI BIOS that comes with the board. The topics covered in this chapter are as follows:

BIOS Introduction

The BIOS (Basic Input/Output System) installed in your computer system's ROM supports Intel processors. The BIOS provides critical low-level support for a standard device such as disk drives, serial ports and parallel ports. It also password protection as well as special support for detailed fine-tuning of the chipset controlling the entire system.

BIOS Setup

The BIOS provides a Setup utility program for specifying the system configurations and settings. The BIOS ROM of the system stores the Setup utility. When you turn on the computer, the BIOS is immediately activated. Pressing the <Del> key immediately allows you to enter the Setup utility. If you are a little bit late pressing the <Del> key, POST (Power On Self Test) will continue with its test routines, thus preventing you from invoking the Setup. If you still wish to enter Setup, restart the system by pressing the "Reset" button or simultaneously pressing the <Ctrl>, <Alt> and <Delete> keys. You can also restart by turning the system Off and back On again. The following message will appear on the screen:

```
Press  <DEL> or <F2> to  Enter  Setup
```

In general, you press the arrow keys to highlight items, <Enter> to select, the <PgUp> and <PgDn> keys to change entries, <F1> for help and <Esc> to quit.

When you enter the Setup utility, the Main Menu screen will appear on the screen. The Main Menu allows you to select from various setup functions and exit choices.

Warning: *It is strongly recommended that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both AMI and your system manufacturer to provide the absolute maximum performance and reliability. Changing the defaults could cause the system to become unstable and crash in some cases.*

Main Settings

Aptio Setup Utility – Copyright © 2011 American Megatrends, Inc.

Main	Advanced	Chipset	Boot	Security	Save & Exit	
BIOS Information						Choose the system default language
Total memory			8176 MB (DDR3)			
Memory Frequency			1333Mhz			
System Date			[Tue 01/20/2013]			→ ← Select Screen ↑ ↓ Select Item Enter: Select +- Change Field F1: General Help F2: Previous Values F3: Optimized Default F4: Save ESC: Exit
System Time			[00.00.00]			
Access Level			Administrator			

System Language

Choose the system default language.

System Date

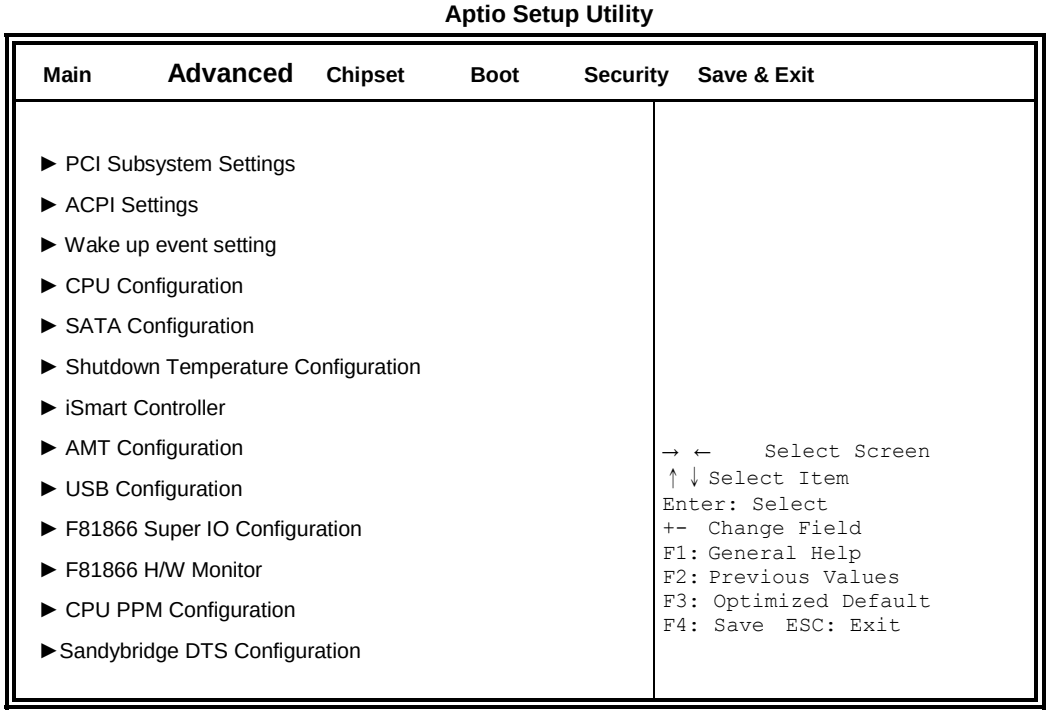
Set the Date. Use Tab to switch between Data elements.

System Time

Set the Time. Use Tab to switch between Data elements.

Advanced Settings

This section allows you to configure and improve your system and allows you to set up some system features according to your preference.



PCI Subsystem Settings

Aptio Setup Utility

Main	Advanced	Chipset	Boot	Security	Save & Exit

PCI Bus Driver Version	V 2.0502	
PCI 64bit Resources Handing		
Above 4G Decoding	Disabled	
PCI Common Settings		→ ← Select Screen
PCI Latency Timer	32 PCI Bus Clocks	↑ ↓ Select Item
VGA Palette Snoop	Disabled	Enter: Select
PERR# Generation	Disabled	+- Change Field
SERR# Generation	Disabled	F1: General Help
► PCI Express Settings		F2: Previous Values
		F3: Optimized Default
		F4: Save ESC: Exit

Above 4G Decoding

Enables or Disables 64bit capable devices to be decoded in above 4G address space (only if system supports 64 bit PCI decoding).

PCI Latency Timer

Value to be programmed into PCI Latency Timer Register.

VGA Palette Snoop

Enables or disables VGA Palette Registers Snooping.

PERR# Generation

Enables or disables PCI device to generate PERR#.

SERR# Generation

Enables or disables PCI device to generate SERR#.

PCI Express Settings

Change PCI Express devices settings.

PCI Express Settings

Aptio Setup Utility

Main	Advanced	Chipset	Boot	Security	Save & Exit

PCI Express Device Register Settings		
Relaxed Ordering	Disabled	
Extended Tag	Disabled	
No Snoop	Enabled	
Maximum Payload	Auto	
Maximum Read Request	Auto	
PCI Express Link Register Settings		
ASPM Support	Disabled	
WARNING: Enabling ASPM may cause some PCI-E devices to fail	Disabled	
Extended Synch	Disabled	
Link Training Retry	5	
Link Training Timeout (uS)	100	
Unpopulated Links	Keep Link ON	

```
→ ←     Select Screen
↑ ↓ Select Item
Enter: Select
+-  Change Field
F1: General Help
F2: Previous Values
F3: Optimized Default
F4: Save  ESC: Exit
```

Relaxed Ordering
Enables or disables PCI Express Device Relaxed Ordering.

Extended Tag
If ENABLED allows device to use 8-bit Tag field as a requester.

No Snoop
Enables or disables PCI Express Device No Snoop option.

Maximum Payload
Set Maximum Payload of PCI Express Device or allow System BIOS to select the value.

Maximum Read Request
Set Maximum Read Request Size of PCI Express Device or allow System BIOS to select the value.

ASPM Support
Set the ASPM Level: Force L0s – Force all links to L0s State:
AUTO – BIOS auto configure: DISABLE – Disables ASPM.

Extended Synch
If ENABLED allows generation of Extended Synchronization patterns.

Link Training Retry

Defines number of Retry Attempts software will take to retrain the link if previous training attempt was unsuccessful.

Link Training Timeout (uS)

Defines number of Microseconds software will wait before polling 'Link Training' bit in Link Status register. Value range from 10 to 1000 uS.

Unpopulated Links

In order to save power, software will disable unpopulated PCI Express links, if this option set to 'Disable Link'.

ACPI Settings

Aptio Setup Utility

Main	Advanced	Chipset	Boot	Security	Save & Exit

ACPI Settings

Enable Hibernation	Enabled
ACPI Sleep State	S1 only(CPU Stop Clock)
Lock Legacy Resources	Disabled
S3 Video Repost	Disabled

→ ← Select Screen
↑ ↓ Select Item
Enter: Select
+- Change Field
F1: General Help
F2: Previous Values
F3: Optimized Default
F4: Save ESC: Exit

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

Select ACPI sleep state the system will enter, when the SUSPEND button is pressed.

Lock Legacy Resources

Enabled or Disabled Lock of Legacy Resources.

S3 Video Repost

Enable or disable S3 Video Repost.

Wake up event settings

Aptio Setup Utility

Main	Advanced	Chipset	Boot	Security	Save & Exit

Wake on Ring	Disabled
Wake on PCIE Wake Event	Disabled

→ ← Select Screen
↑ ↓ Select Item
Enter: Select
+- Change Field
F1: General Help
F2: Previous Values
F3: Optimized Default
F4: Save ESC: Exit

Wake on PCIE PME Wake Event

The options are Disabled and Enabled.

CPU Configuration

Aptio Setup Utility

Main	Advanced	Chipset	Boot	Security	Save & Exit

CPU Configuration	
Intel® Core ™ i5-3610ME CPU @ 2.70GHz	
Processor Stepping	306a9
Microcode Revision	c
Max CPU Speed	2700 MHz
Min CPU Speed	1200 MHz
CPU Speed	2700 MHz
Processor Cores	2
Intel HT Technology	Supported
Intel VT-x Technology	Supported
Intel SMX Technology	Supported
64-bit	Supported
Hyper-threading	Enabled
Active Processor Cores	All
Limit CPUID Maximum	Disabled
Execute Disable Bit	Enabled
Intel Virtualization Technology	Disabled
Adjacent Cache Line Prefetch	Enabled

```
→ ←     Select Screen
↑ ↓ Select Item
Enter: Select
+-  Change Field
F1: General Help
F2: Previous Values
F3: Optimized Default
F4: Save  ESC: Exit
```

Hyper-threading

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

Number of cores to enable in each processor package.

Limit CPUID Maximum

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.)

Intel Virtualization Technology

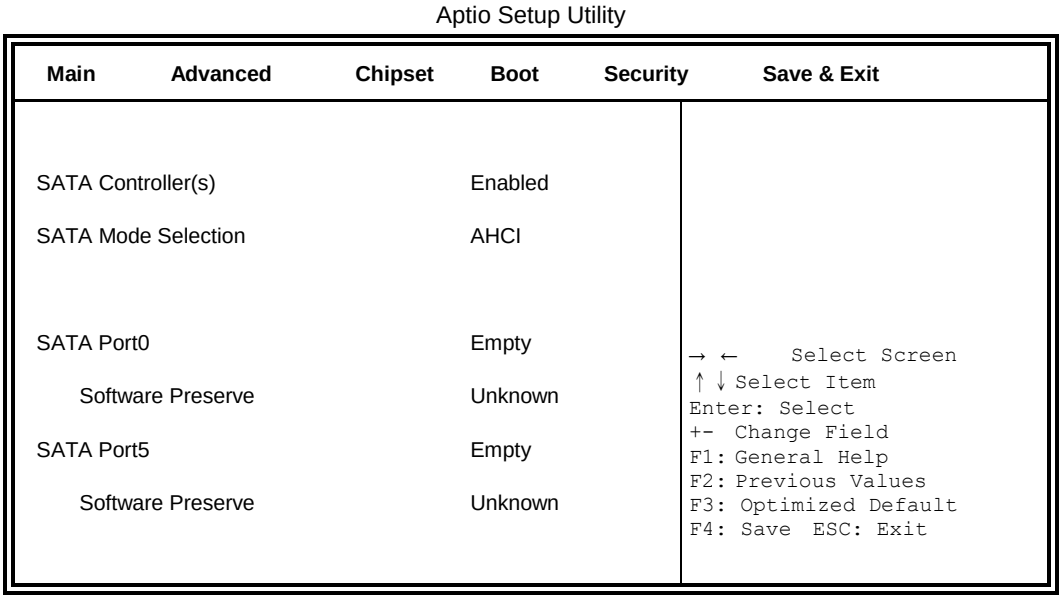
When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.

Adjacent Cache Line Prefetch

To turn on/off prefetching of adjacent cache lines.

SATA Configuration

SATA Devices Configuration.



SATA Controller(s)

Enable / Disable Serial ATA Controller.

SATA Mode Selection

(1) IDE Mode.
(2) AHCI Mode.

Shutdown Temperature Configuration

Aptio Setup Utility

Main	Advanced	Chipset	Boot	Security	Save & Exit
APCI Shutdown Temperature			Disabled		

→ ← Select Screen
↑ ↓ Select Item
Enter: Select
+- Change Field
F1: General Help
F2: Previous Values
F3: Optimized Default
F4: Save ESC: Exit

ACPI Shutdown Temperature

The default setting is Disabled.

iSmart Controller

Aptio Setup Utility

Main	**Advanced**	Chipset	Boot	Security	Save & Exit
iSmart Controller					
Power-On after Power failure			Disable		
Schedule Slot 1			None		
Schedule Slot 2			None		

→ ← Select Screen
↑ ↓ Select Item
Enter: Select
+- Change Field
F1: General Help
F2: Previous Values
F3: Optimized Default
F4: Save ESC: Exit

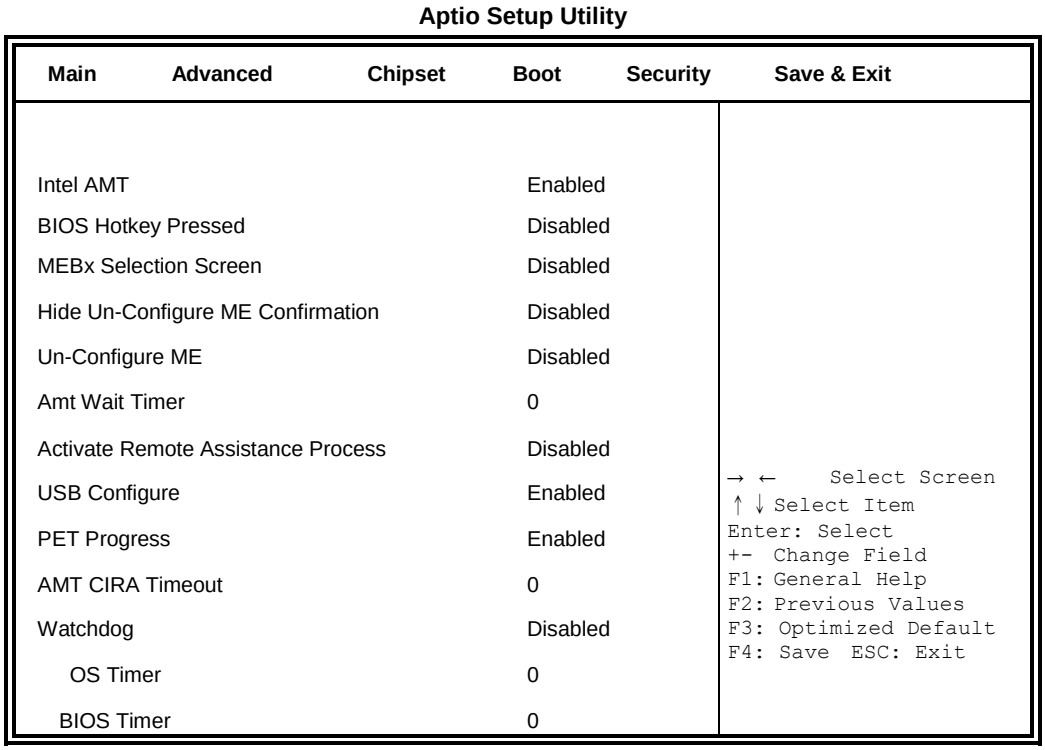
ISmart Controller

Setup the power on time for the system.

Schedule Slot 1 / 2

Setup the hour/minute for system power on.

AMT Configuration



AMT Configuration

This configuration is supported only with IB902VF (with iAMT function). Options are Enabled and Disabled.

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.

Unconfigure ME

This configuration is supported only with IB902VF (with iAMT function). Perform AMT/ME unconfigure without password operation.

Amt Wait Timer

Set timer to wait before sending ASF_GET_BOOT_OPTIONS.

Activate Remote Assistance Process

Trigger CIRA boot.

PET Progress

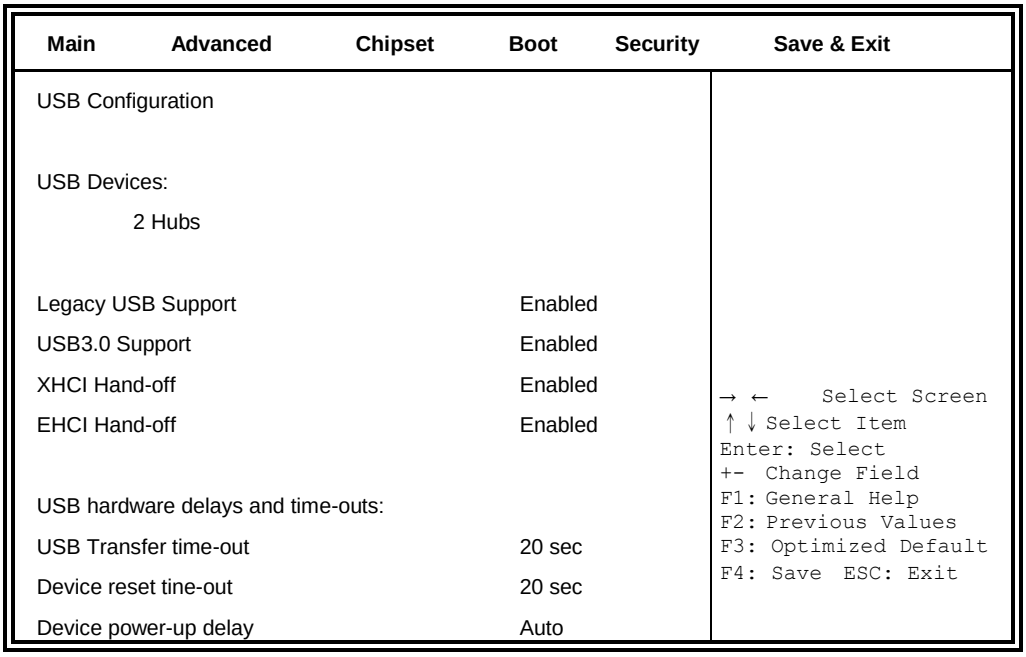
User can Enable/Disable PET Events progress to receive PET events or not.

Watchdog Timer

This configuration is supported only with IB902VF (with iAMT function).

Enable/Disable Watchdog Timer.

USB Configuration



Legacy USB Support

AUTO option disables legacy support if no USB devices are connected.
DISABLE option will keep USB devices available only for EFI applications.

USB3.0 Support

Enable/Disable USB3.0 (XHCI) Controller support.

XHCI Hand-off

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. 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

The time-out value for Control, Bulk, and Interrupt transfers.

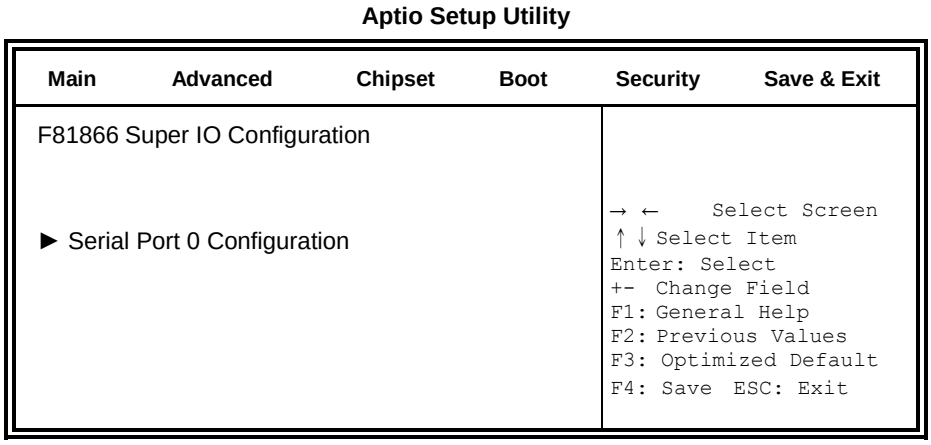
Device reset tine-out

USB mass Storage device start Unit command time-out.

Device power-up delay

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.

F81866 Super IO Configuration



Serial Port Configuration

Set Parameters of Serial Ports. User can Enable/Disable the serial port and Select an optimal settings for the Super IO Device.

F81866 H/W Monitor

Aptio Setup Utility

Main	Advanced	Chipset	Boot	Security	Save & Exit

PC Health Status	
CPU temperature	+32 C
SYS temperature	+35 C
FAN1 Speed	5154 RPM
FAN2 Speed	N/A
Vcore	+0.904 V
Vcc5V	+5.003 V
Vcc12V	+12.408 V
+1.5V	+1.512 V
Vcc3.3V	+3.296 V
Fan1 smart fan control	Disabled
Fan2 smart fan control	Disabled

→ ← Select Screen
↑ ↓ Select Item
Enter: Select
+- Change Field
F1: General Help
F2: Previous Values
F3: Optimized Default
F4: Save ESC: Exit

Temperatures/Voltages

These fields are the parameters of the hardware monitoring function feature of the motherboard. The values are read-only values as monitored by the system and show the PC health status.

Fan1/Fan2 Smart Fan Control

This field enables or disables the smart fan feature. At a certain temperature, the fan starts turning. Once the temperature drops to a certain level, it stops turning again.

CPU PPM Configuration

Aptio Setup Utility

Main	Advanced	Chipset	Boot	Security	Save & Exit
CPU PPM Configuration					
EIST		Enabled			
Turbo Mode		Enabled			

→ ← Select Screen
↑ ↓ Select Item
Enter: Select
+- Change Field
F1: General Help
F2: Previous Values
F3: Optimized Default
F4: Save ESC: Exit

EIST

Enable/Disable Intel SpeedStep.

Sandybridge DTS Configuration

Aptio Setup Utility

Main	Advanced	Chipset	Boot	Security	Save & Exit
Sandybridge DTS Configuration					
CPU DTS		Disable			

→ ← Select Screen
↑ ↓ Select Item
Enter: Select
+- Change Field
F1: General Help
F2: Previous Values
F3: Optimized Default
F4: Save ESC: Exit

CPU DTS

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 TS SMM is used to handle Out of Spec.

Chipset Settings

This section allows you to configure and improve your system and allows you to set up some system features according to your preference.

Aptio Setup Utility

Main	Advanced	Chipset	Boot	Security	Save & Exit
► PCH-IO Configuration					
► System Agent (SA) Configuration					

PCH-IO Configuration

This section allows you to configure the North Bridge Chipset.

Aptio Setup Utility

Main	Advanced	Chipset	Boot	Security	Save & Exit
Intel PCH RC Version			1.1.0.0		
Intel PCH SKU Name			HM76		
Intel PCH Rev ID			O4/C1		
► PCI Express Configuration					
► USB Configuration					
► PCH Azalia Configuration					
PCH LAN Controller			Enabled		→ ← Select Screen
Wake on LAN			Disabled		↑ ↓ Select Item
Board Capability			SUS_PWR_ON_ACK		Enter: Select
High Precision Event Timer Configuration					+- Change Field
High Precision Timer			Enabled		F1: General Help
SLP_S4 Assertion Width			1-2 Seconds		F2: Previous Values
					F3: Optimized Default
					F4: Save ESC: Exit

PCH LAN Controller

Enable or disable onboard NIC.

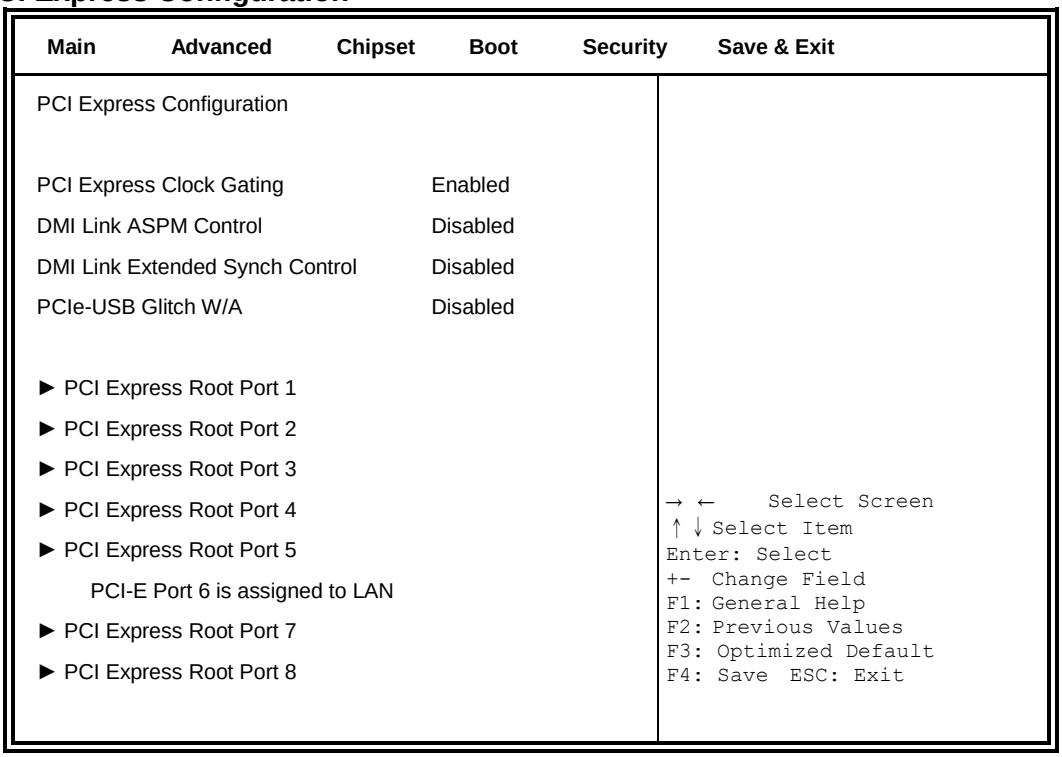
Wake on LAN

Enable or disable integrated LAN to wake the system. (The Wake On LAN cannot be disabled if ME is on at Sx state.)

SLP_S4 Assertion Width

Select a minimum assertion width of the SLP_S4# signal.

PCI Express Configuration



PCI Express Clock Gating

Enable or disable PCI Express Clock Gating for each root port.

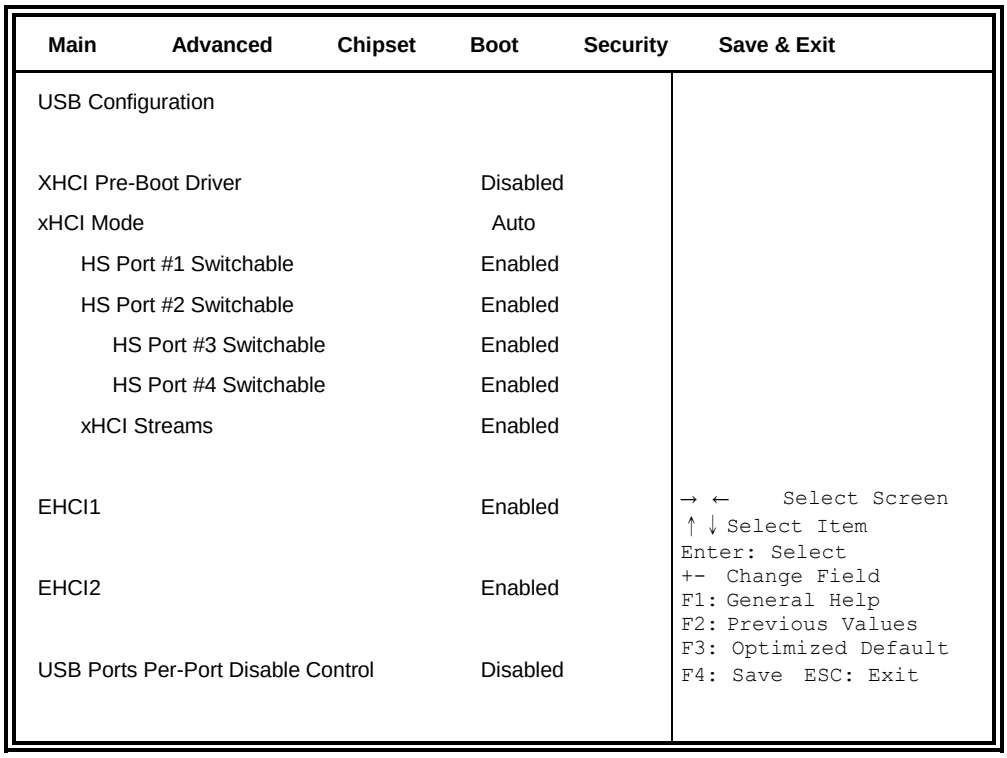
DMI Link ASPM Control

The control of Active State Power Management on both NB side and SB side of the DMI link.

PCIe-USB Glitch W/A

PCIe-USB Glitch W/A for bad USB device(s) connected behind PCIE/PEG port.

USB Configuration



HS Port #1/2/3/4 Switchable

Allows for HS port switching between xHCI and EHCI. If disabled, port is routed to EHCI. If HS port is routed to xHCI, the corresponding SS port is enabled.

xHCI Streams

Enable or disable xHCI Maximum Primary Stream Array Size.

EHCI1/2

Control the USAB EHCI (USB 2.0) functions. One EHCI controller must always be enabled.

USB Ports Per-Port Disable Control

Control each of the USB ports (0~13) disabling.

PCH Azalia Configuration

Main	Advanced	Chipset	Boot	Security	Save & Exit
PCH Azalia Configuration					→ ← Select Screen ↑ ↓ Select Item Enter: Select +- Change Field F1: General Help F2: Previous Values F3: Optimized Default F4: Save ESC: Exit
Azalia			Auto		

Azalia

Control Detection of the Azalia device.

Disabled = Azalia will unconditionally disabled.

Enabled Azalia will be unconditionally enabled.

Auto = Azalia will enabled if present, disabled otherwise.

System Agent (SA) Configuration

Aptio Setup Utility

Main	Advanced	Chipset	Boot	Security	Save & Exit
System Agent Bridge Name			IvyBridge		
System Agent RC Version			1.1.0.0		
VT-d Capability			Supported		
VT-d			Enabled		
CHAP Device (B0:D7:F0)			Disabled		
Thermal Device (B0:D4:F0)			Disabled		
Enable NB CRID			Disabled		
BDAT ACPI Table Support			Disabled		→ ← Select Screen ↑ ↓ Select Item Enter: Select +- Change Field F1: General Help F2: Previous Values F3: Optimized Default F4: Save ESC: Exit
C-State Pre-Wake			Enabled		
► Graphics Configuration					
► Memory Configuration					

VT-d

Check to enable VT-d function on MCH.

Enable NB CRID

Enable or disable NB CRID WorkAround.

C-State Pre-Wake

Controls C-State Pre-Wake feature for ARAT, in SSKPD[57].

Graphics Configuration

Aptio Setup Utility

Main	Advanced	Chipset	Boot	Security	Save & Exit
Graphics Configuration					
IGFX VBIOS Version			2132		
IGfx Frequency			350 MHz		
Primary Display			Auto		
Internal Graphics			Auto		
GTT Size			2MB		→ ← Select Screen
Aperture Size			256MB		↑ ↓ Select Item
DVMT Pre-Allocated			64M		Enter: Select
DVMT Total Gfx Mode			256M		+- Change Field
					F1: General Help
					F2: Previous Values
					F3: Optimized Default
					F4: Save ESC: Exit

Primary Display

Select which of IGFX/PEG/PCI graphics device should be primary display or select SG for switchable Gfx.

Internal Graphics

Keep IGD enabled based on the setup options.

DVMT Pre-Allocated

Select DVMT 5.0 Pre-Allocated (Fixed) graphics memory size used by the internal graphics device.

DVMT Total Gfx Mem

Select DVMT 5.0 total graphics memory size used by the internal graphics device.

Gfx Low Power Mode

This option is applicable for SFF only.

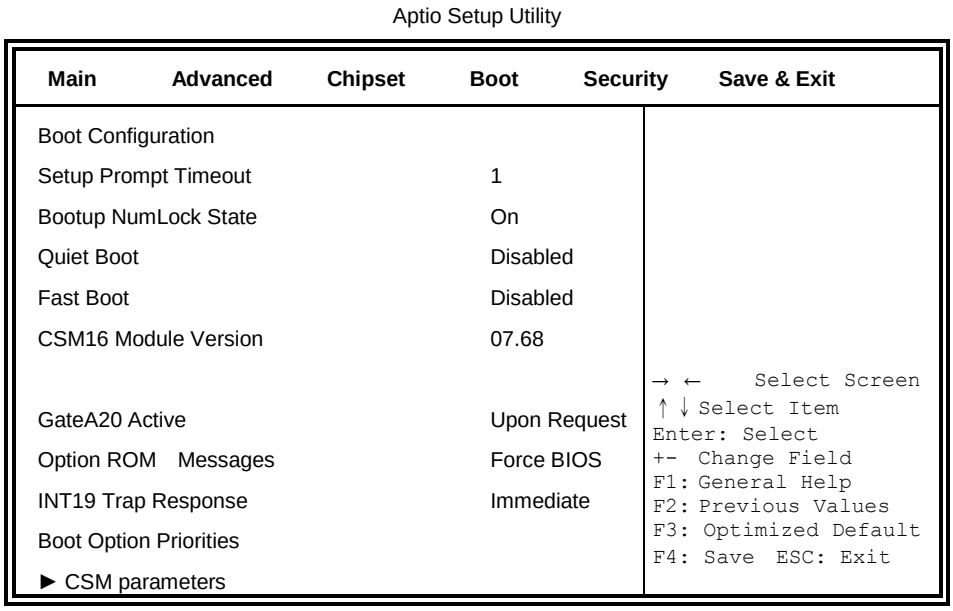
Memory Configuration

Aptio Setup Utility

Main	Advanced	Chipset	Boot	Security	Save & Exit
Memory Information					
Memory RC Version			1.1.0.0		
Memory Frequency			1333 MHz		
Total Memory			2048 MB (DDR3)		
DIMM#0			2048 MB (DDR3)		
DIMM#1			Not Present		
CAS Latency (tCL)			9		
Minimum delay time					
CAS to RAS (tRCDmin)			9		
Row Precharge (tRPmin)			9		
Active to Precharge (tRASmin)			24		

→ ← Select Screen
↑ ↓ Select Item
Enter: Select
+- Change Field
F1: General Help
F2: Previous Values
F3: Optimized Default
F4: Save ESC: Exit

Boot Settings



Setup Prompt Timeout

Number of seconds to wait for setup activation key.
65535(0xFFFF) means indefinite waiting.

Bootup NumLock State

Select the keyboard NumLock state.

Quiet Boot

Enables/Disables Quiet Boot option.

Fast Boot

Enables/Disables boot with initialization of a minimal set of devices required to launch active boot option. Has no effect for BBS boot options.

GateA20 Active

UPON REQUEST – 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

Set display mode for Option ROM. Options are Force BIOS and Keep Current.

INT19 Trap Response

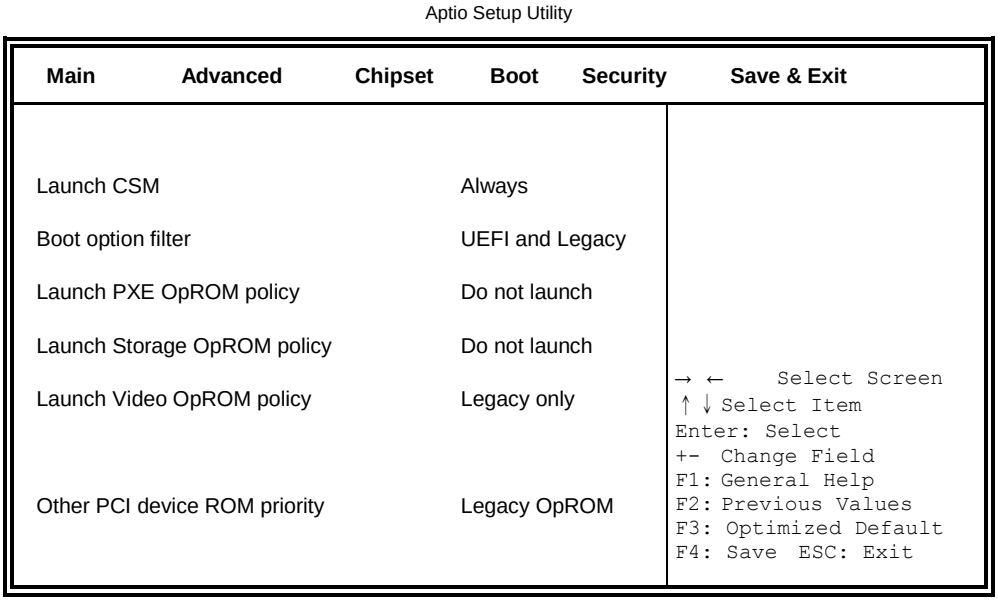
Enable: Allows Option ROMs to trap Int 19.

Boot Option Priorities

Sets the system boot order.

CSM parameters

This section allows you to configure the boot settings.



Boot option filter

This option controls what devices system can boot to.

Launch PXE OpROM policy

Controls the execution of UEFI and Legacy PXE OpROM.

Launch Storatge OpROM policy

Controls the execution of UEFI and Legacy Storage OpROM.

Launch Video OpROM policy

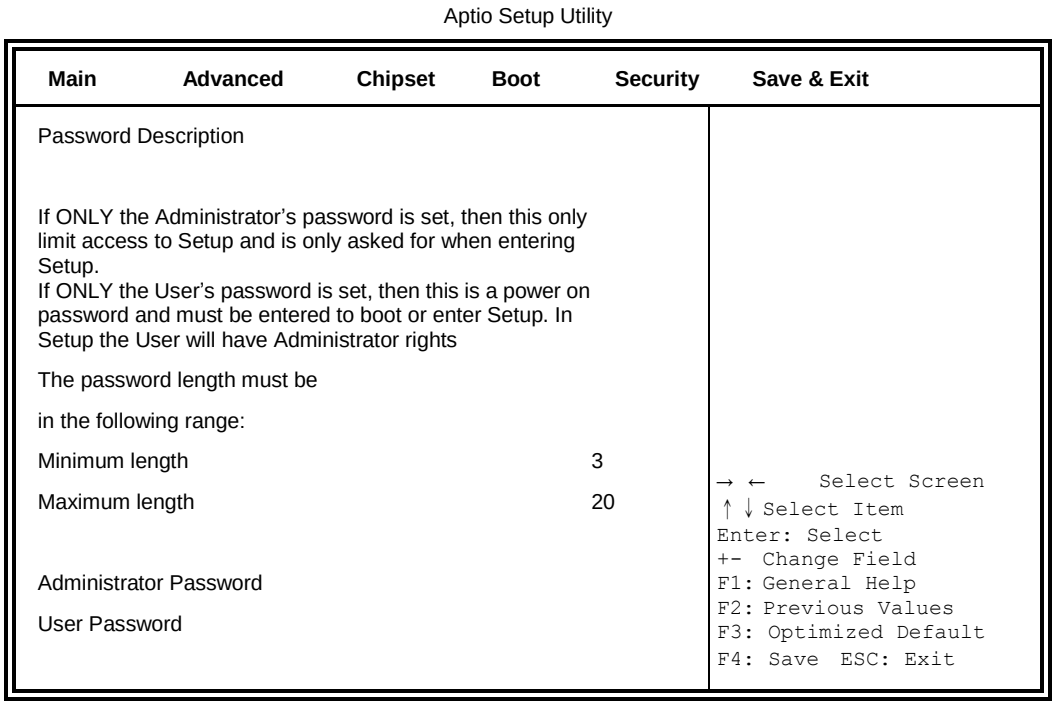
Controls the execution of UEFI and Legacy Video OpROM.

Other PCI device ROM priority

For PCI devices other than Network, Mass storage or Video defines which OpROM to launch.

Security Settings

This section allows you to configure and improve your system and allows you to set up some system features according to your preference.



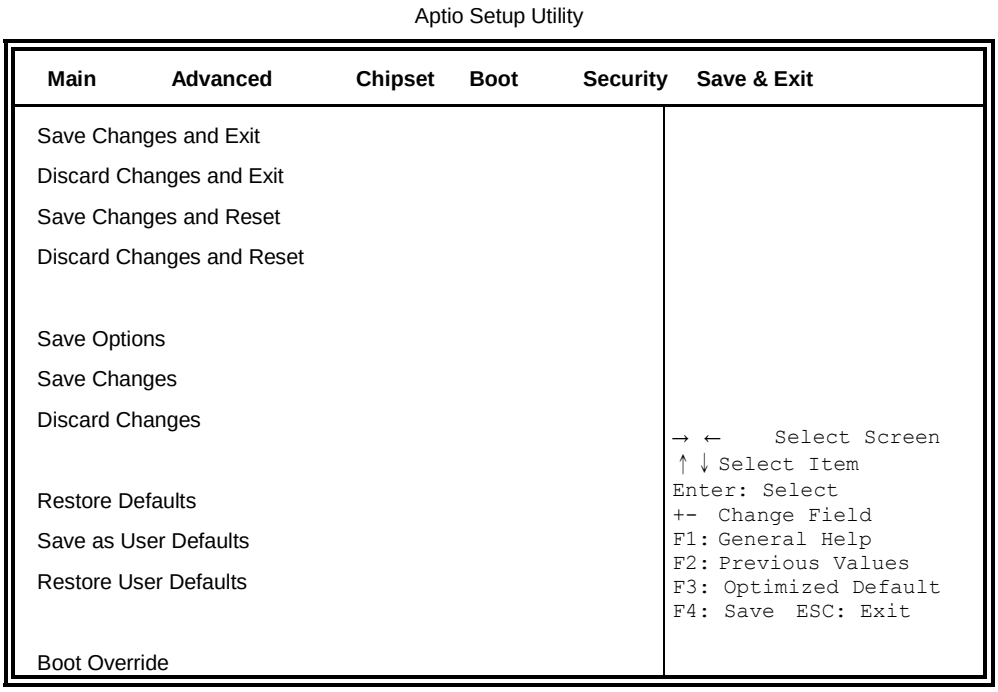
Administrator Password

Set Setup Administrator Password.

User Password

Set User Password.

Save & Exit Settings



Save Changes and Exit

Exit system setup after saving the changes.

Discard Changes and Exit

Exit system setup without saving any changes.

Save Changes and Reset

Reset the system after saving the changes.

Discard Changes and Reset

Reset system setup without saving any changes.

Save Changes

Save Changes done so far to any of the setup options.

Discard Changes

Discard Changes done so far to any of the setup options.

Restore Defaults

Restore/Load Defaults values for all the setup options.

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.

CHAPTER 5 DRIVERS INSTALLATION

This section describes the installation procedures for software and drivers. The software and drivers are included with the motherboard. If you find the items missing, please contact the vendor where you made the purchase.

IMPORTANT NOTE:

After installing your Windows operating system, you must install first the Intel Chipset Software Installation Utility before proceeding with the drivers installation.

5.1 Intel Chipset Software Installation Utility

The Intel Chipset Drivers should be installed first before the software drivers to enable Plug & Play INF support for Intel chipset components. Follow the instructions below to complete the installation.

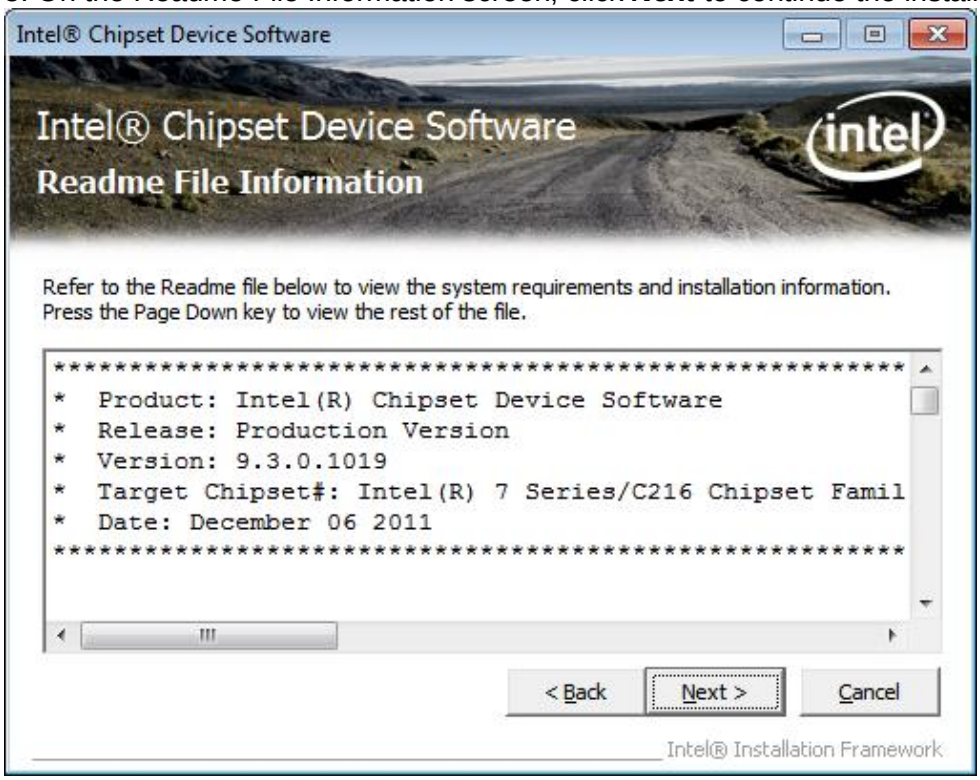
1. Insert the CD that comes with the board. Click ***Intel*** and then ***Intel(R) 7 Series Chipset Drivers***.

2. Click ***Intel(R) Chipset Software Installation Utility.***

3. When the Welcome screen to the Intel® Chipset Device Software appears, click ***Next*** to continue.

4. Click ***Yes*** to accept the software license agreement and proceed with the installation process.

5. On the Readme File Information screen, click ***Next*** to continue the installation.



6. The Setup process is now complete. Click ***Finish*** to restart the computer and for changes to take effect.

5.2 VGA Drivers Installation

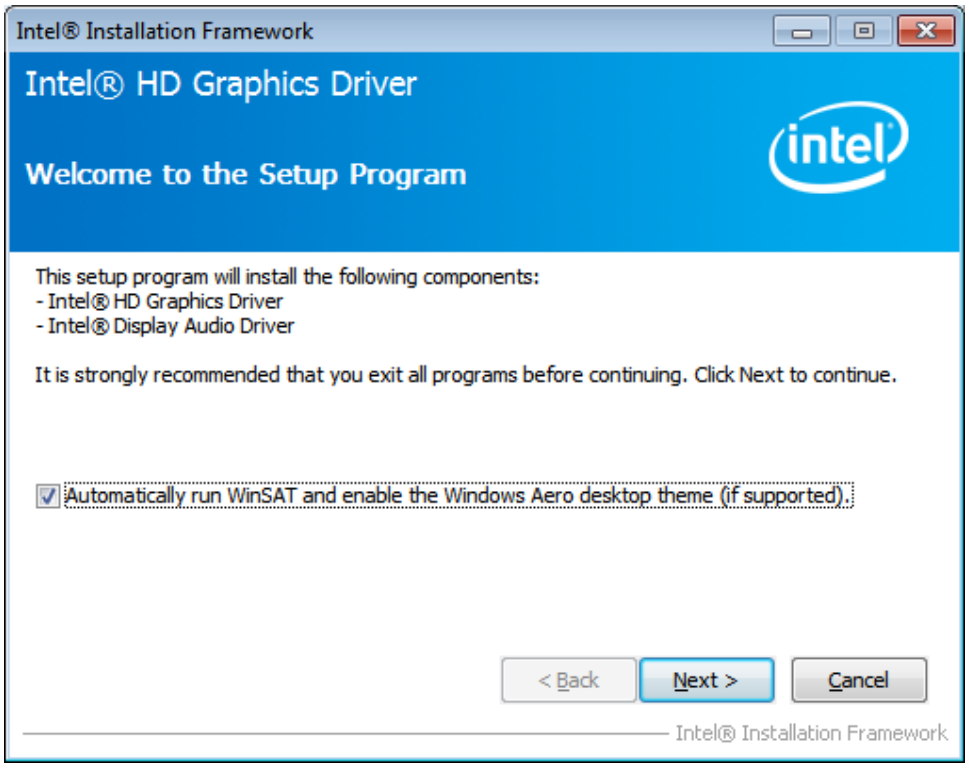
NOTE: Before installing the Intel(R) Q77 Chipset Family Graphics Driver, the Microsoft .NET Framework 3.5 SPI should be first installed.

To install the VGA drivers, follow the steps below.

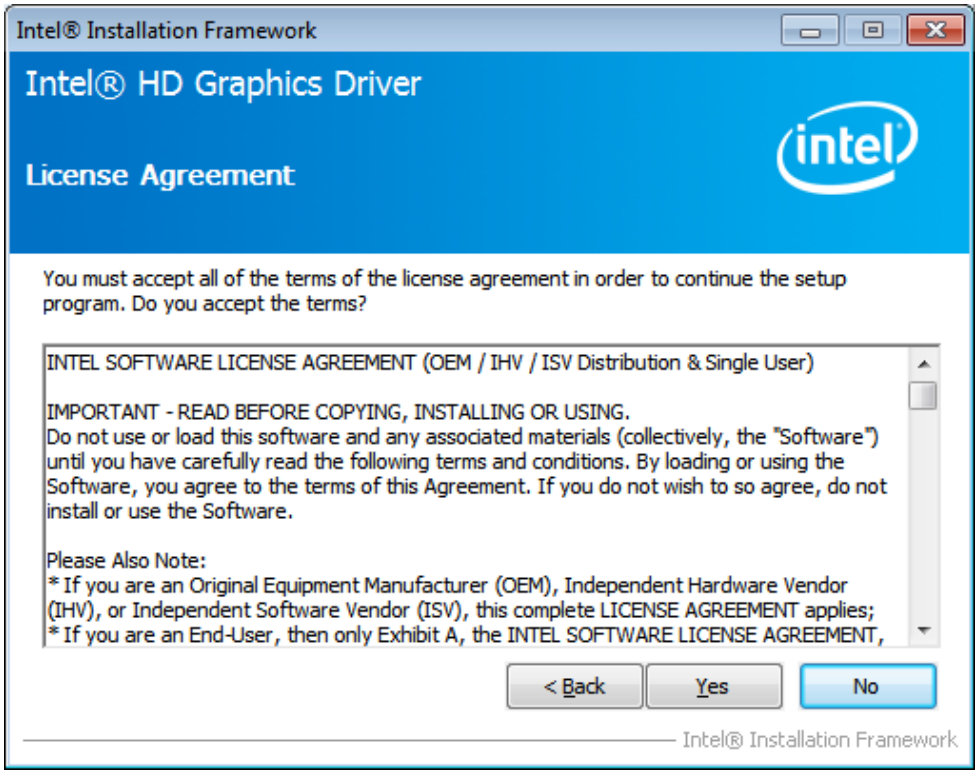
1. Insert the CD that comes with the board. Click ***Intel*** and then ***Intel(R) Q7 Series Chipset Drivers***.

2. Click ***Intel(R) Q77 Chipset Family Graphics Driver.***

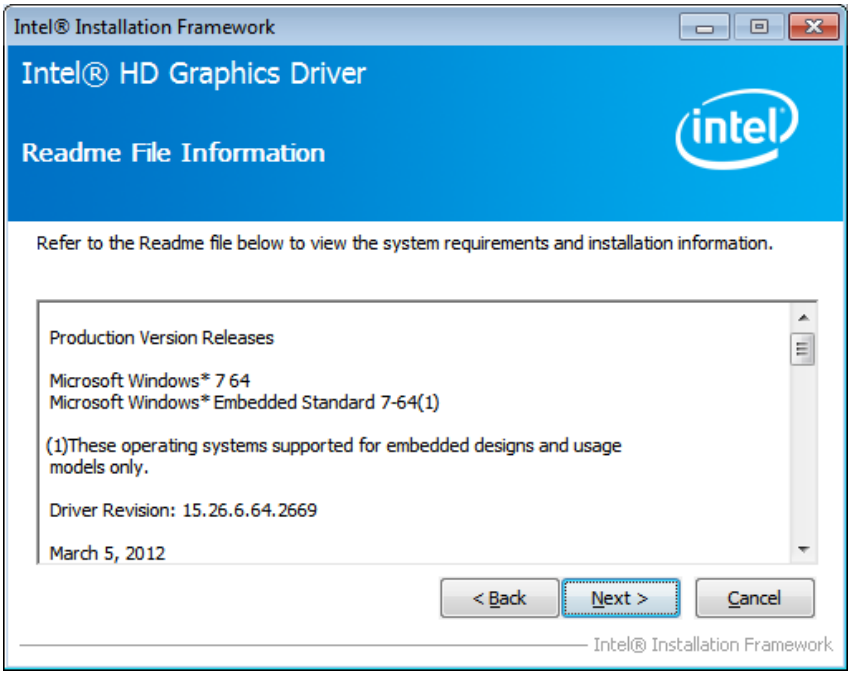
3. When the Welcome screen appears, click ***Next*** to continue.



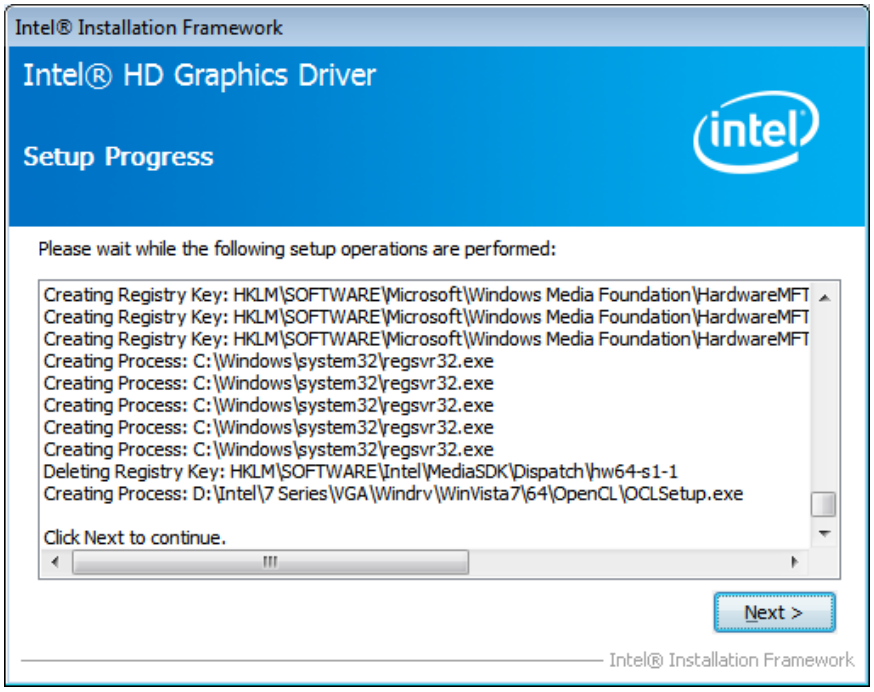
4. Click ***Yes*** to to agree with the license agreement and continue the installation.



5. On the Readme File Information screen, click ***Next*** to continue the installation of the Intel® Graphics Media Accelerator Driver.



6. On Setup Progress screen, click ***Next*** to continue.



7. Setup complete. Click ***Finish*** to restart the computer and for changes to take effect.

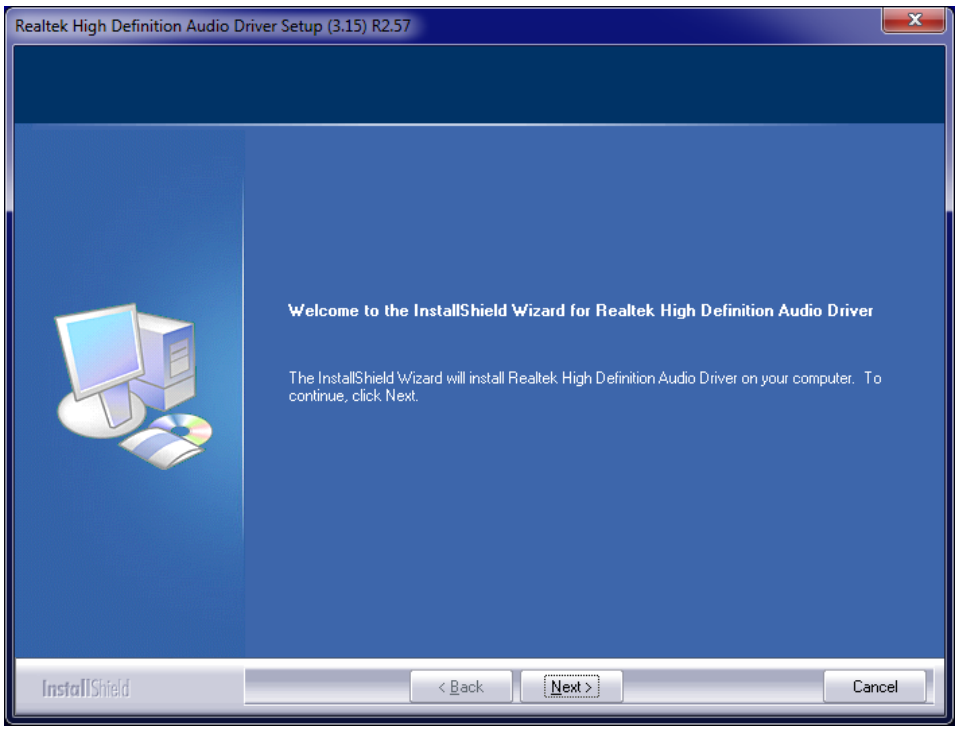
5.3 Realtek HD Audio Driver Installation

Follow the steps below to install the Realtek HD Audio Drivers.

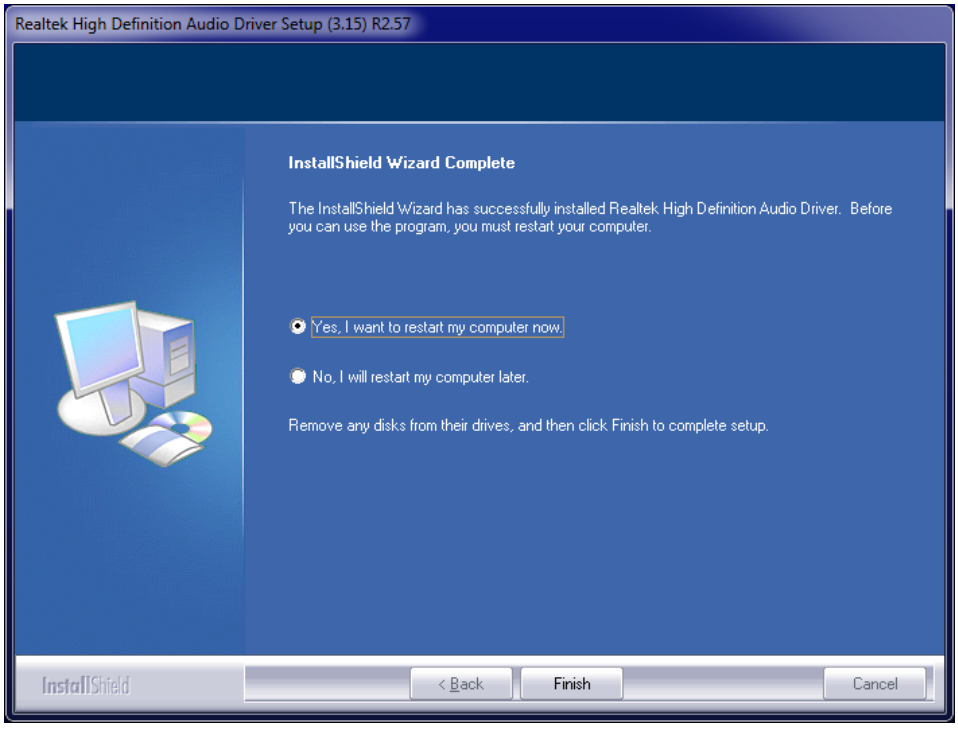
1. Insert the CD that comes with the board. Click ***Intel*** and then ***Intel(R) Q7 Series Chipset Drivers.***

2. Click ***Realtek High Definition Audio Driver.***

3. On the Welcome to the InstallShield Wizard screen, click ***Next*** to proceed with and complete the installation process.



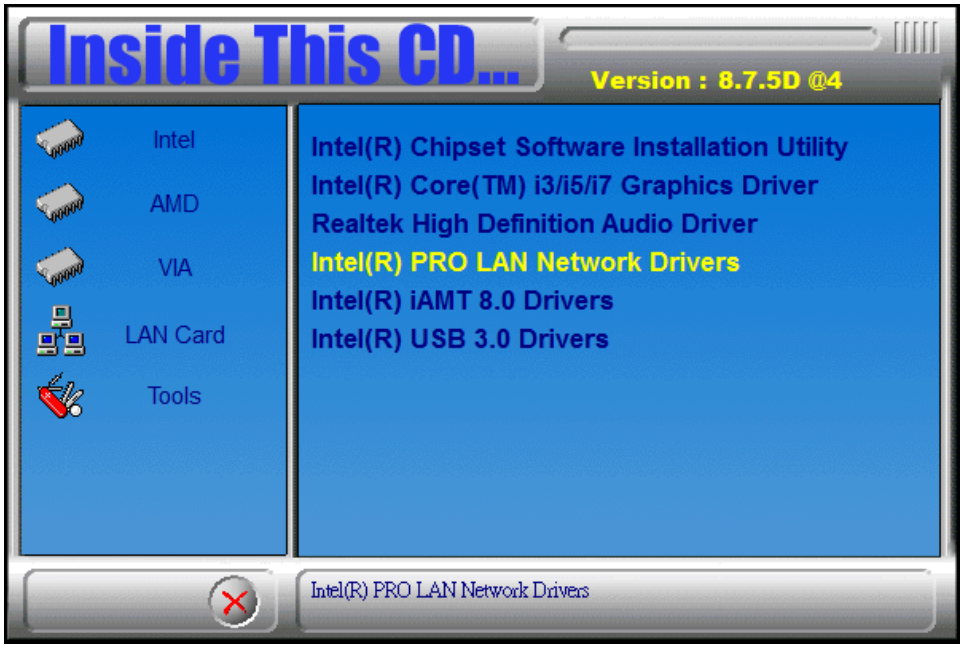
4. The InstallShield Wizard Complete. Click ***Finish*** to restart the computer and for changes to take effect.



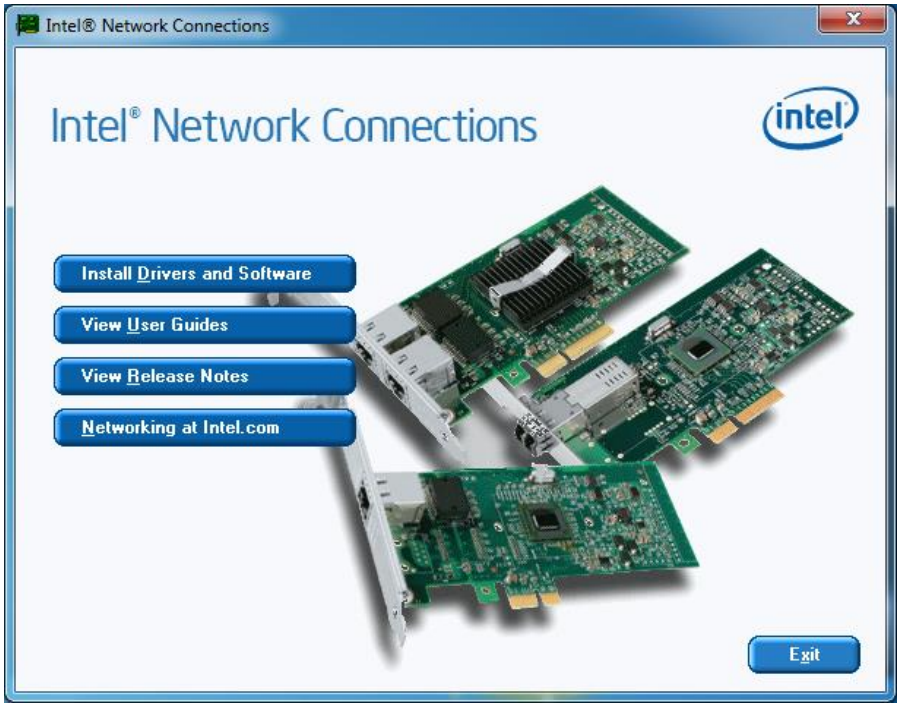
5.4 LAN Drivers Installation

1. Insert the CD that comes with the board. Click ***Intel*** and then ***Intel(R) Q7 Series Chipset Drivers.***

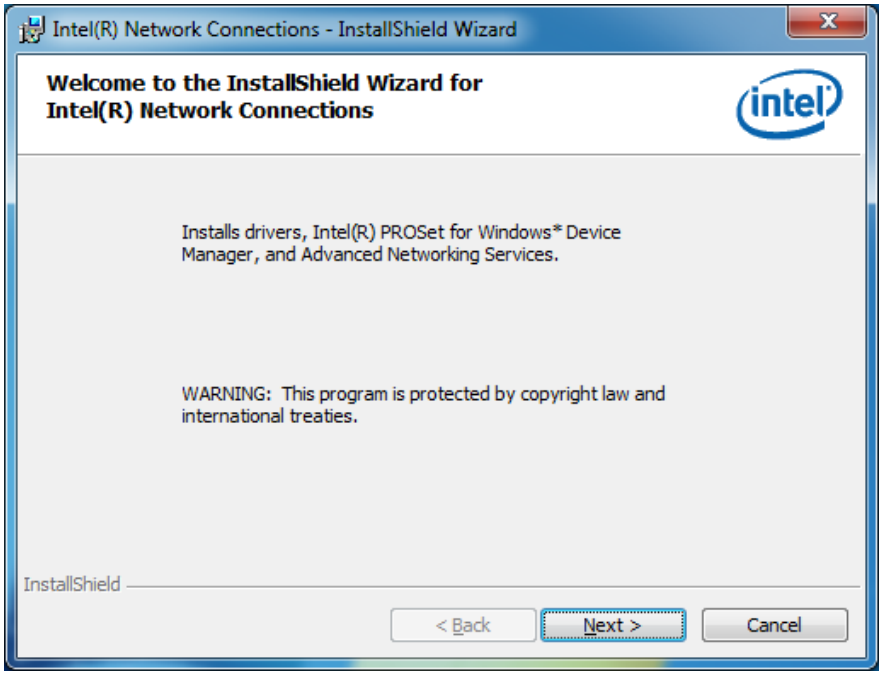
2. Click ***Intel(R) PRO LAN Network Driver.***



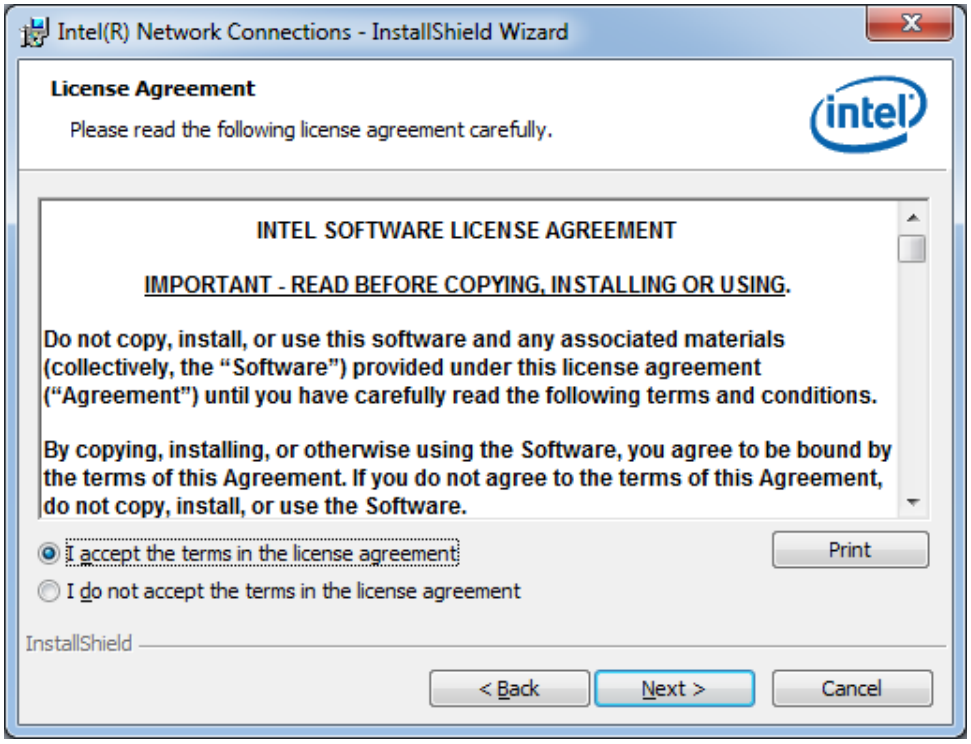
3. Click ***Install Drivers and Software.***



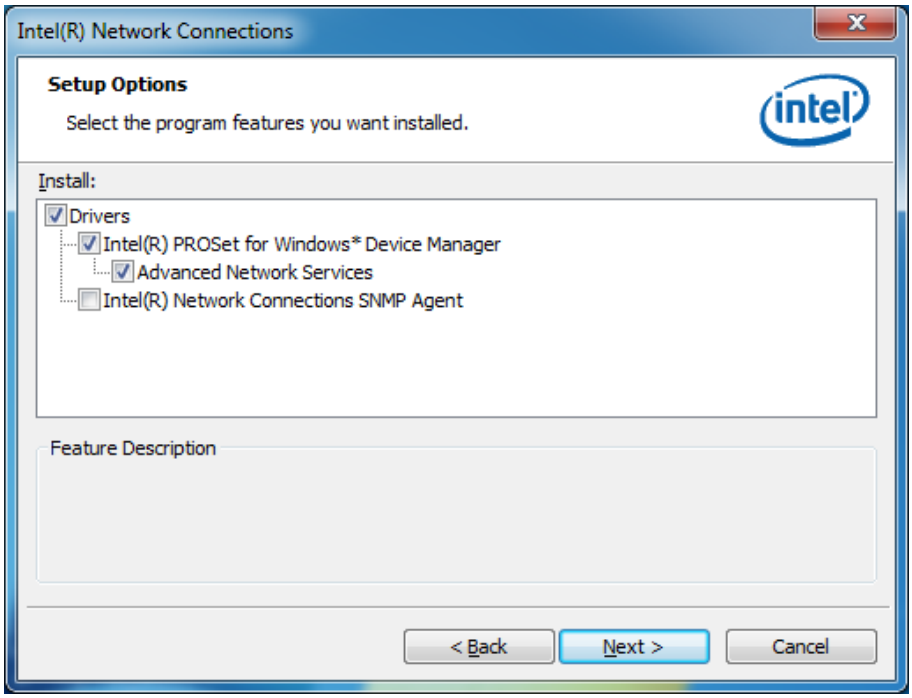
4. When the Welcome screen appears, click ***Next***.



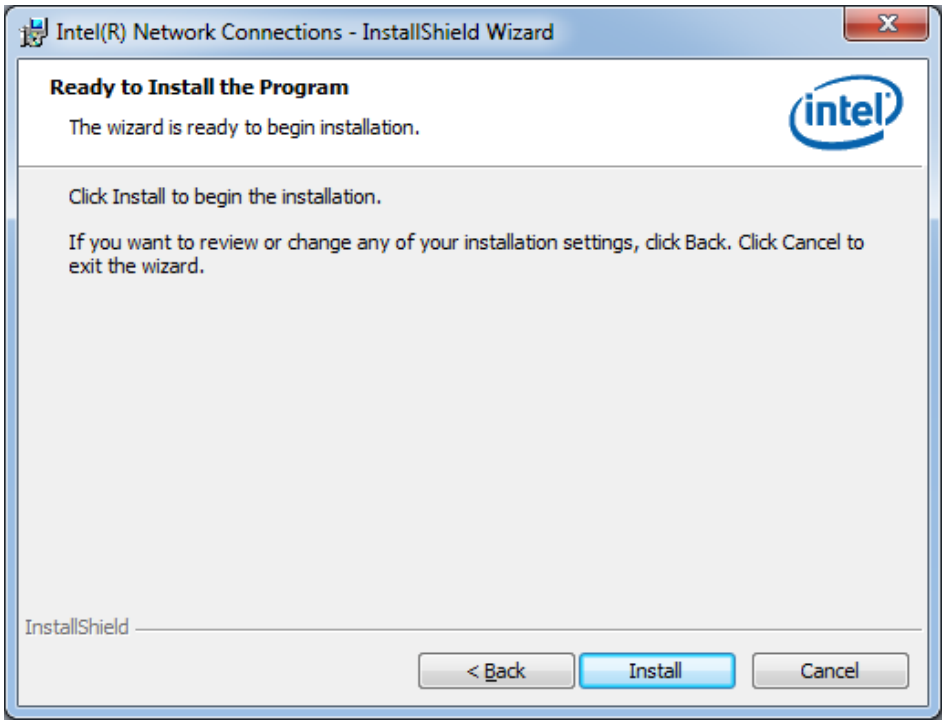
5. Click ***Next*** to to agree with the license agreement.



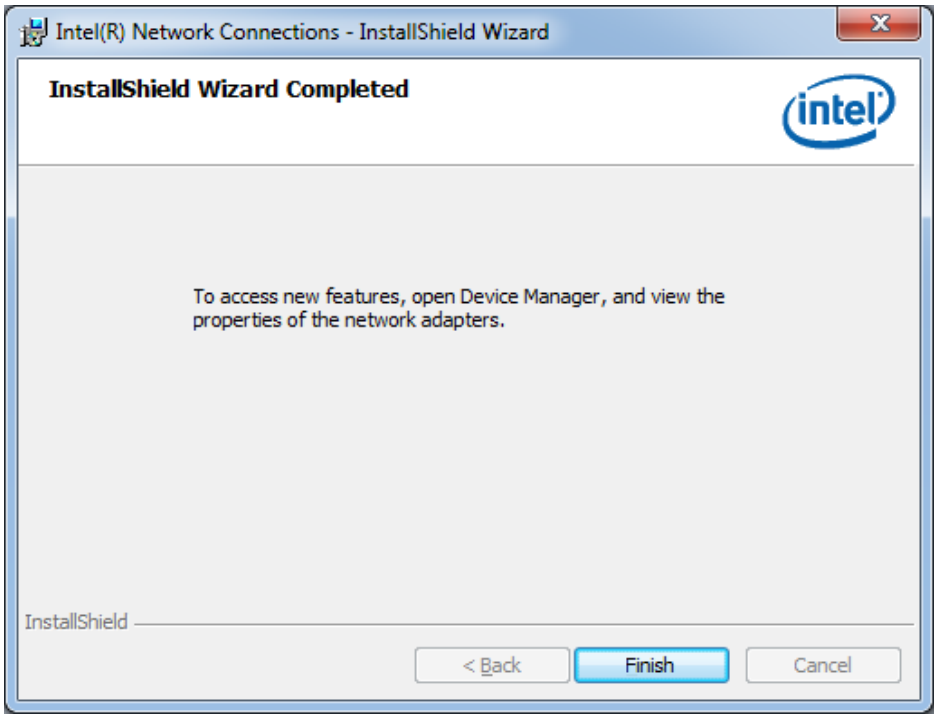
6. Click the checkbox for **Drivers** in the Setup Options screen to select it and click **Next** to continue.



7. The wizard is ready to begin installation. Click ***Install*** to begin the installation.



8. When InstallShield Wizard is complete, click ***Finish***.

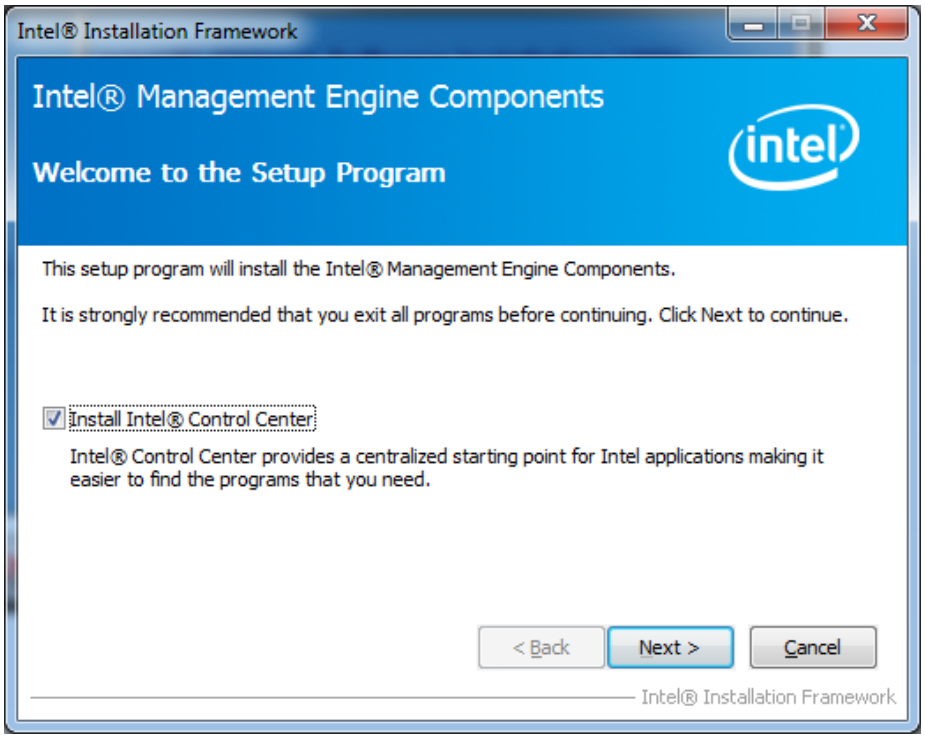


5.5 Intel® Management Engine Interface

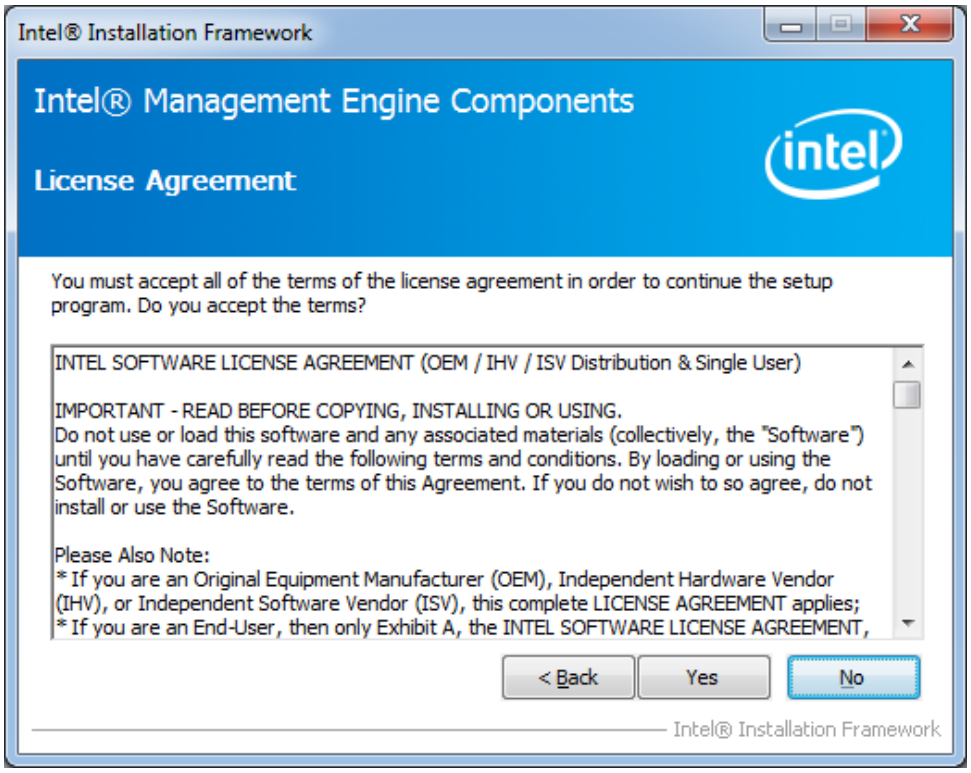
Follow the steps below to install the Intel Management Engine.

1. Insert the CD that comes with the board. Click ***Intel*** and then ***Intel(R) AMT 8.0 Drivers.***

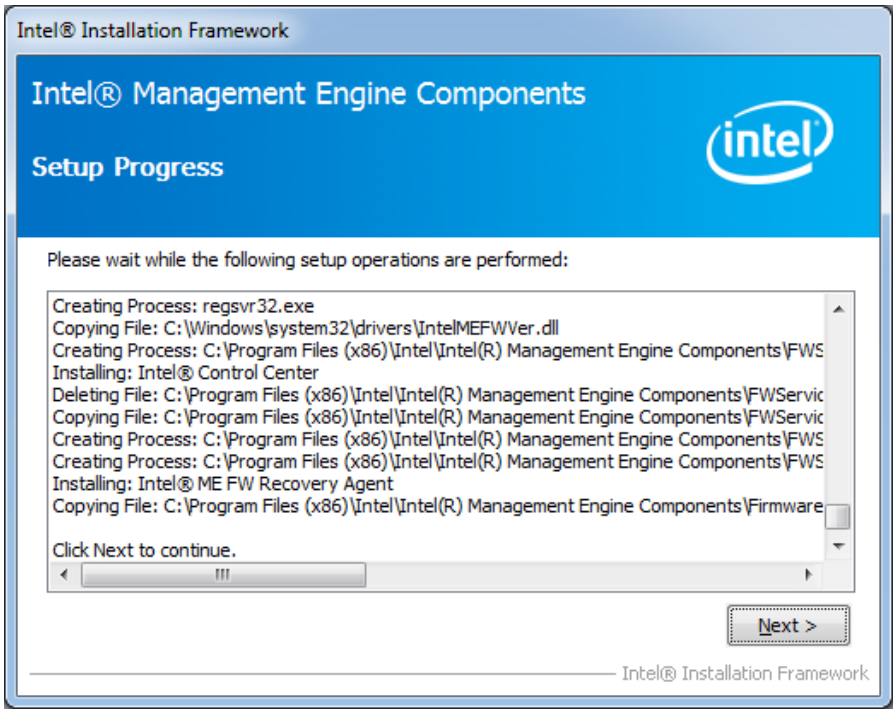
2. When the Welcome screen to the InstallShield Wizard for Intel® Management Engine Components, click the checkbox for **Install Intel® Control Center** & click ***Next***.

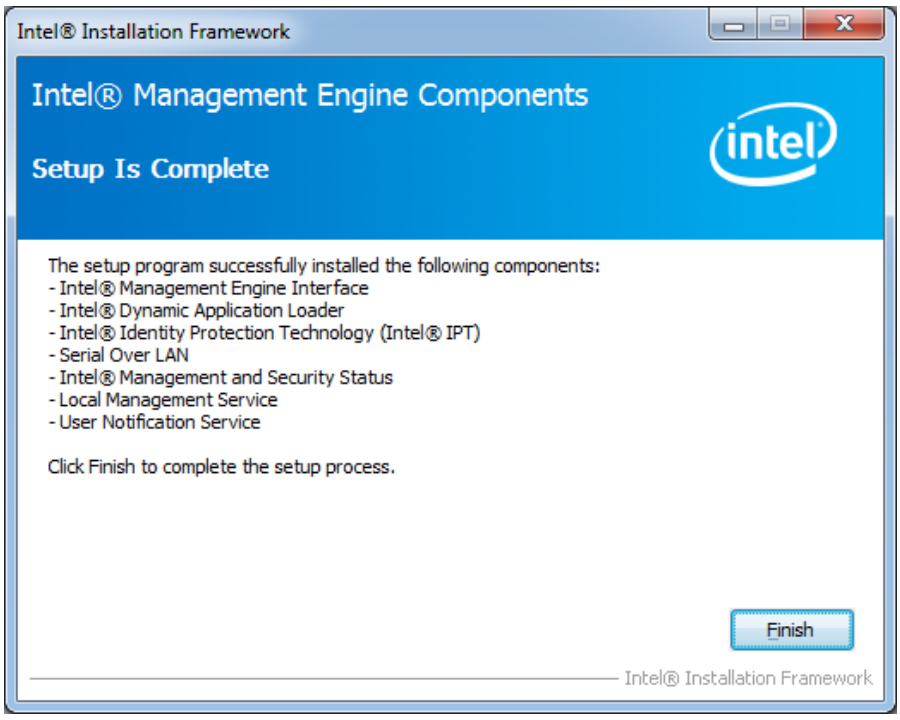


3. Click ***Yes*** to to agree with the license agreement.



4. When the Setup Progress screen appears, click ***Next***. Then, click ***Finish*** when the setup progress has been successfully installed.



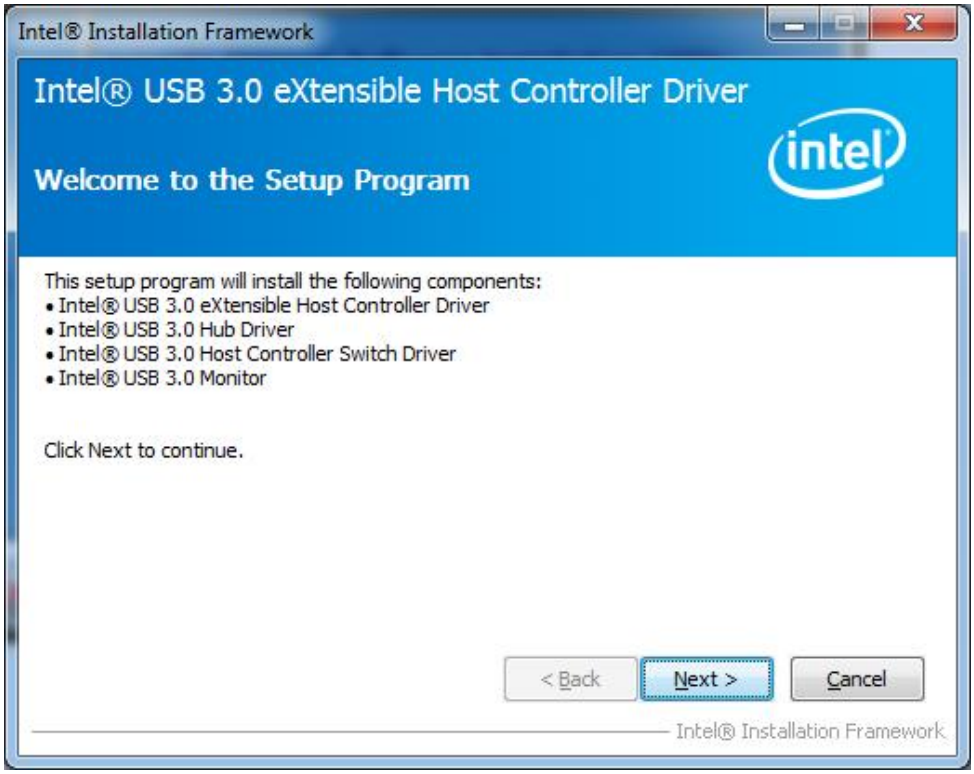


5.6 Intel® USB 3.0 Drivers

1. Insert the CD that comes with the board. Click ***Intel*** and then ***Intel(R) Q7 Series Chipset Drivers***.

2. Click ***Intel(R) USB 3.0 Drivers.***

3. When the Welcome screen to the InstallShield Wizard for Intel® USB 3.0 eXtensible Host Controller Driver, click ***Next***.



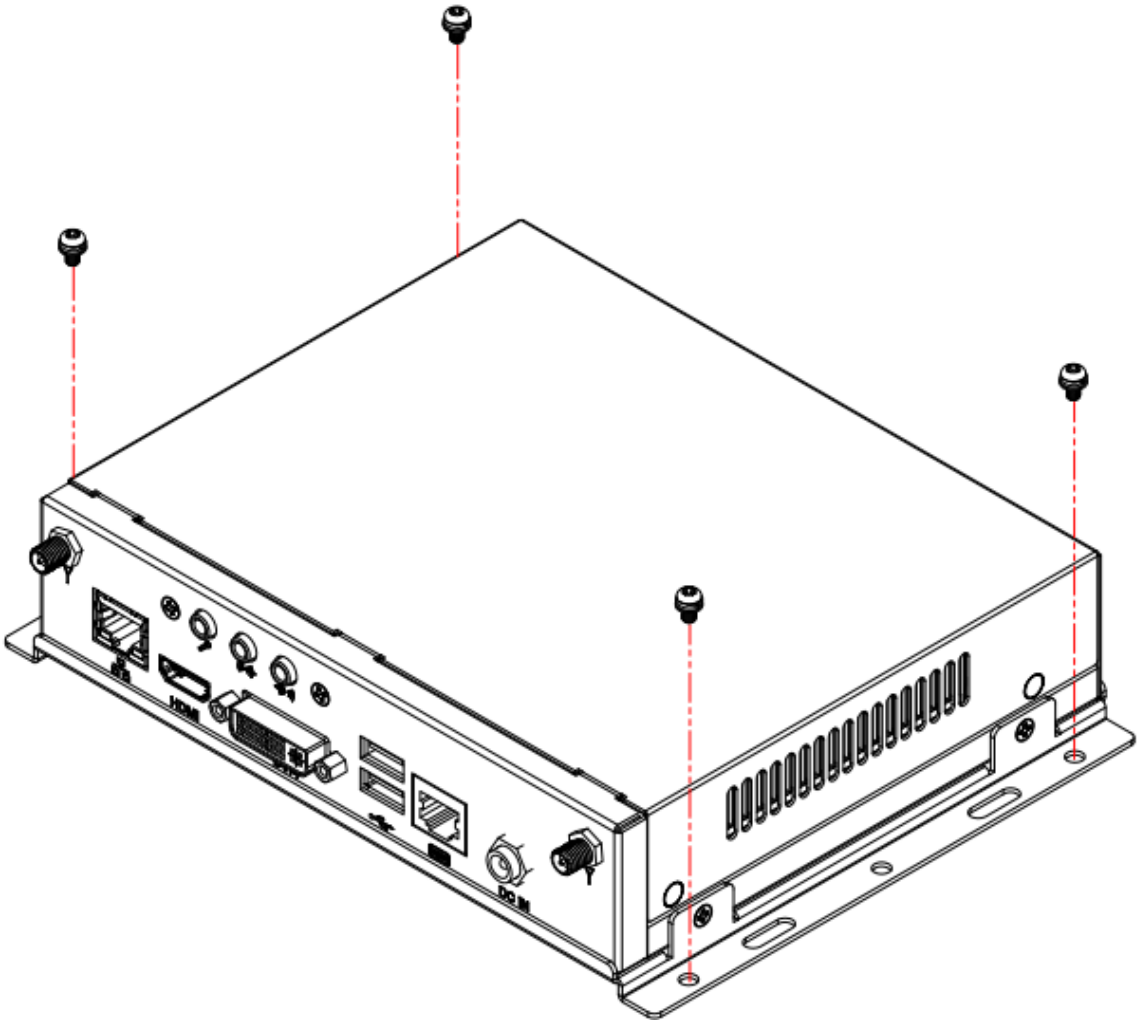
4. Click ***Yes*** to to agree with the license agreement and continue the installation.

5. On the Readme File Information screen, click ***Next*** to continue the installation of the Intel® USB 3.0 eXtensible Host Controller Driver.

6. Setup complete. Click ***Finish*** to restart the computer and for changes to take effect.

Appendix

Mounting CSB110-902 to the Wall



You can install CSB110-902 on plastic (LCD monitor), wood, drywall surface over studs, or a solid concrete or metal plane directly. Ensure the installer uses at least four M3 length 6mm screws to secure the system on wall. ***Four M3 length 6mm screws are recommended to secure the system on wall.***

Fasteners are not included with the unit, and must be supplied by the installer. The types of fasteners required are dependent on the type of wall construction. Choose fasteners that are rated either ”Medium Duty“ or ”Heavy Duty.“ To assure proper fastener selection and installation, follow the fastener manufacturer’s recommendations.

Wall Mounting Requirements

Note: *Before mounting the system on wall, ensure that you are following all applicable building and electric codes.*

When mounting, ensure that you have enough room for power and signal cable routing. And have good ventilation for power adapter. The method of mounting must be able to support weight of the CSB110-902 plus the suspend weight of all the cables to be attached to the system. Use the following methods for mounting your system:

Mounting to hollow walls

- **Method 1: Wood surface** – A minimum wood thickness – 38mm (1.5in.) by 25.4 cm (10in.) – of high, construction – grade wood is recommended. **Note:** This method provides the most reliable attachment of the unit with little risk that the unit will come loose or require ongoing maintenance.
- **Method 2: Drywall walls** - Drywall over wood studs is acceptable.

Mounting to a solid concrete or brick wall - Mounts on a flat smooth surface.

Selecting the Location

Plan the mounting location thoroughly. Locations such as walkway areas, hallways, and crowded areas are not recommended. Mount the unit to a flat, sturdy, structurally sound column or wall surface.

The best mounting surface is a standard countertop, cabinet, table, or other structure that is minimally the width and length of the unit. This recommendation reduces the risk that someone may accidentally walk into and damage the device. Local laws governing the safety of individuals might require this type of consideration.