



# ACS-2160 Box PC User Manual

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# Warning!\_\_\_\_\_

This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instructions manual, it may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

Electric Shock Hazard – Do not operate the machine with its back cover removed. There are dangerous high voltages inside.

## Disclaimer

**This information in this document is subject to change without notice. In no event shall Apex Technology Inc. be liable for damages of any kind, whether incidental or consequential, arising from either the use or misuse of information in this document or in any related materials.**

# Packing List

Accessories (as ticked) included in this package are:
<input type="checkbox"/> Adaptor
<input type="checkbox"/> Driver & manual CD disc
<input type="checkbox"/> Other. _____ (please specify)

## Safety Precautions

Follow the messages below to prevent your systems from damage:

- ◆ Avoid your system from static electricity on all occasions.
- ◆ Prevent electric shock. Don't touch any components of this card when the card is power-on. Always disconnect power when the system is not in use.
- ◆ Disconnect power when you change any hardware devices. For instance, when you connect a jumper or install any cards, a surge of power may damage the electronic components or the whole system.

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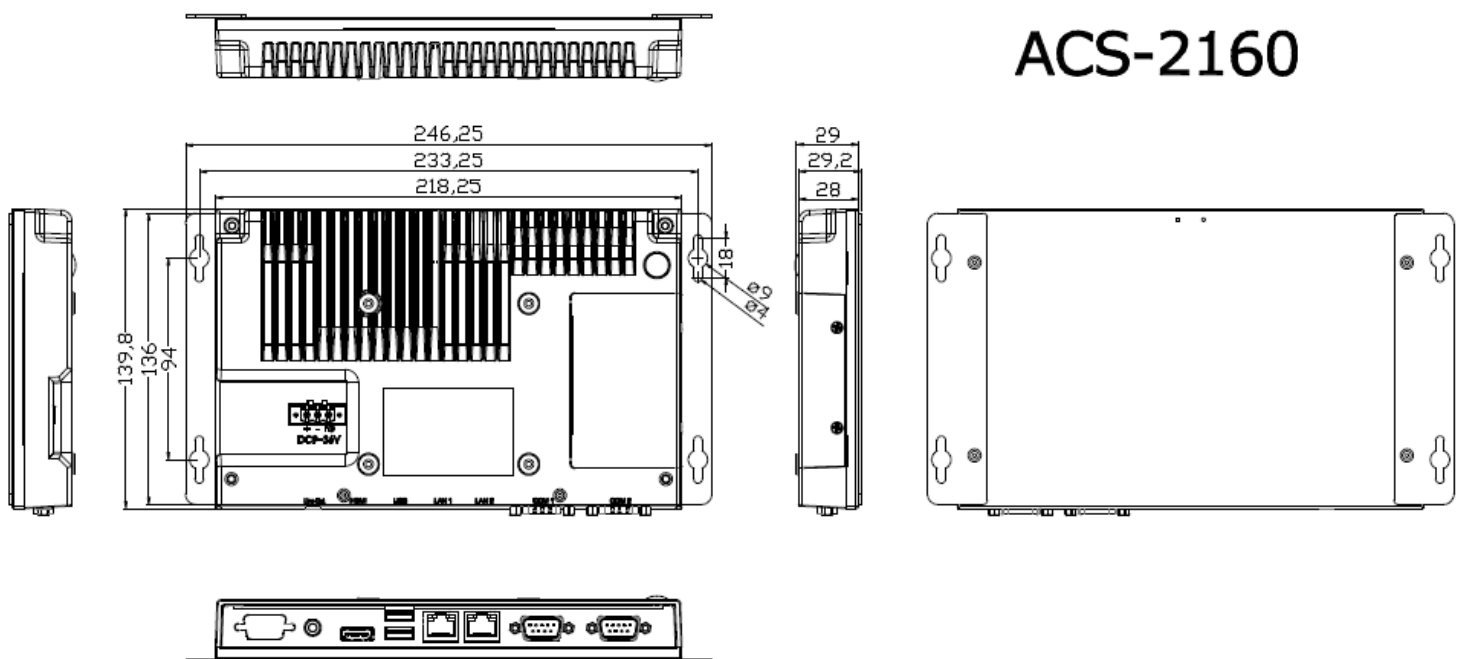
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## 1.1 Specifications

Specs	ACS-2160
<b>Hardware</b>	
Processor	Intel Atom Processor D2550 1.86GHz , L2 Cache 1MB
System Chipset	Intel NM10 Express Chipset
System Memory	Onboard 2GB DDR III 800MHz, (4GB Option)
Outside I/O Port	2 x USB 2.0 type A 2 x GbE LAN RJ-45 1 x RS-232 DB-9, COM2 1 x DB-9 RS-232/422/485, COM1 (Default RS-232) 1 x Audio Line Out 1 x HDMI Port (off hole, no silk printing, with cover) 1 x VGA 1 x 3-pin DC Power input terminal
Expansion Slots	1 x Internal Mini-PCle slot half size
Storage	1 x SD card slot, up to 32GB (Easy Accessible) 1 x SATA Half Slim HDD bay, up to 64GB (Easy accessible)
Power Supply	9~36V/DC
Wireless LAN	802.11 b/g/n via Mini-PCle module card half size (Option) Rear cover design Antenna hole
Mounting	Wall VESA 75 x 75, 100 x 100mm (Option), Din-rail (option)
<b>Power</b>	
Power Input	9~36V/DC
Power Consumption	15 W (MAX)
<b>Mechanical</b>	
Construction	Silver aluminum chassis
Chassis Color	RAL 9007
Dimensions	139.8 x 246.25 x 29.2 mm
Net Weight	1.8 kg
<b>Environmental Specifications</b>	
Operating Temperature	-20~60 °C
Storage Temperature	-40~85 °C
Storage Humidity	10%~90% @ 40°C, non-condensing

Vibration	5G, 5-500MHz, 3 Axes(with SSD) 0.5G 5-500MHz, 3 Axes(with HDD)
Shock	50G Half sine(11 msec. duration)/operation with SSD
Drop	92cm(1 Corner, 3 Edge, 6 Surface)
Certificate	Meet CE / FCC
<b>OS Support</b>	Windows 32-bit XP Pro, Windows 7 32-bit, Windows CE 7.0, Fedora 14

## 1.2 Dimensions



### 1.1 Dimension of the ACS-2160

## 1.3 Brief Description of the ACS-2160

The ACS-2160 is a Fan-less High-efficiency Thermal Solution Box PC, powered by Intel Atom Processor D2550 1.86GHz , L2 Cache 1MB. It supports 2 x USB 2.0 ports, 2 x COM Ports, 1 x internal Mini-PCIe slot half size, and 9~36V wide-ranging power input etc. It is ideal for Industrial Automation, Factory Automation, Machine Vision, Process Control, Data Terminal, TI, Surveillance, etc. and running factory operations from small visual interface and maintenance applications to large control process applications. The ACS-2160 works very well along with any of our Display series and it absolutely can provide an easy way to perform control and field maintenance.



**Figure 1.2: Front View of ACS-2160**



**Figure 1.3: Rear View of ACS-2160**



## 1.4 Installation of HDD

### Step 1

There are two screws which connect to the chassis. Gently remove 2 screws.



### Step 2

Pull out the chassis after unscrewing as shown in the picture ACS-2160.



### Step 3

You can remove HDD by unscrewing the screw in the HDD bracket.



## Step 4

Draw the HDD bracket out as shown in the picture ACS-2160.

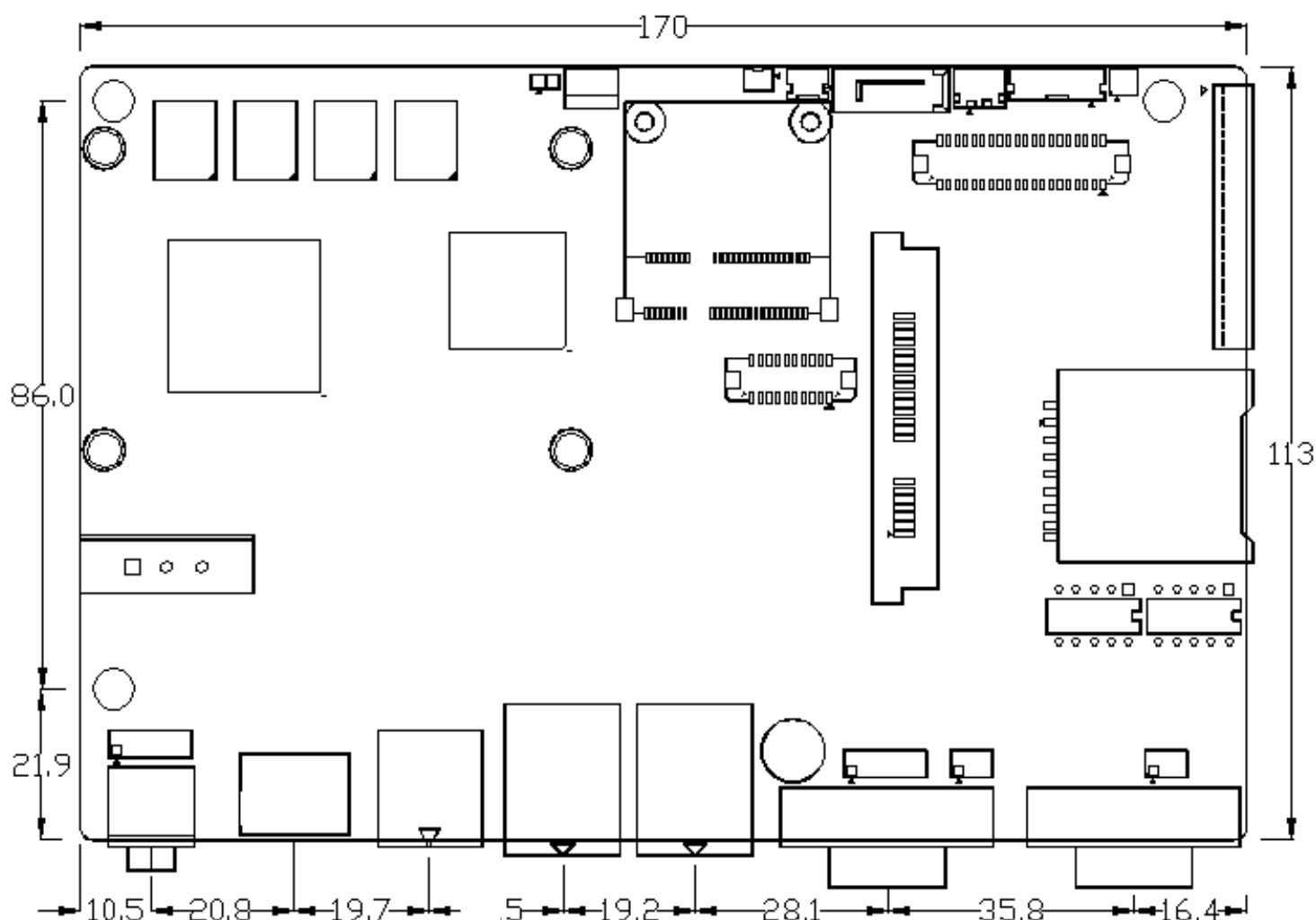


## Step 5

That's how it should look after it has been installed.



## 2.1 Mainboard

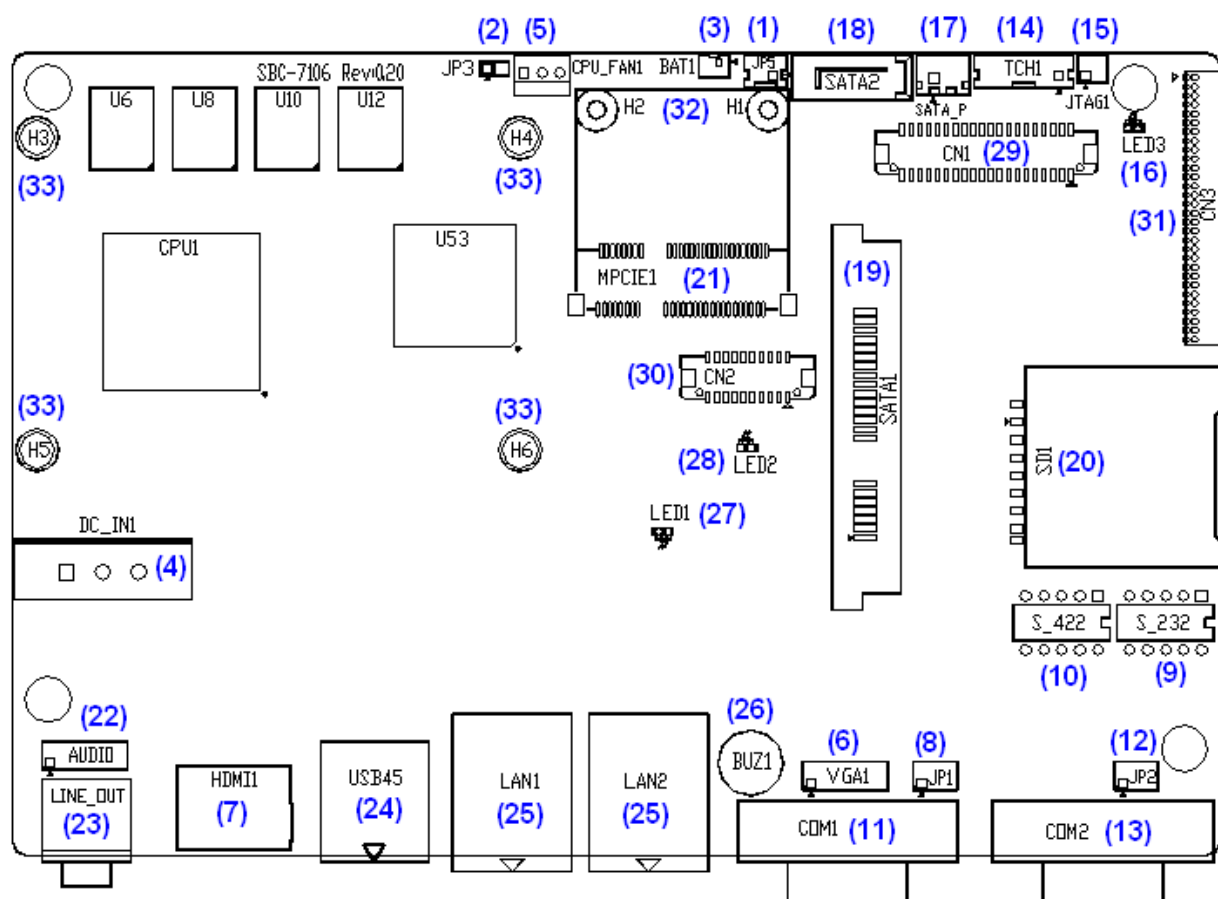


**Figure 2.1: Mainboard Dimensions**

## 2.2 Installations

SBC-7106 is a 4" industrial motherboard developed on the basis of Intel Cedarview-M Processors and NM10, which provides abundant peripheral interfaces to meet the needs of different customers. Also, it features dual GbE ports, 3-COM ports and one Mini PCIE configuration, one VGA port, one HDMI port, one LVDS interface. To satisfy the special needs of high-end customers, CN1 and CN2 and CN3 richer extension functions. The product is widely used in various sectors of industrial control.

## 2.2.1 Jumpers Setting and Connectors



**Figure 2.2: Jumpers and Connectors Location\_ Board Top**



**Figure 2.3: Jumpers and Connectors Location\_ Board Bottom**

## **1. JP5:**

(2.0mm Pitch 1X2 box Pin Header), ATX Power and Auto Power on jumper setting.

JP5	Mode
Open	ATX Power
Close	<b>Auto Power on (Default)</b>

## **2. BAT1 :**

(1.25mm Pitch 1X2 box Pin Header) 3.0V Li battery is embedded to provide power for CMOS.

Pin#	Signal Name
Pin1	VBAT
PIN2	Ground

## **3. DC IN1:**

(5.08mm Pitch 1x3 Pin Connector), DC9V~36V System power input connector °

Pin#	Power Input
Pin1	DC+9V~32V
Pin2	Ground
Pin3	FG

## **4. VGA1:**

(CRT 2.0mm Pitch 2X6 Pin Header), Video Graphic Array Port, Provide 2x6Pin cable to VGA Port.

Signal Name	Pin#	Pin#	Signal Name
CRT_RED	1	2	Ground
CRT_GREEN	3	4	Ground
CRT_BLUE	5	6	Ground
CRT_H_SYNC	7	8	CRT_DDCCDATA
CRT_V_SYNC	9	10	CRT_DDCCCL

			K
Ground	11	12	Ground

## **5. JP1:**

(2.0mm Pitch 2x3 Pin Header), COM1 jumper setting, pin 1~6 are used to select signal out of pin 9 of COM1 port.

JP1 Pin#	Function
<b>Close 1-2</b>	<b>COM1 RI (Ring Indicator) (default)</b>
Close 3-4	COM1 Pin9=+5V (option)
Close 5-6	COM1 Pin9=+12V (option)

## **6. RS-232:**

(Switch), COM1 jumper setting, it provides selectable RS232 or RS422 or RS485 serial signal output.

Function	S_232 Pin#
<b>RS232 (Default)</b>	<b>ON: Pin1, Pin2, Pin3, Pin4</b>
RS422 (option)	OFF: Pin1, Pin2, Pin3, Pin4
RS485 (option)	OFF: Pin1, Pin2, Pin3, Pin4

## **7. RS-422:**

(Switch), COM1 setting, it provides selectable RS232 or RS422 or RS485 serial signal output.

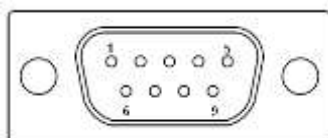
Function	RS_422 Pin#
<b>RS232 (Default)</b>	<b>OFF: Pin1, Pin2, Pin3, Pin4</b>
RS422 (option)	ON: Pin1, Pin2, Pin3, Pin4
RS485	ON: Pin1, Pin2, Pin3, Pin4

(option)	
----------	--

Note: Must keep the setting with BIOS setting.

## 8. COM1:

**(Type DB9),** Rear serial port, standard DB9 Male serial port is provided to make a direct connection to serial devices. COM1 port is controlled by pins No.1~6 of JP1, select output Signal RI or 5V or 12V, For details, please refer to description of JP1 and S\_232 and S\_422 setting.



RS232 (Default):	
Pin#	Signal Name
1	DCD# (Data Carrier Detect)
2	RXD (Received Data)
3	TXD (Transmit Data)
4	DTR (Data Terminal Ready)
5	Ground
6	DSR (Data Set Ready)
7	RTS (Request To Send)
8	CTS (Clear To Send)
9	<b>JP1 select Setting (RI/5V/12V)</b>
BIOS Setup : Advanced/W83627UHG Super IO Configuration/Serial Port 1 Configuration <b>【RS-232】</b>	

RS422 (option):	
Pin#	Signal Name
1	422_RX+
2	422_RX-
3	422_TX-
4	422_TX+
5	Ground
6	NC
7	NC
8	NC
9	NC
BIOS Setup :	

RS485 (option):	
Pin#	Signal Name
1	NC
2	NC
3	485-
4	485+
5	Ground
6	NC
7	NC
8	NC
9	NC
BIOS Setup : Advanced/W83627UHG Super IO Configuration/Serial Port 1 Configuration 【RS-485】	

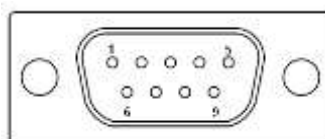
## 9. JP2:

(2.0mm Pitch 2x3 Pin Header), COM2 jumper setting, pin 1~6 are used to select signal out of pin 9 of COM2 port.

JP2 Pin#	Function
<b>Close 1-2</b>	<b>COM1 RI (Ring Indicator) (default)</b>
Close 3-4	COM1 Pin9=+5V (option)
Close 5-6	COM1 Pin9=+12V (option)

## 10. COM2:

**(Type DB9)**, Rear serial port, standard DB9 Male serial port is provided to make a direct connection to serial devices.



Pin#	Signal Name
------	-------------



1	DCD# (Data Carrier Detect)
2	RXD (Received Data)
3	TXD (Transmit Data)
4	DTR (Data Terminal Ready)
5	Ground
6	DSR (Data Set Ready)
7	RTS (Request To Send)
8	CTS (Clear To Send)
9	RI (Ring Indicator)

## **11. LED3:**

LED STATUS. Green LED for Touch Power status.

## **12. SATA1:**

(SATA 7Pin+15Pin), SATA Connectors, one SATA connectors are provided, with transfer speed up to 3.0Gb/s.

## **13. SD1:**

(SD card socket), Secure Digital Memory Card socket.

## **14. LINE OUT:**

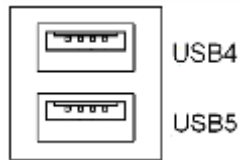
(Diameter 3.5mm Jack), HD Audio port, An onboard Realtek ALC662 codec is used to provide high quality audio I/O ports. Line Out can be connected to a headphone or amplifier.



Line out

## **15. USB45:**

**USB4/USB5 :** (Double stack USB type A), Rear USB connector, it provides up to 4 USB2.0 ports, High-speed USB 2.0 allows data transfers up to 480 Mb/s ,support USB full-speed and low-speed signaling.

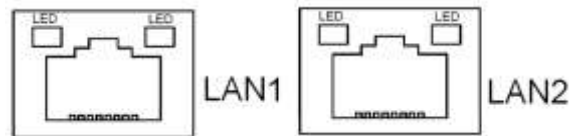


**Each USB Type A Receptacle (2 Ports) Current limited value is 1.5A.**

**If the external USB device current exceeds 1.5A, please separate connectors into different Receptacle.**

## **16. LAN1/LAN2:**

**LAN1/LAN2:** (RJ45 Connector), Rear LAN port, Two standard 10/100/1000M RJ-45 Ethernet ports are provided. Used Realtek RTL8111E chipset, LINK LED (green) and ACTIVE LED (yellow) respectively located at the left-hand and right-hand side of the Ethernet port indicate the activity and transmission state of LAN.



## **17. BUZ1:**

Onboard buzzer.

## **18. LED1:**

LED STATUS. Green LED for Motherboard Power status.

## **19. LED2:**

LED STATUS. Green LED for Motherboard Standby Power Good status.

## **20. CN3:**

(1.27mm Pitch 2X30 Pin Header), For expand output connector, It provides four GPIO, Two USB 2.0, one PS/2 mouse , one PS/2 keyboard, two uart, one PCIe x1, one SMBus.

Function	Signal Name	Pin#	Pin#	Signal Name	Function
	5V_S5_USB	1	2	5V_S5_USB	
	5V_S5_USB	3	4	5V_S5_USB	

	USB23_OC	5	6	CLKREQPSON_ATX-	
USB2	USB2_N	7	8	USB2_P	USB2
USB3	USB3_N	9	10	USB3_P	USB3
	Ground	11	12	Ground	
PS/2 MS	PS2_MSCLK	13	14	PS2_MSDATA	PS/2 MS
PS/2 KB	PS2_KBCLK	15	16	PS2_KBDATA	PS/2 KB
COM6 (UART)	COM6_RI	17	18	COM6_DCD-	COM6 (UART)
	COM6_TXD	19	20	COM6_RXD	
	COM6_DTR	21	22	RICOM6_RTS -	
	COM6_DSR	23	24	COM6_CTS-	
	Ground	25	26	Ground	
COM5 (UART)	COM5_RI	27	28	COM5_DCD-	COM5 (UART)
	COM5_TXD	29	30	COM5_RXD	
	COM5_DTR	31	32	DSRCOM5_RTS-	
	COM5_DSR	33	34	DTRCOM5_CTS-	
GPIO24	ICH_GPIO24	35	36	ICH_GPIO13	GPIO13
GPIO26	ICH_GPIO26	37	38	ICH_GPIO27	GPIO27
	Ground	39	40	Ground	
PCIE	PE1_TX_N0	41	42	PE1_TX_P0	PCIE
	PE1_RX_N0	43	44	PE1_RX_P0	
	Ground	45	46	Ground	
	CLK_100M_PE1_N	47	48	CLK_100M_PE1_P	
	PM_PCIE_WAKE	49	50	PLTRST_BUF-	
SMBUS	SMB_CLK_S 5	51	52	SMB_DATA_S 5	SMBUS
PCIE	PE1_CLKRE Q	53	54	Ground	PCIE
	3P3V_S5	55	56	3P3V_S5	
	3P3V_S5	57	58	3P3V_S5	
12V	12V_S0	59	60	12V_S0	12V

3.1 Operations after POST Screen

After CMOS discharge or BIOS flashing operation,.Press [Delete] key to enter CMOS Setup.



After optimizing and exiting CMOS Setup, the POST screen displayed for the first time is as follows and includes basic information on BIOS, CPU, memory, and storage devices.

3.2 BIOS SETUP UTILITY

Press [Delete] key to enter BIOS Setup utility during POST, and then a main menu containing system summary information will appear.

Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.					
Main	Advanced	Chipset	Boot	Security	Save & Exit
BIOS Information					Intel Reference Code
BIOS Vendor	American Megatrends				Version
Core Version	4.6.5.3				
Compliance	UEFI 2.3; PI 1.2				
Project Version	7106V002				
Build Date and Time	12、 17、 2012 03:22:46				
▶ Intel RC Version					

System Language	[English]	→←: Select Screen ↑↓ : Select Item Enter: Select +/- : Charge Opt. F1 : General Help F2: Previous Values F3:Optimized Defaults F4:Save and Exit ESC Exit
System Date	[Sun 01/01/2012]	
System Time	[00:00:08]	
Access Level	Administrator	
Version 2.15.1226. Copyright (C) 2012 American Megatrends , Inc.		

### 3.3 Main Settings

BIOS Information		Intel Reference Code Version
BIOS Vendor	American Megatrends	
Core Version	4.6.5.3	
Compliance	UEFI 2.3; PI 1.2	
Project Version	7106V002	
Build Date and Time	12 、 17 、 2012 03:22:46	
▶ Intel RC Version		
System Language	[English]	→←: Select Screen ↑↓ : Select Item Enter: Select +/- : Charge Opt. F1 : General Help F2: Previous Values F3:Optimized Defaults F4:Save and Exit ESC Exit
System Date	[Sun 01/01/2012]	
System Time	[00:00:08]	
Access Level	Administrator	
Version 2.15.1226. Copyright (C) 2012 American Megatrends , Inc.		

#### System Time:

Set the system time, the time format is:

Hour : 0 to 23

Minute : 0 to 59

Second : 0 to 59

#### System Date:

Set the system date, the date format is:

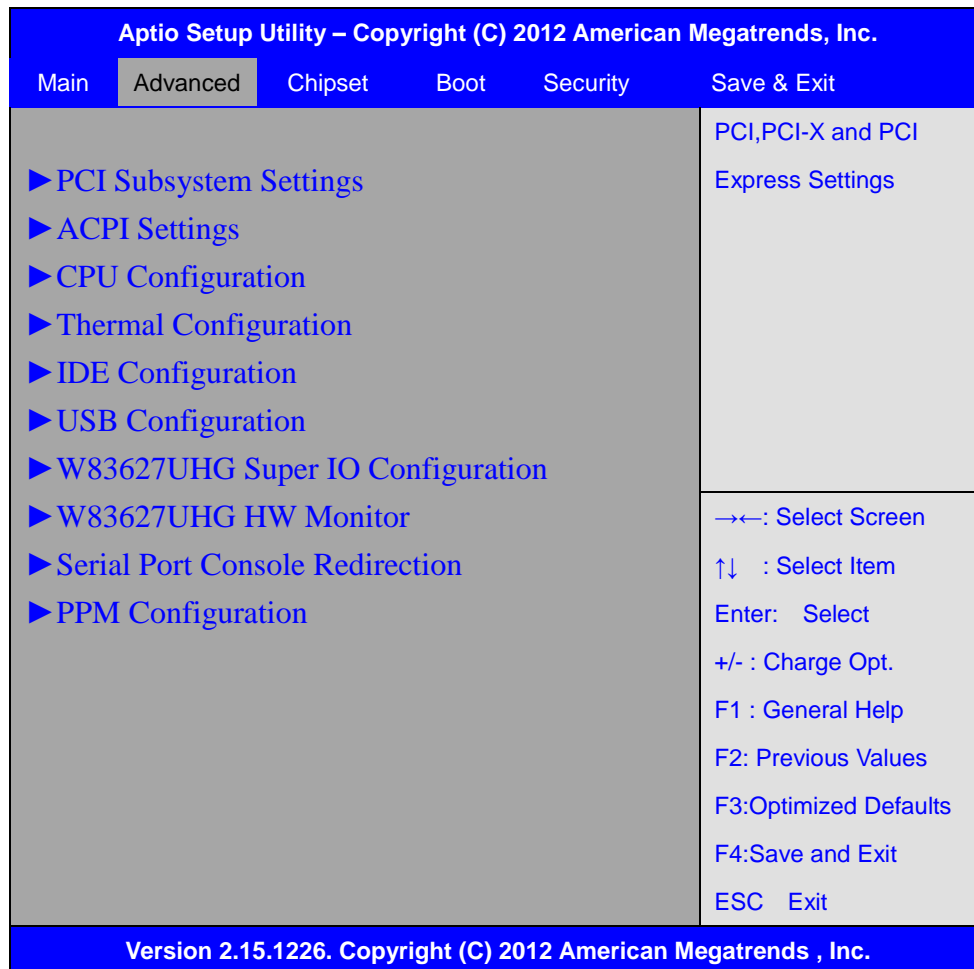
**Day:** Note that the 'Day' automatically changes when you set the date.

**Month:** 01 to 12

**Date:** 01 to 31

**Year:** 1998 to 2099

## 3.4 Advanced Settings



### 3.4.1 PCI Subsystem Settings

PCI Bus Driver Versio V2.05.02

#### PCI Common Settings:

##### 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]

##### VGA Palette Snoop:

**[Disabled]**

[Enabled]

##### PERR# Generation:

[Disabled]

[Enabled]

**SERR# Generation:**

[Disabled]

[Enabled]

### 3.4.2 ACPI Settings

**Enable ACPI Auto Conf:**

[Disabled]

[Enabled]

**Enable Hibernation:**

[Enabled]

[Disabled]

**ACPI Sleep State:**

[Both S1 and S3 available for OS to choose from ]

[Suspend Disabled]

[S1 only(CPU Stop Clock) ]

[S3 only (Suspend to RAM) ]

**Lock Legacy Resources:**

[Disabled]

[Enabled]

**S3 Video Repost:**

[Disabled]

[Enabled]

### 3.4.3 CPU Configuration

Processor Type	Intel(R) Atom(TM) CPU N2600
EMT64	Not Supported
Processor Speed	1600 MHz
System Bus Speed	400MHz
Ratio Status	16
Actual Ratio	16
System Bus Speed	400 MHz
Processor Stepping	30661
Microcode Revision	269

L1 Cache RAM	2x56 k
L2 Cache RAM	2x512 k
Processor Core	Dual
Hyper-Threading	Supported

Hyper-Threading:

**[Enabled]**

[Disabled]

Execute Disable Bit:

**[Enabled]**

[Disabled]

**Limit CPUID Maximum:**

**[Disabled]**

[Enabled]

### 3.4.4 Thermal Configuration

CPU Thermal Configuration

DTS SMM

**[Disabled]**

[Enabled]

Platform Thermal Configuration

Critical Trip Point [POR]

Active Trip Point Lo [55 C]

Active Trip Point Hi [71C]

Passive Trip Point [95]

Passive TC1 Value 1

Passive TC2 Value 5

Passive TSP Value 10

### 3.4.5 IDE Configuration

SATA Port0 Not Present

SATA Port1 Not Present

**SATA Controller(S):**

**[Enabled]**

[Disabled]

**Configure SATA as:**

**[IDE]**



[AHCI]

## Misc Configuration for hard disk

### 3.4.6 USB Configuration

USB Configuration

USB Devices:

1 Drive , 1 keyboard

Legacy USB Support:

[Enabled]

[Disabled]

EHCI Hand-off:

[Disabled]

[Enabled]

USB hardware delays a

USB transfer time-out:

[20 sec]

[10 sec]

[5 sec]

[1 sec]

Device reset time-out:

[20 sec]

[10 sec]

[30 sec]

[40 sec]

Device power-up delay

[Auto]

[Manual]

Mass Storage Devices :

Multplecard Reader 1

[Auto]

[Floppy]

[Forced FDD]

[Hard Disk]

[CD-ROM]

### 3.4.7 W83627UHG Super IO Configuration

W83627UHG Super IO ch W83627UHG

Serial Port 1 Configuration

UART Mode Selection :

**[RS-232]**

[RS-485]

[RS-422]

Serial Port 2 Configuration

Serial Port 3 Configuration

UART Mode Selection :

**[RS-485]**

[RS-422]

Serial Port 4 Configuration

Serial Port 5 Configuration

Serial Port 6 Configuration

Power Failure

[Keep last state]

[Always off]

[Always on]

### **3.4.8 W83627UHG HW Monitor**

PC Health Status

System temperature1	:	+38
System Speed	:	N/A
VCORE	:	+0.968 V
+12V	:	+12.302 V
+3.3V	:	+3.320 V
+1.5V	:	+1.528 V
AVCC	:	+5.203 V
VCC5V	:	+5.216 V
VS5	:	+5.203 V
VBAT	:	+3.334 V

### **3.4.9 Serial Port Console Redirection**

COM0

Console Redirection

[Enabled]

[Disabled]

Console Redirection Settings

Serial Port for Out-of-Band Management/

Windows Emergency Management Services (EMS)

Console Redirection

[Disabled]

[Enabled]

## Console Redirection Settings

### 3.4.10 PPM Configuration

#### PPM Configuration

##### EIST:

[Enabled]

[Disabled]

##### CPU C state Report

[Enabled]

[Disabled]

##### Enhanced C state

[Enabled]

[Disabled]

##### CPU Hard C4E

[Enabled]

[Disabled]

##### CPU C6 state

[Enabled]

[Disabled]

##### C4 Exit Timing

[Fast]

[Default]

[Slow]

##### C-state POPDOWN

[Enabled]

[Disabled]

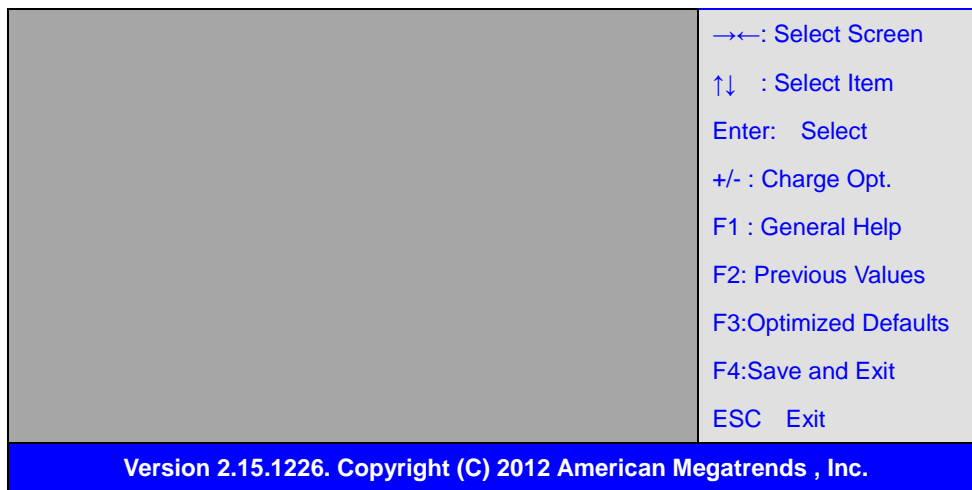
##### C-state POPUP

[Enabled]

[Disabled]

## 3.5 Chipset Settings





### 3.5.1 Host Bridge

#### ►Memory Frequency and Timing

#### ►Intel IGD Configuration

\*\*\*\*\* Memory Information \*\*\*\*\*

Memory Frequency	800 MHz(DDR3)
Total Memory	2048 MB
DIMM#0	Not Present
DIMM#1	2048 MB

#### Memory Frequency and Timing

MRC Fast Boot

**[Enabled]**

[Disabled]

Max TOLUD

**[Dynamic]**

[1GB]

[1.25GB]

[1.5GB]

[1.75GB]

[2GB]

[2.25GB]

[2.5GB]

[2.75GB]

[3GB]

[3.25GB]

#### Intel IGD Configuration

IGFX – Boot Type	<b>[VBIOS Default]</b> [VGA] [LVDS] [VGA + LVDS]
LCD Panel Type	<b>[VBIOS Default]</b> [640x480, 18bit] [800x480, 18bit] [800x600, 18bit] [1024x600, 18bit ] [1024x768, 18bit ] [1280x768, 18bit ] [1280x800, 18bit ] [1280x1024, 18bit] [1366x768, 18bit] [1024x768, 24bit] [1280x768, 24bit] [1280x800, 24bit] [1280x1024, 24bit]
Panel Scaling	<b>[Auto]</b> [Force Scaling] [off] [Maintain Aspect Ratio]
Active LFP	<b>[LVDS]</b> [No LVDS] [EDP]
IGD Clock Source	<b>[External Clock]</b> [Internal Clock]
Fixed Graphics Memory	[128MB] [256MB]
ALS Support	

	[Disabled]
	[Enabled]
Back light Control	
	[DC]
	[PWM]
Back light Logic	
	[Positive]
	[Negative]
Back light Control Lev	
	[Auto]
	[Disabled]
	[Level 8]
	[Level 1]
	[Level 2]
	[Level 3]
	[Level 4]
	[Level 5]
	[Level 6]
	[Level 7]
	[Level 8]
	[Level 9]
	[Level 10]
	[Level 11]
	[Level 12]
	[Level 13]
	[Level 14]
	[Level 15]

### 3.5.2 South Bridge

TPT Devices	
PCI Express Root Port 0	
PCI Express Root Port 1	
PCI Express Root Port 2	
PCI Express Root Port 3	
DMI Link ASPM Control	
	[Enabled]
	[Disabled]

PCI-Exp. High Priorit

[Disabled]

[Enabled]

High Precision Event Timer Configuration

High Precision Timer

[Enabled]

[Disabled]

SLP\_S4 Assertion Widt

[1-2 Seconds]

[2-3 Seconds]

[3-4 Seconds]

[4-5 Seconds]

Restore AC Power Loss

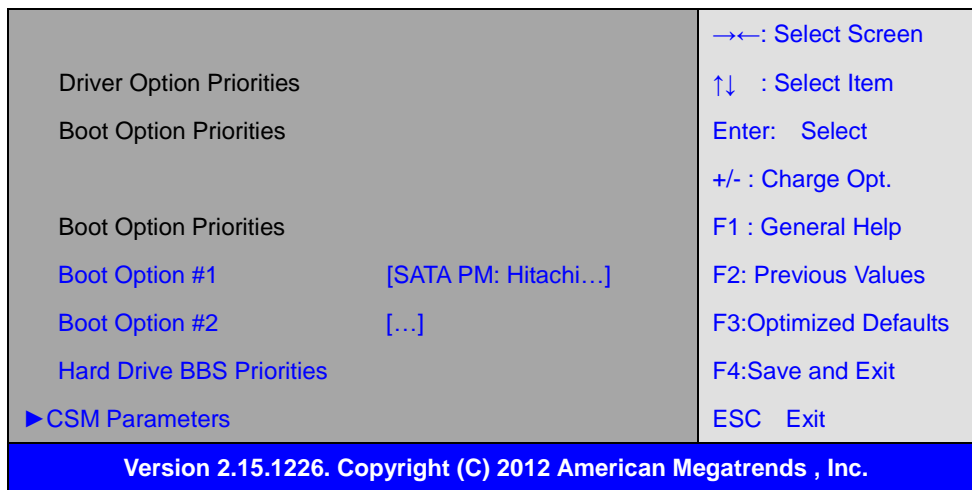
[Last State]

[Power off]

[Power on]

## **3.6 Boot Settings**

Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.					
Main	Advanced	Chipset	Boot	Security	Save & Exit
Boot Configuration					Number of seconds to
Setup Prompt Timeout		1			Wait for setup
Bootup Numlock State		[On]			Activation key.
					65535(0xFFFF)means
Quiet Boot		[Disabled]			Indef inite waiting.
Fast Boot		[Enabled]			
Skip USB		[Disabled]			
Skip PS2		[Disabled]			
CSM16 Module Version		07.69			
Gatea20 Active		[Upon Request]			
Option ROM Messages		[Force BIOS]			
Interrupt 19 Capture		[Enabled]			



## Setup Prompt Timeout

[1]

## Bootup Numlock State

[On]

[off]

## Quiet Boot

[Disabled]

[Enabled]

## Fast Boot

[Enabled]

[Disabled]

## Skip VGA

[Enabled]

[Disabled]

## Skip USB

[Disabled]

[Enabled]

## Skip PS2

[Disabled]

[Enabled]

CSM16 Module Version 07.69

## Gatea20 Active

[Upon Request]

[Always]



## Option ROM Messages

[Force BIOS]  
[Keep Current]

## Interrupt 19 Capture

[Immediate]  
[Postponed]

## Boot Option #1

## Boot Option #2

.....

Sets the system boot order

## Hard Drive BBS Priorities

[SATA PM:\*\*\* ... ]

Boot Option #1

SATA PM:\*\*\*...

\*\*\*\*\*

Disabled

## CSM Parameters

### Launch CSM

[Always]  
[Never]

### Boot option filter

[UEFI and Legacy]  
[Legacy only]  
[UEFI only]

### Launch PXE OpROM poli

[Do not Launch]  
[UEFI only]  
[Legacy only]

### Launch Storage OpROM

[Legacy only]  
[Do not Launch]  
[UEFI only]

### Launch Video OpROM po

[Do not Launch]  
[UEFI only]

[Legacy only]

Other PCI device ROM

[UEFI OpROM]

[Legacy OpROM]

## 3.7 Security Settings

Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.					
Main	Advanced	Chipset	Boot	Security	Save & Exit
Password Description				Set Administrator Password	
If ONLY the Administrator's password is set, Then this only limits access to Setup and is Only asked for when entering Setup. If ONLY the User's password is set, then this Is a power on password and must be entered to Is a power on password and must be entered to Boot or enter Setup. In Setup the User will Have Administrator rights. The password length must be In the following range: Minimum length        3 Maximum length        20					
Administrator Password				→←: Select Screen	
User Password				↑↓ : Select Item	
				Enter: Select	
				+/- : Charge Opt.	
				F1 : General Help	
				F2: Previous Values	
				F3:Optimized Defaults	
				F4:Save and Exit	
				ESC Exit	
Version 2.15.1226. Copyright (C) 2012 American Megatrends , Inc.					

### 3.7.1 Administrator Password



### 3.7.2 User Password



Type the password with up to 20 characters and then press <Enter> key. This will clear all

previously typed CMOS passwords. You will be requested to confirm the password. Type the password again and press <Enter> key. You may press <Esc> key to abandon password entry operation.

To clear the password, just press <Enter> key when password input window pops up. A confirmation message will be shown on the screen as to whether the password will be disabled. You will have direct access to BIOS setup without typing any password after system reboot once the password is disabled.

Once the password feature is used, you will be requested to type the password each time you enter BIOS setup. This will prevent unauthorized persons from changing your system configurations.

Also, the feature is capable of requesting users to enter the password prior to system boot to control unauthorized access to your computer. Users may enable the feature in Security Option of Advanced BIOS Features. If Security Option is set to System, you will be requested to enter the password before system boot and when entering BIOS setup; if Security Option is set to Setup, you will be requested for password for entering BIOS setup.

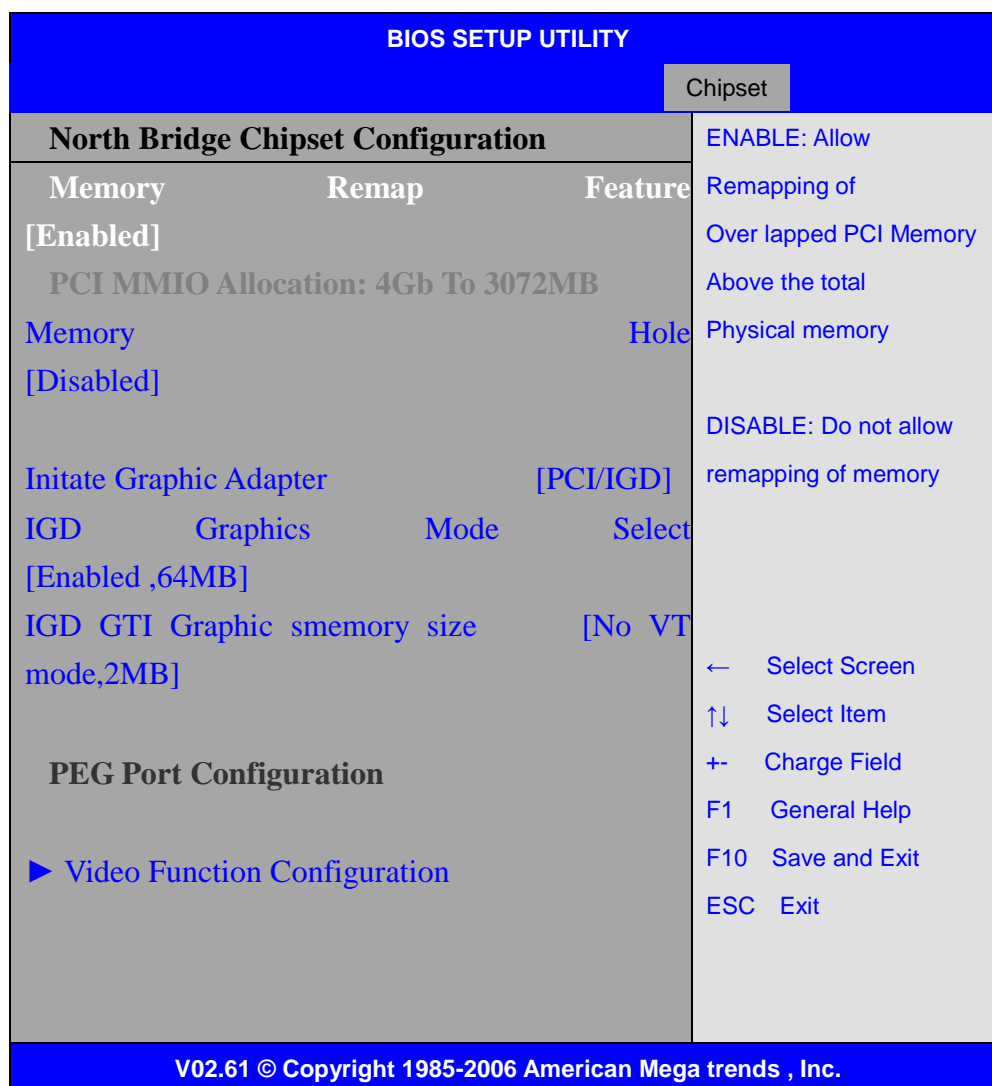
## 3.8 Save and Exist Settings



Note: Due to limited address length of BIOS, only a portion of panel parameters are listed in

BIOS Setup. If the connected panel is not included in the parameter list, display problem will occur. In this case, Please do not change BIOS setup.

### 3.8.1 North Bridge Configuration



#### Memory Remap Feature:

[Enabled]

[Disabled]

#### Memory Hole:

[Disabled]

[15MB-16MB]

#### Initate Graphic Adapter:

Select which graphics controller to use as the primary boot device.

[IGD]

[PCI/IGD]

**IGD Graphics Mode Select:**

- [Enabled, 64MB]
- [Disabled]
- [Enabled, 32MB]
- [Enabled, 128MB]

**Video Function Configuration:**

BIOS SETUP UTILITY			
			Chipset
Video Function Configuration			Options
DVMT Mode Select	[DVMT		Fixed Mode
Mode]			DVMT Mode
DVMT/FIXED	Memory		
[256MB]			
Boot	Display	Device	
[VBIOS-Default]			
Flat Panel Type	[1024x768		
18bit 1c]			
Backlight	Control	Support	← Select Screen
[VBIOS-Default]			↑↓ Select Item
Backlight Control Level	[Level 5]		+ - Charge option
Backlight Control Mode	[DC]		F1 General Help
Backlight	Image	Adaptation	F10 Save and Exit
[VBIOS-Default]			ESC Exit
V02.61 © Copyright 1985-2006 American Mega trends , Inc.			

**DVMT Mode Select:**

[DVMT Mode]

[FIXED Mode]

**DVMT/FIXED Memory Size:**

[256MB]

[128MB]

[Maximum DVMT]

**Boot Display Device:**

[BIOS-Default]

[CRT]

[LVDS]

[CRT + LVDS]

**Flat Panel Type:**

[1024x 768 18bit 1ch]

[640x480 18bit 1ch]

[800x600 18bit 1ch]

[1280x800 18bit 1ch]

[1366x768 18bit 1ch]

[1024x 768 24bit 2ch]

[1440x900 24bit 2ch]

[1600x900 24bit 2ch]

[1680x1050 24bit 2ch]

[1920x1080 24bit 2ch]

**Backlight Control Support**

[VBIOS-Default]

[Both BLC & BIA Disabled]

[BLC Enabled]

**Backlight Control Control:**

[Level5]

[Level0]

[Level1]

[Level2]

[Level3]

[Level4]

[Level6]

[Level7]



Note: Panel support PWM Function.

### Backlight Control Mode:

[DC]

[PWM]

### Backlight Image Adaptation:

[VBIOS-Default]

[BIA Disabled]

[BIA Enabled at Level1]

[BIA Enabled at Level2]

[BIA Enabled at Level3]

[BIA Enabled at Level4]

[BIA Enabled at Level5]

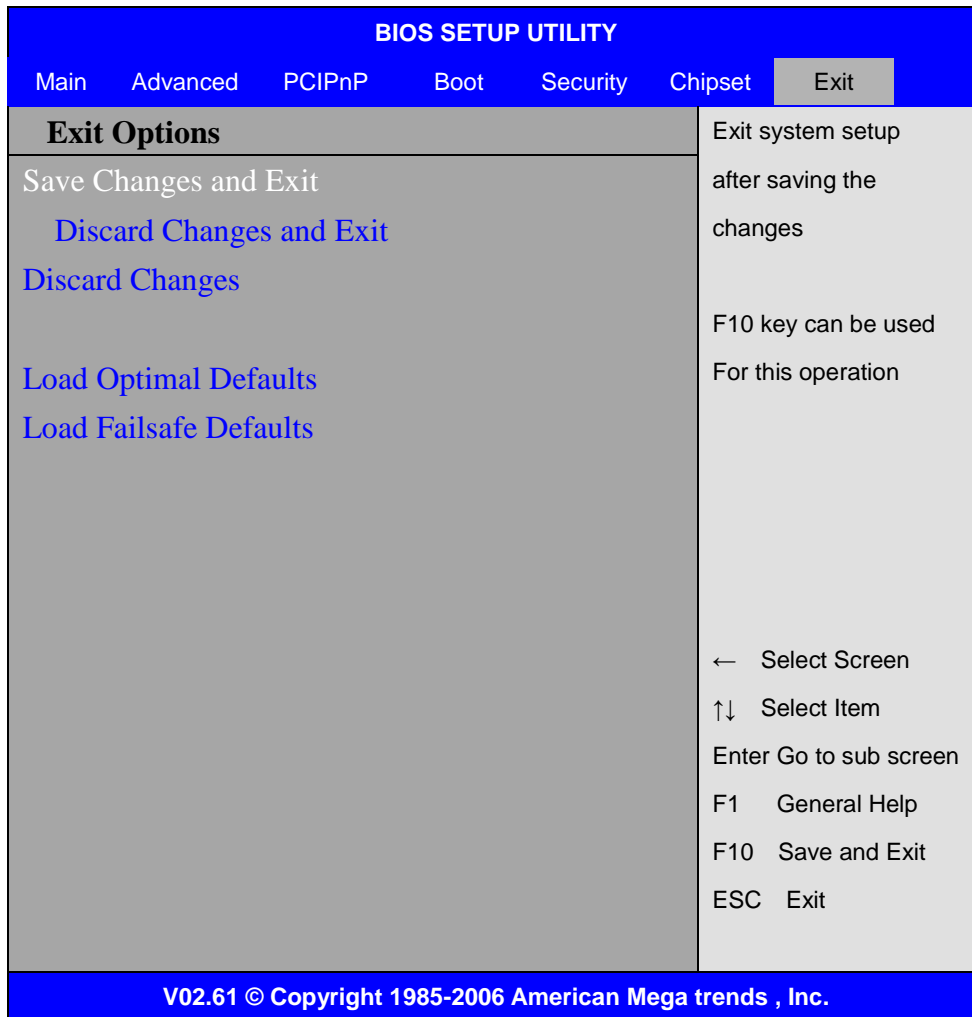
## 3.8.2 South Bridge Configuration:

Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.					
Main	Advanced	Chipset	Boot	Security	Save & Exit
<b>Save Changes and Exit</b>					Exit system setup after
Discard Changes and Exit					Saving the changes.
Save Changes and Reset					
Discard Changes and Reset					
Save Options					
Save Changes					
Discard Changes					
Restore Defaults					→←: Select Screen
Save user Defaults					↑↓ : Select Item
Restore user Defaults					Enter: Select
Boot Override					+/- : Charge Opt.
MultipleCard Reader 1.00					F1 : General Help
SATA PM:*** ...					F2: Previous Values
Launch EFI Shell from filesystem device					F3:Optimized Defaults
					F4:Save and Exit
					ESC Exit
Version 2.15.1226. Copyright (C) 2012 American Megatrends , Inc.					

Save Changes and Exit	
Save & Exit Setup save Configuration and exit ?	[Yes]
	[No]
Discard Changes and Ext	
Exit Without Saving Quit without saving?	[Yes]
	[No]
Save Changes and Reset	
Save & reset Save Configuration and reset?	[Yes]
	[No]
Discard Changes and Reset	
Reset Without Saving Reset without saving?	[Yes]
	[No]
Save Changes	
Save Setup Values Save configuration?	[Yes]
	[No]
Discard Changes	
Load Previous Values Load Previous Values?	[Yes]
	[No]
Restore Defaults	
Load Optimized Defaults Load optimized Defaults?	[Yes]
	[No]
Save user Defaults	
Save Values as User Defaults Save configuration?	[Yes]
	[No]
Restore user Defaults	
Restore User Defaults Restore User Defaults?	[Yes]
	[No]
Launch EFI Shell from filesystem device	
WARNING Not Found	[ok]



## 3.9 Exit Options



### Save Changes and Exit:

Save configuration changes and exit setup?

(F10 key can be used for this operation)

[OK]

[Cancel]

### Discard Changes and Exit:

Discard Changes and Exit setup?

(ESC key can be used for this operation)

[OK]

[Cancel]

### Discard Changes:

Discard changes?

(F7 key can be used for this operation)

[OK]

[Cancel]

**Load Optimized Defaults:**

Load Optimized Defaults?

(F9 key can be used for this operation)

[OK]

[Cancel]

**Load Fail-Safe Defaults:**

Load Fail-Safe Defaults?

(F9 key can be used for this operation)

[OK]

[Cancel]

This chapter describes the installation procedures for software and drivers under the windows XP. The software and drivers are included with the motherboard. The contents include **Intel chipset driver, VGA driver, LAN drivers, Audio driver** Installation instructions are given below.

### Important Note:

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



## 4.1 Intel Chipset Driver

To install the Intel chipset driver, please follow the steps below.

**Step 1.** Select **Intel (R) Chipset NM10 Express** from the list



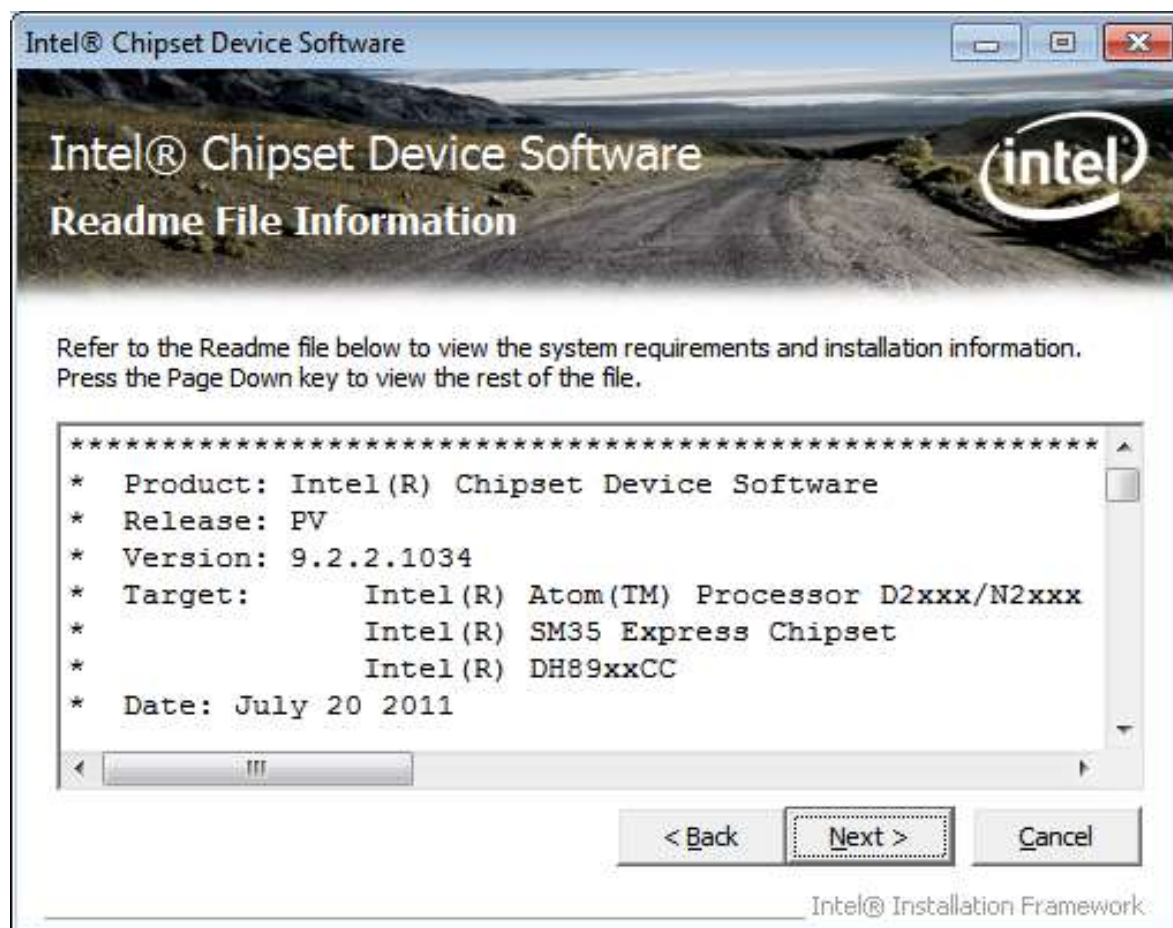
**Step 2.** Click **Next** to setup program.



**Step 3.** Read the license agreement. Click **Yes** to accept all of the terms of the license agreement.



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





**Step 5. Click Next.**



**Step 6. Select Yes, I want to restart this computer now. Click Finish, then remove any installation media from the drives.**



## 4.2 Intel Graphics Media Accelerator driver

To install the VGA drivers, follow the steps below to proceed with the installation.

1. **Step 1.**Select **Intel(R) VGA Chipset Driver**.

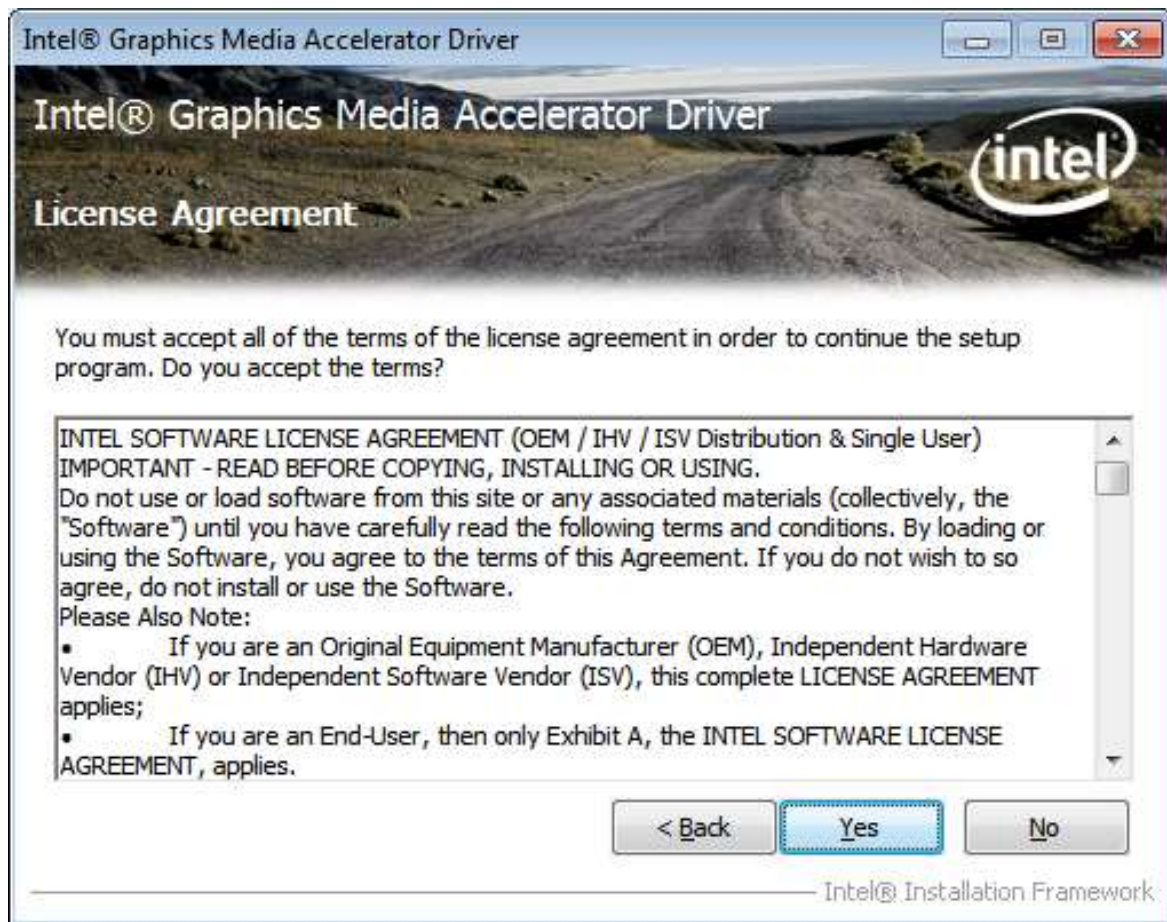


**Step 2.** Select **Automatically run WinSAT and enable the Windows Aero desktop theme (if supported)**. Click **Next**.

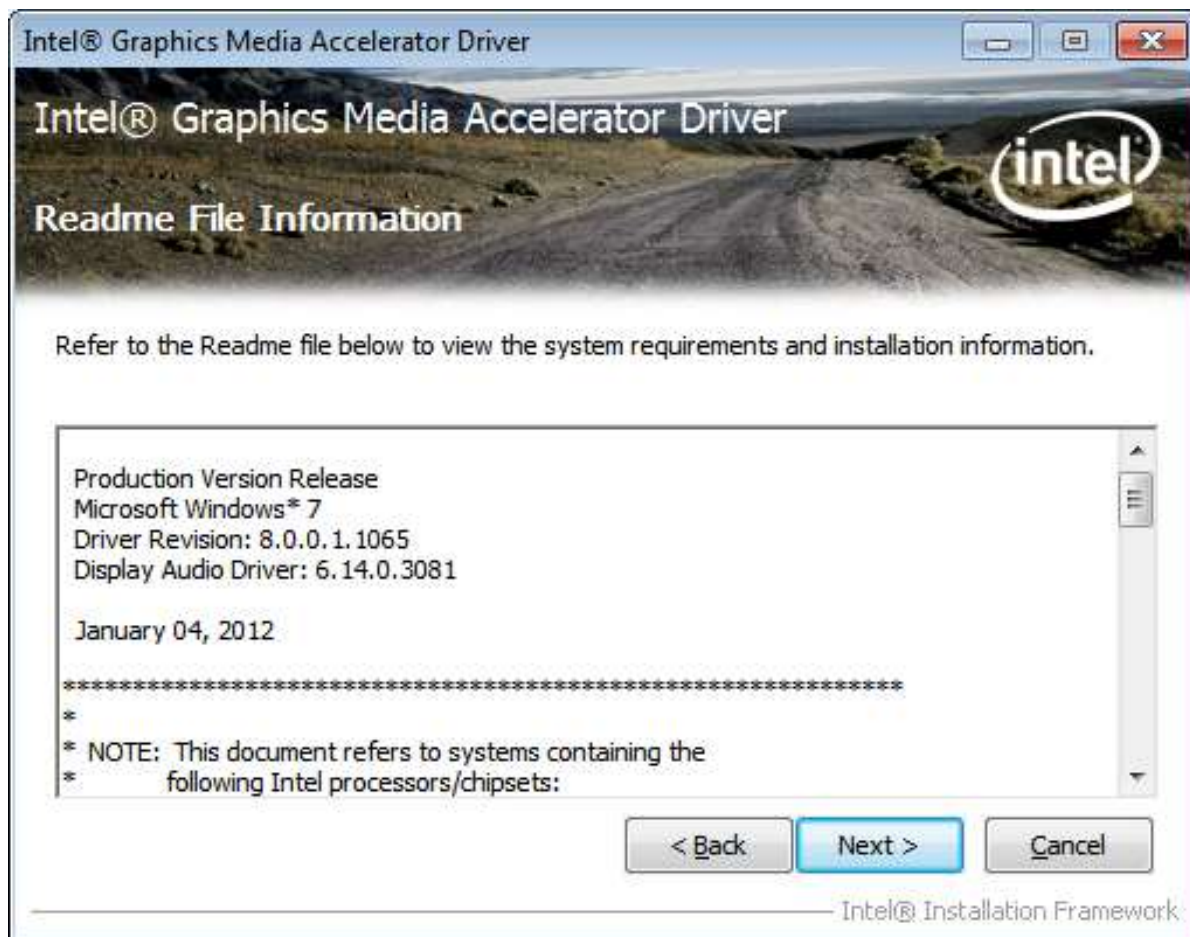




**Step 3. Click Yes.**

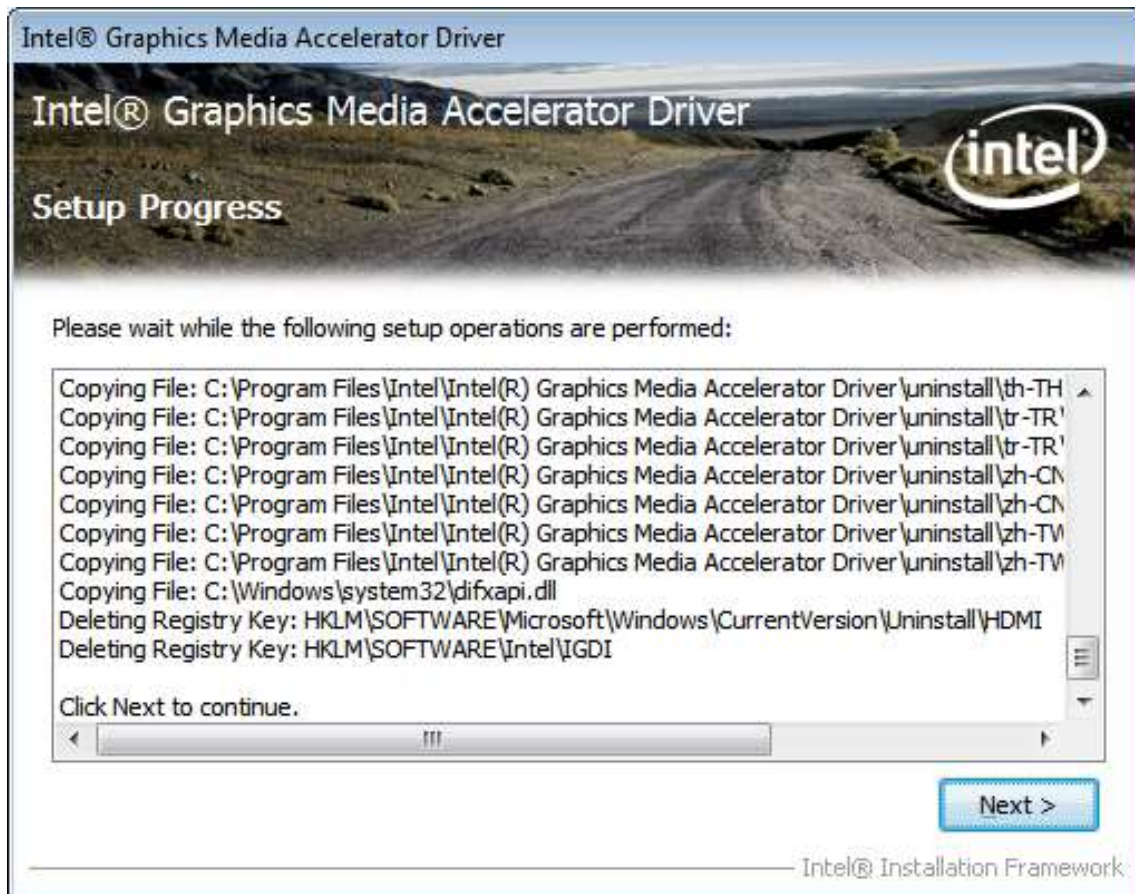


**Step 4. Click Next.**





**Step 5. Click Next.**



**Step 6. Select Yes, I want to restart this computer now. Click Finish, then remove any installation media from the drives.**



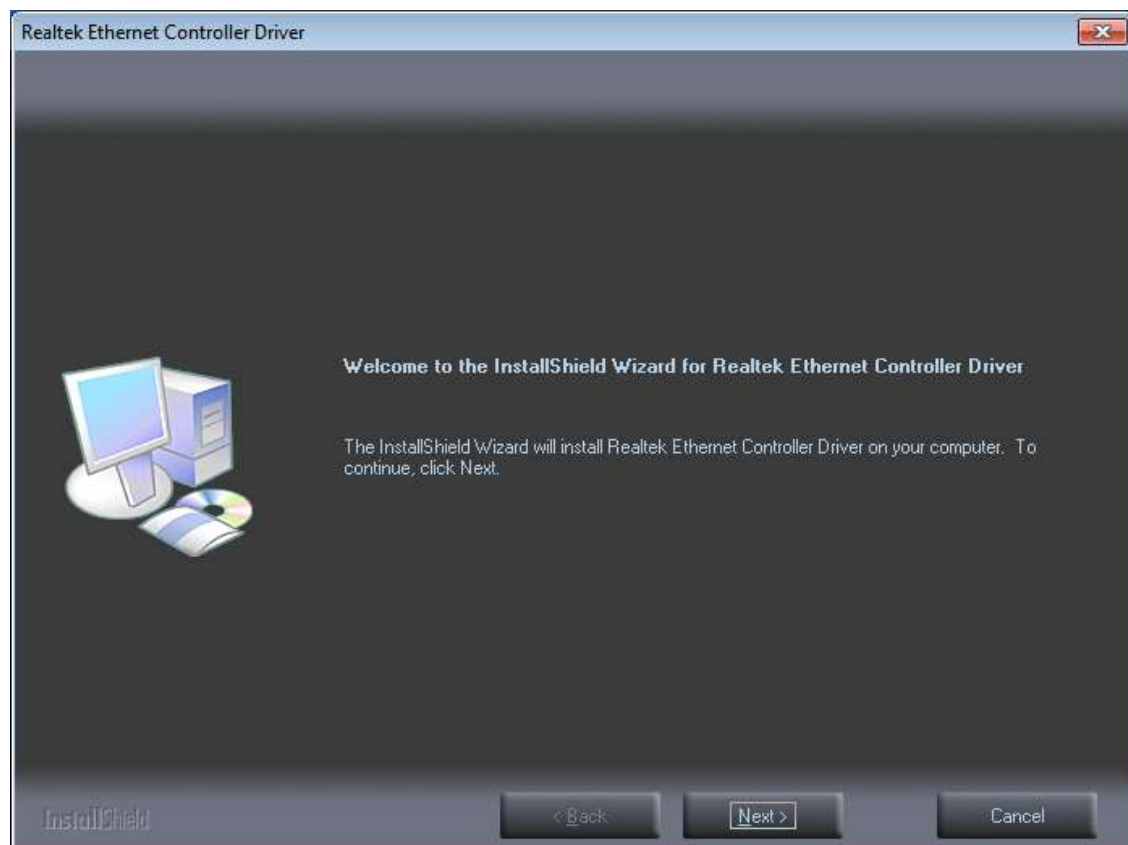
## 4.3 Intel (R) Network Adapter

To install the Intel (R) Network Adapter device driver, please follow the steps below.

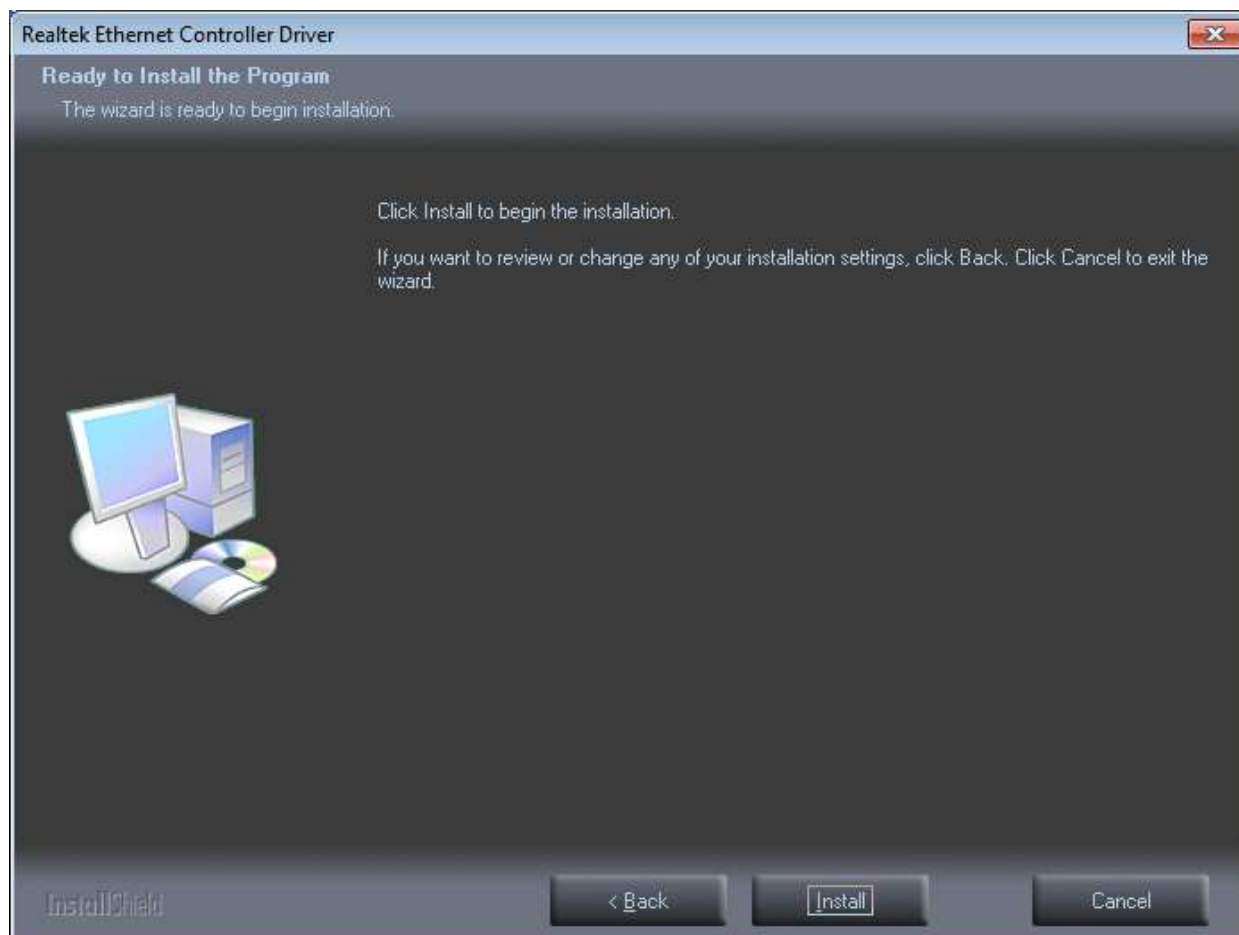
**Step 1.** Select **Realtek RTL8111D Driver**.



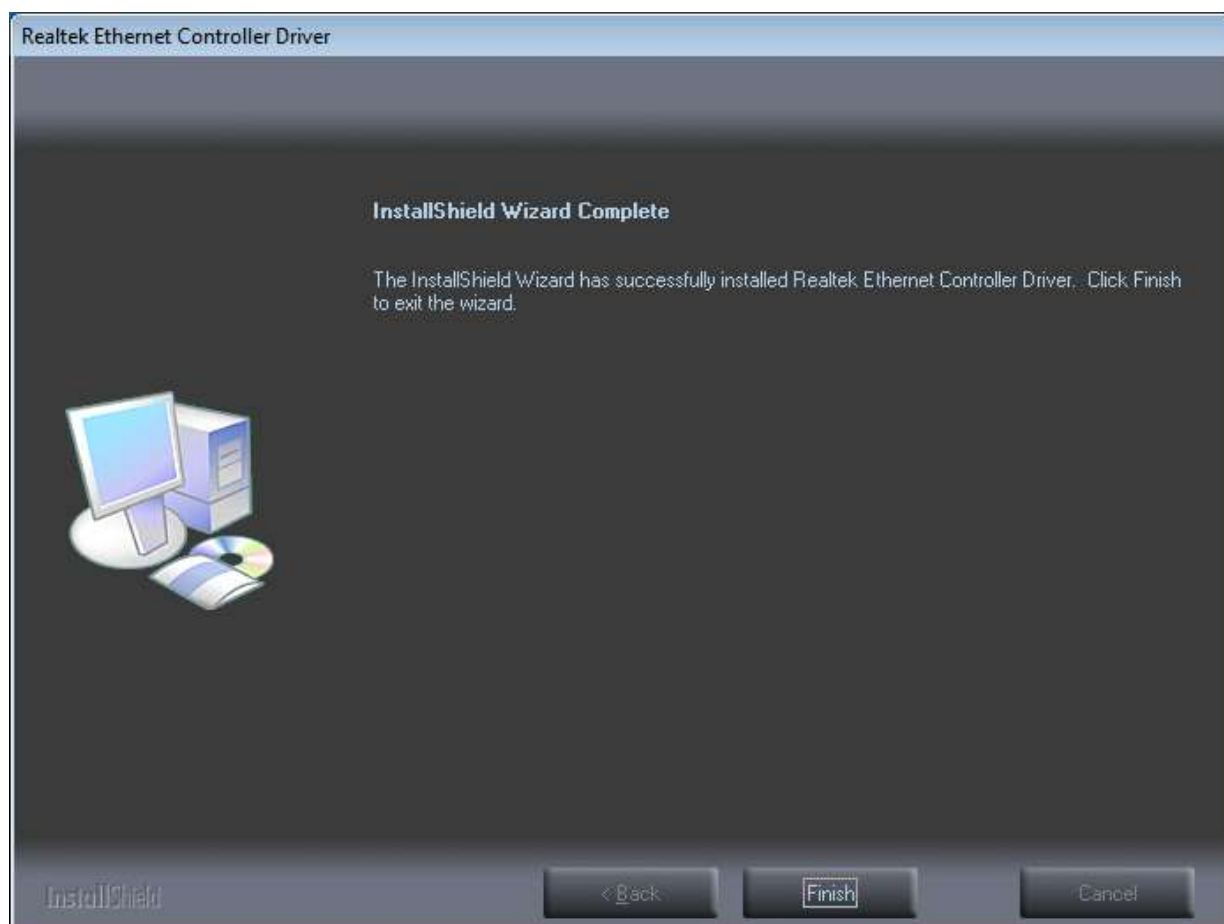
**Step 2.** Click **Next** to continue.



**Step 3.** Click **Install** to begin the installation.



**Step 4.** Click **Finish** to exist the wizard.



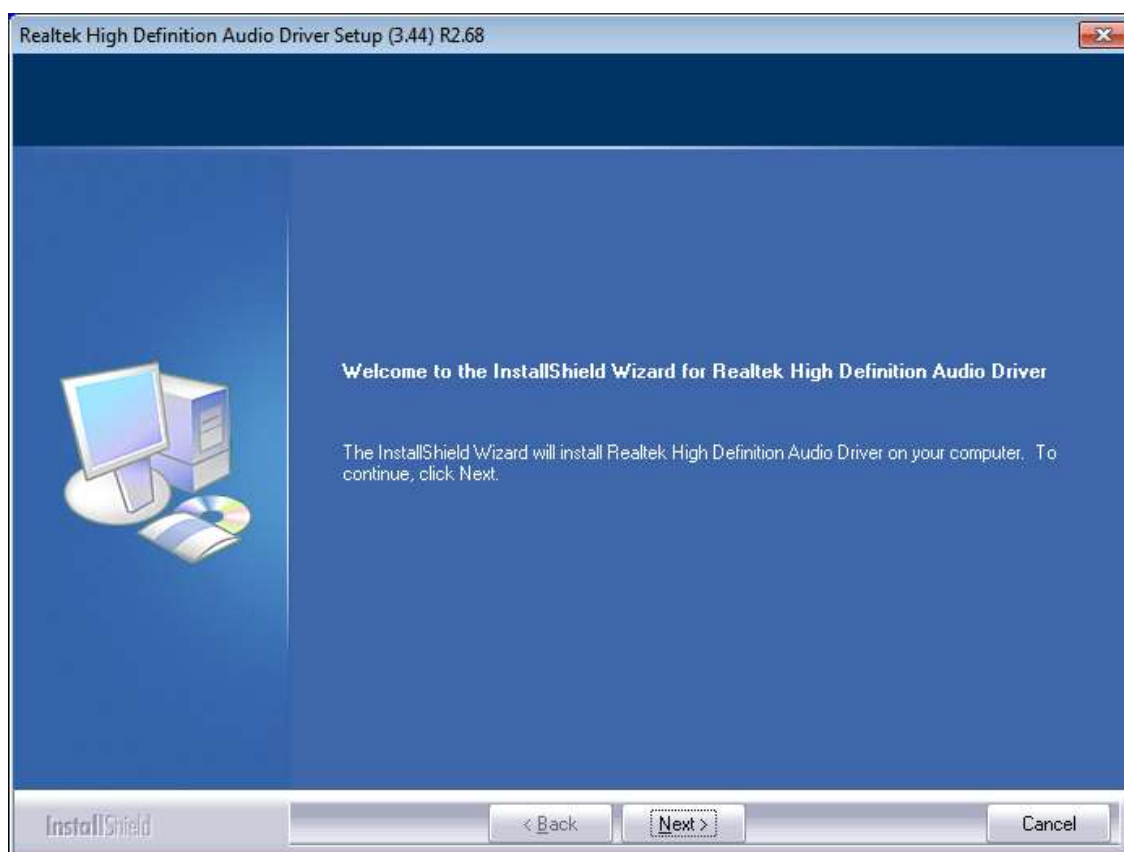
## 4.4 Realtek ALC662 HD Audio Codec Driver Installation

To install the Realtek ALC662 HD Audio Codec Driver, please follow the steps below.

**Step 1.** Select **Realtek ALC662 HD Audio Driver** from the list

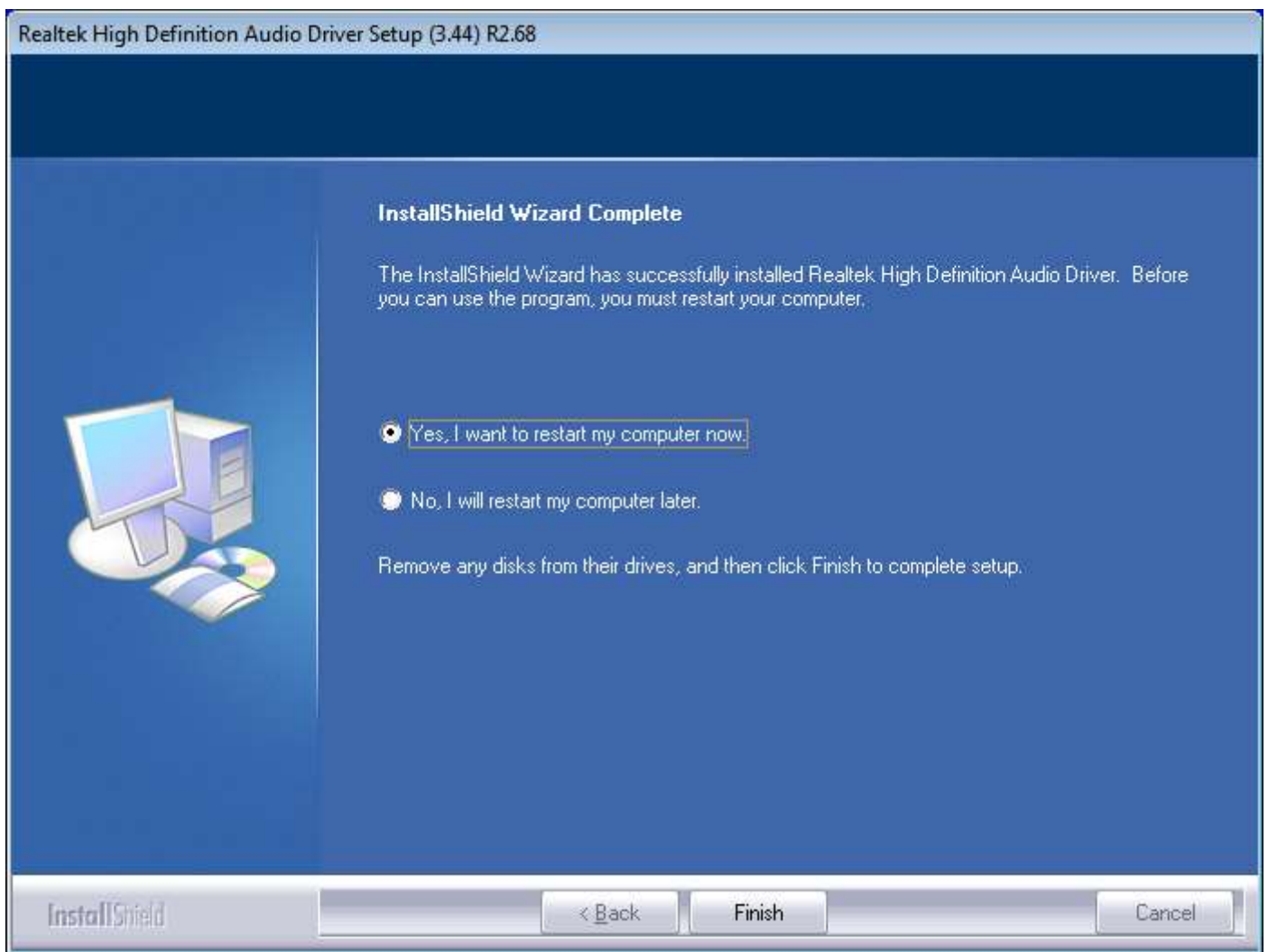


**Step 2.** Click **Next** to continue.

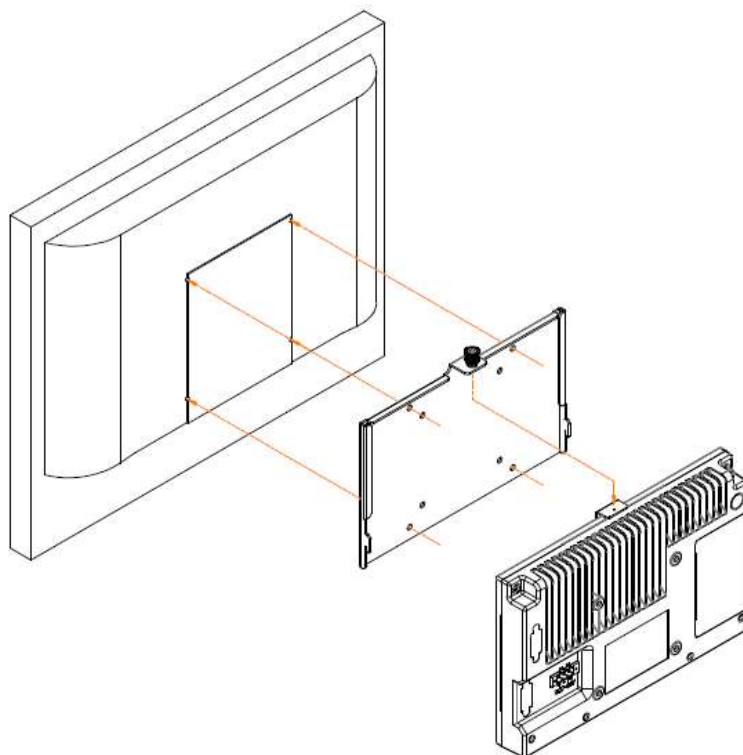




**Step 3.** Click **Yes, I want to restart my computer now.** Click **Finish** to complete the installation.



## Appendix A: Installation of Mounting



### Step 1

Prepare your display,  
VESA 75x75 or VESA 100x100.



Rear and Front side of conversion  
(transfer) kit, supporting VESA 75 and  
100.



## Step 2

Screw the conversion (transfer) kit by VESA 75 or 100.



## Step 3

Attach 2160 to conversion (transfer) kit.



## Step 4

Be sure to fit the mounting holes, and screw it tight.



This is how it looks like when finished.



This is how it looks like when finished.



©When adding a stand, please remember to screw it tight.

