EUDA Panel PC Series

Slim, Fan-less, Rugged, Touch

User's Manual

Version 1.1

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Version

Version No. 20100630, edition 1.

Reminders to the Users

This manual is composed of texts, illustrative diagrams or pictures, instructions and a complete overview of the Panel PC system in order to let the users learn how to use the device easily and carefully.

Safety Instructions

Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.

Keep the power cord away from being stepped on it by people.

Do not place anything over the power cord.

If the Panel PC will not used for a long time, please remember disconnecting the power cord from the power source to avoid damage by transient over voltage.

If the Panel PC's clock doesn't show accurate time or the BIOS configuration resets to default, please check the battery first.

The detailed Panel Mounting installation procedure is shown in Chapter 5.

FCC Class B

The EUDA Panel PC series have been fully tested, compliant with the technical standards of FCC Part 15 Class B (DoC); IC ICES-003 and CE EMC Directive 2004/108/EC (EN55022 / EN55024)..

These limits regulate the digital device to provide proper protection from harmful emission interference when it is under operation in residential, hospital or working environment. Digital device compliant with Class B generates less noise and lower radio frequency emission in order not to affect health of human body and not to interfere with other equipment, device or machine operated nearby as seriously as those units with Class A only.

Manufacturer

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How to Use This Manual

The manual stipulates the Panel PC's configuration, installation and set-up. It is divided into five chapters; each chapter addresses a basic concept and operation of the built-in Mini-ITX Board with the LCD Panel.

Chapter 1 : System Overview. It presents what you will see and what you have inside the carton and gives you an overview of the product specifications and basic system architecture for the EUDA PPC series.

Chapter 2 : Hardware Configuration. It shows brief hardware installation, the definitions and locations of Jumpers and Connectors configured in the system.

Chapter 3 : System Installation. Describes how to properly assemble /disassemble the IPC system on the Panel PC, inert the main memory & Compact Flash, install drivers, calibrate the touch screen and provides a programming guide of Watch Dog Timer function.

Chapter 4 : BIOS Setup Information. It specifies the meaning of each setup parameters, how to get advanced BIOS performance and update new BIOS. In addition, POST checkpoint list will give users some guidelines of trouble-shooting.

Chapter 5 : FAQ. The most frequently asked questions are listed in this chapter.

The content of this manual is subject to change without prior notice. These changes will be incorporated to new edition of the document. Portwell may make supplement or change to the Panel PC product series by keeping revision history.

Any updates to this manual, technical clarification, and answers to frequently asked questions will be shown on the following website : http://www.portwell.com.tw

Chapter 1
System Overview

1.0 Specification Overview of EUDA Panel PC Series :

Model Name	EUDA-S1210-0000-00	EUDA-S1510-0000-00	EUDA-S1710-0000-00	EUDA-S1910-0000-00
LCD Display	Size: 12.1" Resolution: 800x600 Brightness: 400 cd/m2 Contrast Ratio: 600:1 Backlight MTBF: 50,000 hrs	Size: 15" Resolution: 1024x768 Brightness: 350 cd/m2 Contrast Ratio: 700:1 Backlight MTBF: 50,000 hrs	Size: 17" Resolution: 1280x1024 Brightness: 350 cd/m2 Contrast Ratio: 1000:1 Backlight MTBF: 50,000 hrs	Size: 19" Resolution: 1280x1024 Brightness: 250 cd/m2 Contrast Ratio: 1000:1 Backlight MTBF: 50,000 hrs
Touch Screen	5-Wire Resistive type			
CPU	ATOM N270 1.6GHz			
Chipset	Intel 945GSE + ICH7M			
Memory	DDR2 SO-DIMM up to 2GB			
Storage Device	2.5" SATA HDD			
Soild State Disk	Compact Flash up to 32GB			
VGA	Intel GMA 950 Graphics			
Ethernet	Realtek Gigabit Ethernet			
Audio	Realtek High Definition Audio			
I/O	1x VGA port			
	1x Gigabit Ethernet port			
	4x USB 2.0 port			
	1x Line-out, 1xMIC port			
	2x RS-232 port			
	1x CF			
Expansion	TBD			
Operation Temp.	0 ~ 50 ℃ degree			
Storage Temp.	-20 ~80 ℃ degree			
Relative Humidity	5 ~ 95%, non-condensing			
Operation Vibration	1.0G Random Operation, 5~500Hz			
Packaged Vibration	2.16G, 5~500Hz			
Shock	15G peak acceleration (11m sec. duration) / operation			
Weight	4.8KG	5.8KG	7.3KG	8.3KG
Dimension	343x278x61 mm	392x323x63 mm	421x358x67 mm	463x392x67 mm
Mounting	VESA Mount 75x75, 100x 100 & Panel Mount			
Power Supply	DC12V			
Front Panel Protection	IP65 compliant			
Certificate	CE/FCC Class B			

Front View & Side View

1.1 Introduction

Portwell Inc., among one of the world's leading innovators in the Industrial PC (IPC) market, develops its rugged and fan-free EUDA Panel PC (PPC) series by designing in a thinner fanless Mini-ITX board with the latest Intel® platform for embedded applications. Built in the PPC system is Portwell's self-designed Mini-ITX board which takes advantage of Intel® 45-nanometer Hi-k process technology – the first generation of low-power IA-32 micro-architecture specially designed for Embedded Platform and can support Intel® 945GSE chipset with the ICH7-M, *can provide the low power consumption for compact and fanless MMI Panel PC in applications such as Automation, Order-taking Machine, Vending Machine, POS, Nursing Cart, Bed-side Terminal, Kiosk, and Digital Signage.*

This built-in Mini-ITX board supports dual display by VGA and 24bit LVDS. With its display-enriched interface and can support various multimedia devices and enriched IO interfaces that can supply various USB and COM devices.

The board also supports SO-DIMM memory slot for DDR2 SDRAM up to 2GB, and comes with PS/2 Keyboard and Mouse header, 2 x RS232, 2 x SATA, 1 x IDE, 1 x Gigabit Ethernet, 6 x USB2.0 ports. It also supports Compact Flash Socket and one PCIE x1 Slot for embedded applications.

1.2 Packing List

The packing list of the EUDA series should cover the following basic items

- ✓ One Power Adaptor (DC 12V Input. 5A / 60W.)
- ✓ One Power Cord (by country)
- ✓ One Serial ATA Cable
- ✓ One SATA Power Cable
- ✓ One HDD Bracket with 4x Screws
- ✓ One Panel Mount Kit (10~12 pieces/kit by model)
- ✓ One User's Manual & Installation Resources CD-Title
- ✓ HDD / CF / RAM (Optional at request of configuration)

Keep all packing accessories for future's installation, replacement and maintenance. If any of these items is damaged or missing, please contact your local supplier for further check.

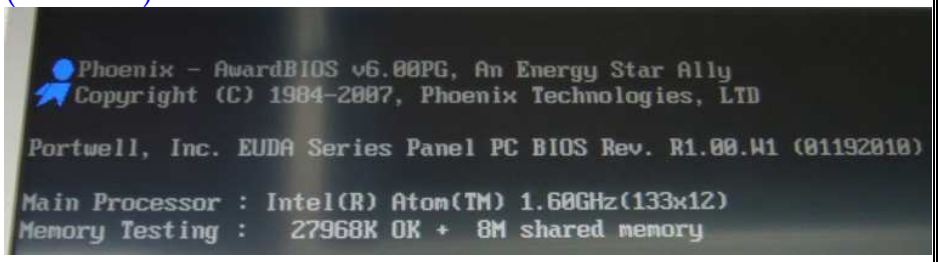
1.3 Product Specification

1.3.1 Specification of the built-in Mini-ITX Board in EUDA Panel PC

- **Main processor**
  - Support Intel Atom processor N270
  - CPU bus clock: 667/533 MHz
- **Chipset**
  Intel® 945GSE and ICH7-M
- **Main Memory**
  - Support signal channel DDR2 memory interface
  - Up to 2GB DDR2 533 SDRAM on SO-DIMM socket
- **System BIOS**
  AWARD BIOS
- **Expansion Interface**
  One PCI Express x1 slot
- **SATA Interface**
  Two SATA ports

- **Serial Ports**
  Support two RS-232 serial ports
- **IR Interface**
  N/A
- **Parallel Port**
  N/A
- **USB Interface**
  Support Six USB (Universal Serial Bus) ports (four at rear, two on-board for internal devices)
- **PS/2 Mouse and Keyboard Interface**
  Support onboard pin header for PS/2 keyboard/mouse
- **Audio Interface**
  Connector of Mic-in/Line-out
- **Real Time Clock/Calendar (RTC)**
  Support Y2K Real Time Clock/Calendar
- **Watchdog Timer**
  - Support WDT function through software programming for enable/disable and interval setting
  - Generate system reset
- **On-board VGA**
  - Intel 945GSE Integrated GMA950 Graphics device
  - Intel DVMT 3.0 supports up to 128MB video memory
- **On-board Ethernet LAN**
  One Gigabit Ethernet (10/100/ 1000 Mbits/sec) LAN ports
- **High Driving GPIO**
  Onboard programmable 8-bit Digital I/O interface
- **Cooling Fans**
  Support one 3-pin power connector for system fan
- **System Monitoring Feature**
  Monitor system temperature and major power sources, etc
- **Outline Dimension (L X W):**
  170mm (6.69") x 170mm (6.69")
- **Power Requirements:**
  +12V(Board)@1.25A

Configuration :

System Configuration	
CPU Type	Intel Atom Processor N270 1.6GHz 533MHz/ L2:512K
BIOS	Portwell, Inc. EUDA Series Panel PC BIOS Rev. R1.00.W1 (01192010) 
Memory	Transcend DDR2 533 512MB (ELPIDA E5108AGBG-5C-E)
VGA Card	Onboard Mobile Intel 945GSE Chipset Controller
VGA Driver	Mobile Intel® 945 Express Chipset Family Version 6.14.10.4926
LAN Card	Onboard Realtek RTL8111C PCI-E Gigabit Ethernet Controller
LAN Driver	Realtek RTL8111C Family PCI-E Gigabit Ethernet NIC Version 5.698.701.2008
Audio Card	Realtek ALC662 Audio Controller
Audio Driver	Realtek high Definition Audio Version:5.10.0.5735
CHIP Driver	Intel® Chipset Software Installation Utility Version 8.3.0.1013
USB 2.0 Driver	Intel® 82801G (ICH7 Family) USB2 Enhanced Host Controller Version 8.2.0.1008
SATA HDD	WD1601ABYS
SATA CDROM	LH-20A1S11C
Power Supply	HEC-450TE-2WX
CPU Type	Intel Atom Processor N270 1.6GHz 533MHz/ L2:512K

Programs for loading both CPU & VGA: Run Burning Test V5.3

RUN time: 10 / 30 Minutes.

Item	Power ON	Full Loading 10Min	Full Loading 30Min
System +12V	1.25A	1.80A	1.85A
USB Loading Test	5.2_V/ 0.6_A	N/A	N/A

- **Operating Temperature:**
  0°C ~ 55°C
- **Storage Temperature:**
  -20°C ~ 80°C
- **Relative Humidity:**
  5% ~ 90%, non-condensing

1.3.2 Specification of TFT-LCD Display

Display Characteristics 12"

The following items are characteristics summary on the table under 25 ℃ condition:

Items	Unit	Specifications
Screen Diagonal	[inch]	12.1
Active Area	[mm]	246.0(H) x 184.5(V)
Pixels H x V		800x3(RGB) x 600
Pixel Pitch	[mm]	0.3075 x 0.3075
Pixel Arrangement		R.G.B. Vertical Stripe
Display Mode		TN, Normally White
Nominal Input Voltage VDD	[Volt]	3.3 typ.
Typical Power Consumption	[Watt]	7.8W (64 Gray Bar Pattern, exclude inverter)
Weight	[Grams]	660g (typ.)
Physical Size	[mm]	279.0(H)x 209.0(V) x 11.0(D) (typ.)
Electrical Interface		1 channel LVDS
Surface Treatment		AG, Hardness 3H
Support Color		16.2M/262K colors
Temperature Range Operating Storage (Non-Operating)	 [°C] [°C]	 -30 to +85 (+85℃ as panel surface temperature) -30 to +85
RoHS Compliance		RoHS Compliance

Display Characteristics 15"

The following items are characteristics summary on the table under 25 ℃ condition:

Items	Unit	Specifications
Screen Diagonal	[inch]	15
Active Area	[mm]	304.128(H) x 228.096(V)
Pixels H x V		1024x3(RGB) x 768
Pixel Pitch	[mm]	0.297 x 0.297
Pixel Arrangement		R.G.B. Vertical Stripe
Display Mode		TN, Normally White
Nominal Input Voltage VDD	[Volt]	3.3 typ.
Typical Power Consumption	[Watt]	8.9 (64 Gray Bar Pattern , exclude inverter)
Weight	[Grams]	1100g (typ.)
Physical Size	[mm]	326.5(H)x 253.5(V) x 12.0(D) (typ.)
Electrical Interface		1 channel LVDS
Surface Treatment		Anti-glare, Hardness 3H
Support Color		16.2M / 262K colors
Temperature Range Operating Storage (Non-Operating)	 [°C] [°C]	 0 to +65 (+65 °C as panel surface temperature) -20 to +65
RoHS Compliance		RoHS Compliance

Display Characteristics 17"

The following items are characteristics summary on the table under 25 ℃ condition:

Items	Unit	Specifications
Screen Diagonal	[mm]	432 (17.0")
Active Area	[mm]	337.920(H) × 270.336(V)
Pixels H x V		1280 × 3(RGB) × 1024
Pixel Pitch	[mm]	0.264(per one triad) × 0.264
Pixel Arrangement		R.G.B. Vertical Stripe
Display Mode		Normally White
White Luminance	[cd/m^2]	350 (center,Typ)@7.5 mA
Contrast Ratio		1000 : 1 (Typ)
Optical ResponseTime	[msec]	5 (Typ)
Nominal Input Voltage VDD	[Volt]	+5.0 (Typ)
Power Consumption (VDD line + CCFL line)	[Watt]	26.5W (Typ.) (without inverter, all black pattern)
Weight	[Grams]	2000 Typ.
Physical Size (H x V x D)	[mm]	358.5(H) x 296.5(V) Typ. x 15.8(D) Max.
Electrical Interface		Dual Channel LVDS
Surface Treatment		Anti-glare type, Hardness 3H
Support Color		16.7M colors (RGB 6-bits +Hi-FRC data)
Temperature Range Operating Storage (Non-Operating)	 [°C] [°C]	 0 to +50 -20 to +60
RoHS Compliance		RoHS Compliance
Digital Gamma turn on Compliance		TCO03 Compliance

Display Characteristics 19"

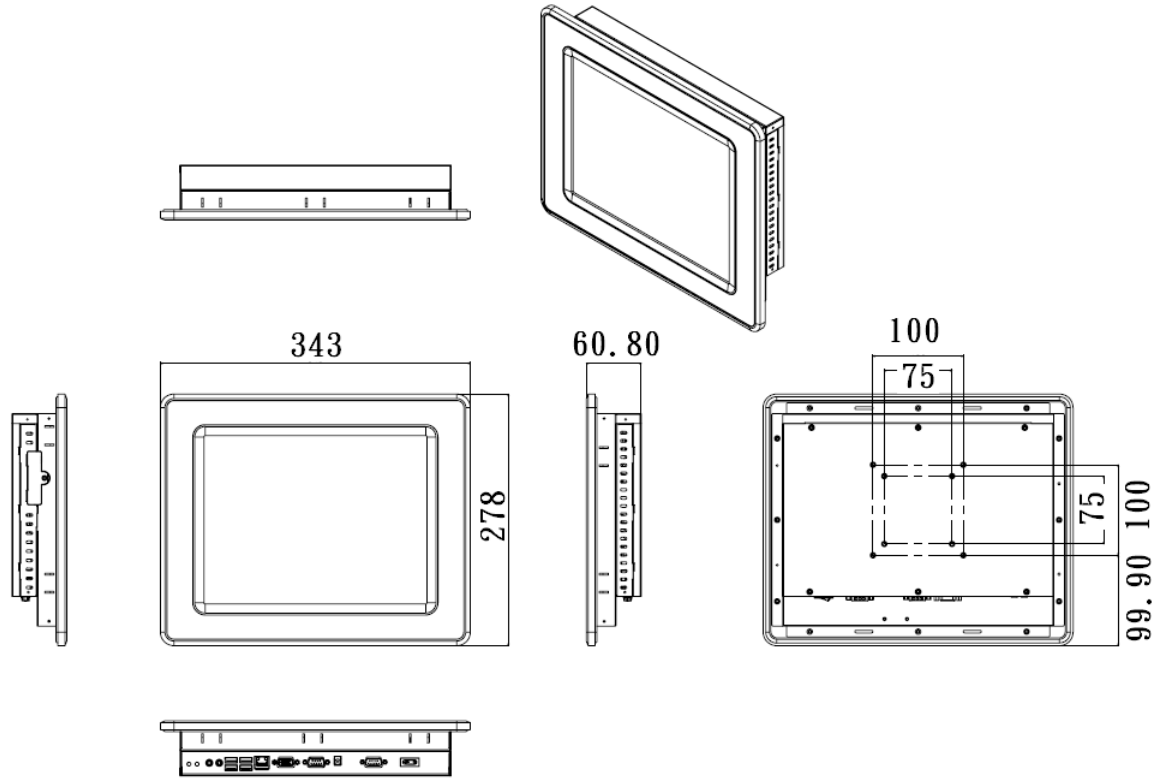
The following items are characteristics summary on the table under 25 ℃ condition:

Items	Unit	Specifications
Screen Diagonal	[mm]	482.6 (19.0")
Active Area	[mm]	376.32 (H) x 301.06 (V)
Pixels H x V		1280(x3) x 1024
Pixel Pitch	[mm]	0.294 (per one triad) x 0.294
Pixel Arrangement		R.G.B. Vertical Stripe
Display Mode		Normally White
White Luminance	[cd/m^2]	250 (center, Typ) @ 7.5mA
Contrast Ratio		1000 : 1 (Typ)
Optical ResponseTime	[msec]	5 ms(Typ, on/off)
Nominal Input Voltage VDD	[Volt]	+5.0 V
Power Consumption	[Watt]	13.9W (Typ) (PDD=4.1W, PCFL=9.8 W @Lamp=7.5mA)
Weight	[Grams]	2000 (Typ)
Physical Size (H x V x D)	[mm]	396 (H) x 324 (V) x 16.5 (D) (Typ)
Electrical Interface		Dual channel LVDS
Surface Treatment		Hard-coating (3H), Non-Glare treatment
Support Color		16.7M colors (RGB 6-bit data + HiFRC data)
Temperature Range Operating Storage (Non-Operating)	 [°C] [°C]	 0 to +50 -20 to +60
RoHS Compliance		RoHS Compliance

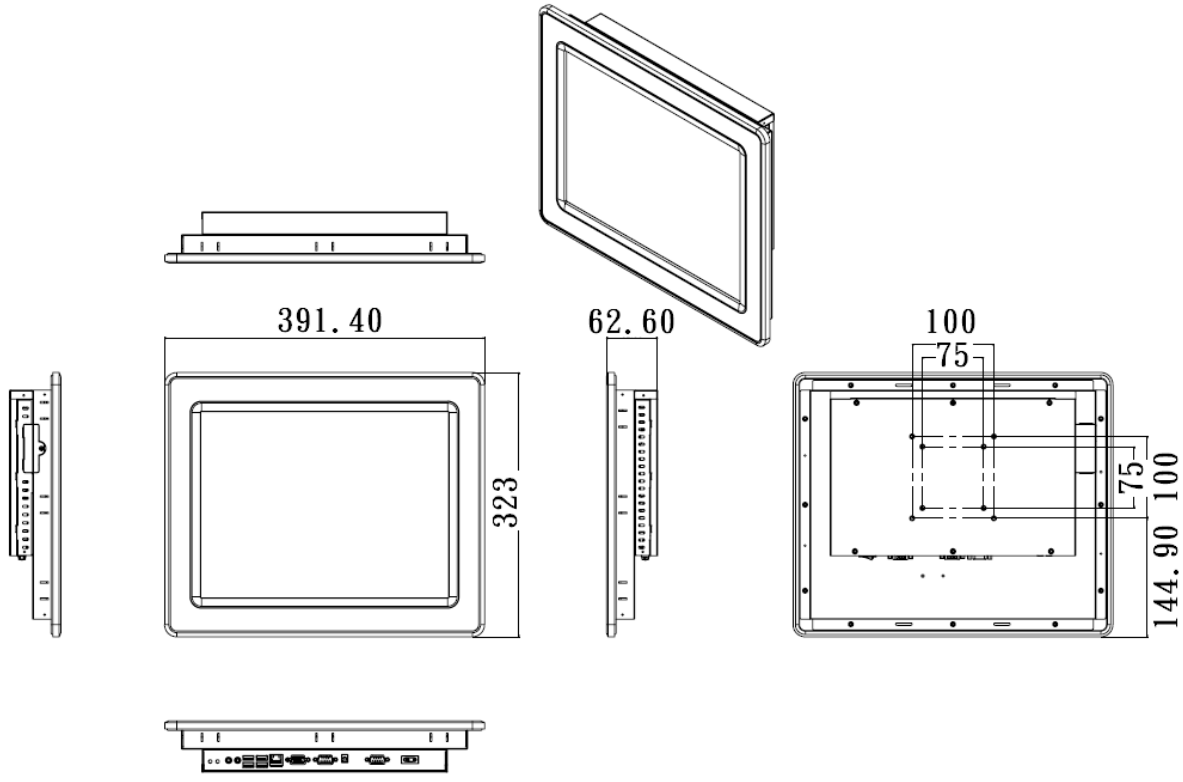
1.3.3 Specification of Touch Screen

Size	12"	15"	17"	19"
Touch type	5-Wire Analog Resistive	5-Wire Analog Resistive	5-Wire Analog Resistive	5-Wire Analog Resistive
Glass Dimension	261x199.8 mm	322x245.5 mm	356x 286.5 mm	393.4 x 316.65 mm
Viewing Area	249.8x 188.5 mm	309x233.5 mm	343 x 275.5 mm	380.9 x 305.65 mm
Active Area	246.8 x 188.5mm	303.5 x 227.5 mm	337 x 269.5 mm	377.3 x 302.05 mm
Thickness	2.20 + - 0.2 mm	2.20 + - 0.2 mm	2.20 + - 0.2 mm	2.20 + - 0.2 mm
Transparency	80% + - 3%	80% + - 3%	80% + - 3%	80% + - 3%
Connector type	FFC	FFC	FFC	FFC
Operation Temp.	-10 ~ 70 ℃	-10 ~ 70 ℃	-10 ~ 70 ℃	-10 ~ 70 ℃
Operation Humidity	20%RH ~ 80% RH	20%RH ~ 80% RH	20%RH ~ 80% RH	20%RH ~ 80% RH
Storage Temp.	-40 ~ 80 ℃	-40 ~ 80 ℃	-40 ~ 80 ℃	-40 ~ 80 ℃
Storage Humidity	10%RH ~ 80% RH	10%RH ~ 80% RH	10%RH ~ 80% RH	10%RH ~ 80% RH
Durability	35,000,000 times	35,000,000 times	35,000,000 times	35,000,000 times

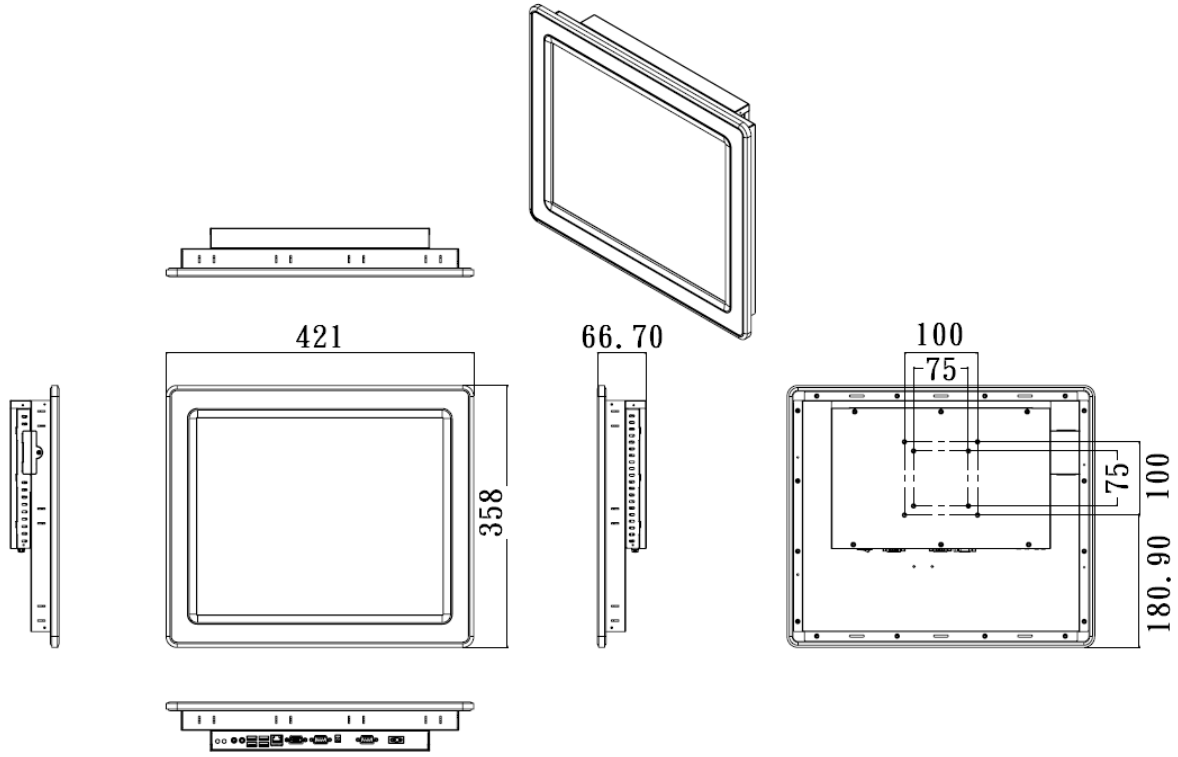
1.3.4 Mechanical Drawing of the EUDA Panel PCs (12”, 15”, 17”, 19”)



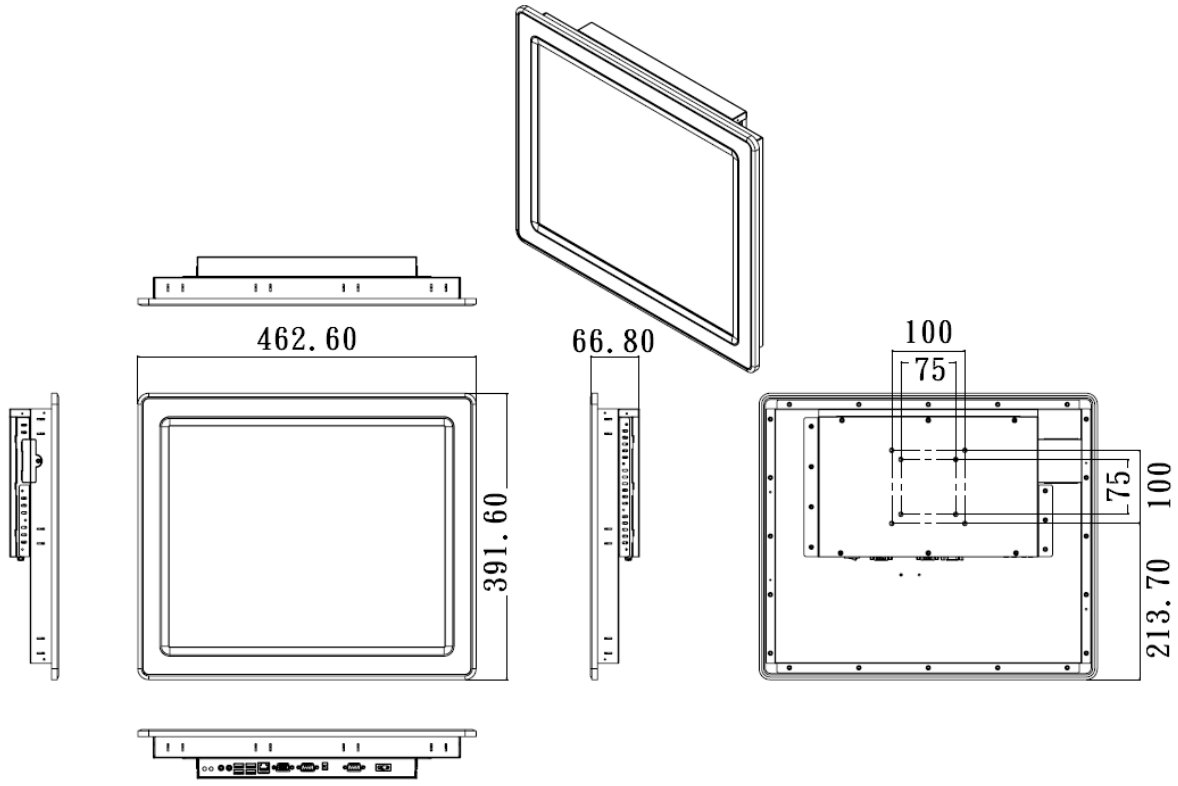
(1) Dimension of EUDA-S1210



(2) Dimension of EUDA-S1510



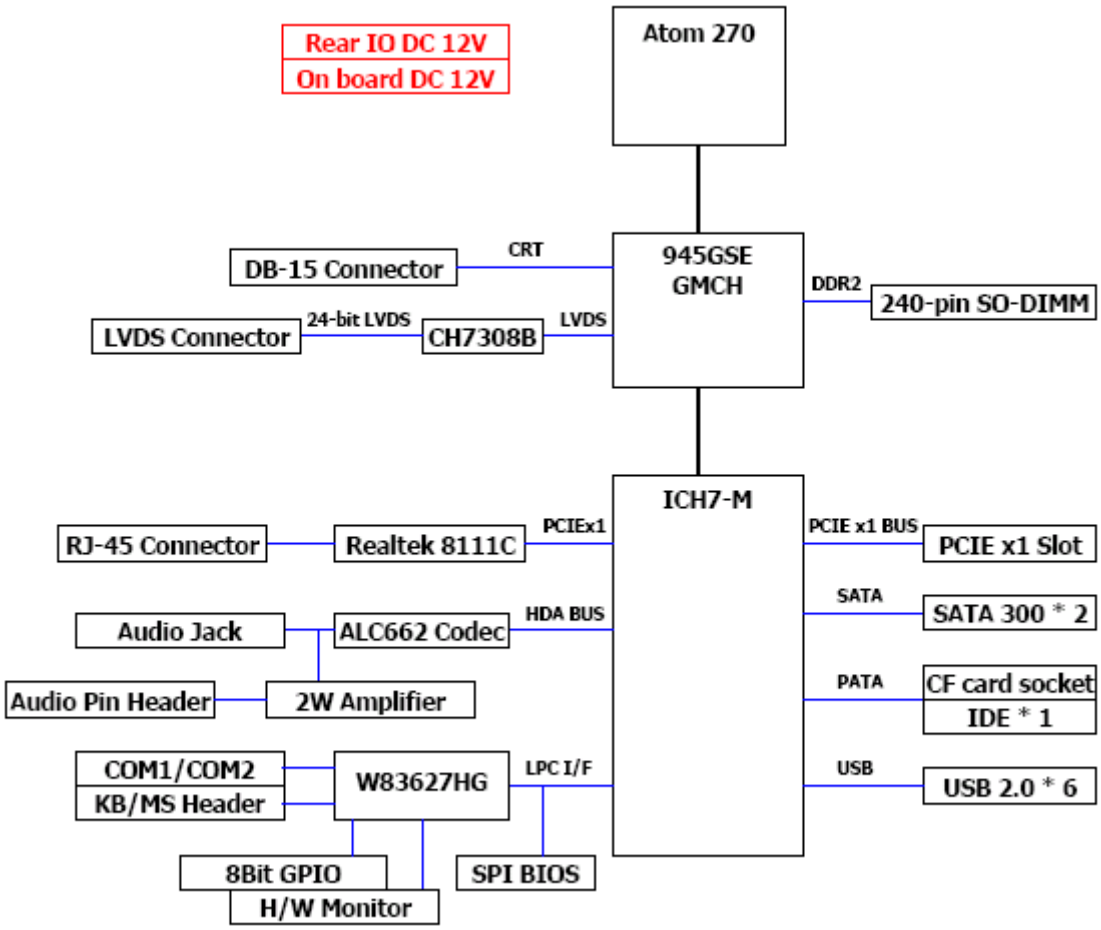
(3) Dimension of EUDA-S1710



(4) Dimension of EUDA-S1910

1.4 System Architecture

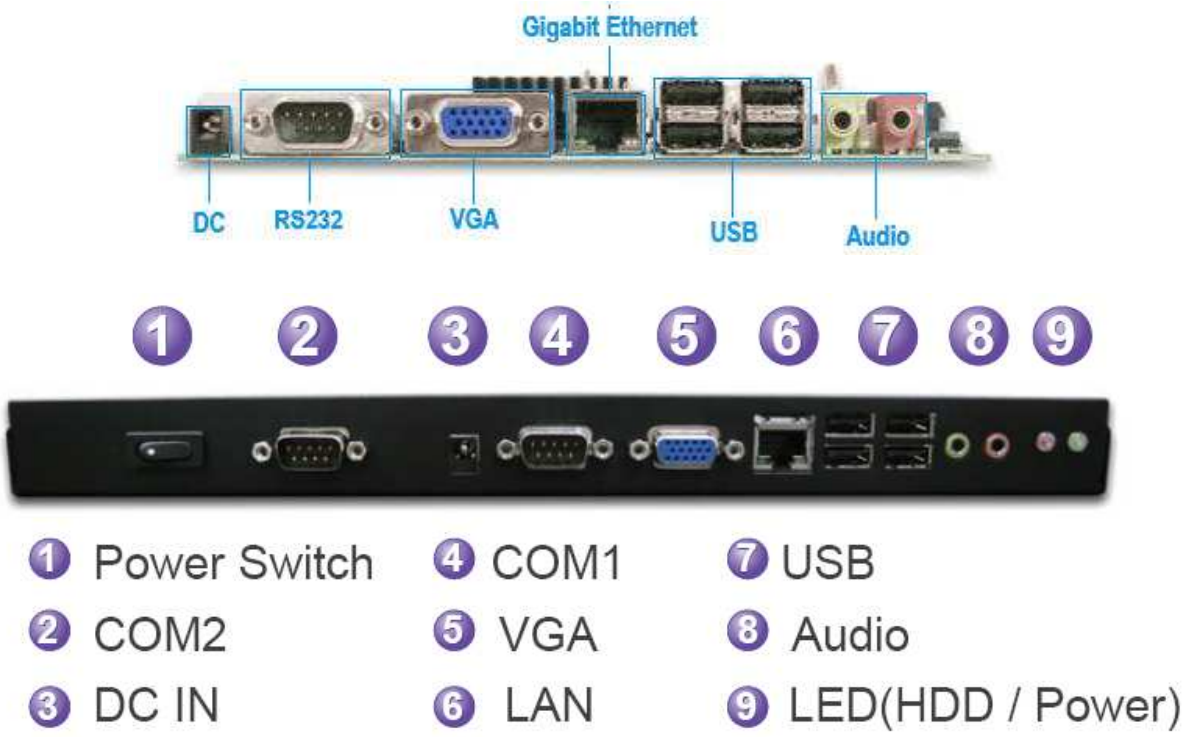
All of detailed operations of EUDA series are shown below in Board's System Block Diagram.



System Block Diagram of the built-in Mini-ITX Board

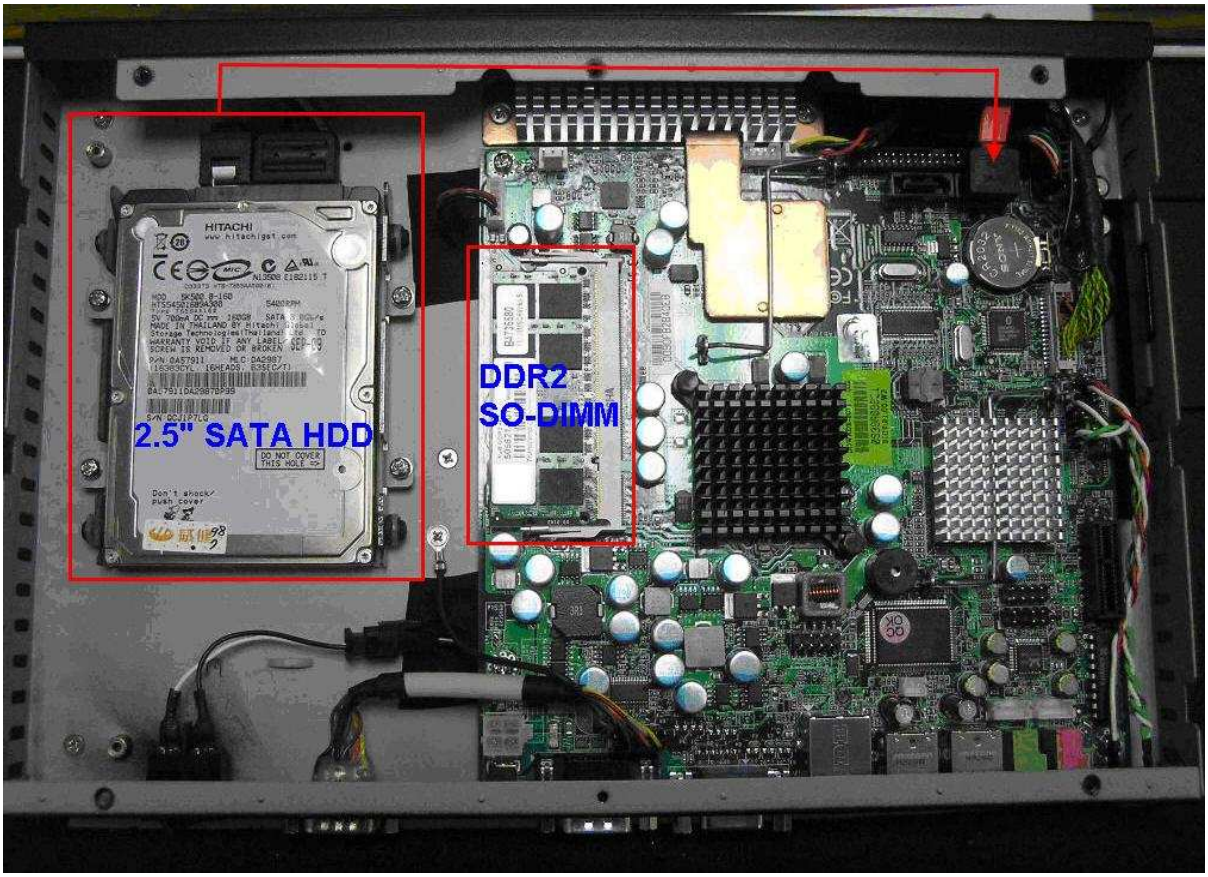
1.5 Brief Outlook of the Assembly of Hardware Components

Mini-ITX Board

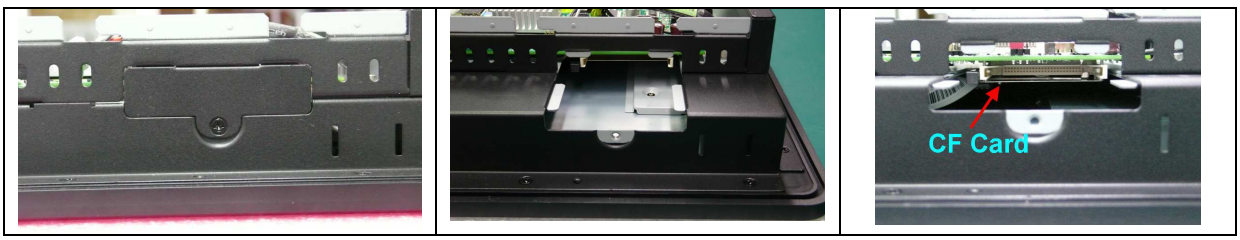


View from Rear I/O

Top View of IPC



Top View of IPC



Side View : Insertion of CF Card

Chapter 2
Hardware Configuration

EUDA Panel PC is fully integrated at system assembly line before shipment. It's not necessary for end users to do any assembly unless installing the optional HDD, RAM and CF.

This chapter is just to brief the definitions and shows the positions of jumpers, headers and connector for reference.

All of the configuration jumpers on the built-in Mini-ITX board are in the proper position. The default settings are indicated with a star sign (★).

2.1 Jumper Setting

In general, jumpers on the single board computer are used to select options for certain features. Some of the jumpers are designed to be user-configurable, allowing for system enhancement. The others are for testing purpose only and should not be altered. To select any option, cover the jumper cap over (SHORT) or remove (NC) it from the jumper pins according to the following instructions. Here NC stands for "Not Connect".

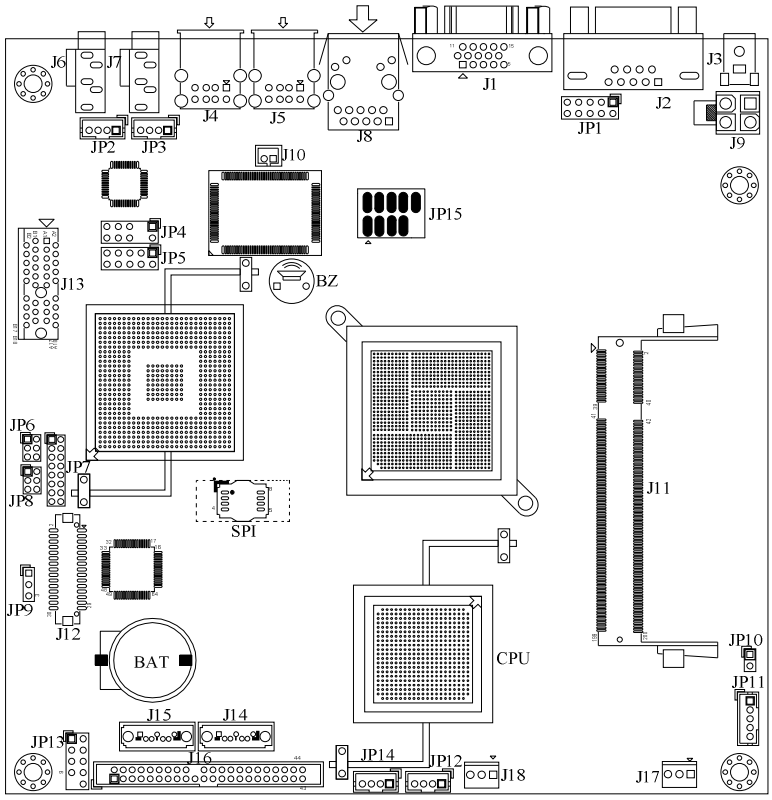
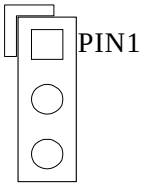


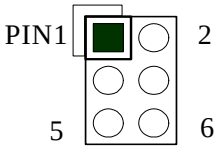
Figure 2-1 Top-side Jumper and Connector Locations

JP9 : CMOS Clear



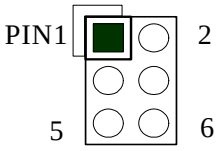
JP9	Function
1-2 Short	Normal Operation ★
2-3 Short	Clear CMOS Contents

JP6 : PANEL BACKLIGHT Selection



Pin No.	Signal Description
1-3, 2-4	5V, Active High ★
1-3, 4-6	12V, Active High
3-5, 2-4	5V, Active Low
3-5, 4-6	12V, Active Low

JP8 : PANEL Voltage Selection



JP8	Function
2-4 Short	+3.3V ★
4-6 Short	+5.0V ★
3-4 Short	+12V

★Note:

PANEL Voltage Selection Default;
EUDA-S1210 & EUDA-S1510 setting on 2-4 Pin;
EUDA-S1710 & EUDA-S1910 setting on 4-6 Pin.

JP8 : Pin Assignments

PIN No.	Signal Description	PIN No.	Signal Description	PIN No.	Signal Description
1	N/A	3	+12V	5	N/A
2	+3.3V	4	VDDVLDS_IN	6	+5V

Note:

Wrong voltage selection may damage the LVDS panel.
Please survey LVDS panel's VDD before setup of this jumper setting.

2.2 Connector Allocation

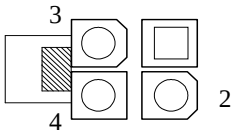
I/O peripheral devices and Flash disk will be connected to these interface connectors.

Connector Function List

Connector	Description	Remark
J1	VGA Connector	D-Sub15
J2	COM Port Connector	D-Sub9
J3	POWER DC Jack	
J4/J5	USB Connector	Dual USB/TypeA
J6	MIC Audio Jack	
J7	Line_out Audio Jack	
J8	RJ45 LAN Connector	
J9	POWER DC +12V Connector	
J10	CASEOPEN Pin HDR	Wafer 2mm
J11	SO-DIMM DDRII Socket	
J12	LVDS Connector	DF13-30DP
J13	PCIE x1 SLOT	
J14/J15	SATA Connector	
J16	IDE Connector	22P*2
J17	System FAN	
J18	CPU FAN	
J19	CF Socket	
JP1	COM Port Pin HDR	5P*2
JP2	MIC Pin HDR	Wafer 2mm
JP3	Line_out Pin HDR	Wafer 2mm
JP4	KB/MS Pin HDR	
JP5	GPIO Pin HDR	5P*2
JP7	Front Panel Pin HDR	
JP11	BACK LIGHT PWR Connector	Wafer 2mm
JP12/JP14	External +5V/+12V Pin HDR	Wafer 2mm "1A"
JP13	External USB Pin HDR	

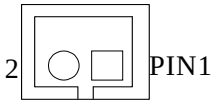
Pin Assignments of Connectors

J9 : POWER DC +12V Connector



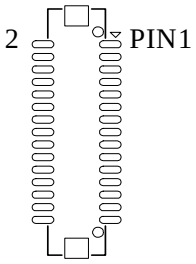
PIN No.	Signal Description
1	Ground
2	Ground
3	+12V
4	+12V

J10 : CASEOPEN PIN HDR

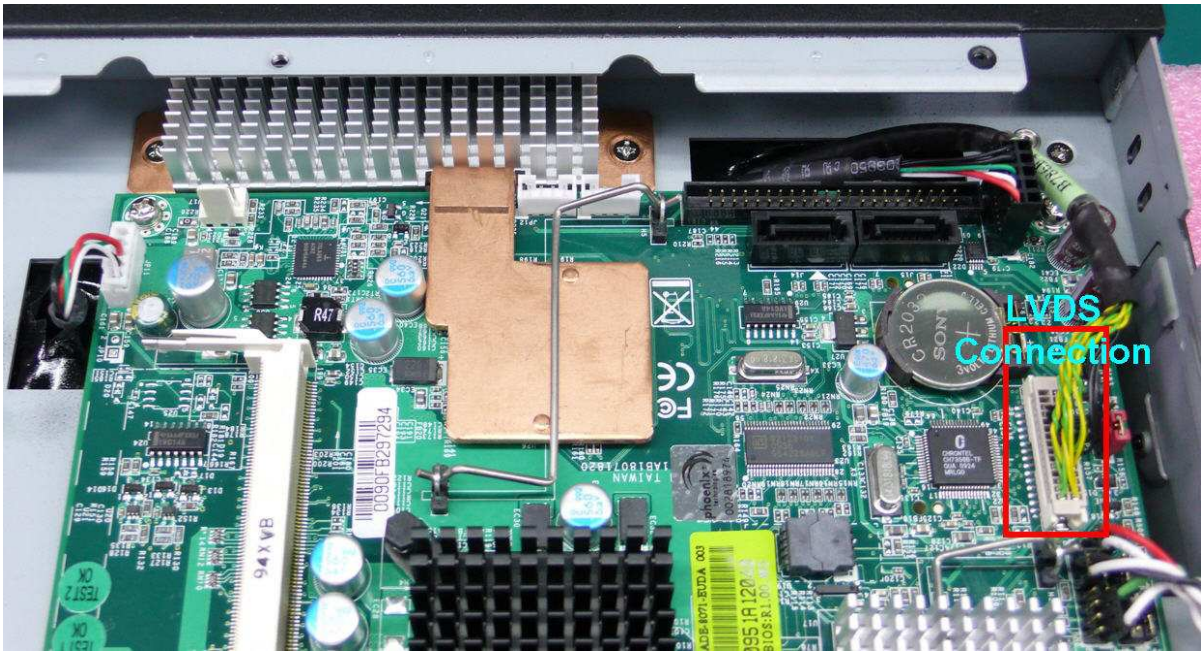


PIN No.	Signal Description
1	CASEOPEN Signal
2	Ground

J12 : LVDS Connector

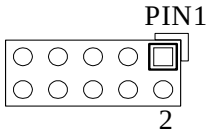


PIN No.	Signal Description	PIN No.	Signal Description
1	LCD1DO0+	2	LCD1DO0-
3	LCD1DO1+	4	LCD1DO1-
5	LCD1DO2+	6	LCD1DO2-
7	LCD1DO3+	8	LCD1DO3-
9	LCD1CLK+	10	LCD1CLK-
11	LCD2DO0+	12	LCD2DO0-
13	LCD2DO1+	14	LCD2DO1-
15	LCD2DO2+	16	LCD2DO2-
17	LCD2DO3+	18	LCD2DO3-
19	LCD2CLK+	20	LCD2CLK-
21	LCLK1	22	LDATA1
23	GND	24	N/C
25	GND	26	Ground
27	POWER	28	POWER
29	N/C	30	POWER

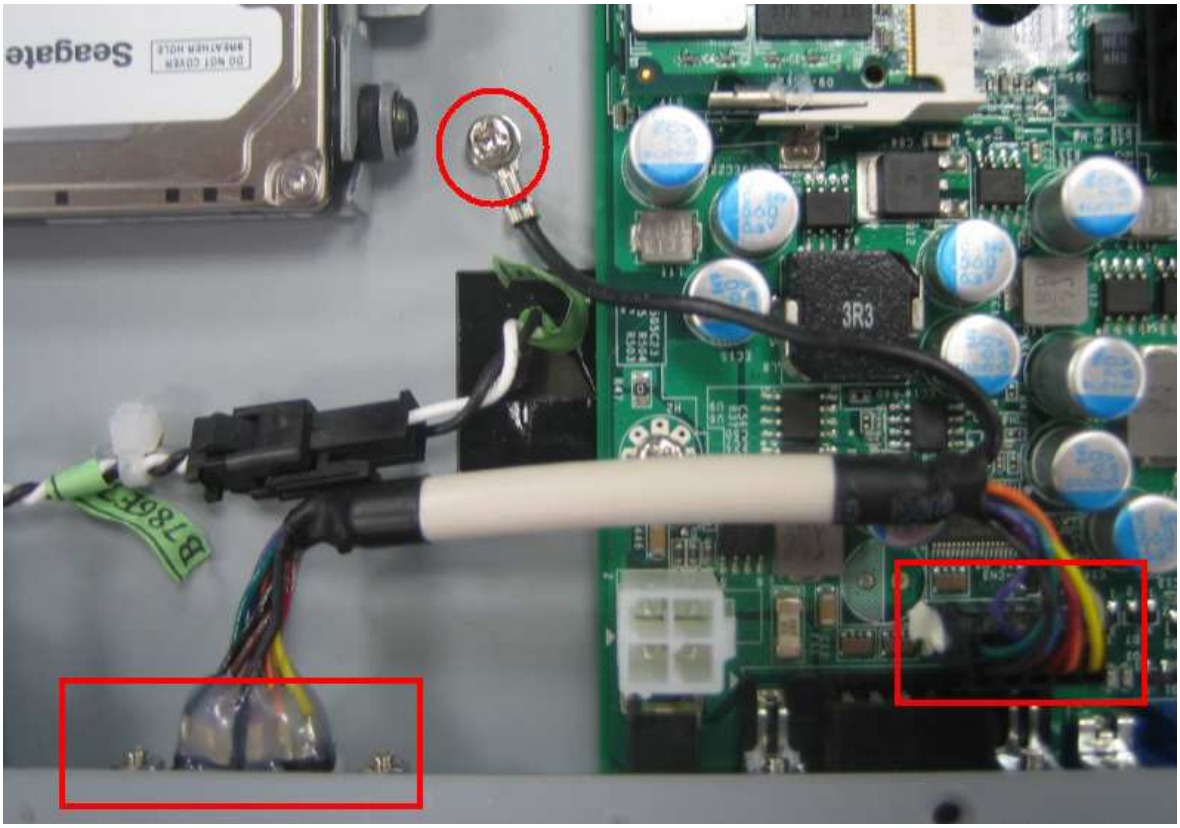


LVDS Connection

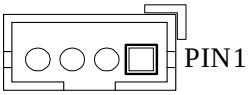
JP1 : COM Serial Port



PIN No.	Signal Description
1	DCD
2	DSR
3	RXD
4	RTS
5	TXD
6	CTS
7	DTR
8	RI
9	Ground
10	Ground

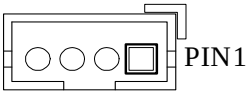


JP2 : MIC Pin HDR



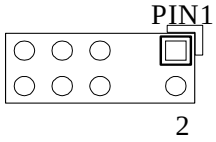
PIN No.	Signal Description
1	MIC_L
2	Ground
3	MIC_R
4	Ground

JP3 : LINE_OUT Pin HDR



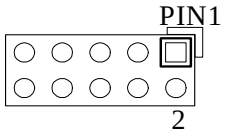
PIN No.	Signal Description
1	LINE_OUT_L
2	Ground
3	LINE_OUT_R
4	Ground

JP4 : External PS/2 Keyboard/Mouse Pin HDR



PIN No.	Signal Description	PIN No.	Signal Description
1	Mouse Data	2	Keyboard Data
	Key (no pin)		Key (no pin)
5	Ground	6	Ground
7	Power	8	Power
9	Mouse CLK	10	Keyboard CLK

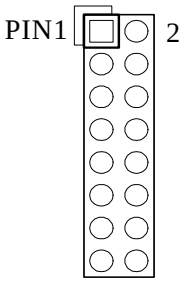
JP5 : GPIO Pin HDR



PIN No.	Signal Description	PIN No.	Signal Description
1	GPIO0	2	GPIO4
3	GPIO1	4	GPIO5
5	GPIO2	6	GPIO6
7	GPIO3	8	GPIO7
9	Ground	10	+5V

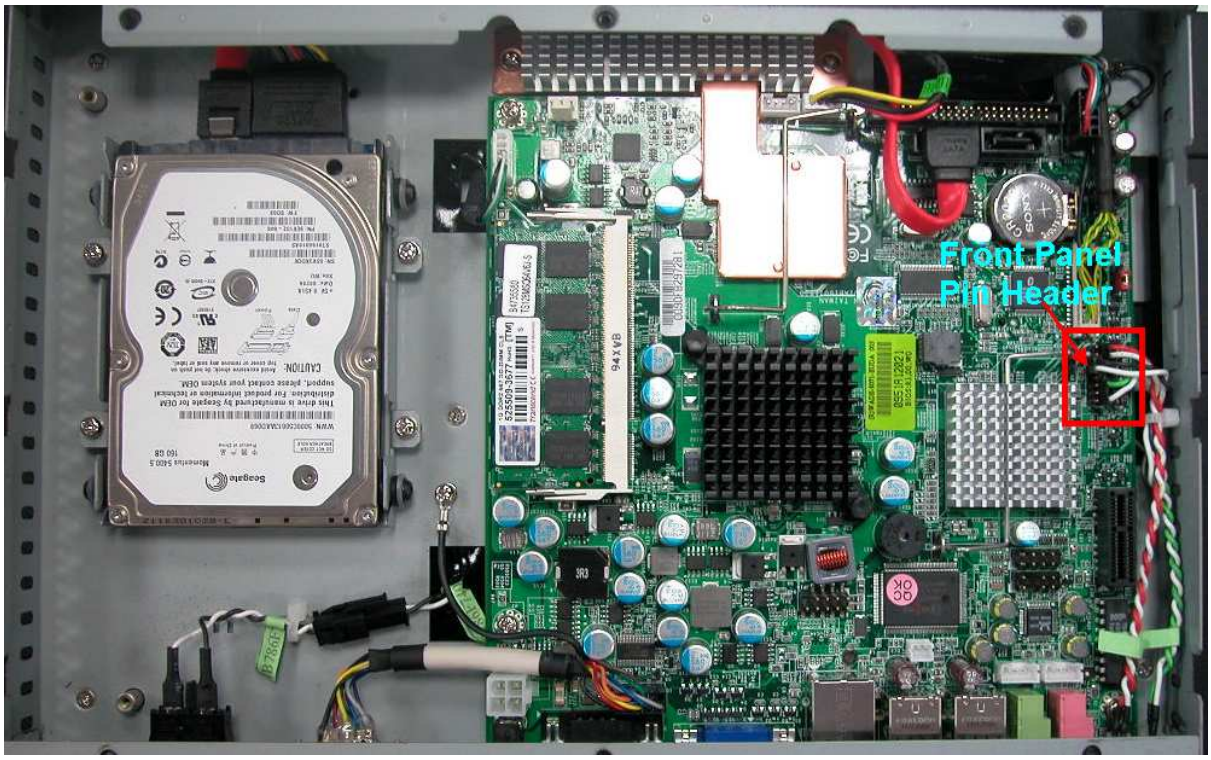
Note:
All General Purpose I/O ports can only apply to standard TTL ± 5% signal level (0V/5V), and each Fan.

JP7 : Front Panel Pin HDR

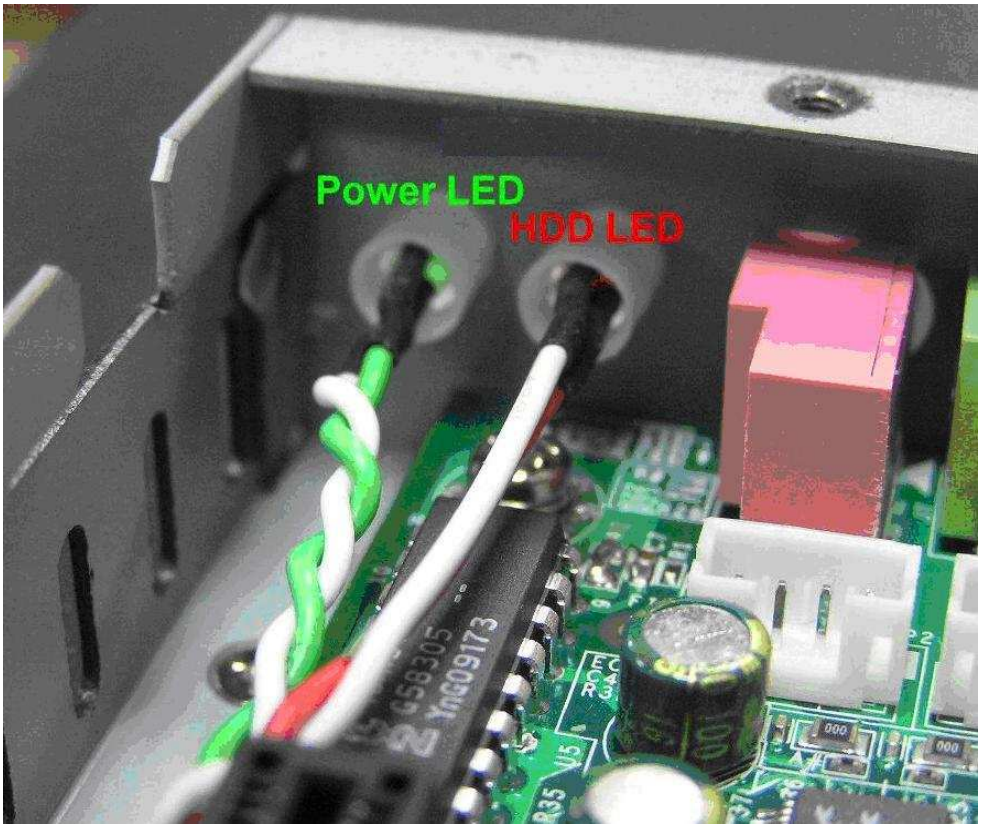


PIN No.	Signal Description	PIN No.	Signal Description
1	5VSBY through 330 ohm	2	N/C
3	N/C	4	N/C
5	PWRLED	6	N/C
7	N/C	8	N/C

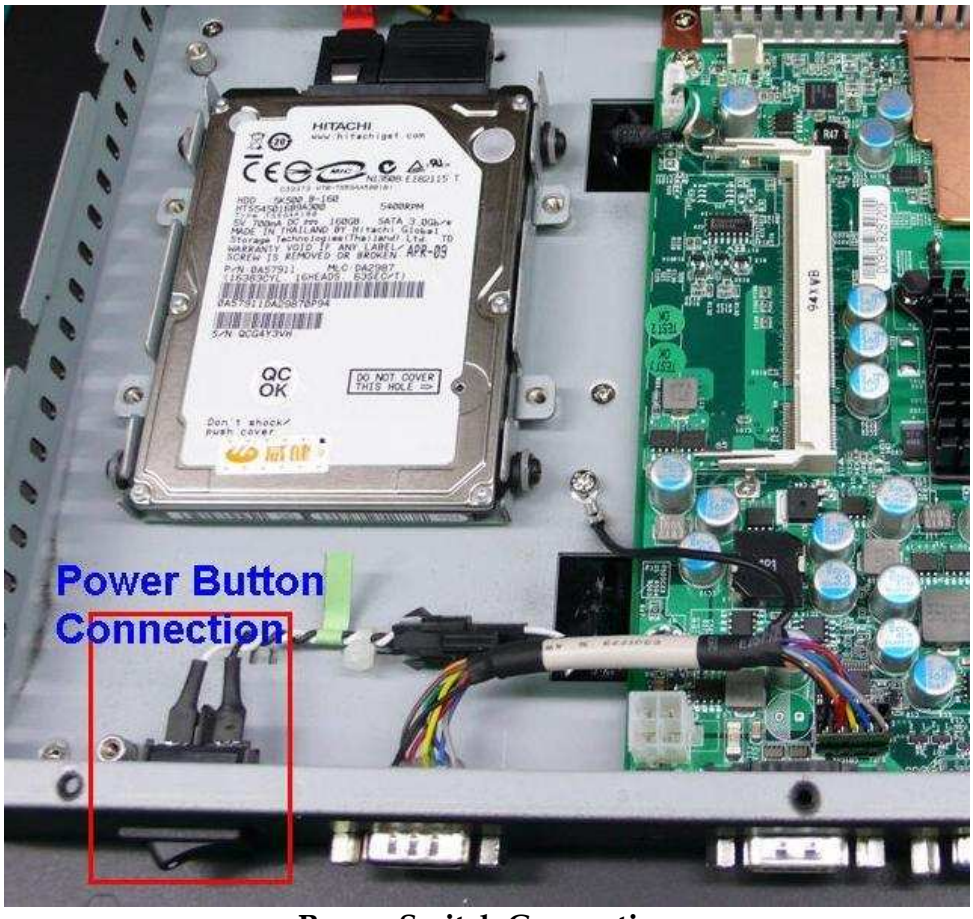
9	N/C	10	5VSBY through 1k ohm
11	N/C	12	PWR_ON
13	+5V through 150 ohm	14	RESET#
15	HDD_LED#	16	Ground



Front Panel Pin Header

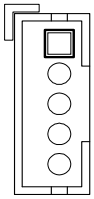


LED Indicator of Power & HDD

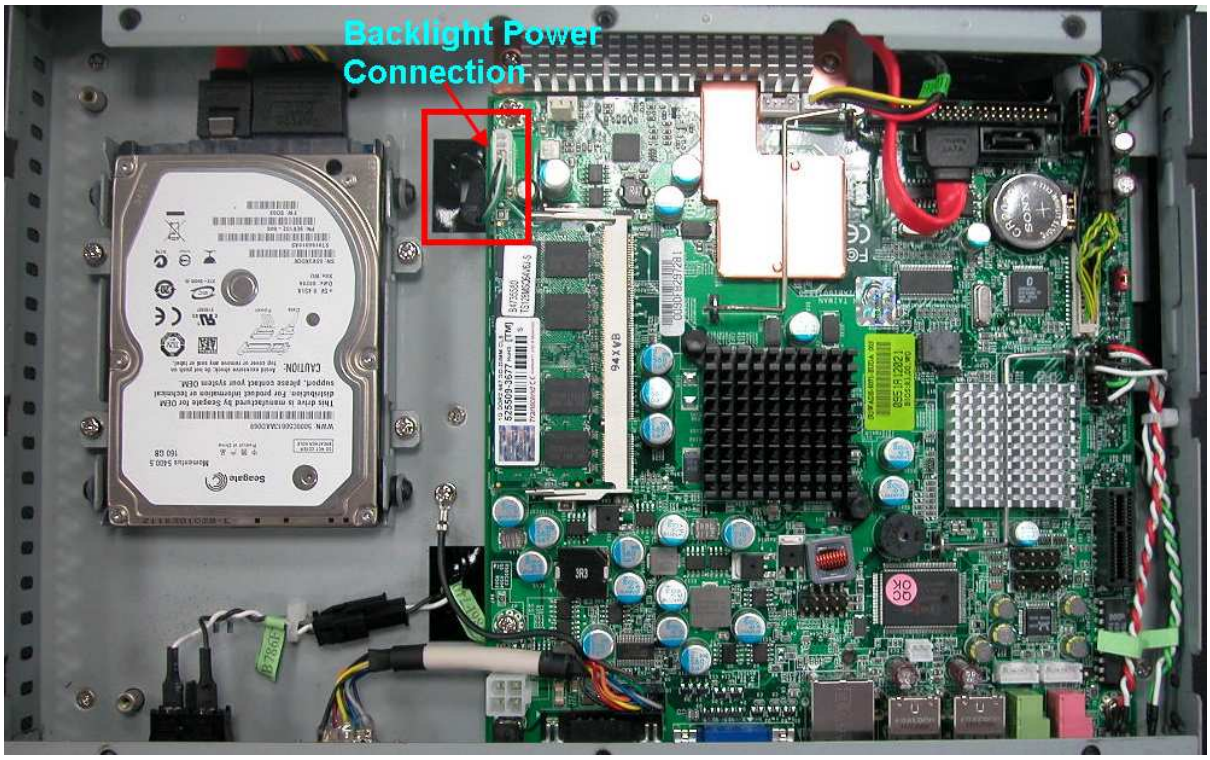


Power Switch Connection

JP11 : BACKLIGHT PWR Pin HDR

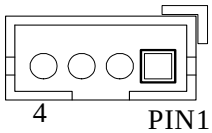


PIN No.	Signal Description
1	BACK LIGHT ENABLE
2	GND
3	+12V
4	GND
5	VCC



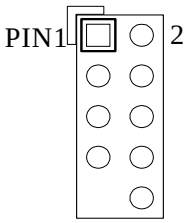
Backlight Power Connection

JP12/JP14 : External +5V/+12V Pin HDR

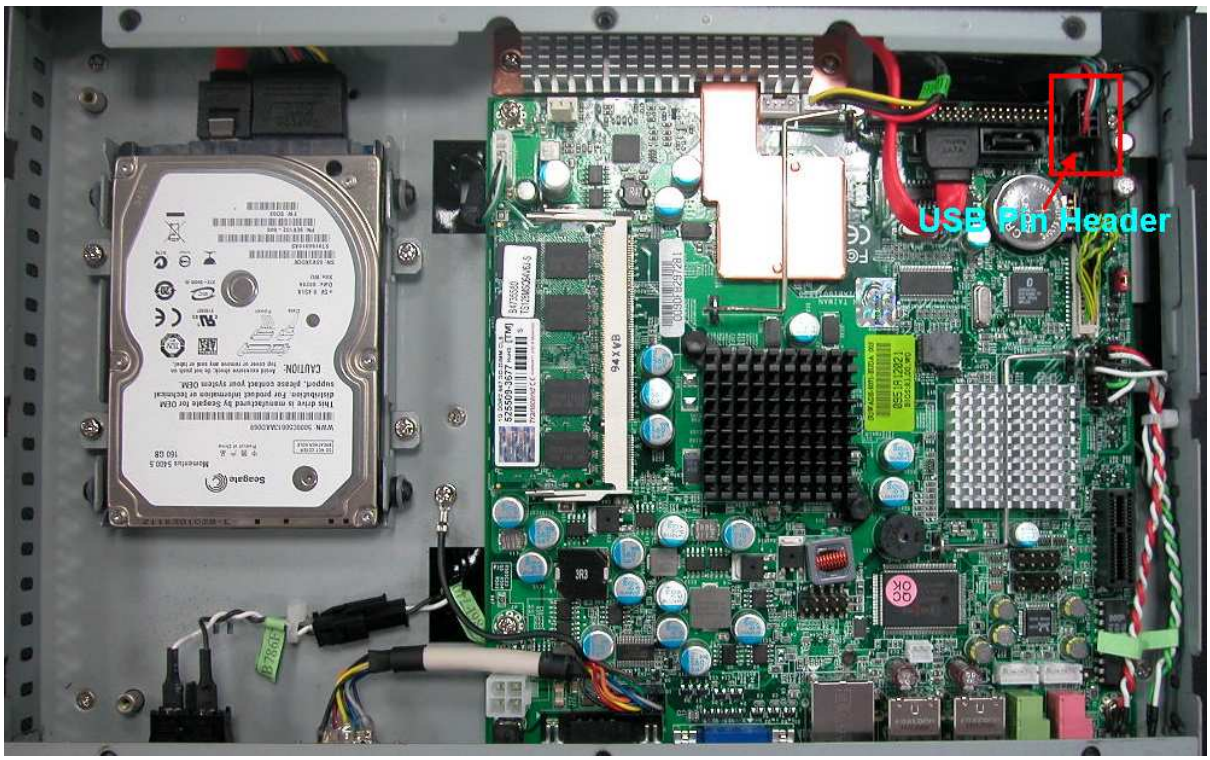


PIN No.	Signal Description
1	+12V (Support 1A)
2	Ground
3	Ground
4	+5V (Support 1A)

JP13 : External USB Pin HDR



PIN No.	Signal Description	PIN No.	Signal Description
1	5V Dual	2	5V Dual
3	USB-	4	USB-
5	USB+	6	USB+
7	Ground	8	Ground
	Key(no pin)	10	N/C



USB Pin Header (for Touch Screen cable connection)

Chapter 3
System Installation

This chapter provides users with instructions or clear ideas of system hardware and software installaion. The additional information is enclosed also to help users understand the setup of onboard PCI device and handle Watch Dog Timer (WDT).

3.1 Intel® ATOM CPU

The built-in Mini-ITX board onboard uses Intel Atom N270 CPU 1.6GHz processor. Introducing Intel Atom processor, a new microprocessor designed from the ground up for mobility, with a mobile-optimized chipset. Intel mobile processor innovative design techniques allow faster execution of instructions at lower power.

3.2 Main Memory

The built-in Mini-ITX board provides 1 x 200-pin SO-DIMM sockets which supports 667/533 DDR2-SDRAM as main memory, Non-ECC (Error Checking and Correcting), non-register functions. The maximum memory size can be up to 2GB capacity. Memory clock and related settings can be detected by BIOS via SPD interface.

For system compatibility and stability, do not use memory module without brand. Memory configuration can be either one double-sided DIMM in either one DIMM socket or two single-sided SO-DIMMs in both sockets.

Watch out the contact and lock integrity of memory module with socket, it will impact on the system reliability. Follow normal procedures to install memory module into memory socket. Before locking, make sure that all modules have been fully inserted into the card slots.

CPU FSB	Bandwidth
533MHz	4.2GB/s

Memory Frequency	Single Channel DDR Bandwidth
667MHz	4.2GB/s
533 MHz	4.2GB/s

Note:
To maintain system stability, please don't change any of DRAM parameters in BIOS setup to upgrade system performance without acquiring technical information.

Memory frequency / CPU FSB synchronization

The built-in N270 Mini-ITX board supports different memory frequencies depending on the CPU front side bus and the type of DDR2 SO-DIMM.

CPU FSB	Memory Frequency
533 MHz	667/533MHz

3.3 Installing the Mini-ITX Board

The installation of the built-in Mini-ITX board into the IPC chassis is done before shipment. The following steps are taken:

Step 1 : Check all jumpers settings on the proper position.
Step 2 : Install and configure CPU and memory module on the right position
Step 3 : Place Mini-ITX board to the fixed position on the system
Step 4 : Connect cables to existing peripheral devices and secure them.

REMINDING

Make sure the Mini-ITX board is properly inserted and fixed by mechanism.

Note:
Please refer to section **3.3.1 to 3.3.4** to install Chipset/VGA/LAN/Audio drivers.

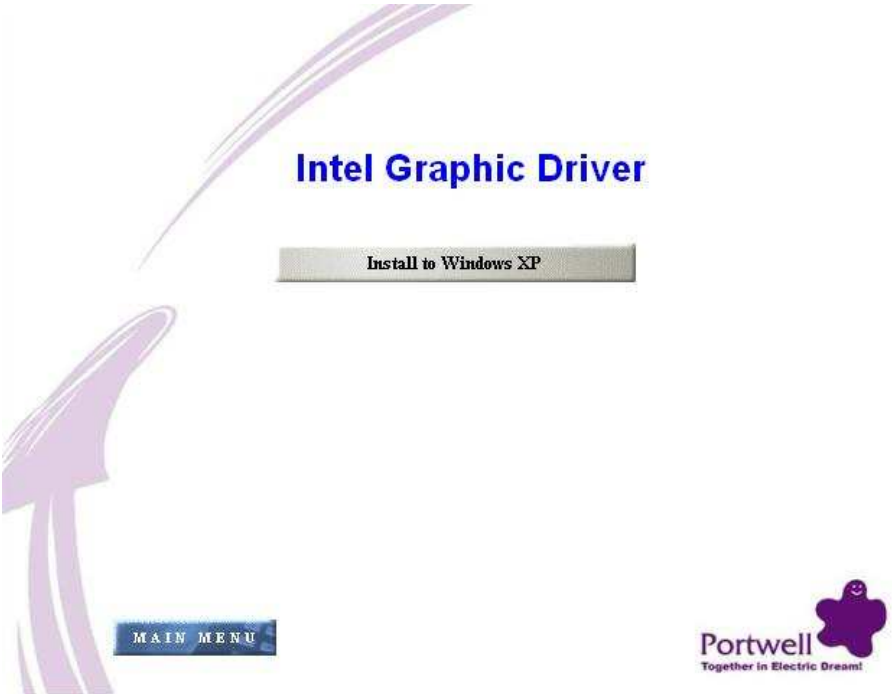
3.3.1 Chipset Component Driver

The chipset on the built-in Mini-ITX board is a new chipset that a few old operating systems might not be able to recognize. To overcome this compatibility issue, for Windows Operating Systems such as Windows 2000 /XP, please install its INF before any of other Drivers are installed. You can find very easily this chipset component driver in board CD-title.

3.3.2 Intel Integrated Graphics GMCH Chip

Using Intel® 945GSE GMCH with Media Accelerator (GMA) 950 graphics integrated chipset is aimed to gain an outstanding graphic performance. Shared 8 accompany it to 128MB system DDR2-SDRAM with Total Graphics Memory. This combination makes the built-in N270 Mini-ITX board an excellent piece of multimedia hardware.

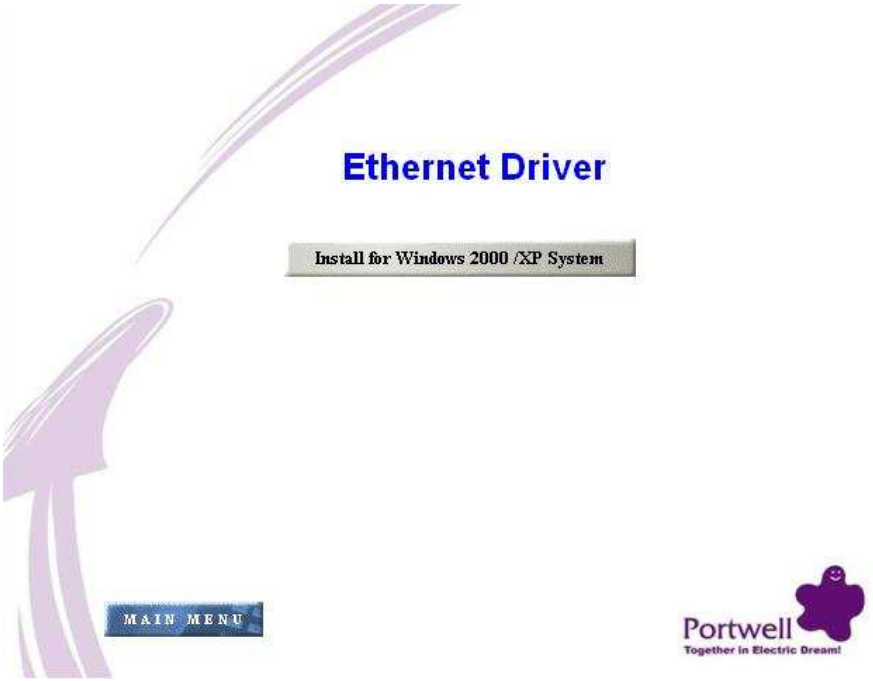
With no additional video adaptor, this onboard video will usually be the system display output. By adjusting the BIOS setting to disable on-board VGA, an add-on PCI-Express by 1 VGA card can take over the system display.



3.3.3 Realtek Gigabit Ethernet Controller

Drivers Support

Please find Realtek RTL8111C LAN driver in Ethernet directory of the board CD-title. The drivers support Windows 2000 /XP.



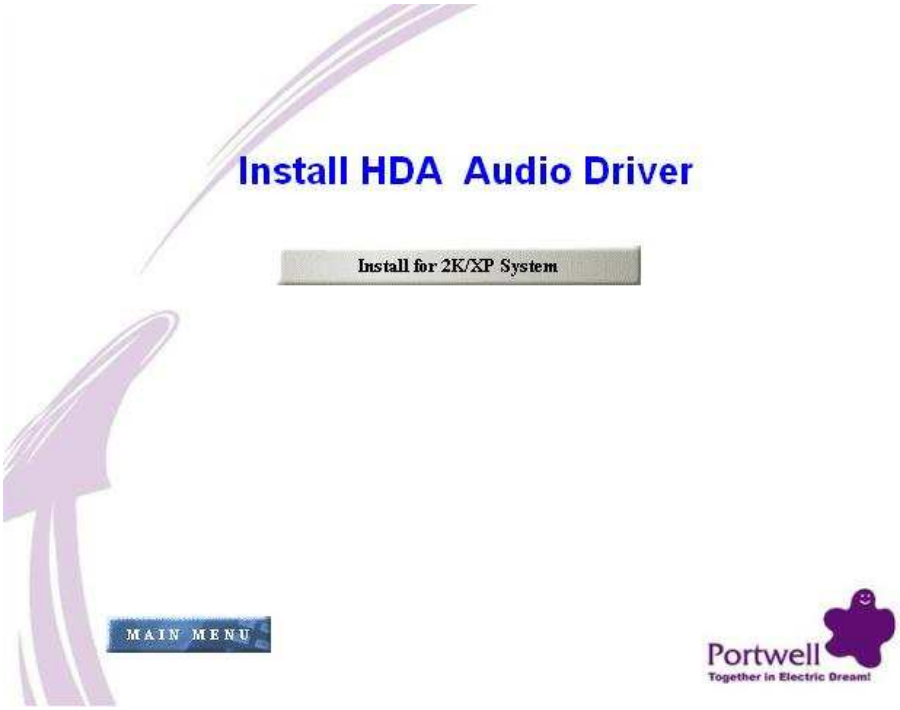
LED Indicator (for LAN status)

The built-in Mini-ITX board provides two LED indicators to report Realtek RTL8111C Gigabit Ethernet interface status. Please refer to the table below as a quick reference guide.

8111C	Color	Name of LED	Operation of Ethernet Port		
			Linked	Active	
Status LED	Orange	LAN Linked & Active LED	On	Blinking	
Speed LED	Orange	LAN speed LED	Giga Mbps	100 Mbps	10 Mbps
	Green		Orange	Green	Off

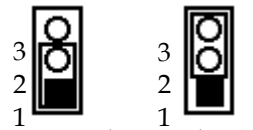
3.3.4 Audio Controller

Please find Realtek ALC662 Audio driver form the board CD-title. The drivers support Windows 2000 /XP.



3.4 Clear CMOS Operation

The following table indicates how to enable/disable Clear CMOS Function hardware circuit by putting jumpers at proper position.



Normal Clear

JP9	Function
1-2 Short	Normal Operation ★
2-3 Short	Clear CMOS contents

3.5 WDT Function

The working algorithm of the WDT function can be simply described as a counting process. The Time-Out Interval can be set through software programming. The availability of the time-out interval settings by software or hardware varies from boards to boards.

The built-in Mini-ITX board allows users to control WDT through dynamic software programming. The WDT starts counting when it is activated. It sends out a signal to system reset or to non-maskable interrupt (NMI), when time-out interval ends. To prevent the time-out interval from running out, a re-trigger signal will need to be sent before the counting reaches its end. This action will restart the counting process. A

well-written WDT program should keep the counting process running under normal condition. WDT should never generate a system reset or NMI signal unless the system runs into troubles.

The related Control Registers of WDT are all included in the following sample program that is written in C language. User can fill a non-zero value into the Time-out Value Register to enable/refresh WDT. System will be reset after the Time-out Value to be counted down to zero. Or user can directly fill a zero value into Time-out Value Register to disable WDT immediately. To ensure a successful accessing to the content of desired Control Register, the sequence of following program codes should be step-by-step run again when each register is accessed.

Additionally, there are maximum 2 seconds of counting tolerance that should be considered into user' application program. For more information about WDT, please refer to Winbond W83627HG-AW data sheet.

There are two PNP I/O port addresses that can be used to configure WDT,
1) 0x2E: EFIR (Extended Function Index Register, for identifying CR index number)
2) 0x2F: EFDR (Extended Function Data Register, for accessing desired CR)

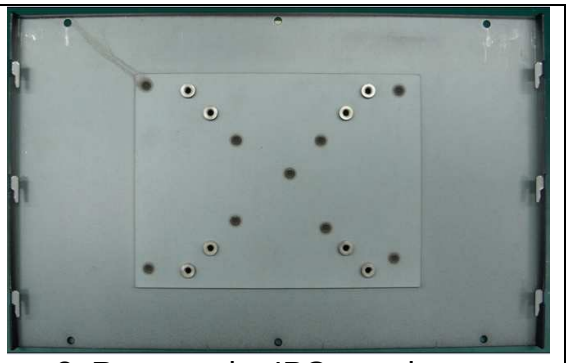
Below are some example codes, which demonstrate the use of WDT.

```
//Step1. Enter W83627HG configuration registers mode:
outportb(0x2E, 0x87);
outportb(0x2E, 0x87);

//* Step2. Pin89 to be WDTO
outportb(0x2E, 0x2b);
outportb(0x2E + 1, 0x04);

//* Step3. Select logic device 8:
outportb(0x2E, 0x07);
outportb(0x2E + 1, 0x08);

//* Step4. Config WDT using second to be unit:
outportb(0x2E, 0xf5);
outportb(0x2E + 1, 0x00);

//* Step5. Set WDT time-out time:
outportb(0x2E, 0xf6);
outportb(0x2E + 1, time_out);

//* Step6. Exit configuration registers mode:
outportb(0x2E, 0xaa);
```

3.6 Hardware Installation

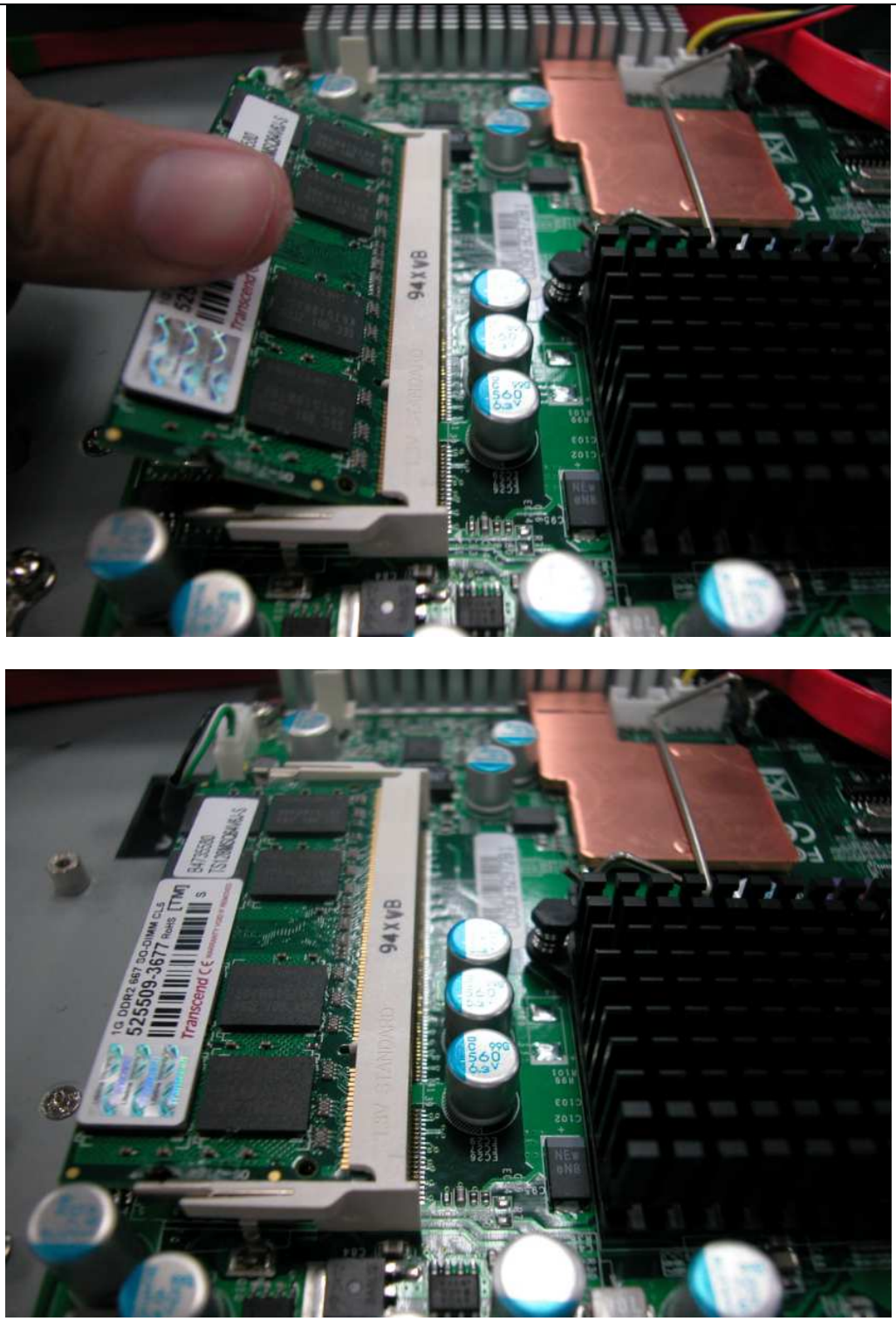
3.6.1 Install Memory

1. Unscrew the IPC metal cover & detach it



2. Remove the IPC metal cover

3. Place Memory to the slot

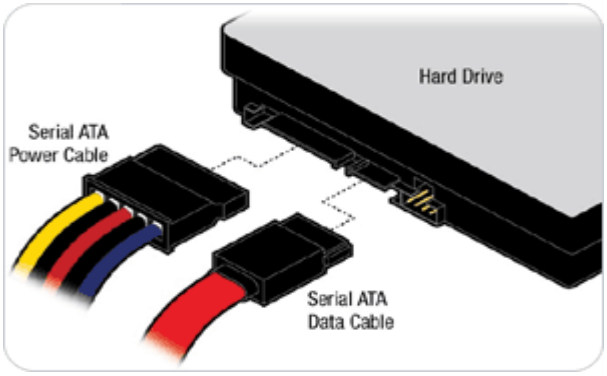


4. Insert the Memory

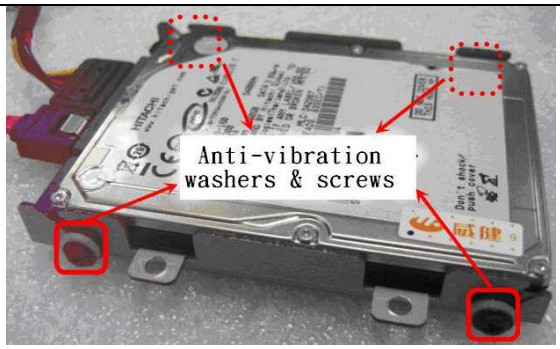
3.6.2 Serial ATA and IDE Hard Disk Setting

Unlike IDE bus, each Serial ATA channel can only connect to one SATA hard disk at a time; there are total two connectors, J14 and J15. The installation of Serial ATA is

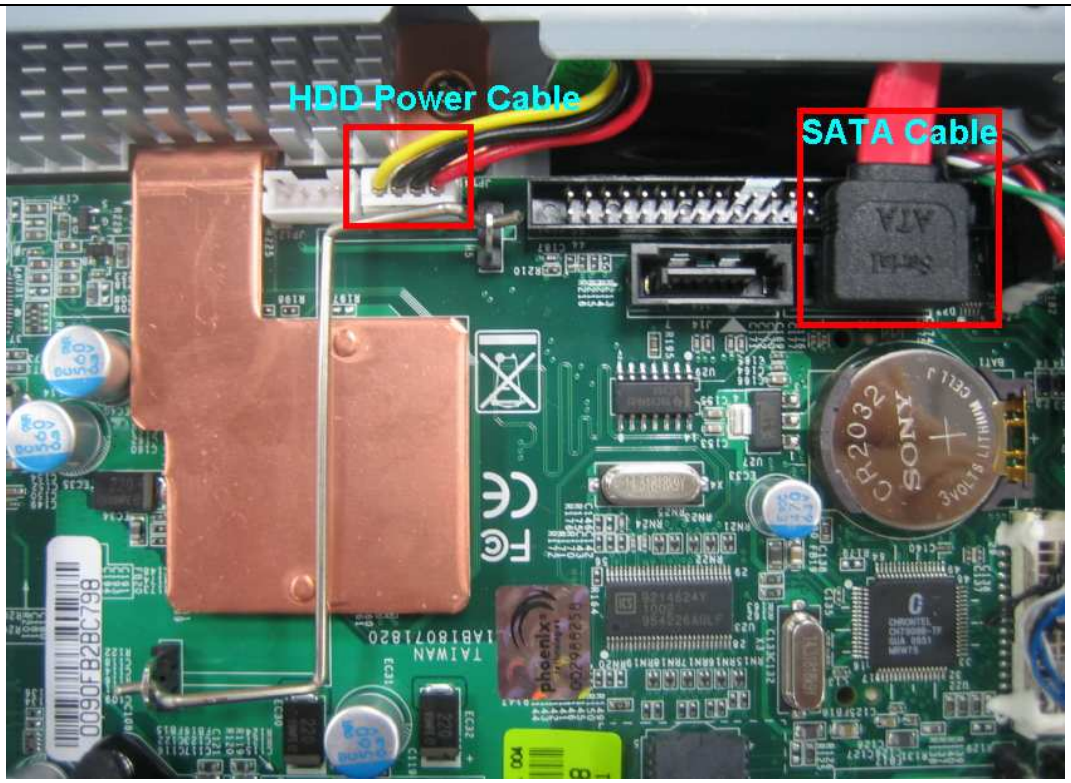
simpler and easier than IDE, because SATA hard disk doesn't require setting up Master and Slave, which can reduce mistake of hardware installation.



1. Fix the anti-vibration washers & screws



2. Fix the HDD to the bracket & connect SATA cable & Power cable



3. Connect the HDD power cable and SATA cable as illustrated.

4. Fix the HDD on the chassis with four M3x6 screws in the accessory box

3.6.3 Install CF Card

1. Unscrew the side bracket from the IPC chassis

2. Remove the side bracket

3. Insert the CF card

3.6.4 DC 12V Power Input

The built-in Mini-ITX board supports DC12V input only.
Remember fixing the power adaptor jack with L-shape or U-shape bracket in the accessory to prevent it from dropping off.

Connect the jack of the adaptor to the rear IO of 12V input.

Type-1.

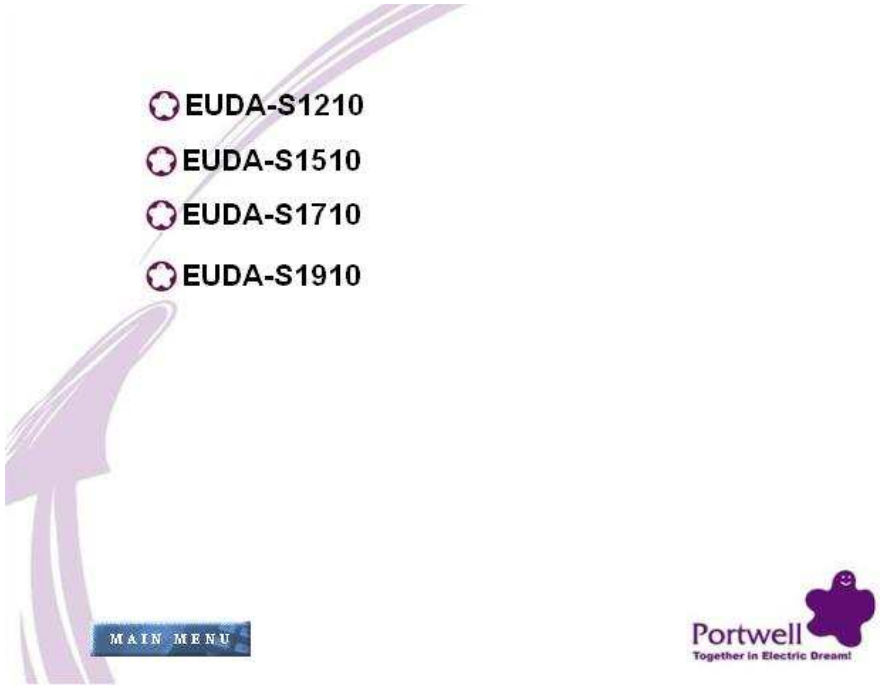
Use U-shape bracket to fix the jack.

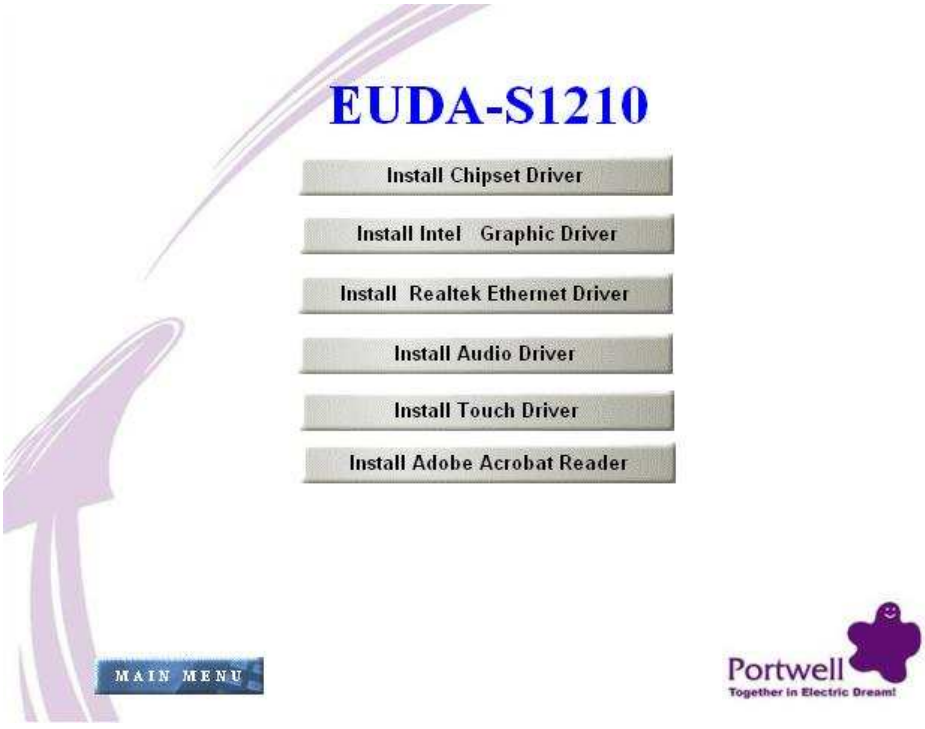
Type-2.

Use L-shape bracket to fix the jack.

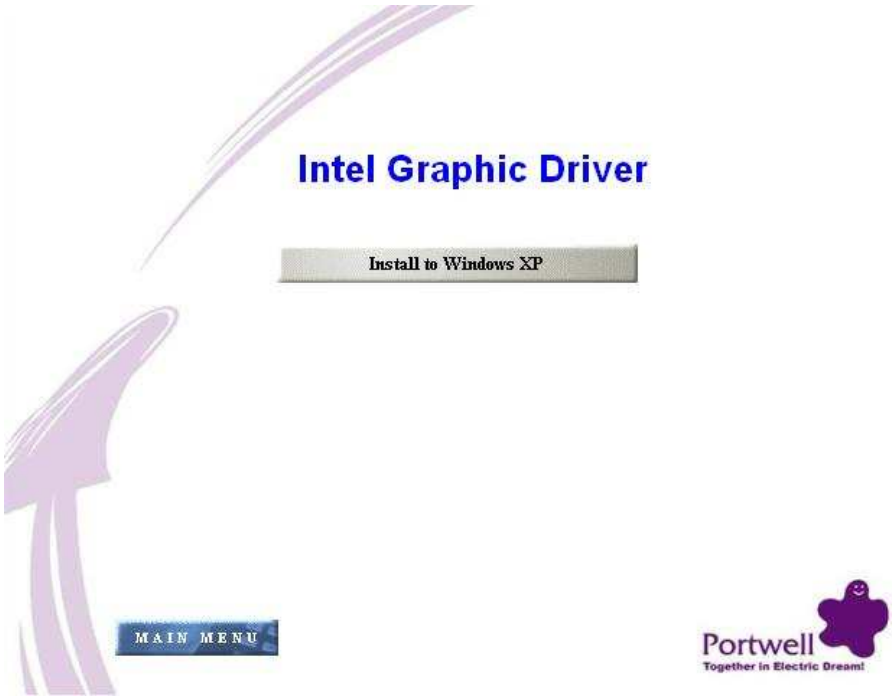
3.7 Driver Installation

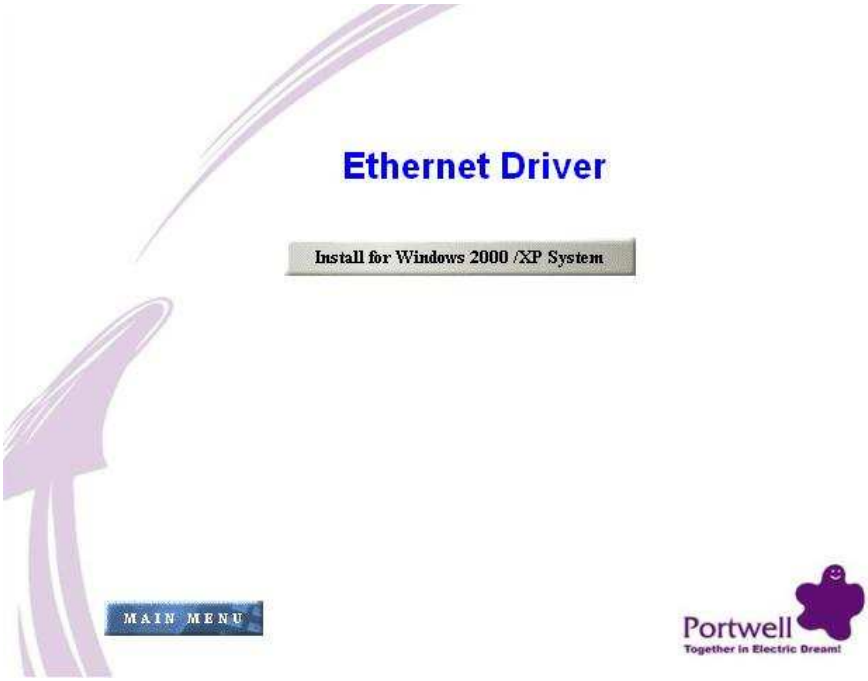
3.7.1 Driver Directory

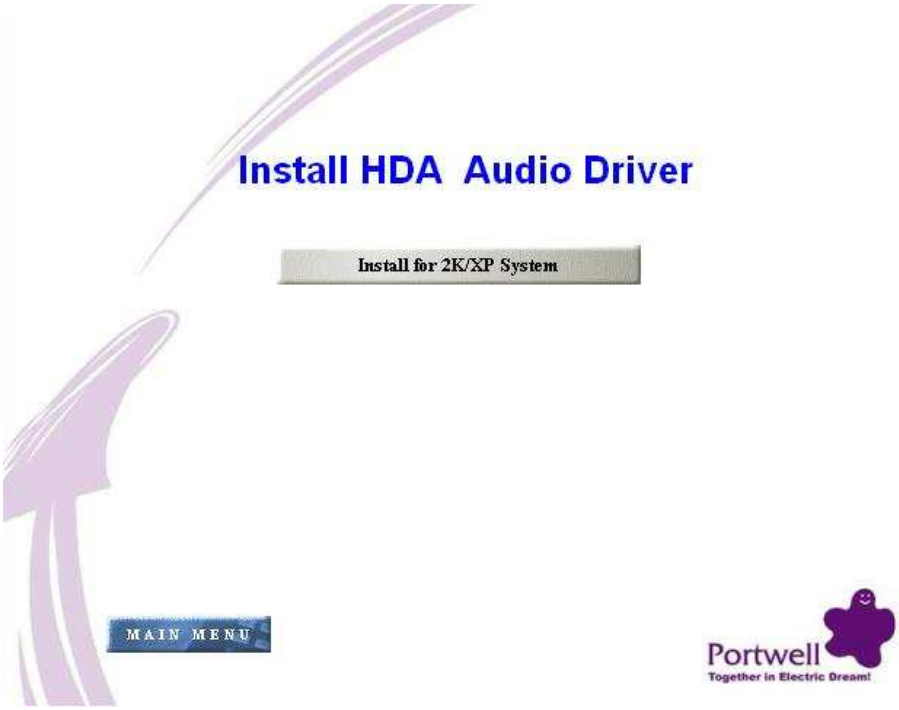

EUDA-S1210
EUDA-S1510
EUDA-S1710
EUDA-S1910
MAIN MENU
Portwell
Together in Electric Dream!


EUDA-S1210
Install Chipset Driver
Install Intel Graphic Driver
Install Realtek Ethernet Driver
Install Audio Driver
Install Touch Driver
Install Adobe Acrobat Reader
MAIN MENU
Portwell
Together in Electric Dream!


Intel Chipset Software
Install Chipset Driver
MAIN MENU
Portwell
Together in Electric Dream!


Intel Graphic Driver
Install to Windows XP
MAIN MENU
Portwell
Together in Electric Dream!

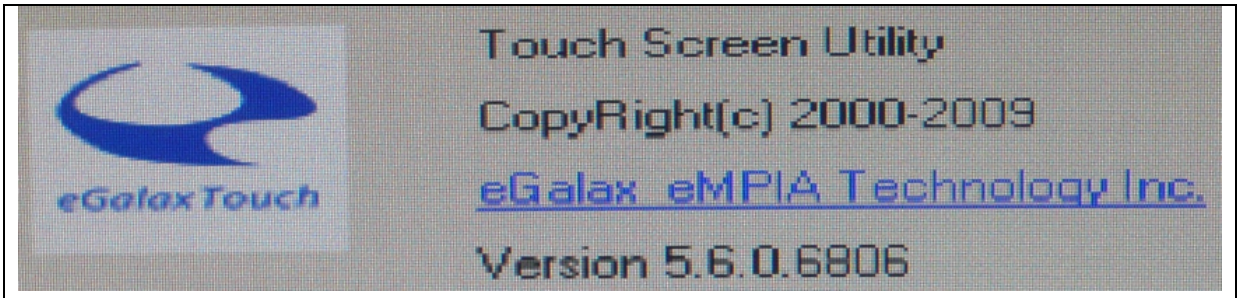

Ethernet Driver
Install for Windows 2000 /XP System
MAIN MENU
Portwell
Together in Electric Dream!


Install HDA Audio Driver
Install for 2K/XP System
MAIN MENU
Portwell
Together in Electric Dream!

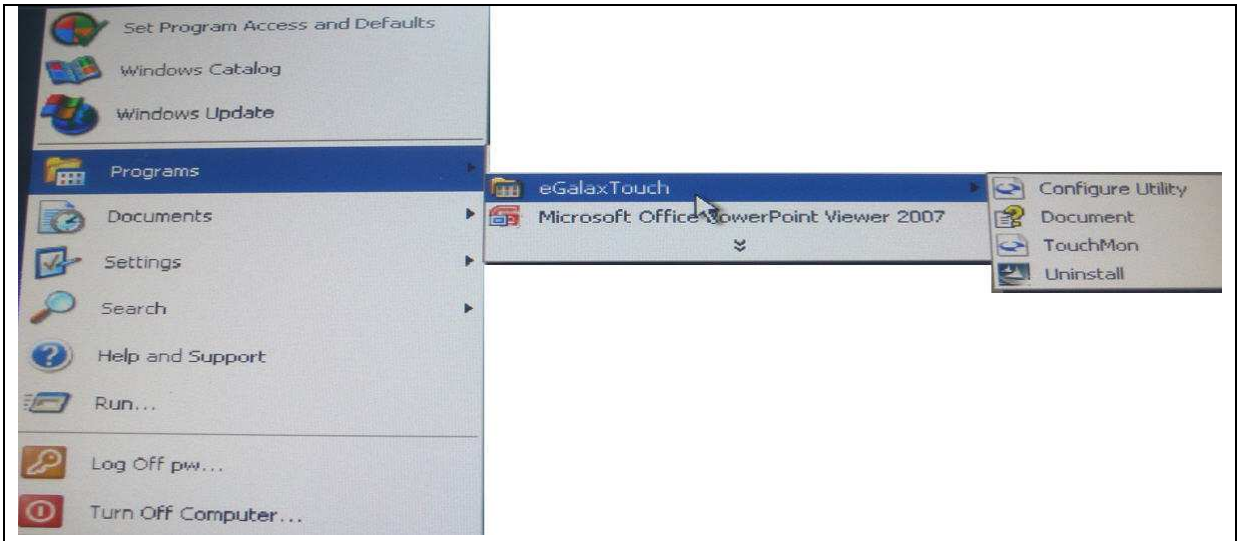
3.8 Calibration of Touch Screen

The driver for the 5-wire touch screen has already been installed before shipment. No step by step installation guide needs to be introduced here.

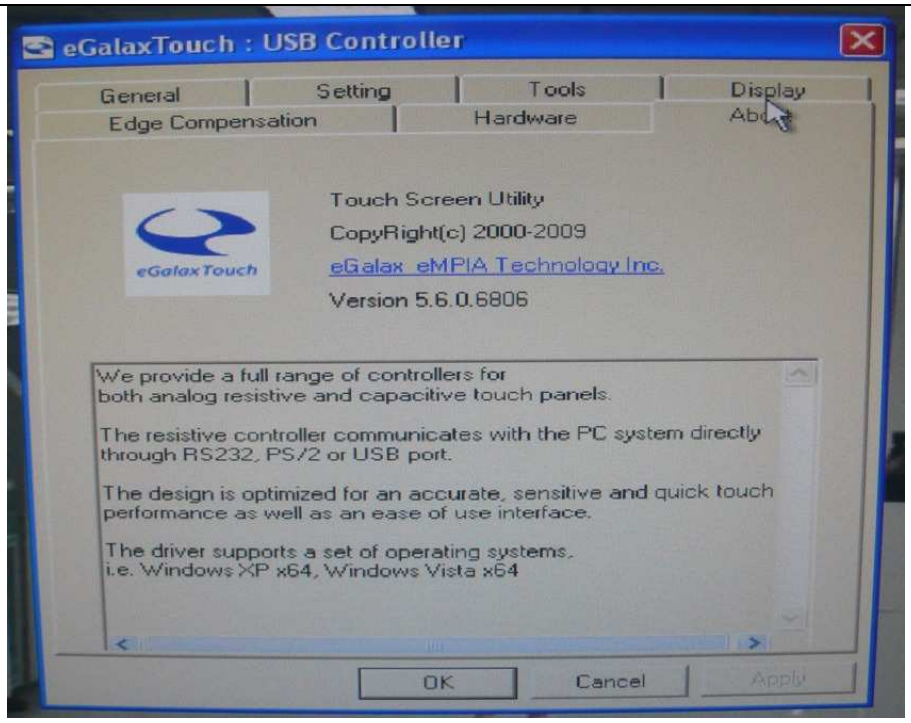
The calibration procedure is shown by degrees.



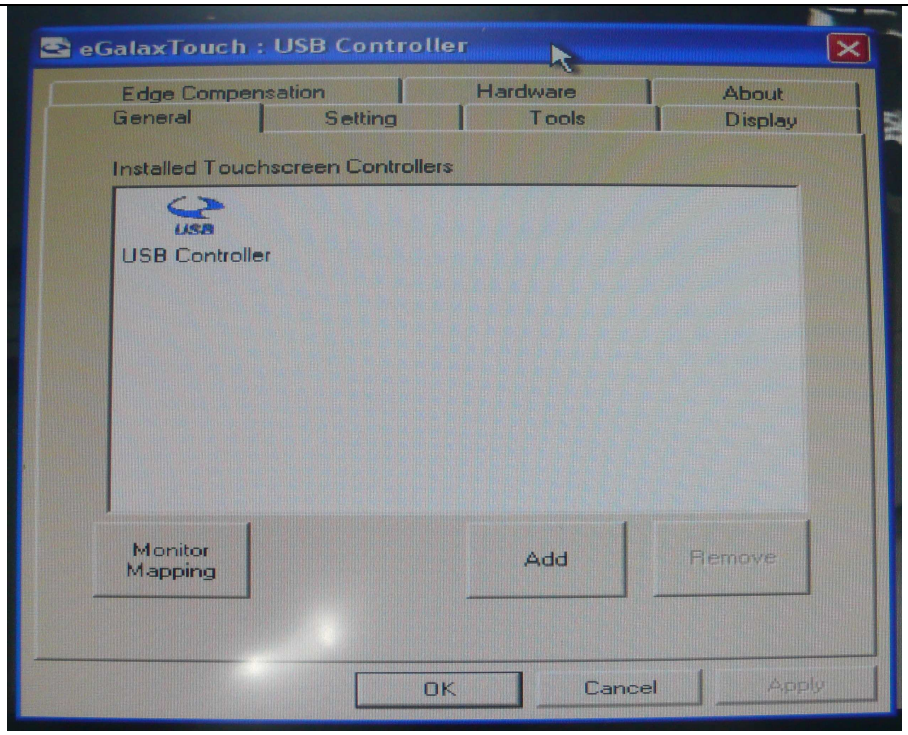
The “Touch Screen Utility” has been installed in EUDA series before shipment.



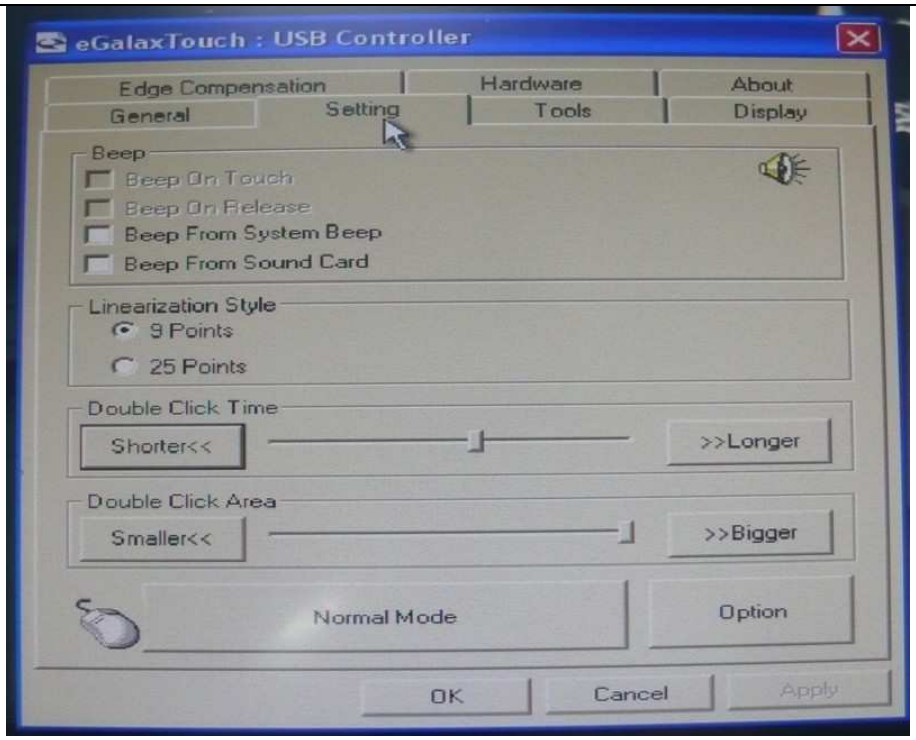
How to calibrate the touch screen?
From the [Program] to find [eGalaxTouch] icon then click the [Configure Utility].



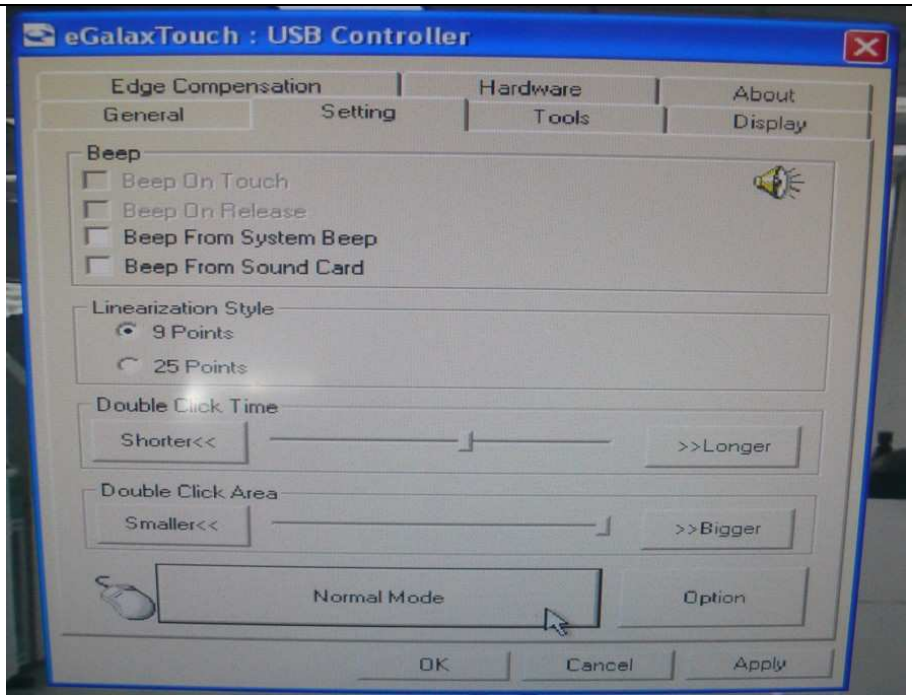
Click the Page [About], you can find the information and version of the “Touch Screen Utility”



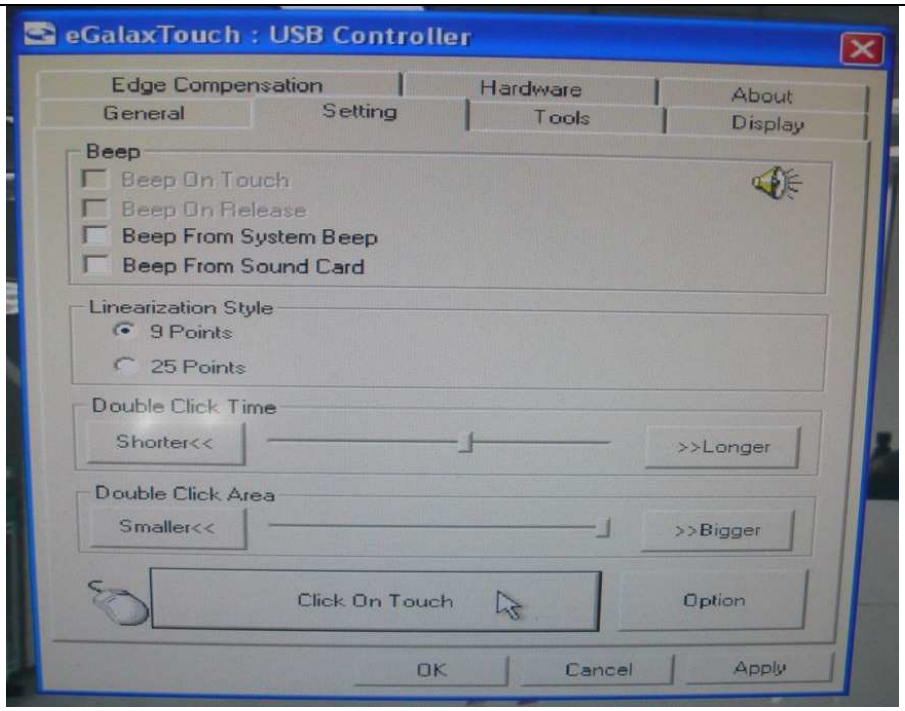
Click the Page [General], the installed USB Touchscreen Controller is shown. (USB interface is used in EUDA series.)



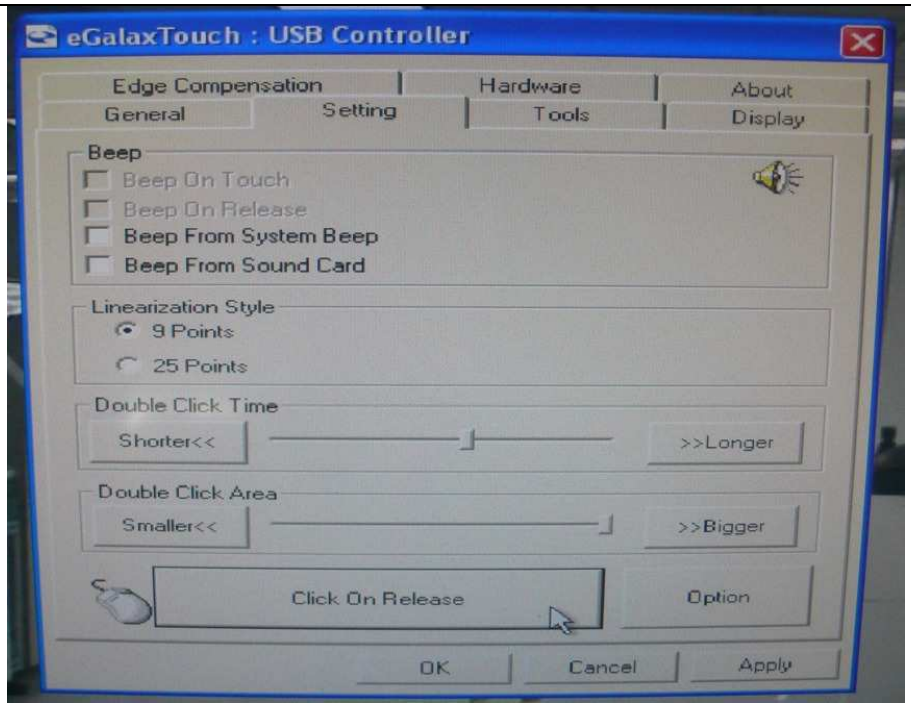
Click the Page [Setting], you can choose the Linearization Style, either 9 Points or 25 Points.



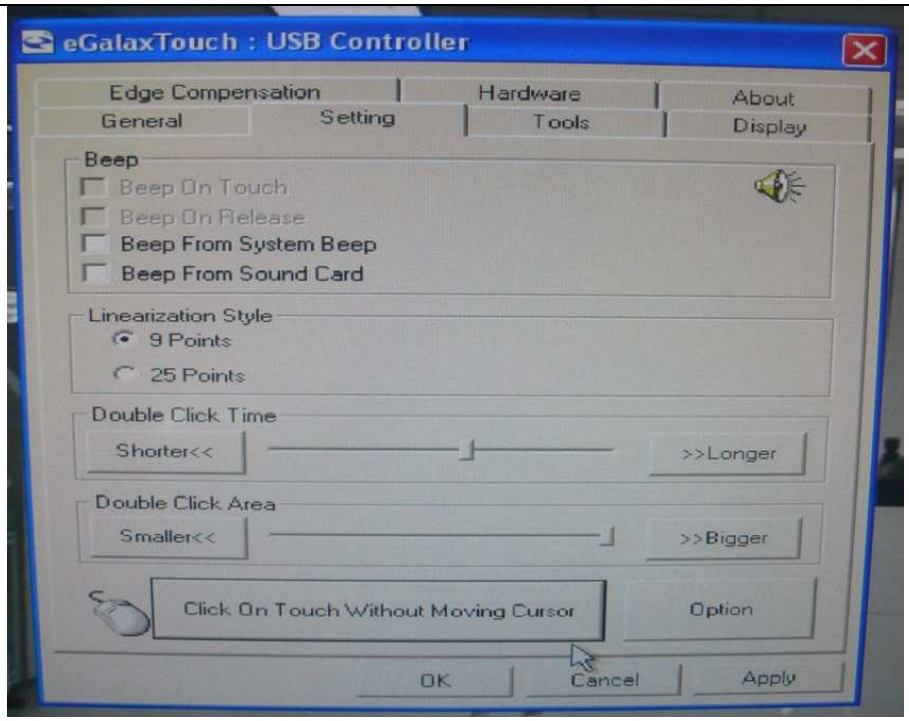
Under the Page [Setting], you can select Mouse action. Here is “Normal Mode”.



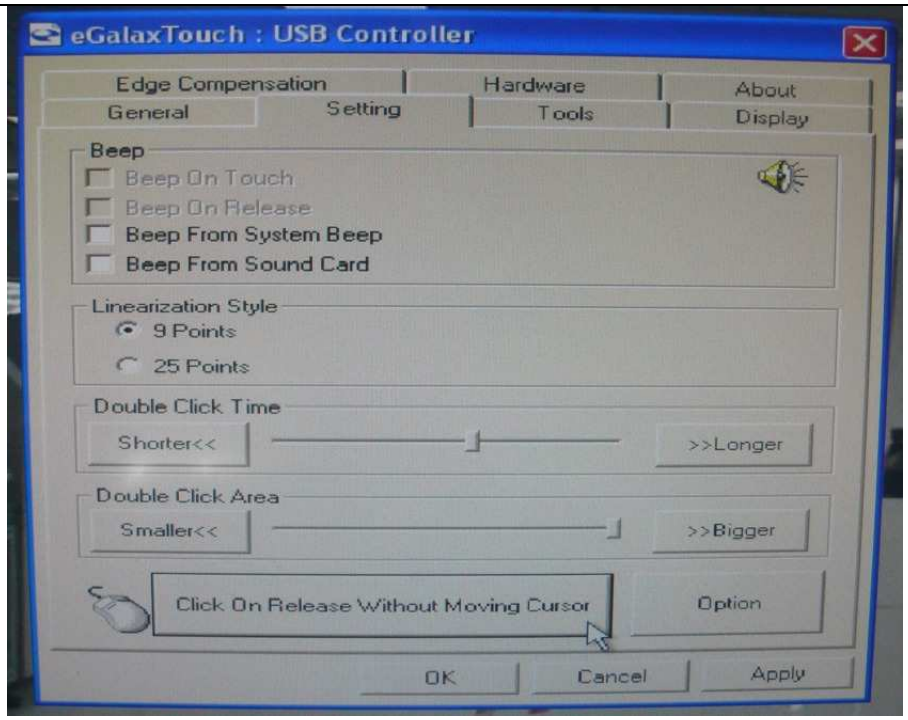
Under the Page [Setting], you can select Mouse action. Here is “Click On Touch”.



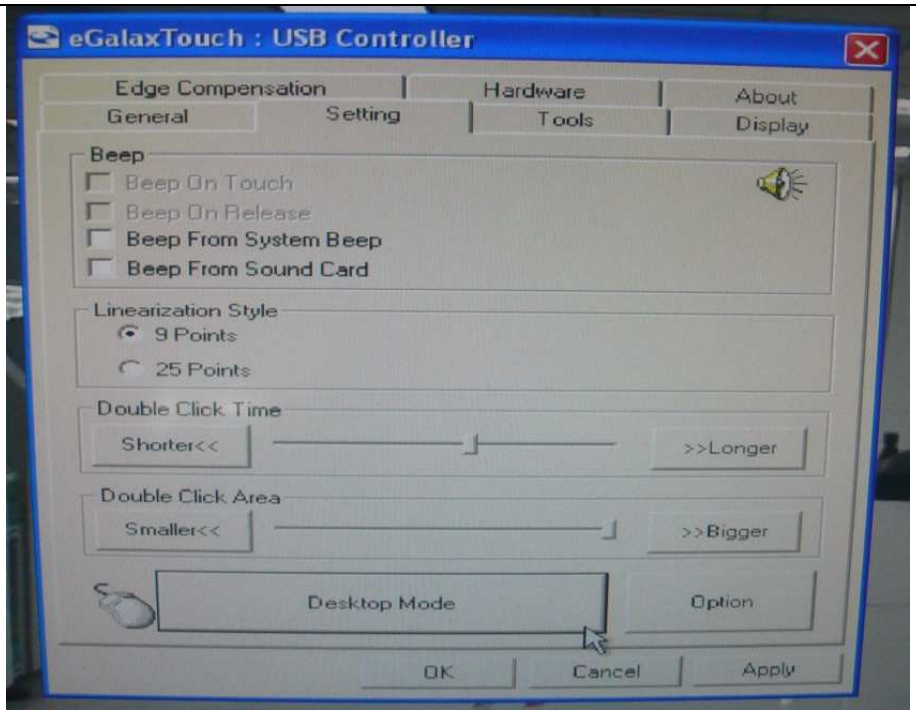
Under the Page [Setting], you can select Mouse action. Here is “Click On Release”.



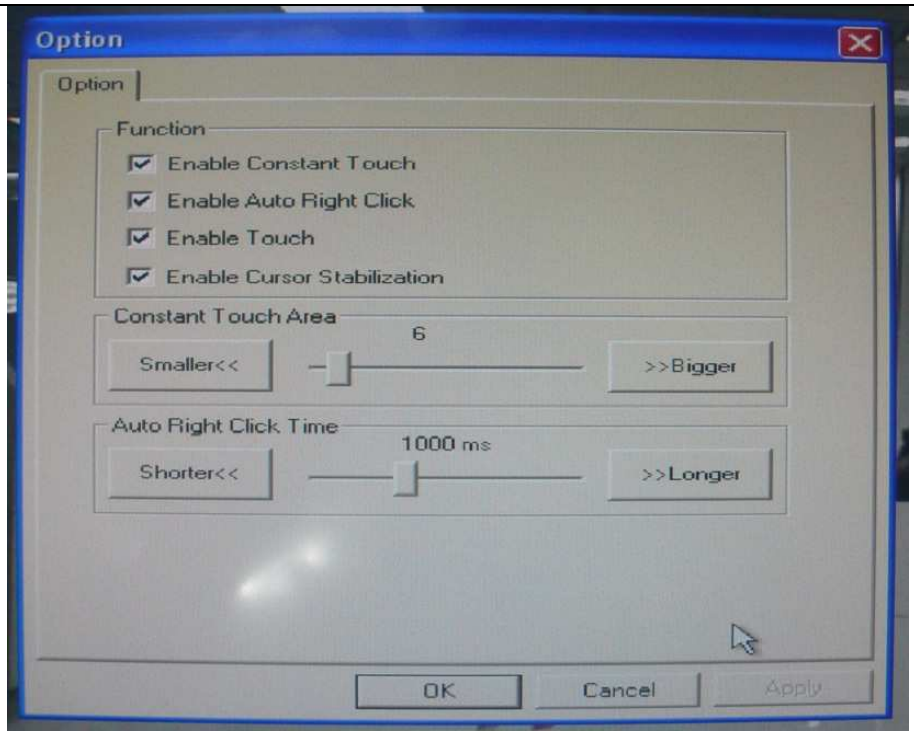
Under the Page [Setting], you can select Mouse action. Here is “Click On Touch Without Moving Cursor”.



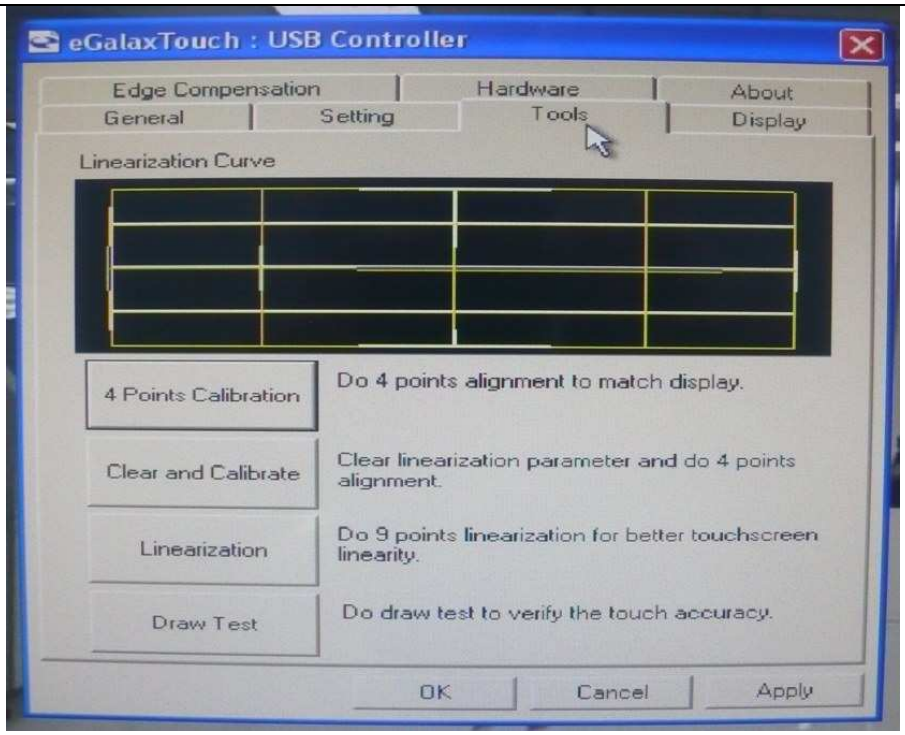
Under the Page [Setting], you can select Mouse action. Here is “Click On Release Without Moving Cursor”.



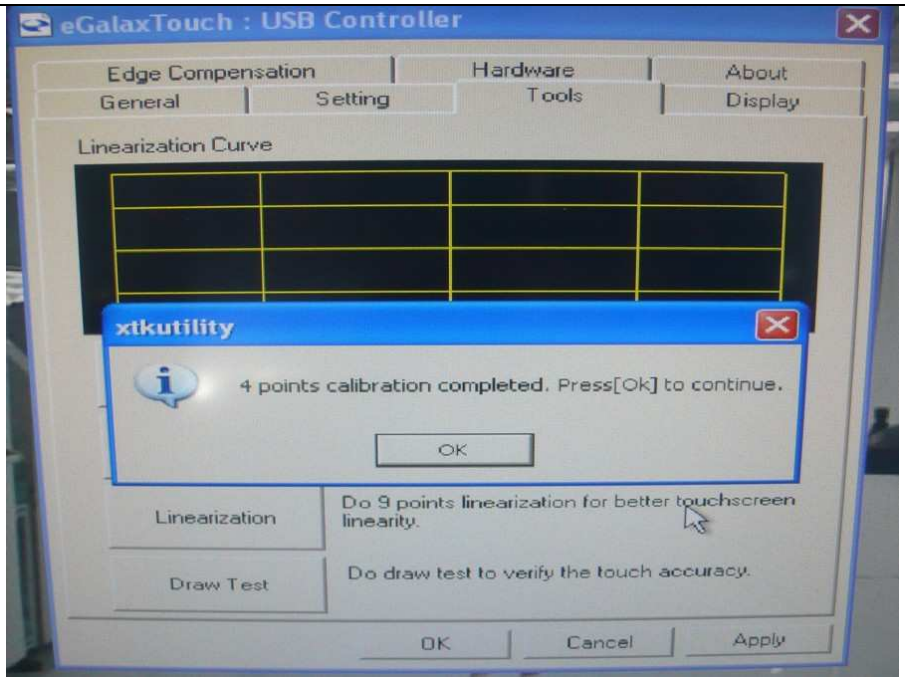
Under the Page [Setting], you can select Mouse action. Here is “Desktop Mode”.



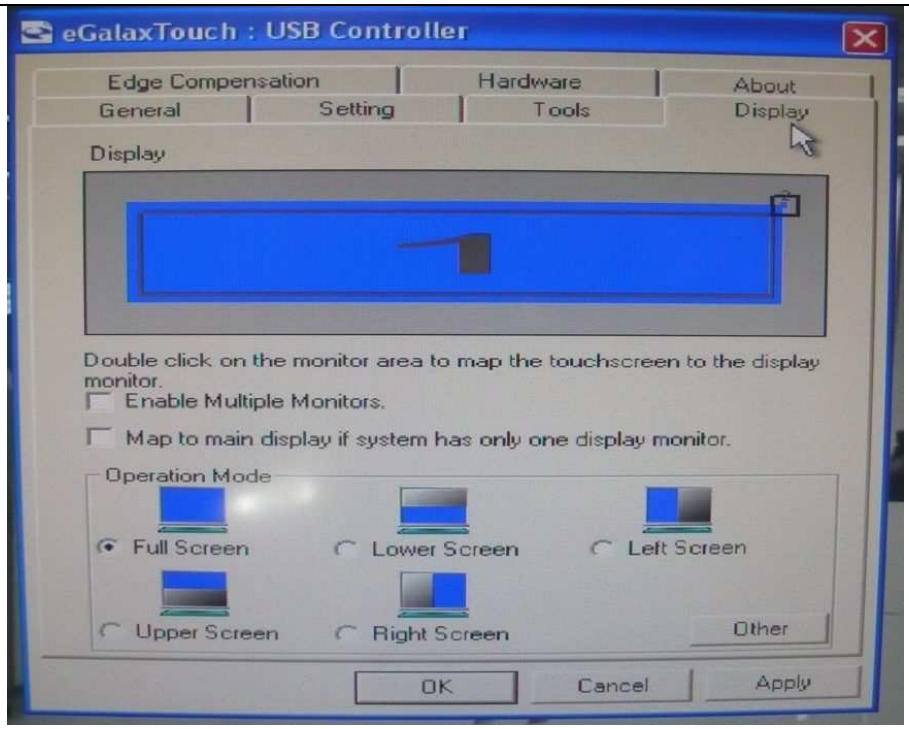
Under the Page [Setting], you can click the [Option] button to set up the Function, Constant Touch Area and Auto Right Click Time.



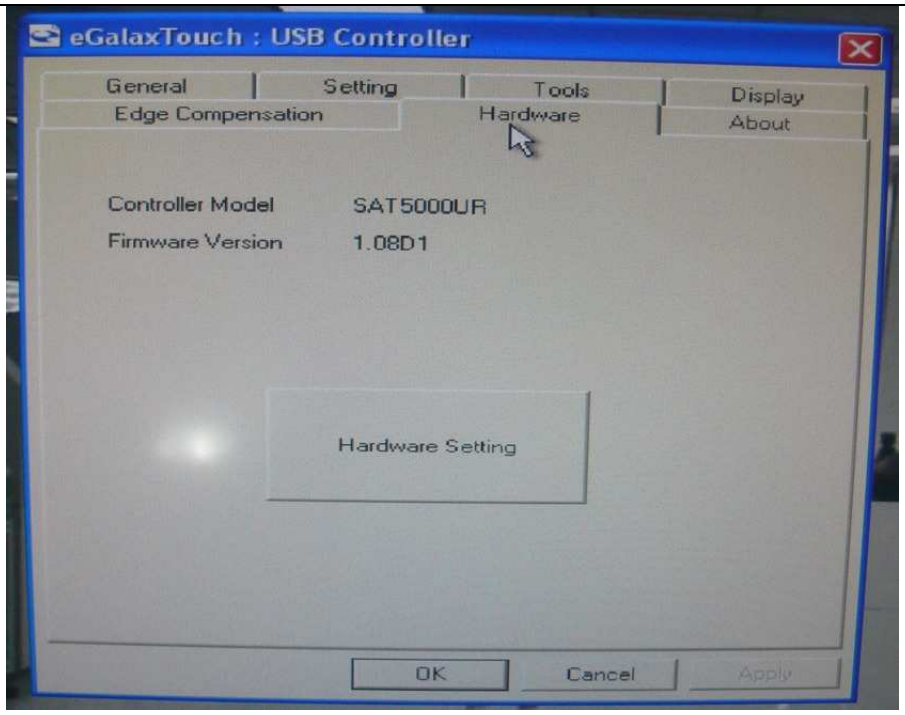
Click the Page [Tools], you can choose [4 Points Calibration] to do 4 points alignment to match display.



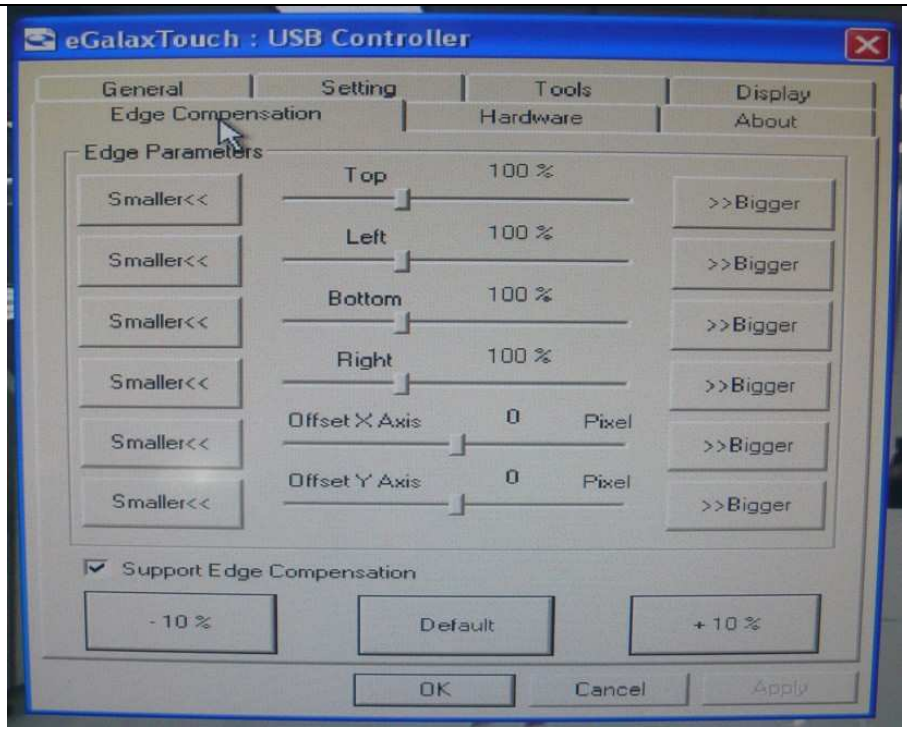
The 4 points calibration is completed.



Click the Page [Display], you can select the Operation Mode.



Click the Page [Hardware], Controller Model and Firmware Version can be seen. And [Hardware Setting] can be done on this page.



Click the Page [Edge Compensation] to adjust the Edge Parameters.

Chapter 4
BIOS Setup Information

The built-in Mini-ITX board is equipped with the AWARD BIOS stored in Flash ROM. These BIOS has a built-in Setup program that allows users to modify the basic system configuration easily. This type of information is stored in CMOS RAM so that it is retained during power-off periods. When system is turned on, the built-in Mini-ITX board communicates with peripheral devices and checks its hardware resources against the configuration information stored in the CMOS memory. If any error is detected, or the CMOS parameters need to be initially defined, the diagnostic program will prompt the user to enter the SETUP program. Some errors are significant enough to abort the start-up.

4.1 Entering Setup

Turn on or reboot the computer. When the message "Hit <DEL> if you want to run SETUP" appears, press <Del> key immediately to enter BIOS setup program.

If the message disappears before you respond, but you still wish to enter Setup, please restart the system to try "COLD START" again by turning it OFF and then ON, or touch the "RESET" button. You may also restart from "WARM START" by pressing <Ctrl>, <Alt>, and <Delete> keys simultaneously. If you do not press the keys at the right time and the system will not boot, an error message will be displayed and you will again be asked to,

Press <F1> to Run SETUP or Resume

In HIFLEX BIOS setup, you can use the keyboard to choose among options or modify the system parameters to match the options with your system. The table below will show you all of keystroke functions in BIOS setup.

General Help	
↑ ↓ → ←	: Move
Enter	: Select
+ / - /PU /PD	: Value
ESC	: Exit
F1	: General Help
F2	: Item Help
F5	: Previous Values
F6	: Fail-Safe Defaults
F7	: Optimized Defaults
F9	: Menu in BIOS
F10	: Save

4.2 Main Menu

Once you enter the built-in Mini-ITX board AWARD BIOS CMOS Setup Utility, a Main Menu is presented. The Main Menu allows user to select from eleven setup functions and two exit choices. Use arrow keys to switch among items and press <Enter> key to accept or bring up the sub-menu.

Phoenix - AwardBIOS CMOS Setup Utility

▶ Standard CMOS Features ▶ Advanced BIOS Features ▶ Advanced Chipset Features ▶ Integrated Peripherals ▶ Power Management Setup ▶ PnP/PCI Configurations ▶ PC Health Status	Load Fail-Safe Defaults Load Optimized Defaults Set Supervisor Password Set User Password Save & Exit Setup Exit Without Saving
ESC : Quit F10 : Save & Exit Setup	↑ ↓ → ← : Select Item
Time, Date, Hard Disk Type …	

Note:
It is strongly recommended to reload Optimal Setting if CMOS is lost or BIOS is updated.

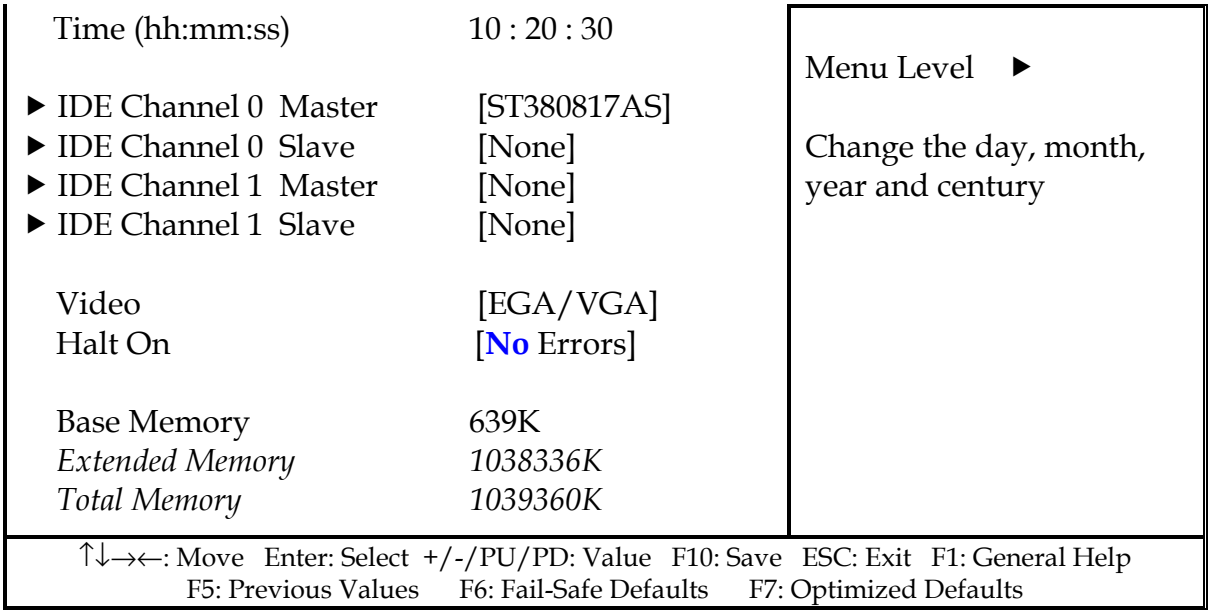
4.3 Standard CMOS Setup Menu

This setup page includes all the items in standard compatible BIOS. Use the arrow keys to highlight the item and then use the <PgUp>/<PgDn> or <+>/<-> keys to select the value or number you want in each item and press <Enter> key to certify it.

Follow command keys in CMOS Setup table to change **Date**, **Time**, **Drive type**, and **Boot Sector Virus Protection Status**.

Phoenix - AwardBIOS CMOS Setup Utility
Standard CMOS Features

Date (mm:dd:yy)	Fri, Jan 29 2010	Item Help



Note:
Oblique items are based on memory capacity which user adopts on single board.

■ **Menu Selections**

Item	Options	Description
Date	mm:dd:yy	Change the day, month, year and century
Time	hh:mm:ss	Change the internal clock
IDE Channel 0 Master	Options are in its sub menu	Press <Enter> to enter next page for detail hard druve settings
IDE Channel 0 Slave		
IDE Channel 1 Master		
IDE Channel 1 Slave		
Video	EGA/VGA CGA 40 CGA 80 MONO	Select the default video device
Halt On	All Errors	Select the situation in which you want the BIOS to stop the POST process and notify you
Base Memory	639K	Displays the amount of conventional memory detected during boot up
Extended Memory	N/A	Displays the amount of extended memory detected during boot up
Total Memory	N/A	Displays the total memory available in the system

4.4 IDE Adaptors Setup Menu

The IDE adapters control the IDE devices, such as hard disk drive or CD-ROM drive. It uses a separate sub menu to configure each hard disk drive.

Phoenix - AwardBIOS CMOS Setup Utility
IDE Channel 0 Master (&Slave)

IDE HDD Auto-Detection	[Press Enter]	Item Help
IDE Channel 0 Master	[Auto]	
Access Mode	[Auto]	Menu Level ►
Capacity	*80 GB*	To atuo-detect the HDD's size, head … on this channel
Cylinder	*38309*	
Head	*16*	
Precomp	*0*	
Landing Zone	*38308*	
Sector	*255*	

↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Note:
The oblique items are meaning base on what kind of storage device user employs.

■ **Menu Selections**

Item	Options	Description
IDE HDD Auto-detection	Press Enter	Press Enter to auto-detect the HDD on this channel. If detection is successful, it fills the remaining fields on this menu.
IDE Channel 0 Master	None Auto Manual	Selecting 'manual' lets you set the remaining fields on this screen. Selects the type of fixed disk. "User Type" will let you select the number of cylinders, heads, etc. Note: PRECOMP=65535 means NONE !
Access Mode	CHS, LBA Large, Auto	Choose the access mode for this hard disk
Capacity	Auto Display your disk drive size	Disk drive capacity (Approximated). Note that this size is usually slightly greater than the size of a formatted disk given by a disk checking program.
The following options are selectable only if the 'IDE Primary Master' item is set to 'Manual'		
Cylinder	Min=0, Max=65535	Set the number of cylinders for hard disk
Head	Min=0, Max=255	Set the number of read/write heads
Precomp	Min=0, Max=65535	**** Warning: Setting a value of 65535 means no hard disk
Landing zone	Min=0, Max=65535	****
Sector	Min=0, Max=255	Number of sectors per track

4.5 Advanced BIOS Features

This section allows you to configure your system for basic operation. You have the opportunity to select the system's default speed, boot-up sequence, keyboard operation, shadowing and security.

Phoenix - AwardBIOS CMOS Setup Utility
Advanced BIOS Features

▶ CPU Feature	[Press Enter]	Item Help
▶ Hard Disk Boot Priority	[Press Enter]	
Virus Warning	[Disabled]	Menu Level ▶
Quick Power On Self Test	[Enabled]	
First Boot Device	[CDROM]	
Second Boot Device	[Hard Disk]	
Third Boot Device	[LS120]	
Boot Other Device	[Enabled]	
Boot up NumLock Status	[On]	
Gate A20 Option	[Fast]	
Typematic Rate Setting	[Disabled]	
X Typematic Rate (Chars/Sec)	6	
X Typematic Delay (Msec)	250	
Security Option	[Setup]	
APIC Mode	[Enabled]	
MPS Version Control For OS	[1.4]	
OS Select For DRAM > 64MB	[Non-OS2]	
Report No FDD For WIN 95	[No]	
Small Logo(EPA) Show	[Disabled]	

↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Phoenix - AwardBIOS CMOS Setup Utility
CPU Feature

Delay Prior to Thermal	[16 Min]	Item Help
Limit CPUID MaxVal	[Disabled]	Menu Level ▶
C1E Function	[Auto]	CPU C1E Function Select
Execute Disable Bit	[Enabled]	

↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

C1E Function

CPU C1E Function Select.

The selection : Auto, Disabled.

Execute Disabled Bit

When disabled, forces the XD feature flag to always return 0.

The selection : Enabled, Disabled.

Core Multi-Processing

The selection : Enabled, Disabled.

Phoenix - AwardBIOS CMOS Setup Utility
Hard Disk Boot Priority

1. CH0 M. : ST380817AS 2. Bootable ADD-in Cards	Item Help Menu Level ► Use < ↑ > or < ↓ > to select a device, then press <+> to move it up, or <-> to move it down the list. Press <ESC> to exit this menu.
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults	

Hard Disk Boot Priority

Select Hard Disk Boot Device Priority. Use < ↑ > or < ↓ > to select a device, then press <+> to move it up, or <-> to move it down the list. Press <ESC> to exit this menu.

Virus Warning

Allow you to choose the VIRUS warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempt to write data into this area, BIOS will show a warning message on screen and alarm beep.

Enabled	Activates automatically when the system boots up causing a warning message to appear when anything attempts to access the boot sector or hard disk partition table.
Disabled	No warning message will appear when anything attempts to access the boot sector or hard disk partition table.

Quick Power On Self Test

Allows the system skip certain tests while booting. This will decrease the time needed to boot the system.

Enabled	Enable Cache
Disabled	Disable Cache

First/Second/Third Boot Device

Select your Boot Device Priority.

The selection : LS120, Hard Disk, CDROM, ZIP 100, USB-FDD, USB-ZIP, USB-CDROM and Disabled.

Boot Other Device

Select your Boot Device Priority.

The selection : Enabled, Disabled.

Boot Up NumLock Status

Select power on state for NumLock.

The selection : Off, On.

Gate A20 Option

Fast-lets chipsets control GateA20 and Normal – a pin in the keyboard controller controls GateA20. Default is fast.

The selection : Normal, Fast.

Typematic Rate Setting

Keyboard repeat at a rate determined by the keyboard controller – when enabled, the typematic rate and typematic delay can de select.

The selection : Disabled, Enabled.

※Typematic Rate (Chars/sec)

The rate is which character repeats when you hold down a key.

The selection : 6, 8, 10, 12, 15, 20, 24, and 30. (Default 6)

※Typematic delay (Msec)

The delay before keystrokes begin to repeat.

The selection : 250, 500, 750, and 1000. (Default 250)

Security Option

Select whether the password is required every time the system boots or only when you enter setup.

System	The system will not boot and access to Setup will be denied if the correct password is not entered at the prompt.
Setup	The system will boot, but access to Setup will be denied if the correct password is not entered at the prompt.

APIC Mode

The selection : Enabled, Disabled.

MPS Version Control For OS

The selection : 1.1, 1.4

OS Select For DRAM > 64MB

Select OS/2 only if you are running OS/2 operating system with greater than 64MB of RAM on the system.

The selection : Non-OS2, OS2.

Report No FDD for WIN 95

The selection : No, Yes.

Small Logo (EPA) Show

The selection : Enabled, Disabled.

4.6 Advanced Chipset Features

This section allows you to configure the system based on the specific features of the Intel GME965 chipset. This chipset manages bus speeds and access to system memory resources, such as DDR2 SO-DIMM and the external cache. It must be stated that these items should never need to be altered. The default settings have been chosen because they provide the best operating conditions for the system. The only time user might consider making any changes would be if you discovered that data was being lost while during system operation.

Phoenix - Award BIOS CMOS Setup Utility
Advanced Chipset Features

System BIOS Cacheable	[Enabled]	Item Help

Memory Hole At 15M-16M	[Disabled]	
▶ PCI Express Root Port Func.	[Press Enter]	Menu Level ▶
*** VGA Setting ***		
On-Chip Frame Buffer Size	[8MB]	
DVMT Mode	[DVMT]	
DVMT/FIXED Memory Size	[128MB]	
Boot Display	[CRT + LVDS]	
Panel Scaling	[Auto]	
Panel Number	[800x600 18bit 1ch]	

↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

System BIOS Cacheable.

The selection : Enabled, Disabled.

Memory Hole At 15-16M

The selection : Enabled, Disabled.

PCI Express Root Port Func.

Phoenix - Award BIOS CMOS Setup Utility
PCI Express Root Port Func

PCI Express Port 1	[Auto]	Item Help
PCI Express Port 2	[Auto]	
PCI Express Port 3	[Auto]	Menu Level ▶
PCI Express Port 4	[Auto]	
PCI Express Port 5	[Auto]	
PCI Express Port 6	[Auto]	
PCI-E Compliancy Mode	[v1.0a]	

↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

On-Chip Frame Buffer Size

Users can set the display memory size that shared from main memory.

The selection : 1MB, 8MB.

DVMT Mode

The selection : FIXED, DVMT, BOTH

DVMT/FIXED Memory Size

The selection : 64MB, 128MB, 224MB.

Boot Display

The selection : CRT, LVDS, CRT+LVDS, DVI, TV, CRT+DVI, CRT+TV.

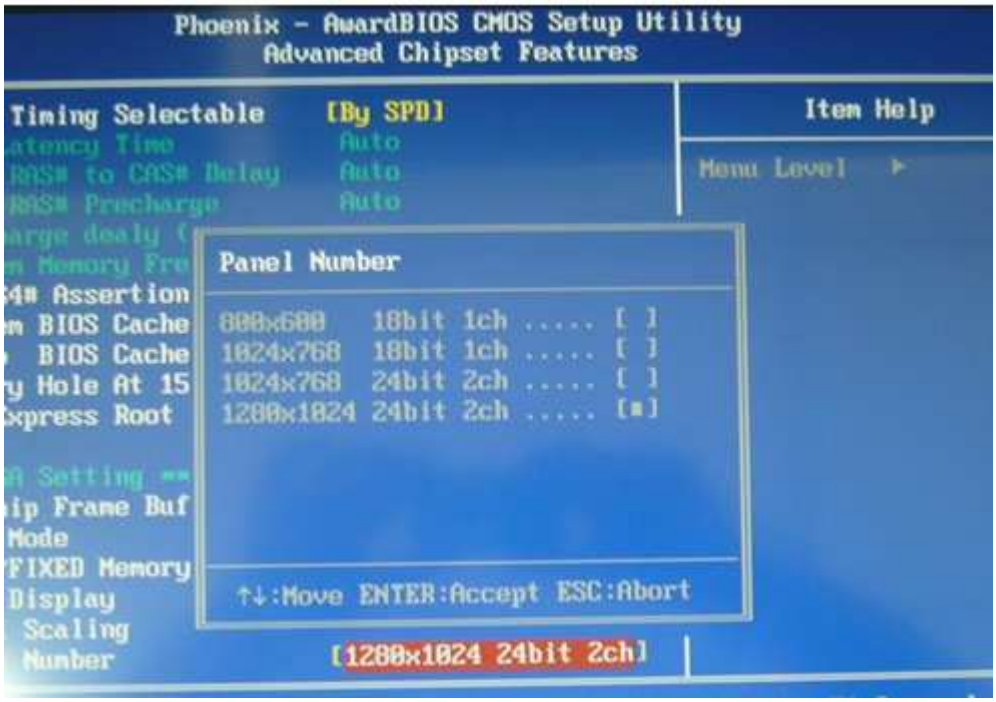
Panel Scaling

The selection : Auto, On, Off.

Panel Number

The selection :
800x600 18bit 1ch, 1024x768 18bit 1ch, 1024x768 24bit 2ch, 1280x1024 24bit 2ch.

EUDA-S1210 (12" : Resolution setting at 800*600 ; 18bit ; 1ch)
EUDA-S1510 (15" : Resolution setting at 1024*768 ; 18bit ; 1ch)
EUDA-S1710 (17" : Resolution setting at 1280*1024 ; 24bit ; 2ch)
EUDA-S1910 (19" : Resolution setting at 1280*1024 ; 24bit ; 2ch)



4.7 Integrated Peripherals

Phoenix - Award BIOS CMOS Setup Utility
Integrated Peripherals

▶ OnChip IDE Device	[Press Enter]	Item Help
▶ Onboard Device	[Press Enter]	
▶ SuperIO Device	[Press Enter]	Menu Level ▶
Watch Dog Timer Select	[Disabled]	

↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Phoenix - Award BIOS CMOS Setup Utility
OnChip IDE Device

		Item Help
IDE HDD Block Mode	[Enabled]	Menu Level ▶
IDE DMA transfer access	[Enabled]	
On-Chip Primary PCI IDE	[Enabled]	If your IDE hard drive supports block mode select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support.
IDE Primary Master PIO	[Auto]	
IDE Primary Slave PIO	[Auto]	
IDE Primary Master UDMA	[Auto]	
IDE Primary Slave UDMA	[Auto]	
On-Chip Secondary PCI IDE	[Enabled]	
IDE Secondary Master PIO	[Auto]	
IDE Secondary Slave PIO	[Auto]	
IDE Secondary Master UDMA	[Auto]	
IDE Secondary Slave UDMA	[Auto]	
*** On-Chip Serial ATA Setting ***		
On-Chip Serial ATA	[Combined Mode]	
* SATA PORT Speed Settings	Disabled	
PATA IDE Mode	[Secondary]	
SATA Port	P0, P2 is Primary	

↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

IDE HDD Block Mode

If IDE hard drive supports block mode select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support.

The selection : Enabled, Disabled.

IDE DMA transfer access

The selection : Enabled, Disabled.

On-Chip Primary/ Secondary PCI IDE

The chipset contains a PCI IDE interface with support for two IDE channels. Select Enabled to activate the primary IDE interface. Select Disabled to deactivate this interface.

The selection : Enabled, Disabled

IDE Primary/Secondary Master/Slave PIO

The four IDE PIO (Programmed Input/Output) fields allow set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0

through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.

The selection : Auto, Mode 0, Mode 1, Mode 2, Mode 3, Mode 4.

IDE Primary/Secondary Master/Slave UDMA

Ultra DMA/33/66/100 implementation is possible only if IDE hard drive supports and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver). If your hard drive and system software both support Ultra DMA/33/66/100, select Auto to enable BIOS support.

The selection : Auto, Disabled.

On-Chip Serial ATA

[Disabled]: Disabled SATA Controller. [Combined Mode]: PATA and SATA are combined. Max. of 2 IDE drives in each channel. [Enhanced Mode]: Enable both SATA and PATA. Max. of 4 IDE drives are supported. [SATA only]: Only enable SATA.

The selection : Disabled, Auto, Combined Mode, Enhanced Mode, SATA Only.

PATA IDE Mode

The selection : Secondary.

Onboard Device

Phoenix - Award BIOS CMOS Setup Utility
USB Device Setting

USB 1.0 Controller	[Enabled]	Item Help
USB 2.0 Controller	[Enabled]	
USB Keyboard Function	[Enabled]	Menu Level ▶
USB Mouse Function	[Disabled]	[Enabled] or [Disabled] universal host controller interface for universal serial bus.
Azalia/AC97 Audio Select	[Auto]	

↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

USB 1.0 Controller

[Enabled] or [Disabled] Universal host controller interface for universal serial bus.

The selection : Enabled, Disabled.

USB 2.0 Controller

[Enabled] or [Disabled] Enhanced host controller interface for universal serial bus.

The selection : Enabled, Disabled.

USB Keyboard/Mouse Function

[Enabled] or [Disabled] Legacy support of USB keyboard or mouse.

The selection : Disabled, Enabled.

Azalia/AC97 Audio Select

[Enabled] or [Disabled] AC97 Audio controller.

SuperIO Device

Phoenix - Award BIOS CMOS Setup Utility
SuperIO Device

Onboard Serial Port 1	[3F8/IRQ4]	Item Help
Onboard Serial Port 2	[2F8/IRQ3]	
UART Mode Select	[Normal]	Menu Level ▶
X RxD , TxD Active	Hi , Lo	
X IR Transmission Delay	Enable	
X UR2 Duplex Mode	Half	
XUse IR Pins	IR-Rx2Tx2	

↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Onboard Serial Port 1/Port 2

Select an address and corresponding interrupt for the first and second serial ports.

The selection : Disabled, 3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3, Auto.

UART Mode Select

This item allows users to select Infrared transmission mode.

IrDA	Select IrDA mode transmission
ASKIR	Select ASKIR mode transmission
Normal	Disable Infrared function

RxD, TxD Active

This item is to configure Infrared transmission rate. Four options are available:

Hi, Hi	High rate for receiving / High rate for transmitting
Hi, Lo	High rate for receiving / Low rate for transmitting
Lo, Hi	Low rate for receiving / High rate for transmitting
Lo, Lo	Low rate for receiving / Low rate for transmitting

IR Transmission Delay

This option will be available when IR is enabled.

The selection : Enabled, Disabled.

UR2 Duplex Mode

The available choices are full duplex mode and half duplex mode.

The selection : Full, Half.

UR2 Duplex Mode

The available choices are full duplex mode and half duplex mode

The selection : Full, Half.

Use IR Pins

The available choices are IR-Rx2Tx2/ RxD2, TxD2.

The selection : IR-Rx2Tx2 / RxD2, TxD2.

Watch Dog Timer Select

This BIOS testing option is able to reset the system according to the selected table.

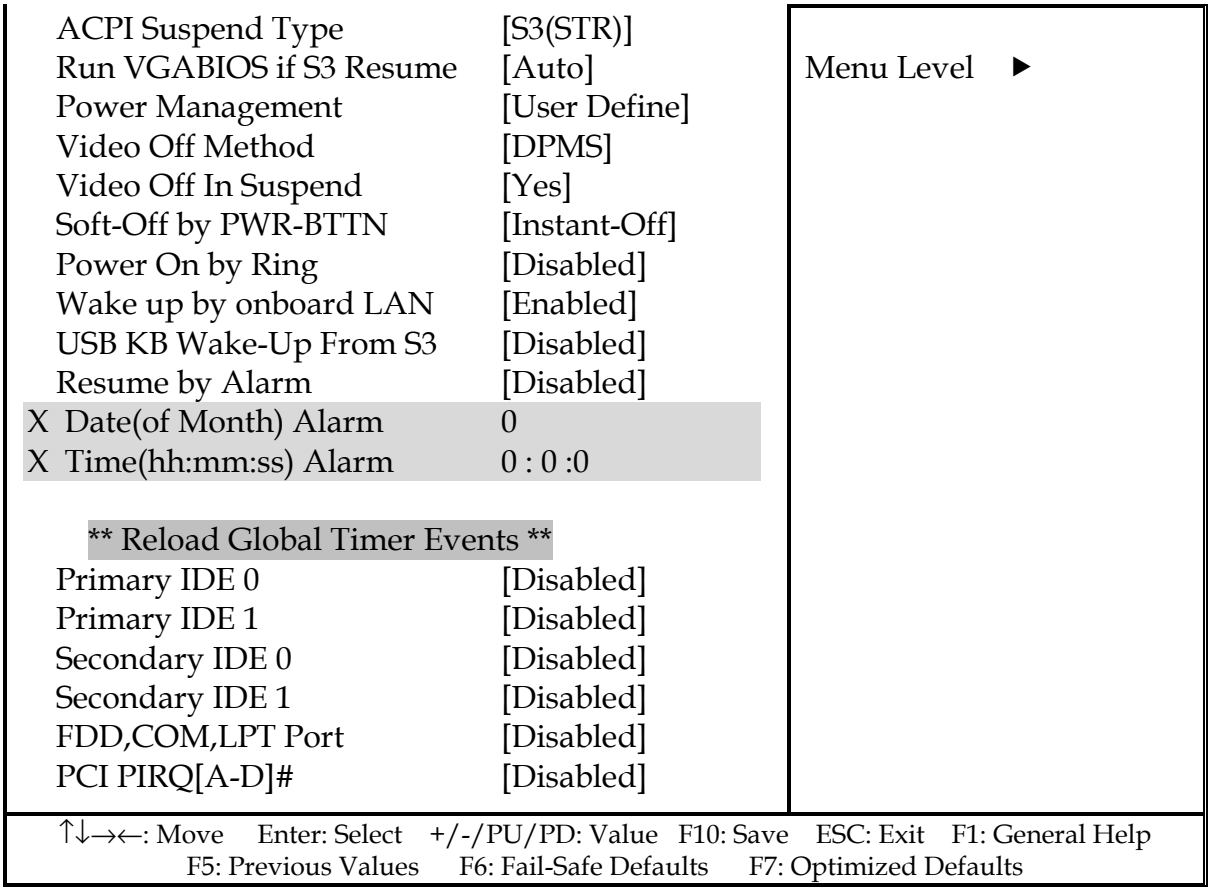
The selection : Disabled, 10 Sec, 20 Sec, 30 Sec, 40 Sec, 1 Min, 2 Min, and 4 Min.

4.8 Power Management Setup

The Power Management Setup allows configuration of the system to most effectively save energy while operating in a manner consistent with your own style of computer use.

Phoenix - Award BIOS CMOS Setup Utility
Power Management Setup

ACPI Function	[Enabled]	Item Help



ACPI Function

This item allows you to enable/disable the Advanced Configuration and Power Management (ACPI).

The selection : Enabled, Disabled.

ACPI Suspend Type

To decide which ACPI suspend mode to use.

The selection : S1 (POS), S3 (STR).

Run VGA BIOS if S3 Resume

The selection : Auto, Yes, No.

Power Management

This category allows selecting the type (or degree) of power saving and is directly related to “HDD Power Down”, “Suspend Mode”.

There are three selections for Power Management, three of which have fixed mode settings.

Min. Power Saving	Minimum power management. Suspend Mode = 1 Hour, and HDD Power Down = 15 Min.
Max. Power Saving	Maximum power management. Suspend Mode = 1 Min., and HDD Power Down = 1 Min.
User Defined	Allows you to set each mode individually. When not disabled, Suspend Mode ranges from 1 min. to 1 Hour and HDD Power Down ranges from 1 Min. to 15 Min.

Video off Method

This determines the manner in which the monitor is blanked.

V/H SYNC+Blank	This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.
Blank Screen	This option only writes blanks to the video buffer.
DPMS	Initial display power management signaling.

Video Off In Suspend

This allows user to enable/disable video off in Suspend Mode.

The selection : Yes, No.

Soft-Off by PWR-BTTN

This item allows users to set the time to remove the power after the power button is pressed.

The selection : Instant-Off, Delay 4 Sec.

Power On by Ring

When select "Enabled", a system that is at soft-off mode will be alert to Wake-On-Modem signal.

The selection : Enabled, Disabled.

Wake Up By Onboard LAN

The selection : Disabled, Enabled.

USB KB Wake-Up From S3

The selection : Enabled, Disabled.

Resume by Alarm

This item allows users to enable/disable the resume by alarm function. When "Enabled" is selected, system using ATX power supply could be powered on if a customized time and day is approached.

The selection : Enabled, Disabled.

※Date(of Month) Alarm

When "Resume by Alarm" is enabled, this item could allow users to configure the date parameter of the timing dateline on which to power on the system.

The selection : 0 ~ 31.

※Time (hh:mm:ss) Alarm

When "Resume by Alarm" is enabled, this item could allow users to configure the time parameter of the timing dateline on which to power on the system.

The selection : hh (0~23), mm (0~59), ss (0 ~59).

Primary/Secondary IDE 0/1

This item is to configure IDE devices being monitored by system so as to keep system out of suspend mode if the associated device is busy.

The selection : Enabled, Disabled.

FDD, COM, LPT Port

This item is to configure floppy device, COM ports, and parallel port being monitored by system so as to keep system out of suspend mode if the associated device is busy.

The selection : Enabled, Disabled.

PCI PIRQ[A-D]#

This option can be used to detect PCI device activities. If they are activities, the system will go into sleep mode.

The selection : Enabled, Disabled.

4.9 PnP/PCI Configurations

This section describes configuring the PCI bus system. PCI, or **P**ersonal **C**omputer **I**nterconnect, is a system which allows I/O devices to operate at speeds nearing the speed the CPU itself uses when communicating with its own special components.

This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.

Phoenix - Award BIOS CMOS Setup Utility
PnP/PCI Configurations

Init Display First	[PCI Slot]	Item Help
Reset Configuration Data	[Disabled]	
Resources Controlled By	[Auto(ESCD)]	Menu Level ►
X IRQ Resources	Press Enter	
PCI/VGA Palette Snoop	[Disabled]	
** PCI Express relative items **		
Maximum Payload Size	[4096]	

↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Init Display First

The selection : PCI Slot, Onboard, PCIEx.

Reset Configuration Data

Default is Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the OS cannot boot.

The selection : Enabled, Disabled.

Resource Controlled By

BIOS can automatically configure the entire boot and plug and play compatible devices. If set to Auto, IRQ DMA and memory base address fields can not be selected, since BIOS automatically assigns them.

The selection : Auto (ESCD), Manual.

※IRQ Resources

When resources are controlled manually, assign each system interrupt a type, depending on the type of device using the interrupt.

The selection : Press Enter.

IRQ-3/IRQ-4/IRQ-5/IRQ-7/IRQ-9/IRQ-10/IRQ-11/IRQ-12/IRQ-14/IRQ-15 assigned to.

The selection : PCI Device, Reserved.

PCI/VGA Palette Snoop

Legacy ISA for devices compliant with the original PC AT bus specification, PCI PnP for devices compliant with the plug and play standard whether designed for PCI bus architecture.

The selection : Enabled, Disabled.

Maximum Payload Size.

Default 4096.

4.10 PC Health Status

Phoenix - Award BIOS CMOS Setup Utility
PC Health Status

CaseOpen# Warning	[Disabled]	Item Help
CPU Warning Temperature	[Disabled]	
Current System Temp	39℃/ 102℉	Menu Level ▶
Current CPU Temperature	47℃/116℉	
System FAN	0 RPM	
CPU FAN	0 RPM	
Vcore	0.88 V	
Vbat	3.28 V	
+3.3 V	3.32 V	
+12 V	12.22 V	
+ 5 V	5.21 V	

↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

CPU Warning Temperature

This item allows you to set a temperature above which the system will start the beeping warning. Default setting is disabled. This function will only with "ACPI" power management and "S3 (STR)" suspends type.

The selection : Disabled, 50℃/122℉, 53℃/127℉, 56℃/133℉, 60℃/140℉, 63℃/145℉, 66℃/151℉, 70℃/158℉.

4.11 Default Menu

Selecting "Defaults" from the main menu shows two options which are described below,

Load Fail-Safe Defaults

When <Enter> is pressed, a confirmation dialog box with a message similar to:

Load Fail-Safe Defaults (Y/N) ? N

Pressing 'Y' loads the BIOS default values for the most stable, minimal-performance system operations.

Load Optimized Defaults

When <Enter> is pressed, a confirmation dialog box with a message similar to:

Load Optimized Defaults (Y/N) ? N

Pressing 'Y' loads the default values that are factory settings for optimal performance system operations.

4.12 Supervisor/User Password Setting

Either supervisor or user password can be setup, or both of then. The differences between are:

Set Supervisor Password : can enter and change the options of the setup menus.

Set User Password : just can only enter but do not have the right to change the options of the setup menus. When selecting this function, the following message will appear at the center of the screen to assist you in creating a password.

ENTER PASSWORD

Type the password, up to eight characters in length, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

To disable a password, just press <Enter> when prompted to enter the password. A message will confirm the password will be disabled. Once the password is disabled, the system will reboot and Setup can be entered freely.

PASSWORD DISABLED

When a password has been enabled, user will be prompted to enter it every time user tries to enter Setup. This prevents an unauthorized person from changing any part of your system configuration.

Additionally, when a password is enabled, you can also require the BIOS to request a password every time your system is rebooted. This would prevent unauthorized use of the computer.

User may determine when the password is required within the BIOS Features Setup Menu and its Security option (see Section 3). If the Security option is set to "System", the password will be required both at boot and at entry to Setup. If set to "Setup", prompting only occurs when trying to enter Setup.

4.13 Exiting Selection

Save & Exit Setup

Pressing <Enter> on this item asks for confirmation:

Save to CMOS and EXIT (Y/N)? Y

Pressing "Y" stores the selections made in the menus in CMOS – a special section of memory that stays on after system off. During subsequnet booting of computer, the BIOS configures the system according to the Setup selections stored in CMOS. After saving the values the system is restarted again.

Exit Without Saving

Pressing <Enter> on this item asks for confirmation:

Quit Without Saving (Y/N)? N

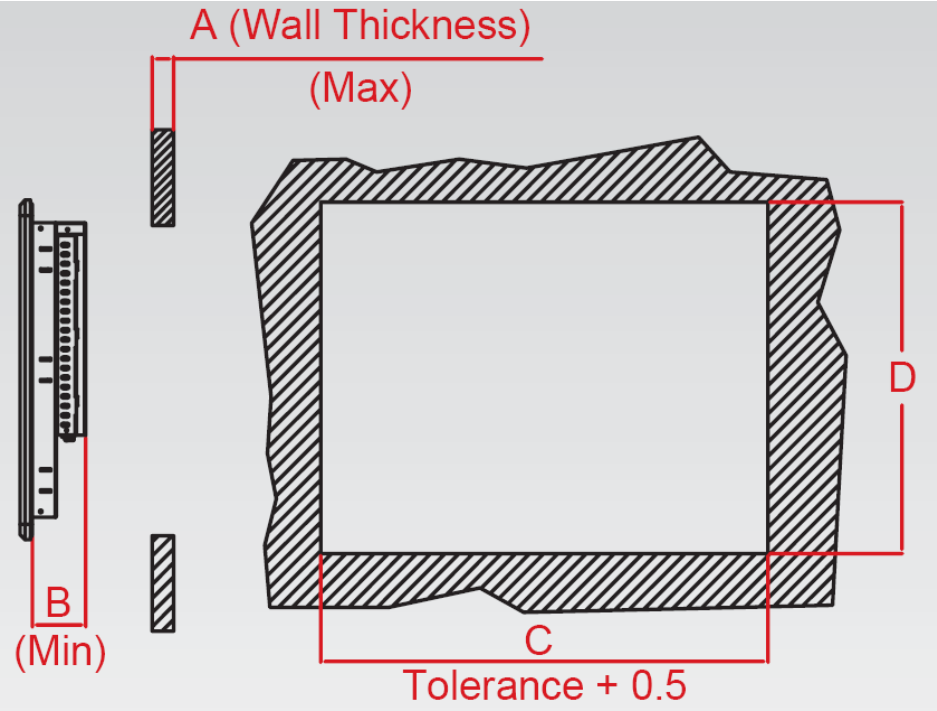
This allows user to exit Setup without storing in CMOS any change. The previous selections remain in effect. This exits the Setup utility and restarts your computer.

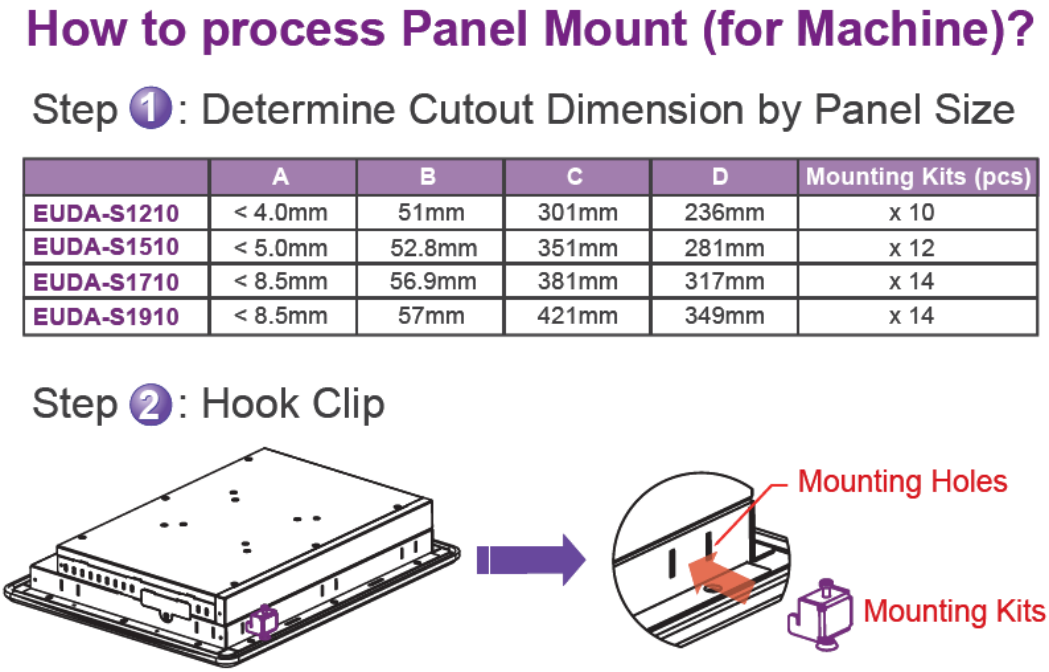
Chapter 5
FAQ

5.1 How to do Panel Mounting Kit Assembly and VESA Mount?

Illustration of Panel Mount

First of all, check the wall thickness and the cut-out dimension, then insert the mounting kit step by step as the following illustration.





	A	B	C	D	Mounting Kits (pcs)
EUDA-S1210	< 4.0mm	51mm	301mm	236mm	x 10
EUDA-S1510	< 5.0mm	52.8mm	351mm	281mm	x 12
EUDA-S1710	< 8.5mm	56.9mm	381mm	317mm	x 14
EUDA-S1910	< 8.5mm	57mm	421mm	349mm	x 14


Step 3: Screw the Clip tightly.(<1.5N)
Mounting Holes
Mounting Kits
Wall
Mounting Kits Section

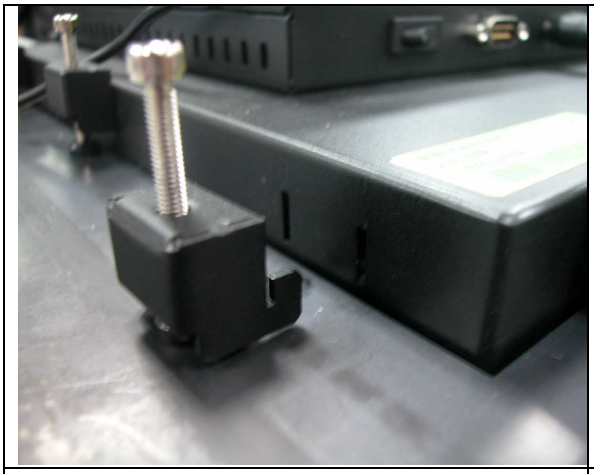
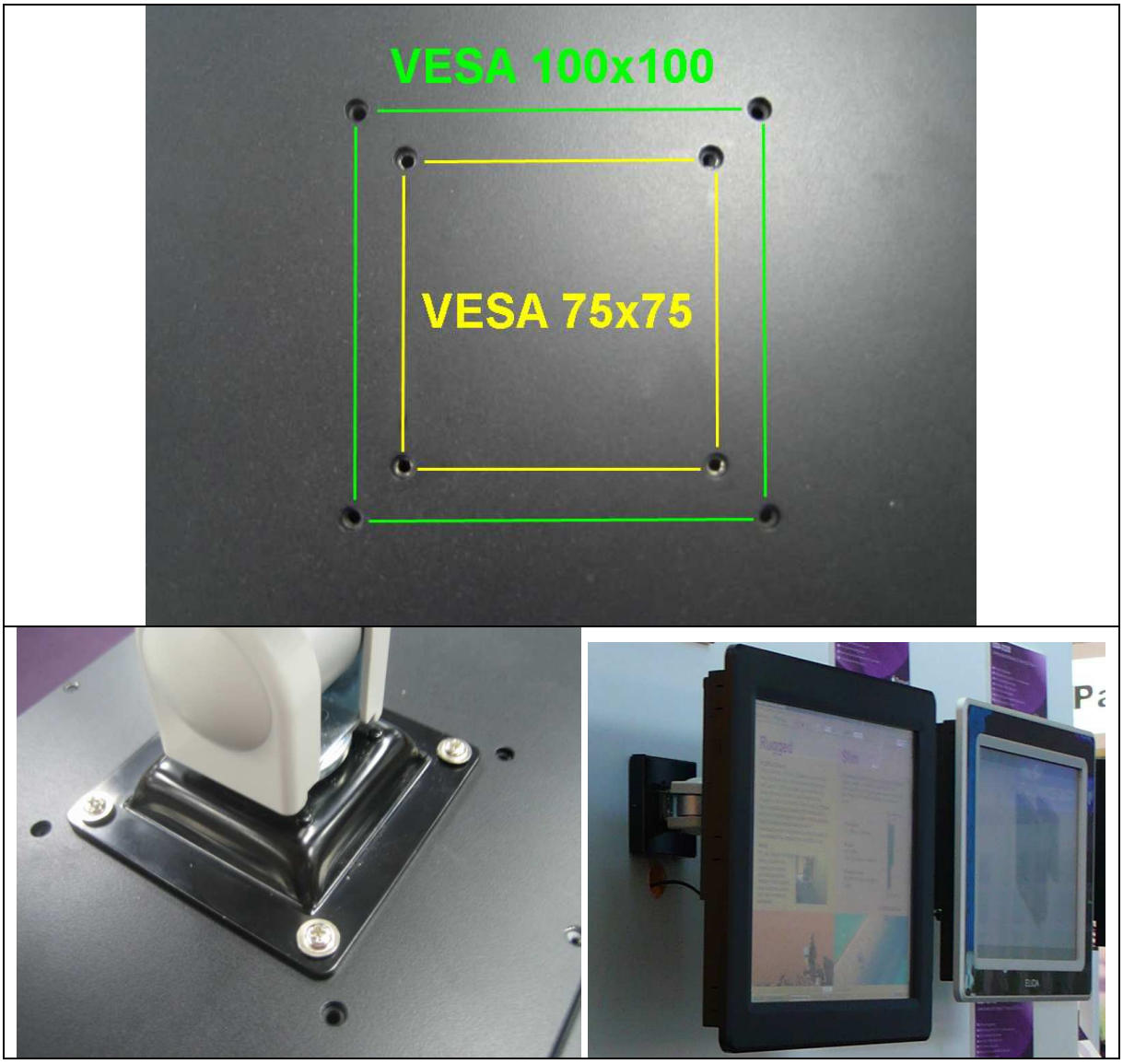


Illustration of VESA Mount



5.2 What if there is no display on the PPC screen?

Firstly, please inspect and check whether the memory installation is firm and solid; secondly, check whether the resolution selection under the BIOS is correct or not.

If it still doesn't work, please connect the Panel PC unit to an external monitor to further check the display function.

Finally, contact your account sales or ask for technical support from Portwell.

Note:
Please visit our technical web site at http://www.portwell.com.tw
For additional technical information, which is not covered in this manual, you can mail to tsd@portwell.com.tw or you can also send mail to our salespersons, they will be glad to forward them to us.

5.3 I forgot my password of system BIOS, what am I supposed to do?

You can simply short 2-3 pins on JP9 to clean your password.

5.4 I'd like to know the System Memory Address Map

Each On-board device in the system is assigned a set of memory addresses, which also can be identical of the device. The following table lists the system memory address used for your reference.

Memory Area	Size	Device Description
0000-003F	1K	Interrupt Area
0040-004F	0.3K	BIOS Data Area
0050-006F	0.5K	System Data
0070-0E2E	54K	DOS
0E2F-0F6B	5K	Program Area
0F6C-9EFF	574K	[Available]
= Conventional memory ends at 636K =		
9F00-9FBF	3K	Extended BIOS Area
9FC0-9FFF	1K	Unused
A000-AFFF	64K	VGA Graphics
B000-B7FF	32K	Unused
B800-BFFF	32K	VGA Text
C000-CEBF	59K	Video ROM
CEC0-EFFF	133K	Unused
F000-FFFF	64K	System ROM
HMA	64K	First 64K Extended

5.5 I'd like to know more about the BIOS Setting

It is assumed that users have correctly adopted modules and connected all the devices cables required before turning on DC 12V power. 200-pin DDR2 SDRAM, keyboard, mouse, SATA hard disk, VGA connector, device power cables, ATX accessories are good examples that deserve attention. With no assurance of properly and correctly accommodating these modules and devices, it is very possible to encounter system failures that result in malfunction of any device.

To make sure that you have a successful start with the built-in Mini-ITX board, it is recommended, when going with the boot-up sequence, to hit "DEL" key and enter the BIOS setup menu to tune up a stable BIOS configuration so that you can wake up your system far well.

Loading the default optimal setting

When prompted with the main setup menu, please scroll down to "**Load Optimal Defaults**", press "Enter" and "Y" to load in default optimal BIOS setup. This will force your BIOS setting back to the initial factory configuration. It is recommended to do this so you can be sure the system is running with the BIOS setting that Portwell has highly endorsed. As a matter of fact, users can load the default BIOS setting any time when system appears to be unstable in boot up sequence.

Auto Detect Hard Disks

In the BIOS => Standard CMOS setup menu, pick up any one from Primary/Secondary Master/Slave IDE ports, and press "Enter". Setup the selected IDE port and its access mode to "Auto". This will force system to automatically pick up the IDE devices that are being connected each time system boots up.

Improper disable operation

There are too many occasions where users disable a certain device/feature in one application through BIOS setting. These variables may not be set back to the original values when needed. These devices/features will certainly fail to be detected.

When the above conditions happen, it is strongly recommended to check the BIOS settings. Make sure certain items are set as they should be. These include the COM1/ COM2 ports, USB ports, external cache, on-board VGA and Ethernet.

It is also very common that users would like to disable a certain device/port to release IRQ resource. A few good examples are

Disable COM1 serial port to release IRQ #4
Disable COM2 serial port to release IRQ #3
Etc…

A quick review of the basic IRQ mapping is given below for your reference.

IRQ#	Description
IRQ #0	System Timer
IRQ #1	Keyboard Event
IRQ #2	Usable IRQ
IRQ #3	COM2
IRQ #4	COM1
IRQ #5	Usable IRQ
IRQ #6	Diskette Event
IRQ #7	Usable IRQ
IRQ #8	Real-Time Clock
IRQ #9	Usable IRQ
IRQ #10	Usable IRQ

IRQ #11	Usable IRQ
IRQ #12	IBM Mouse Event
IRQ #13	Coprocessor Error
IRQ #14	Hard Disk Event
IRQ #15	Usable IRQ

It is then very easy to find out which IRQ resource is ready for additional peripherals. If IRQ resource is not enough, please disable some devices listed above to release further IRQ numbers.

5.6 I'd like to know more about Interrupt Request Lines (IRQ)

Peripheral devices can use interrupt request lines to notify CPU for the service required. The following table shows the IRQ used by the devices on board.

IRQ#	Current Use	Default Use
IRQ 0	System ROM	System Timer
IRQ 1	System ROM	Keyboard Event
IRQ 2	[Unassigned]	Usable IRQ
IRQ 3	System ROM	COM2
IRQ 4	System ROM	COM1
IRQ 5	[Unassigned]	Usable IRQ
IRQ 6	System ROM	Diskette Event
IRQ 7	[Unassigned]	Usable IRQ
IRQ 8	System ROM	Real-Time Clock
IRQ 9	[Unassigned]	Usable IRQ
IRQ 10	[Unassigned]	Usable IRQ
IRQ 11	[Unassigned]	Usable IRQ
IRQ 12	System ROM	IBM Mouse Event
IRQ 13	System ROM	Coprocessor Error
IRQ 14	System ROM	Hard Disk Event
IRQ 15	[Unassigned]	Usable IRQ