NEXCOM

The Digital Infrastructure

Single Board Computer

PEAK 735 Series

User's Manual

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Regulatory Compliance Statements

This section provides the FCC compliance statement for Class A devices and describes how to keep the system CE compliant.

FCC Compliance Statement for Class A Devices

The product(s) described in this user's guide has been tested and proved to comply with the limits for a Class A digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the user's guide, may cause harmful interference to radio communications. Operation of this equipment in a residential area (domestic environment) is likely to cause harmful interference, in which case the user will be required to correct the interference (take adequate measures) at their own expense.

CE Certification

The product(s) described in this user's guide complies with all applicable European Union (CE) directives if it has a CE marking.

Table of Contents

Chapter 1
General Information

1.1 Features

PEAK 735 Series is a memeber of NEXCOM's P4-based SBC (single board computer) family. The features of this series are as follows:

o **Socket 478 Intel® Pentium® 4 processor up to 3.2GHz with 800MHz FSB**
o **Intel® 865G/ICH5 chipsets**
o **Max. 2GB DDR 400/dual channel memory in 2 DIMM slots**
o **Integrated VGA, CRT connector x 1**
o **Intel 82547EI gigabit Ethernet controller in CSA port or Intel 82562EX 10/ 100 Ethernet Controller in LCI port and Intel 82551QM 10/100 Ethernet controller**
o **Serial ATA port (150MB/s) x 2/USB 2.0 port (480Mbps) x 2**

1.2 Specifications

System Architecture

- Full size SBC with PCI/ISA golden finger

 - DVI 1.0 compliant (optional)

 - PICMG 1.0 (Rev.2.0) compliant

 - USB 2.0 compliant

CPU Support

- Intel® Pentium® 4 processor with 256K/512K L2 cache on die

- mPGA478 socket supports 400/533/800MHz system bus; CPU speed up to 3.2GHz

- Support Hyper-Threading™ technology

Main Memory

- DDR SDRAM DIMM x 2 support maximum 2GB (DDR 266/333/400) of memory
- Support two 64-bit DDR channels, 3.2GB/s bandwidth per channel
- Supports no Registered /non-ECC DIMMs only

BIOS

- Award System BIOS
- Plug & Play support
- Advanced power management support
- ACPI 1.0b compliant
- 4M bits flash ROM

Chipsets

- Intel® 865G (GMCH) chipsets
- Intel ICH5 for south bridge
  (I/O controller hub)
- Firmware hub (FWH) 4Mbits flash ROM x 1
- PCI V2.3 compliant

On Board LAN

- Intel 82547EI gigabit Ethernet controller (dedicated by CSA port directly from the Intel 865G
  GMCH) and   Intel 82551QM 10/100 Ethernet controller x 1 for PEAK 735VL2G
- Intel 82551QM Ethernet controller x 1 and Intel 82562EX 10/100 Ethernet controller x 1
  (dedicated by LCI port directly from the ICH5) for PEAK 735VL2
- Single Intel 82551QM Ethernet controller for PEAK 735VL
- Compliant with PCI V2.1/V2.2, IEEE802.3, IEEE 802.3u, IEEE802.3x, IEEE802.3y, IEEE8023ab
- WfM 2.0, PC2001 compliant
- RJ45 with LED connector x 2

On Board VGA

- Intel 865G (GMCH) chipset integrated with graphics controller
- Hardware motion compensation assist for software MPEG/DVD decode
- Access system memory
- Fully PC 98 and PC 99 compliant
- 15 pin CRT connector x 1

On Chip I/O (ICH5)

- On board USB port x 2, USB 2.0 compliant
- Ultra ATA100/66/33 support, 40 pin connector x 2. 2-pin power connector for DOM (Disk On
  Module)
- Serial ATA support, SATA connector x 2 ; data transfer bandwidth up to 150MB

On Board I/O

- ITE 8712F-A Super I/O
- SIO x 2, with 2x16C550 UARTs, 10 pin header x 2
- PIO x 1, bi-directional, EPP/ECP support, 26 pin connector x 1
- Floppy disk controller: 34 pin connector x 1
- 6-pin mini DIN connector x 1 for PS/2 keyboard/mouse, and 5-pin connector x 1 for external
  keyboard
- On board buzzer x 1
- GPIO (4 in 4 out)
- On board 2 -pin header for I²C
- On board 5-pin header for IrDA
- On board 2-pin header for reset SW, 4-pin for speaker, 5-pin for keylock, 2-pin for IDE active
  LED, and 2-pin ATX power SW
- One 3-pin power header for 3-pin power cable connected to backplane board
  to support ATX Power On function.
- On board 4-pin additional power source input
  . - AC'97 output, 10 pin header x 1

System Monitor

-Derived from Super IO ITE 8712F-A to support system monitor

-8 voltage (For +1.5V, +3.3V, +5V, -5V, +12V, -12V, Vcore and +5VSTBY)

-Fan speed connector x 2 (one is for CPU, while the other is for system)

-Temperature sensor x 2 (one is for internal CPU, while the other is for external system)

Real Time Clock

-On-chip RTC with battery back-up

-External Li battery x 1

Watchdog Timer

-Watchdog timeout programmable by software from 1, 2, 4, 8, 16, 32… to 128 seconds

PCI to ISA Bridge & ISAMAX Support

-ITE 8888F x1 PCI to ISA Bridge -Provide 64mA driving capability to maximize ISA signals for supporting ISA cards up to 20 on the backplane ISA slot

Dimensions

-338.58mm(L) x 122mm(W) (13.3"(L) x 4.8"(W)

Power Requirements

-+5V, +12V, -12V, ATX/AT

Power Consumption:

Model	PEAK 735VL2 (G)	
CPU	3.0G	2.4G
+12V	6.5A	4.5A
+5V	5.4A	4A
+3.3V	0.5A	0.5A
+5Vsb	0.5A	0.5A

Environments

-Operating temperature: up to 60°C, below -20°C (under certain condition)

-Storage temperature: -20°C to 80°C

-Relative humidity: 10% to 90% (Non-condensing)

Certification

-CE approval

-FCC

1.3 Board Layout

Intel865G Chipset
w/integrated VGA
Controller

Max2GB DDR 400/Dual
Channel Memory in 2
DIMM Slots

ATX 5V Standby
Power Connector

Socket 478 Intel Pentium 4 processor
up to 3.2GHz+ with 800MHz FSB

Serial ATA Connector x 2

Intel 82551QM
10/100 Ethernet
Controller
Dual LAN

Intel 82547EI Gigabit/CSA
Ethernet Controller or Intel
82562EX 10/100 LCI Ethernet
Controller

Figure 1-1: Peak735 Front Layout

1.4 Checklist

After opening the package of PEAK 715-HT Series, please check and make sure you have all of the following items:

- ✍ **One PEAK 735 series SBC**
  (A mechanical drawing of this model is shown below.)
- ✍ **One PEAK 735 Quick Reference Guide**
- ✍ **One 50CM Cable JST 2.5mm 3 pin to 3 pin (5V standby ATX Power-on Cable)**
- ✍ **One Y Cable for Keyboard and Mouse**
- ✍ **One 180 mm AUX Power Cable (for J2)**
- ✍ **One Cable Set (FDD x1, SIO+PIO x1, SIO x1/Keyboard x1/IDE66 x1)**
- ✍ **One USB Cable with Bracket**
- ✍ **One Driver / Manual CD**
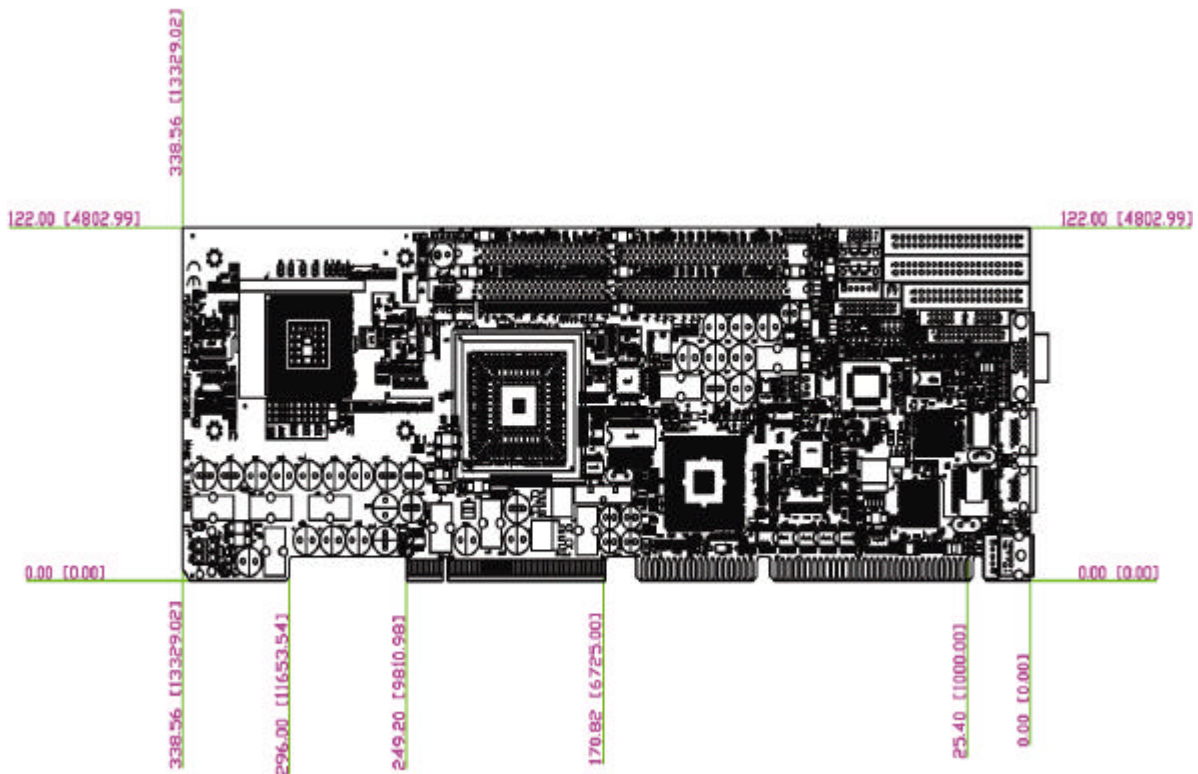
Figure 1-1 : Mechanical Drawing of PEAK 735 Series

Chapter 2
Jumper & Switch Settings

This chapter of the User's Manual describes how to set jumpers.

Note: The procedures that follow are generic for all of the PEAK735 models

Before You Begin

Ensure you have a stable, clean working environment. Dust and dirt can get into components and cause a malfunction. Use containers to keep small components separated.

Adequate lighting and proper tools can prevent you from accidentally damaging the internal components. Most of the procedures that follow require only a few simple tools, including the following:

✎ A Philips screwdriver
✎ A flat-tipped screwdriver
✎ A set of jewelers Screwdrivers
✎ A grounding strap
✎ An anti-static pad

Using your fingers can disconnect most of the connections. It is recommended that you do not use needle-nosed pliers to disconnect connections as these can damage the soft metal or plastic parts of the connectors.

Before working on internal components, make sure that the power is off. Ground yourself before touching any internal components, by touching a metal object. Static electricity can damage many of the electronic components. Humid environment tend to have less static electricity than dry environments. A grounding strap is warranted whenever danger of static electricity exists.

Precautions

Computer components and electronic circuit boards can be damaged by discharges of static electricity. Working on the computers that are still connected to a power supply can be extremely dangerous. Follow the guidelines below to avoid damage to your computer or yourself.

✎ ✎ Always disconnect the unit from the power outlet whenever you are working inside the case.
✎ ✎ If possible, wear a grounded wrist strap when you are working inside the computer case. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal body of any other grounded appliance.
✎ ✎ Hold electronic circuit boards (such as the PEAK639VL board) by the edges only. Do not touch the components on the board unless it is necessary to do so. Don't flex or stress the circuit board.
✎ ✎ Leave all components inside the static-proof packaging that they shipped with until they are ready for installation.
✎ ✎ Use correct screws and do not over tighten screws.

2.1 Functions of Jumpers

You can use jumpers to set configuration options. The table below defines function of each jumper:

Connector	Function
J1	AC'97
J2	Primary IDE
J3	SATA 0
J4	Secondary IDE
J5	SATA 1
J6	USB 2.0 Connector
J7	USB Exernal Power Connector
J8	Floppy
J9	DVI Connector(optional)
J10	CPU Fan
J11	System Fan
J12	COM1
J13	COM2
J14	PIO
J15	ATX Connector
J16	External Keyboard
JP2	Speaker
JP4	IDE LED
JP7	GPI/O Port
JP8	Keylock/Power LED
JP9	IR Connector
JP10	82551 LAN Speed 100 LED
JP11	82551 LAN ACT/LINK LED
JP12	ATX Push Button
JP13	82747/82562 LAN speed 100 LED
JP16	82747 LAN speed 1000 LED
JP17	Reset
JP18	82747/82562 LAN ACT/LINK LED
JP20	SMBUS
CON1	VGA Connector
CON2	82551 LAN Connector
CON3	82547/82562 LAN Connector
CON4	AUX+12V Power Connector
CON5	Keyboard+Mouse Connector

Table 2-1: Functions of Jumpers

2.2 Setting Jumpers

A jumper is the simplest kind of electric switch. It consists of two metal pins and a cap. When setting the jumpers, ensure that the jumper caps are placed on the correct pins. When the jumper cap is placed on both pins, the jumper is SHORT. If you remove the jumper cap, or place the jumper cap on just one pin, the jumpr is OPEN. Please see the following illustrations:

The illustrations on the right show a 2-pin jumper. When the jumper cap is placed on both pins, the jumper is **SHORT**. If you remove the jumper cap, or place the jumper cap on just one pin, the jumper is **OPEN**.	**Open (Off)**	**Short (On)**
These illustrations show a 3-pin jumper. Pins 1 and 2 are **SHORT**.		
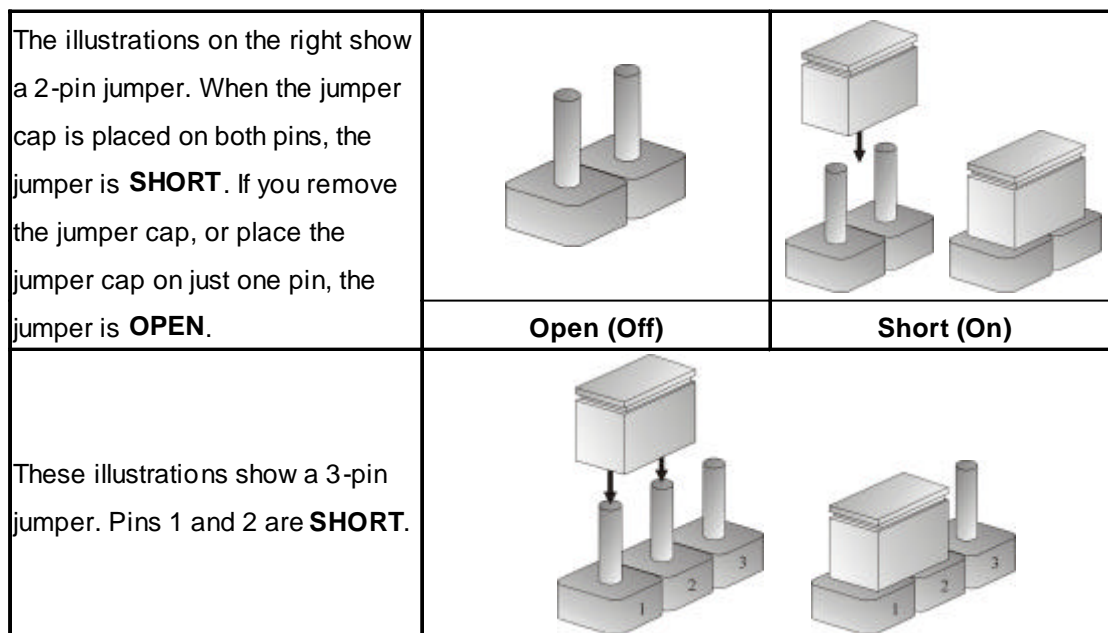
Figure 2-1 : How to Set Jumpers

2.3 Location of Jumpers

The illustration below shows the location of the mainboard jumpers:
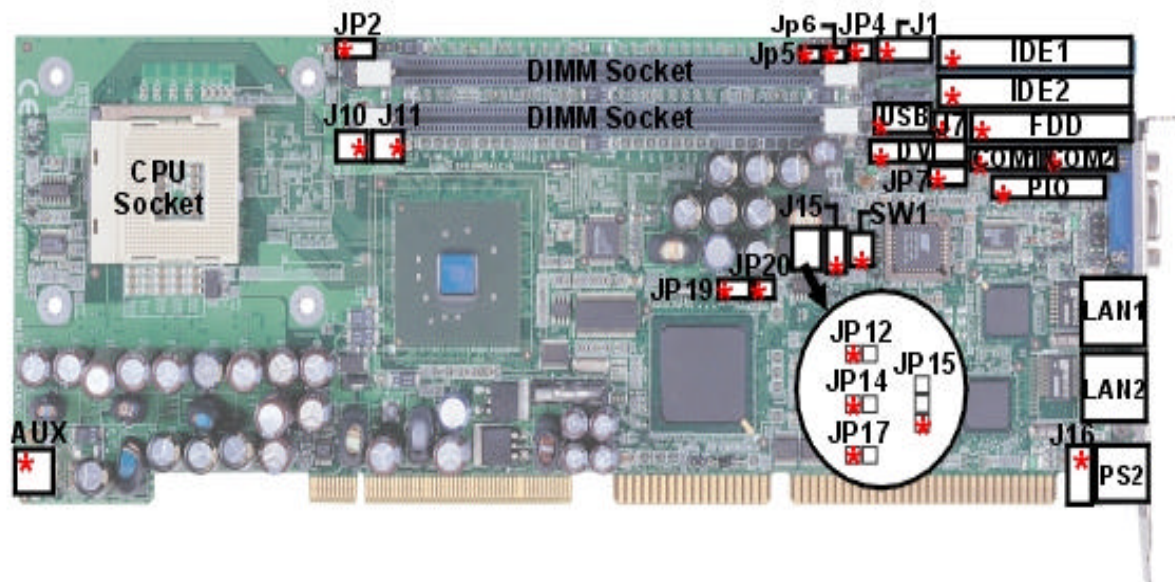
* = Pin 1

Figure 2-2 : Location of Jumpers

2.4 Jumper Setting

Switch Setting Table (* = default setup)

Device Select

	SW1.1	SW1.2	SW1.3	SW1.4
ON Board LAN 82551 Enable	*ON	ON	X	OFF
ON Board LAN 82551 Disable	OFF	ON	X	OFF
ON Board TMDS Enable	X	ON	* ON	OFF
ON Board TMDS Disable	X	ON	OFF	OFF

DDR VDDQ Select

	*2.5V	2.6V	2.7V	2.8V
JP5	*OFF	ON	OFF	ON
JP6	*OFF	OFF	ON	ON

AT/ATX Power model Select

	AT	ATX
JP15	*1-2	2-3
JP14	*1-2	

RTC Clear

	NORMAL	Clear CMOS
JP19	*1-2	2-3

2.5 Connector Pin Definition

AC'97 connector

Pin	Definition	Pin	Definition
1	AC_SDOUT_R	2	+5V
3	AC_RST#	4	GND
5	AC_SYNC	6	+12V
7	AC_SDIN0	8	AC_SDIN1_R
9	AC_BTCLK	10	AC_SDIN2_R

J2/J4: IDE connector

Pin	Definition	Pin	Definition	Pin	Definition	Pin	Definition
1	IDRST#	2	GND	1	IDRST#	2	GND
3	PDD7A	4	PDD8A	3	SDD7A	4	SDD8A
5	PDD6A	6	PDD9A	5	SDD6A	6	SDD9A
7	PDD5A	8	PDD710A	7	SDD5A	8	SDD710A
9	PDD4A	10	PDD711A	9	SDD4A	10	SDD711A
11	PDD3A	12	PDD712A	11	SDD3A	12	SDD712A
13	PDD2A	14	PDD713A	13	SDD2A	14	SDD713A
15	PDD1A	16	PDD714A	15	SDD1A	16	SDD714A
17	PDD0A	18	PDD715A	17	SDD0A	18	SDD715A
19	GND	20	NC	19	GND	20	NC
21	PDREQA	22	GND	21	SDREQA	22	GND
23	PDIOW#A	24	GND	23	SDIOW#A	24	GND
25	PDIOR#A	26	GND	25	SDIOR#A	26	GND
27	PIORDYA	28	IDE-PD1	27	SIORDYA	28	IDE-PD2
29	PDDACK#A	30	GND	29	SDDACK#A	30	GND
31	HDIRQ14	32	NC	31	HDIRQ14	32	NC
33	PDA1A	34	P66 DET	33	PDA1A	34	S66 DET
35	PDA0A	36	PDA2A	35	SDA0A	36	SDA2A
37	PDCS#1	38	PDCS#3	37	SDCS#1	38	SDCS#3
39	IDEACTP#	40	GND	39	IDEACTP#	40	GND

J3/J5: SATA connector

Pin	Definition	Pin	Definition
1	GND	2	SATA0TXPC
4	GND	3	SATA0TXNC
7	GND	5	SATA0RXNC
		6	SATA0RXPC

Pin	Definition	Pin	Definition
1	GND	2	SATA1TXPC
4	GND	3	SATA1TXNC
7	GND	5	SATA1RXNC
		6	SATA1RXPC

J6:USB connector

Pin	Definition	Pin	Definition
1	+5VSBY	2	DATA0-
3	DATA0+	4	DATA1-
5	DATA1+	6	GND

J7:USB External Power connector

Pin	Definition	Pin	Definition
1	+5VSBY	2	GND

J8:FDD connector

Pin	Definition	Pin	Definition
1	GND	2	DENSEL#
3	GND	4	NC
5	GND	6	NC
7	GND	8	INDEX#
9	GND	10	MOTEA#
11	GND	12	DRVB#
13	GND	14	DRVA#
15	GND	16	MOTEB#
17	GND	18	DIR#
19	GND	20	STEP#
21	GND	22	WDATA#
23	GND	24	WGATE#
25	GND	26	TK00#
27	GND	28	WPT#
29	GND	30	RDATA#
31	GND	32	SIDE1#
33	GND	34	DSKCHG#

J9: TMDS DVI connector

Pin	Definition	Pin	Definition
1	TMDS_TX2N	2	TMDS_TX2P
3	GND	4	TMDS_TX1N
5	TMDS_TX1P	6	GND
7	+5V	8	GND
9	HotPlugDet	10	TMDS_TX0N
11	TMDS_TX0P	12	GND
13	TMDS_TXCP	14	TMDS_TXCN
15	GND	16	GND
17	DVICLK	18	DVIDATA
19	NC	20	NC

J10/J11: CPU FAN & SYSTEM FAN connector

Pin	Definition	Pin	Definition
1	GND	2	+12V
3	SENSE		

J12/J13: COM1/COM2

Pin	Definition	Pin	Definition		Pin	Definition	Pin	Definition
1	BDCD1#	2	BRXD1		1	BDCD2#	2	BRXD2
3	BTXD1	4	BDTR1#		3	BTXD2	4	BDTR2#
5	GND	6	BDSR1#		5	GND	6	BDSR2#
7	BRTS1#	8	BCTS1#		7	BRTS2#	8	BCTS2#
9	BRI1#	10	GND		9	BRI2#	10	GND

J14: PIO connector

Pin	Definition	Pin	Definition
1	P_STB#	14	P_AFD#
2	P_PD0	15	P_ERR#
3	P_PD1	16	P_PINIT#
4	P_PD2	17	P_SLIN#
5	P_PD3	18	GND
6	P_PD4	19	GND
7	P_PD5	20	GND
8	P_PD6	21	GND
9	P_PD7	22	GND
10	P_ACK#	23	GND
11	P_BUSY	24	GND
12	P_PE	25	GND
13	P_SLCT	26	GND

J15: ATX POWER-ON connector

Pin	Definition	Pin	Definition
1	+5VSBY	2	GND
3	PSON#		

J16:External Keyboard

Pin	Definition	Pin	Definition
1	KBCLK	2	KBDATA
3	NC	4	GND
5	+5V		

JP2:SPEAKER External connector

Pin	Definition	Pin	Definition
1	SPEAKERR#	2	GND
3	GND	4	+5V

JP4:IDE Active LED connector

Pin	Definition	Pin	Definition
1	+5V	2	IDE_LED

JP7:GPIO connector

Pin	Definition	Pin	Definition
1	GP27_D_IN1 (PIN20)	2	GP23_D_OUT 1 (PIN24)
3	GP26_D_IN2 (PIN21)	4	GP22_D_OUT 2 (PIN25)
5	GP25_D_IN3 (PIN22)	6	GP21_D_OUT 3 (PIN26)
7	GP24_D_IN4 (PIN23)	8	GP20_D_OUT 4 (PIN27)

JP8:Keylock/Power LED connector

Pin	Definition	Pin	Definition
1	+5V Pull-up (Power LED)	2	N.C
3	GND (Power LED)	4	Keylock
5	GND (Key Lock)		

JP9:IR connector

Pin	Definition	Pin	Definition
1	+5V	2	CIRRX
3	RIRX	4	GND
5	IRTX		

JP10:82551QM LAN External SPEED LED connector

Pin	Definition	Pin	Definition
1	+3VSBY	2	SPEED_LAN

JP11:SMBUS External connector

Pin	Definition	Pin	Definition
1	SMBCLK	2	SMBDATA

JP12:ATX Push Button connector

Pin	Definition	Pin	Definition
1	GND	2	PWRBT#

JP13:82747EI/82562EX LAN External SPEED 100 LED connector

Pin	Definition	Pin	Definition
1	+3VSBY	2	LINK100

JP16:82747EI LAN External SPEED 1000 LED connector

Pin	Definition	Pin	Definition
1	+3VSBY	2	LINK1000

JP17:Hardware Reset connector

Pin	Definition	Pin	Definition
1	RESET	2	GND

JP18:82747EI/82562EX LAN External ACTIVE&LINK LED connector

Pin	Definition	Pin	Definition
1	LINK_UP	2	ACTIVITY

JP20:SMBUS connector

Pin	Definition	Pin	Definition
1	SMBCLK	2	SMBDATA

CON1:VGA connector

Pin	Definition	Pin	Definition
1	RED	2	GREEN
3	BLUE	4	NC
5	GND	6	GND
7	GND	8	GND
9	+5V	10	GND
11	NC	12	DDCDAT
13	HSYNC	14	VSYNC
15	DDCCLK		

CON2:82551 RJ45 connector

Pin	Definition	Pin	Definition
1	LAN1_TXP	2	LAN1_TXN
3	LAN1_RXP	4	TERMPLANE
5	TERMPLANE	6	LAN1_RXN
7	TERMPLANE	8	TERMPLANE
9	SPEED_LAN1	10	+3VSBY
11	LILED_LAN1	12	ACTLED_LAN1

CON3:82547/82562 RJ45 connector

Pin	Definition	Pin	Definition
1	LAN2_MDX_0P_TXP	2	LAN2_MDX_0N_TXN
3	LAN2_MDX_1P_RXP	4	LAN2_MDX_2P
5	LAN2_MDX_2N	6	LAN2_MDX_1N_RXN
7	LAN2_MDX_3P	8	LAN2_MDX_3N
9	LAN2_LINK1000	10	+3VSBY
11	LAN2_LINK_UP	12	LAN2_ACTIVITY

CON4: AUX +12V Power Connector

Pin	Definition	Pin	Definition
1	GND	2	GND
3	+12V	4	+12V

CON5: Key board + mouse connector

Pin	Definition	Pin	Definition
1	KBDATA	2	MOUSEDATA
3	GND	4	+5V
5	KBCLK	6	MOUSECLK

Chapter 3
Expanded Capabilities

3.1 System Memory

Your system memory is provided by DIMM's (Dual In-line Memory Modules) on the CPU board. The CPU board contains two memory banks: Bank 0 and 1, corresponds to connector DIMM1, DIMM2.

The table below shows possible DIMM configurations for the memory banks. Please be noted that the PEAK 735 Series supports Double Data (DDR333) SDRAM. Configurations using different brands of memory modules are not recommended.

DIMM 1	DIMM2	Total Memory
128MB	Empty	128MB
Empty	128MB	128MB
128MB	128MB	256MB
256MB	Empty	256MB
Empty	256MB	256MB
256MB	256MB	512MB
512MB	Empty	512MB
Empty	512MB	512MB
512MB	512MB	1024MB
1024MB	Empty	1024MB
Empty	1024MB	1024MB
1024MB	1024MB	2048MB

Table 3-1 : PEAK 735 Series DIMM Configurations

3.2 Installing DIMM

To install DIMM:

1. Make sure the two handles of the DIMM sockets are in the "open" position, i.e. the handles stay outward.
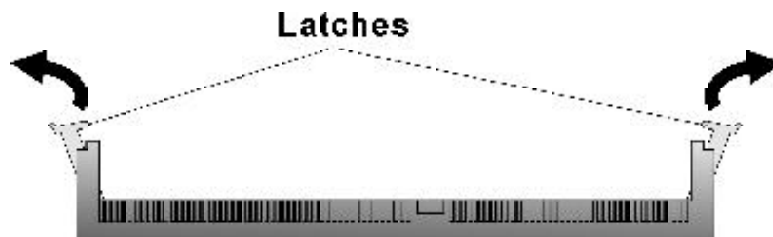
Figure 3-1 : How to Install DIMM (1)

2. Slowly slide the DIMM modules along the plastic guides in the both ends of the socket.
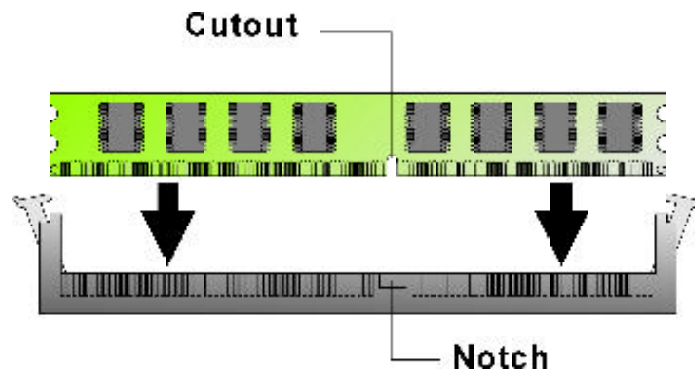
Figure 3-2 : How to Install DIMM (2)

3. Then press the DIMM module down right into the socket, until a click is heard. That means the two handles automatically locked the memory modules into the right position of the DIMM socket.
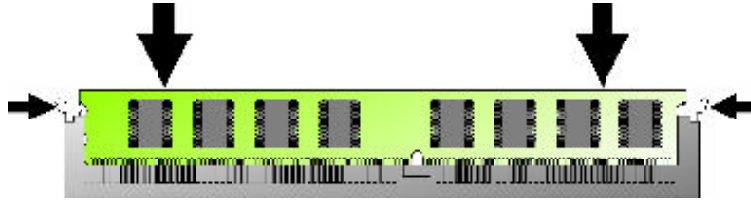
Figure 3-3 : How to Install DIMM (3)

4. To take away the memory module, just push the both handles outward, the memory module will be ejected by the mechanism in the socket.

Figure 3-4 : How to Install DIMM (4)

3.3 Changing CPU

To change the CPU:

1. Pull the handling bar of the socket upward to the other end to loosen the socket's openings. Carefully lift the existing CPU up to remove it from the socket.

2. Place the new CPU on the middle of the socket, orienting its beveled corner to line up with the socket's beveled corner. Make sure the pins of the CPU fit evenly to the socket openings. Replace the handling bar to fasten the CPU to the socket.
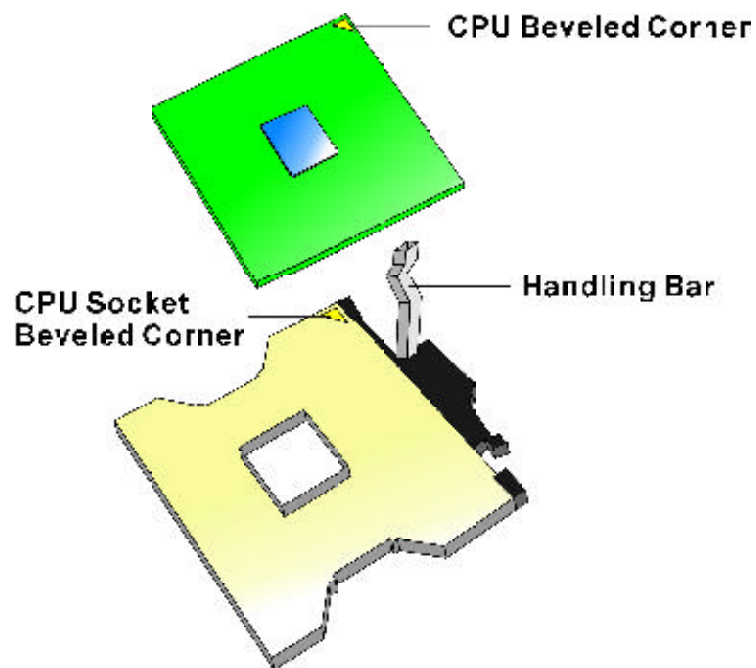
Figure 3-5 : How to Change CPU

3.4 Installing the Fan Heatsink

Use the following instructions for installing the fan heatsink:

1. The heatsink has thermal interface material attached to the bottom, shown in Figure 3-7. Be careful not to damage the thermal interface material.

2. Align the fan heatsink and clip assembly (A in Figure 3-6) with the retention mechanism (the fan heatsink is symmetrical) and place it on the processor (as shown in Figure 3-7). Allow the heatsink base to compress (without rotating or twisting) the thermal interface material over the surface of the processor's integrated heat spreader.

3. With the clip levers (C in Figure 3-6) in the upward position, push down on all four clip frame corners (D in Figure 3-6) to secure the clip frame latches (E in Figure 3-6) to the retention mechanism hooks (F in Figure 3-6), as shown in Figure 3-8.
Note: Make sure the processor fan cable is free from any obstruction and is not trapped under clip frame (B in Figure 3-6).

4. Note: It is important to not allow the heatsink to rotate or twist on the processor's integrated heat spreader. Securing the fan heatsink while closing the clip levers will ensure the thermal interface material is not damaged and the processor will operate correctly. Follow these steps, for closing the clip levers and ensuring the thermal interface material is not damaged:
a.) Make sure to close the clips levers in opposing directions, one at a time (levers require force to be completely closed), as shown in Figure 3-9a. First, close the clip lever (1 in Figure 3-9b), while holding the topside of the fan heatsink with your other hand (A in Figure 3-9b).
b.) Then, close the clip lever (2 in Figure 3-9c), while holding the topside of the fan heatsink with your other hand (B in Figure 3-9c).
5. Once the clip levers are closed, verify that the heatsink is securely retained and that the clip frame latches are properly engaged with the retention mechanism hooks.
Note: When installed, the fan heatsink and clip assembly may cause the motherboard to slightly bend or flex. This provides the proper mechanical support for the processor (with attached fan heatsink and clip assembly) and helps prevent against damage during system shipment.

6. Lastly, connect the processor fan cable to the motherboard fan power header (Figure 3-10). Consult the motherboard manual to determine the correct fan header to use
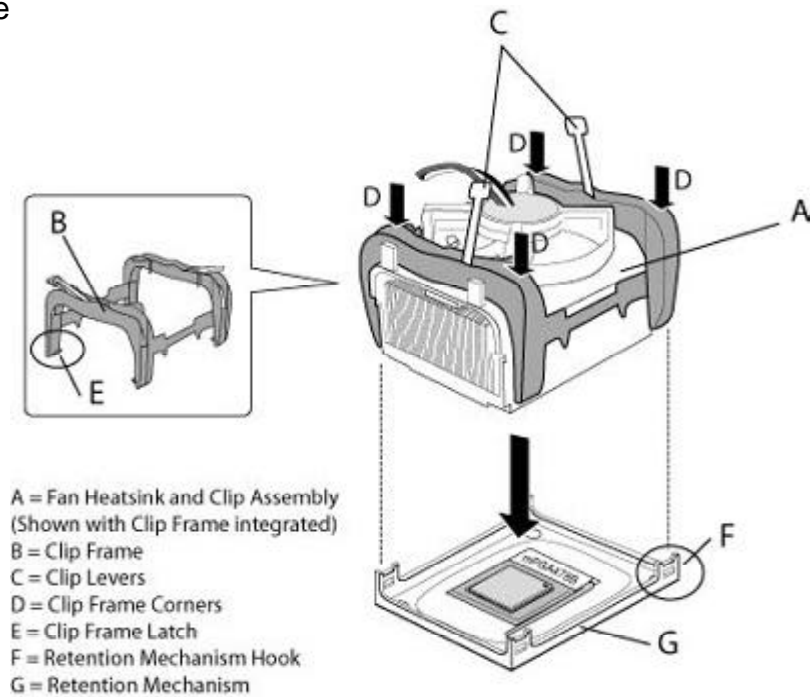

A = Fan Heatsink and Clip Assembly
(Shown with Clip Frame integrated)
B = Clip Frame
C = Clip Levers
D = Clip Frame Corners
E = Clip Frame Latch
F = Retention Mechanism Hook
G = Retention Mechanism

Figure 3-6: Installing the Fan Heatsink (1)

Fan Heatsink and Clip Assembly Terminology
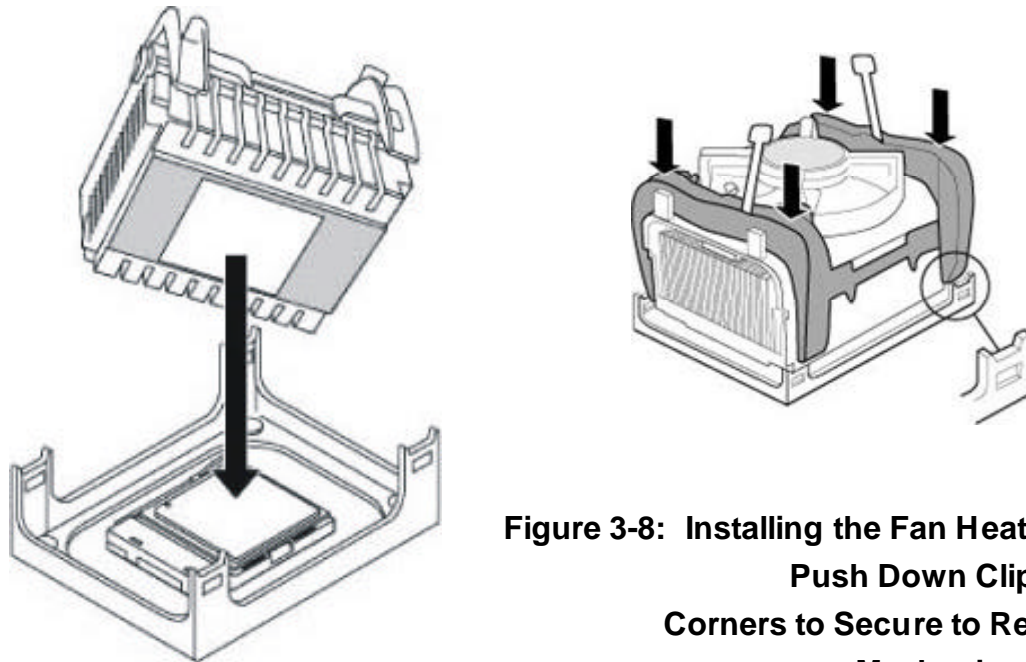
Figure 3-8: Installing the Fan Heatsink (3)

Push Down Clip Frame

Corners to Secure to Retention

Mechanism Hooks

Figure 3-7:   Installing the Fan Heatsink (2)

Align Fan Heatsink and Clip Assembly
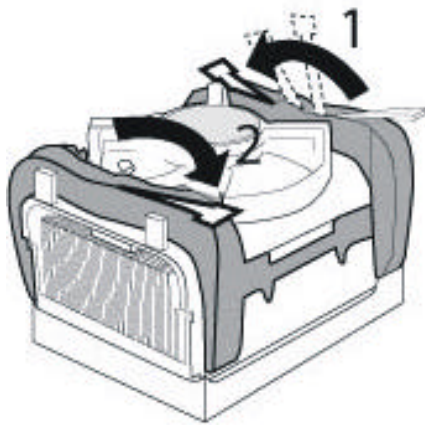
Figure 3-9a: Installing the Fan Heatsink (4)
Close Clip Levers,
One at a Time
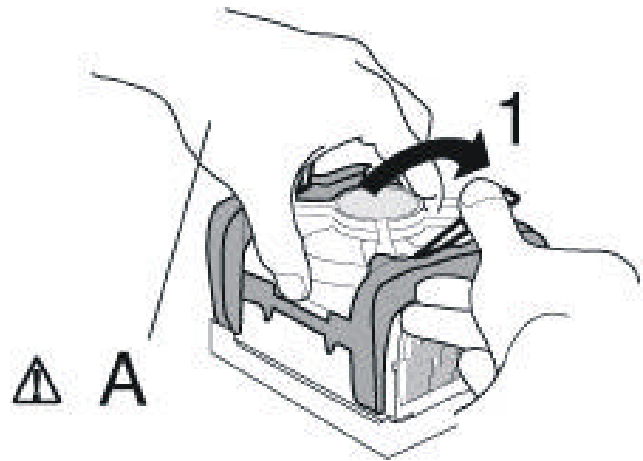
Figure 3-9b: Installing the Fan Heatsink (5)
Close Clip Lever (1),
While Holding the Topside of Fan Heatsink (A)
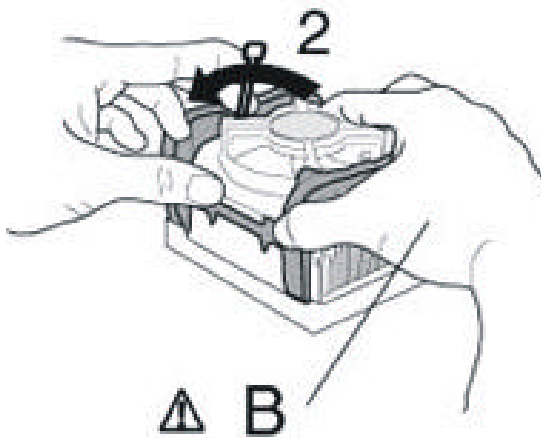

Figure 3-9c: Installing the Fan Heatsink (6)
Close Clip Lever (2),
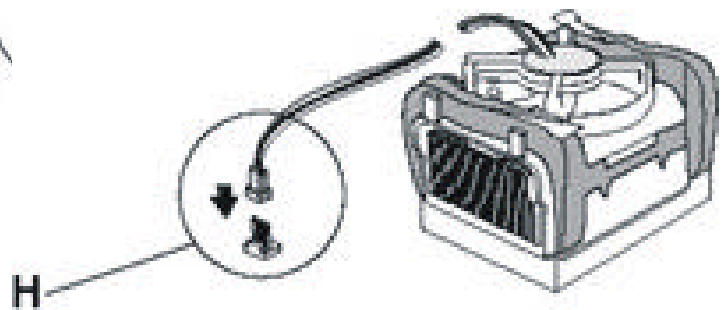**While Holding the Topside of Fan Heatsink (B)**

Figure 3-10: Installing the Fan Heatsink (7)
Connect Fan Cable to Motherboard

On-Chip Serial ATA Setting

On-Chip Serial ATA

The setting is used to specify te SATA controller.

Settings:

Disable,   Auto,   Combined Mode,   Enhanced Mode,   SATA only

If <Combined Mode> is selected, PATA and SATA will be combined.
If <Enhanced Mode> is selected, PATA and SATA will both be enabled.
If <Auto> is selected, PATA and SATA will be arranged by BIOS, and you will be able to see the IDE Device Status listed in the Standard CMOS Features.

Serial ATA Port O/I Mode

Select a compatible mode for Port 1 and Port 2 from the Award Setting to the Chipset Setting:

Primary Master	Compatible Mode w/Serial ATA Port 1 set to Primary Master
Primary Slave	Primary Slave
Secondary Master	Secondary Master
Secondary Slave	Secondary Slave
Primary Master	Compatible Mode w/only serial ATA Enabled and Port 1 set to Primary Master
Secondary Master	Secondary Master
SATA 1 Master	Enhance mode w/Port 1 set to Native Mode Master
SATA2 Master	Enhance mode w/Port2 set to Native Mode Master

Chapter 4
Award BIOS Setup

This chapter explains how to use the BIOS Setup program for the EBC572(A). The current BIOS setup pictures in the chapter is for reference only, which may change by the BIOS modification in the future. User can download any major updated items or reversion from NEXCOM web site http://www.nexcom.com.tw. If any unclear message occurs, please contact NEXCOM customer service representative for help or log onto http://www.nexcom.com.tw/contact/contact.htm.

About the BIOS

The BIOS (Basic Input and Output System) Setup program is a menu driven utility that enables you to make changes to the system configuration and tailor your system to suit your individual work needs. It is a ROM-based configuration utility that displays the system's configuration status and provides you with a tool to set system parameters. These parameters are stored in non-volatile battery-backed-up CMOS RAM that saves this information even when the power is turned off. When the system is turned back on, the system is configured with the values found in CMOS.

With easy-to-use pull down menus, you can configure such items as:

- ✍ Hard drives, diskette drives, and peripherals
- ✍ Video display type and display options
- ✍ Password protection from unauthorized use
- ✍ Power management features

When to Run BIOS

This program should be executed under the following conditions:

- ✍ When changing the system configuration
- ✍ When a configuration error is detected by the system and you are prompted to make changes to the Setup program
- ✍ When resetting the system clock
- ✍ When setting the CPU clock speed so that it automatically runs either fast or slow
- ✍ When redefining the communication ports to prevent any conflicts
- ✍ When making changes to the Power Management configuration
- ✍ When changing the password or making other changes to the security setup

Normally, CMOS setup is needed when the system hardware is not consistent with the information contained in the CMOS RAM, whenever the CMOS RAM has lost power, or the system features need to be changed.

4.1 Entering Setup

When the system is powered on, the BIOS will enter the Power-On Self Test (POST) routines. These routines perform various diagnostic checks; if an error is encountered, the error will be reported in one of two different ways:

? If the error occurs before the display device is initialized, a series of beeps will be transmitted.

? If the error occurs after the display device is initialized, the screen will display the error message.

Powering on the computer and immediately pressing <**Del**> allows you to enter Setup. Another way to enter Setup is to power on the computer and wait for the following message during the POST:

TO ENTER SETUP BEFORE BOOT
PRESS <CTRL-ALT-ESC> OR <DEL> KEY

Press the <**Del**> key or press the <**Ctrl**>, <**Alt**>, and <**Esc**> keys to enter Setup:

4.2 The Main Menu

Once you enter Award BIOS CMOS Setup Utility, the Main Menu (Figure 1) will appear on the screen. The main menu allows you to select from ten setup functions and two exit choices. Use arrow keys to select among the items and press**<Enter>** to accept or enter the sub-menu.
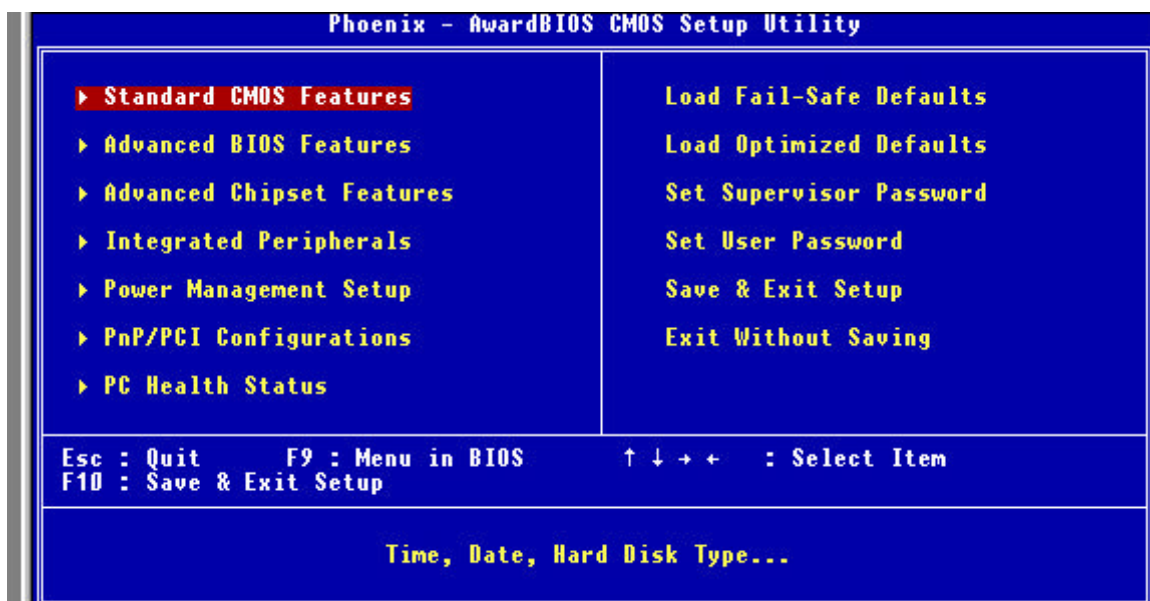

Figure 4-1: BIOS Setup Utility Main Menu

Standard CMOS Features

Use this menu for basic system configuration

Advanced BIOS Features

Use this menu to set the Advanced Features available on the system

Advanced Chipset Features

Use this menu to change the values in the chipset registers and optimize the system's performance

Integrated Peripherals

Use this menu to specify your settings for integrated peripherals

Power Management Setup

Use this menu to specify your settings for power management.

PnP/PCI Configurations

This entry appears if your system supports Plug and Play and PCI Configuration

PC Health Status

Displays CPU, System Temperature, Fan Speed, and System Voltages Value

Load Fail-Safe Defaults

Use this menu to load the BIOS default values for the minimal/stable performance for your system to operate.

Load Optimized Defaults

Use this menu to load the BIOS default values, i.e., factory settings for optimal performance system operations. While Award has de-signed the custom BIOS to maximize performance, the factory has the option to change these defaults to meet their needs.

Set Supervisor/User Password

Enables you to change, set, or disable the supervisor or user pass-word.

Save & Exit Setup

Saves CMOS value changes to CMOS and exits setup.

Exit Without Saving

Ignores all CMOS value changes and exits setup.

4.3 Getting Help

Main Menu

The on-line description of the highlighted setup function is displayed at the bottom of the screen.

Status Page Setup Menu/ Option Page Setup Menu

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

4.4 Control Keys

The table below lists the keys that help you navigate the setup program.
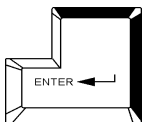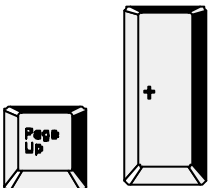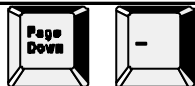
Up arrow		Move to previous item
Down arrow		Move to next item
Left arrow		Move to the item to the left
Right arrow		Move to the item to the right
Esc key		*Main Menu:* Quit without saving changes to CMOS *Status/Option Page Setup Menus*: Exit current page and return to Main Menu.
Enter Key		Select or Accept an Item
PgUp/plus key		Increase the numeric value or make changes
PgDn/minus key		Decrease the numeric value or make changes
F1 key		General help, only for Status Page Setup Menu and Option Page Setup Menu
F2/Shift + F2 key		Change color from total 16 colors. F2 to select color forward, (Shift) F2 to select color backward
F5 key		Restore the previous CMOS value from CMOS (only for Option Page Setup Menu)
F6 key		Load the default CMOS value from BIOS default table (only for Option Page Setup Menu)
F7 key		Load the Setup default value (only for Option Page Setup Menu)
F9 Key		Menu in BIOS
F10 key		Save all the CMOS changes (only for Main Menu)

Figure 4-2 : BIOS Control Keys

4.5 Standard CMOS Features

Selecting Standard CMOS Features on the main program screen displays the following menu:
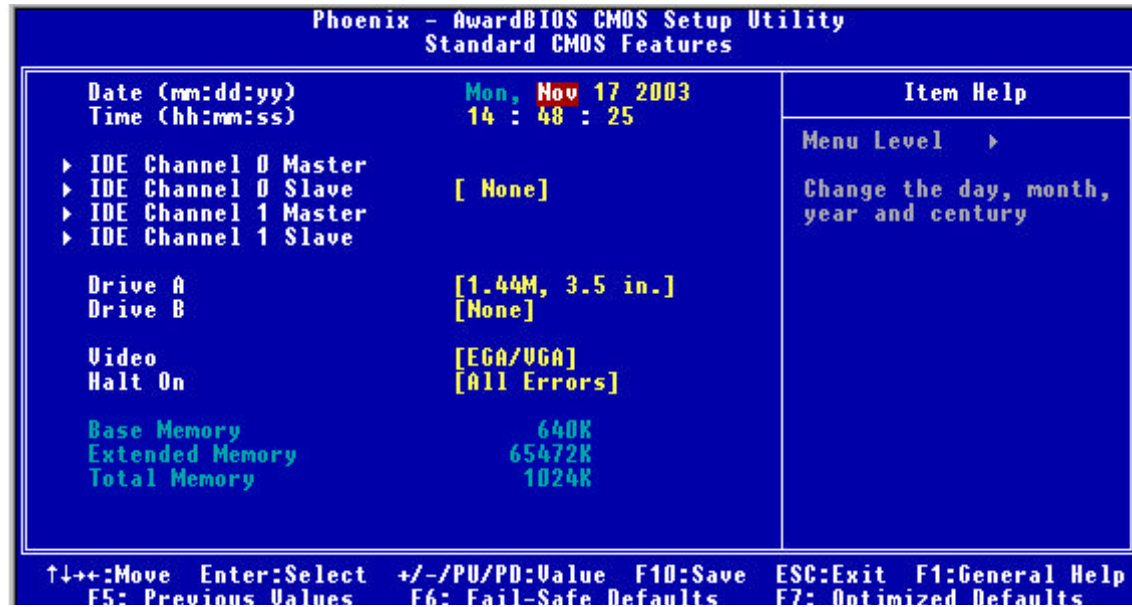
Figure 4-3 : BIOS -- Standard CMOS Features

The Standard CMOS Setup utility is used to configure the following features:

Date (mm:dd:yy)

The BIOS determines the day of the week from the other data information. This field is for information only. Press the left or right arrow key to move to the desired field (date, month, year). Press the PgUp or PgDn key to arrange the setting, or type the desired value into the field.

Time (hh:mm:ss)

The times format in <hour> <minute> <second>. The time is calculated based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00.

IDE Devices

Your computer has two IDE channels and each channel can be installed with one or two devices (Master and Slave). Use these items to configure each device on the IDE channel. Press <Enter> to display the IDE submenu:
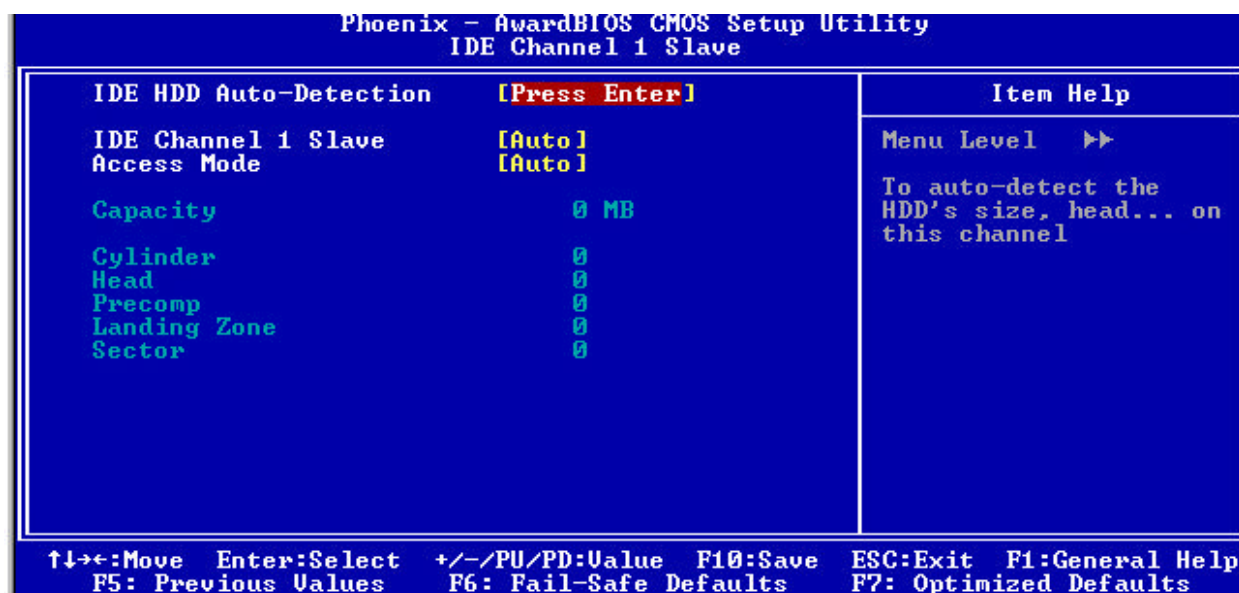
Figure 4-4 : BIOS -- IDE Channel Slave

IDD HDD Auto-Detection

If you want the Setup Utility to automatically detect and configure a hard disk drive on the IDE channel, press <**Enter**> while this item is highlighted.

If your system has an IDE hard drive, you can use this utility to detect its parameters and enter them into the Standard CMOS Setup automatically.

If the auto-detected parameters displayed do not match the ones that should be used for your hard drive, do not accept them. Press the <**N**> key to reject the values and enter the correct ones manually in the Standard CMOS Setup screen. (**Note:** If you are setting up a new hard disk drive that supports LBA mode, more than one line will appear in the parameter box. Choose the line that lists *LBA* for an LBA drive.)

Do not choose **Large** or **Normal** if the hard disk drive is already fully formatted when you installed it. Select the mode that was used to format it.

IDE Channel Slave

If you leave this item at **Auto**, the system will automatically detect and configure any IDE devices it finds. If it fails to find a hard disk, change the value to **Manual** and then manually configure the drive by entering the characteristics of the drive in the items below:

Capacity	approximate hard disk drive capacity
Cylinder	number of cylinders
Head	number of heads
Precomp	write precompensation cylinder
Landing Zone	landing zone
Sector	number of sectors

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Refer to your drive's documentation or look on the drive if you need to obtain this information. If no device is installed, change the value to **None**.

Access Mode

This item defines some special ways that can be used to access IDE hard disks such as LBA (Logical Block Addressing). Leave this value at **Auto** and the system will automatically decide the fastest way to access the hard disk drive.

Press **<Esc>** to close the IDE device submenu and return to the Standard CMOS Features page.

Floppy Drive A

Options for these fields are:

None	No floppy drive installed
360K, 5.25 in	5-1/4 inch PC-type standard drive; 360 kilobyte capacity
1.2M, 5.25 in	5-1/4 inch AT-type high-density drive; 1.2 megabyte capacity
720K, 3.5 in	3-1/2 inch double-sided drive; 720 kilobyte capacity
1.44M, 3.5 in	3-1/2 inch double-sided drive; 1.44 megabyte capacity
2.88M, 3.5 in	3-1/2 inch double-sided drive; 2.88 megabyte capacity

The **None** option could be used for diskless workstations.

Video

Set this field to the type of graphics card installed in your system. If you are using a VGA or higher resolution card, choose the **EGA/VGA** option. The options are:

EGA/VGA	Enhanced Graphics Adapter/Video Graphics Array. For EGA, VGA, SEGA, or PGA monitor adapters.
CGA 40	Color Graphics Adapter, power up in 40 column mode
CGA 80	Color Graphics Adapter, power up in 40 column mode
Mono	Monochrome adapter, includes high resolution monochrome adapters

Halt On

This setting determines which type of errors will cause the system to halt during booting. The options are:

All Errors	Whenever the BIOS detects a non-fatal error, the system will be stopped and you will be prompted.
No Errors	The system boot will not be stopped for any error that may be detected.
All, But Keyboard	The system boot will not stop for a keyboard error; it will stop for all other errors.
All, But Diskette	The system boot will not stop for a disk error; it will stop for all other errors.
All, But Disk/Key	The system boot will not stop for a keyboard or disk error; it will stop for all other errors.

Base/Extended/Total Memory

This category is display-only. The contents are determined by the POST (Power-On Self-Test) of the BIOS. You cannot make changes to these fields.

Base Memory: Also called conventional memory. The DOS operating system and conventional applications use this area.

Extended Memory: The POST of the BIOS will determine the amount of extended memory installed in the system.

Total Memory: This option shows system memory capacity.

After you have made your selections in the Standard CMOS Setup screen, press <**ESC**> to go back to the main screen.

4.6 Advanced BIOS Features

Selecting Advanced BIOS Features on the main program screen displays this menu, which allows you to define advanced information about your system. You can make modifications to most of these items without causing fatal errors to your system.
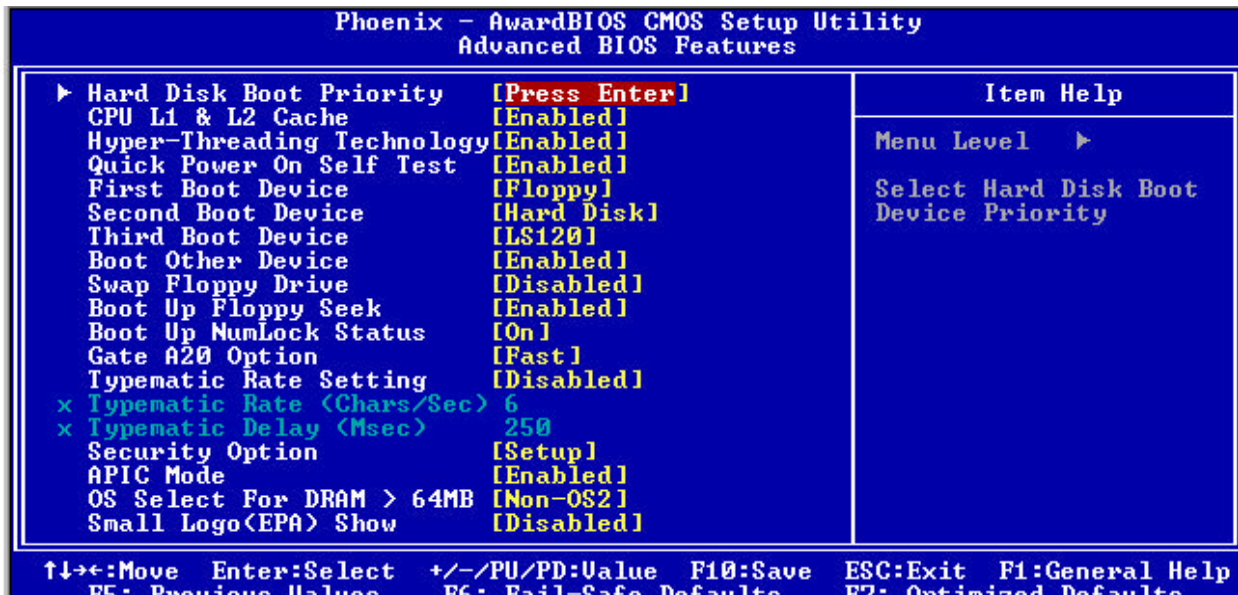
```
           Phoenix - AwardBIOS CMOS Setup Utility
                   Advanced BIOS Features
┌─────────────────────────────────────────────┬──────────────────────┐
│ ▶ Hard Disk Boot Priority    [Press Enter]   │     Item Help        │
│   CPU L1 & L2 Cache          [Enabled]       │                      │
│   Hyper-Threading Technology [Enabled]       │  Menu Level    ▶     │
│   Quick Power On Self Test   [Enabled]       │                      │
│   First Boot Device          [Floppy]        │  Select Hard Disk Boot│
│   Second Boot Device         [Hard Disk]     │  Device Priority     │
│   Third Boot Device          [LS120]         │                      │
│   Boot Other Device          [Enabled]       │                      │
│   Swap Floppy Drive          [Disabled]      │                      │
│   Boot Up Floppy Seek        [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]       │                      │
│   OS Select For DRAM > 64MB  [Non-OS2]       │                      │
│   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 │
└─────────────────────────────────────────────────────────────────────┘
```

Figure 4-5 : BIOS -- Advanced BIOS Features

The following explains the options for each feature:

Hard Disk Boot Priority:
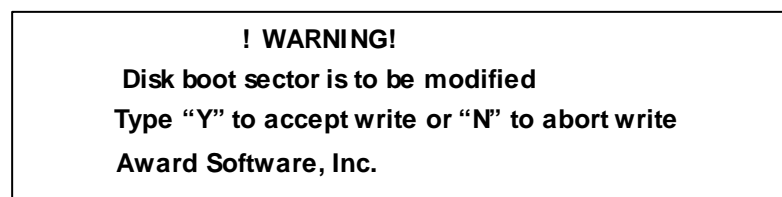
Press <Enter> to enter a sub menu which shows every current hard drive installed. Use <PageUp> or <PageDown> key to select the first boot hard disk.

Virus Warning

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

　· **Enabled:** Activates automatically when the system boots up causing the follow-ing warning message to appear when anything attempts to access the boot sector or hard disk partition table:

```
┌─────────────────────────────────────────────────────┐
│              ! WARNING!                             │
│       Disk boot sector is to be modified            │
│      Type "Y" to accept write or "N" to abort write │
│      Award Software, Inc.                           │
└─────────────────────────────────────────────────────┘
```

　· **Disabled:** No warning message will appear when an attempt is made to access the boot sector or hard disk partition table.

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Note:

This function is available only for DOS and other operating systems that do not trap INT13. For complete protection against viruses, install virus software in your operating system and update the virus definitions regularly. Many disk diagnostic programs that access the boot sector table can trigger the virus warning message. If you plan to run such a program, we recommend that you disable the virus warning.

CPU L1 & L2 Cache

Cache memory is additional memory that is much faster than conventional DRAM (system memory). This BIOS feature is used to enable or disable the processor's Level 1 and Level 2 cache. Naturally, the default and recommended setting is Enabled.

Hyper Threading Technology

The Intel Hyper-Threading Technology allows a single processor to execute *two or more* separate threads concurrently. When hyper-threading is enabled, multi-threaded software applications can execute their threads in parallel, thereby improving the processor's performance.

Quick Power On Self Test

This item speeds up the Power On Self Test (POST) when you turn on the computer. If it is set to Enabled, BIOS will shorten or skip some check items during the POST.

First/Second/Third Boot Device

BIOS attempts to load the operating system from the devices in the sequence selected in these items. The available choices are Floppy, LS120, Hard Disk CDROM, ZIP100, USB-FDD, USB-CDROM, LAN, Disabled.

Boot Other Device

If the selected boot devices fail to boot, selecting Enabled for this item allows the BIOS to boot from other boot devices (in a predefined sequence) which are present but not selected as boot devices in the setup.

Swap Floppy drive

If the system has two floppy drives, use this item to swap the logical drive name assignments.

Boot Up Floppy Seek

Enable this to allow the system to search for floppy drives during the POST. Dis-able this item to boot faster.

Boot Up NumLock Status

Toggle between On or Off to control the state of the NumLock key when the system boot. If On, the numeric keypad is in numeric mode. If Off, the numeric keypad is in cursor control mode.

Gate A20 Option

Enables you to select whether the chipset or the keyboard controller should control Gate A20. The options are:

- **Normal:** A pin in the keyboard controller controls Gate A20.
- **Fast:** Lets chipset control Gate A20.

Typematic Rate Setting

If set to Enabled, enables you to set the Typematic Rate and Typematic Delay.

Typematic Rate (Chars/Sec)

This setting controls the speed at which the system registers held-down key-strokes. The choices range from 6 to 30 Chars/Sec.

Typematic Delay (Msec)

This setting controls the time between the display of the first character and suc-cessive characters. There are four delay choices: 250ms, 500ms, 750ms and 1000ms.

Security Option

Enables you to 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 setup.

APIC Mode

The APIC Mode BIOS feature is used to enable or disable the motherboard's APIC (Advanced Programmable Interrupt Controller). If your single-processor motherboard supports APIC and you are using a Win32 operating system (Windows NT, 2000 and XP), it's recommended that you enable this feature to allow faster and better IRQ handling. If you are using a multiprocessor motherboard, you must enable this feature because it's required for IRQ handling in multiprocessor systems.

OS Select for DRAM > 64MB

Set to OS2 if the system memory size is greater than 64 MB and the operating system is OS/2.
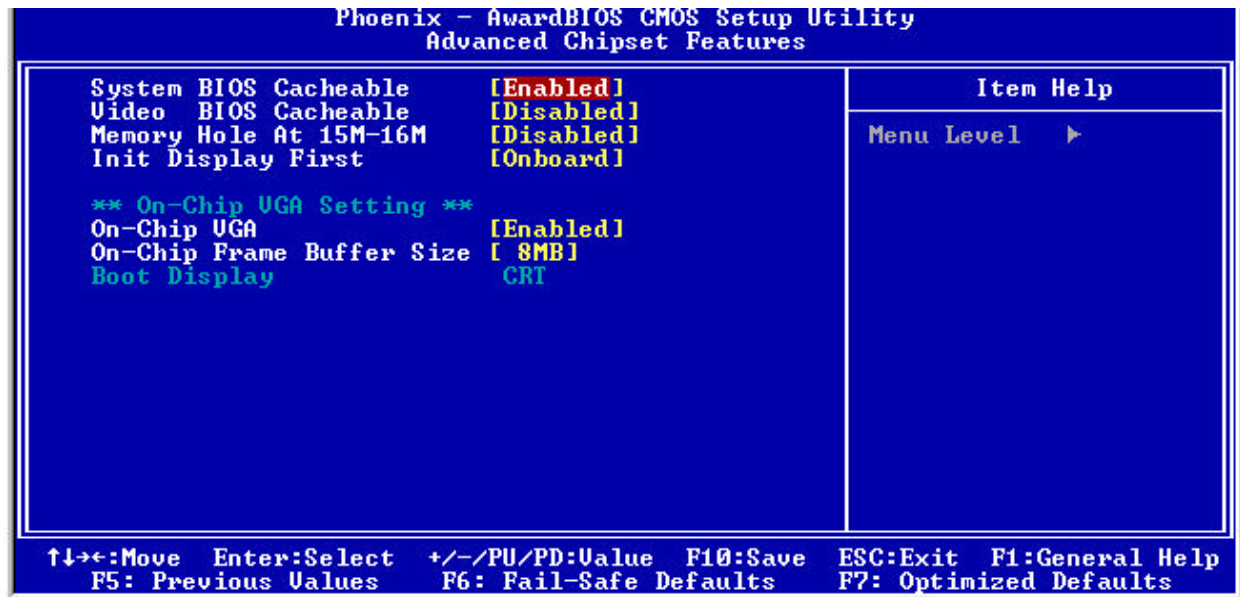
4.7 Advanced Chipset Features

```
              Phoenix - AwardBIOS CMOS Setup Utility
                      Advanced Chipset Features
 ┌────────────────────────────────────────────┬──────────────────────────┐
 │  System BIOS Cacheable     [Enabled]        │      Item Help           │
 │  Video  BIOS Cacheable     [Disabled]       │                          │
 │  Memory Hole At 15M-16M    [Disabled]       │   Menu Level    ▶        │
 │  Init Display First        [Onboard]        │                          │
 │                                             │                          │
 │  ** On-Chip VGA Setting **                  │                          │
 │  On-Chip VGA               [Enabled]        │                          │
 │  On-Chip Frame Buffer Size [ 8MB]           │                          │
 │  Boot Display                 CRT           │                          │
 │                                             │                          │
 │                                             │                          │
 │                                             │                          │
 │                                             │                          │
 │                                             │                          │
 └────────────────────────────────────────────┴──────────────────────────┘
 ↑↓→←:Move   Enter:Select   +/-/PU/PD:Value   F10:Save   ESC:Exit   F1:General Help
       F5: Previous Values      F6: Fail-Safe Defaults    F7: Optimized Defaults
```

Figure 4-5 : BIOS- Advanced Chipset Features

System BIOS Cacheable

Selecting Enabled allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result. The available choices are Enabled, Disabled.

Video BIOS Cacheable

Selecting Enabled allows caching of the video BIOS ROM at C0000h, resulting in better video performance. However, if any program writes to this memory area, a system error may result. The choices : Enabled, Disabled.

Memory Hole at 15M-16M

In order to improve performance, certain space in memory is reserved for ISA cards. This memory must be mapped into the memory. The choices: Enabled, Disabled.

Init Display First

This item allows you to activate PCI slot or onboard display first. The choices are: PCI slot, Onboard/AGP.

On-chip VGA
By default, the On-Chip VGA or chipset-integrated VGA is Enabled.

On-chip Frame Buffer Size
The On-Chip Frame Buffer Size can be set as 1MB or 8MB. This memory is shared with the system memory.

Boot Display
Use this field to select the type of device you want to use as the display(s) of the system.
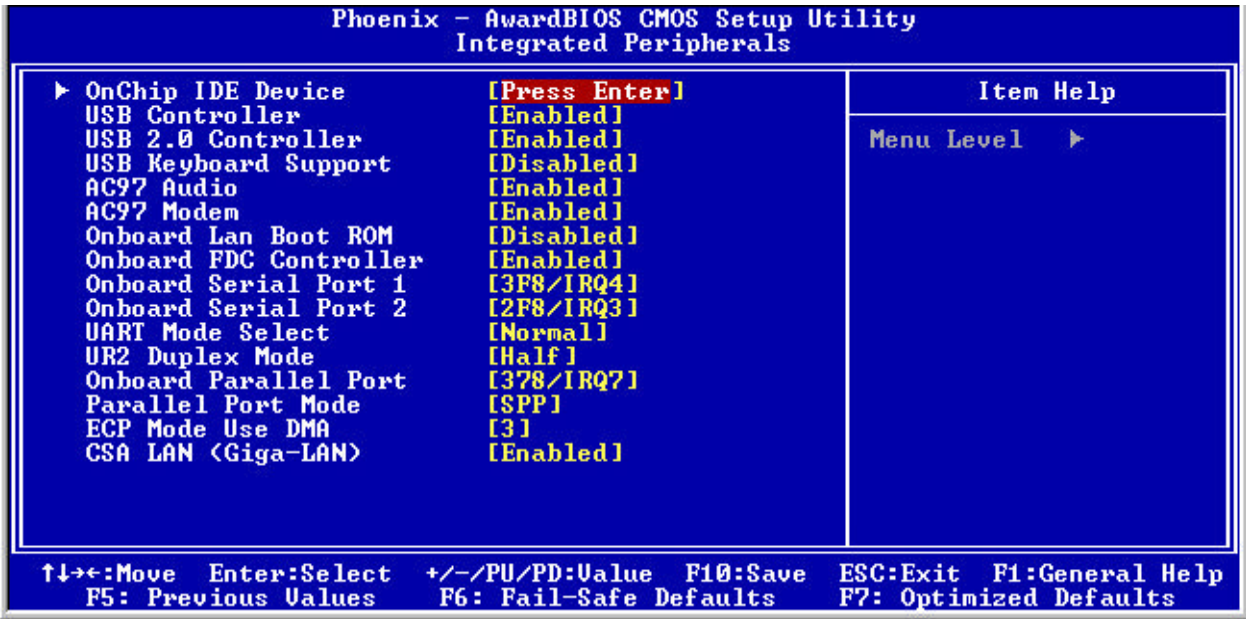
4.8 Integrated Peripherals

```
          Phoenix - AwardBIOS CMOS Setup Utility
                    Integrated Peripherals
 ┌──────────────────────────────────────────┬─────────────────────────┐
 │ ▶ OnChip IDE Device       [Press Enter]   │      Item Help          │
 │   USB Controller          [Enabled]       │                         │
 │   USB 2.0 Controller      [Enabled]       │  Menu Level    ▶        │
 │   USB Keyboard Support    [Disabled]      │                         │
 │   AC97 Audio              [Enabled]       │                         │
 │   AC97 Modem              [Enabled]       │                         │
 │   Onboard Lan Boot ROM    [Disabled]      │                         │
 │   Onboard FDC Controller  [Enabled]       │                         │
 │   Onboard Serial Port 1   [3F8/IRQ4]      │                         │
 │   Onboard Serial Port 2   [2F8/IRQ3]      │                         │
 │   UART Mode Select        [Normal]        │                         │
 │   UR2 Duplex Mode         [Half]          │                         │
 │   Onboard Parallel Port   [378/IRQ7]      │                         │
 │   Parallel Port Mode      [SPP]           │                         │
 │   ECP Mode Use DMA        [3]             │                         │
 │   CSA LAN (Giga-LAN)      [Enabled]       │                         │
 │                                           │                         │
 ├──────────────────────────────────────────┴─────────────────────────┤
 │ ↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help │
 │    F5: Previous Values   F6: Fail-Safe Defaults   F7: Optimized Defaults      │
 └─────────────────────────────────────────────────────────────────────┘
```

Figure 4-6 : BIOS- Integrated Peripherals

On-Chip IDE Device
The system chipset contains IDE HDD Block mode, and a PCI IDE interface with support for two IDE Primary (Master & Slave) PIO's and two IDE Primary (Master & Slave) UDMA's, and two IDE Secondary (Master & Slave) PIO's and two IDE Secondary (Master & Slave) UDMA's. Select Enabled to activate the primary and/or secondary IDE interface. Select Disabled to deactivate this interface, if you install a primary and/or secondary add-in IDE interface.

On-Chip Serial ATA
This setting is used to specify the SATA controller. Settings: Disable, Auto Combined Mode, Enhanced Mode, SATA only. If <Combined Mode> is selected, PATA and SATA will both be enabled. If <Auto> is selected, PATA and SATA will be arranged by

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BIOS, and you will be able to see the IDE device status listed in Standard CMOS Features.

Serial ATA Port O/I Mode

Select a compatible mode for Port 1 and Port 2 from Award Setting to the chipset settings:

Primary Master: Compatible Mode with Serial ATA Port 1 set to Primary Master
Primary Slave: Compatible Mode with Serial ATA Port 1 set to Primary Slave
Secondary Master: Compatible Mode with Serial ATA Port 1 set to Secondary Master
Secondary Slave: Compatible Mode with Serial ATA Port 1 set to Secondary Slave
Primary Master: Compatible Mode with only Serial ATA Enabled and Port 1 set to Primary
                    Master
Secondary Master: Compatible Mode with only Serial ATA Enabled and Port 1 set to
                    Secondary Master
SATA 1 Master: Enhance Mode with Port 1 set to Native Mode Master
SATA 2 Master: Enhance Mode with Port 2 set to Native Mode Master

USB Controller
Select Enabled if your system contains a Universal Serial Bus controller and you have USB peripherals.

USB 2.0 Contoller
If BIOS itself has high speed USB support built in, the support will be automatically turn on when high speed device is attached.

USB Keyboard Support
Select Enabled if your USB controller is enabled and it needs USB keyboard support in legacy (old) OS operating systems such as DOS.

AC97 Audio

Selecting Auto will enable the AC97 audio if it is detected onboard.

AC97 Modem

Selecting Auto will enable the AC97 modem if it is detected onboard.

Onboard LAN Boot ROM

Decides whether to invoke the boot ROM of the onboard LAN chip. The available choices are LAN1, LAN2, and Disabled.

Onboard FDC Controller

Select Enabled if your system has a floppy disk controller (FDC) installed on the system board and you wish to use it. If you install an add-in FDC or the system has no floppy drive, select Disabled in this field.

Onboard Serial Ports (1, 2)

Select an address and corresponding interrupt for the first and second serial ports. The choices: Auto, 3F8/IRQ4, 3E8/IRQ4, 2F8/IRQ3, 2E8/IRQ3, Disabled.

UART Mode Select

This item allows you to select UART mode.
The choices: Normal, IrDA, ASKIR.

UR2 Duplex Mode

In an infrared port mode, this field appears. Full-duplex mode permits simultaneous two-direction transmission. Half-duplex mode permits transmission in one direction only at a time. Select the value required by the IR device connected to the IR port.

Onboard Serial Ports (1, 2, 3, 4)

This feature allows you to manually select the I/O address and IRQ for the first and second serial ports. It is recommended that you leave it as Auto so that the BIOS can select the best settings for it. But if you need a particular I/O port or IRQ that's been taken up by this serial port, you can manually select an alternative I/O port or IRQ for it. You can also disable this serial port if you do not need to use it. Doing so frees up the I/O port and IRQ used by this serial port. Those resources can then be reallocated for other devices to use.

Parallel Port Mode

The choices available include SPP, EPP, ECP and ECP+EPP.

ECP Mode Use DMA

When the on-board parallel port is set to ECP mode, the parallel port can use DMAS or DMA 1. After you have made your selections in the Integrated Peripherals setup, press the **<ESC>** key to go back to the main program screen.

CSA LAN (Giga-LAN)

Select Enabled for CSA LAN function.

4.9 Power Management Setup


```
自動     ▼   □ 🗐 🖺 🔚 ☞ 🖨 A 漢

              Phoenix - AwardBIOS CMOS Setup Utility
                         Power Management Setup

  AUTO PWR-Failure Resume    [Off]            ▲  │        Item Help
  Power-Supply Type          [AT]                │
  ACPI Function              [Enabled]           │   Menu Level    ▶
  Power Management           [Min Saving]        │
  Video Off Method           [DPMS]              │
  Video Off In Suspend       [Yes]               │
  Suspend Type               [Stop Grant]        │
  MODEM Use IRQ              [NA]                 │
  Suspend Mode               1 Hour              │
  HDD Power Down             15 Min              │
  Soft-Off by PWR-BTTN       [Instant-Off]       │
  Wake-Up by PCI card        [Enabled]           │
  Power On by Ring           [Enabled]           │
  Wake Up On Giga-LAN        [Enabled]           │

  ** Reload Global Timer Events **               │
  Primary IDE 0              [Disabled]          │
  Primary IDE 1              [Disabled]          │
  Secondary IDE 0            [Disabled]        ▼  │

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

Figure 4-7 : BIOS -- Power Management Setup

Auto PWR-Failure Resume

This setting specifies whether your system reboots after a power failure.

There are three selections:

Off: The system will remain off when power comes back after a power failure.

On: The system will switch on when power comes back after a power failure.

Former-Sts: The system will return to the last state before the power failure when power returns.

Power Supply Type

The choices: AT, ATX.

ACPI Function

The ACPI standard (Advanced Configuration and Power Interface) allows the operating system to directly check the functions of energy saving and the PnP (Plug and Play) functionality. The ACPI functions are normally activated by the BIOS. The choices are: Enabled and Disabled.

Power Management

This category allows you to select the type (or degree) of power saving and is directly related to the following modes: HDD Power Down, Doze Mode and Suspend Mode

- ✍ Min. Saving: Minimum power management
- ✍ Max Saving: Maximum power management
- ✍ User Define: Allows you to set each mode individually

Video Off Method

This determines the manner in which the monitor is blanked. There are three choices:

1. V/H SYNC+Blank: This selection will cause the system to turn off the vertical and horizontal synchronization port and write blanks to the video buffer.
2. Blank Screen: This option only writes blanks to the video buffer.
3. DPMS Support: Select this option if your monitor supports the Display Power Management signaling (DPMS) standard of the Video Electronics Standard to select video power management values.

Video Off In Suspend

This determines the manner in which the monitor is blanked. The choices: Yes, No.

Suspend Type

Select the Suspend Type.

The Choices: PwrON Suspend, Stop Grant.

MODEM Use IRQ

This determines the IRQ in which the MODEM can use.

The Choices: 3, 4, 5, 7, 9, 10, 11, NA.

Suspend Mode

When enabled and after the set time of system inactivity, all devices except the CPU will be shut off. The choices are: 1~2 min, 2~3 min,... up to 1 hour.

HDD Power Down

When enabled and after the set time of system inactivity, the hard disk drive will be powered down while all other devices remain active.

Soft-Off by PWRBTN (Power Button)

Pressing the power button for more than 4 seconds forces the system to enter the Soft-Off state when the system "hangs". The available choices are Delay 4 Seconds, Instant-Off

Wake up by PCI Card

When the system enters a Soft-off mode (Standby power exist but system is not working), it will wake up system when specific signals occurred. The BIOS monitors the system for "activity" to determine when to enable power management.

If you enable this feature, the computer specifies that any signal noticed on the PCI (Peripheral Component Interconnect) bus channel must go out from the hibernation state. The choices: Enabled, Disabled.

Power On by Ring

An input signal on the serial Ring Indicator (RI) line (in other words, an incoming call on the modem) awakens the system from a soft off state. The choices: Enabled, Disabled.

Reload Global Timer Events
Primary IDE 0
Primary IDE 1
Secondary IDE 0
Secondary IDE 1
FDD, COM, LPT Port
PCI PIRQ[A-D] #

The events are I/O events whose occurrence can prevent the system from entering a power saving mode or can awaken the system from such a mode. In effect, the system remains alert for anything which occurs to a device which is configured as Enabled, even when the system is in a power down mode. The choices: Enabled, Disabled.

4.10 PnP/PCI Configurations

```
             Phoenix - AwardBIOS CMOS Setup Utility
                       PnP/PCI Configurations

    Reset Configuration Data    [Disabled]                 Item Help

    Resources Controlled By     [Auto(ESCD)]        Menu Level    ▶
  x IRQ Resources               Press Enter
  x DMA Resources               Press Enter         Default is Disabled.
  x Memory Resources            Press Enter         Select Enabled to
                                                    reset Extended System
    PCI/VGA Palette Snoop       [Disabled]          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

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

Figure 4-8 : BIOS -- PnP/PCI Configurations

Reset Configuration Data

Normally, you leave this field Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on Card and the system reconfiguration has caused such a serious conflict that the operating system cannot boot.
The choices: Enabled, Disabled .

Resources Controlled By

The Award Plug and Play BIOS has the capacity to automatically configure all of the boot and Plug and Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as Windows95. If you set this field to Manual, then choose specific resources by going into each of the submenus that follows this field.
The Choice: Auto (ESCD), Manual.

PCI/VGA Palette Snoop

Leave this field at Disabled. The Choices: Enabled, Disabled.

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4.11 PC Health Status

Figure 4-9 : BIOS- PC Health Status

After you have read the PC Health Status, press the <ESC> key to go back to the main program screen.

4.11 Load Fail-Safe Defaults

This option opens a dialog box that lets you install fail-safe defaults for all appropriate items in the whole setup utility.
Use this option if you have changed your system and it does not operate correctly or does not power up.

4.12 Load Optimized Defaults

This option opens a dialog box that lets you install optimized defaults for all appropriate items in the whole Setup Utility. Press the <Y> key and then <Enter> to install the defaults. Press the <N> key and then <Enter> to not install the defaults. The optimized defaults place demands on the system that may be greater than the performance level of the components, such as the CPU and the memory. You can cause fatal errors or instability if you install the optimized defaults when your hardware does not support them. If you only want to install setup defaults for a specific option, select and display that option, and then press the <F7> key.

4.13 Set Supervisor/User Password

The Supervisor/User Password utility sets the password. The mainboard is shipped with the password disabled. If you want to change the password, you must first enter the current password, then at the prompt enter your new password. The password is case sensitive. You can use up to eight alphanumeric characters. Press <Enter> after entering the password. At the next prompt, confirm the new password by retyping it and pressing <Enter> again.
To disable the password, press <Enter> instead of entering a new password when the Enter Password dialog box appears. A message appears confirming that the password has been disabled.
If you have set supervisor and user passwords, only the supervisor password allows you to enter the BIOS Setup Program.

> **Note: If you forget your password, the only way to solve this problem is to discharge the CMOS memory by turning power off and placing a shunt (jumper cap) on jumper JP2 to short pin 2 and pin 3 for five seconds, then putting the shunt back to pin 1 and pin 2 of JP2.**

4.14 Save & Exit Setup

Selecting this option and pressing <Enter> will save the new setting information in the CMOS memory and continue with the booting process.

4.15 Exit Without Saving

Selecting this option and pressing <Enter> will exit the Setup Utility without recording any new values or changing old ones.

**Chapter 5
Driver Installation**

PEAK 735 Series comes with a driver installation CD-ROM that enables you to install VGA driver software, INF(Intel Chipset Software Installation Utility), LAN and USB.

5.1 Installing VGA Driver

Step 5.1.1

Double click the folder of **VGA**.

The menu will display.

Select the folder of **WIN2K_XP** for Windows 2000 operating system.
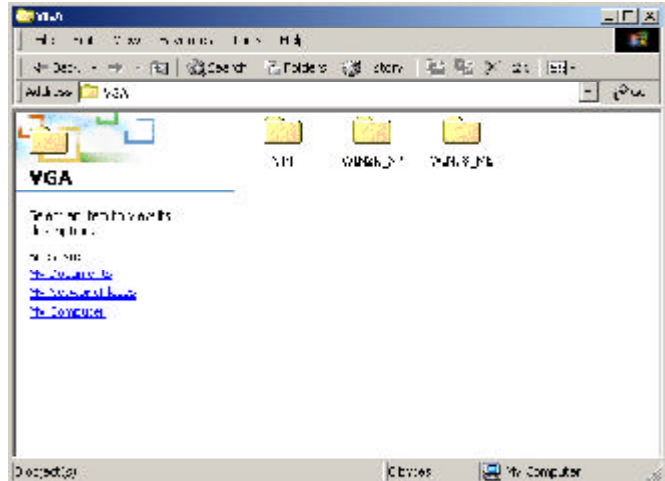
Step 5.1.2

After the menu displays, select the folder of **GRAPHICS**.
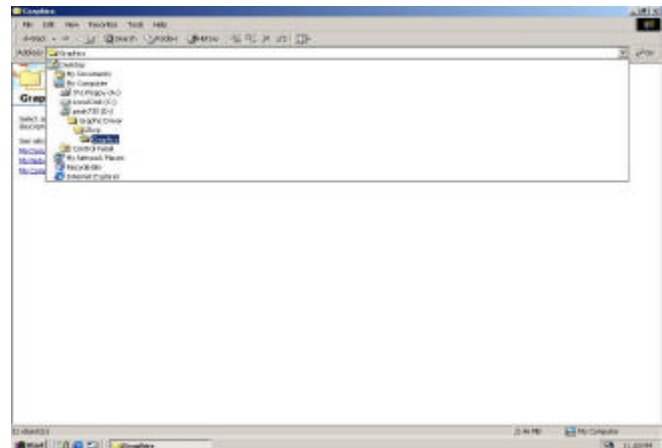
Step 5.1.3

After this screen displays, double click the blue sign **SETUP**.

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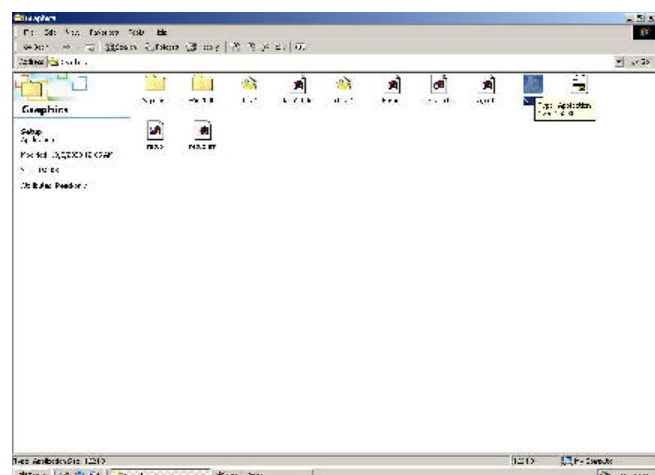
Step 5.1.4

After a sequence of system
processing, you will see a
static screen instructing the
installation process.

Click **Next** to continue setup.
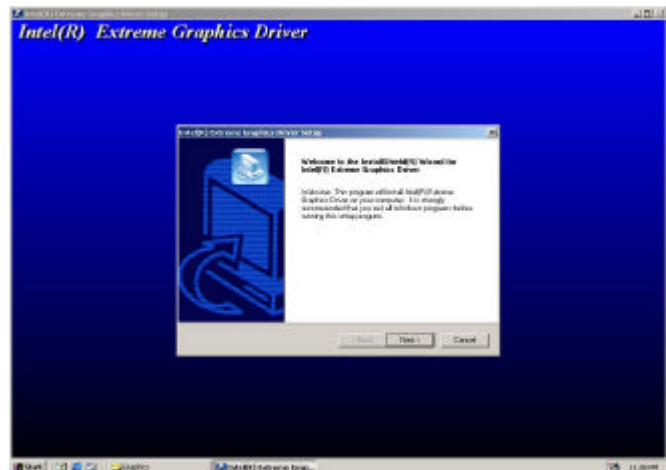
Step 5.1.5

If you accept License Agreement,
click **Yes** to continue.
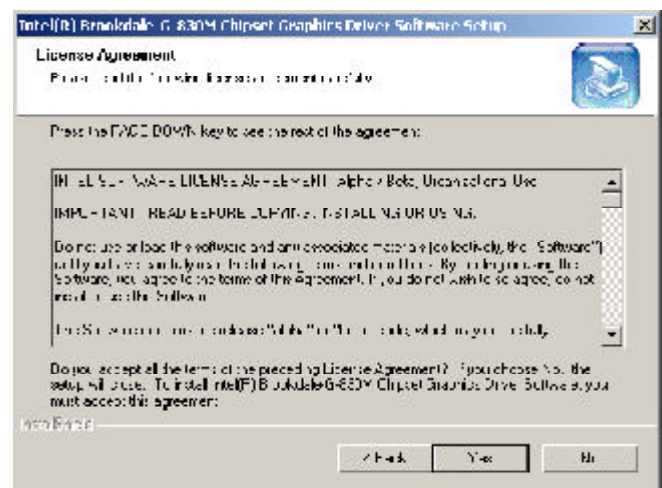
Step 5.1.6

An installation wizard will inform
successful completion of driver
software installation and ask you
to restart your computer.

Select "**Yes, I want to restart my
computer now**," and then click
Finish.

After your computer reboots,
VGA driver is already setup in
your computer.
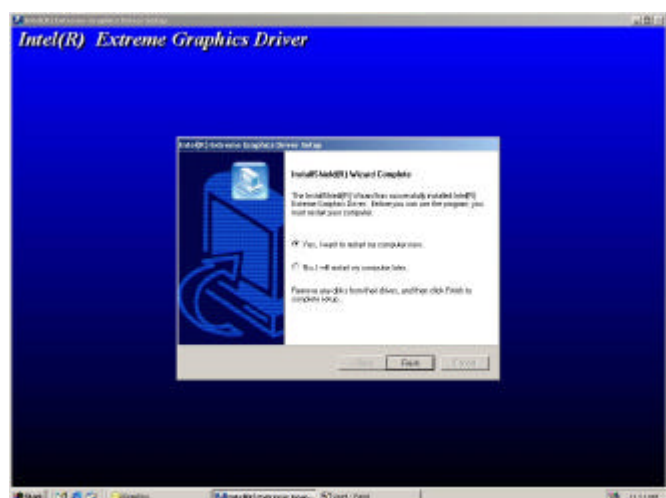
5.2 Installing INF

After installing VGA driver, go back to 5.1. Go through step 5.11 to step 5.14 again, and open the folder of INF to start installing INF.

Step 5.2.1

Open the folder of
INF 5.00.1012
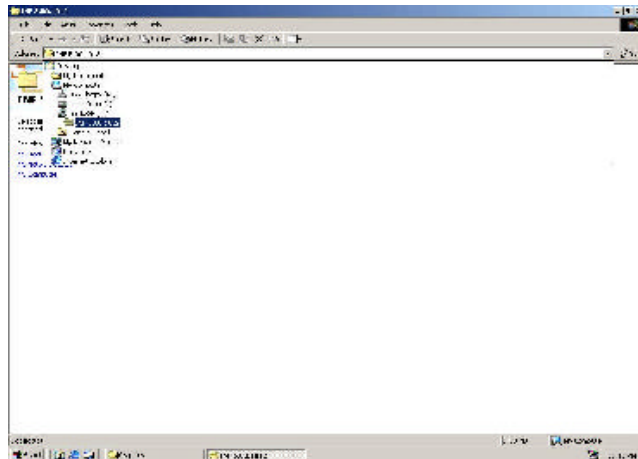
Step 5.2.2

Double click the blue sign
INFINST_ENU
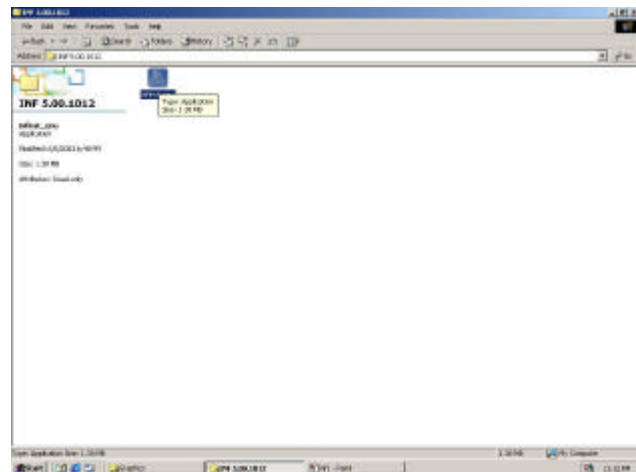
Step 5.2.3

Click **Next** to install INF.
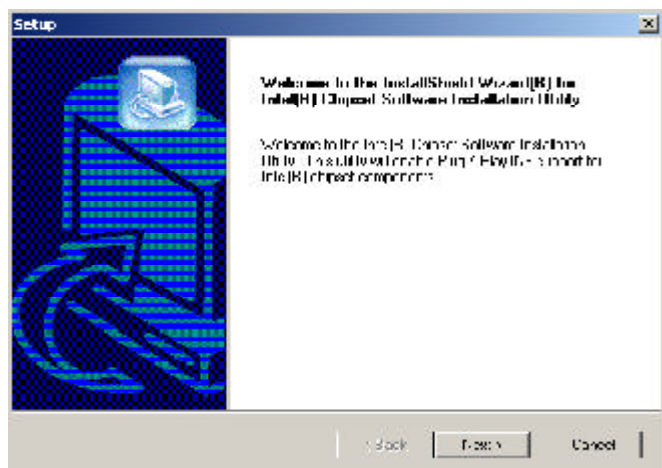
Step 5.2.4

Click **Yes** to continue.
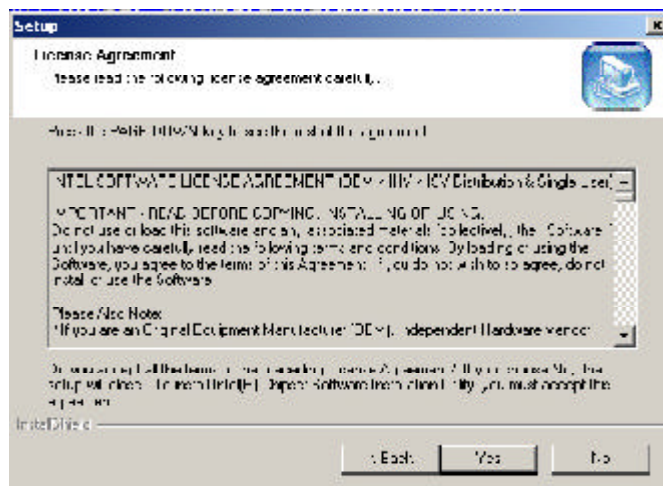
Step 5.2.5

Click **Yes**.
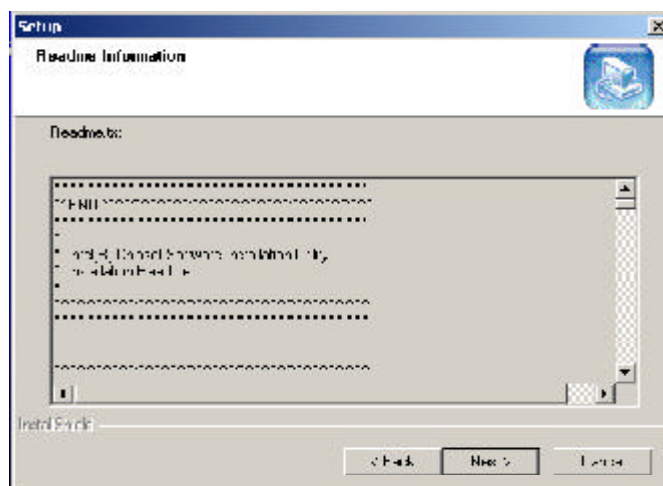
Step 5.2.6

Select **Yes, I want to restart my computer now**.

Then click **Finish**.

INF is installed.
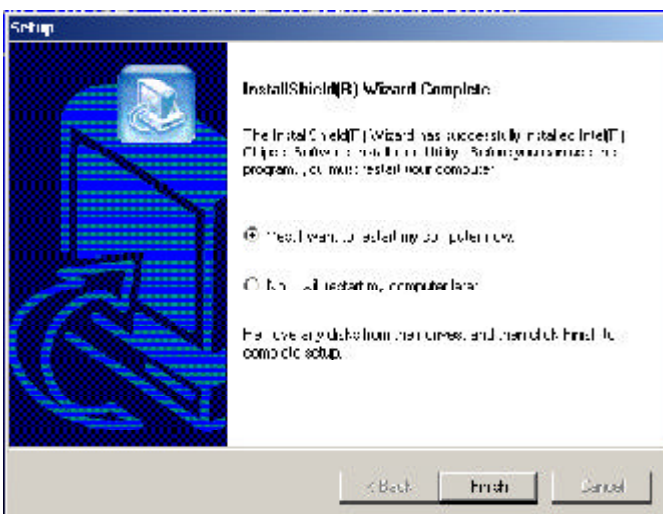
5.3 Installing LAN

After installing INF, go back to 5.1. Go through step 5.1.1 to step 5.1.4 again, and open the folder of LAN driver.

Step 5.3.1

After the folder of **LAN driver** displays, click it.
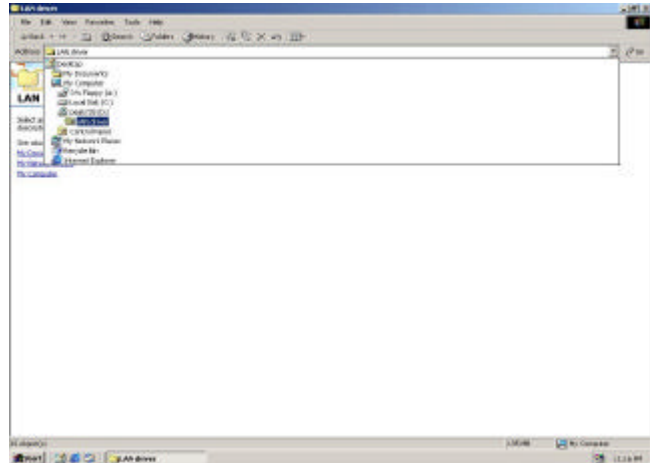
Step 5.3.2

Double click the **Autorun Icon**
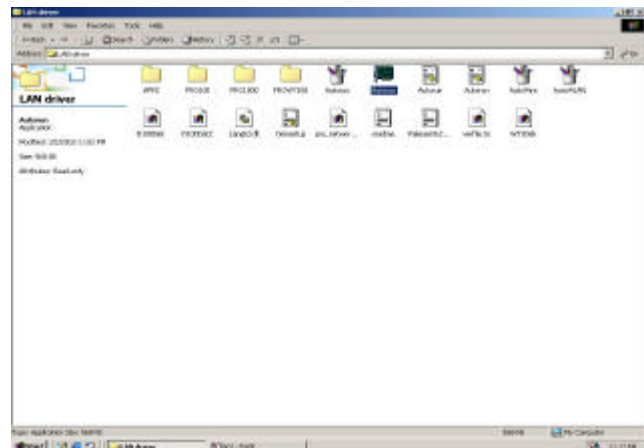
Step 5.3.3

Click **Wired LAN Adapter or Wireless LAN Adapter** for installation

Step 5.3.4

Install or update the minimum
drivers for **Intel PRO adapters.**
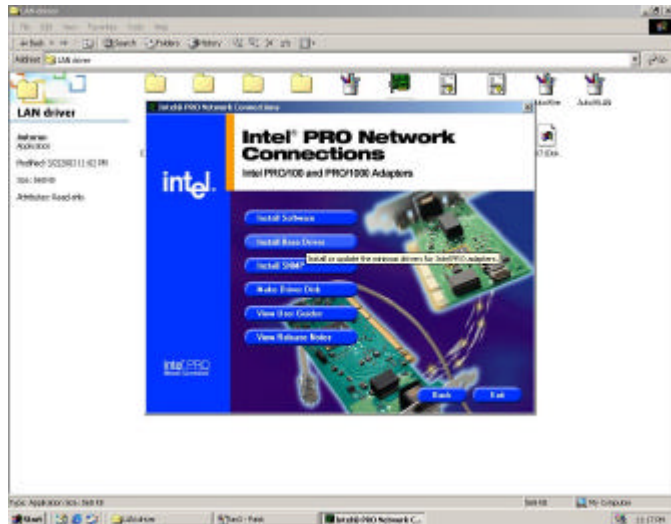
Step 5.3.5

Install or update drivers
for Intel PRO adapters.

5.4 Installing USB

After installing the LAN driver, go back to computer desktop and open My Computer.

Step 5.4.1

Double click the My Computer icon to open it.
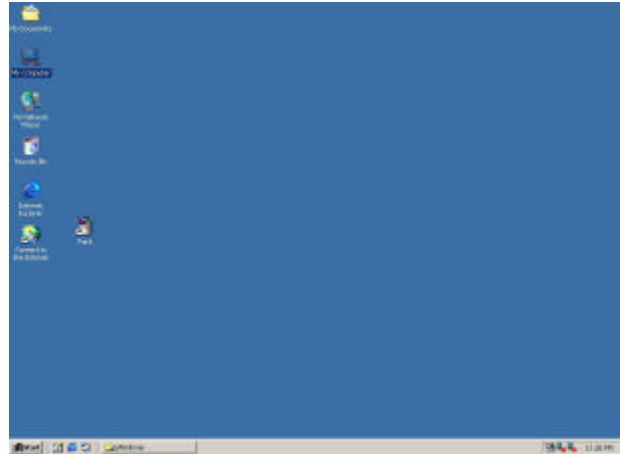
Step 5.4.2

Choose **Properties** in the drop menu.
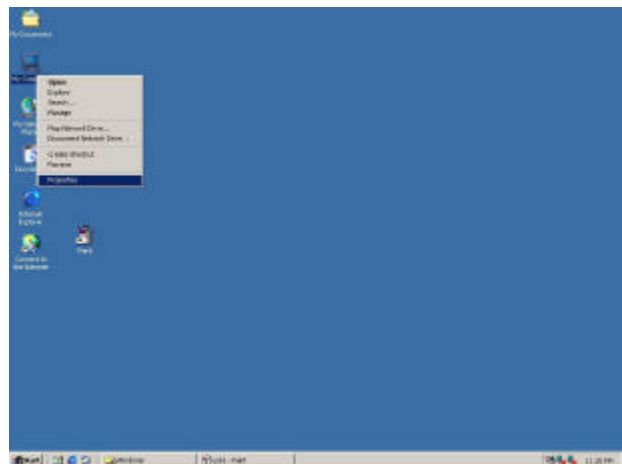
Step 5.4.3

Click **OK** in the System Properties Menu.
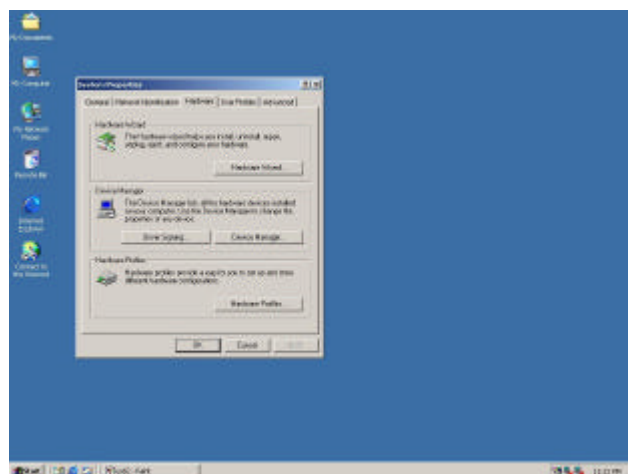
Step 5.4.4
Click **USB Controller** in the
Device Manager folder.
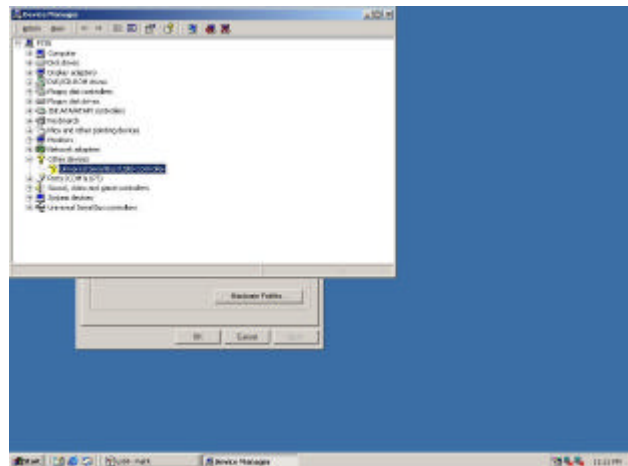
Step 5.4.5
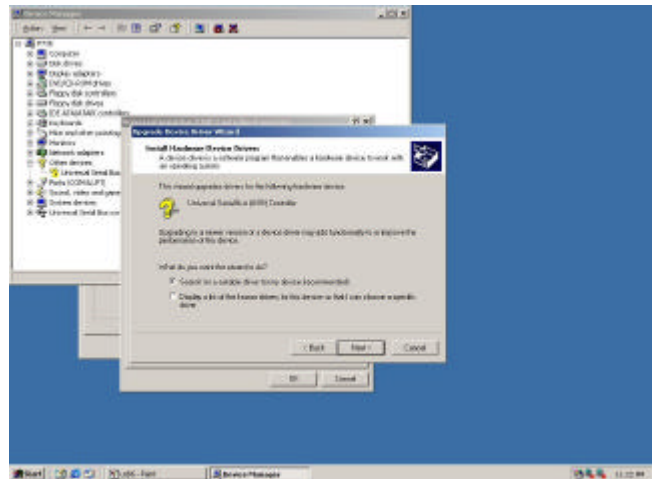To update the driver files for
this device, click **Update Driver.**
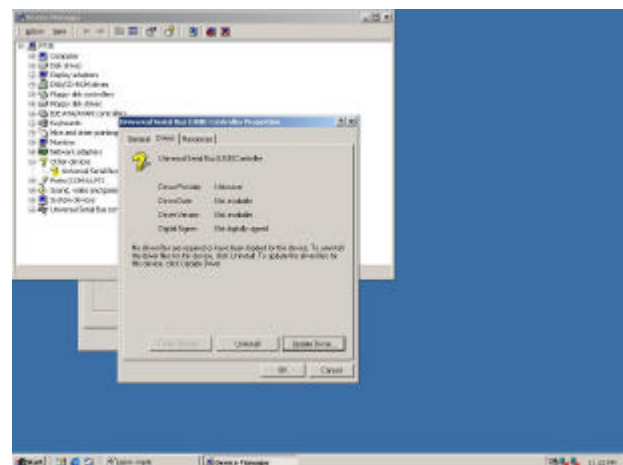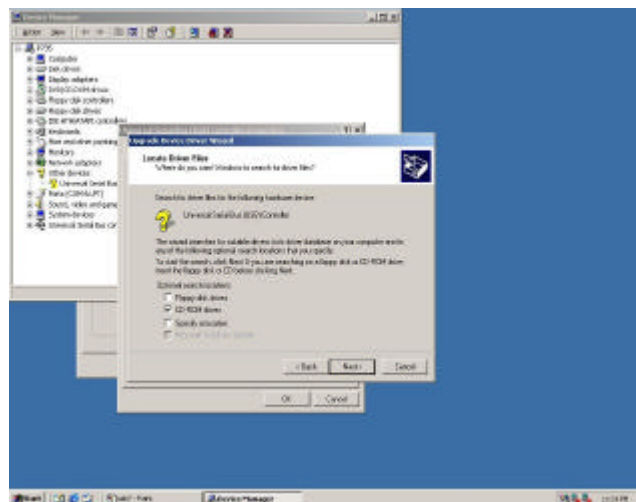
Step 5.4.5
To continue, click **Next.**

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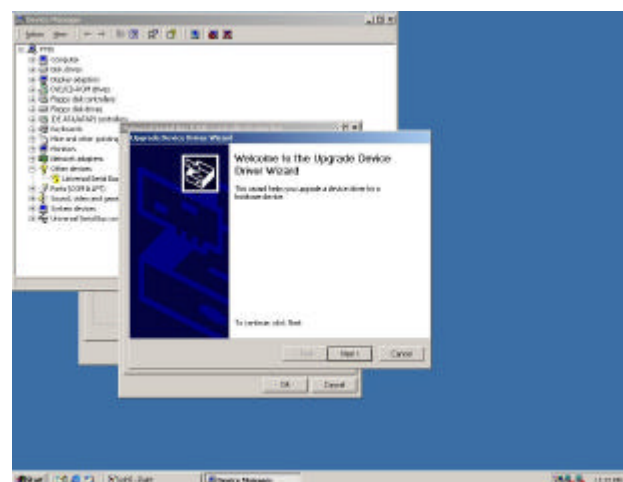
Step 5.4.5

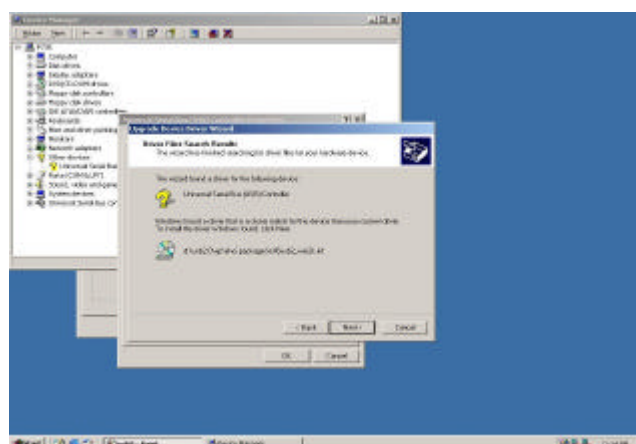To upgrade a device driver, click **Next.**

Step 5.4.6

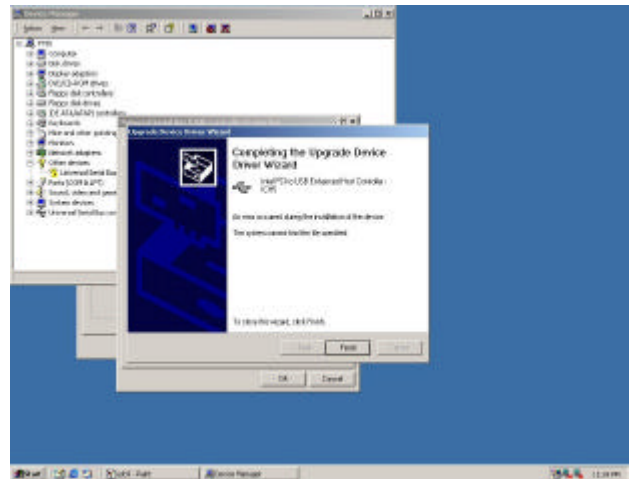To upgrade a device driver, click **Next.**

Step 5.4.7

To install the driver Windows found, click **Next**.

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Step 5.4.8

To close this wizard, click **Finish.**

Appendix A : Watchdog Timer Setting

A.1 Watchdog Timer Working Procedure

Watchdog Timer (WDT) is a special hardware device that monitors the computer system during normal operation. WDT has a clock circuit that times down from a set number to zero. If a monitored item occurs before the timer reaches zero, WDT resets and counts down again. If for some reason the monitored item doesn't occur before the timer reaches zero, WDT performs an action, such as a diagnostic operation (rebooting the computer).

You must enter timer values into WDT Configuration Register (Write the control value to the Configuration Port), and clear WDT counter (read the Configuration Port).

WDT Configuration port	F2	Default at F2
Watch Dog Timer	Disabled	1. Default at disabled
	Enabled	2. Enabled for user's programming
WDT Active Time	1 sec	Default at 64 sec
	2 sec	
	4 sec	
	8 sec	
	16 sec	
	32 sec	
	64 sec	
	128 sec	

Table A-1 : Watchdog Timer Character and Function

A.2 Watchdog Timer Control Register

The Watchdog Timer Control Register controls the WDT working mode. Write the value to the WDT Configuration Port. The following table describes the Control Register bit definition:
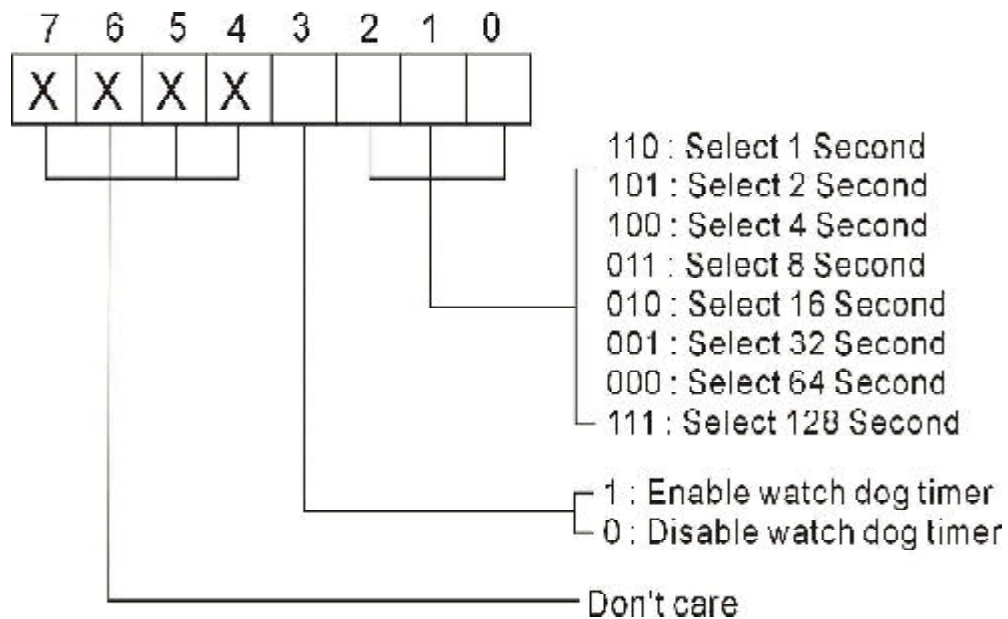

Table B-2 : WDT Control Register Bit Definition

A.3 Watchdog Timer Programming Procedure

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A.3.1 Power On or Reset the System

The initial value of WDT Control Register (D3~D0) is zero (0), when power is on or the system has been reset. The following table indicates the initial value of WDT (00000000b) :

Bit	Value	Mean
3	0	Disable Watchdog Timer
2, 1, 0	0 0 0	Select 64 second

Table A-3 : WDT Control Register Initial Value

A.3.2 Clear the WDT

WDT counter interval cannot be longer than the preset time, otherwise, WDT sends a reset signal to the system.

The following is an example of clearing the WDT program in Intel 8086 assembly language.

```
; ( Clear the WDT)
Mov   dx,  F2h   ;Setting the WDT configuration port
In    al,  dx
```

Note: Before running WDT, you must clear WDT to ensure that the initial value is zero.

A.3.3 WDT Control Register

Note: This register writes to WDT configuration port.

Set WDT Control Register to control the WDT working mode. The initial value of WDT Control Register is shown as follows:

```
; (Setting the WDT Control Register as AL)
Mov      al, 0h  ; Setting initial value = 0 for the WDT Control Register
```

Follow these instructions to set the register:

1. Select the time-out intervals of WDT (decide the values of D2, D1, D0 in F2)
    Example: If D2~D0 = 0, the time-out interval is 64 seconds.
    ```
    AND      al, 11111000b  ; Setting the time-out interval as 64 sec.
    ```

2. Enable or Disable WDT (decide D3 value in F2)
    i.e. D3=0, Disables WDT

    ```
    AND    al, 11110111b  ; Disable the WDT
    ```
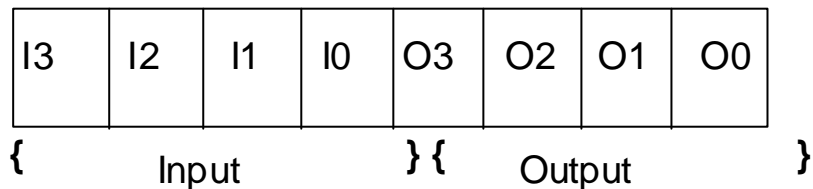
i.e. D3=1, Enables WDT

```
OR      al, 00001000b  ; Enable the WDT
```

After finishing the above settings, you must output the Control Register's value to WDT Configuration Port. Then WDT will start according to the above settings.

```
MOV     dx, F2h    ; Setting WDT Configuration Port
OUT     dx, al         ; Output the Control Register Value
```

Appendix B:GPIO USER GUIDE

DIGITAL I/O UESD PORT 801

I3	I2	I1	I0	O3	O2	O1	O0

{   Input   } {   Output   }

JP17

IN 0	1	2	OUT 0
IN 1	3	4	OUT 1
IN 2	5	6	OUT 2
IN 3	7	8	OUT 3