3.5” Embedded SBC

Model Number AW-EM730

Intel® Pentium® M Embedded SBC with LVDS, LAN, Audio & SSD

User’s Manual

Version 1.3

Manual Edition 1.3, Mar 2006

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User's Manual

Table of Contents

Chapter 1. General Information

1.1 Introduction

The AW-EM730 3.5" embedded board is based on Intel® architecture with 852GM+ICH4 chipset supporting the Pentium® M Celeron M processor with 400MHz FSB. The memory supports DDR SO-DIMM socket up to 1GB. Through Intel® 82562ET chipset, it can support one Ethernet port. The built-in 852GM chipset supports CRT and LVDS panel interface.

Other features include a CompactFlash socket, one mini PCI slot for future expansion capabilities, four USB2.0 ports, three RS-232 and one RS-232/485 Serial port, one Parallel port, AC97 audio, watchdog timer and hardware system monitoring, etc.

1.2 Specification

General Functions

CPU	Intel® Celeron® M ULV 600MHz Zero cache processor
BIOS	Award® 512KB Flash BIOS
Cache	Non on-chip cache
Chipset	Intel® 852GM + ICH4
I/O Chipset	Winbond® 83627HF-AW
Memory	Onboard one DDR SO-DIMM socket can support up to 1GB
Enhanced IDE	One 44-pin IDE connector supports Ultra DMA 33/66/100 mode
Serial port	Three RS-232 and one RS-232/485（4wire/2wire）serial ports
KB/Mouse connector	Supports PS/2 keyboard and mouse
Parallel port	Pin header for bi-directional parallel port, supports SPP, ECP and EPP mode
USB connectors	Support four USB2.0/1.1 ports
Battery	Lithium battery
Watchdog timer	Can generate a system reset, support software selectable timeout interval
System	Built in W83627HF-AW; support temperatures, voltage monitoring

Monitoring	function
PCI expansion	One Mini PCI expansion slot
Flat Panel/CRT Interface	
Chipset	Built-in 852GM chipset
Display type	Support CRT and LVDS panel interface
Ethernet Interface	
Chipset	One Intel 82562ET 10/100Mbps Ethernet controller
Audio Interface (Optional Audio Module)	
Chipset	Analog Device AD1881 AC97 CODEC
Audio interface	Support Mic in, Speaker out
SSD interface	One 50-pin CompactFlash™ socket
Mechanical and Environmental	
Power supply voltage	Single +5V power supply
Operating temperature	32 to 140℉ （0 to 60℃）
Board size	5.7"(L) x 4"(W) (145mm x 102mm)

1.3 Package

Please make sure that the following items have been included in the package before installation.

1. AW-EM730 Embedded SBC
2. Quick Installation Guide
3. Cable: Please refer to Appendix B "Standard Cables"
4. CD-ROM that contains the following folders:

(1) Manual
(2) System Driver
(3) Ethernet Driver
(4) Utility Tools

If any item of above is missing or damaged, please contact your dealer or retailer from whom you purchased the AW-EM730. Keep the box and carton when you probably ship or store AW-EM730 in near future. After you unpack the goods, inspect and make sure the packaging is intact. Do not plug the power adapter to the main board of AW-EM730 if you already find it appears damaged.

Note: Keep the AW-EM730 in the original packaging until you start installation.

1.4 Precautions

Please make sure you properly ground yourself before handling the AW-EM730 board or other system components. Electrostatic discharge can be easily damage the AW-EM730 board.

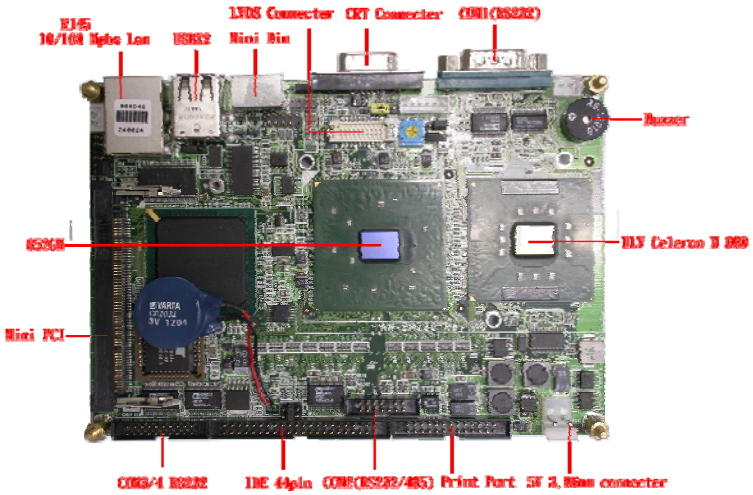
Do not remove the anti-static packing until you are ready to install the AW-EM730 board.

Ground yourself before removing any system component from it protective anti-static packaging. To ground yourself, grasp the expansion slot covers or other unpainted parts of the computer chassis.

Handle the AW-EM730 board by its edges and avoid touching the components on it.

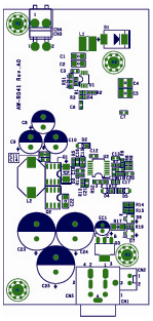
1.5 Board Layout

(Front View)

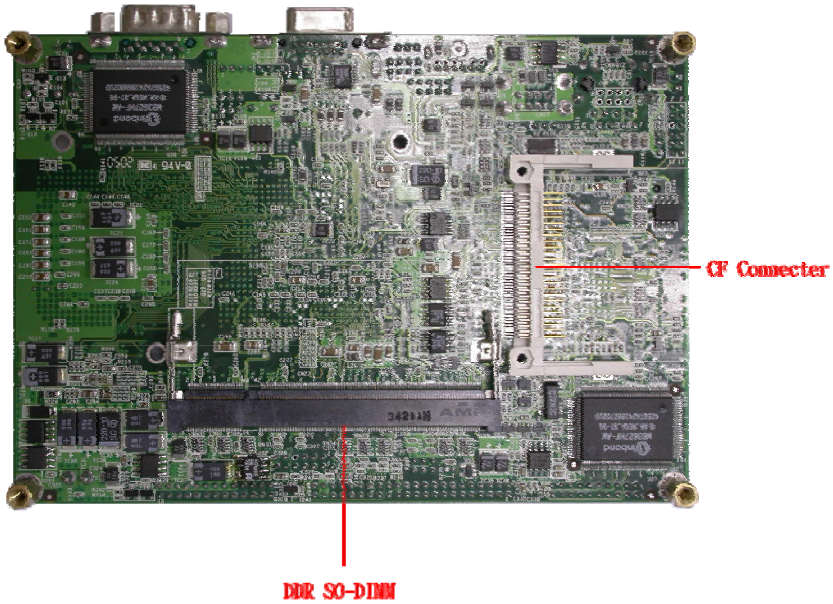


AW-R031
(Audio Kit)

AW-R041
(Power Adapter Kit)

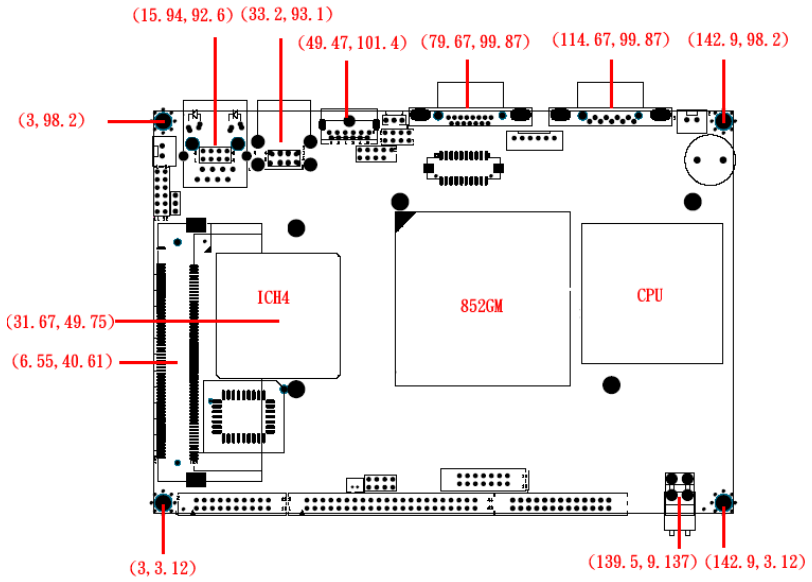


(Rear View)

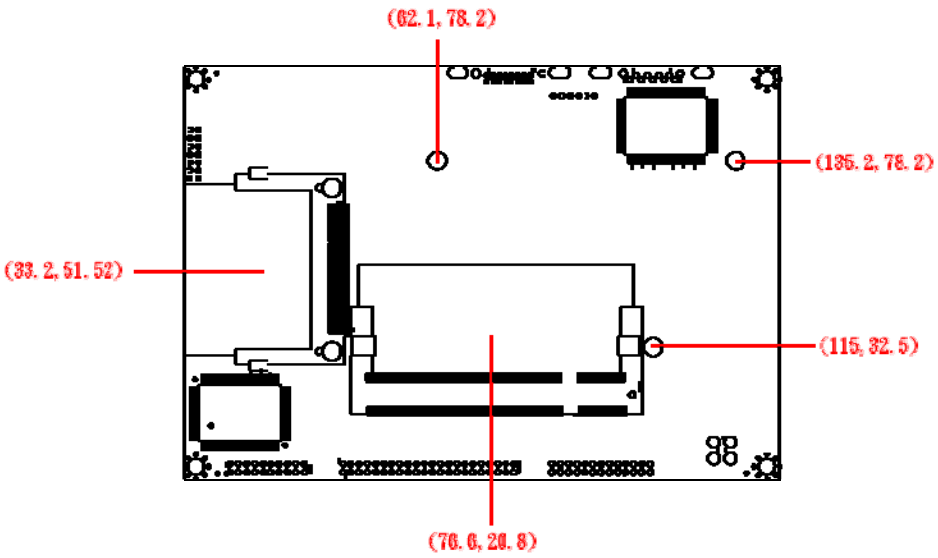


1.6 Board Dimension

(Front View)



(Rear View)



Chapter 2. Connector/Switch Location and Configuration

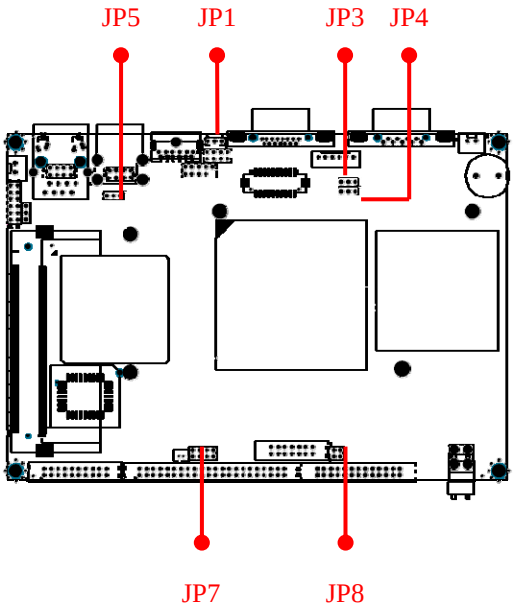
2.1 Connector/Jumper Location and Definition

List of Connectors

Connectors	Description	Connectors	Description
CN1	VGA Connector (D-Sub)	CN13	
CN2	COM1 Connector (D-Sub)	CN14	LVDS Connector
CN3	+12V Input	CN15	AC97 Connector
CN4	Mini Din	CN16	Mini PCI Socket
CN5		CN17	COM2 Pin-Header
CN6	Front Panel Connector	CN18	Power Connector
CN7	Inverter Connector	CN19	COM3/4 Pin-Header
CN8	USB Connector	CN20	IDE Connector
CN9	+5V Fan Connector	CN21	LPT Pin-Header
CN10	LAN Connector (RJ45)	CN22	Compact Flash Socket
CN11	USB Pin-Header	CN23	DDR SO-DIMM
CN12			

List of Jumpers

Jumper	Description
JP1	Power On/Off Control
JP3	Power Selection for Inverter
JP4	LCD Panel Power Selection
JP5	CMOS Jumper
JP7	RS232/485 Jumper
JP8	RS485 Terminal Jumper
VR1	Adjust the brightness of backlight



2.2 Install Memory

To insert a DIMM Memory:

The AW-EM730 supports one SO-DIMM DDR socket, memory up to 1GB. Please make sure to insert DDR with registered.

To Insert a DIMM Memory*:* Please align the module with the socket key and press down until the levers at each end of the socket snap close up.

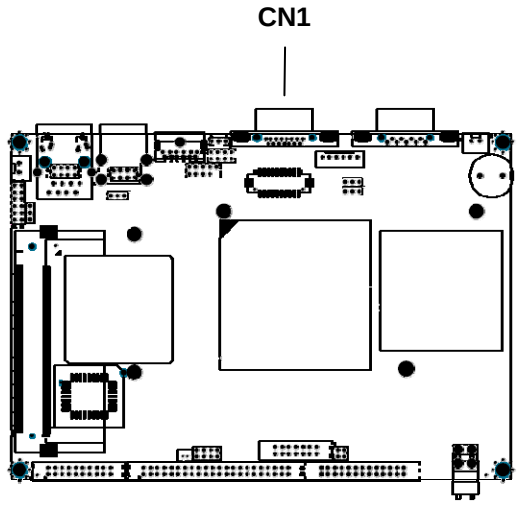
There is only one direction for installing a module in the socket. Do not attempt to force the module into the socket incorrectly.

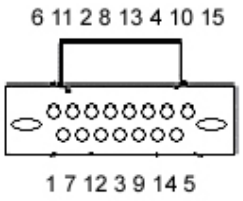
To Remove a DIMM Memory: To remove a DIMM, press down on the levers at both end of the module until the module pops out

2.3 Connector and Jumper Setting

CN1: VGA Connector

The AW-EM730 supports a standard D-SUB VGA connector for CRT display.





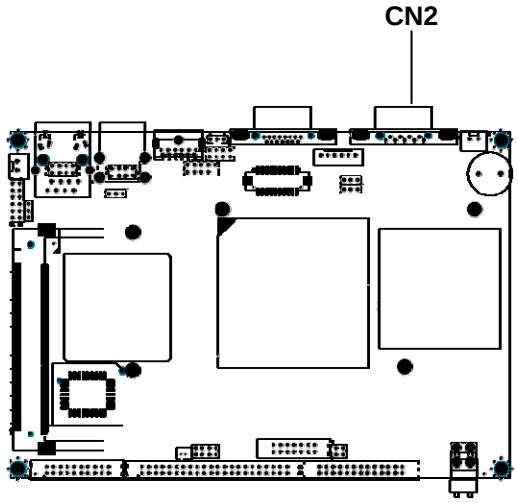
Pin	Signal
1	RED
2	GREEN
3	BLUE
4	NC
5	Ground
6	Ground
7	Ground
8	Ground
9	NC
10	Ground
11	NC
12	DDC Data
13	H-SYNC
14	V-SYNC
15	DDC Clock

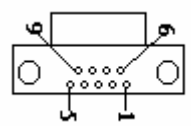
CN2, CN17, CN19: Serial Ports

The AW-EM730 supports four serial ports: three RS-232 (COM1/COM3/COM4) and one RS-232/422/485 (COM2). The COM1(CN2) is D-Sub connector and COM2/COM3/COM4 are pin header type. These ports allow user to connect serial devices such as mouse, keyboard or others. It needs the additional adapter cables to use the traditional DB-9 connector for COM2/COM3/COM4. The cable for COM2 is 14-pin, and the cable for COM3/COM4 is 10-pin.

The COM2 is designed to be the RS232 port; also it can be compliant with the RS-422/485 interface in the JP7.

CN2: COM1 D-Sub Connector

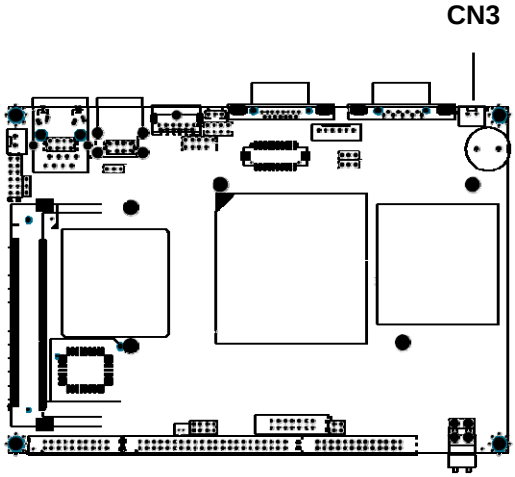




Pin	Signal
1	DCD
2	RXD
3	TXD
4	DTR
5	Ground
6	DSR
7	RTS
8	CTS
9	RI

CN3: +12V input Connector

The AW-EM730 can support +12V power input. If +12V power is needed, we offer AW-R029 that is a +12V DC to +5V DC adapter. Please install & assemble the adapter, then connect the CN5 in AW-R029 to the AW-EM730 CN3.



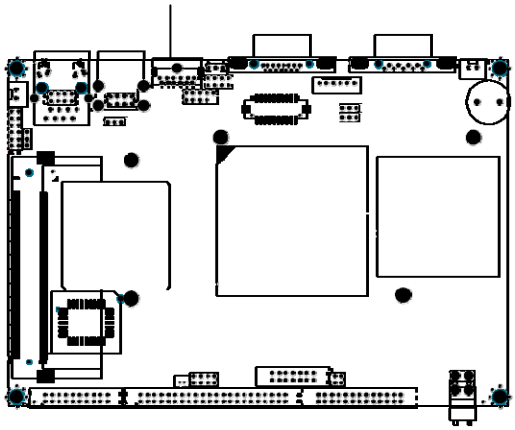
Pin	Signal
1	+12V input
2	GND

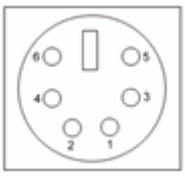
Note: If the backlight inverter CN7 and JP3 select +12V power input, then the CN3 must be shorted and connected to AW-R029.

CN4: PS/2 Mouse/Keyboard Connector (MINI DIN Jack)

The AW-EM730 can support MINI DIN jack for PS/2 mouse or keyboard use.

CN4

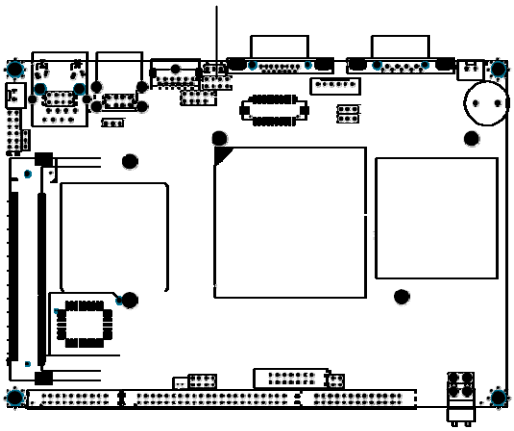


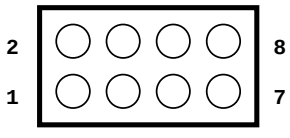


Pin	Signal
1	KB-DATA
2	MS-DATA
3	Ground
4	+5V
5	KB-CLK
6	MS-CLK

CN6: Front Panel

CN6





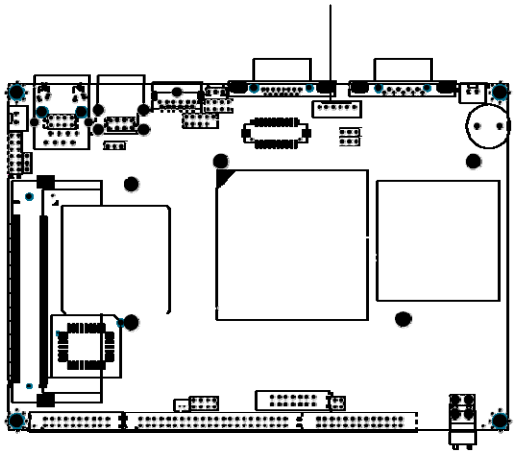
Pin	Signal	Pin	Signal
1	Power LED+ (+5V)	2	Power LED- (GND)
3	IDE_LED+ (+5V)	4	IDE_LED- (ACTIVE)
5	POWER ON SWITCH+	6	POWER ON SWITCH (GND)
7	RESET SWITCH+	8	RESET SWITCH- (GND)

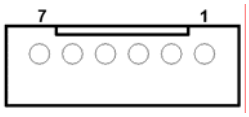
Pin 1-2: the two pins connect to the case-mounted power LED.
Pin 3-4: the two pins connect to the case-mounted HDD LED & indicate HDD active.
Pin 5-6: the two pins connect to case-mounted ATX power button.
Pin 7-8: the two pins connect to case-mounted reset switch for reboot function.

CN7: Inverter Connector

The AW-EM730 can provide the power +12V or +5V for backlight inverter and brightness control through the inverter connector CN7.

CN7





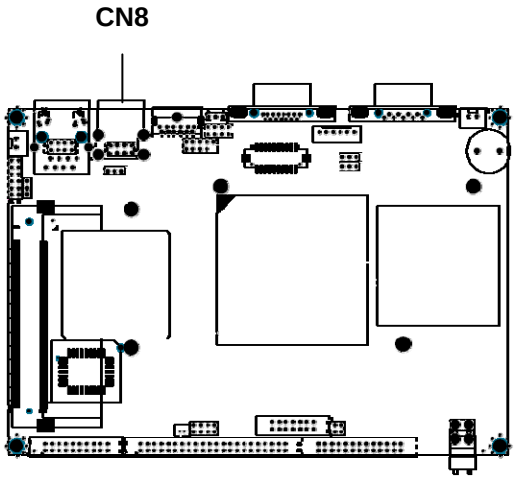
Pin	Signal
1	+12V/+5V
2	+12V/+5V
3	Ground
4	Ground
5	Backlight Enable
6	Brightness

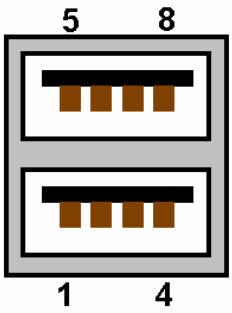
Note:

1. The power input (+12V or +5V) selection depends on the JP3, please refer to the JP3 setting to get more information.
2. To change the brightness, please adjust the VR1 on the AW-EM730 board.

CN8: USB2.0 Connector

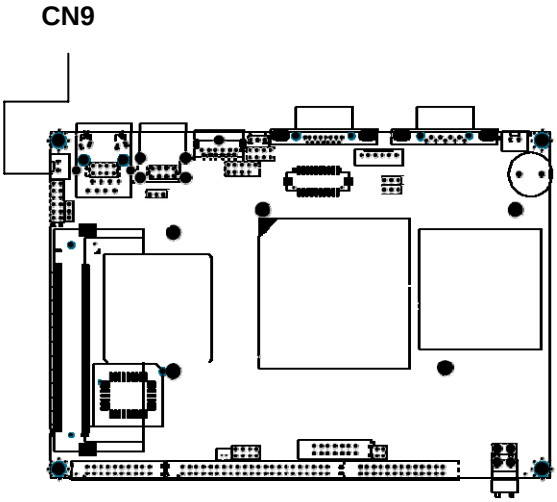
The AW-EM730 is equipped with two USB 2.0 (Universal Serial Bus) ports, which can support plug and play, hot attach/detach functions. It also can be backward compliant with USB 1.1 interface.

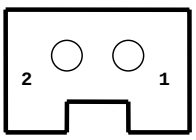




Pin	Signal
1	5VUSB0
2	USBDT0-
3	USBDT0+
4	Ground
5	5VUSB0
6	USBDT1-
7	USBDT1+
8	Ground

CN9: +5V Fan Connector

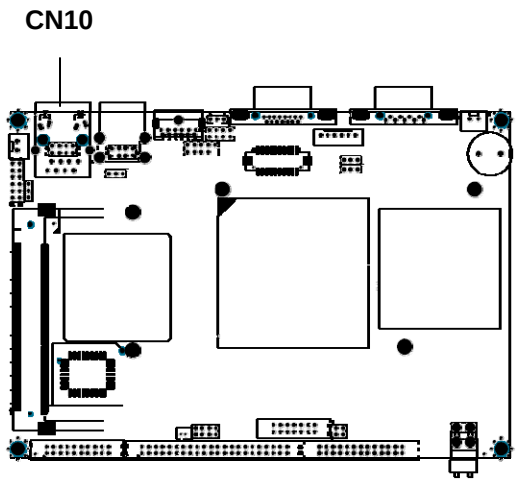


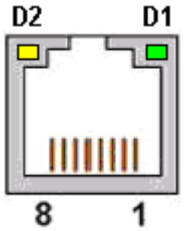


Pin	Signal
1	+5V
2	GND-

CN10: RJ45 Connector

The AW-EM730 is equipped with one RJ-45 connector. It can let the device to support 10Mbps and 100Mbps Ethernet.

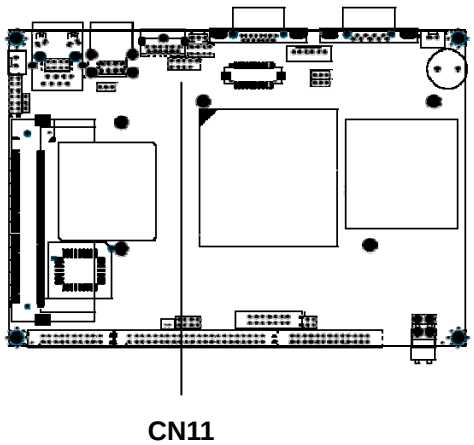


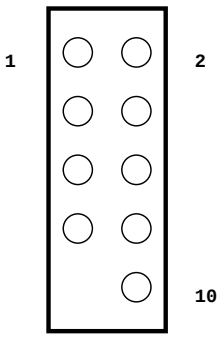


Pin	Signal
1	TX0+
2	TX0-
3	RX0+
4	NC
5	NC
6	RX0-
7	NC
8	NC

CN11: USB2.0 Pin-Header

AW-EM730 is equipped with USB2.0 pin header; it can support two more USB2.0 devices.

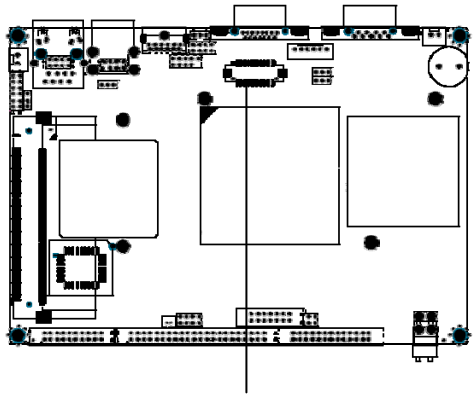




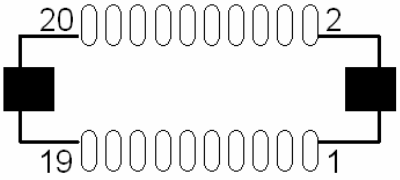
Pin	Signal	Pin	Signal
1	USBVCC(+5V)	2	USBVCC(+5V)
3	USB2-	4	USB3-
5	USB2+	6	USB3+
7	GND	8	GND
9	KEY-Pin	10	GND

CN14: LVDS Connector

The AW-EM730 supports LVDS output via a 20 pin connector for LVDS panel.



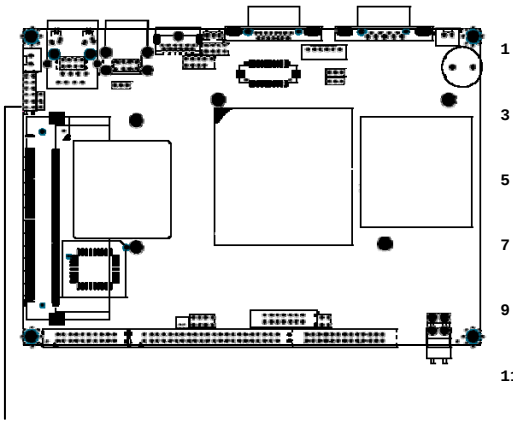
CN14



Pin	Signal	Pin	Signal
1	VCC3/VCC5	2	VCC3/VCC5
3	GND	4	GND
5	RxIN0-	6	RxIN0+
7	GND	8	RxIN1+
9	RxIN1-	10	GND
11	RxIN2-	12	RxIN2+
13	GND	14	CLKIN-
15	CLKIN+	16	GND
17	RxIN3-	18	RxIN3+
19	DDCPDATA	20	DDCPCLK

CN15: AC97 Connector

This AW-EM730 supports AC97 function, the connector is designed as 12 pin for CD Audio cable that depends on the CD-ROM drive type.

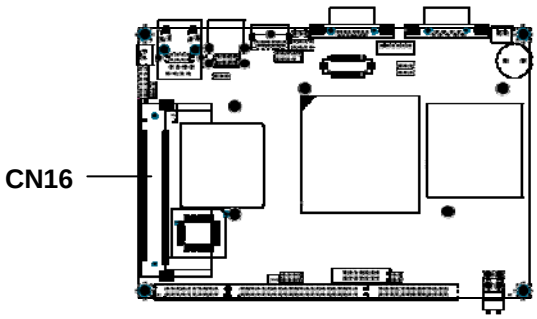


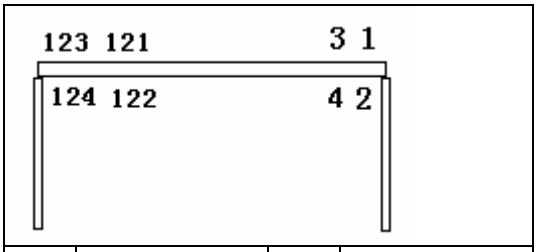
CN15

Pin	Signal	Pin	Signal
1	+5V	2	GND
3	GND	4	AC97_BITCLK
5	+3.3V	6	KEY pin
7	AC97_SDIN	8	AC97_SYNC
9	GND	10	AC97_ACRST
11	AC97_SDOUT	12	NC

Note: The AC97 function needs to equip with the AW-R031 module. Please refer to Appendix A the see the detail.

CN16: Mini PCI slot

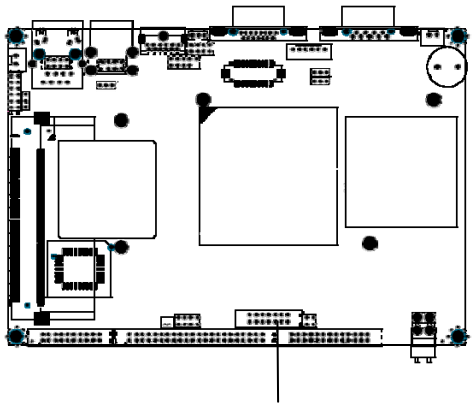




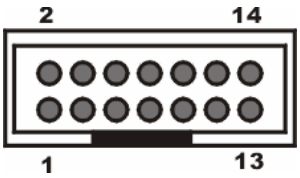
Pin	Define	Pin	Define
1	TIP	2	RING
3	8PMJ-33	4	8PMJ-13
5	8PMJ-63	6	8PMJ-23
7	8PMJ-73	8	8PMJ-43
9	8PMJ-83	10	8PMJ-53
11	LED1_GRNP	12	LED2_YELP
13	LED1_GRNN	14	LED2_YELN
15	CHSGND	16	RESERVED
17	INTB/D#	18	5V
19	3.3V	20	INTA/C#
21	RESERVED	22	RESERVED
23	GND	24	3.3VAUX
25	CLK	26	RST#
27	GND	28	3.3V
29	REQ#	30	GNT#
31	3.3V	32	GND
33	AD{31}	34	PME#
35	AD{29}	36	RESERVED
37	GND	38	AD{30}
39	AD{27}	40	3.3V
41	AD{25}	42	AD{28}
43	RESERVED	44	AD{26}
45	C/BE[3]#	46	AD{24}
47	AD{23}	48	IDSEL
49	GND	50	GND
51	AD{21}	52	AD{22}
53	AD{19}	54	AS{20}
55	GND	56	PAR
57	AD{17}	58	AD{18}
59	C/BE[2]#	60	AD[16]
61	IRDY#	62	GND
63	3.3V	64	FRAME#
65	CLKRUN#	66	TRDY#
67	SERP#	68	STOP#
69	GND	70	3.3V
71	PERP	72	DEVSEL#
73	CB/E[1]	74	GND
75	AD[14]	76	AD[15]
77	GND	78	AD[13]
79	AD[12]	80	AD[11]
81	AD[10]	82	GND
83	GND	84	AD[09]
85	AD[06]	86	C/BE[0]#
87	AD[07]	88	3.3V
89	3.3V	90	AD[06]
91	AD[05]	92	AD[04]
93	RESERVED	94	AD[02]
95	AD[03]	96	AD[00]
97	5V	98	RESERVED_ WIP4
99	AD[01]	100	RESERVED_ WIP4
101	GND	102	GND
103	AC_SYNC	104	M66EN
105	AC_SDATA_IN	106	AC_SDATA_ OUT
107	AC_BIT_CLK	108	AC_CODEC_

			ID0#
109	AC_CODEC_ ID1#	110	AC_RESET#
111	MOD_AUDIO_ MOD	112	RESERVED
113	AUDIO_GND	114	GND
115	SYS_AUDIO_ OUT	116	SYS_AUDIO_ IN
117	SYS_AUDIO_ OUT G	118	SYS_AUDIO_ IN G
119	AUDIO_GND	120	AUDIO_GND
121	RESERVED	122	MPCIACT#
123	VCC5VA	124	3.3VAUX

CN17: COM2 RS-232/485 PIN-Header

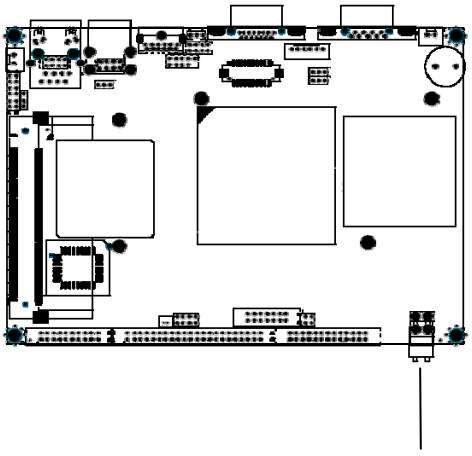


CN17

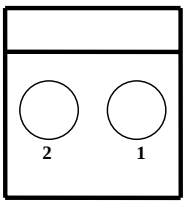


Pin	Signal	Pin	Signal
1	DCD	2	DSR
3	RXD	4	RTS
5	TXD	6	CTS
7	DTR	8	RI
9	GND	10	NC
11	485TXD+	12	485TXD-
13	485RXD+	14	485RXD-

CN18: Power connector

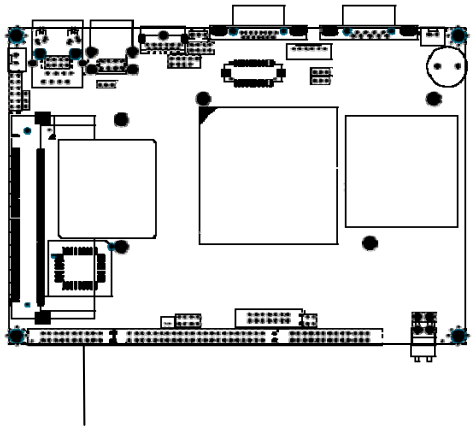


CN18

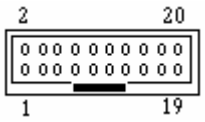


Pin	Signal
1	GND
2	+5V

CN19: COM3/4 Pin-Header



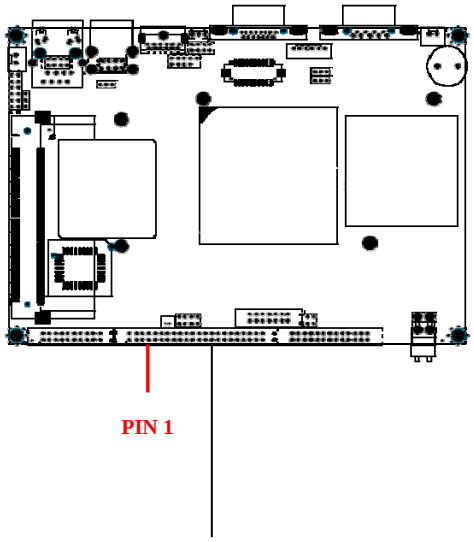
CN19



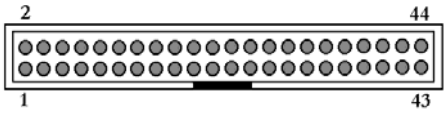
Pin	Signal	Pin	Signal
1	DCD3	2	DSR3
3	RXD3	4	RTS3
5	TXD3	6	CTS3
7	DTR3	8	RI3
9	Ground	10	NC
11	DCD4	12	DSR4
13	RXD4	14	RTS4
15	TXD4	16	CTS4
17	DTR4	18	RI4
19	Ground	20	NC

CN20: IDE Connector

The AW-EM730 is equipped with a 44 pin IDE connector. It can configure two hard disks via IDE cable, one can be Master mode on the primary IDE connector and the other can be Slave mode on the secondary IDE connector.



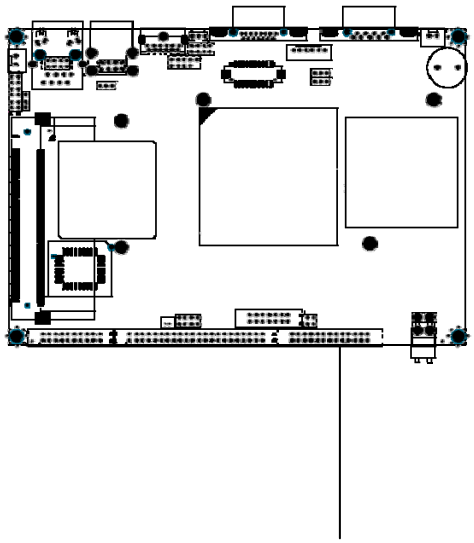
CN20



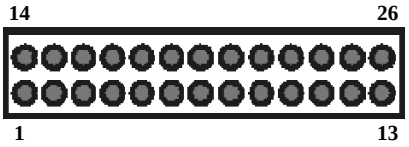
Pin	Signal	Pin	Signal
1	RSTPIDE#	2	Ground
3	PDD7	4	PDD8
5	PDD6	6	PDD9
7	PDD5	8	PDD10
9	PDD4	10	PDD11
11	PDD3	12	PDD12
13	PDD2	14	PDD13
15	PDD1	16	PDD14
17	PDD0	18	PDD15
19	Ground	20	NC
21	PDDREQ	22	Ground
23	PDIOW#	24	Ground
25	PDIOR#	26	Ground
27	PDIORDY	28	Ground
29	PDDACK#	30	Ground
31	IRQ14	32	V5P0
33	PDA1	34	PD66#
35	PDA0	36	PDA2
37	PDCS#1	38	PDCS#3
39	PIDELED	40	Ground
41	V5P0	42	V5P0
43	Ground	44	NC

CN21: LPT Pin-Header

The AW-EM730 supports one parallel port accessed through CN21. It needs a 26 pin cable to connect the DB-25 connector. The port is designed as LPT1 and can be changed to LPT2 or LPT3 by adjusting the Integrated Peripherals Setup in BIOS setting. You can also select the ECP/EPP mode via Integrated Peripherals Setup function in BIOS setting.



CN21



Pin	Signal	Pin	Signal
1	PT_STB#	14	PTAFD#
2	PT_D0	15	PTERROR#
3	PT_D1	16	PTINT#
4	PT_D2	17	PTSLIN#
5	PT_D3	18	Ground
6	PT_D4	19	Ground
7	PT_D5	20	Ground
8	PT_D6	21	Ground
9	PT_D7	22	Ground
10	PTACK#	23	Ground
11	PTBUSY	24	Ground
12	PTPE	25	Ground
13	PTSLCT	26	Ground

JP1: Power On/Off Control

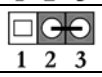
Setting		Define
	1-2	By Power Button
	2-3	Instant ON

JP3: (CN7 Pin1、2) Power Selection for Inverter

Setting		Define
	1-2	+5V
	2-3	+12V

Note: If the backlight inverter uses the optional +12V DC as its power input, then the JP3 must be shorted.

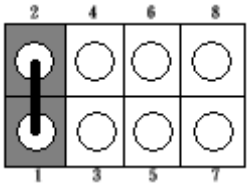
JP4: LCD Panel Voltage Select

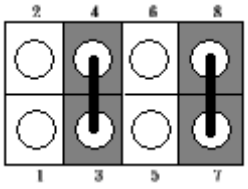
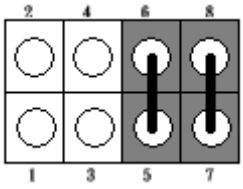
Setting		Define
	1-2	+3.3V
	2-3	+5V

JP5: CMOS Clear

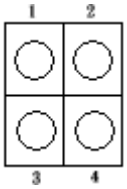
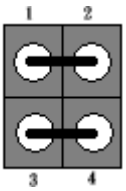
Setting		Define
	1-2	Normal Status (Default)
	2-3	Clear CMOS

JP7: COM2 RS-232/485 Selector (Default: RS-232)

Setting		COM Ports
	1-2 (Default)	RS-232

	3-4 7-8	RS-485 (Two wire)
	5-6 7-8	RS-485 (Four wire)

JP8: RS-485 terminal (120 ohm)

Setting	
	NA
	1-2 3-4

VR1: Adjust the brightness of backlight

Chapter 3. BIOS Setup

The ROM chip of your AW-EM730 board is configured with a customized Basic Input/Output System (BIOS) from Phoenix-Award BIOS. The BIOS is a set of permanently recorded program routines that give the system its fundamental operational characteristics. It also tests the computer and determines how the computer reacts to instructions that are part of programs.

The BIOS is made up of code and programs that provide the device-level control for the major I/O devices in the system. It contains a set of routines (called POST, for Power-On Self Test) that check out the system when you turn it on. The BIOS also includes CMOS Setup program, so no disk-based setup program is required CMOS RAM stores information for:

- Date and time
- Memory capacity of the main board
- Type of display adapter installed
- Number and type of disk drives

The CMOS memory is maintained by battery installed on the AW-EM730 board. By using the battery, all memory in CMOS can be retained when the system power switch is turned off. The system BIOS also supports easy way to reload the CMOS data when you replace the battery of the battery power lose.

3.1 Quick Setup

In most cases, you can quickly configure the system by choosing the following main menu options:

1. Choose "Load Optimized Defaults" from the main menu. This loads the setup default values from the BIOS Features Setup and Chipset Features Setup screens.
2. Choose "Standard COS Features" from the main menu. This option lets you configure the date and time, hard disk type, floppy disk drive type, primary display and more.
3. In the main menu, press F10 ("Save & Exit Setup") to save your changes and reboot the system.

3.2 Entering the CMOS Setup Program

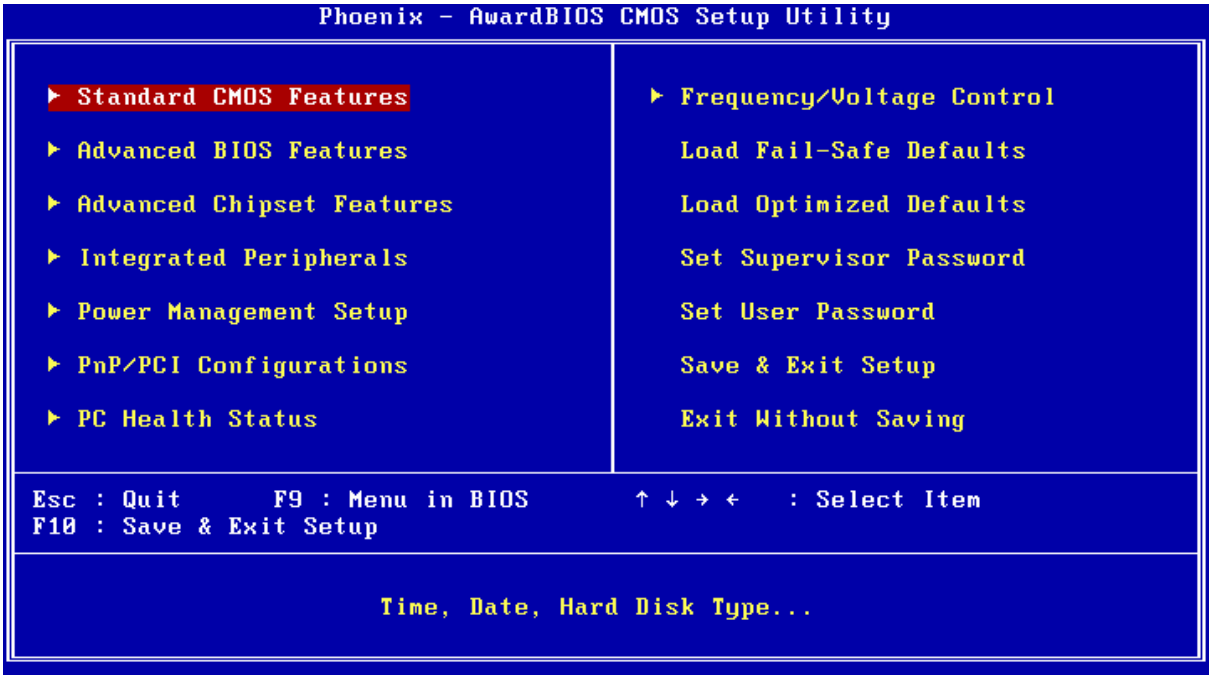
Use the CMOS Setup program to modify the system parameters to reflect the options installed in your system and to customize your system. For example, you should run the Setup program after you:

- Received an error code at startup
- Install another disk drive
- Use your system after not having used it for a long time
- Find the original setup missing
- Replace the battery
- Change to a different type of CPU
- Run the Phoenix-Award Flash program to update the system BIOS

Run the CMOS Setup program after you turn on the system. On-screen instructions explain how to use the program.

⇩ **Enter the CMOS Setup program's main menu as follows:**

1. Turn on or reboot the system. After the BIOS performs a series of diagnostic checks, the following message appears:
   "Press DEL to enter SETUP"
2. Press the <DEL> key to enter CMOS Setup program. The main menu appears:



3. Choose a setup option with the arrow keys and press <Enter>. See the following sections for a brief description of each setup option.

In the main menu, press F10 ("Save & Exit Setup) to save your changes and reboot the system. Choosing "EXIT WITHOUT SAVING" ignores your changes and exits the program. Pressing <ESC> anywhere in the program returns you to the main menu.

3.3 Menu Options

The main menu options of the CMOS Setup program are described in the following and the following sections of this chapter.

STANDARD CMOS FEATURES:

Configure the date & time, hard disk drive type, floppy disk drive type, primary display type and more

ADVANCED BIOS FEATURES:

Configure advanced system options such as enabling/disabling cache memory and shadow RAM

ADVANCED CHIPSET FEATURES:

Configure advanced chipset register options such DRAM timing

INTEGRATED PERIPHERALS:

Configure onboard I/O functions

POWER MANAGEMENT SETUP:

Configure power management features such as timer selects

PNP/PCI CONFIGURATION:

Configure Plug & Play IRQ assignments and PCI slots

PC HEALTH STATUS:

Configure the CPU speed and, if the optional Winbond W83627HF system monitor IC is installed, view system information

LOAD FAIL-SAFE DEFAULT:

Loads BIOS default values. Use this option as diagnostic aid if your system behaves erratically

LOAD OPTIMIZED DEFAULTS:
Loads optimized BIOS settings

SET SUPERVISORS & USER PASSWORD:
Configure the system so that a password is required when the system boots or you attempt to enter the CMOS setup program. When you log in with this password, you will be able to enter the COS Setup main menu, but you can not enter other menus in the CMOS Setup program.

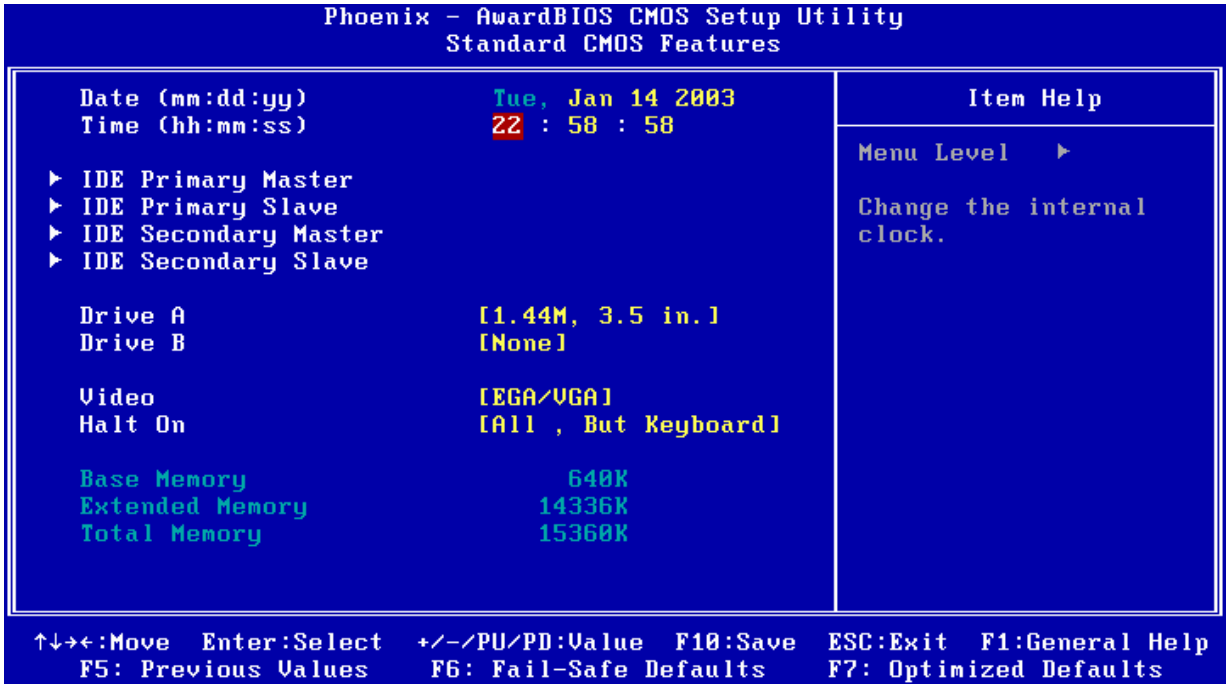
SAVE & EXIT SETUP:
Save changes of values to CMOS and exit the CMOS setup program

EXIT WITHOUT SAVING:
Abandon all CMOS changes and exit the CMOS setup program

3.4 Standard CMOS Features Setup

⇩ **Use the Standard CMOS Setup option as follows:**

1. Choose "Standard CMOS Features" from the main menu. The following screen appears:



2. Use the arrow keys to move between fields. Modify the selected field using the PgUP/PgDN/+/- keys. Some fields let you enter numeric values directly.

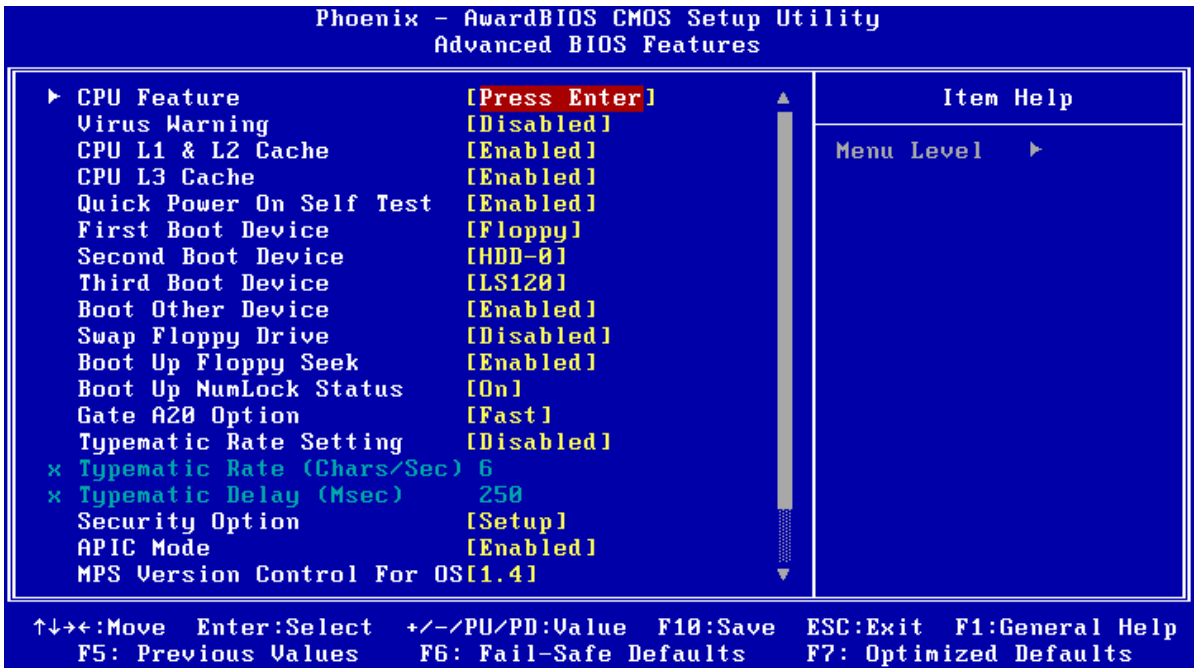
Option	Description
Date (mm:dd:yy)	Type the current date
Time (hour:min:sec)	Type the current time (24-hour clock)
Hard Disks	Choose from "Auto", "User", or "None" If your drive is not one of the predefined types, choose "User" and enter the following drive specifications: Cylinders, heads, Wpcom, L-Zone, sectors, and mode Consult the documentation received with the drive for the values that will give you optimum performance.
Video	Choose: EGA/VGA CGA 40 CGA 80 Mono
Halt On	Controls whether the system stops in case of an error detected during power up. Choose: All Errors No Errors All, But Keyboard (Default) All, But Diskette All, But Disk/Key

3. After you have finished with the Standard CMOS Features program, press the <ESC> key to return to the main menu.

3.5 Advanced BIOS Features Setup

⇩ **Use the Advanced BIOS Features Setup option as follows:**

1. Choose "Advanced BIOS Features Setup" from the main menu. The following screen appears:



2. Use the arrow keys to move between items and to select values. Modify the selected fields using the PgUP/PgDN keys. Press the <F1> "Help" key for information on the available options:

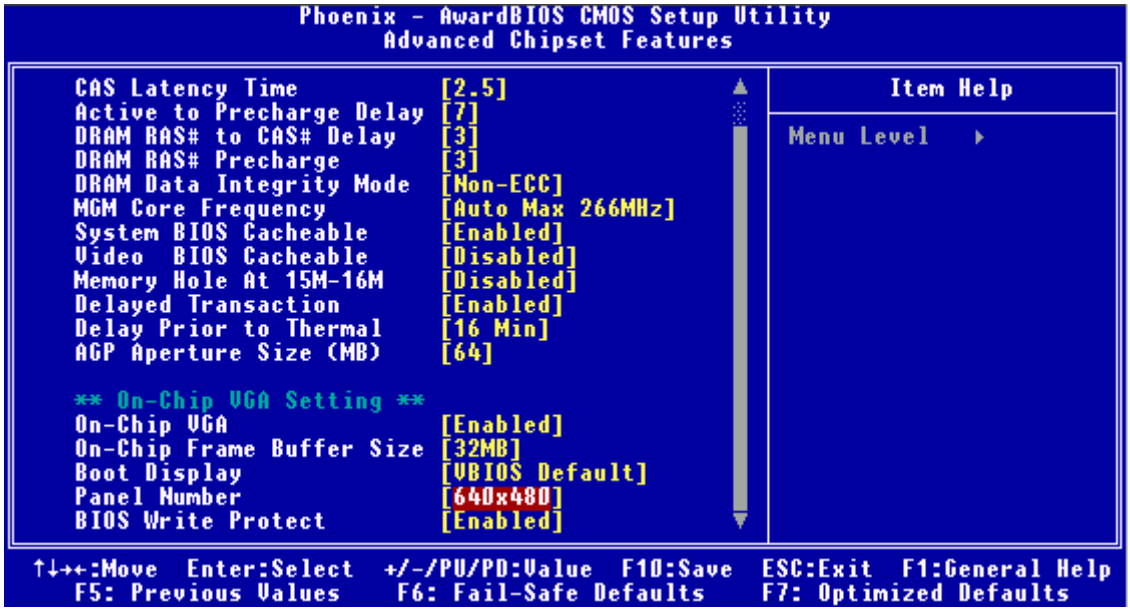
Option	Description
Virus Warning	When enabled, any attempt to write to the boot sector and partition table will halt the system and cause a warning message to appear. If this happens, you can use an anti-virus utility on a virus-free, bootable floppy disk to reboot and clean your system. The default setting is Disabled.
CPU L1 & L2 Cache	This field is used to speed up the memory access. Enable the external cache for better performance.
First/Second/Third Boot Device	The BIOS attempts to load the operating system from the devices in the sequence selected in these items. Choose: HDD-0, LS-120, USB FDD…..
Boot Other Device	Enable other device bootable not selected above.
OS Select for DRAM > 64MB	Set to OS/2 if your system is using OS/2 and has a memory size of more than 64MB
Quick Power On Self-Test:	Will enable you to cancel some checking item and increase the speed when you open the machine.
Gate A20 Option	This entry allows you to select how gate A20 is handled. Gate A20 is a device use to address memory above 1MB. Initially, gate A20 was handled via the keyboard controller.

	Today, while keyboards still provide this support, it is more common, and much faster, for the system chipset to provide support for gate A20.*Fast*. The chipset controls Gate A20. *Normal* A [o mom the keyboard controls Gate A20.
APIC Mode	Leave this field in its default setting, must be Enable.

3.6 Advanced Chipset Features Setup

⇩ **Use the Advanced Chipset Features Setup option as follows:**

1. Choose "Advanced Chipset Features Setup" from the main menu. The following screen appears;



2. Move between items and select values by using the arrow keys. Modify the selected fields using the PnUP/PgDN Keys. For information on the various options, press <F1> key .

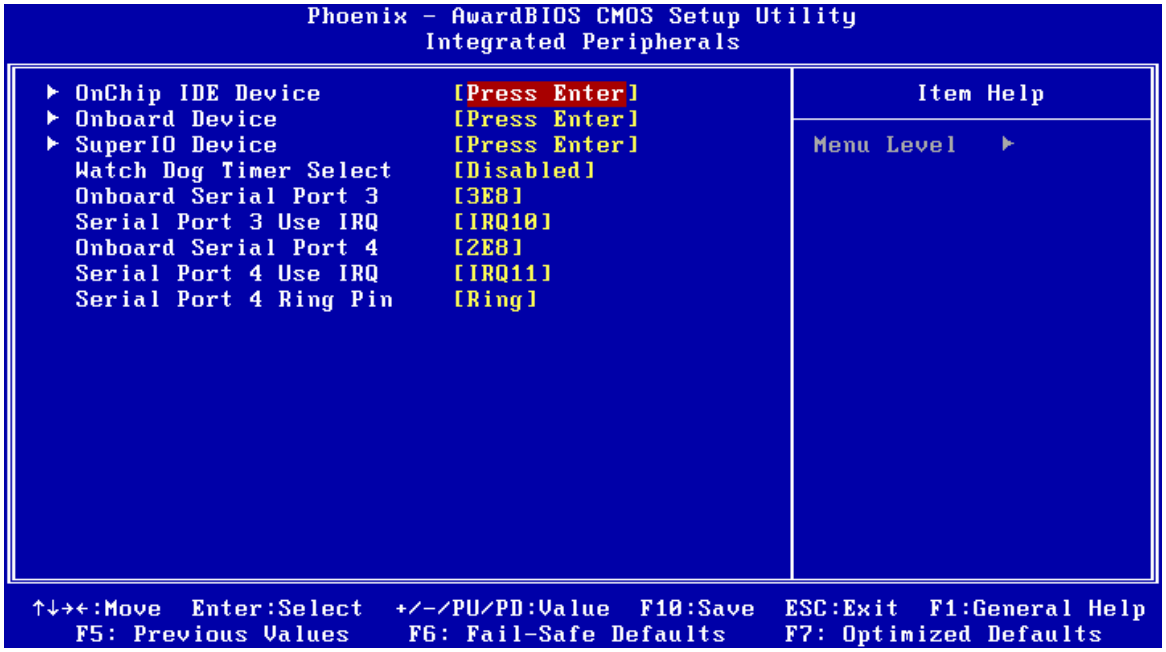
Option	Description
DRAM Timing Control	This field is used to select the timing of the DRAM. DRAM timing Configure < By SPD> X – CAS Latency Time 2 X – Active to Precharge Delay 5

	X- DRAM RAS # to CAS# Delay 2 X – DRAM RAS# Precharge 2
DRAM Data Integrity Mode	Choose ECC or Non –ECC
CAS Latency Time	This field is used to select the local memory clock periods.
Active to Precharge Delay	Provide parameter of SDRAM for reference.
DRAM RAS# to CAS# Delay	Control the command order and start the cycle time for read/write command by SDRAM
DRAM RAS# Precharge	This field controls RAS# precharge (in local memory clocks)
System BIOS Cacheable	Choose Enabled or Disabled. When enabled, caching of the system BIOS at F0000h-FFFFFh, enhancing system performance. However, if any program writes to this memory area, a system error may result.
Video BIOS Cacheable	Choose Enabled or Disabled. When Enable this option to allow caching of the Video BIOS.
Memory Hole At 15M-16M	Choose Enabled or Disabled. You can reserve this area of system memory for ISA adapter ROM. When this area is reserved, it can not be cached. The user information of peripherals that need to use this area of system memory usually discusses their memory requirement.
AGP Aperture Size (MB)	This field is relevant to the memory-mapped graphics data of the AGP card installed in your system. Leave this in its default setting.
On-Chip VGA	On-Chip VGA function. Default is enabled.
On-Chip Frame Buffer Size	The system memory size of On-Chip VGA. Default is 32MB.
Boot Display	Select CRT, LFP, CRT+LFP display.
Panel Number	Select the panel resolution. Choose 640*480, 800*600 or 1024*768 LVDS.
BIOS Write Protect	Select enabled or disabled. When enabled, the BIOS can be updated.

3.7 Integrated Peripherals

⇩ **Use the Integrated Peripherals Setup option as follows:**

1. Choose "Integrated Peripherals Setup" from the main menu. The following screen appears:



2. Move between items and select values by using the arrow keys. Modify the selected fields using the PgUP/PgDN keys. Please press the <F1> key for information on the various options.

Option	Description
Onboard Device	
USB Controller	Enabled the onboard USB. You can further configure the onboard USB in the "USB 2.0 controller" and 'USB Keyboard Support" fields. Disables the onboard USB.
USB2.0 Controller	If you are using USB2.0, this field must be set to Enabled.
AC97 Audio	Auto Select this option when using the onboard audio codec.

	Disabled	Select this option when using a PCI sound card.

Super IO Device

Power ON Function	Password、Hot Key、Any Key、Button Only、Keyboard 98
KB Power ON Password	User define
Hot KEY Power ON	User define
Onboard Serial Port 1	3F8/IRQ4、2F8/IRQ3、3E8/IRQ4、2E8/IRQ3、AUTO
Onboard Serial Port 2	3F8/IRQ4、2F8/IRQ3、3E8/IRQ4、2E8/IRQ3、AUTO
Onboard Parallel Port	37//IRQ7、278/IRQ5、3BC/IRQ7
Parallel Port Mode	SPP/EPP/ECP/ECP+EPP
EPP Mode Select	EPP1.7
ECP Mode Use DMA	3
Power After PWR-Fail	Off/On/Former-Sts

POWER ON Function

The power button will not function once a keyboard password has been set in this field. You must type the correct password to power-on the system. If you forgot the password, turn off the system and remove the battery. Wait for a few seconds and install it back before powering-on the system.

IR Mode Select

This field is used to select the type of IrDA standard supported by your IrDA device. For better transmission of data, your IrDA peripheral device must be within a 30° angle and within a distance of 1 meter.

RxD, TxD Active

The options are Hi, Lo; Lo, Hi; Lo, Lo; and Hi, Hi.

UR2 Duplex Mode

Half Data is completely transmitted before receiving data.

Full Transmits and receives data simultaneously.

Onboard Parallel Port

378/IRQ7, 3BC/IRQ7, 278/IRQ5 Selects the I/O address and IRQ for the onboard parallel port.

Disabled Disables the onboard parallel port.

Parallel Port Mode

The options are SPP, EPP, ECP and ECP+EPP. These apply to a standard specification and will depend on the type and speed of your device. Refer to your peripheral's manual for the best option.

SPP

Allows normal speed operation but in one direction only.

ECP (Extended Capabilities Port)

Allow parallel port to operate in bidirectional modes and at a speed faster than the normal mode's data transfer rate.

EPP (Enhanced Parallel Port)

Allows bidirectional parallel ports to operation at maximum speed.
If you selected EPP, the " EPP Mode Select" field is configurable. If you selected ECP, the "ECP Mode Use DMA: field is configurable. If you selected ECP+EPP, both " EPP Mode Select: and "ECP Mode Use DMA" are configurable.

PWRON after PWR-Fail

This function allows you to setup the system whether you want restart or shut down the machine after the powers interrupt.
Off: Remain system closed when you restart the power
On: when restart the power it will remain the status that power is not interrupt.
Former-Sts: The system will back to the status that power is not interrupt.

Watch Dog Timer Select

You can set up the watchdog timer.

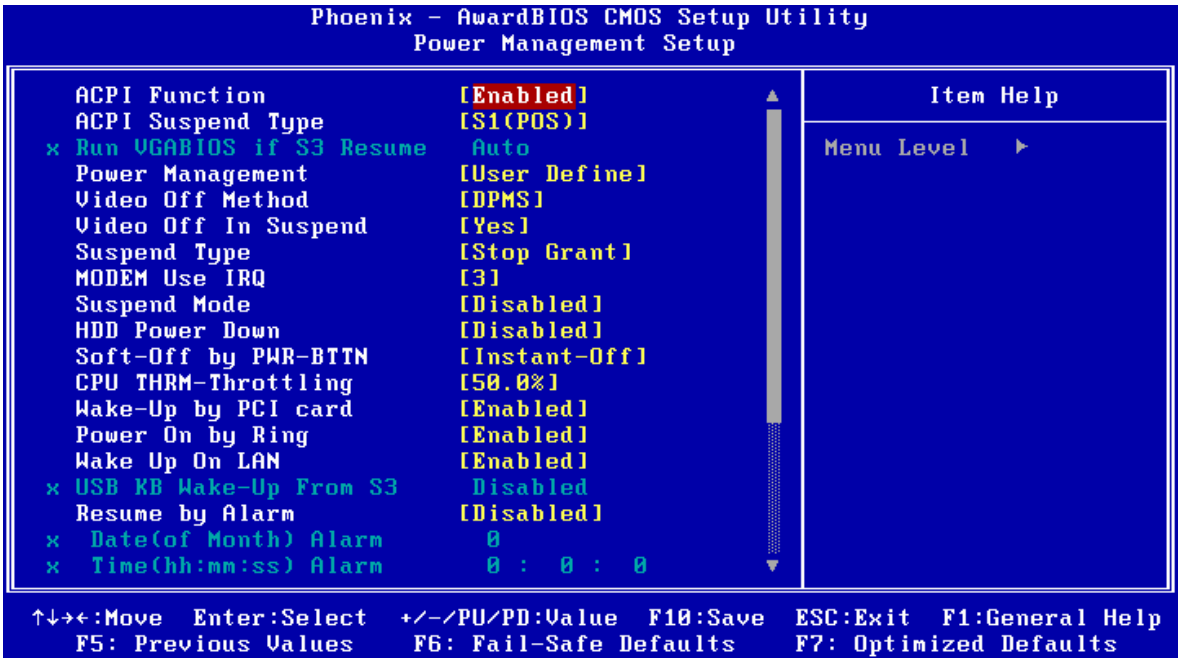
3.8 Power Management Setup

The Power Management Setup controls the board's "green" features. To save energy these features shut down the video display and hard disk drive.

⇩**Use the Power Management Setup option as follows:**

1. Choose "Power Management Setup" from the main menu. The following screen

appears.



2. Move between items and select values by using the arrow keys. Modify the selected field the PgUP/PgDN keys. For information on the various options, press <F1> key.

Option	Description
ACPI Function	This function should be enabled only in operating systems that support ACPI. Currently, only Windows 98SE/2000/ME/XP supports this function. When this field is enabled, the system will ignore the settings in the "Suspend Mode" and "HDD Power Down" fields. If you want to use the Suspend to RAM function, make sure this field is enabled then select "S3 (STR" in the field below.
ACPI Suspend Type	This field is used to select the type of Suspend mode. S1 (POS) Enables the Power On Suspend function. S3 (STR) Enables the Suspend to RAM function. You can further configure this function by setting.
The "Run VGABIOS if S3 Resume" and "USB KB Wake-up From S3" fields. Run VGABIOS if S3 Resume	When this field is set to Auto, the system will initialize the VGA BIOS when it wakes up from the S3 state. This can be configured only if the "ACPI Suspend Type" field is set to " S3 (STR)"
Power Management	This field allows you to select the type (or degree) of power saving by changing the length of idle time that

	elapses before the "Suspend Mode" and "HDD Power Down" field is activated. Min Saving Minimum power saving time for the " Suspend Mode" and "HDD Power Down" =15min. Max Saving Maximum power saving time for the "Suspend Mode" and "HDD Power Down"=1 min. User Define Allows you to set the power saving time in the "Suspend Mode" and "HDD Power Down" field.
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.
Bland Screen	This option only writes blanks to the video buffer. DPMS initializes display power management signaling. Use this option if your video board supports it. Video Off In Suspend This field is used to activate the video off feature when the system enters the Suspend mode.
Suspend Mode	When the system enters the Suspend mode, the CPU and onboard peripherals will be shut off.
HDD Power Down	This is selectable only when the power management filed is set to user define. When the system enters the HDD power down mode according to the power saving time selected, the hard disk drive will be powered down while all other devices remain active.
Soft-Off by PWR-BTTN	This field allows you to select the method of powering off you system. Delay 4 sec. regardless of whether the power management function is enable or disabled, if the power button is pushed and released in less than 4 sec, the system enter the suspend mode. The purpose of this function is to prevent the system from powering off in case you accidentally " hit" or pushed the power button. Push and release again in less than 4 sec to restore. Pushing the power button for more than 4 seconds will power off the system.
Instant-off	Pressing and then releasing the power button at once will immediately power off your system.
Resume on PCI Event	Enable this field should be set to enabled only if your PCI

	card such as LAN card or modem card uses the PCI PME (Power Management Event) signal to remotely wake up the system. Access to the LAN card or PCI card will cause the system to wake up. Refer to the Disable The system will not wake up despite access to the PCI card.
Wake up on LAN	If you are using a LAN card that supports the remote wake up function, set this field to Enabled. The will allow the network to remotely wake up a soft power down (Soft-off) PC. However, if your system is in the suspend mode, you can wake up the system only through an IRQ or DMA interrupt.
Resume By Alarm	Enabled when enabled, you can set the date and time you would like the soft power down (Soft-off) PC to power –on in the "Date (of Month) Alarm" and "Time (hh:mm:ss) Alarm" fields. However, if the system is accessed by incoming calls or the network (Resume On Ring/LAN) that prior to the date and time set in these fields, the system will give priority to the incoming calls or network. Disabled Disables the automatic power-on function. (Default)

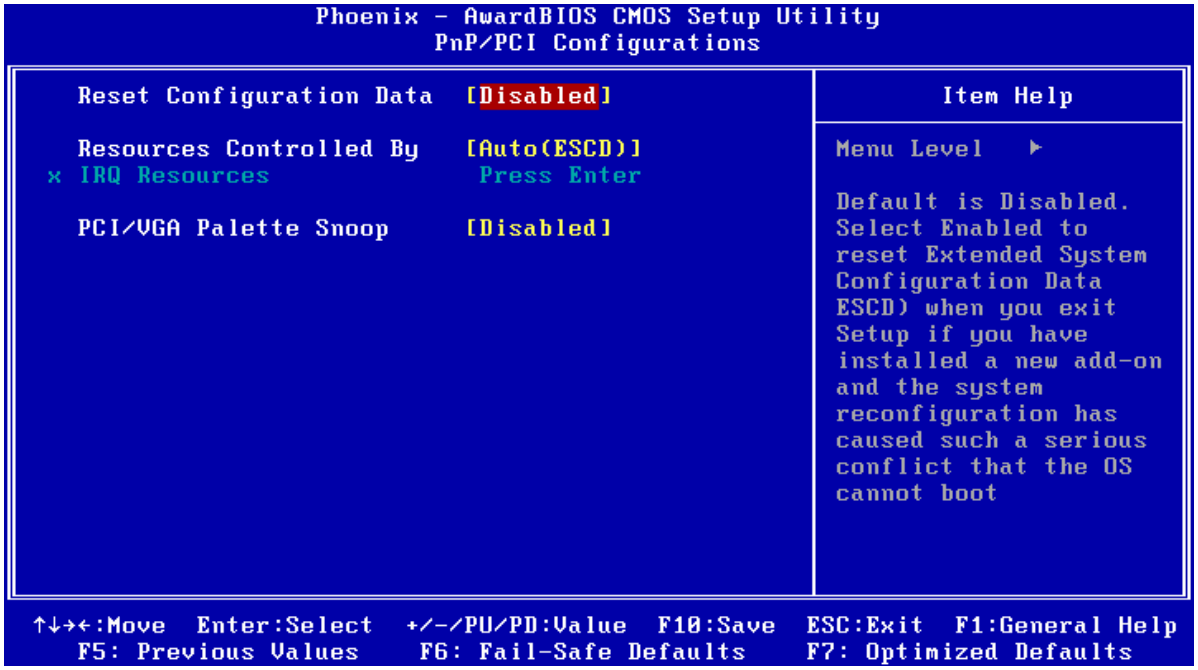
3. After you have finished with the Power Management Setup, press the <ESC> key to return to the main menu.

3.9 PNP/PCI Configuration

This option is used to configure Plug and Play assignments and route PCI interrupts to designated ISA interrupts.

⇩Use the PNP/PCI Configuration Setup option as follows:

1. Choose "PNP/PCI Configuration Setup" from the main menu, the following screen appears.



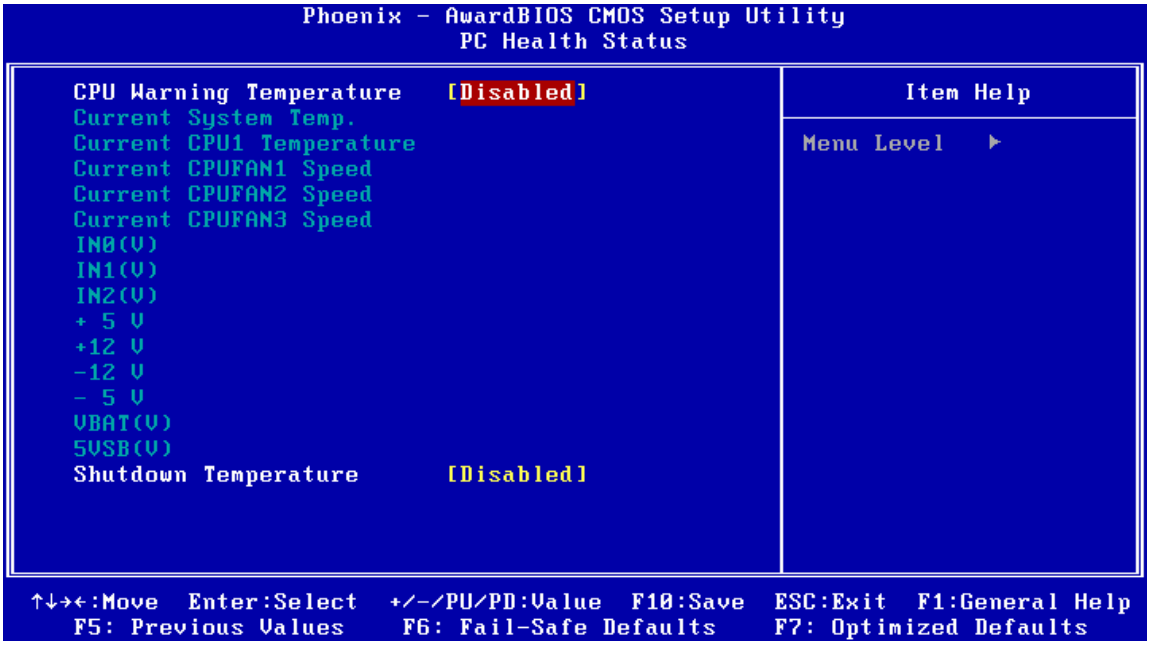
2. Move between items and select values by using the arrow keys. Modify the selected fields using the PgUP/PgDN keys. For information on the various options, please press <F1> key.

Option	Description
PNP OS installed	NO: BIOS program will adjust all the set up by itself YES: When you install the system that support plug & play, press <YES>
Reset Configuration Data	Enabled The BIOS will reset the Extended System Configuration Data (ESCD) once automatically. It will then recreate a new set of configure data Disabled The BIOS will not reset the configuration data Resources controlled by the Award plug and play BIOS has the capability to automatically configure all of the boot and plug and play compatible devices. Auto (ESCD) The system will automatically detect the settings for you. Manual choose the specific IRQ in the " IRQ Resources" field.
PCI/VGA Palette Snoop	This field determines whether the MPEG ISA/VESA VGA cards a work with PCI/VGA or not Enable MEPG ISA/VESA VGA cards work with PCI/VGA Disabled MPEG ISA/VESA VGA card does not work with PCI/VGA

3. Please press the <ESC> key to return the main menu after finishing with the PNP/PCI Configuration Setup.

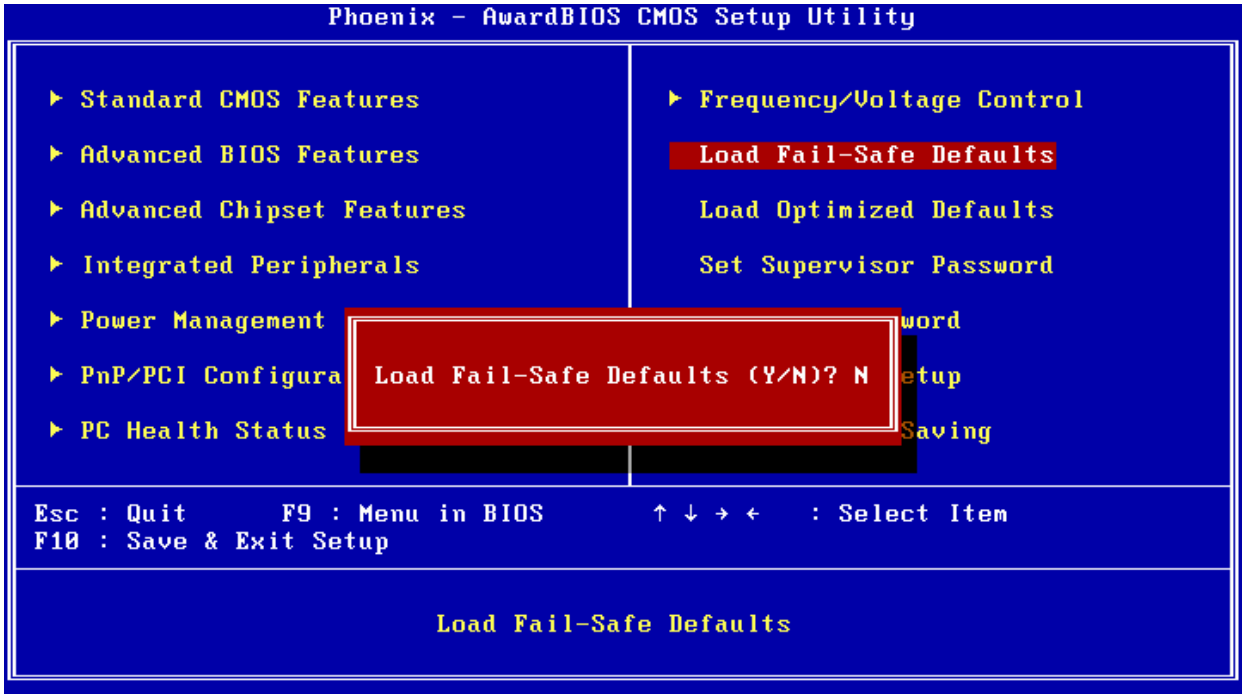
3.10 PC Health Status Configuration Setup

Choose "PC Health Status Configuration Setup" from the main menu, the following screen appears:



3.11 Load Fail-Safe Defaults

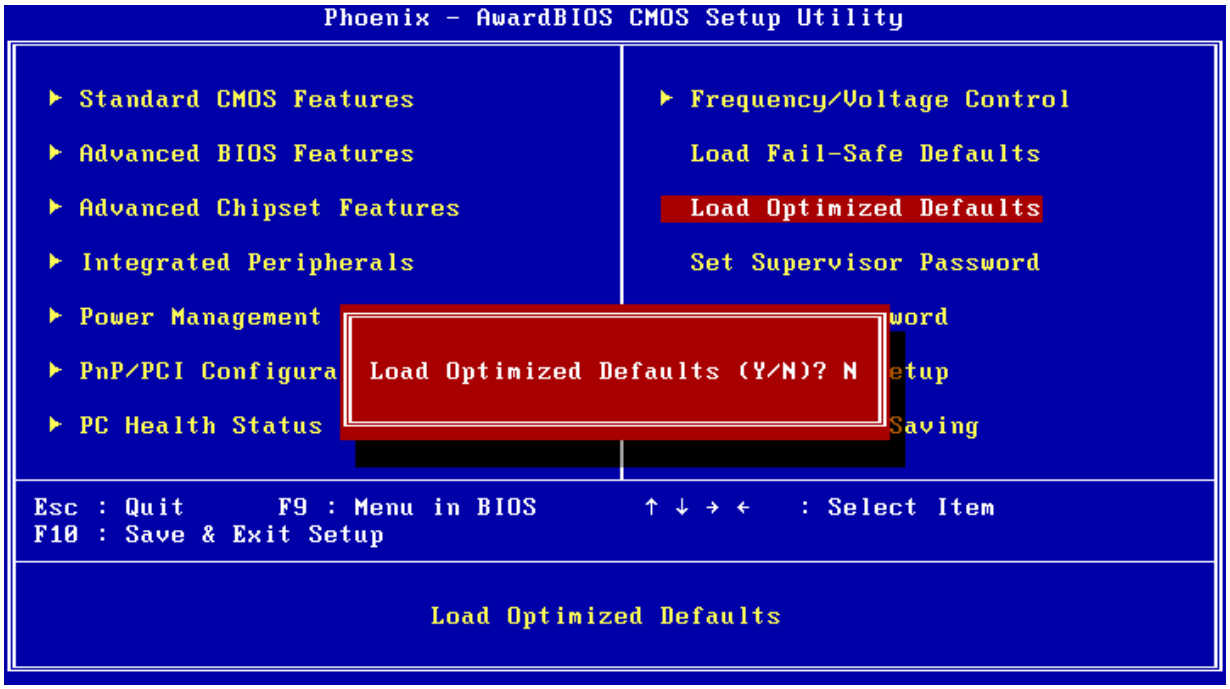
This option loads the troubleshooting default values permanently stored in the BIOS ROM. This is useful if you are having problems with the main board and need to debug or troubleshoot the system. The loaded default settings do not affect the Standard CMOS Setup screen.



To use this feature, highlight it on the main screen and press <Enter>. A line will appear on the screen asking if you want to load the BIOS default values. Pres the <Y> key and then press <Enter> if you want to load the BIOS default.

3.12 Load Optimized Defaults

This option loads optimized settings stored in the BIOS ROM. The auto-configured settings do not affect the Standard CMOS Setup screen.



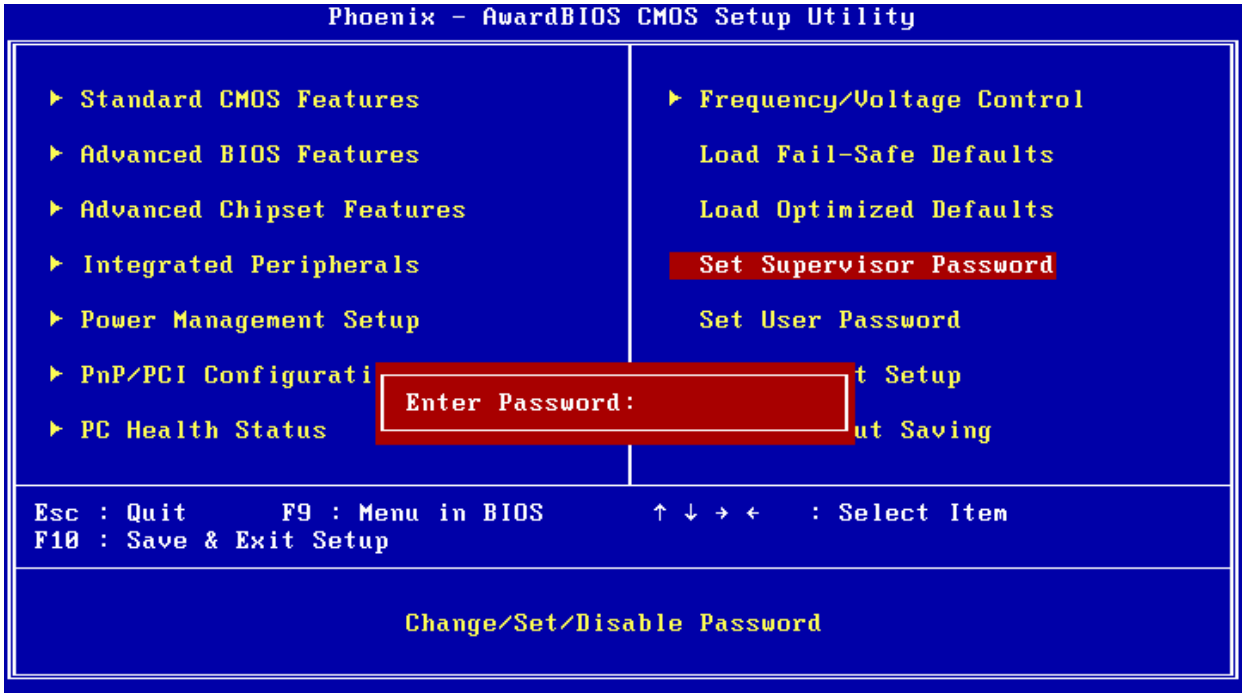
To use this feature, highlight it on the main screen and press <Enter>. A line will appear on the screen asking if you want to load the Optimized Default Values. Press the <Y> key and then press <Enter> if you want to load the SETUP default.

3.13 Supervisor/User Password

The password options let you prevent unauthorized system boot-up or unauthorized use of CMOS setup. The Supervisor Password allows both system and CMOS Setup program access; the User Password allows access to the system and the CMOS Setup Utility main menu.

The password functions are disabled by default. You can use these options to enable a password function or, if a password function is already enabled, change the password.

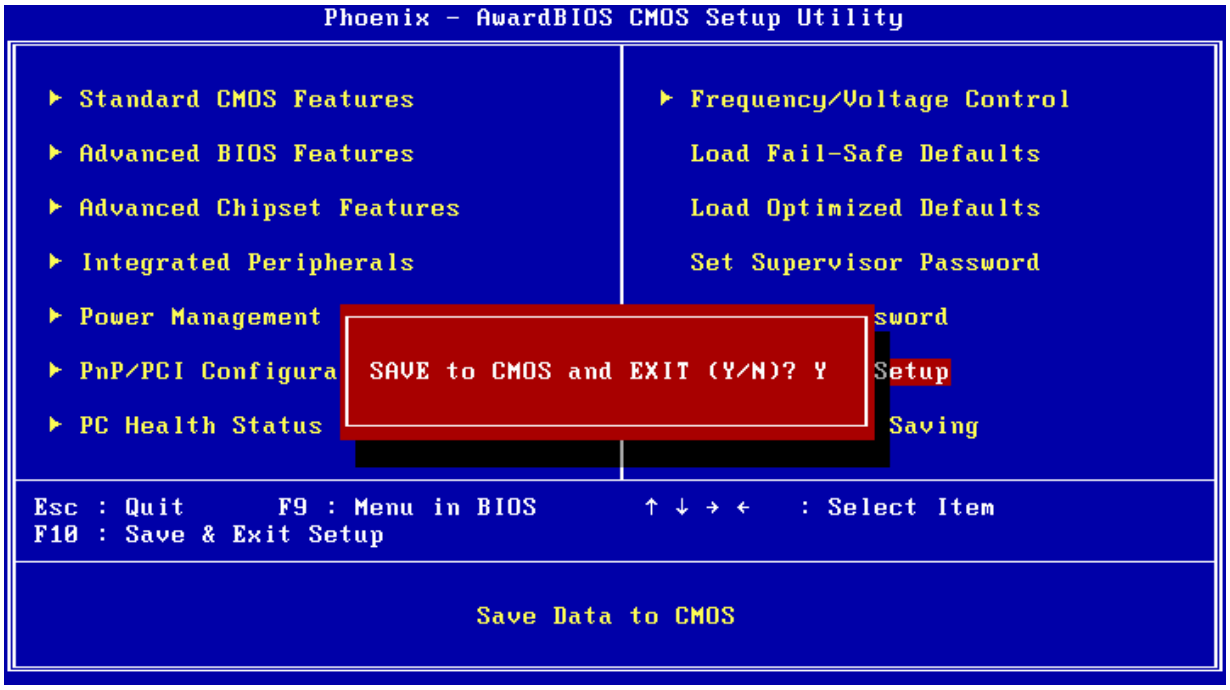
To change a password, first choose a password option from the main menu and enter the current password. Then type your new password at the prompt. The password is case sensitive and you can use up to 8 alphanumeric characters. Press <Enter> after entering the password. At the Next Prompt, confirm the new password by typing it and pressing <Enter> again.



After you use this option to enable a password function, use the "Security Option" in "BIOS Feature Setup" to specify whether a password is required every time the system boots or only when an attempt is made to enter the CMOS Setup program.

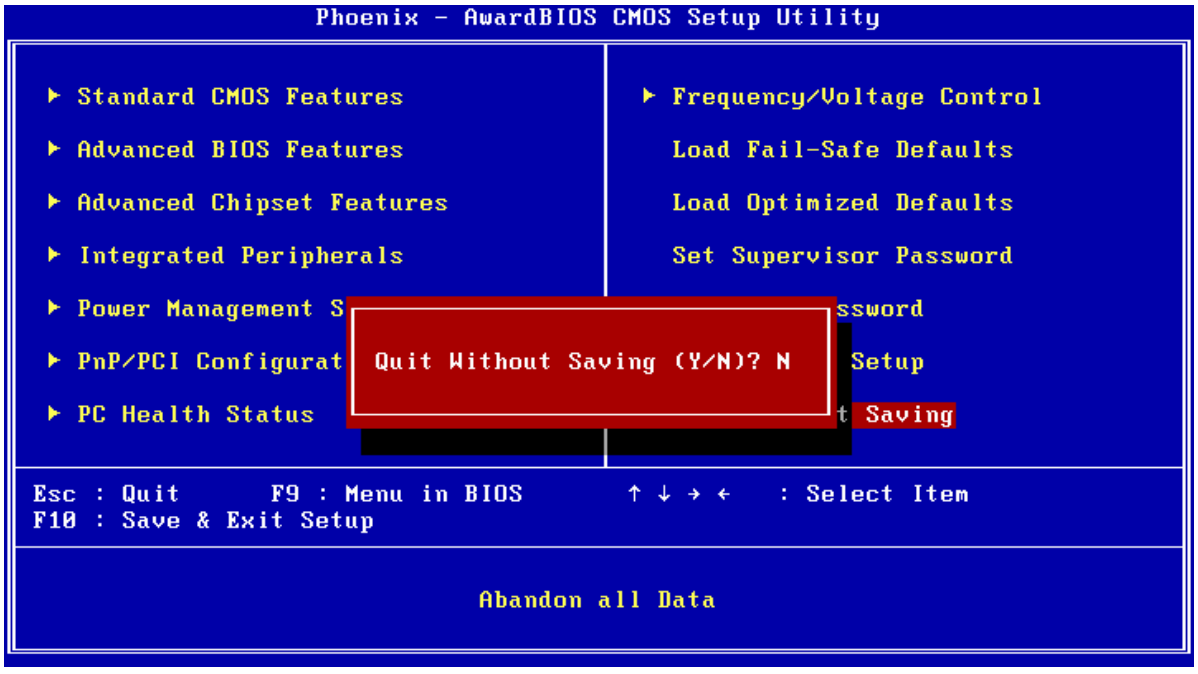
3.14 Save and Exit Setup

This function automatically saves all CMOS values before exiting Setup.



3.15 Exit Without Saving

Use this function to exit Setup without saving the CMOS value.



Chapter 4. Software & Driver Utility

The operation system and driver installation procedure must be performed first.

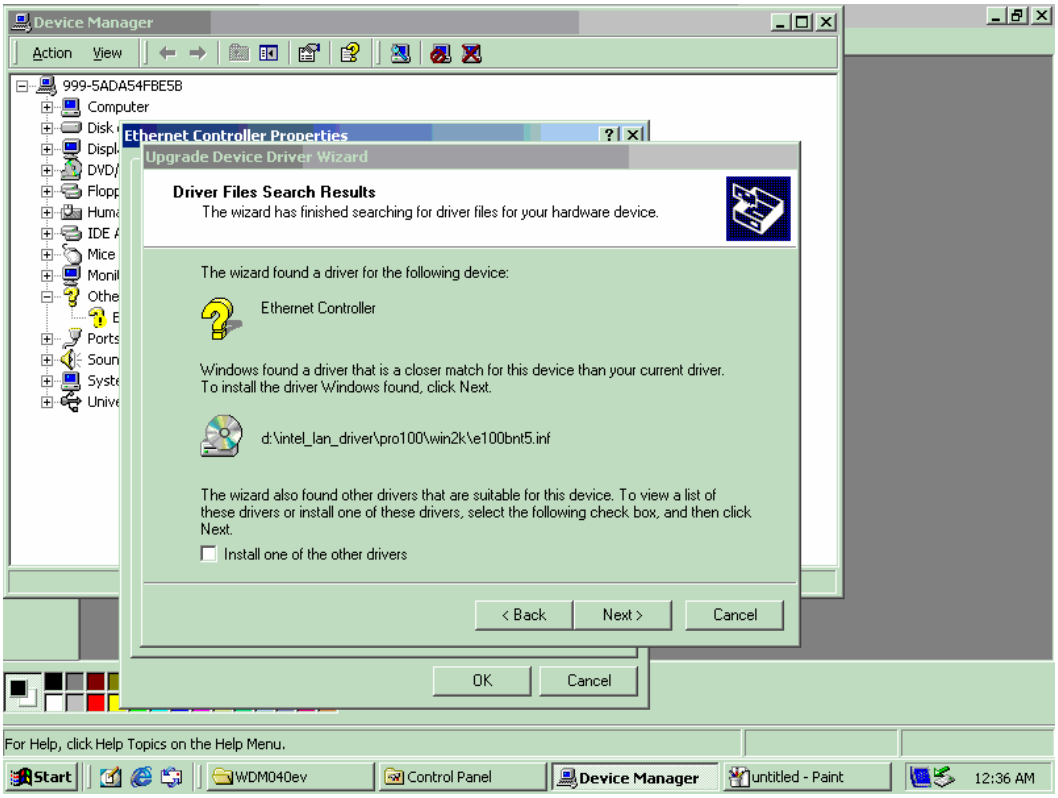
4.1 Operation System Installation

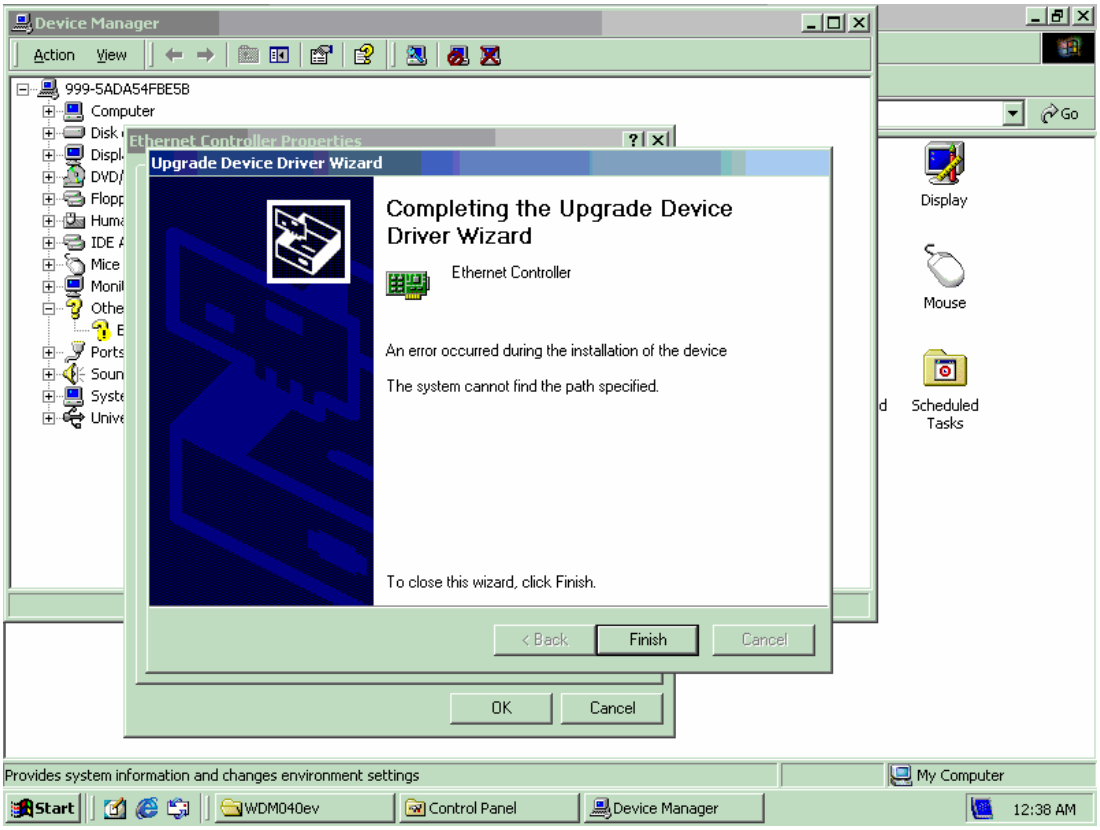
The AW-EM730 supports Windows 2000 SP4, Windows XP SP2 and Linux operation system. Please install the OS first after setup the hardware.

4.2 Device Driver Installation

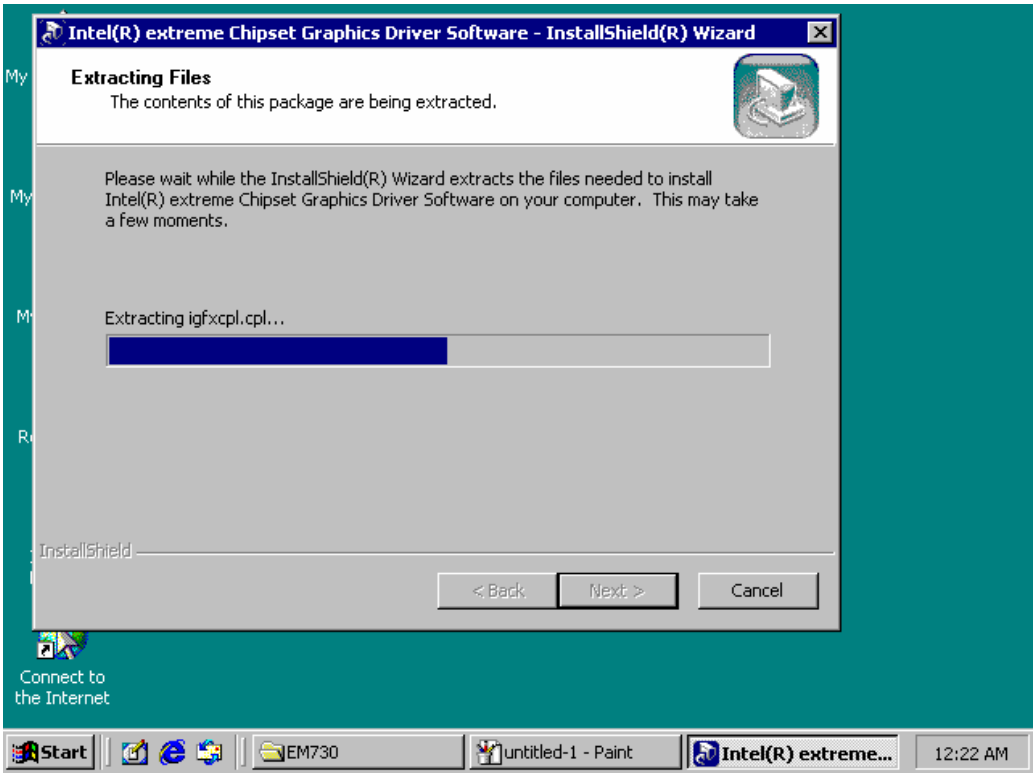
It supports one 10/100 Ethernet Controller by using Intel® 82562ET.

4.2.1. Intel 82562ET Ethernet



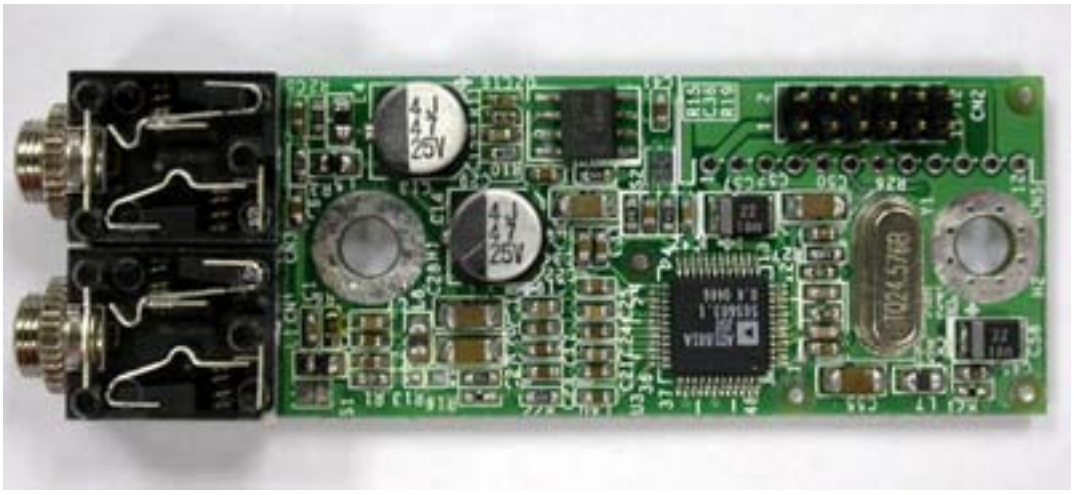


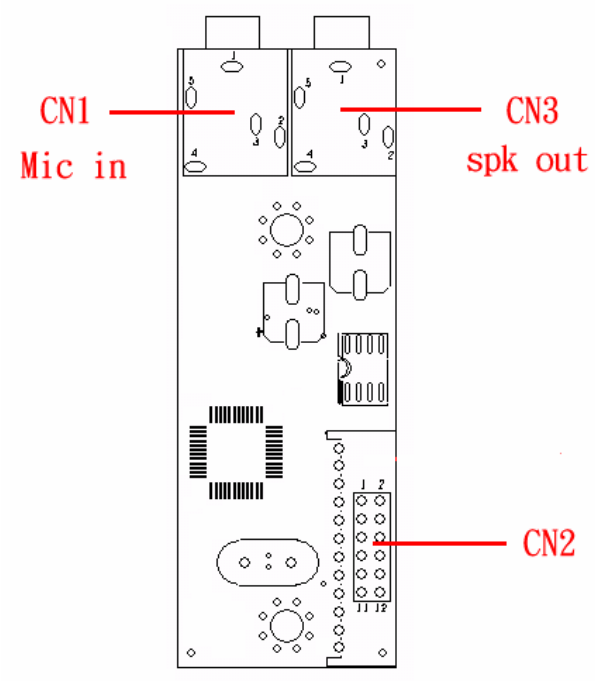
4.2.2. CRT and LVDS Driver

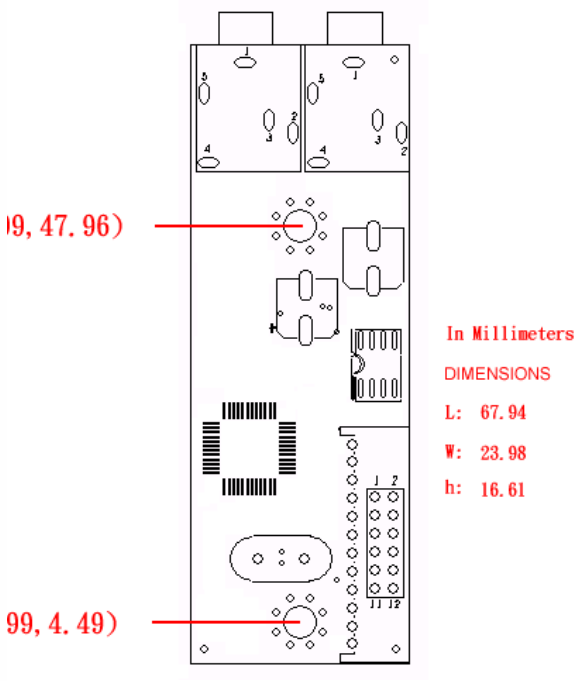


Appendix A: Optional Module

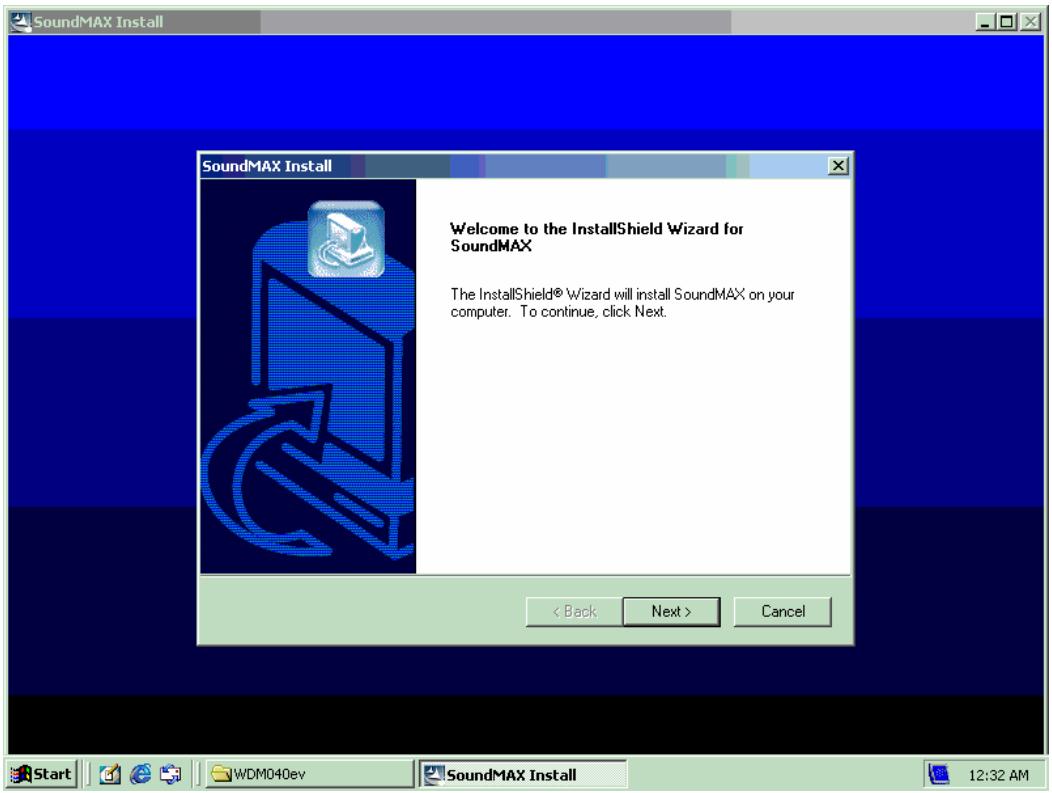
1. AC97 Audio Kit (SPK Out, MIC In)







Install Audio Driver (need Option AW-R031 Audio Module)

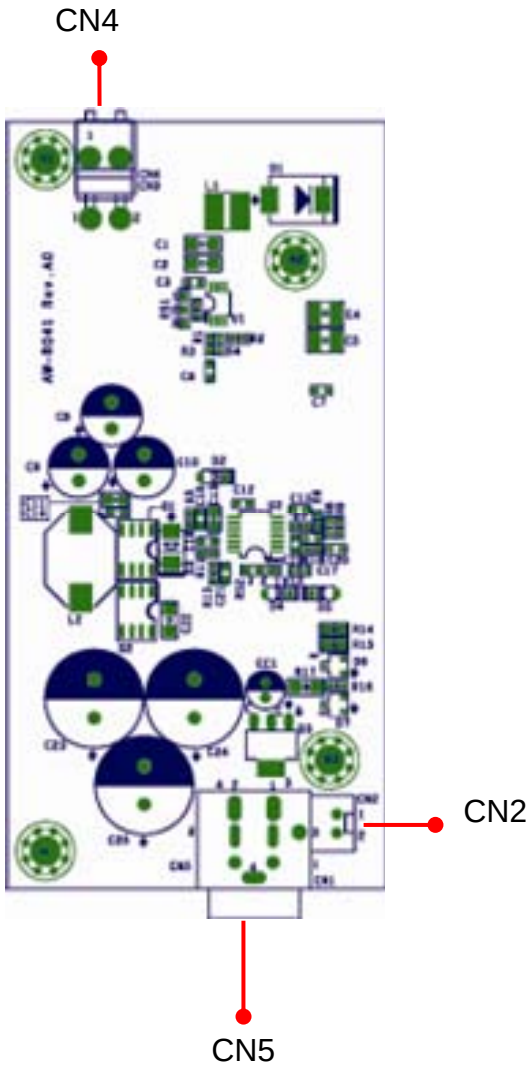


2. +12~24V Power adapter Kit

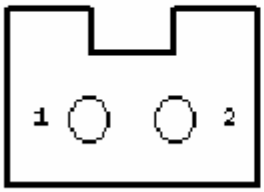
We offer the AW-R041 that is a +12V~+24V to +5V DC output adapter.

If +12V~+24 power input is needed, please assemble the power cable of AW-EM730 CN3 and AW-R041 CN2.

AW-R041 Layout

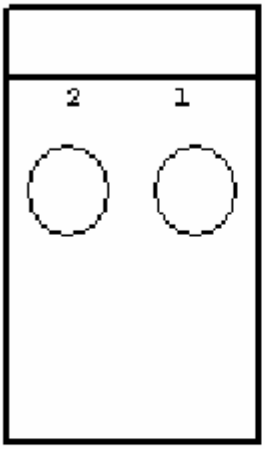


CN2: +12V Output Connector



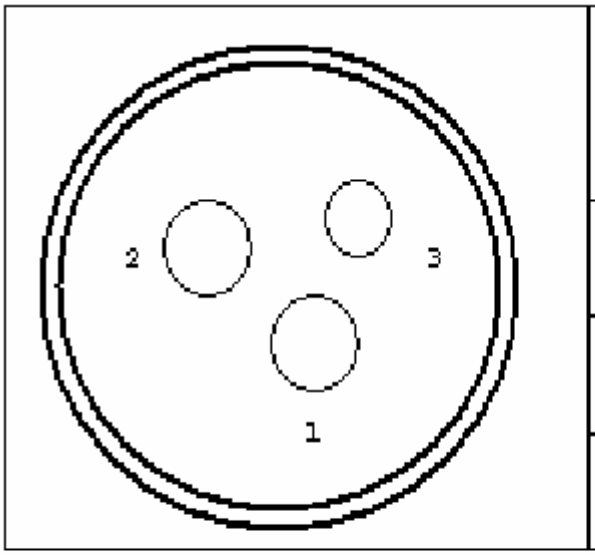
PIN	Signal
1	+12V
2	GND

CN4: +5V Output Connector



PIN	Signal
1	+5V
2	GND

CN5: +12V Input Power Jack



PIN	Signal
1	GND
2	+12V
3	NC

Appendix B: Optional Cable List

Part No.	Cable Description	AW-EM730 Connector
46-IPOW29-00	Power cable 3.96mm to 4pin AT	CN18
46-IUSB03-00	USB Cable 2*5 2mm	CN11
46-IOOIDE-00	IDE 44pin Cable	CN20
46-ICOM03-00	COM3、COM4 Cable	CN19
46-ICOM02-00	COM2 Cable	CN17
46-ILPT01-00	LPT Cable	CN21
46-IPS266-00	KB/MS Cable	CN4

Revise History

Version	Date	Description
Ver 1.0	2005/10/19	Initial
Ver 1.1	2005/12/15	Add VR1 explanation
Ver 1.2	2006/03/20	Modify the BIOS setting of LVDS display & add AW-R041 power adapter description
Ver 1.3	2006/03/22	Add mini PCI slot pin definition