AW-EM751

User's Manual

Version 1.1

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Chapter 1. General Information

1.1 Introduction

The AW-EM751 is a 5.25" embedded single board use Intel 82855GM(E) and ICH4 chipset supports Intel® Pentium M™ processors with 400/(533)MHz system bus in 478-pin micro-FCPGA package. The AW-EM751 supports Intel® 82562EX/EZ for 10/100Mbps Fast Ethernet speed.

The onboard features include three RS-232 and one RS-232/422/485 serial ports, one bi-directional parallel port, four USB ports.Also the AW-EM751 Supports AC-97 audio interface,CardBus interface with two PCMCIA card slots,one CompactFlash™ socket ,TV-out,DVI and LVDS LCD interface.

1.2 Specification

Specifications	
General Functions	
CPU	Intel® Pentium M Processor in 478-pin micro-FCPGA package.
BIOS	Award® 512KB Flash BIOS.
Cache	CPU On-die,1-Mbyte second level cache.
Chipset	Intel® 855GM(E)+ICH4
I/O Chipset	Dual Winbond W83627HF-AW
Memory	Two 184-pin DDR DIMM sockets support DDR200/266/(333) DDR devices and up to 2G bytes. ECC Support.
Enhanced IDE	Support up to two IDE devices (Ultra DMA 33/66/100)
FDD interface	Supports one 34-pin header up to two floppy disk drives.
Parallel port	Support SPP/ECP/EPP
Serial port	Three RS-232 and one RS-232/422/485 serial ports.
IR interface	Support one IrDA Tx/Rx header
KB/Mouse connector	Support PC/AT keyboard and PS/2 mouse
USB connectors	four USB ports support USB 1.1 and 2.0
Battery	Lithium battery for data retention up to 10 years(in normal condition)

Watchdog Timer	Support software selectable timeout interval
System Monitoring	Built in W83627HF-AW; supports temperatures, Fan speed, and voltages monitoring
PCI slot	One 32-bit PCI expansion slot support two bus mater.
Digital I/O	Support four TTL input and four output pins for customized purpose
Power management	Support ACPI 2.0, Wake on LAN and Modem Ring-in functions

Flat Panel/CRT Interface	
Chipset	Built in Intel® GMCH(855GM\GME)
Display memory	
Display type	Support CRT display,single or dual channel LVDS panel.
Resolution	350-MHz integrated 24-bit RAMDAC that can drive a standard progressive scan analog monitor with pixel resolution up to 1600 x1200 at 85Hz and up to 2048x1536 at 75Hz.
TV-Out Interface	
Chipset	Chrontel digital TV encoder
TV Format	Support NTSC and PAL signals format
Ethernet interface	
Chipset	Intel® 82562EZ/EX for 100/10 Base-Tx Fast Ethernet controller
Sound Interface	
Chipset	AC97 codec (Realtek ALC650)
Audio Interface	Mic in , Line in , Speaker out , CD audio in and AUX in
CardBus Interface	
Chipset	TI PCI 1420 CardBus controller
Interface	Complies with PCMCIA v.2.10 and JEIDA v.4.1 provide full supprts for all type I/II/III PCMCIA memory,I/O and ATA hard disk card.
SSD Interface	
	One 50-pin CompactFlash™ socket
Mechanical and Environmental	
Power supply voltage	13V ~ 25V

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Max. power requirements	3.9A@18V
Operating Temperature	32-140ºF (0-60)
Board size	8"(L) x 5.75"(W)(203mm x 146mm)

1.3 Board Layout
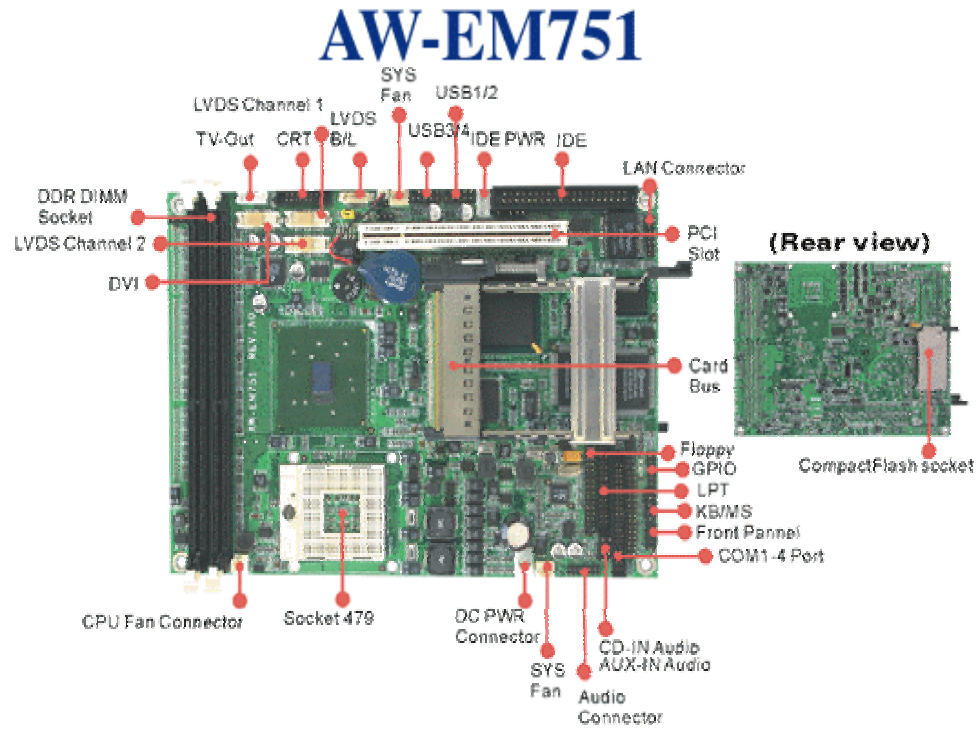
1.4 Board Dimension
Top Side

(Unit : m.m)

Bottom Side

(Unit : m.m)
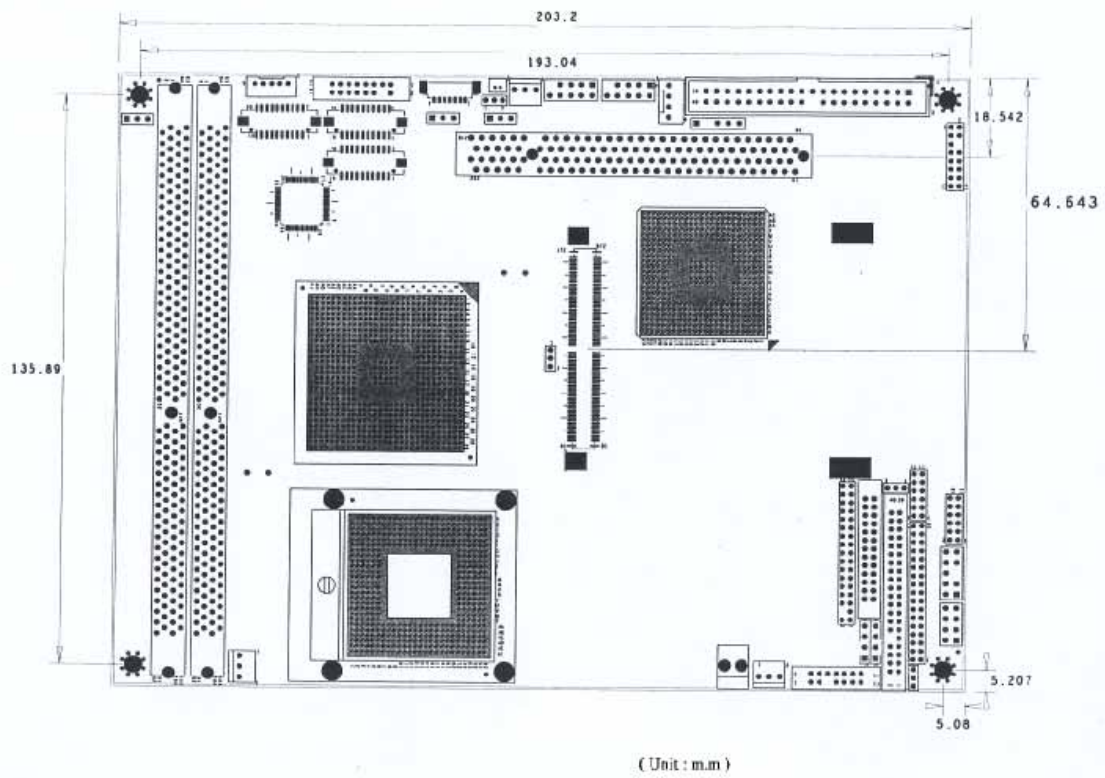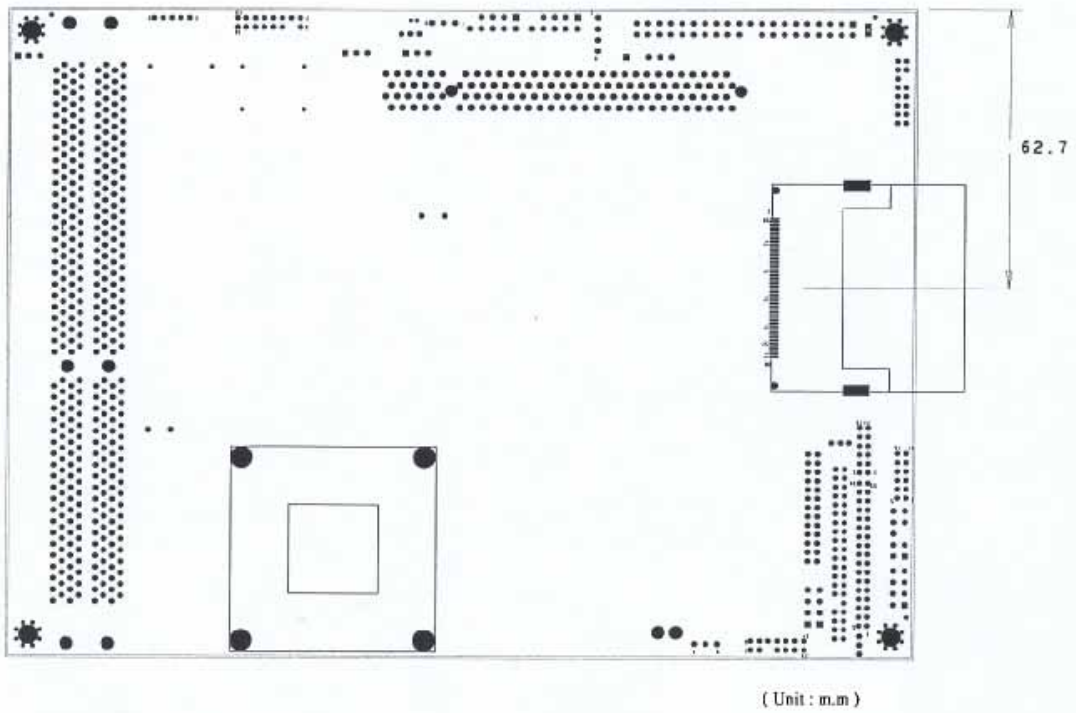
Chapter 2. Connectors/Jumpers Location and Define

2.1 Connectors/Jumpers Location and Define

Top Side-
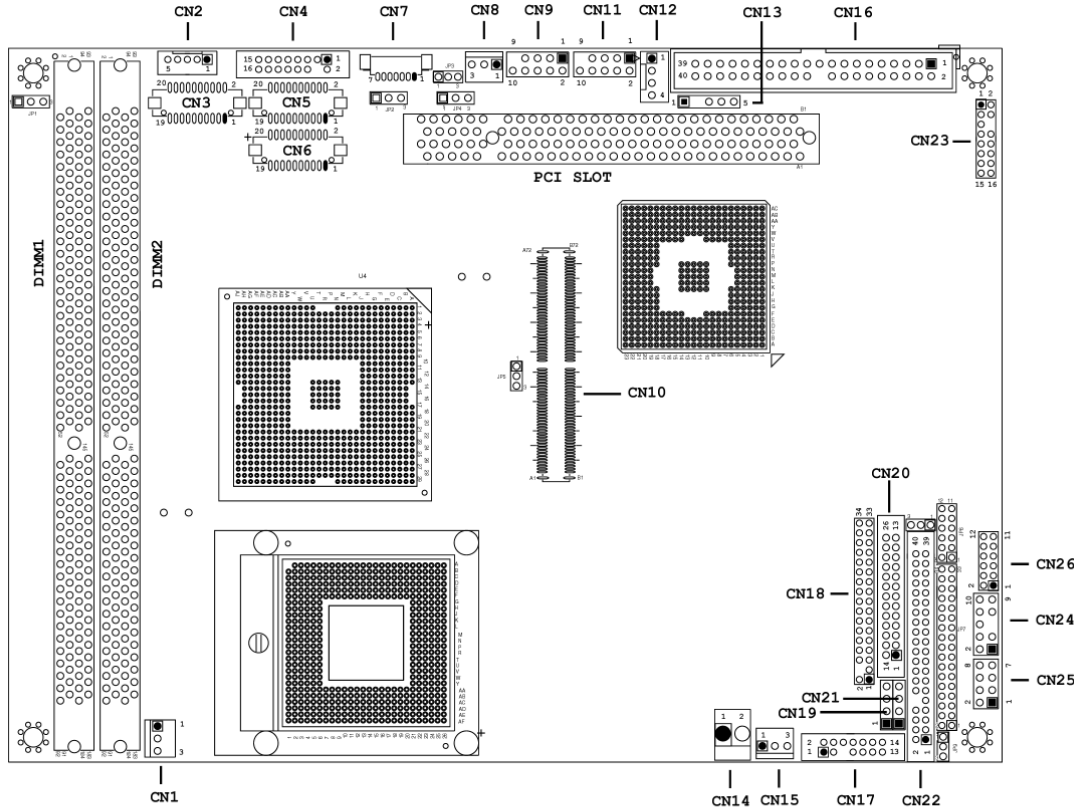
Connector	Define	Connectors	Define
CN1	CPU FAN Connector	CN14	DC Power Connector
CN2	TV-Out Connector	CN15	System Fan1 Connector
CN3	DVI Connector	CN16	IDE Connector
CN4	CRT Connector	CN17	Audio In/Out Connector
CN5	LVDS CH1 Connector	CN18	Floppy Drive Connector
CN6	LVDS CH2 Connector	CN19	Aux-In Connector
CN7	LVDS Panel Backligt Enable Connector	CN20	Parallel Port Connector
CN8	System FAN2 Connector	CN21	CD Analog-In Connector
CN9	USB Port 2 Connector	CN22	COM Port 1-4 Connector
CN10	CardBus Connector	CN23	LAN Connector
CN11	USB Port 1 Connector	CN24	KB/MS Connector

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CN12	IDE Power Connector	CN25	Front Panel Connector
CN13	IRDA Connector	CN26	GPIO Ports Connector

Bottom Side-
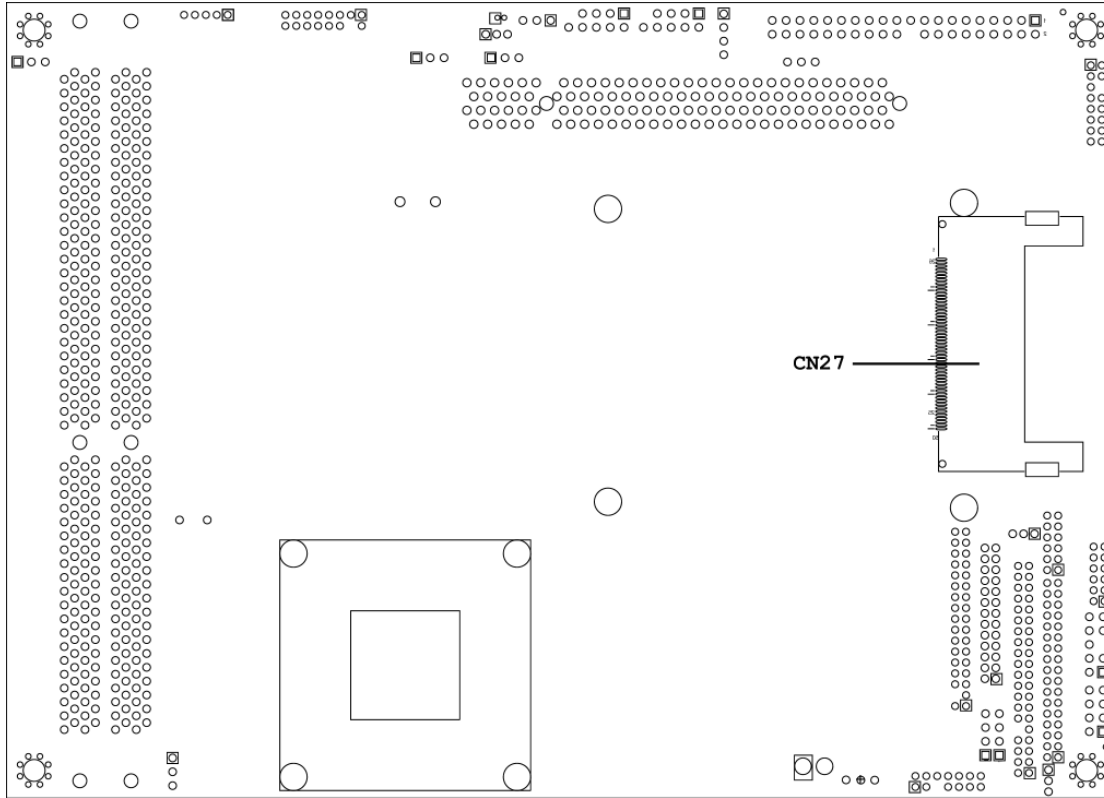
CN27

Connector	Define	Connectors	Define
CN27	Compact Flash Socket		

2.2   Jumpers Location and Define
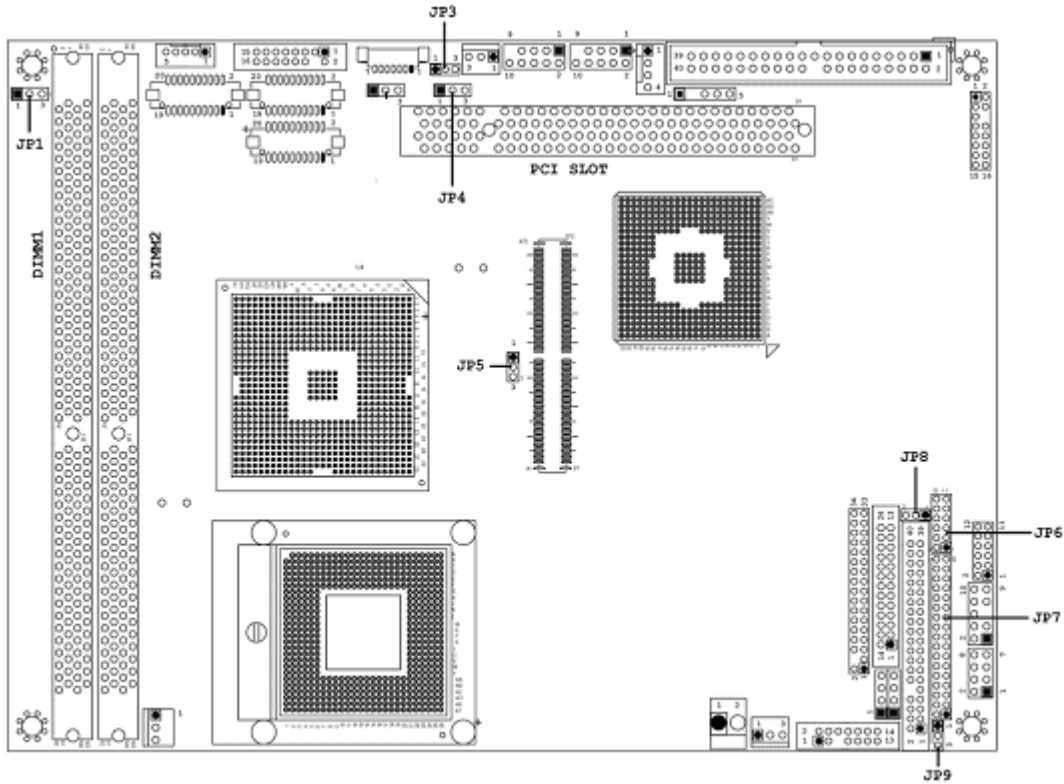
Label	Define
JP1	TV Video Output Format Selection (NTSC/PAL)
JP3	Clear CMOS
JP4	LVDS Panel Power Selection
JP5	System Bus Clock Selection
JP6	COM3/4 RI/+5V/+12V Selection
JP7	COM2 RS232/422/485 Mode Selection-1
JP8	COM2 RS232/422/485 Mode Selection-2
JP9	COM2 RS232/422/485 Mode Selection-3
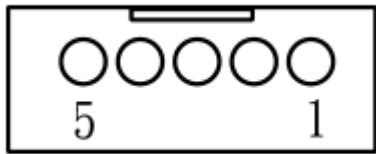
2.3 Connectors Pin define

CN1: CPU FAN Connector
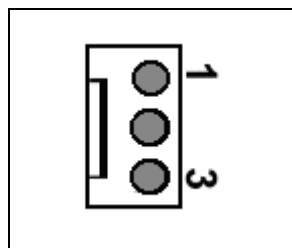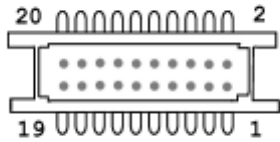
Pin	Define
1	Ground
2	+12V
3	Speed Detect

CN2: TV-Out Connector
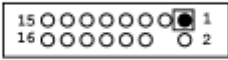
Pin	Define
1	LUMINANCE OUT
2	CROMIANCE OUT
3	Ground
4	Ground
5	COMPOSITE OUT
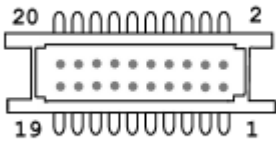
CN3: DVI Connector

Pin	Define	Pin	Define
1	Ground	2	Ground
3	TX2N	4	TX0N
5	TX2P	6	TX0P
7	Ground	8	Ground
9	CLK	10	TXCN
11	DATA	12	TXCP
13	Ground	14	Ground
15	TX1N	16	CHARGE
17	TX1P	18	+5V
19	Ground	20	+5V

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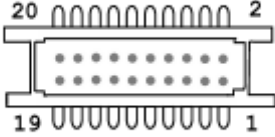
CN4: VGA Connector

Pin	Define	Pin	Define
1	Red	2	Green
3	Blue	4	NC
5	Signal Ground	6	Chassis Ground
7	Chassis Ground	8	Chassis Ground
9	NC	10	Signal Ground
11	NC	12	DDC Data
13	H-SYNC	14	V-SYNC
15	DDC Clock	16	NC

CN5: LVDS Channel 1 Connector

Pin	Define	Pin	Define
1	VCC	2	VCC
3	Ground	4	Ground
5	RXO0-/RXIN0-	6	RXO0+/RXIN0+
7	Ground	8	RXO1-/RXIN1-
9	RXO1+/RXIN1+	10	Ground
11	RXO2-/RXIN2-	12	RXO2+/RXIN2+
13	Ground	14	RXOC-/RXCLKIN-
15	RXOC+/RXCLKIN+	16	Ground
17	RXO3-	18	RXO3+
19	LVDS-DDC-DATA	20	LVDS-DDC-CLK

CN6: LVDS Channel 2 Connector

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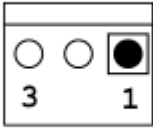
Pin	Define	Pin	Define
1	RXE0-	2	RXE0+
3	Ground	4	RXE1-
5	RXE1+	6	Ground
7	RXE2-	8	RXE2+
9	RXEC-	10	RXEC+
11	RXE3-	12	RXE3+
13	Ground	14	Ground
15	NC	16	Ground
17	VCC	18	VCC
19	VCC	20	VCC

CN7: LVDS Panel Backlight Enable Control Connector
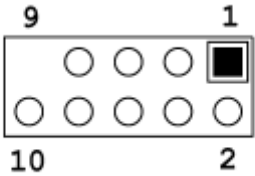
Pin	Define
1	+12V
2	Ground
3	Ground
4	+5V
5	SMBUS Clock
6	N.C
7	Backlight Enable
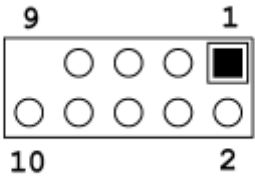
CN8: System FAN2 Connector

Pin	Define
1	Ground
2	+12V
3	Fan Speed Detect

CN9: USB Port 3/4 Connector

Pin	Define	Pin	Define
1	USB VCC	2	USB VCC
3	USB D3-	4	USB D4-
5	USB D3+	6	USB D4+
7	Ground	8	Ground
9	NC	10	Ground

CN11: USB1/2 Connector

Pin	Define	Pin	Define
1	USB VCC	2	USB VCC
3	USB D1-	4	USB D2-
5	USB D1+	6	USB D2+
7	Ground	8	Ground
9	NC	10	Ground

CN12: IDE Power Connector

Pin	Define
1	+12V
2	Ground
3	Ground
4	+5V
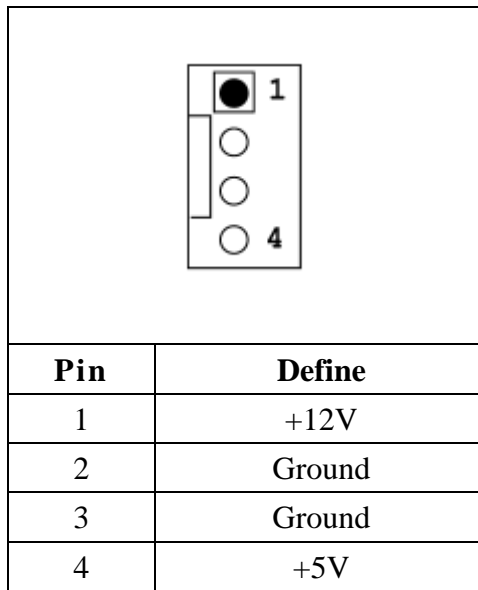
CN13: IRDA Power Connector

Pin	Define
1	+5V
2	NC
3	IRRX
4	Ground
5	IRTX
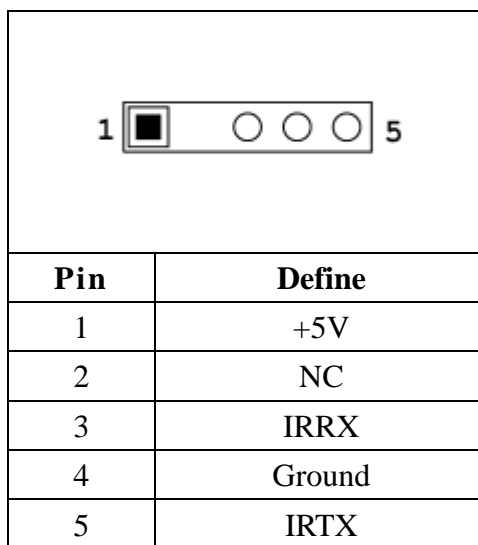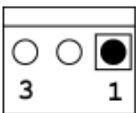
CN14: DC-IN Power Connector
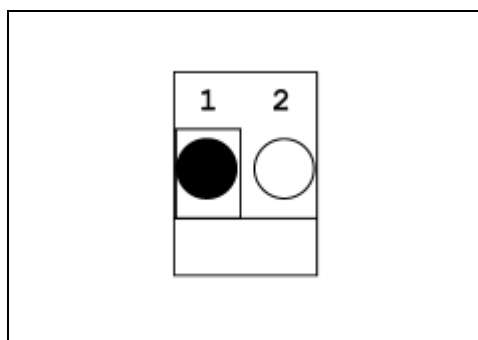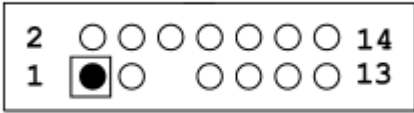
Pin	Define
1	+DC Input (12~25V)
2	Ground

CN15: System FAN1 Connector

Pin	Define
1	Ground
2	+12V
3	Fan Speed Detect

CN17: Audio Input/Output Connector

Pin	Define	Pin	Define
1	Line-In(R)/Surround(R)	2	NC
3	Ground	4	Line-In(L)/Surround(L)
5	NC	6	NC
7	NC/LFE-OUT	8	NC
9	Ground	10	MIC-In/Cent-Out
11	Speaker-Out(R)	12	NC
13	Ground	14	Speaker-Out(L)

CN16: IDE Connector
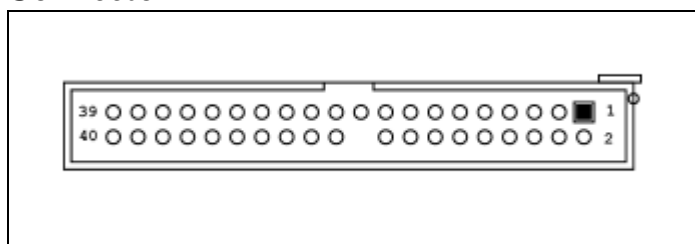
Pin	Define	Pin	Define
1	RESET*	2	Ground
3	DATA7	4	DATA8
5	DATA6	6	DATA9
7	DATA5	8	DATA10
9	DATA4	10	DATA11
11	DATA3	12	DATA12
13	DATA2	14	DATA13
15	DATA1	16	DATA14
17	DATA0	18	DATA15
19	Ground	20	KEY PIN
21	DREQ	22	Ground
23	DIOW*	24	Ground
25	DIOR*	26	Ground
27	IOCHRDY	28	CSEL
29	DACK*	30	Ground
31	IRQ14	32	N/C
33	A1	34	DETECT
35	A0	36	A2
37	HD SELECT 0*	38	HD SELECT 1*
39	ACTIVE*	40	Ground

CN18: Floppy Drive Connector
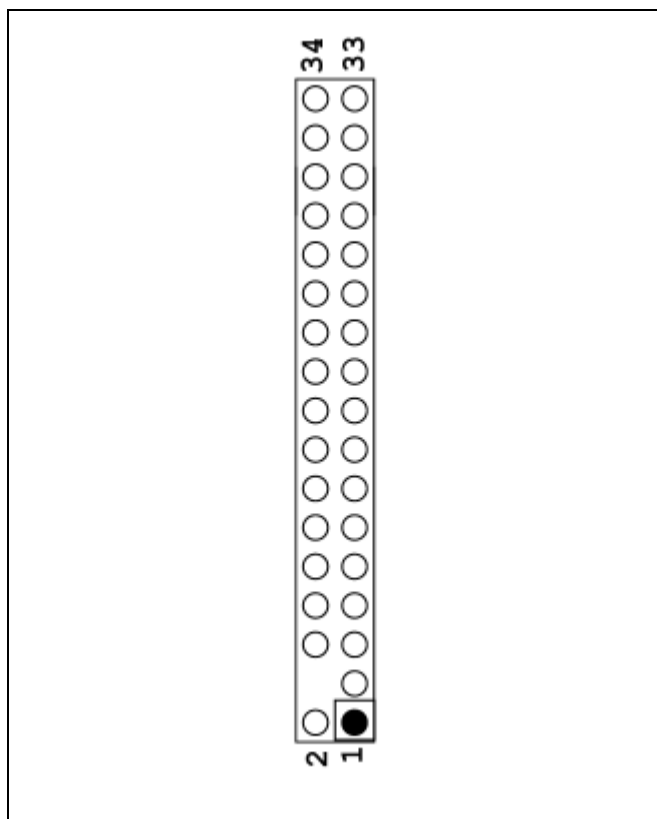
Pin	Define	Pin	Define
1	Ground	2	DENSITY SELECT0*
3	Ground	4	NC
5	Ground	6	DENSITY SELECT1*
7	Ground	8	INDEX*
9	Ground	10	MOTOR ENABLE 0*
11	Ground	12	DRIVE SELECT 1*
13	Ground	14	DRIVE SELECT 0*
15	Ground	16	MOTOR ENABLE 1*
17	Ground	18	DIRECTION*
19	Ground	20	STEP*
21	Ground	22	WRITE DATA*
23	Ground	24	WRITE GATE*
25	Ground	26	TRAK00*
27	Ground	28	WRITE PROTECT*
29	Ground	30	READ DATA*
31	Ground	32	SIDE 1 SELECT*
33	Ground	34	DISK CHANGG*

CN20: Parallel Port Connector
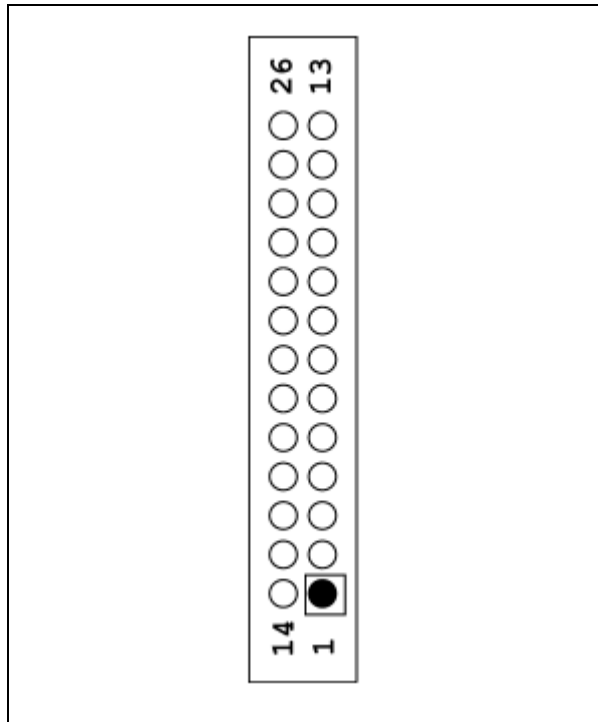
Pin	Define	Pin	Define
1	STROBE	14	AFD#
2	PD0	15	ERR#
3	PD1	16	INIT#
4	PD2	17	SLIN#
5	PD3	18	Ground
6	PD4	19	Ground
7	PD5	20	Ground
8	PD6	21	Ground
9	PD7	22	Ground
10	ACK#	23	Ground
11	BUSY	24	Ground
12	PE	25	Ground
13	SLCT	26	NC

CN19: Aux-In Connector
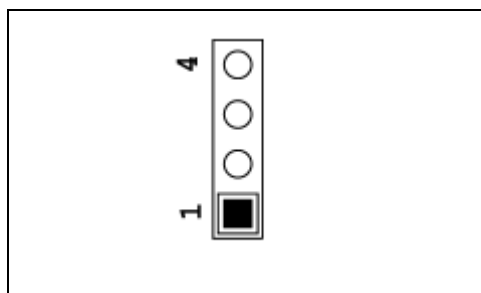
Pin	Define
1	Aux-In (L)
2	Ground
3	Ground
4	Aux-In (R)

CN21: CD Analog-In Connector
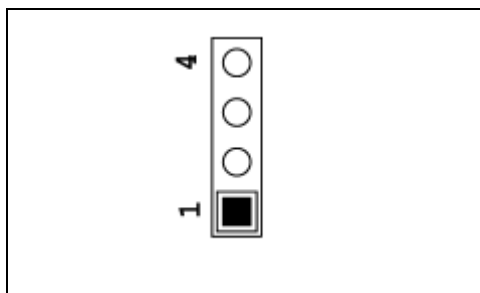
Pin	Define
1	CD-In (L)
2	Ground
3	Ground
4	CD-In (R)

CN22: COM Port 1-4 Connector
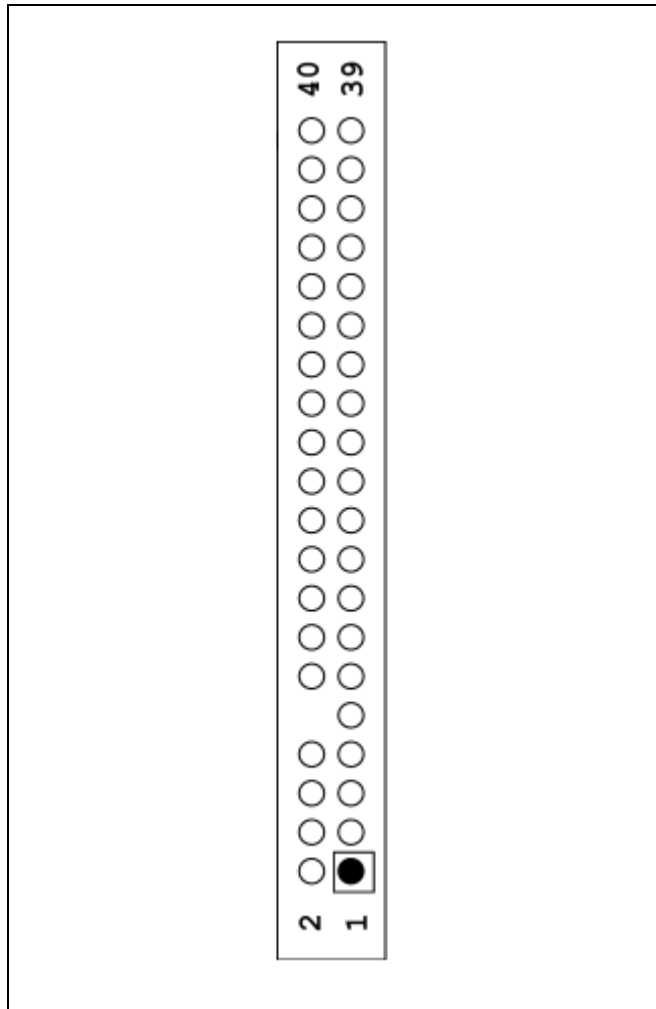
RS232 Mode			
Pin	**Define**	**Pin**	**Define**
1	DCD#1	2	DSR#1
3	RXD1	4	RTS#1
5	TXD1	6	CTS#1
7	DTR#1	8	RI#1
9	Ground	10	NC
11	DCD#2	12	DSR#2
13	RXD2	14	RTS#2
15	TXD2	16	CTS#2
17	DTR#2	18	RI#2
19	Ground	20	NC
21	DCD#3	22	DSR#3
23	RXD3	24	RTS#3
25	TXD3	26	CTS#3
27	DTR#3	28	RI#3
29	Ground	30	NC

31	DCD#4	32	DSR#4
33	RXD4	34	RTS#4
35	TXD4	36	CTS#4
37	DTR#4	38	RI#4
39	Ground	40	NC
RS422 Mode(COM2)			
11	TX-	12	RTS-
13	TX+	14	RTS+
15	RX+	16	CTS+
17	RX-	18	CTS-
19	Ground	20	NC
RS485 Mode(Half-Duplex)(COM2)			
11	TX-/RX-	12	TX+/RX+
13	NC	14	NC
15	NC	16	NC
17	NC	18	CN
19	Ground	20	NC
RS485 Mode(Four-Wire)(COM2)			
11	TX-	12	NC
13	TX+	14	NC
15	RX+	16	NC
17	RX-	18	NC
19	Ground	20	NC

CN23: LAN Connector
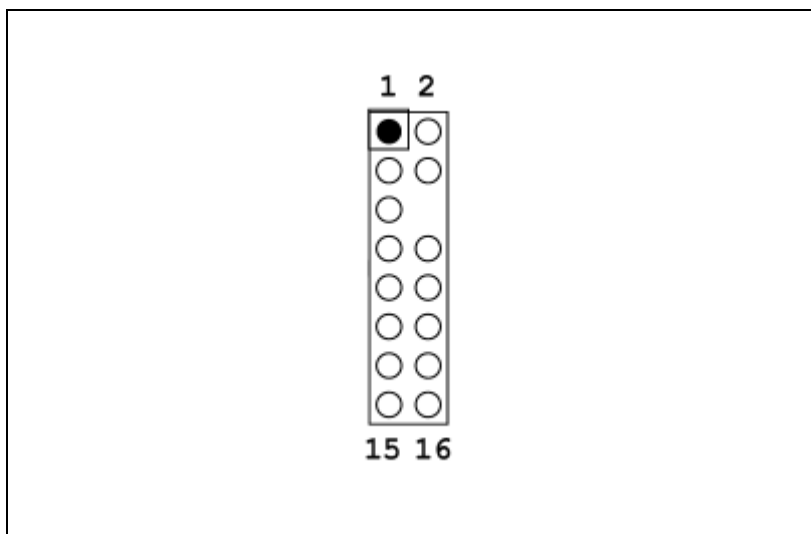
Pin	Define	Pin	Define
1	MDI0+	2	Ground
3	MDI0-	4	LINK100#
5	MDI1+	6	NC
7	MDI1-	8	LINK1000#
9	MDI2+	10	LINK_UP#
11	MDI2-	12	ACT#
13	MDI3+	14	NC
15	MDI3-	16	Ground

CN24: PS2 Keboard/Mouse Connector
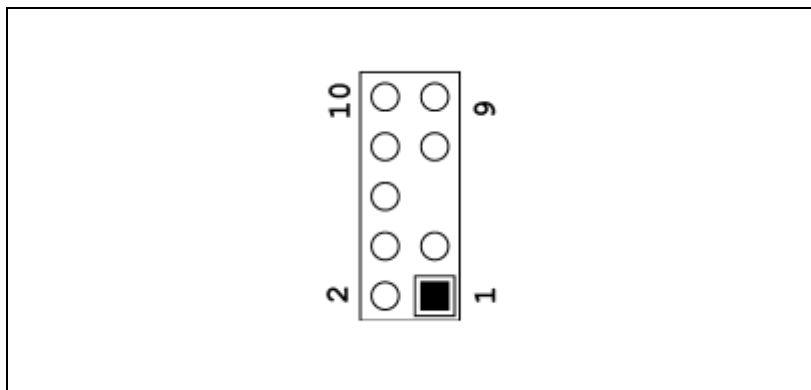
Pin	Define	Pin	Define
1	KB-Clock	2	Mouse-Clock
3	KB-Data	4	Mouse-Data
5	NC	6	NC
7	Ground	8	Ground
9	+5V	10	+5V
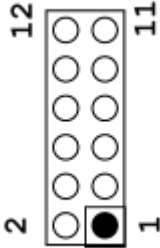
CN25: Front Panel Connector
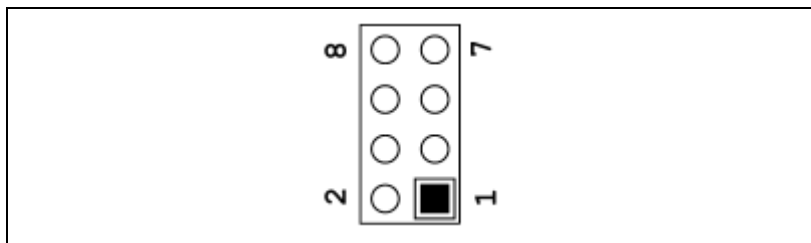
Pin	Define	Pin	Define
1	Power LED+(+5V)	2	Power LED-(Ground)
3	IDE LED+(+5V)	4	IDE LED-(Active)
5	Power On Switch+	6	Power On Switch -

			(Ground)
7	Reset Switch+	8	Reset Switch- (Ground)

CN26: GPIO Port Connector

Pin	Define	Pin	Define
1	+5V	2	GPIN0
3	GPIN1	4	GPIN2
5	GPIN3	6	Ground
7	+3.3V	8	GPOUT0
9	GPOUT1	10	GPOUT2
11	GPOUT3	12	Ground

2.4 Jumper Setting

JP1: TV Video Output Format Selection

Setting		Define
	1-2	NTSC (Default)
	2-3	PAL

JP3: Clear CMOS

Setting		Define
1 3	1-2	Normal (Default)
1 3	2-3	Clear CMOS
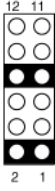
JP4: LVDS Panel Power Selection
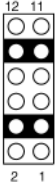
Setting		Define
1 3	1-2	+3.3V (Default)
1 3	2-3	+5V

JP5: FSB Clock Selection

Setting		Define
1 3	1-2	133MHz
1 3	2-3	100MHz
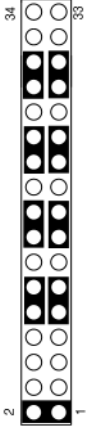
JP6: COM3/4 RI Pin Function Selection.(RI/+5V/+12V)

Setting		Define	
	1-2	COM3	RI#
	7-8	COM4	RI#

Setting		Define	
	3-4	COM3	+5V
	9-10	COM4	+5V

Setting		Define	
	5-6	COM3	+12V
	11-12	COM4	+12V

JP7,JP8,JP9 : COM2 RS232/422/485 Mode selection
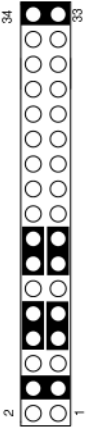
RS232 Mode	
JP7	
	1-2
	9-11
	10-12
	15-17
	16-18
	21-23
	22-24
	27-29
	28-30

JP8	Not Stuff
JP9	Not Stuff

RS422 Mode	
JP7	
	3-4
	7-9
	8-10
	13-15
	14-16
	19-21
	20-22
	25-27
	26-28
	31-32
	33-34
JP8	
	1-2
JP9	
	2-3

RS485 Mode(Half-Duplex)	
JP7	
	5-6
	7-9
	8-10
	31-32
	33-34

JP8	
	1-2
JP9	
	1-2

RS422 Mode(4-Wire)	
JP7	
	3-4
	7-9
	8-10
	13-15
	14-16
	33-34
JP8	
	2-3
JP9	
	2-3

Chapter 3. BIOS Setup

The ROM chip of your AW-EM751board 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:

1. Date and time
2. Memory capacity of the main board
3. Type of display adapter installed
4. Number and type of disk drives

The CMOS memory is maintained by battery installed on the AW-EM751 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 customized your system.   For example, you should run the Setup program after you:

1. Received an error code at startup
2. Install another disk drive
3. Use your system after not having used it for a long time
4. Find the original setup missing
5. Replace the battery
6. Change to a different type of CPU
7. 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:

```
              Phoenix – AwardBIOS CMOS Setup Utility
```

```
  ▶ Standard CMOS Features          Load Fail-Safe Defaults

  ▶ Advanced BIOS Features          Load Optimized Defaults

  ▶ Advanced Chipset Features       Set Supervisor Password

  ▶ Integrated Peripherals          Set User Password

  ▶ Power Management Setup           Save & Exit Setup

  ▶ PnP/PCI Configuration           Exit Without Saving

  ▶ Frequency/Voltage Control


  ↑↓→← : Select Item
  F10: Save & Exit Setup

                Time, Date, Hard Disk Type....
```

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.

Option	Function
Standard CMOS Features	This setup page includes all the items in standard compatible BIOS
Advanced BIOS features	This setup page includes all the item of Award special enhanced features.
Advanced Chipset Features	This setup page includes all the items of chipset special features.
Integrated Peripherals	This setup page includes all onboard peripherals.
Power Management Setup	This setup page includes all the items of Green function features.
PnP/PCI Configurations	This setup page includes all the configurations of PCI & PnP ISA resources.
PC Health Status	This setup page is the System auto detect including temperature, voltage, fan, speed .
Load Fail-Safe Defaults	Fail-Safe Defaults are the BIOS default values for the minimal/stable performance for your system to operate.
Load Optimized Defaults	Optimized Defaults are the factory setting for optimal performance system operations.
Set Supervisor password	Change, set, or disable password, It allows you to limit access to the system and Setup,or just to Setup.
Set User password	Change, Set, or disable password, It allows you to limit access to the system.
Save & Exit Setup	Save CMOS value setting to CMOS and exit setup.
Exit Without Saving	Abandon all CMOS value changes and exit setup.

⇩ **Use the Standard CMOS Setup option as follows:**
1. Choose "Standard CMOS Features" from the main menu.　The following screen appears:

User's manual

```
          Phoenix - Award BIOS CMOS Setup Utility
                  Standard CMOS Features

   Date (mm:dd:yy)      Tue, Oct 22 2003
   Time (hh:mm:ss)      16 : 53 : 10
                                              Item Help
   IDE Primary Master   <NONE>
   IDE Primary Slave    <NONE>          Menu Level  ▶
   IDE Secondary Master <NONE>
   IDE Secondary Slave  <NONE>          Change the day, month,

   Drive A              <1.44M, 3.5 in.>  Year and Century
   Drive B              <None>

   Video                <EGA/VGA>
   Halt On              <All, But Keyboard>

   Base Memory          640K
   Extend Memory        490496K
   Total Memory         491520K


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

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.

Date/Time Configuration:
The BIOS determines the day of the week from the other data information. This field is for information only.   The time format is based on 24-hour military time clock. For example, 1 p.m is 13:00:00.
Press the left or arrow key to move to the desired field (month, date, year). Press the PU/PD key to increment the setting or type the desired value into the field.

IDE Primary/Secondary Master/Slave:
Choose from "Auto", "User" or "None". If your drive is not one of the predefined types, choose "User" and enter the following drive specifications:
● Capacitor: Approximate hard disk drive capacity
● Cylinders: Number of cylinders
● Heads: Number of heads
● Precomp: Write pre-compensation cylinder
● L-Zone: Landing Zone
● Sectors: Number of sectors
Refer to your drive's documentation, please change the value to None if no device installed.

Drive:

Select this field to type of floppy disk drive installation in your system, the choices are: None; 360K, 5.25 in; 1.2M, 5.25 in; 720K, 3.5 in; 1.44MB, 3.5 in; 2.88M, 3.5 in

Video:

Choose: MONO, CGA 40, CGA 80 or EGA/VGA

● Mono: Monochrome Adapter, includes high resolution monchrome adapter

● CGA40: Color Graphics Adapter, power up in 40 column mode

● CGA80: Color Graphics Adapter, power up in 80 column mode

● EGA/VGA: Enhanced Graphics Adapter/Video Graphics Array, for EGA, VGA, SVGA or PGA

Halt On:

During the Power-On Self-Test (POST), the computer stops if BIOS detect a hardware error. This setting determines which type of error will cause the system to halt during booting. The options:

● All Errors (Default): 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 stop for any error that may e detected.

● All, But Keyboard: The system boot will not stop for a keyboard error, but it will stop for all others.

● All, But Diskette: The system boot will not stop for a diskette error but it will stop for all others

● All, But Disk/Key: The system boot will not stop for a disk and keyboard error but it will stop for all others.

Base/Extended/Total Memory:

This category is display-only. The contents are determined by POST of the BIOS. You cannot make changes to these fields.

Base Memory: Also called conventional memory. The DOS operating system and conventional application 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.

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

Advanced BIOS Features Setup

⇓ **Use the Advanced BIOS Feature Setup option as follows:**

User's manual

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

```
                    Phoenix - Award BIOS CMOS Setup Utility
                            Advanced BIOS Features

      CPU Feature                 <Press Enter>
       First Boot Device          <Floppy>               Item Help
       Second Boot Device         <HDD-0>
       Third Boot Device          <LS120>        Menu Level ▶
       Boot Other Device          <Enable>
       APIC Mode                  <Enable>
       MPS Version Control For OS  <1.4>
       OS Select For DRAM > 64MB  <Non-OS2>
       Small Logo (EPA) Show      <Disable>

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

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:

First/Second/Third Boot Device:
BIOS attempts to load the operation system from the devices in the sequence selected.
The available choices: Floppy, LS/ZIP, HDD-0~3, SCSI, CDROM, Disable, LAN.

Boot Other Device:
Enabled: select your boot device priority function.
Disabled : Disabled this function .

APIC Mode:

MPS Version Control for OS:
This feature is only applicable to multiprocessor motherboards as it specifies the version of the Multi Processor Specification (MPS) that the motherboard will use. The MPS is a specification by which PC manufacturers design and build Intel architecture systems with two or more processors. MPS version 1.4 is required for a motherboard to support a bridgeless secondary PCI bus.

OS Select for DRAM > 64MB:
Non- OS2 :Using non-OS2 operating system.

AW-EM751

OS2 :Using OS2 operating system and RAM > 64MB

Small Logo (EPA) Show:

Advanced Chipset Features Setup

⇩ Use the Advanced Chipset Feature Setup option as follows:

1. Choose "Advanced Chipset Features Setup" from the main menu.   The following screen appears:
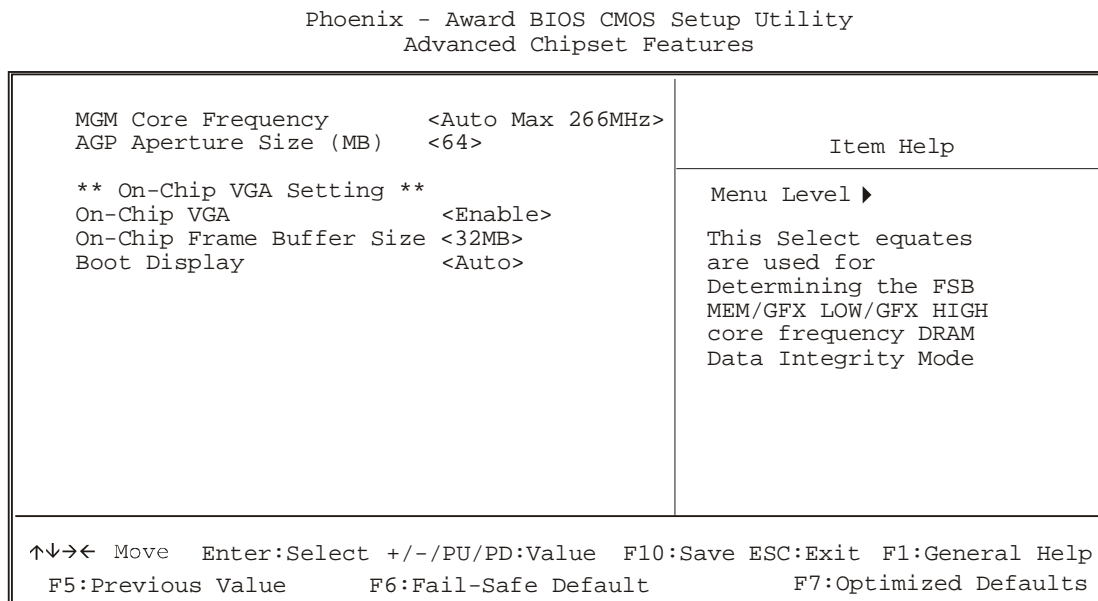
```
               Phoenix - Award BIOS CMOS Setup Utility
                      Advanced Chipset Features
┌─────────────────────────────────────────────┬──────────────────────┐
│                                              │                      │
│   MGM Core Frequency       <Auto Max 266MHz> │                      │
│   AGP Aperture Size (MB)    <64>             │      Item Help       │
│                                              ├──────────────────────┤
│   ** On-Chip VGA Setting **                  │  Menu Level ▶        │
│   On-Chip VGA               <Enable>         │                      │
│   On-Chip Frame Buffer Size <32MB>           │  This Select equates │
│   Boot Display              <Auto>           │  are used for        │
│                                              │  Determining the FSB │
│                                              │  MEM/GFX LOW/GFX HIGH │
│                                              │  core frequency DRAM │
│                                              │  Data Integrity Mode │
│                                              │                      │
│                                              │                      │
│                                              │                      │
│                                              │                      │
├──────────────────────────────────────────────┴──────────────────────┤
│  ↑↓→← Move   Enter:Select +/-/PU/PD:Value  F10:Save ESC:Exit F1:General Help │
│   F5:Previous Value       F6:Fail-Safe Default      F7:Optimized Defaults   │
└──────────────────────────────────────────────────────────────────────┘
```

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.

MGM Core Frequency:

AGP Aperture Size (MB):
This item defines the size of the aperture if you use an AGP graphics adapter. The AGP aperture refers to a section of the PCI memory address range used for graphics memory. The available choices are: 4M, 8M, 16M, 32M, 64M, 128M and 256M.

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

On-Chip Frame Buffer Size:

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

Boot Display:

Boot Display determines the display output device where the system boots. The options are Auto, CRT and LVDS

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

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

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

```
            Phoenix - Award BIOS CMOS Setup Utility
                    Integrated Peripherals
┌─────────────────────────────────────────────────────────────────────┐
│  On-Chip IDE Device       <Press Enter>  │                            │
│  Onboard Device           <Press Enter>  │        Item Help           │
│  SuperIO Device           <Press Enter>  │                            │
│   Onboard Serial Port 3   <3E8>          │  Menu Level ▶              │
│   Serial Port 3 Use IRQ   <IRQ9>         │                            │
│   Onboard Serial Port 4   <2E8>          │                            │
│   Serial Port 4 Use IRQ   <IRQ10>        │                            │
│                                          │                            │
│                                          │                            │
│                                          │                            │
├─────────────────────────────────────────────────────────────────────┤
│ ↑↓→← Move   Enter:Select +/-/PU/PD:Value  F10:Save ESC:Exit F1:General Help │
│  F5:Previous Value      F6:Fail-Safe Default        F7:Optimized Defaults   │
└─────────────────────────────────────────────────────────────────────┘
```

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.

OnChip IDE Device:

Select this item to setup the IDE device features. When you select this item, the following menu shows:

```
                  Phoenix - Award BIOS CMOS Setup Utility
                              OnChip IDE Device

    On-Chip Primary PCI IDE     <Enabled>
    IDE Primary Master PIO      <Auto>               Item Help
    IDE Primary Slave PIO       <Auto>
    IDE Primary Master UDMA     <Auto>        Menu Level ▶
    IDE Primary Slave UDMA      <Auto>
    On-Chip Secondary PCI IDE   <Enabled>
    IDE Secondary Master PIO    <Auto>
    IDE Secondary Slave PIO     <Auto>
    IDE Secondary Master UDMA   <Auto>
    IDE Secondary Slave UDMA    <Auto>

    IDE HDD Block Mode          <Enabled>




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

On-Chip Primary/Secondary PCI IDE:

The system chipset contains a PCI IDE interface supports for two IDE channels. 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.

IDE Primary/Secondary Master/Slave PIO:

The four IDE PIC (Programmable Input/Output) fields let you set a PIC mode (0-1) for each of the four IDE devices that the onboard IDE interface supports. Modes 1 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device. The choices are: Mode 0, Mode 1, Mode 2, Mode 3 and Mode 4.

IDE Primary/Secondary Master/Slave UDMA:

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

IDE HDD Block Mode:

Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode (most new drives do), select Enabled for automatic detection of the optional number of block read/write per sector the drive can support. The available choices are Enabled, Disabled.

Onboard Device:

Select this item to setup the onboard device features. When you select this item, the following menu shows:

```
            Phoenix - Award BIOS CMOS Setup Utility
                         Onboard Device

      USB Controller        <Enabled>
      USB 2.0 Controller    <Enabled>                 Item Help
      USB Keyboard Support  <Disabled>
      USB Mouse Support     <Disabled>     Menu Level ▶
      AC97 Audio            <Auto>
      Ac97 Modem            <Auto>
      Init Display First    <Onboard/AGP>
      Onboard LAN Chip      <Enabled>



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

USB Controller:

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

USB 2.0 Controller:

Select Enabled if your system contains a Universal Serial Bus 2.0 controller and you have USB 2.0 peripherals.

USB Keyboard/Mouse Support:

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

AC97 Audio:

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

AC97 Modem:

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

Init Display First:

Select Onboard/AGP

Onboard LAN Chip:

Enables and disabled the onboard LAN modules.

SuperIO Device:

Select this item to setup the SuperIO Device features. When you select this item, the following menu shows:

```
                  Phoenix - Award BIOS CMOS Setup Utility
                            SuperIODevice

       Onboard FDC Controller    <Enabled>
       Onboard Serial Port 1     <3F8/IRQ4>              Item Help
       Onboard Serial Port 2     <2F8/IRQ3>
       UART Mode Select          <Normal>         Menu Level ▶
     X RxD, TxD Active            Hi, Lo
     X IR Transmission Delay      Enabled
     X UR2 Duplex Mode            Half
     X Use IR Pins                IR-Rx2Tx2
       Onboard parallel Port     <378/IRQ7>
       Parallel Port Mode        <SPP>
     X EPP Mode Select            EPP1.7
     X ECP Mode Use DMA           3




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

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 to this field.

Onboard Serial Port 1/2/3/4:

This feature allows you to manually select the I/O address and IRQ for the first and second serial ports. If 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.

UART Mode Select:

Select an operating mode for the serial port, the choices are: Normal, IrDA, ASKIR, SCR.

RxD, TxD Active:

IR Transmission Delay:

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 Parallel Port:

This feature allows you to select the I/O address and IRQ for the onboard parallel port. The default I/O address of 378H and IRQ7 should work well in most cases. Unless you have a problem with the parallel port, you should leave it at the default settings. The choices are: 378/IRQ7

Parallel Port Mode:

Select an operating mode for the onboard parallel (printer) port. There are four options: SPP (Standard Parallel Port), EPP (Enhanced Parallel Port), ECP (Extended Capabilities Port) and ECP+EPP.

EPP Mode Select:

When the onboard parallel port is set to EPP mode,

ECP Mode Use DMA:

When the onboard parallel port is set to ECP mode, the parallel port can use DMA3 or DMA1.

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.

```
                Phoenix - Award BIOS CMOS Setup Utility
                        Power Management Setup

    ACPI Function              <Disabled>
    ACPI Suspend Type          <S3(STR)>              Item Help
    Run VGA BIOS if S3 Resume  <Auto>
    Power Management           <User Define>          Menu Level  ▶
    Video Off Method           <DPMS>
    Video Off Suspend          <Yes>
    Suspend Type               <Stop Grant>
    MODEM Use IRQ              <3>
    Doze Mode                  <Disabled>
    Suspend Mode               <Disabled>
    Soft-Off by PWR-BTTN       <Instant-OFF>
    CPU THRM-Throttling        <50.0%>
    Wake Up by PCI card        <Enabled>
    Power On by Ring           <Enabled>
    Wake Up On LAN             <Enabled>
    USB KB Wake-Up From S3     <Enabled>
    Resume by Alarm            <Disabled>
    Data (of Month) Alarm       0
    Time (hh:mm:ss) Alarm       0 : 0 : 0


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

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.

ACPI Function:

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

ACPI Suspend Type:

This option specifies what technology must be used for the state of hibernation. The choices are: S1 (POS) Power on Suspend; S3 (STR) Suspend to RAM; S1 & S3

Run VGABIOS if S3 Resume:

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:
- 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.
- Blank Screen: This option only writes blanks to the video buffer.
- 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:

MODEM Use IRQ:

This determines the IRQ in which the MODEM can use. The choices: 3, 4, 5, 7, 9, 10, 11 and NA.

Suspend Mode:

After the selecting period of system inactivity, all devices except the CPU shut off. The choices are 1~2 min, 2~3 min,….up to 1 hour.

Soft-Off by PWR-BTTN:

This function can turn the system off with the on/off button places the system in a very low-power-usage state, with only enough circuitry receiving power to detect power button activity or Resume by Ring activity. The choices are Delay 4 seconds and Instant-Off.

CPU THRM-Throttling:
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 make go out from the hibernation state. The choices: Enabled and 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 and Disabled.

Wake Up On LAN:

USB KB Wake-Up From S3:

Resume by Alarm:

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

PNP/PCI Configuration

This setup is used to configure Plug "n" Play IRQ 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.

```
              Phoenix - Award BIOS CMOS Setup Utility
                       PnP/PCI Configurations

                                                      Item Help
     Reset Configuration Dat   <Disabled>        Menu Level ▶
                                             Default is Disabled. Select
     Resources Controlled By   <Auto(ESCD)>   Enabled to reset Extended
   X IRQ Resources              Press Enter   System Configuration Data(ESCD)
                                             when you exit Setup if you
     PCI/VGA Palette Snoop     <Disabled>     have installed a new add-on
                                             and thesystem reconfiguration
                                             hascaused such a serious
                                             conflict that the OS cannot boot


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

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.

Reset Configuration Date:

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 as serious conflict that the operating system can not boot. The choices: Enabled and Disable.

Resources Controlled By:

The Award Plug and Play BIOS has the capacity to automatically configure all of the boots and Plus and Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as going into each of the submenus that follows this field. The choice are Auto (ESCD) and Manual.

IRQ Resources:

When user select manual for Resource Controlled, this setting allow the user to specify what IRQ will be assigned to PCI devices in the chosen slot. Optional available: Auto, 3, 4, 5, 7, 9, 10, 11, 12, 14 and 15.

PCI/VAG Palette Snoop:

PC Health Status

⇩ **Use the PC Health Setup option as follows:**

1. Choose "PC Health Setup" from the main menu, the following screen appears.

```
            Phoenix - Award BIOS CMOS Setup Utility
                       PC Health Status

    CPU Warning Temperature    <Disabled>
    Current System Temp.       43 / 109
    Current CPU Temp.          35 /  95          Item Help
    Current CPUFAN Speed       11250 RPM
    Current SYS_FAN1 Speed         0 RPM      Menu Level ▶
    Current SYS_FAN2 Speed         0 RPM
    VCORE                       1.47V
    VCCP                        1.04V
    +3.3V                       3.32V
    + 5V                        4.94V
    +12V                       12.09V
    VBAT(V)                     3.13V
    5VSB(V)                     4.94V
    Shutdown Temperature       <Disabled>



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

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

CPU Warning Temperature :

Choose 70 .158 ,50 /122 ,53 /127 ,56 /133 ,60 /140 ,63 /145 ,66 /151 or Disable the CPU Warring Temperature setting ,the board will generate a beep alarm.

User's manual

Current CPU Temp:

Displays the current Socket 370 temp.

Fan1,Fan2,Speed

Displays the running speeds of FAN1 and FAN2,respectively. If "0" appears, the fan is either defective , not connected ,or does not meet standard specification.

Voltage Indicators:

Displays voltage values detected by the Winbond W83627HF system monitor IC.

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

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 Fail-Safe default values. Press the <Y> key and then press <Enter> if you want to load the BIOS default.

```
            Phoenix - AwardBIOS CMOS Setup Utilities

  ┌──────────────────────────────────────────────────────────────────┐
  │     Standard CMOS Features            Load Fail-Safe Default        │
  │                                                                    │
  │     Advanced BIOS Features            Load Optimized Defaults       │
  │                                                                    │
  │     Advanced Chipset Features         Set Supervisor Password       │
  │                                                                    │
  │     Integrated Pheripherals           Set Password                  │
  │                                                                    │
  │     Power Management  ┌──────────────────────────────┐  Setup      │
  │                       │  Load Fail-Safe Defaults (Y/N)? Y │         │
  │     PnP/PCI Configura │                              │  Saving     │
  │                       └──────────────────────────────┘             │
  │     PC Health Status                                               │
  ├──────────────────────────────────────────────────────────────────┤
  │ Esc : Quit                        ↑↓→←     : Select Item           │
  │ F10 : Save & Exit Setup                                            │
  ├──────────────────────────────────────────────────────────────────┤
  │              Time, Date, Hard Disk Type...                          │
  └──────────────────────────────────────────────────────────────────┘
```
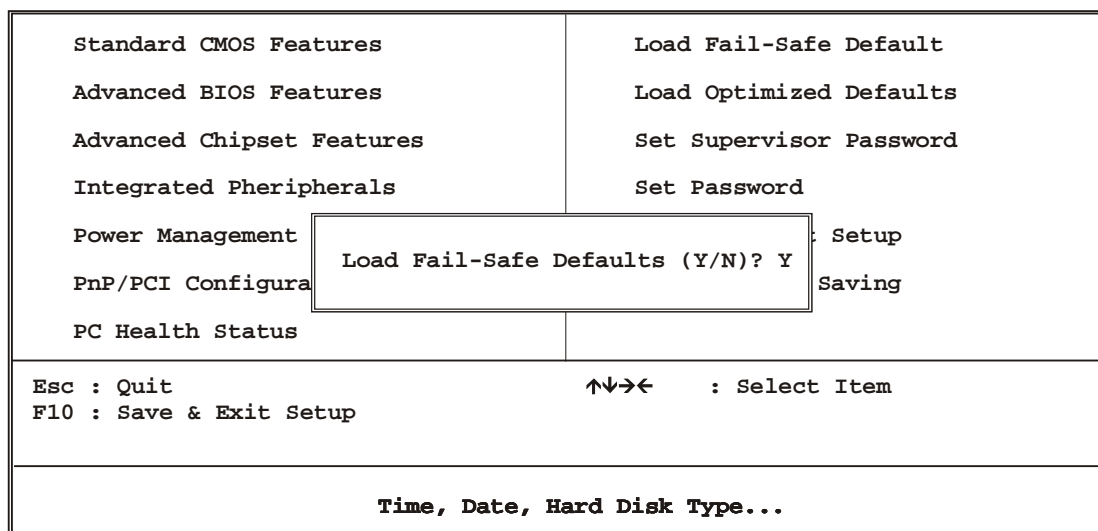
Load Optimized Defaults

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

AW-EM751

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.

```
              Phoenix - AwardBIOS CMOS Setup Utilities

  ┌─────────────────────────────────────────────────────────────────┐
  │    Standard CMOS Features          Load Fail-Safe Default         │
  │                                                                   │
  │    Advanced BIOS Features          Load Optimized Defaults        │
  │                                                                   │
  │    Advanced Chipset Features       Set Supervisor Password        │
  │                                                                   │
  │    Integrated Pheripherals         Set Password                   │
  │                              ┌──────────────────────────┐         │
  │    Power Management          │                          │ Setup   │
  │                              │ Load Optimized Defaults (Y/N)? Y    │
  │    PnP/PCI Configura         │                          │ Saving  │
  │                              └──────────────────────────┘         │
  │    PC Health Status                                               │
  ├─────────────────────────────────────────────────────────────────┤
  │  Esc : Quit                        ↑↓→←    : Select Item          │
  │  F10 : Save & Exit Setup                                          │
  │                                                                   │
  ├─────────────────────────────────────────────────────────────────┤
  │                 Time, Date, Hard Disk Type...                     │
  └─────────────────────────────────────────────────────────────────┘
```

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.

```
Phoenix - AwardBIOS CMOS Setup Utilities

  ┌──────────────────────────────────────────────────────────────┐
  │                                                                │
  │    Standard CMOS Features          Load Fail-Safe Default      │
  │                                                                │
  │    Advanced BIOS Features          Load Optimized Defaults     │
  │                                                                │
  │    Advanced Chipset Features       Set Supervisor Password     │
  │                                                                │
  │    Integrated Pheriperals          Set Password                │
  │                                                                │
  │    Power Management ┌──────────────────────────────┐ Setup     │
  │                     │  Set User Password (Y/N)? Y   │           │
  │    PnP/PCI Configura│                              │  Saving    │
  │                     └──────────────────────────────┘           │
  │    PC Health Status                                            │
  │────────────────────────────────────────────────────────────── │
  │  Esc : Quit                  ↑↓→←    : Select Item             │
  │  F10 : Save & Exit Setup                                       │
  │────────────────────────────────────────────────────────────── │
  │                                                                │
  │              Time, Date, Hard Disk Type...                     │
  │                                                                │
  └──────────────────────────────────────────────────────────────┘
```

Save & Exit Setup

```
Phoenix - AwardBIOS CMOS Setup Utilities

  ┌──────────────────────────────────────────────────────────────┐
  │                                                                │
  │    Standard CMOS Features          Load Fail-Safe Default      │
  │                                                                │
  │    Advanced BIOS Features          Load Optimized Defaults     │
  │                                                                │
  │    Advanced Chipset Features       Set Supervisor Password     │
  │                                                                │
  │    Integrated Pheriperals          Set Password                │
  │                                                                │
  │    Power Management ┌──────────────────────────────┐ Setup     │
  │                     │  Save & Exit Setup  (Y/N)? Y  │           │
  │    PnP/PCI Configura│                              │  Saving    │
  │                     └──────────────────────────────┘           │
  │    PC Health Status                                            │
  │────────────────────────────────────────────────────────────── │
  │  Esc : Quit                  ↑↓→←    : Select Item             │
  │  F10 : Save & Exit Setup                                       │
  │────────────────────────────────────────────────────────────── │
  │                                                                │
  │              Time, Date, Hard Disk Type...                     │
  │                                                                │
  └──────────────────────────────────────────────────────────────┘
```

## Exit Without Saving

Phoenix - AwardBIOS CMOS Setup Utilities

```
    Standard CMOS Features          Load Fail-Safe Default

    Advanced BIOS Features          Load Optimized Defaults

    Advanced Chipset Features       Set Supervisor Password

    Integrated Pheripherals         Set Password

    Power Management       ┌──────────────────────────┐  Setup
                           │  Exit Without Saving (Y/N)? Y  │
    PnP/PCI Configura      └──────────────────────────┘  Saving

    PC Health Status
```

```
Esc : Quit                          ↑↓→←    : Select Item
F10 : Save & Exit Setup
```

Time, Date, Hard Disk Type...

Chapter 4. Driver Utility

The system driver installation procedure must be performed first.

4.1 System Driver Installation
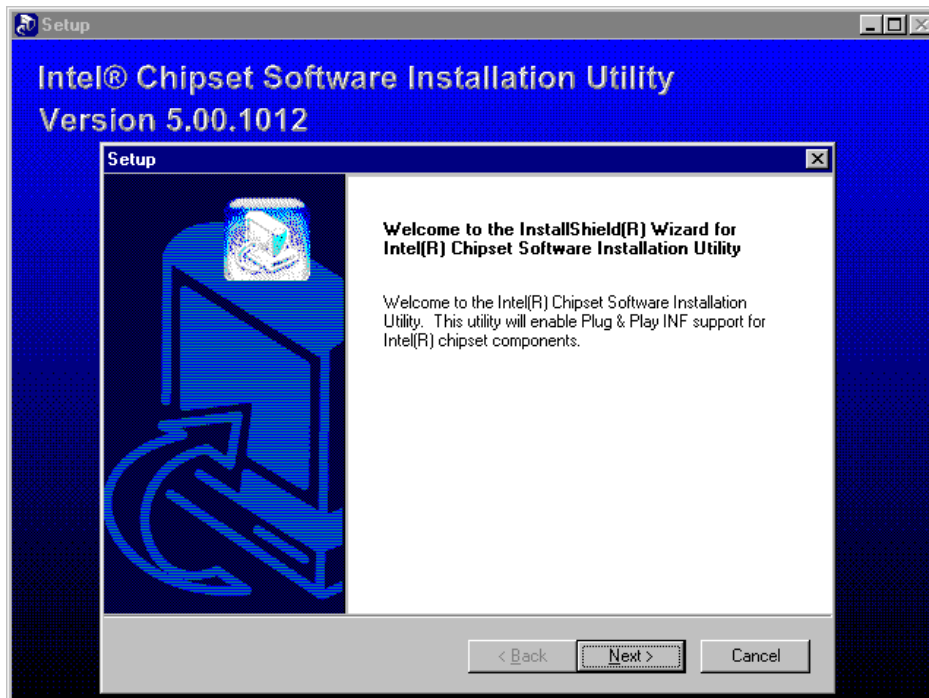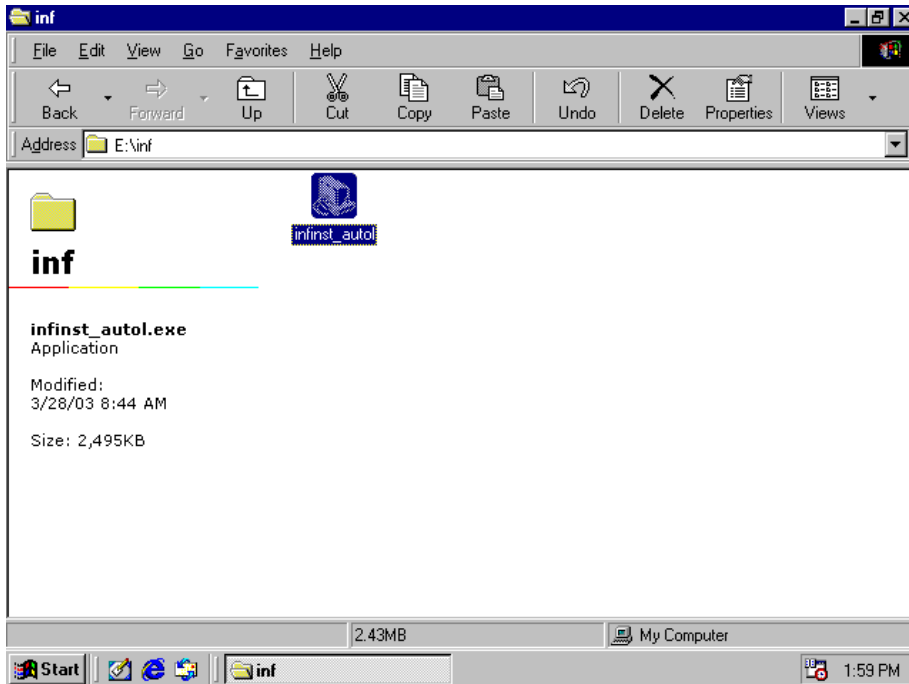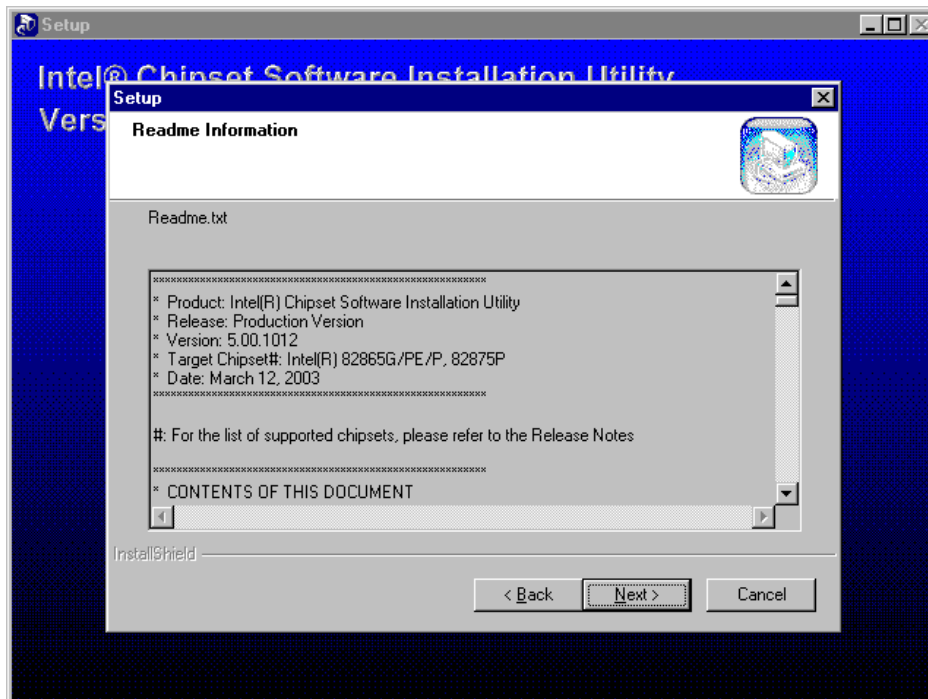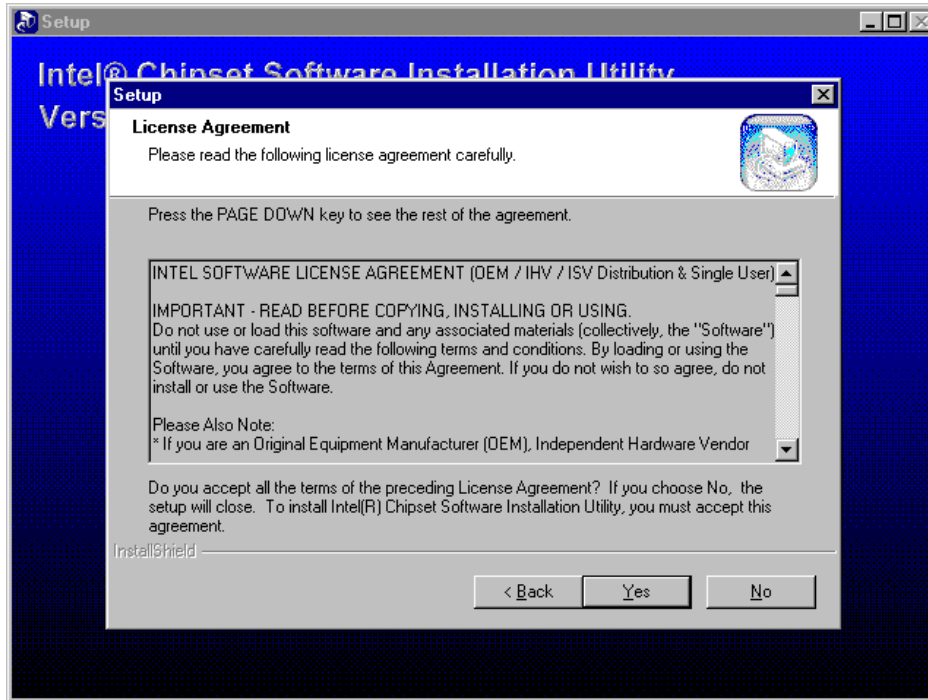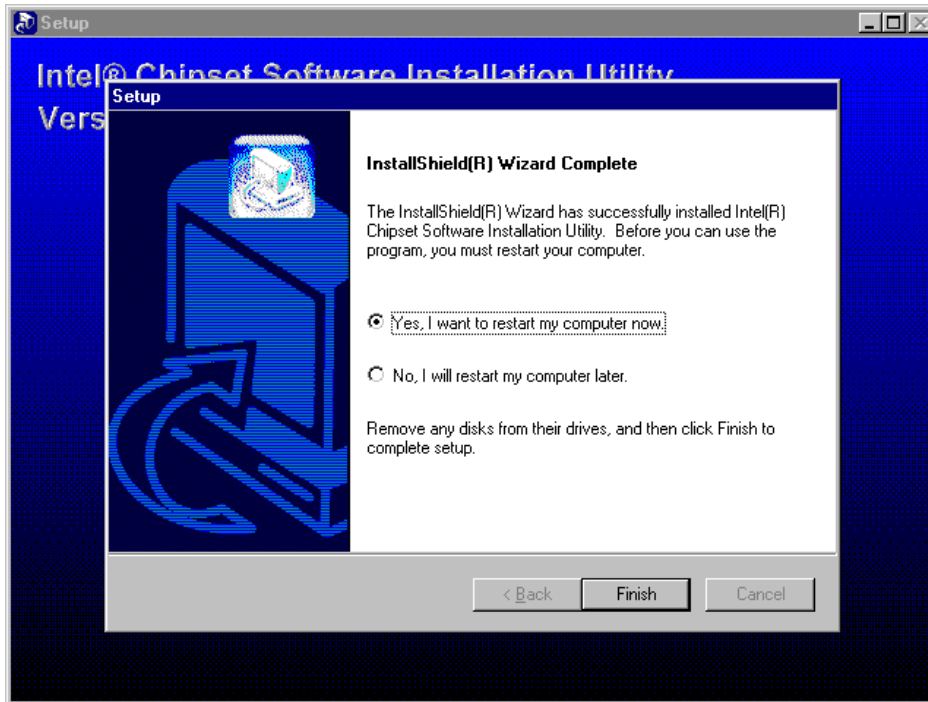
4.2 Install Video Driver:
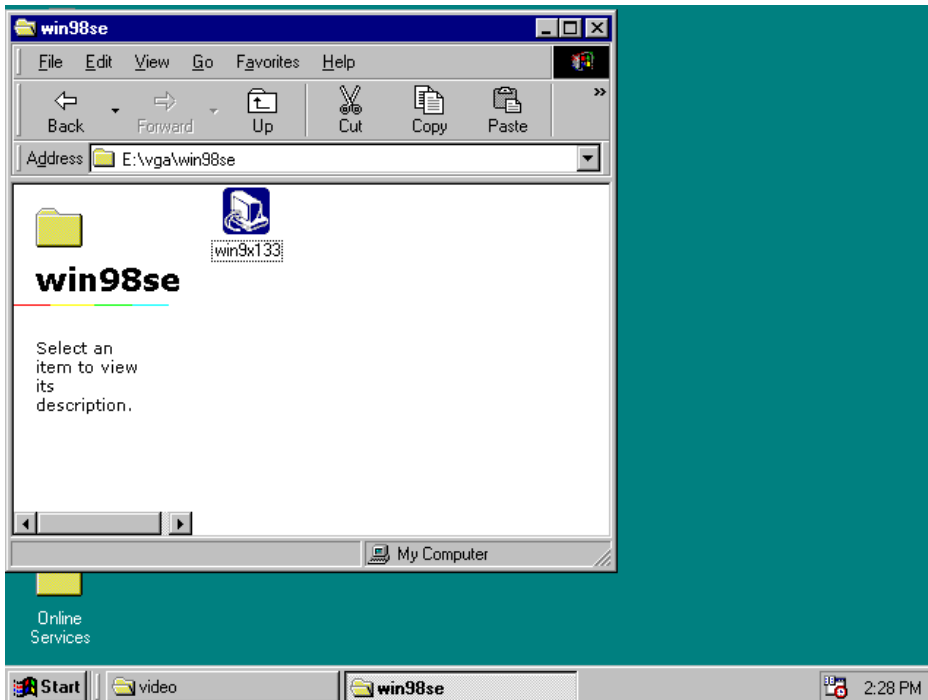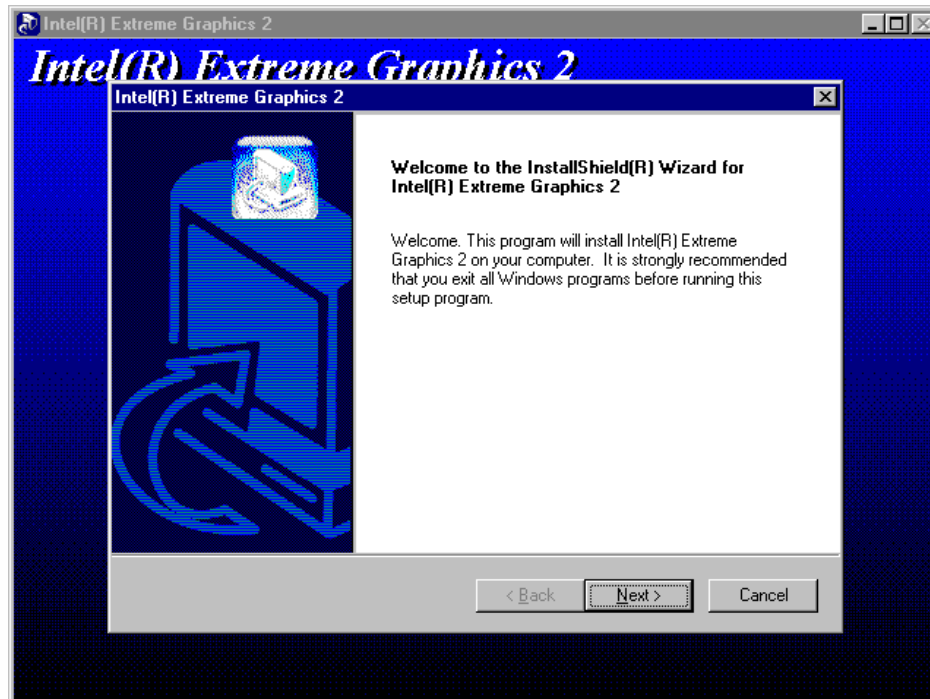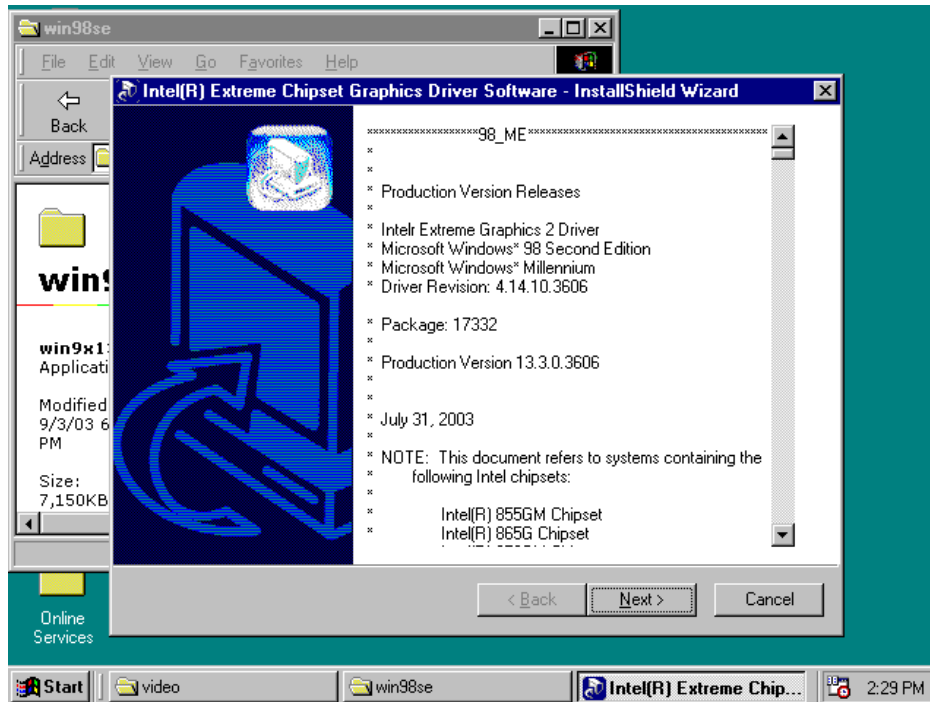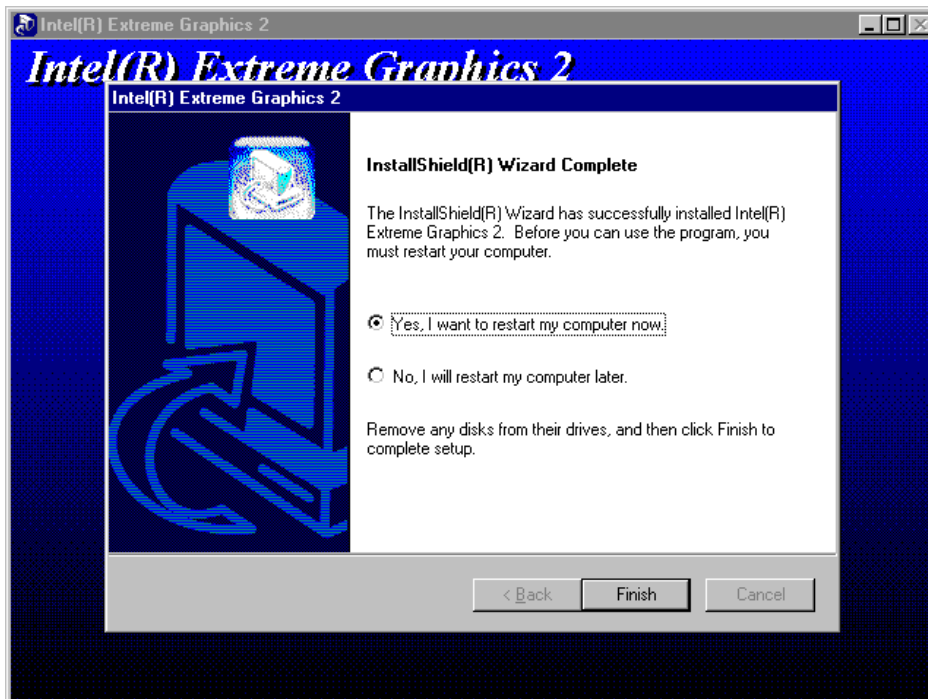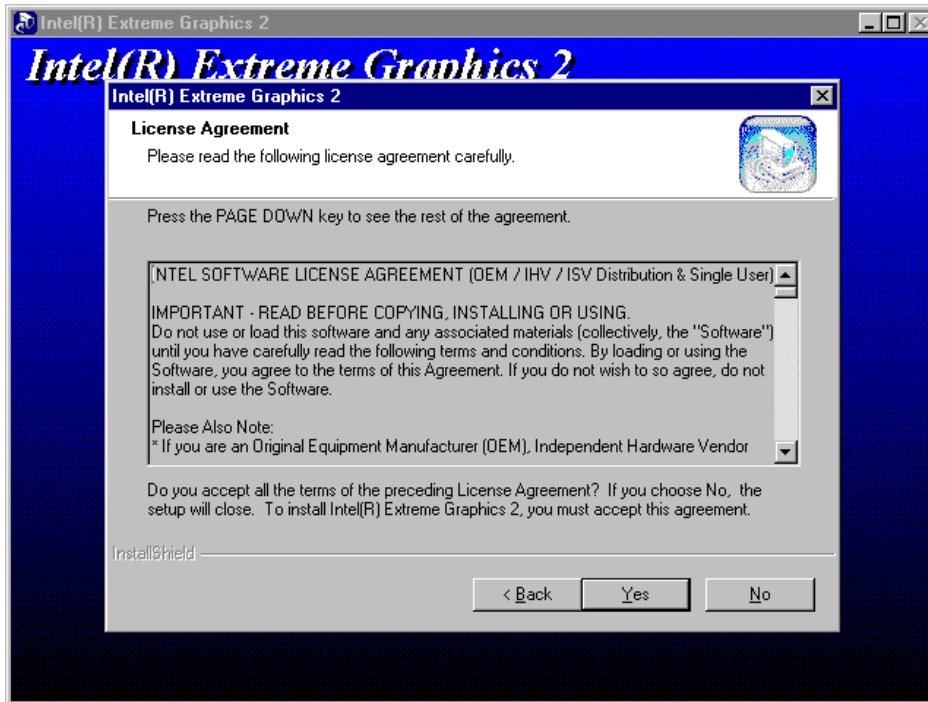
AW-EM751

4.3 Install LAN Drivers:

User's manual
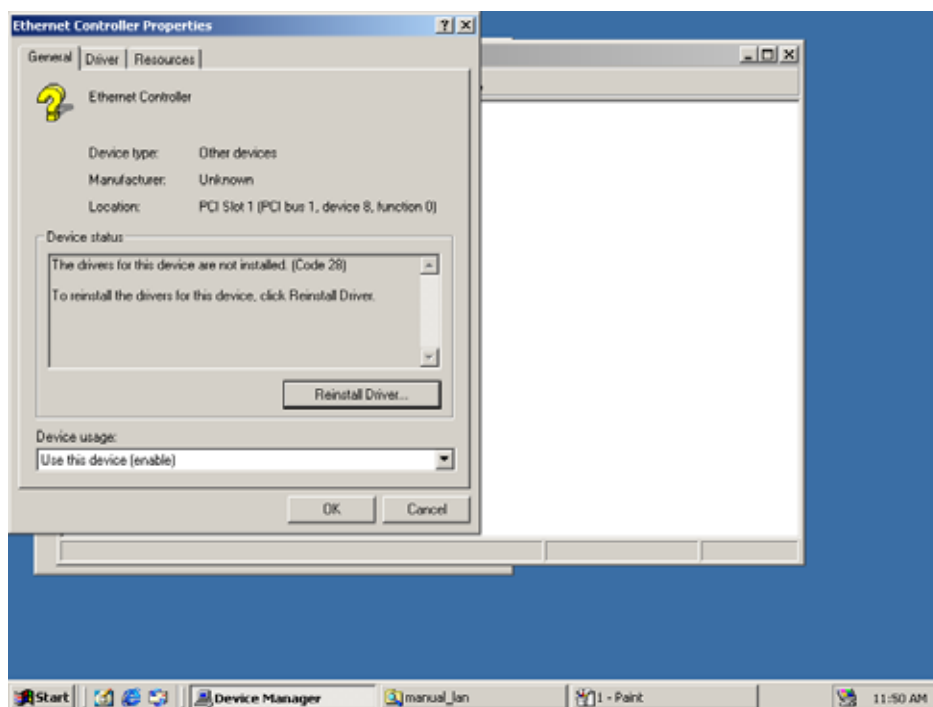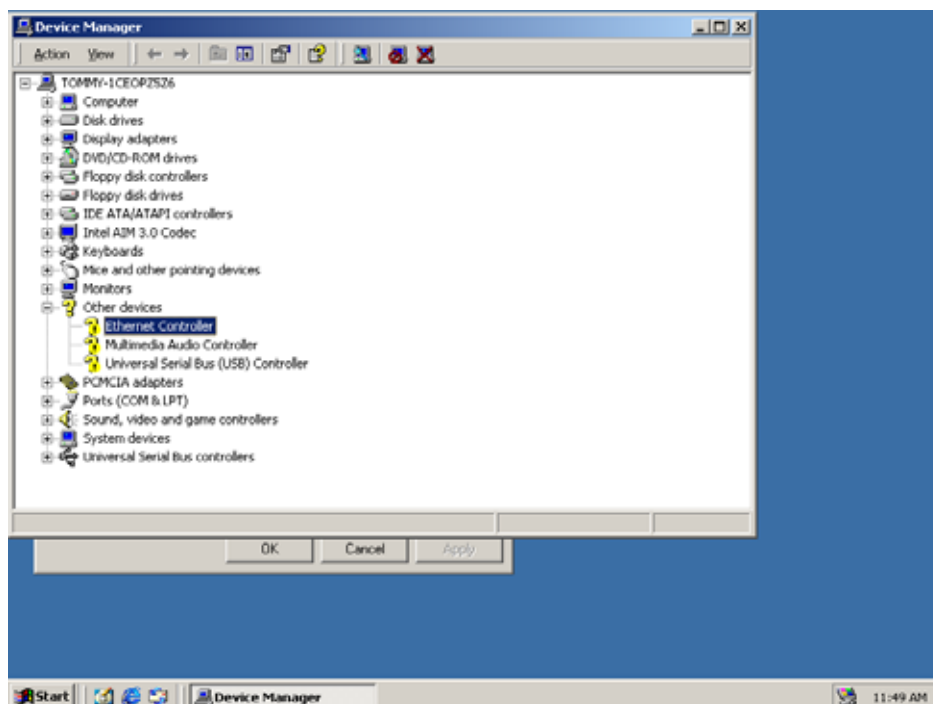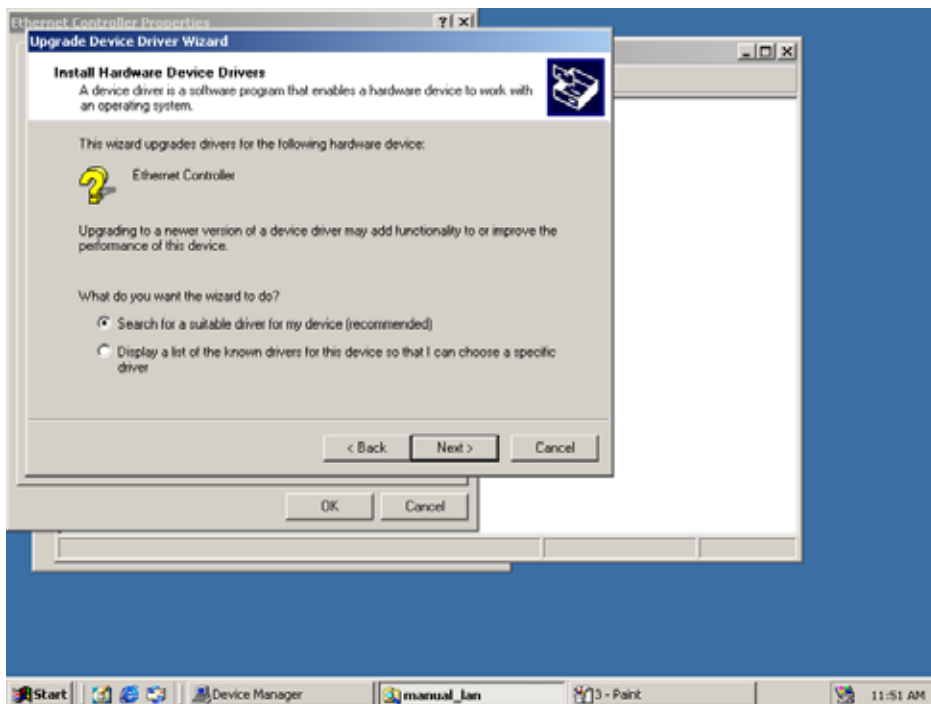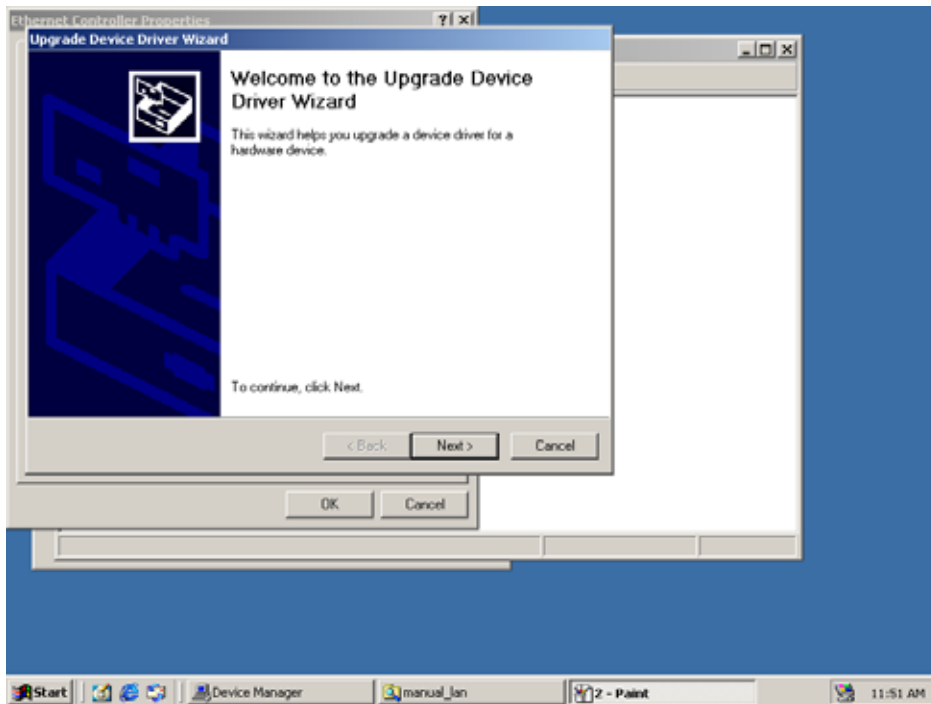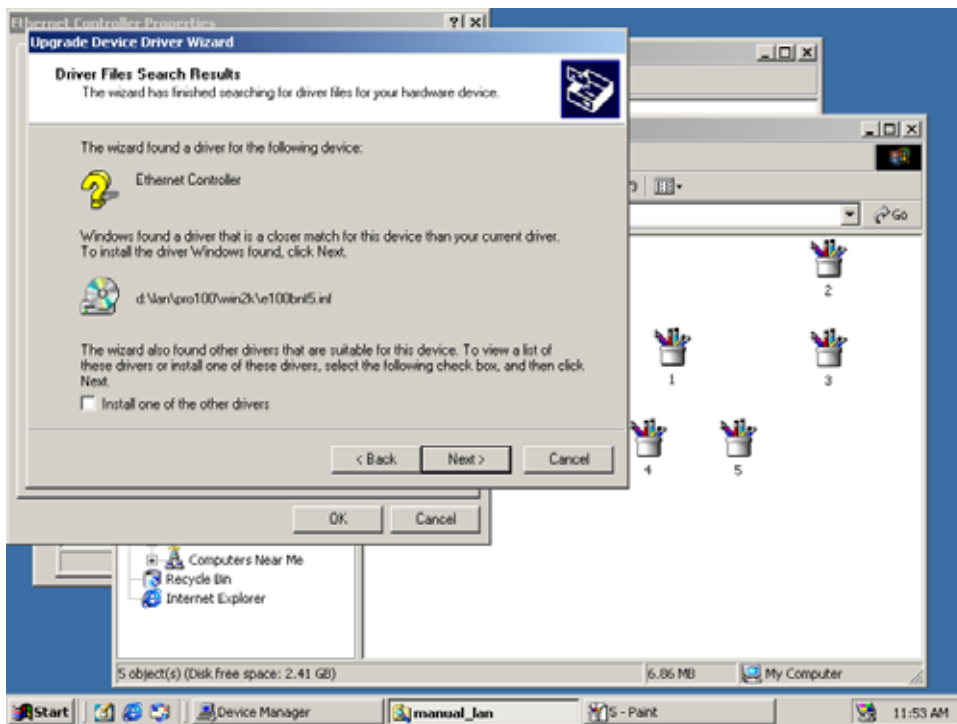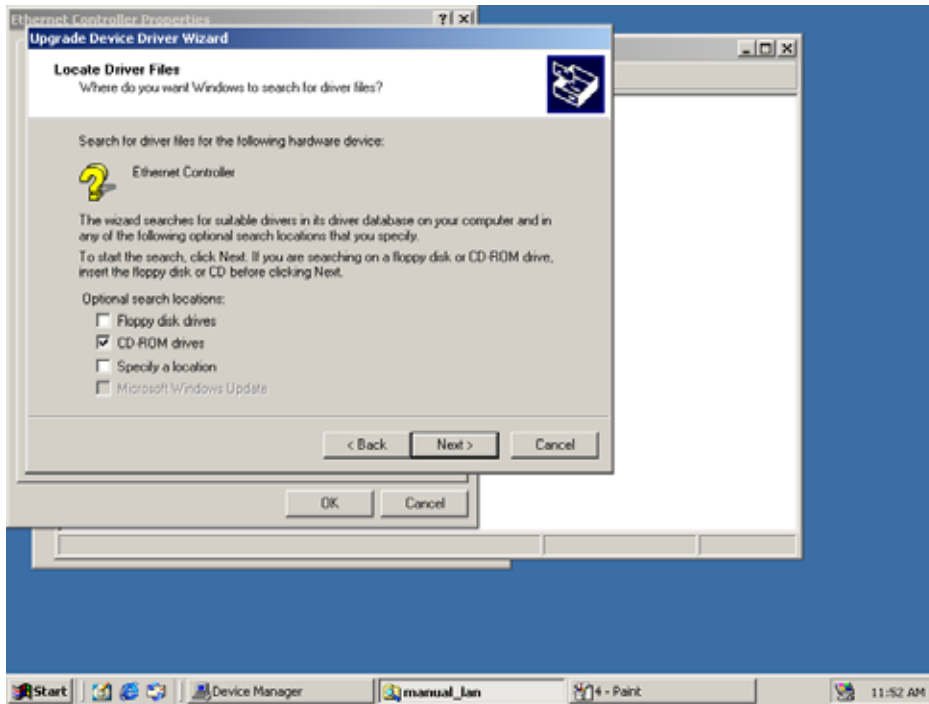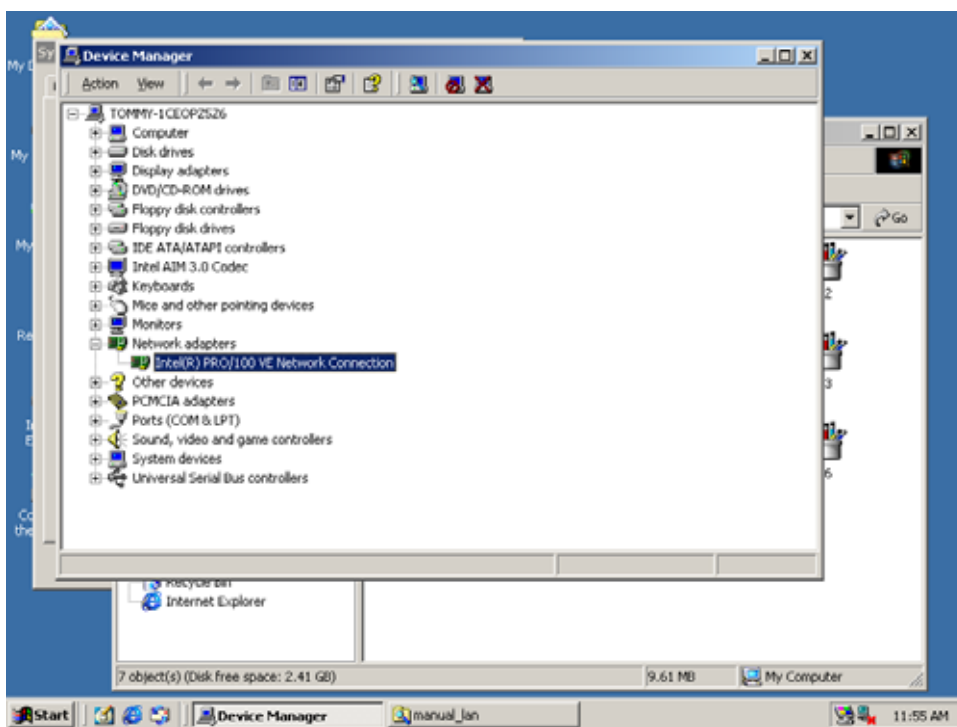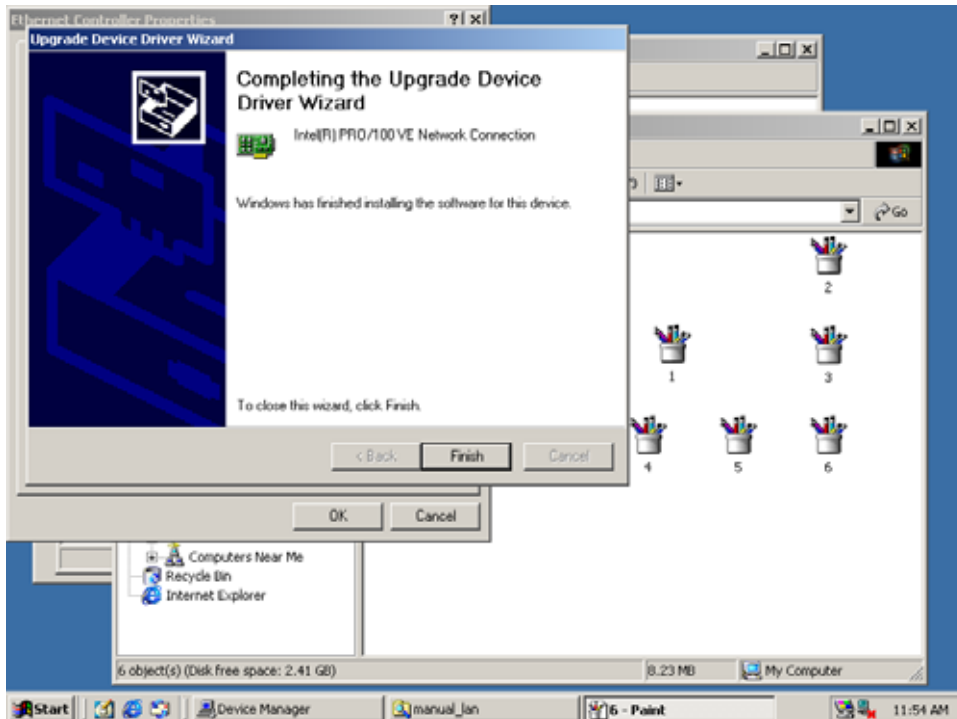
4.4 Install Audio Drivers:

User's manual

Installation process is completed and allowed the system to reboot.

4.5 Appendix A: System Resource

Interrupt Controller

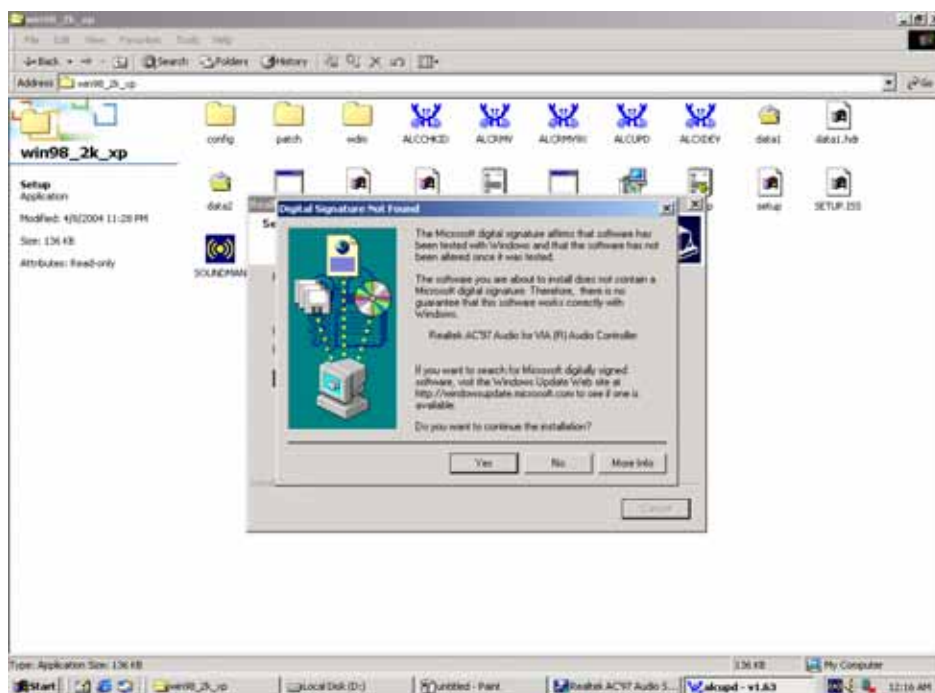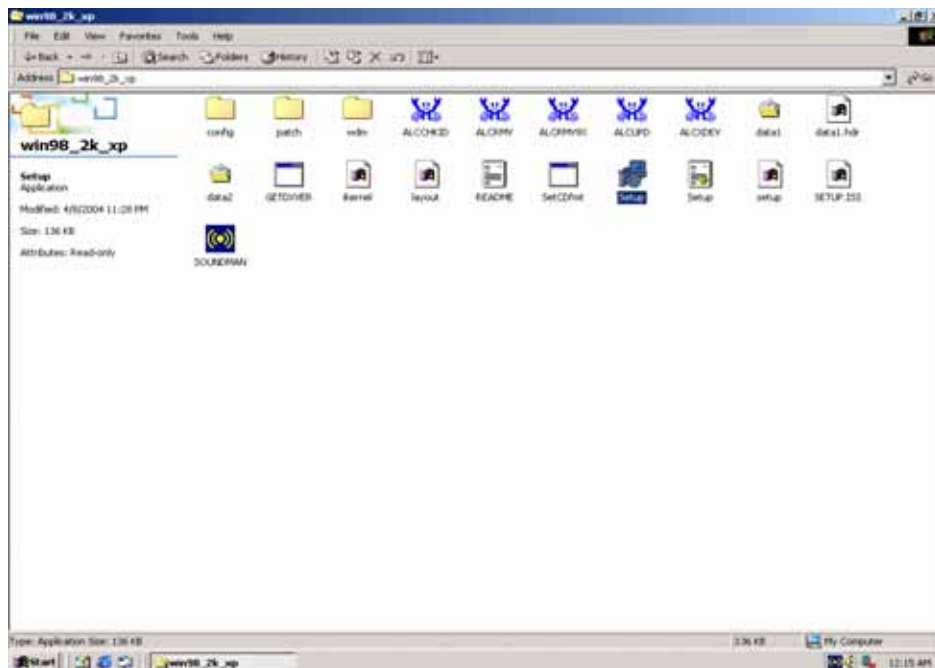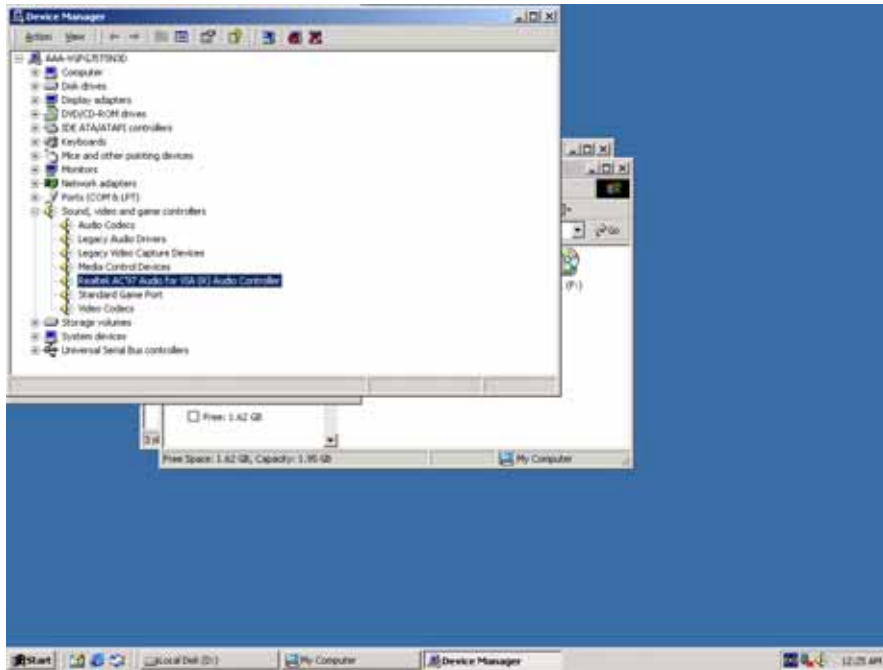The AW-EM751 is a fully PC compatible control board, it consists of 16 ISA interrupt request lines and most of them already in used by other part of the board. Please make sure that the IRQs do not conflict if you would like to use extra add-on cards.

System IRQs are available to cards installed in the ISA expansion Bus first.   Any remaining IRQs then may be assigned to this PCI Bus.   You are able to use the Microsoft's Diagnostic(MSD.EXE) utility include in Windows director to see their map.

IRQ	Assignment
IRQ0	System Timer Output
IRQ1	Keyboard
IRQ2	Cascade
IRQ3	Serial Port 2
IRQ4	Serial Port 1
IRQ5	USB Controller
IRQ6	Floppy Disk Controller
IRQ7	Parallel Port 1
IRQ8	Real Time Clock
IRQ9	Free
IRQ10	Free
IRQ11	USB Controller
IRQ12	VGA Adapter
IRQ13	Math Coprocessor
IRQ14	Primary IDE Controller
IRQ15	Secondary IDE Controller

DMA Channel Assignment

Channel 4 is by default used to cascade the two controllers

Channel	Assignment
DMA0	ISA Free
DMA1	ISA Free
DMA2	Floppy Disk Controller
DMA3	ECP Printer Port
DMA4	Cascade
DMA5	Free
DMA6	Free
DMA7	Free

Memory Map

The following table indicates memory of AW-EM751. The address ranges specify the runtime code length.

Memory below 1MB (1Mb ~ 640KB)

Address Range	Type	Owner
A0000~AFFFF	ISA	VGA Adapter
B0000~BFFFF	ISA	VGA Adapter
C0000~CD1FF	PCI	Adapter ROM
F0000~FFFFF	ISA	System BIOS

Memory above 1MB (1MB ~ 189408KB)

Address Range	Type	Owner
D0000000~D7FFFFF7	PCI	VGA Adapter
D8000000~DFFFFFF7	PCI	Display Adapter
E0000000~E00FFFFF	PCI	PCI-PCI Bridge
E0100000~E017FFFF	PCI	Display Adapter
E0180000~E01FFFFF	PCI	VGA Adapter

System Memory Map

Start High	Start Low	Size High	Size Low	Type
00000000	00000000	00000000	000A0000	Available
00000000	000F0000	00000000	00010000	Reserved
00000000	FEC00000	00000000	00140000	Reserved
00000000	00100000	00000000	1DEF0000	Available
00000000	1DFF3000	00000000	0000D000	ACPI Space
00000000	1DFF0000	00000000	00003000	NVS Space

I/O Map

The addresses shown in the table are typical locations.

I/O Port	Assignment
0 ~ F	AT DMA Controller
20 ~ 21	AT Interrupt Controller
40 ~ 43	82C54 Compatible Programmable Timer
60	8042 Compatible keyboard Controller
61	AT Style Speaker
64	8042 Compatible keyboard Controller

70 ~ 71	Real Time Clock
81 ~ 83	AT DMA Controller
87	AT DMA Controller
89 ~ 8B	AT DMA Controller
8F ~ 91	AT DMA Controller
A0 ~ A1	AT Interrupt Controller
C0 ~ DF	AT DMA Controller
F0 ~ FF	Math Coprocessor
170 ~ 177	IDE Controller
1F0 ~ 1F7	IDE Controller
200 ~ 207	Game Port
294 ~ 297	PCI Bus
2E8 ~ 2EF	COM4
2F8 ~ 2FF	Communication Port (COM2)
376	IDE Controller
378 ~ 37A	LPT1
3BB ~ 3B0	VGA Adapter
3C0 ~ 3DF	VGA Adapter
3E0 ~ 3E1	PCMCIA Bridge
3E8 ~ 3EF	COM3
3F0 ~ 3F5	FDD Controller
3F6	IDE Controller
3F7	FDD Controller
3F8 ~ 3FF	Communication Port (COM1)
4D0 ~ 4D1	PCI Bus
778 ~ 77F	Parallel
CF8 ~ CFF	PCI Bus
9000 ~ BFFF	PCI-PCI Bridge
C000~C01E	USB Controller
C400~D41E	USB Controller
C800~C81E	USB Controller
CC00~CC06	VGA Adapter
F000~F00E	IDE Controller

4.6 Appendix B: Cables List

Cables List

Part Number	Cable Description	AW-EM751 Connector	Terminating Connector
46-IVGA01-00	CRT VGA Cable	CN4	2mm 15-pin Female D-Sub, 20cm
46-IUSB01-00	USB Port Cable	CN11/CN3	Two-channels USB Cable(pin1 block),25cm
46-IATA66-00	IDE Cable	CN16	IDE Cable
46-IPW422-00	IDE Power Cable	CN12	IDE Power Cable
46-IFDC02-00	FDC Cable	CN18	Floppy Cable
46-ILPT01-00	Printer Cable	CN20	2mm, 25-pin Female D-Sub, 26cm
46-IIO001-00	COM Ports Cable	CN22	2m, 9-pin Male D-Sub x 4, 26cm
46-IPS200-00	Keyboard & PS/2 Mouse	CN16	5-pin mini-circular & 6-pin circular DIN, 5cm

4.7 Appendix C : Optional Peripherals

Optional Peripherals

Part Number	Description	AW-EM751 Connector	Terminating Connector
AW-R013	LAN Kit	CN23	LAN Kit w/46-I11IDE-00 Cable

AW-EM751

User's manual

AW-R014	Audio Kit	CN17	Audio Kit w/46-I10IDE-00 Cable
AW-R015	DVI Kit	CN3	DVI Kit w/46-DVI000-00 Cable
AW-R016	TV-Out Kit	CN2	TV-Out Kit w/46-TV0002-00 Cable