AMB-551

15" Panel PC with 5-Slot

Industrial Chassis

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Packing List

Before installing your Panel PC, please check if the package contains the following items.

- AMB-551HT(T) series Panel PC
- CD-ROM

    Contains User's Manual, Drivers and Utilities

- Accessories

    - Keyboard/ Mouse cable
    - Screws bag
    - Mounting brackets
    - Power cord
    - Water-proof sponge

    With the touchscreen option

    - External RS-232 cable

If any of these items are missing or damaged, you should contact your distributor or sales representative immediately.

Safety & Warranty

1. Read these safety instructions carefully.

2. Keep this user's manual for later reference.

3. Disconnect this equipment from any AC outlet before cleaning. Do not use liquid or spray detergents for cleaning. Use a damp cloth.

4. For pluggable equipment, the power outlet must be installed near the equipment and must be easily accessible.

5. Keep this equipment away from humidity.

6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall could cause damage.

7. The openings on the enclosure are for air convection. Protect the equipment from overheating. DO NOT COVER THE OPENINGS.

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

9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.

10. All cautions and warnings on the equipment should be noted.

11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient over-voltage.

12. Never pour any liquid into an opening. This could cause fire or electrical shock.

13. Never open the equipment. For safety reasons, only qualified service personnel should open the equipment.

14. If any of the following situations arises, get the equipment checked by service personnel:

     a.   The power cord or plug is damaged.

     b.   Liquid has penetrated into the equipment.

     c.   The equipment has been exposed to moisture.

     d.   The equipment does not work well, or you cannot get it to work according to the users manual.

     e.   The equipment has been dropped and damaged.

     f.   The equipment has obvious signs of breakage.

15. DO NOT LEAVE THIS EQUIPMENT IN AN UNCONTROLLED ENVIRONMENT WHERE THE STORAGE TEMPERATURE IS BELOW -20° C (-4°F) OR ABOVE 60° C (140° F). IT MAY DAMAGE THE EQUIPMENT.

FCC Safety

Warning!

This device complies with Part 15 FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received including interference that may cause undesired operation.

Contents

Chapter

1

General Information

Introductions

The AMB-551 Panel PCs is a PC-based industrial computer designed to serve as Human Machine Interface. It is a bare-bone PC-based system, which can be configured with different levels of full size CPU card with a 15" XGA (1024 x 768) color TFT LCD display. The AMB-551 series comes with a dedicated PCI-bus video display card (MBC-2690/2693) and uses LVDS technology. A heavy-duty steel chassis and IP65 aluminum alloy front panel is designed for any harsh environment of industrial standards. The rear side of AMB-551 series enables to open for easy maintenance and disk drive housing for CD-ROM, FDD, and HDD.

Features:

- 15" XGA color TFT LCD display
- Heavy-duty steel chassis and aluminum alloy front panel
- Water-proof front panel has certified IP65
- 5 slots ISA/PCI-bus passive backplane
- Disk drive bay for CD-ROM, FDD and HDD
- Hold-down clamp to protect add-on cards from vibration
- Cooling fan filter is easy to replace
- 30 CFM cooling fan

Features of SBC-676 (All-in-one Socket 370 full-size CPU card)

- Supports Intel Celeron up to 800 MHz and Pentium III coppermine CPUs up to 1.0GHz
- Supports DiskOnChip (SSD) up to 288MB
- ATI Rage Mobility Flat Panel Interface
- Supports H/W status monitoring
- One Ethernet Intel 82559ER 10/100Base-T Fast Ethernet
- Supports AT/ATX power connector

Features of MBC-2690/2693 PCI VGA Card

- C&T 69000/69030 flat-panel/CRT controller
- 36-bit universal and LVDS panel interface
- 2MB/4MB SD-RAM on chip

Specifications:

- **Construction:** Heavy-duty steel chassis & IP-65 certified aluminum alloy front panel.

- **Display:** 15" XGA (1024 x 768) color TFT LCD

- **CPU:** Supports Socket 370 based Intel Pentium III coppermine processor up to 1.0 GHz / Celeron processor up to 800MHz (FSB 66/100MHz)

- **Chipset**: ATI RAGE Mobility-M1 AGP-2X

- **Memory:** supports up to 768MB (SDRAM DIMM x 3)

- **Network (LAN):** 10/100Base-T Ethernet

- **Disk Drive Housing:** 3.5" HDD space, 3.5" FDD space and 5.25" CD-ROM space

- **Front panel color:** PMS-403C (military green)

- **Mounting**: Stand alone and Panel mount

- **Power supply**: Universal 250W switching power supply

- **Dimension (W x H x D)**: 440 x 320 x 225mm (17.3" x 12.5" x 8.8")

- **Gross Weight:** 19Kg (41.9 lbs)

Note: Above specification is for integration with SBC-676 CPU card.

LCD Specifications

Display type	15" color TFT LCD
Max. Resolution	1024 x 768
Max. Colors	256K
Dot size (mm)	0.313 x 0.329
Luminance (cd/m²)	250 cd/m²
Viewing angle	160°(H)
	160°(V)
Operating temperature	0°~ 50 (32~122)
LCD MTBF (Hrs)	50,000
Back Light MTBF (Hrs)	50,000

Flat Panel Display Control Card (MBC-2690/2693 +LVDS)

- **Type**: Half-size PCI-bus

- **Video Chip**: C&T 69000 (MBC-2690) or 69030 (MBC-2693)

- **DRAM**: On-board 2MB (MBC-2690) or 4MB (MBC-2693)

- **Connectors**: Built in 18/24/36-bit panel connector.

- **Max. Resolution and color**:

  ◆ **MBC-2690** (C&T 69000): 1280 x 1024 @ 16 colors

  ◆ **MBC-2693** (C&T 69030): 1600 x 1200 @ 16bits color

Environmental Specification

- **Operating temperature**: 0° to 45   (32~122   )

- **Operating humidity**: 5 to 90%, non-condensing

- **Storage temperature**: -20° to 60   (-4~140   )

- **Storage humidity**: 5 to 95%, non-condensing

- **Vibration**:

     10 to 150 Hz, 0.75mm peak to peak (operation)

- **Shock**: 15G peak acceleration (11 msec. duration)

- **EMC**: CE/FCC Class A

Touchscreen (optional)

Type: 8-wire, analog resistive

Resolution: 1024 x 1024

Light transmission > 75%

Lifetime: 1 million activations

Operating pressure: 50g average for finger, 25g average with non-metal stylus

Controller: RS-232 interface

OS support: MS DOS, Windows 98, Windows NT, Windows 2000

Dimensions

17.00   406.00   17.00

Unit : mm

224.30

440.00

320.00

232.80   22.90

274.20

8.00

22.90

AMB-551
Cutout Size: 409 X 277 mm
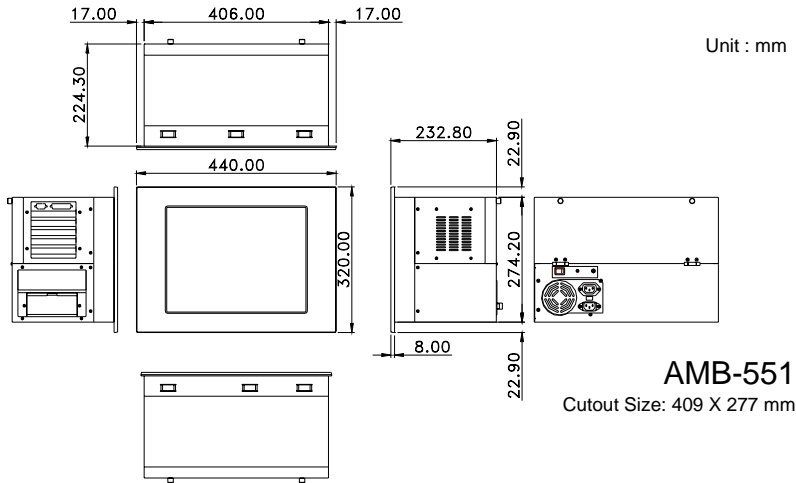
Panel Mounting

These display panels can be placed on a shelf or table, or mounted onto the wall. To mount them onto the wall, you need the mounting brackets, which you will find in the accessory box. Follow the steps described below:

1. Slide the display panel onto the wall
2. Tighten the brackets until the display panel is firmly secured to the wall
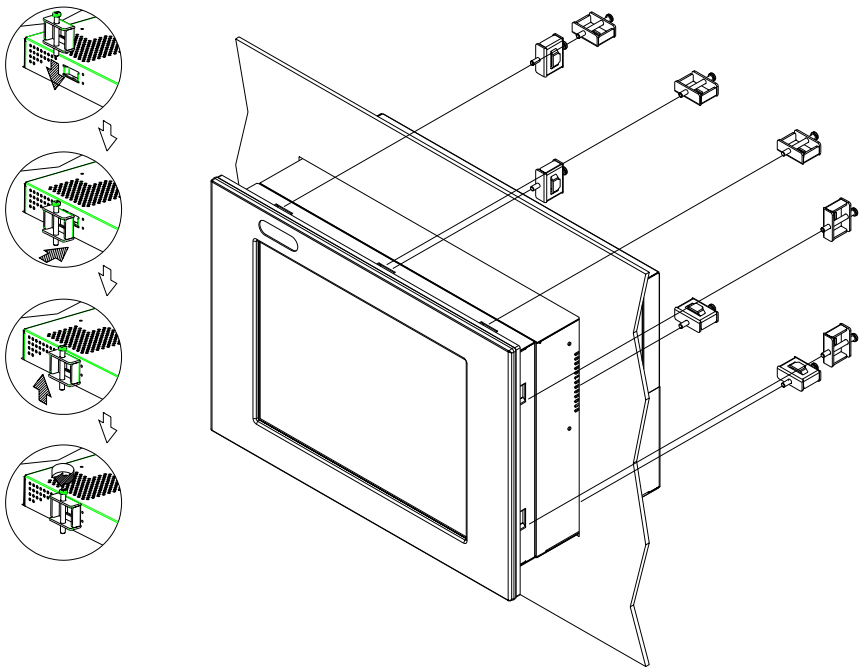
Chapter

2

Hardware Installation

The panel PC is a PC-based industrial computer that is housed in aluminum alloy front panel and steel chassis. Any maintenance or hardware upgrades can be easily completed after removing the rear cover case.

Installing 3.5" HDD, FDD and CD-ROM

1. Unscrew the bottom cover.
2. Take the disk drive module out by unscrewing two screws. See below diagram.
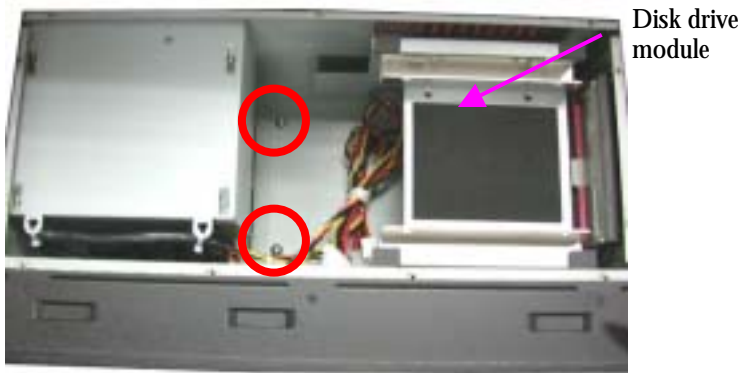
Disk drive module

3. Take off the CD-ROM cover.

CD-ROM cover

4.   Tighten the FDD on the metal plate by four screws.

5.   Slide the CD-ROM and tighten it. These are four screws separately on each side of metal plate.
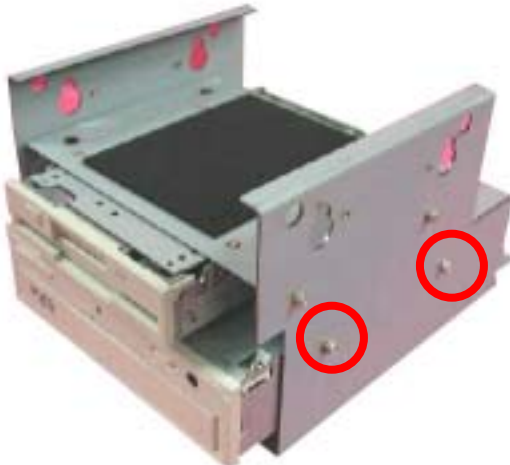
6.　Screw 3.5" HDD in bracket.

7.　Screw the disk drive module to steel chassis and connect the HDD, FDD and CD-ROM cable.

Chapter

3

Jumper Settings

The AMB-551 provides two options.
1. Built in SBC-676 CPU card
2. Configure your own system by using AAEON's MBC-2690/2693 PCI-bus
   video card.
In this chapter, we will introduce jumper setting of SBC-676 and
MBC-2690/2693

Safety precautions

Warning!   *Always completely disconnect the power cord*

from your chassis whenever you are working on it.

Do not make connections while the power is on

because sensitive electronic components can be

damaged by the sudden rush of power. Only

experienced electronics personnel should open

the PC chassis.

Caution!   *Always ground yourself to remove any static*

charge before touching the CPU card. Modern

electronic devices are very sensitive to static

electric charges. Use a grounding wrist strap at

all times. Place all electronic components on a

static-dissipative surface or in a static-shielded

bag when they are not in the chassis.

CPU Card - SBC-676 Jumper Setting

SBC-676 Board Layout
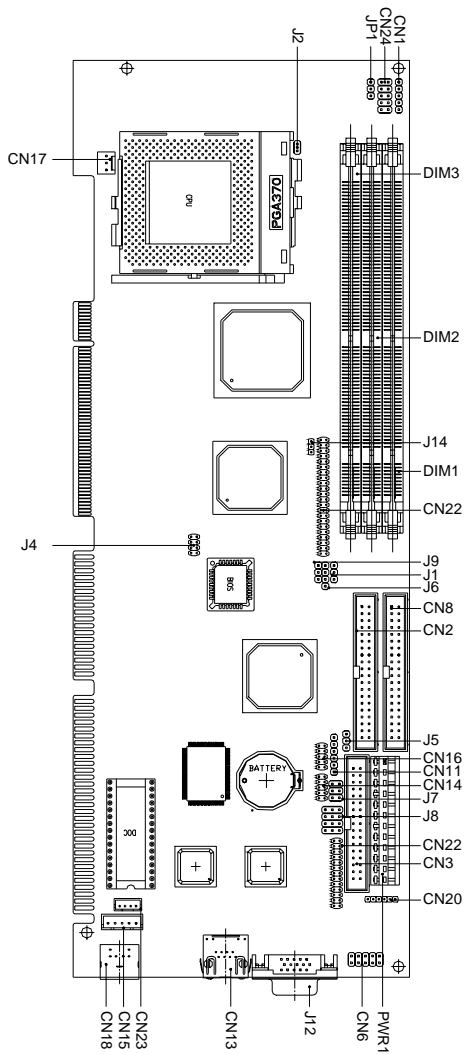
SBC-676 Board Dimensions
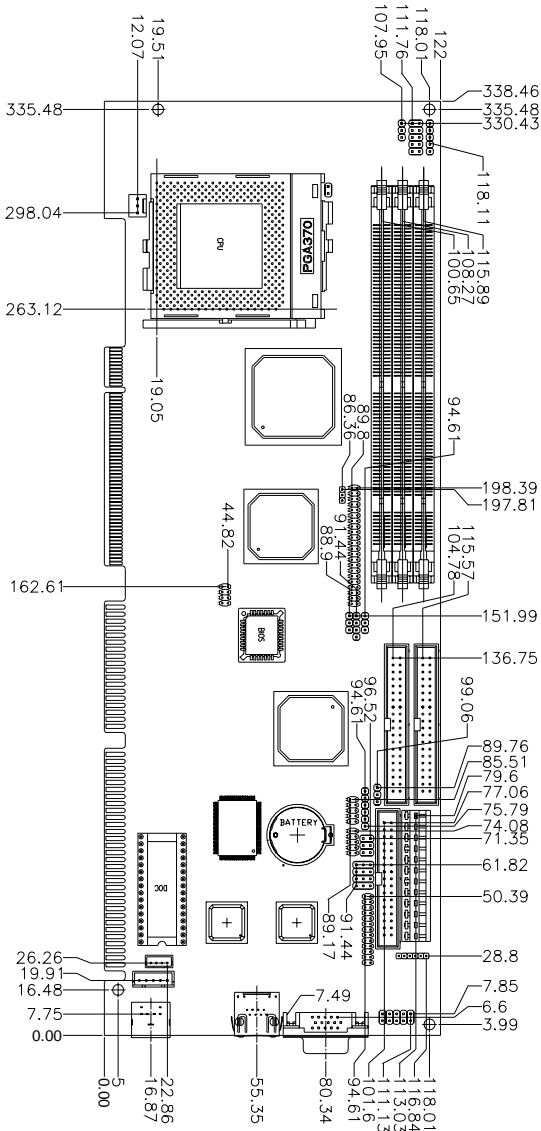
List of Jumpers

The board has a number of jumpers that allow you to configure your system to suit your application.

The following tables show the function of each of the board's jumpers.

Jumpers

Label	Function
J1	LVDS Voltage Setting
J4	CPU Core Frequency
J5	CMOS Setting
J7	COM2 Setting
J8	COM2 Setting
J9	DOC 2000 Address Setting
JP1	Buzzer Setting

Setting Jumpers

You configure your card to match the needs of your application by setting jumpers. A jumper is the simplest kind of electric switch. It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To "close" a jumper you connect the pins with the clip.

To "open" a jumper you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2 and 3. In this case you would connect either pins 1 and 2 or 2 and 3.
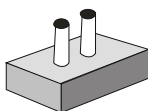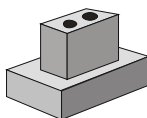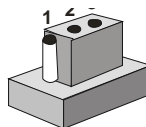
Open   **Closed**   **Closed 2-3**

A pair of needle-nose pliers may be helpful when working with jumpers.

If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any changes.

Generally, you simply need a standard cable to make most connections.

CPU frequency ratio select (J4)

CPU core frequency = CPU frequency ratio (4.5~7) * External bus clock (66 or 100 MHz)

J4	Function
5-6	4.5x
3-4	5x
3-4, 5-6	5.5x
1-2, 7-8	6x
1-2, 5-6, 7-8	6.5x
1-2, 3-4, 7-8	7x

Clear CMOS (J5)

You can use J5 to clear the CMOS data if necessary. To reset the CMOS data, set J5 to 2-3 closed for just a few seconds, and then move the jumper back to 1-2 closed.

J5	Function
1-2	Protect*
2-3	Clear CMOS

*Default

COM2 RS-232/422/485 select (J7, J8)

The SBC-676 COM2 serial port can be selected as RS-232,

RS-422, or RS-485 by setting J7 & J8.

J8	J7	Function
1-2, 4-5, 7-8, 10-11	1-2	RS-232*
2-3, 5-6, 8-9, 11-12	3-4	RS-422
2-3, 5-6, 8-9, 11-12	5-6	RS-485

*Default

DOC address select (J9)

The DiskOnChip 2000 occupies an 8 Kbyte window in the upper

memory address range of D400 to E000. You should ensure this

does not conflict with any other device's memory address. J9 controls

the memory address of the Flash disk.

J9	Function
1-2, 3-4	Disable
3-4	DC00H
-	D400
1-2	D800*

*Default

These addresses might conflict with the ROM BIOS of other

peripheral boards. Please select the appropriate memory address to

avoid memory conflicts.

Buzzer Setting (JP1)

JP1	Function
1-2	Internal Buzzer
2-3	External Buzzer

PCI VGA Card – MBC-2690/2693 Jumper Setting

MBC-2690 Board Layout
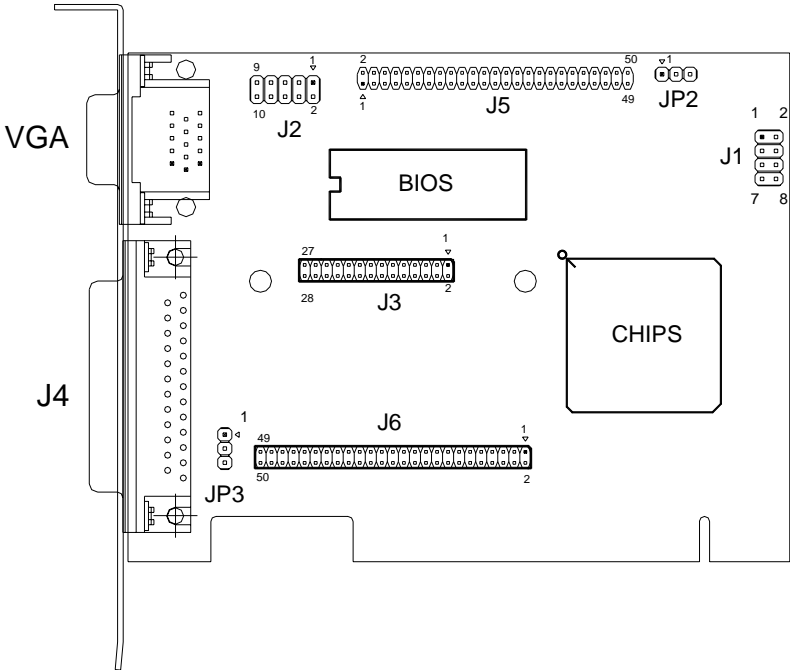
MBC-2690 Board Dimensions
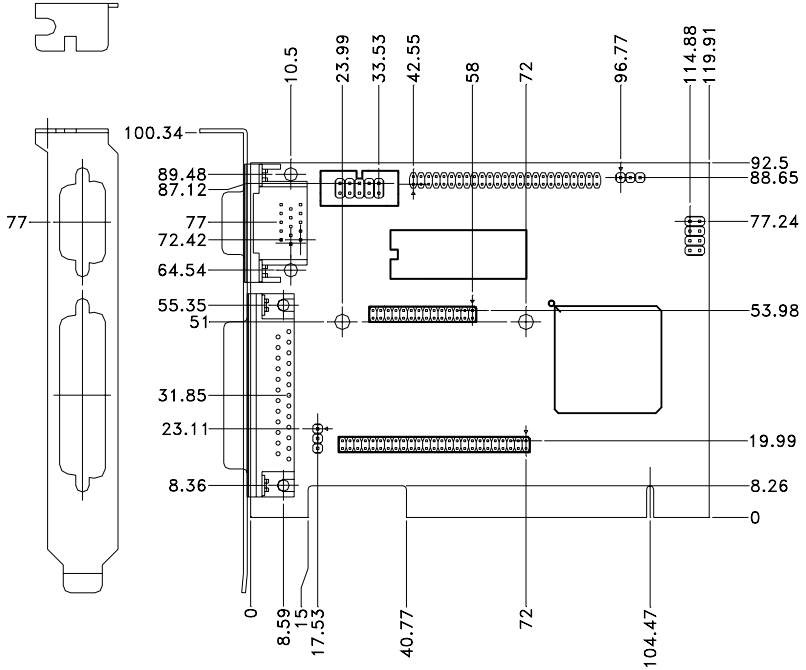
Jumper Settings

Jumpers allow users to manually customize system configurations to their suitable application needs.

J1: Panel Type Select

J1: C&T 69000 / 69030 Support Panel		
Type	**Support Panel**	**Short**
1	1024 x 768 TFT Color	1-2,3-4,5-6,7-8
2	1280 x 1024 TFT Color	1-2,3-4,5-6
3	648 x 480 DSTN Color	1-2,3-4,7-8
4	800 x 600 DSTN Color	1-2,3-4
5	800 x 600 TFT Color	1-2,5-6,7-8
6	640 x 480 18 bit TFT Color	1-2,5-6
7	1024 x 768 TFT Color	1-2,7-8
8	800 x 600 TFT Color	1-2

Note: LCD Supporting Reference List

LCD Size	Model Name		Corresponding type
15"	Fujitsu	FLC38XGC6V	Type 7
12"	Toshiba	LTM12C289	Type 8
10.4"	Jilin Chijing	CJM10C011A	Type 6
10.4"	SAMSUNG	LTN104S2-L01	Type 5

** You have to prepare the interface (connecting cable) of the LCD and the VGA card.

JP3: Backlight Control Select

Panel Voltage	JP3	
VDD	1-2	Default
VEE	2-3	

Note:

VDD: Power sequencing control for panel driver electronics voltage VDD

VEE: Power-sequencing control for panel bias voltage VEE may also

be configured as (Inverter Backlight control) ENABKL

Connector Pin Assignment

VGA: CRT DB15 Connector					
PIN	**NAME**	**PIN**	**NAME**	**PIN**	**NAME**
1	R	6	GND	11	N/A
2	G	7	GND	12	DDCDATA
3	B	8	GND	13	HSYNC
4	N/A	9	N/A	14	VSYNC
5	GND	10	GND	15	DDCCLK

J2: Internal VGA Signal Connector			
PIN	NAME	PIN	NAME
1	RED	2	DDCDATA
3	GREEN	4	DDCLK
5	BLUE	6	GND
7	HSYNC	8	GND
9	VSYNC	10	GND

J3: Internal LVDS Daughter Board/ PIN Header (1)			
PIN	**NAME**	**PIN**	**NAME**
1	E1	2	E2
3	E3	4	E4
5	E5	6	E6
7	E7	8	E8
9	E9	10	E10
11	E11	12	E12
13	E13	14	E14
15	E15	16	E16
17	E17	18	E18
19	E19	20	E20
21	E21	22	E22
23	E23	24	E24
25	E25	26	12V SAFE
27	5V SAFE	28	GND

J4: External LVDS Outlet DB-25 Connector			
PIN	**NAME**	**PIN**	**NAME**
1	E1	14	E2
2	E3	15	E4
3	E5	16	E6
4	E7	17	E8
5	E9	18	E10
6	E11	19	E12
7	E13	20	E14
8	E15	21	E16
9	E17	22	E18
10	E19	23	E20
11	E21	24	E22
12	E23	25	E24
13	E25		

J5: Flat Panel Digital Signal			
PIN	**NAME**	**PIN**	**NAME**
1	+12V	2	+12V
3	GND	4	GND
5	+3.3V/ +5V	6	+3.3V/ +5V
7	ENVEE	8	GND
9	FPD0	10	FPD1
11	FPD2	12	FPD3
13	FPD4	14	FPD5
15	FPD6	16	FPD7
17	FPD8	18	FPD9
19	FPD10	20	FPD11
21	FPD12	22	FPD13
23	FPD14	24	FPD15
25	FPD16	26	FPD17
27	FPD18	28	FPD19
29	FPD20	30	FPD21
31	FPD22	32	FPD23
33	FPD24	34	FPD25
35	CLK	36	VSYNC
37	DE	38	HSYNC
39	GND	40	ENABKL
41	FPD26	42	FPD27
43	FPD28	44	FPD29
45	FPD30	46	FPD31
47	FPD32	48	FPD33
49	FPD34	50	FPD35

J6: Internal LVDS Daughter Board/ PIN Header (2)			
PIN	**NAME**	**PIN**	**NAME**
1	LVDS CLK	2	FPD
3	FPD34	4	FPD
5	FPD35	6	FPD
7	FPD30	8	FPD
9	FPD29	10	FPD
11	FPD25	12	FPD
13	FPD24	14	FPD
15	FPD23	16	FPD
17	FPD16	18	FPD
19	FPD17	20	FPD
21	FPD19	22	FPD
23	FPD13	24	FPD
25	FPD15	26	FPD
27	FPD7	28	FPD
29	+3.3V/ +5V	30	+3.3V/ +5V
31	FPD9	32	FPD
33	FPD4	34	FPD
35	FPD3	36	FPD
37	FPD2	38	FPD
39	DE	40	FPD
41	CLK	42	ENABKL
43	ENVDD	44	VSYNC
45	ENVEE	46	HSYNC
47	GND	48	GND
49	+12V	50	+12V

Chapter

4

BIOS
Installation

Starting setup

The Award BIOS is immediately activated when you first turn on the computer. The BIOS reads system configuration information in CMOS RAM and begins the process of checking the system and configuring it through the power-on self test (POST).

When these preliminaries are finished, the BIOS seeks an operating system on one of the data storage devices (hard drive, floppy drive, etc.). The BIOS launches the operating system and hands control of system operations to it.

During POST, you can start the Setup program in one of two ways: 1.By pressing Del immediately after switching the system on, or 2.By pressing Del or pressing Ctrl-Alt-Esc when the following message appears briefly at the bottom of the screen during POST:

TO ENTER SETUP BEFORE BOOT PRESS DEL KEY

If the message disappears before you respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the RESET button on the system case. You may also restart by simultaneously pressing Ctr-Alt-Del. If you do not press the keys at the correct time and the system does not boot, an error message appears and you are again asked to

PRESS F1 TO CONTINUE, DEL TO ENTER SETUP

Setup keys

These keys help you navigate in Award BIOS:

Up arrow	Move to previous item
Down arrow	Move to next item
Left arrow	Move to the item in the left hand
Right arrow	Move to the item in the right hand
Esc	Main Menu: Quit and not save changes into CMOS RAM Other pages: Exit current page and return to Main Menu
PgUP/+	Increase the numeric value or make changes
PgDn/-	Decrease the numeric value or make changes
F1	General help, only for Status Page Setup Menu and Option Page Setup Menu
F2	Item Help
F3	Reserved
F4	Reserved
F5	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu

F6	Load the default CMOS RAM value from BIOS default table, only for Option Page Setup Menu
F7	Load the default
F8	Reserved
F9	Reserved
F10	Save all the CMOS changes, only for Main Menu

Getting help

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

In Case of Problems

If, after making and saving system changes with Setup, you discover that your computer no longer is able to boot, the **Award BIOS** supports an override to the CMOS settings that resets your system to its default configuration.

You can invoke this override by immediately pressing Insert; when you restart your computer. You can restart by either using the ON/OFF switch, the RESET button or by pressing Ctrl-Alt-Delete.

The best advice is to alter only settings that you thoroughly understand. In particular, do not change settings in the Chipset screen without a good reason. The Chipset defaults have been carefully chosen by Award Software or your system manufacturer for the best performance and reliability. Even a seemingly small change to the Chipset setup may cause the system to become unstable.

Main Setup Menu

Standard CMOS Features

Use this menu for basic system configuration. (Date, time, IDE, etc.)

Advanced BIOS Features

Use this menu to set the advanced features available on your system.

Advanced Chipset Features

Use this menu to change the values in the chipset registers and

optimize your system's performance.

Integrated Peripherals

Use this menu to specify your settings for integrated peripherals.

(Primary slave, secondary slave, keyboard, mouse etc.)

Power Management Setup

Use this menu to specify your settings for power management.

(HDD power down, power on by ring, KB wake up, etc.)

PnP/PCI Configuration

This entry appears if your system supports PnP/PCI.

PC Health Status

This menu allows you to monitor the CPU temperature, CPU fan speed, CPU voltage and system voltage for your system.

Frequency/Voltage Control

Use this menu to specify your settings for frequency/ voltage control.

Load Fail-Safe Defaults

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

Load Optimized Defaults

Use this menu to load the BIOS default values that are factory settings for optimal performance system operations.   While AWARD has designated the custom BIOS to maximize performance, the factory has the right to change these defaults to meet their needs.

Set Supervisor/User Password

Use this menu to set User and Supervisor Passwords.

Save and Exit Setup

Save CMOS value changes to CMOS and exit setup.

Exit Without Saving

Abandon all CMOS value changes and exit setup.

Standard CMOS Features

This standard setup menu allows users to configure system components such as the date, time, hard disk drive, floppy drive, display, and memory. Pressing F1 can access online help for each field.

Date and Time Configuration

The BIOS determines the day of the week from the other date information. This field is for information only.

Press the left or right arrow key to move to the desired field (date, month, year). Press the PgUp/- or PgDn/+ key to increment the setting, or type the desired value into the field.

The time format is based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00 hours. Press the left or right arrow key to move to the desired field. Press the PgUp/- or PgDn/+ key to increment the setting, or type the desired value into the field.

HARD DISKS

The BIOS supports up to four IDE drives. This section does not show information about other IDE devices, such as a CD-ROM drive, or about other hard drive types, such as SCSI drives.

NOTE: We recommend that you select type AUTO for all drives.

The BIOS can automatically detect the specifications and optimal operating mode of almost all IDE hard drives. When you select type AUTO for a hard drive, the BIOS detect its specifications. If you do not want to select drive type AUTO, other methods of selecting the drive type are available:

 1.NONE- No drive type to be selected

 2.Manual-This will allow you to manually set the drive type you are using in your system.   (See Below)

 ACCESS Mode: Auto, Large, CHS or LBA

 - **Auto:** The BIOS automatically determines the optimal mode.
 - **CHS:** This allows the user to enter their own hardware values
 - **Large:** For drives that do not support LBA and have more than

1024 cylinders.

- **LBA** (Logical Block Addressing): During drive access, the IDE controller transforms the data address described by sector, head, and cylinder number into a physical block address, significantly improving data transfer rates. For drives with greater than 1024 cylinders.

Here is a brief explanation of drive specifications:

Type: The BIOS contains a table of predefined drive types. Each defined drive type has a specified number of cylinders, number of heads, write precompensation factor, landing zone, and number of sectors. Drives whose specifications do not accommodate any predefined type are classified as type USER.

Size: Disk drive capacity (approximate). Note that this size is usually slightly greater than the size of a formatted disk given by a disk-checking program.

Cyls: Number of cylinders

Head: Number of heads

Precomp: Write precompensation cylinder

Landz: Landing zone

Sector: Number of sectors

Drive A
Drive B

Select the correct specifications for the diskette drive(s) installed in the computer.

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

LCD & CRT

SBC-676 can be used with various visual display peripherals. It can also display the same image on both a CRT and LCD monitor simultaneously.   This function allows the end user to select the type of visual display peripheral they are incorporating with this single board computer.

The choices:　LCD, CRT, and Both

Panel

SBC-676 can be used with various display panels.　Please select the type of panel you are incorporating with our single board computer. Consult your panel manual for detail information.

Halt On

During the power-on-self-test (POST), the computer stops if the BIOS detects a hardware error. You can tell the BIOS to ignore certain errors during POST and continue the boot-up process. These are the selections:

**No errors**: POST does not stop for any errors.

All errors If: the BIOS detects any nonfatal error, POST stops and prompts you to take corrective action.

All, But Keyboard: POST does not stop for a keyboard error, but stops for all other errors

All, But Diskette: POST does not stop for diskette drive errors, but stops for all other errors.

All, But Disk/Key: POST does not stop for a keyboard or disk error, but stops for all other errors.

Advanced BIOS Features
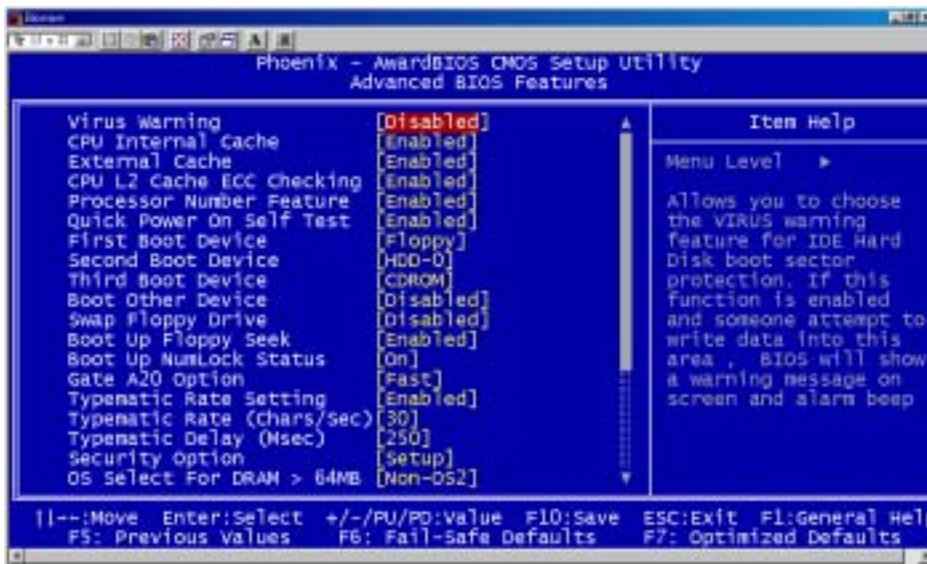
The displayed configuration is based on the manufacturer's SETUP DEFAULTS settings.

Virus Warning

When enabled, you receive a warning message if a program (specifically, a virus) attempts to write to the boot sector or the partition table of the hard disk drive. You should then run an anti-virus program. Keep in mind that this feature protects only the boot sector, not the entire hard drive.

NOTE: Many disk diagnostic programs that access the boot sector table can trigger the virus warning message. If

you plan to run such a program, we recommend that you first disable the virus warning.

CPU Internal Cache/External Cache

Cache memory is additional memory that is much faster than conventional DRAM (system memory). CPUs from 486-type on up contain internal cache memory, and most, but not all, modern PCs have additional (external) cache memory. When the CPU requests data, the system transfers the requested data from the main DRAM into cache memory, for even faster access by the CPU.

The External Cache field may not appear if your system does not have external cache memory.

CPU L2 Cache ECC Checking

When you select Enabled, memory checking is enable when the external cache contains ECC SRAMs.

Processor Number Feature

This option is for Pentium III processor. During Enabled, this will check the CPU Serial number.   Disabled this option if you don't want the system to know the serial number.

Quick Power On Self Test

Select Enabled to reduce the amount of time required to run the power-on-self-test (POST). A quick POST skips certain steps. We recommend that you normally disable quick POST. Better to find a

problem during POST than lose data during your work.

First/Second/Third Boot Device

The BIOS attempt to load the operating system from the devices in the sequence selected in these items.

The choices: Floppy, LS120, HDD0, HDD1, HDD2, HDD3, SCSI, CDROM, LAN, Disabled.

Boot Other Device

If your boot device is not included in the following choices Floppy, LS120, HDD0, HDD1, HDD2, HDD3, SCSI, CDROM, LAN, you may **set First/Second/Third Boot devices to Disable** and **enable the BOOT Other Device function**. The system will automatically boot the other device.

Swap Floppy Drive

This field is effective only in systems with two floppy drives. Selecting enabled assigns physical drive B to logical drive A, and physical drive A to logical drive B.

Boot Up Floppy Seek

When Enabled, the BIOS tests (seeks) floppy drives to determine whether they have 40 or 80 tracks. Only 360-KB floppy drives have 40 tracks; drives with 720 KB, 1.2 MB, and 1.44 MB capacity all have 80 tracks. Because very few modern PCs have 40-track floppy drives, we recommend that you set this field to Disabled to save time.

Boot Up NumLock Status

Toggle between On or Off to control the state of the NumLock key when the system boots. When toggled On, the numeric keypad generates numbers instead of controlling cursor operations.

Gate A20 Option

Gate A20 refers to the way the system addresses memory above 1 MB (extended memory). When set to Fast, the system chipset controls Gate A20. When set to Normal, a pin in the keyboard controller controls Gate A20. Setting Gate A20 to Fast improves system speed, particularly with OS/2 and Windows.

Typematic Rate Setting

Key strokes repeat at a rate determined by the keyboard controller. When enabled, the typematic rate and typematic delay can be selected.

The choice: Enabled/Disabled

Typematic Delay

When the typematic rate setting is enabled, you can select a typematic delay (the delay before key strokes begin to repeat) of 250, 500, 750 or 1000 milliseconds.

Typematic Rate

When the typematic rate setting is enabled, you can select a typematic rate (the rate at which character repeats when yu hold down a key) of

6, 8, 10, 12, 15, 20, 24, 30.

Security Option

If you have set a password, select whether the password is required every time the System boots, or only when you enter Setup.

OS Select For DRAM>64MB

Select the operating system that is running with greater than 64MB or RAM on the system.

The choice:　Non-OS2, OS2

Report No FDD For WIN 95

Report no FDD for Win 95 or not. **The choice**: Yes, no

Shadow

Software that resides in a read only memory (ROM) chip on a device is called firmware. The Award BIOS permits shadowing of firmware such as the system BIOS, video BIOS, and similar operating instructions that come with some expansion peripherals such as, for example, a SCSI adaptor.

Shadowing copies firmware from ROM into system RAM, where the CPU can read it through the 16-bit or 32-bit DRAM bus.

Firmware not shadowed must be read by the system through the 8-bit X-bus. Shadowing impoves the performance of the system BIOS and similar ROM firmware for expansion peripherals. But it also reduces

the amount of high memory (640 KB to 1 MB) available for loading device drivers, etc.

Enable shadowing into each section of memory separately. Many system designers hardwire shadowing of the system BIOS and eliminate a System BIOS Shadow option.

Video BIOS shadows into memory are C0000-C7FFF. The remaining areas shown on the BIOS Features Setup screen may be occupied by other expansion card firmware. If an expansion peripheral in your system contains ROM-based firmware, you need to know the address range the ROM occupies to shadow it into the correct area of RAM.
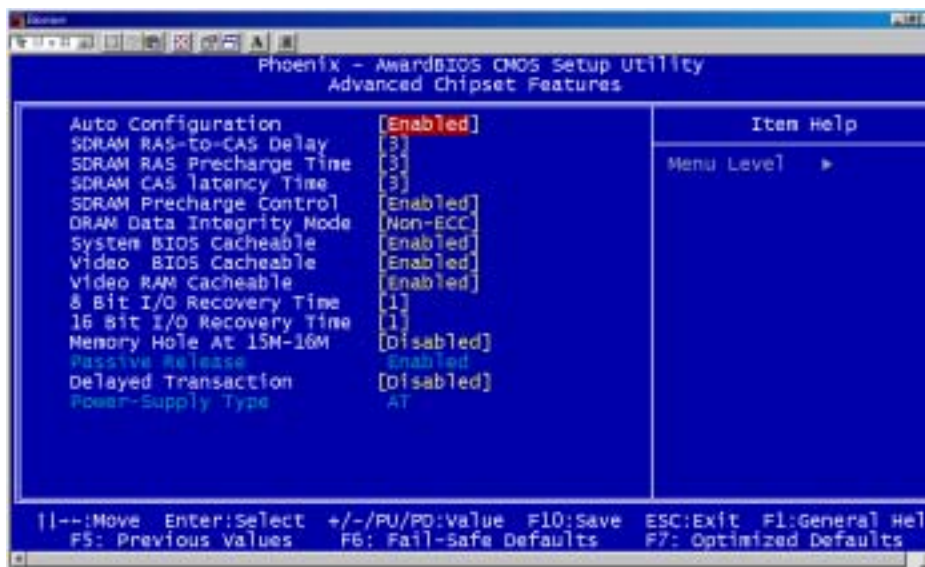
Small Logo (EPA) Show

The choices: Enabled, disabled

Onboard 1st LAN Function

Enable the onboard 1st LAN functions.

Advanced Chipset Features

Auto Configuration

Auto configuration selects predetermined optimal values of chipset parameters. When disabled, chipset parameters revert to setup information stored in CMOS. Many fields in this screen are not available when Auto Configuration in Enabled.

EDO DRAM Speed Selection

This value in this field must correspond to the speed of the DRAM installed in your system. DO NOT change the default setting of this field, as determined by the system board manufacturer for the installed DRAM. This value is access speed, so a lower value means a faster system. This field applies only if EDO DRAM is installed in the

AMB-551 Series User Manual V1.2   56

system.

SDRAM RAS-to-CAS Delay

This field lets you insert a timing delay between the CAS and RAS strobe signals, used when DRAM is written to, read from, or refreshed. Fast gives faster performance; and slow gives more stable performance. This field applies only when synchronous DRAM is installed in the system.

SDRAM RAS PrechargeTime

If an insufficient number of cycles is allowed for the RAS to accumulate its charge before DRAM refresh, the refresh may be incomplete and the DRAM may fail to retain data. Fast gives faster performance; and slow gives more stable performance. This field applies only when synchronous DRAM is installed in the system.

SDRAM CAS Latency Time

When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing. Do not reset this field from the default value specified by the system designer.

SDRAM Precharge Control

When enabled, all CPU cycles to SDRAM result in an All Banks Precharge Command on the SDRAM interface.

DRAM Data Integrity Mode

Select Parity or ECC (error correcting code), according to the type of installed DRAM.

Memory Hole

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

The choices: 15-16 M, disabled

System BIOS Cacheable

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

The choices: Enabled, Disabled

Video BIOS Cacheable

Selecting enabled allows caching of the video BIOS ROM at C0000h to C7FFFh, resulting in better video performance. However if any program writes to this memory area, a system error may result.

Video RAM Cacheable

Selecting Enabled, you receive a warning message if a program attempts to write to the boot sector or the partition table of the hard disk drive. You should then run an anti-virus program. Keep in mind that this feature protects only the boot sector, not the entire hard drive.

8-16 Bit I/O Recovery Time

The I/O recovery mechanism adds bus clock cycles between PCI originated I/O cycles to the ISA bus. This delay takes place because the PCI bus is much faster than the ISA bus.

These two fields let you add recovery time for 16-bit and 8-bit I/O.

Passive Release

When enabled, CPU to PCI bus accesses are allowed during passive release. Otherwise, the arbiter only accepts another PCI master access to local DRAM.

Delayed Transaction

The chipset has an embedded 32-bit posted write buffer to support delay transactions cycles. Select enabled to support compliance with PCI specifications version 2.1.

AGP Aperture Size (MB)

Select the size of the Accelerated Graphics Port (AGP) aperture. The aperture is a portion of the PCI memory address range dedicated for graphics memory address space. Host cycles that have the aperature range are forwarded to the AGP without any translation.

Integrated Peripherals
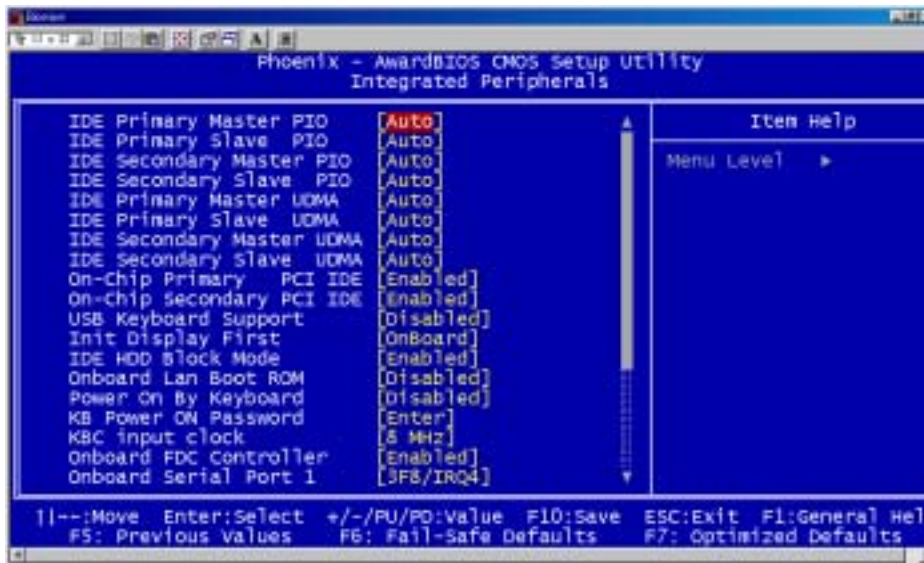
IDE Primary/Secondary Master/Slave PIO

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

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

IDE Primary/Secondary Master/Slave UDMA

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

The choices: Auto, disable

On-Chip Primary/ Secondary PCI IDE

The integrated peripheral controller contains an IDE interface with support for two IDE channels. Select Enabled to activate each channel separately.

USB Keyboard Support

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

Init Display First

This item allows you to active PCI slot or onboard first.

The choice: PCI slot, onboard

IDE HDD Block Mode

Select Enabled only if your hard drives support block mode.

Onboard LAN Boot ROM

Decides whether to invoke the boot ROM of the onboard LAN chip.

The choices: Enabled, Disabled.

Power On By Keyboard

The keyboard can be set to power on the system. The settings are hotkey, any key, disabled, and password.

KB Power on Password

The system will ask for a password, after entering the correct password the keyboard can then be used.

KBC input clock

The system designer must select the correct frequency for the keyboard controller input clock. Do not change this value from the default value.

Onboard FDC Controller

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

Onboard Serial Ports (1, 2)

Normally, the main board's I/O chips will occupy a certain portion of memory space. For each I/O device the computer provides an I/O address. The more devices attached the more address needed to organize the memory storage areas. If all the I/O devices were run through the same address, your devices would come to a near halt. By providing the end user with four serial ports this allows devices to run more efficiently if needed. Also the corresponding interrupt needs to be selected. Selections of logical COM port addresses are as

follows. (3F8/IRQ4, 3E8/IRQ4, 2F8/IRQ3, 2E8/IRQ3)

UART Mode Select

The choice: Normal, IrDA, ASKIR.

UART2 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

RxD, TxD Active

Consult your IR peripheral documentation to select the correct setting of the TxD and RxD signals.

IR Transmission Delay

This setting lets you enable or disable the IR transmission delay.

Onboard Parallel Port

Select a logical LPT port address and corresponding interrupt for the physical parallel port

The Choice: 378/IRQ7, 278/IRQ5, 3BC/IRQ7, disabled

Parallel Port Mode

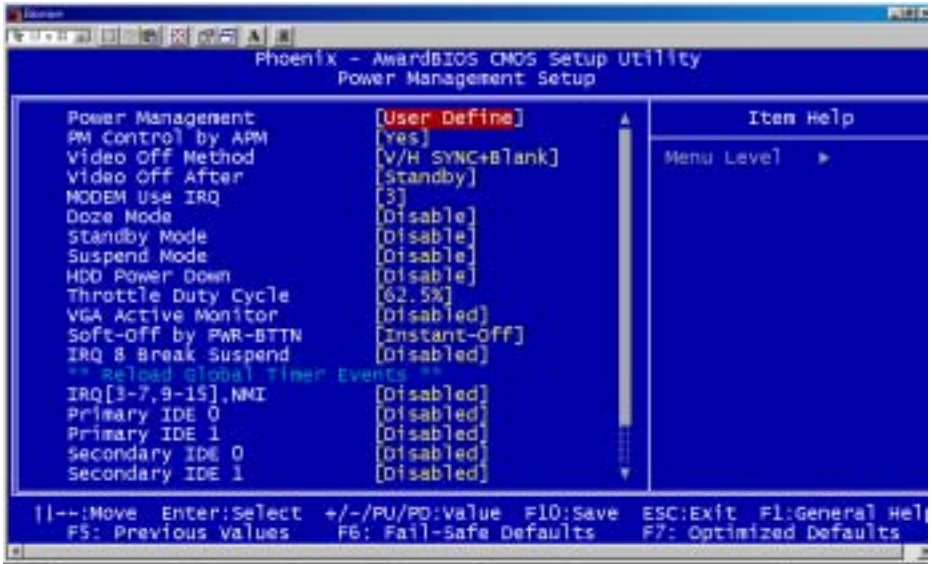Two bidirectional parallel ports. The choice: ECP, EPP, SPP, ECP + EPP.

ECP Mode Use DMA

Select a DMA channel for the port.

EPP Mode Select

The setting for this function are EPP1.7 or EPP1.9.

Power Management Setup

Power Management

This category allows you to select the type (or degree) of power saving and is directly related to the following modes:

1. HDD Power Down
2. Doze Mode
3. Suspend Mode

Maximum Saving (Reference Table)

1. HDD - 1~15 minutes or Disable
2. Doze Mode - 1 Minute
3. Suspend Mode - 1 Minute

Minimum Saving

1. HDD - 1~15 minutes or Disable

2. Doze Mode - 1 Hour

3. Suspend Mode - 1 Hour

User Define

1. HDD - 1~15 minutes or Disable

2. Doze Mode - 1 min, 2 min, 4 min, 6 min, 8 min, 10 min,
   20 min, 30 min, 40 min, 1 hour.

3. Suspend Mode - 1 min, 2 min, 4 min, 6 min, 8 min, 10 min,
   20 min, 30 min, 40 min, 1 hour.

PM Control by APM

If advanced power management is installed on your system, selecting Yes gives better power savings.

Video Off Method

This determines the manner in which the monitor is blanked.

Video Off After

This determines the manner in which the monitor is blanked.

The settings are: Suspend, Doze, Standby, and NA

MODEM Use IRQ

Name the interrupt request (IRQ) line assigned to the modem (if any) on your system. Activity of the selected IRQ always awakens the system. **The choice**: NA, 3, 4,5, 7, 9, 10, 11.

Throttle Duty Cycle

When the system enters Doze mode, the CPU clock runs only part of the time. You may select the percent of time that the clock runs.

VGA Active Monitor

When enabled, any video activity restarts the global timer for standby mode.

Soft-Off by PWR-BTTN

When enabled, turning the system off with the on/off button place the system in a very low power usage state, with only enough circuitry receiving power to detect power button activity.

IRQ 8 Break Suspend

You can enable or disable monitoring of IRQ8 so it does not awaken the system from Suspend mode.

Reload Global Timer Events

Reload Global Timer events are I/O events whose occurrence can prevent the system from entering a power saving mode or can awaken the system from such a mode.   In effect, the system remains alert for anything which occures to a device which is configured as Enabled, even when the system is in a power down mode.
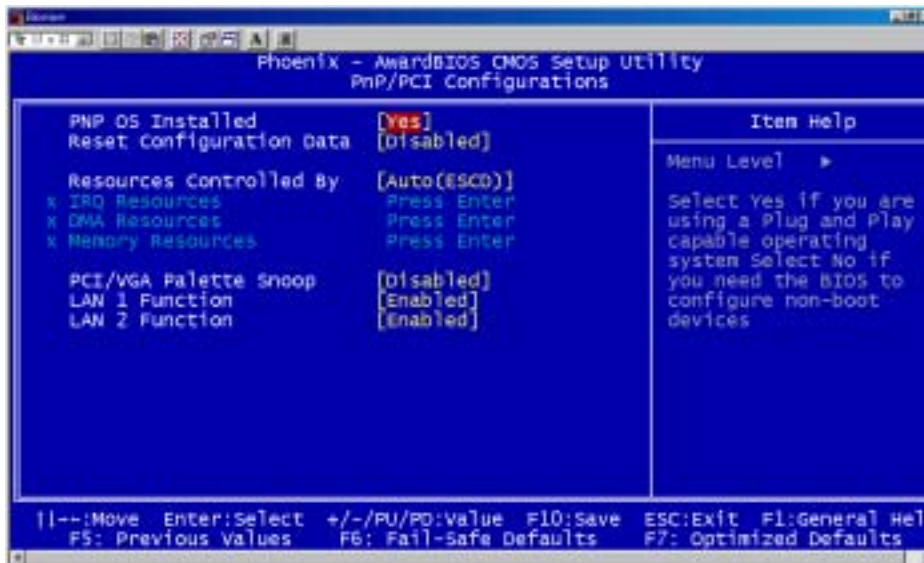
IRQ [3-7, 9-15], NMI
Primary IDE0
Primary IDE1
Floppy Disk

Serial Port
Parallel Port

PnP/PCI Configurations

PNP OS installed

Select Yes if the system operating environment is Plug and Play aware, for example Windows 95.

Select No if you need the BIOS to configure non-boot devices.

Reset Configuration Data

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

Resources Controlled By

The Award Plug and Play BIOS has the capacity to automatically configure all of the boot and Plug and Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as Windows ® 95.   If you set this field to "manual" choose specific resources by going into each of the sub menu that follows this field (a sub menu is proceeded by a ">".   **The choices:** Reserved, Manual.

IRQ Resources

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

DMA Resources

When resources are controlled manually, assign each DMA channel a type, depending on the type of device using the DMA channnel.

Memory Resources

Select a base address and length for the memory area used by any peripheral that requires high memory.
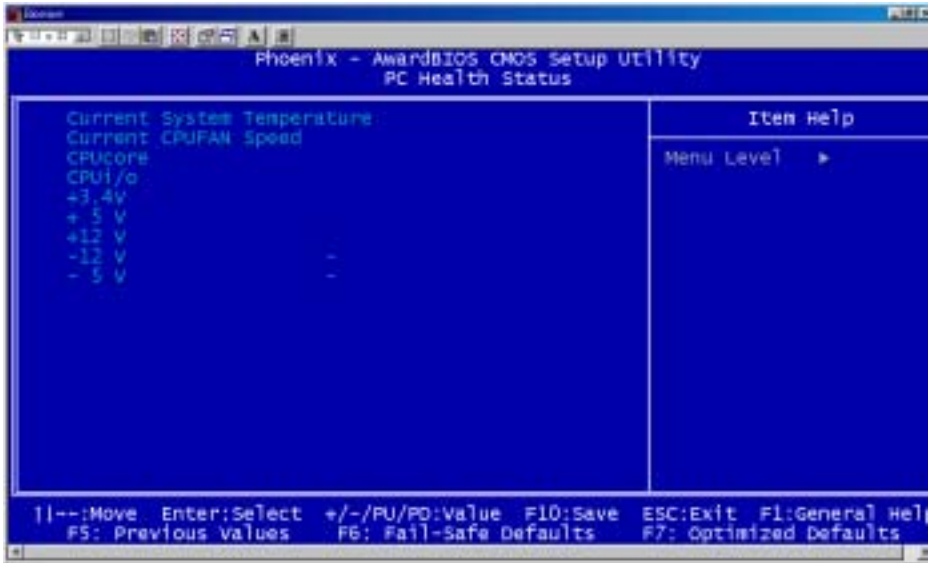
PCI/VGA Palette Snoop

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

LAN 1 Function

Enable or disable the onboard first LAN chip. **The choices**: Enable, Disabled.
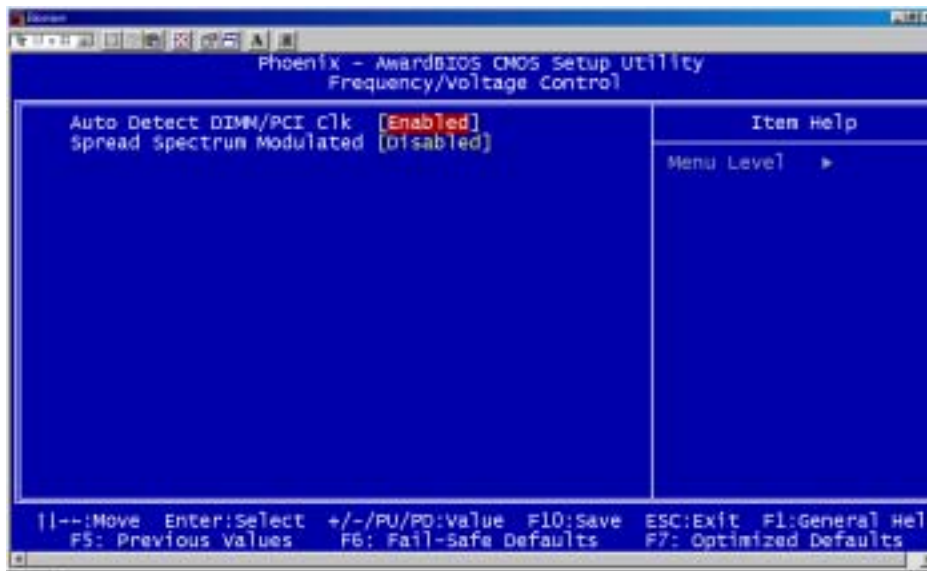
PC Health Status

PC Health Status

Your system does not allow you to alter any of the setting in this menu however you can monitor these settings. The system engineer has already designated the correct setting for SBC-676.

Frequency/Voltage Control

Auto Detect DIMM/PCI CLK

This item allows you to enable/disable auto detect DIMM/PCI clock.

The choices: Enable, Disable

Spread Spectrum

This allows you to enable/disable the spread spectrum modulate.

When the system clock generator pulses, the extreme values of the

pulse generate excess EMI.   Enabling pulse spectrum spread

modulation changes the extreme pulse spikes to flat curves thus

reducing EMI. **The choices**: Enable, Disable
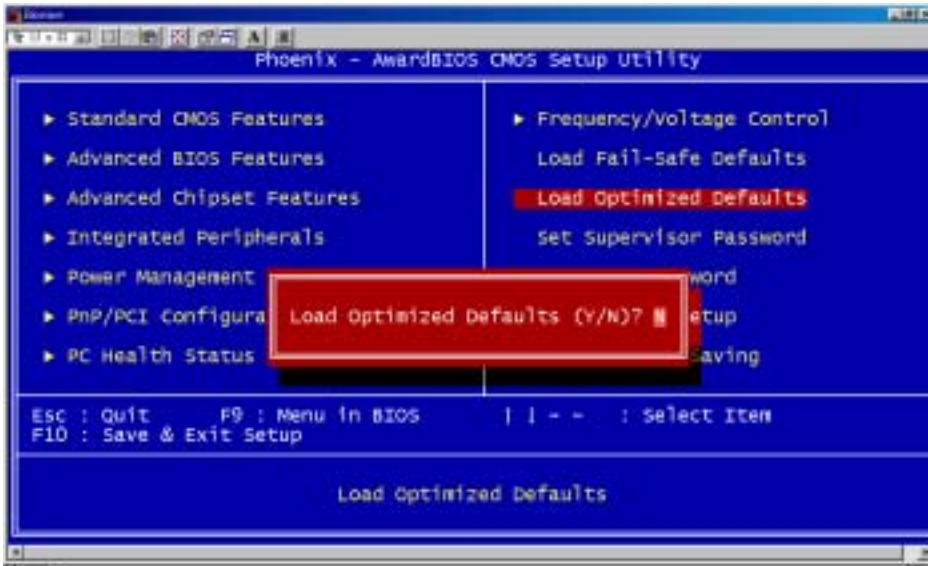
Load Fail-Safe Defaults
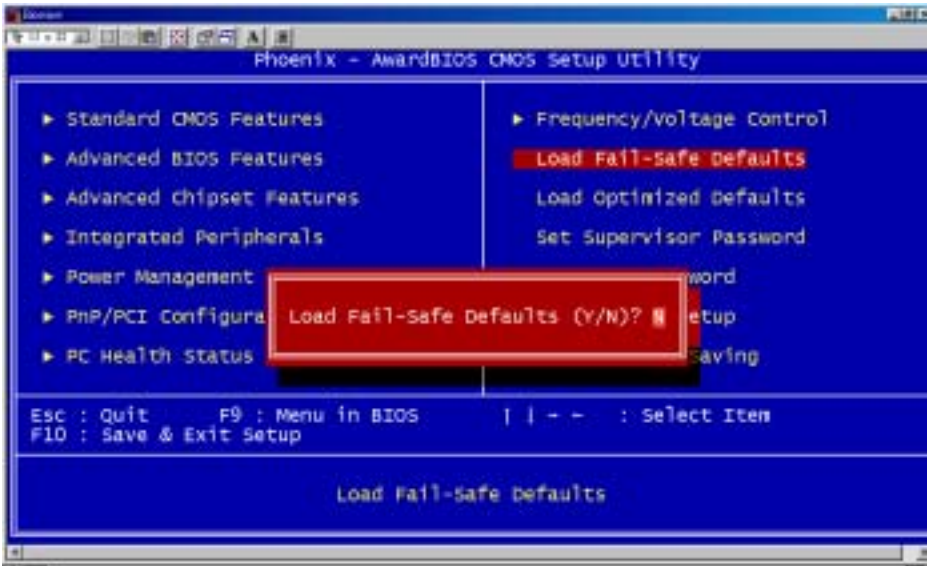
Load Fail-Safe Defaults

When you press <Enter> on this item you get a confirmation dialog box with a message similar to:

Load Fail-Safe Default (Y/N)?

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

Load Optimized Defaults

Load Optimized Defaults

When you press <Enter> on this item you get a confirmation dialog box with a message similar to:

Load Optimized Defaults (Y/N)?

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

Set Supervisor Password

When you select this function, a message appears at the center of the screen:

Type the password, up to eight characters, and press Enter. Typing a password clears any previously entered password from CMOS memory.

Now the message changes:

Again, type the password and press Enter.

To abort the process at any time, press Esc.

In the Security Option item in the BIOS Features Setup screen, select System or Setup:

System   Enter a password each time the system boots and when ever you enter Setup.

Setup   Enter a password when ever you enter Setup.

NOTE: To clear the password, simply press Enter when asked to enter a password. Then the password function is disabled.

Set User Password

When you select this function, a message appears at the center of the screen:

Type the password, up to eight characters, and press Enter. Typing a password clears any previously entered password from CMOS memory.

Now the message changes:

Again, type the password and press Enter.

To abort the process at any time, press Esc.

In the Security Option item in the BIOS Features Setup screen, select System or Setup:

System   Enter a password each time the system boots and when ever you enter Setup.

Setup   Enter a password when ever you enter Setup.

NOTE: To clear the password, simply press Enter when asked to enter a password. Then the password function is disabled.

Save to CMOS and EXIT
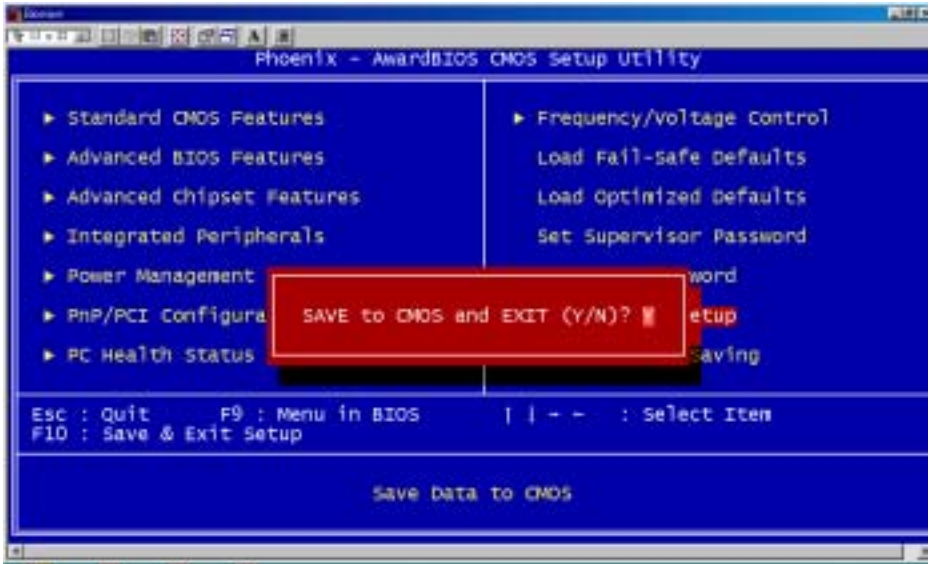

Save to CMOS and EXIT

Pressing <Enter> on this item asks for confirmation:

Save to CMOS and Exit (Y/N)?

Pressing "Y" stores the selections made in the menus in CMOS, a special section of memory that stays on after you turn your system off.   The next time you boot your computer, the BIOS configures your system according to the Setup selections stored in CMOS. After saving the values the system is restarted again.

Exit without Saving
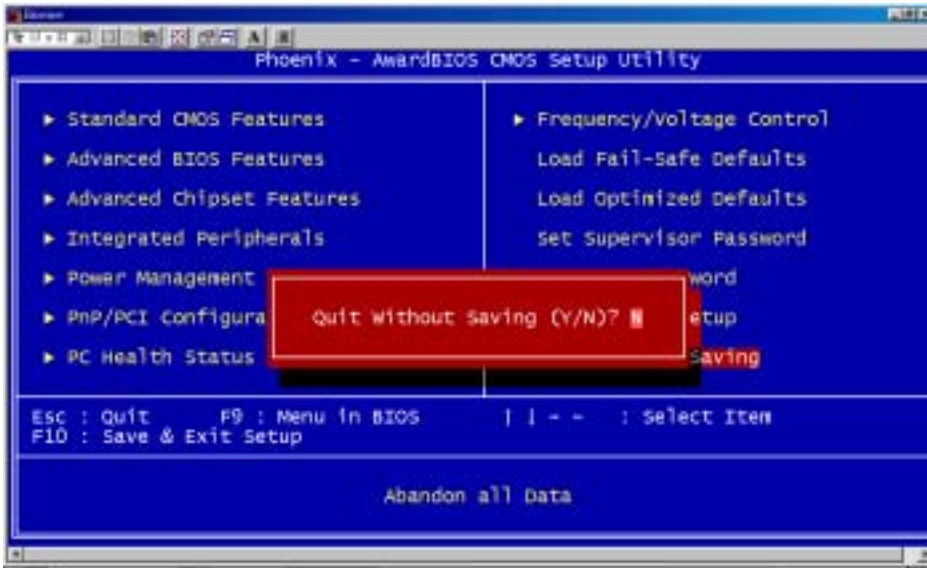
Exit Without Saving

Pressing <Enter> on this item asks for confirmation:

Quit Without Saving   (Y/N)?

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

Chapter

5

Drivers Installation

The AMB-551 comes with a CD which contains most of drives and utilities of your needs.

There are several ways of installation depending on the driver package under different Operating System application.

We recommend that the system driver installation procedure must be performed first.

If you utilize Windows NT series OS, you are strongly recommended to download the latest version Windows NT Service Pack from Microsoft website and install it before installing any driver.

Note: AMB-551 provides optional Dynapro Resistive Touch.

4.1 Installation 1:

Applicable for Windows 9x/2000/NT 4.0

1. Insert the AMB-551 CD Diskette into the CD ROM Drive.

2. From the CD ROM, select the desired component Driver folder, select the desired Operation System folder to double click on the Setup.exe icon. A driver installation screen will appear.
   (Notice: take VGA driver installation under Windows 98 for example, choose the corresponding folder depending on your OS)

3. A driver installation screen will appear, please follow the onscreen instructions to install the driver in sequence and click on the Next button.
   (Notice: In some cases the system will ask you to insert Windows 98 CD Diskette and key in its path. Then click on the OK button to key in path.)

4. Click on the **Finish** button to finish installation process. And allows the system to reboot.

   (Notice: After finished touchscreen installing, calibrate the touchcreen controller.)

Installation 2:

Applicable for Windows 9x/2000

1. Insert the **AMB-551 CD Diskette** into the CD ROM Drive.

2. Click on **Start** button, select the **Settings**, then click on the **Control Panel** icon.

3. Double click on the **Add/Remove Hardware** icon and **Add New Hardware Wizard** will appear. Click on the **Next** button.

4. Select **Search for the best driver for your device (Recommended)** and click on the **Next** button.

5. Select **Specify a location,** click on **Have Disk** button then key in the CD-ROM path and specify component drivers and OS folders. Then click on the **Next** button.

6. The Wizard shows that Windows driver file search for the device: (For example, Ethernet devices, the list appear **Realtek RTL8139/810X Family PCI Fast Ethernet NIC Intel® 82559 Fast Ethernet LAN)**. Click on the **Next** button.

7. The system will ask you to insert Windows 98 CD Diskette. Click on the **OK** button to insert Diskette and key in path.

8. Click on the **OK** button.

9. Click on the **Finish** button to finish installation process. And allows the system to reboot.

Installation 3:

Applicable for Windows NT 4.0

1. Insert the **AMB-551 CD Diskette** into the CD ROM Drive.

2. Start system with Windows NT 4.0 installed.
   IMPORTANT: When the "Please select the operating system to start..." message is displayed, select "Windows NT Workstation Version 4.00 [VGA mode]".

3. From **Start**, select the **Settings group**, then click on the **Control Panel** icon.

4. In the **Control Panel**, select the desired device and click on the icon.

5. Follow the step-by-step instruction and click on **OK** button.

6. Click on the **Have Disk...** button.

7. Key in CD-ROM path and specify component drivers, then click on the **OK** button.

8. From the list of displayed devices, select your desired device.

9. If a message appears stating the driver is already installed on the system, and asks if you want to use the current or new drivers, be sure to select the **New** button.

10. If prompted for the driver diskette a second time, click on the **Continue** button.
    (Notice: In some cases the system will ask you to insert Windows NT CD Diskette. Follow its instructions to complete the setup procedures.)

11. When the message **The drivers were successfully installed** is displayed, remove the display driver diskette, then click on the **OK** button.

12. Reboot the system.