IP-M845B
Series
<IP-4G4I90 / IP-4GVI90 / IP-4GEI90>

(Industrial Board)

INSTALLATION GUIDE

Installation Guide Revision B1
600C002845BB1

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Installation Guide Revision B1
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INTRODUCTION

1.1   Unpacking IP-M845B Series

1. The IP-M845B series include 3 units; their difference is chipset, which are IP-4GV4I90 (845G chipset), IP-4GVI90 (845GV chipset) and IP-4GEI90 (845GE chipset).

2. Take out the IP-M845B series unit from the carton box, check if the unit is properly secure in the plastic bag.

3. Check the contents of the carton box:
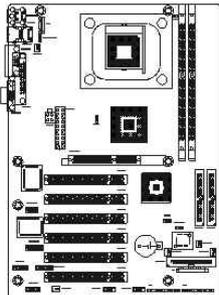
◆ Industrial Board   ◆ Installation Guide

◆ ATA-66/100 HDD ribbon cable   ◆ Floppy ribbon cable
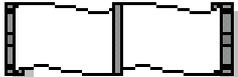
◆ Driver CD   ◆ I/O Shield
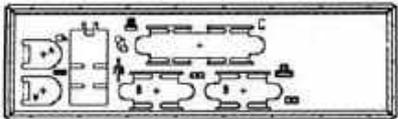
◆ External K/B & M/S cable
  (6-pin to 6-pin)

◆ External USB cable
  (for USB2.0)
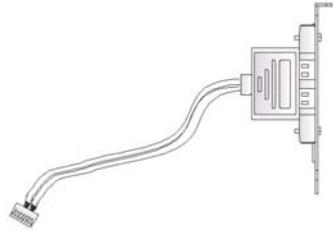
◆ COM2 ribbon cable
  (for RS-232)
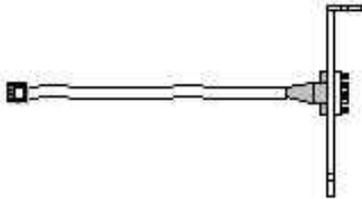
◆ COM3/4 ribbon cable (1 Sets)
  (for RS-232/422/485)
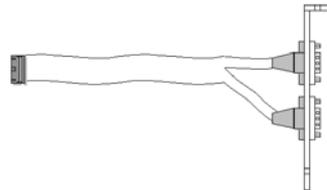
1.2   Description

The IP-M845B series combines the high performance and exceptional value of Intel® 845G, 845GV or 845GE chipset with a full-featured, new generation, industrial board. The Intel® advanced 845G, 845GV or 845GE chipset support socket 478-pins Intel® Pentium® 4 / Celeron™ processors of 1.3GHz and up to 3.06GHz. Furthermore, user can set the jumper to select the mobile CPU or regular P4 CPU, that memory base on the FSB 400/533MHz operation supports DDR SDRAM interface. In the meantime, the chipset integrated the VGA function and an external graphics device on AGP (845GV support ADD card only). The IP-M845B system memory size can be up to 2GB DDR memory, onboard Intel® 82562ET Ethernet controller (support 10/100 Base-TX Ethernet and with 4 COM ports, besides the IP-M845B add one slim Floppy connector to special application and one 6-pins connector for external K/B & M/S.

The 82801DB I/O Controller Hub (ICH4) employs the Intel® Accelerated Hub Architecture to make a direct connection from the graphics and memory to the integrated Ethernet controller,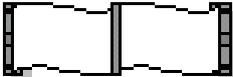 the IDE controllers (ATA/33 or ATA/66 or ATA/100), six USB ports that are supported USB 1.1/2.0 standard meets the performance, stability and reliability requirements.

The industrial board - IP-M845B is suitable and valuable for all the industry applications, which also well support with the Windows® 98/2000/XP/NT and Linux® operation system.

1.3   Features

1.3.1   Graphic & Ethernet
The IP-M845B is base on the Intel® 845G, 845GE or 845GV chipset, offers users the integration graphic and Ethernet function. The features of chipset are as below:

◆ Enhanced integrated graphics & system performance:
   - 400/533 FSB support
◆ Memory:
   - SDRAM PC133, DDR200/266/333
     (845G support DDR200/266 only)
   - 2 x DIMMs, up to 2.0GB memory (max.)

◆ IO Connectivity - ICH4:
　　- 6 Hi-Speed USB2.0 ports
　　- 10/100 Base-TX Ethernet

1.3.2　　Ultra ATA/66/100

The ICH4 provides two channel Ultra ATA/66/100 Bus Master IDE controller, that support Ultra ATA/66/100 protocols, perfect for such demanding applications as real-time video, multimedia, and high performance operating system. A new IDE cable is required for Ultra ATA/66/100. This cable is an 80-conductor cable; however the connectors are, of course, backwards compatible with ATA/33.

1.3.3　　Hardware Monitoring

Hardware monitoring allows you to monitor various aspects of your systems operations and status. The features include CPU temperature, voltage and RPM of fan.

1.3.4　　I/O Shield Connector

The board is equipped with an I/O back panel. Please use the appropriate I/O shield (figure 1).
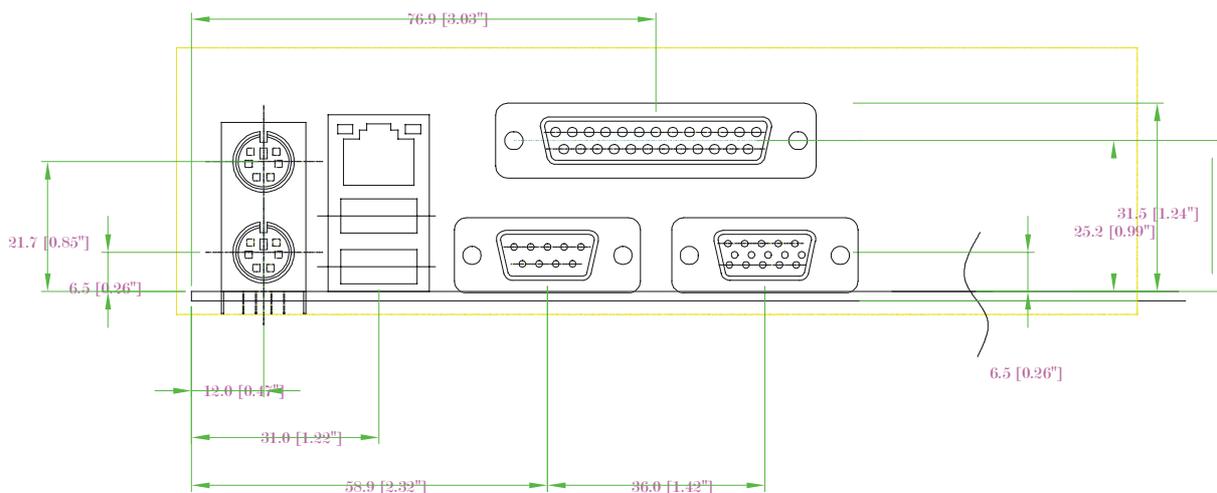
Figure 1: I/O back panel layout

1.3.5　Power-On/Off (Remote)

The board has a single 20-pin connector for ATX power supplies. For ATX power supplies that support the Remote On/Off feature, this should be connected to the systems front panel for system Power On/Off button. The systems power On/Off button should be a momentary button that is normally open.

The board has been designed with "Soft Off" functions. You can turn Off the system from one of two sources: The first is the front panel Power On/Off the button, and the other is the "Soft Off" function (coming from the M/B onboard circuit controller) that can be controlled by the operating system such as Windows$^{®}$ 98/SE/ME/2000 or Windows$^{®}$ XP.

1.3.6　IP-M845B Series Overview

Function / Model	IP-M845B
◆ Chipset	Intel$^{®}$ 845G, 845GV or 845GE
◆ LCD Function	/
◆ VGA Function	◉
◆ SCSI Function	/
◆ Ethernet Function	◉
◆ Two EIDE Interface	◉
◆ One Floppy Interface	◉
◆ One Parallel	◉
◆ PCI Slots	6
◆ AGP Slot	1 (845GV supported ADD card only)
◆ Four Serial Ports	4
◆ Six USB 2.0 Ports (Four for Optional USB Cable)	6
◆ Fan Connector	4
◆ Slim Floppy Connector	◉
◆ 6-pins external K/B & M/S Connector	◉

Note: The IP-M845B series with 3 units. Their difference as below:
　　　　(a). IP-4G4I90 used the Intel$^{®}$ 845G chipsets.
　　　　(b). IP-4GVI90 used the Intel$^{®}$ 845GV chipsets.
　　　　(c). IP-4GEI90 used the Intel$^{®}$ 845GE chipsets.

1.3.7 System Block Diagram

```
┌─────────┐        ┌──────────────────┐        ┌─────────┐
│   VRM   │◄──────►│  Socket 478-pins │◄──────►│  Clock  │
│         │        │       for        │        │         │
└─────────┘        │     P4 or P4-M   │        └─────────┘
                   └──────────────────┘
                    ▲ ADDR  ▲ CTRL  ▲ DATA

┌─────────┐  AGP4X  ┌──────────────────┐        ┌──────────────────┐
│   CRT   │◄───────►│      GMCH        │◄──────►│  DDR200/266/333  │
│ Device  │         │  (845G/GV/GE)    │        │        X2        │
└─────────┘         │   760 FC-BGA     │        └──────────────────┘
                    └──────────────────┘

┌──────────────┐ ATA100  ┌──────────────────┐        ┌──────────────────┐
│ IDE Primary  │◄───────►│                  │◄──────►│  Intel 82562ET   │
├──────────────┤         │                  │        │     10/100       │
│ IDE Secondary│         │                  │        │    Base-TX       │
└──────────────┘         │     ICH4         │        └──────────────────┘
                         │    421 BGA       │
┌──────────────┐ USB 2.0 │                  │  PCI BUS              ┌────────┐
│ USB Port 1/2 │◄───────►│                  │◄──────────────────►  │  PCI   │
├──────────────┤         │                  │                      │ SLOTS  │
│ USB Port 3/4 │         └──────────────────┘                      │        │
├──────────────┤                                                   └────────┘
│ USB Port 5/6 │
└──────────────┘         ┌──────────────────┐        ┌──────────────────┐
                         │   Super I/O      │        │   Super I/O      │
┌──────────────┐         │   W83627HF       │        │   W83627HF       │
│     FWH      │◄────────│                  │        │                  │
└──────────────┘         └──────────────────┘        └──────────────────┘
                         ┌──────────────────┐        ┌──────────────────┐
                         │    Keyboard      │        │   COM Port 3/4   │
                         ├──────────────────┤        └──────────────────┘
                         │     Mouse        │
                         ├──────────────────┤
                         │   COM Port 1/2   │
                         ├──────────────────┤
                         │    LPT Port      │
                         ├──────────────────┤
                         │     Floppy       │
                         └──────────────────┘
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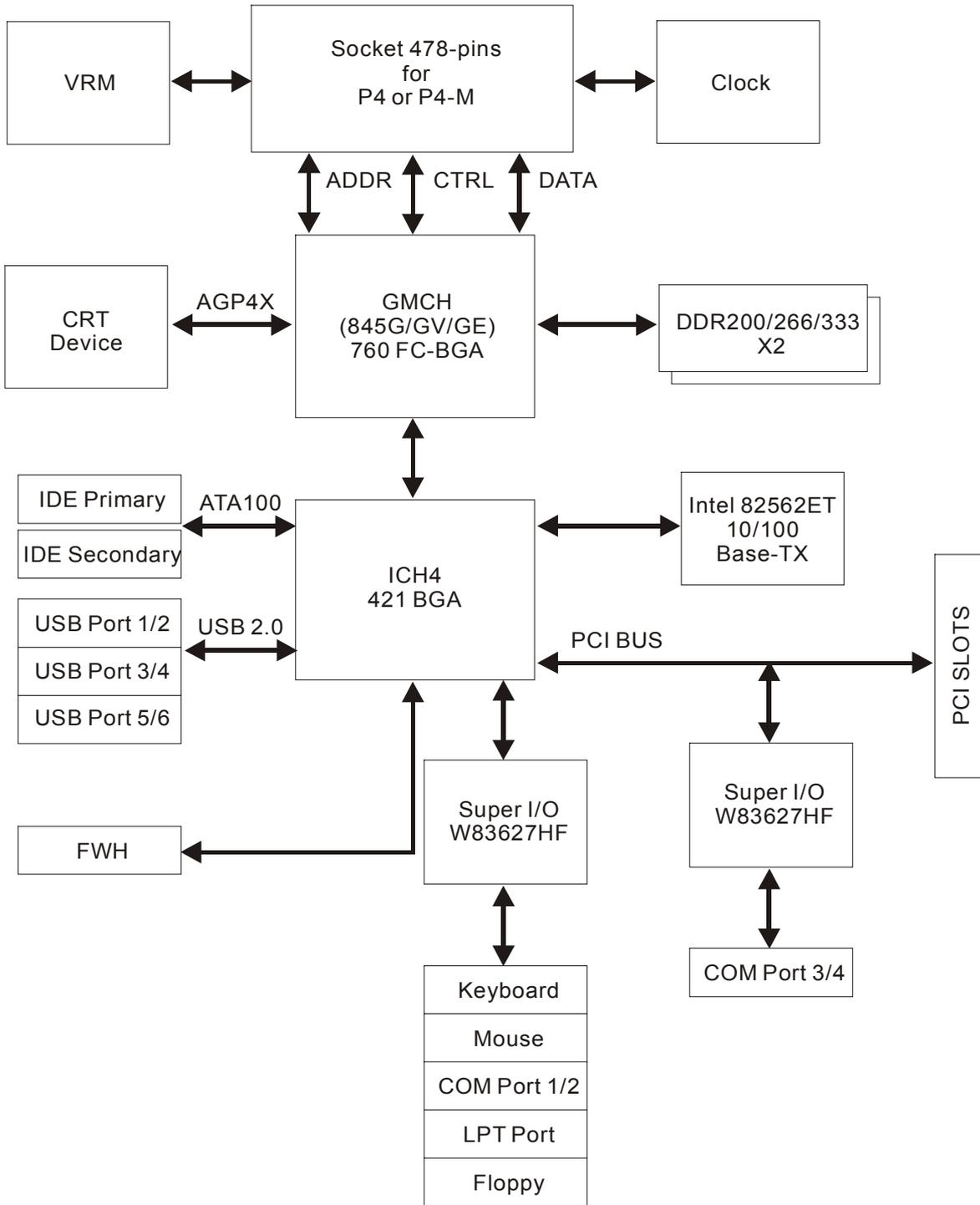
Figure 2: System Block Diagram

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1.4 Specifications

◆ **Processor:**
- Intel$^®$ Pentium$^®$ 4 / Celeron$^{™}$ processor with socket 478-pin package Processor operating at 1.3GHz and up to 3.06GHz
- Intel$^®$ Pentium$^®$ 4 Mobile$^{™}$ processor with socket 478-pin package Processor operating at 1.3GHz and up to 2.4GHz
- System bus frequency at 400/533 MHz FSB

◆ **Chipset:**
- Intel$^®$ 82845G, 845GV or 82845GE AGPset

◆ **DRAM Module:**
- 2 x 184-pins DIMMM socket
- For DDR200/266/333 memory (845G support DDR200/266 only)
- Support DDR SDRAM up to 2GB (max.)

◆ **VGA Function:**
- Intel$^®$ North Bridge chipset integrated graphic controller
- Onboard one 15-pins VGA connector

◆ **LAN Function:**
- Intel$^®$ 82562ET Ethernet controller
- For 10/100 Base-TX Ethernet
- Onboard one RJ-45 Ethernet connector

◆ **External Connector:**
- 1 x slim floppy connector
- 1 x 6-pins connector for external K/B & M/S

◆ **Expansion Slot:**
- 1 x AGP slot (845GV support ADD card only)
- 6 x PCI slots

◆ **Onboard I/O:**
- On-Chip I/O integrated with K/B, Mouse, FDD, Parallel and Serial, Fast IR and Power-ON controller

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◆ **Onboard PCI / IDE:**
- Intel$^{®}$ 82801DB (ICH4) controller
- PCI rev2.2 compliant
- ACPI compliant power management
- PCI bus IDE port with PIO / Ultra DMA-100 x 2 (up to 4 devices)

◆ **Rear I/O Connectors:**
- PS/2 Mouse and PS/2 style Keyboard
- RJ-45 Ethernet and 2 x USB2.0 connectors
- D-Sub 25-pins Printer port connector
- D-Sub 9-pins COM1 serial port connector for RS-232
- D-Sub 15-pins VGA connector

◆ **Internal I/O Connectors (pin-header):**
- 3 x serial ports, COM2 for RS-232 and COM3/4 for RS-232/422/485
- 4 x USB2.0 connectors

◆ **BIOS:**
- Award Plug & Play BIOS

◆ **Form Factor:**
- 12" x 8.7" (305 x 220mm) ATX Size

◆ **Weight:**
- 1.44lb (650g) --- IP-M845B series

INSTALLATIONS

2.1　System Installation

2.1.1　CPU Installation

Carefully follow the steps below in order to install the CPU:

1. Check and confirm that the jumpers are correctly set for the CPU you are going to install (figure 3).

2. Lift the releasing lever of the socket 478.

3. Align the pins of the CPU against the pinholes of the socket 478. Be sure to pay attention to the orientation of the CPU.
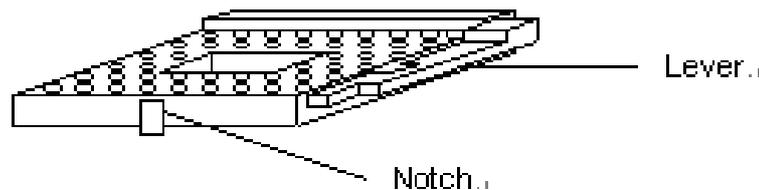
Figure 3: CPU Socket

4. Push down the CPU into the socket 478.

5. Push down the release lever and lock it against the key hook.

6. Hook the hole in ZIF clip for the CPU cooling fan onto the notch on the socket 478.

7. Place the CPU cooling fan atop the CPU surface.

8. Push down the opposite side of the ZIF clip and hook it.

9. Slide the head of the clip to left and lock it.

10. Connect the cooling fan cable to the socket as shown below. Be careful not to place the cable on the CPU cooling fan.

Removing a CPU:
1. Before removing the CPU, turn off the IP-M845B series power; then wait for about 20 minutes until the heat radiation plate of the cooling fan and the CPU cools down.

2. To remove the CPU, lift the releasing lever of the socket 478.

Note: The CPU and the heat radiation plate are hot. They may cause burns.

To remove the CPU, reverse the installation steps.

2.1.2   Heat Sink & Retention Module Installation

Make sure that good contact is made between the processors and the heat sinks & fan. Insufficient contact, incorrect types of heat sinks, fans, or thermal compound used or improper amount of thermal compound applied on the CPU die can cause the processors to overheat, which may crash the system.

Heat Sink & Fan   Retention Module   Installation
(For P4 processor only)   (For P4 Heat Sink & Fan)
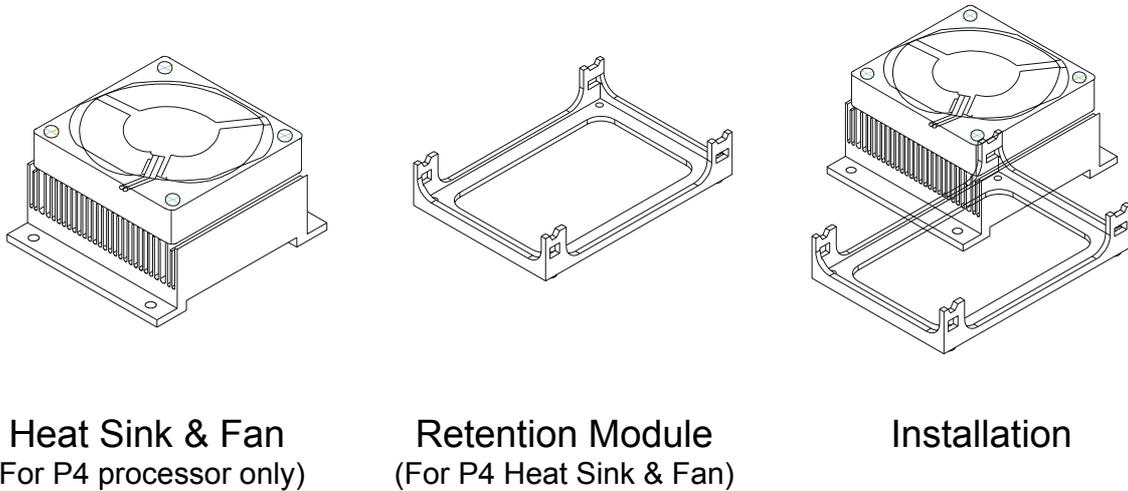
Figure 4: Heat Sink & Retention Module Installation

2.1.3   Memory Module Installation

Figure 5 display the notch marks and what they should look like on your DIMM memory module.

DIMMs have184-pins and two notches, that will match with the onboard DIMM socket. DIMM modules are installed by placing the chip firmly into the socket at a 90-degree angle and pressing straight down (figure 6) until it fits tightly into the DIMM socket.
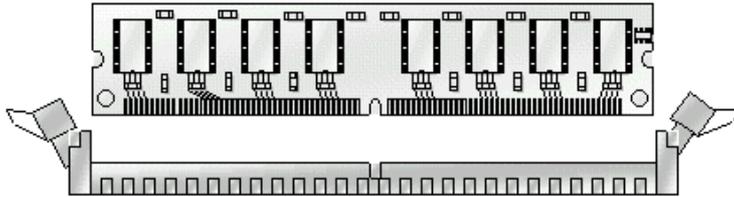
Figure 5: DIMM Memory and 184-pins Socket
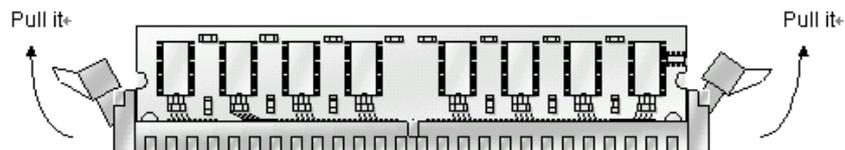
Figure 6: Memory Installation

Carefully follow the steps below in order to install the DIMMs:

1. To avoid generating static electricity and damaging the DIMM, ground yourself by touching a grounded metal surface or using a ground scrap before you touch the DIMM.

2. Do not touch the connector of the DIMM. Dirt residue may cause a malfunction.

3. Hold the DIMM with its notch to the front side of the IP-M845B Series and insert it completely into the socket. A DIMM should be inserted into the inner socket first. Guiding the hole at each end of the DIMM over the retaining post at each end of the DIMM socket.

4. If you install two DIMMs, install the second DIMM using the same procedure as above.

5. If DIMM does not go in smoothly, do not force it. Pull it all the way out and try again.

6. Make sure the DIMM is properly installed and locked by the tabs on both sides of the socket.

Removing a DIMM:
To remove the DIMM, use your fingers or a small screwdriver to carefully push away the plastic tabs that secure the DIMM at each end. Lift it out of the socket.

Make sure you store the DIMM in an anti-static bag and must be populated the same size and manufactory of memory modules.

2.1.4 Setting Jumpers and DIP Switches

There are jumpers and DIP-switches on the system board of the IP-M845B series. You can set the jumpers to make the necessary operations.
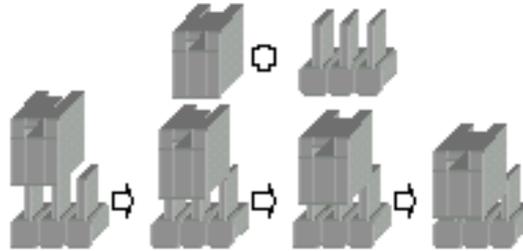
Figure 7: Jumper Connector

For any three-pin jumpers (Figure 7), the jumper setting is 1-2 when the jumper connects pins 1 and 2. The setting is 2-3 when pins 2 and 3 are connected and so on. You see a number " 1 " and a " 3 " printed on the circuit board to identify these pins. And also, there is a second way of indication – one of the lines surrounding jumpers is thick, which indicates pin NO.1.

To move a jumper from one position to another, use needle-nose pliers or tweezers to pull the pin cap off the pins and move it to the desired position.

2.2   Board Layout
Jumper & Connector Location
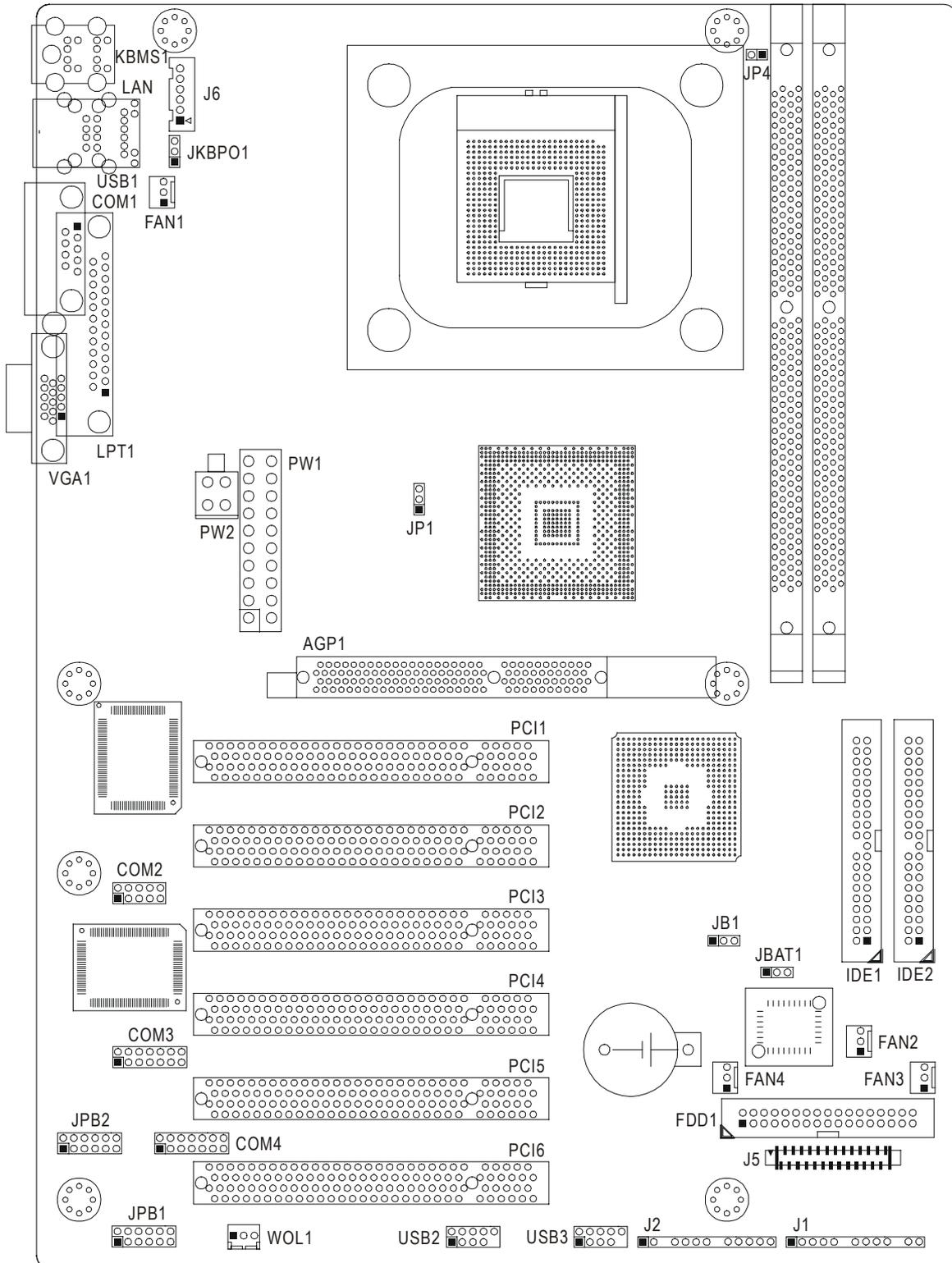
2.3   Jumper Setting

Table for Jumper Location Description:
Use the information in the following table to change the jumpers and the DIP switches.

Jumpers	Functions
JB1	Watchdog Timer Setting Select
JP1	CPU Clock Setting Select
JP4	CPU Type Setting Select
JBAT1	Clear CMOS Setting Select
JPB1	COM4 Port Setting Select
JPB2	COM3 Port Setting Select
JKBPO1	Keyboard Power On Setting Select

In order to set up the correct configuration, here is the description about how to set the jumpers to enable/disable or change functions. All jumpers' location please refer to jumper location diagram.

◆ **Watchdog Timer Setting Select: JB1**

Function	JB1
NMI	1-2
Reset System (Default)	2-3

● **Location:**
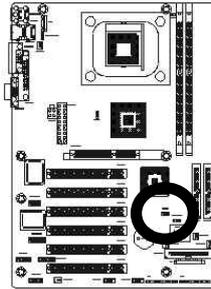
◆ **CPU Clock Setting Select: JP1**

Function	JP1
CPU Select	1-2
100MHz	2-3
133 MHz	Open

● **Location:**
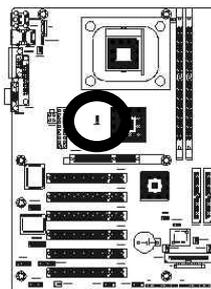
◆ CPU Type Setting Select: JP4

Function	JP4
P4	On
P4-M	Off

● **Location:**
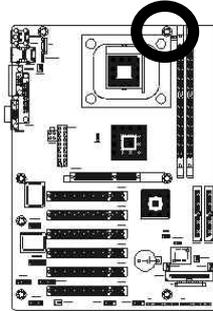
◆ Clear CMOS Setting Select: JBAT1

Function	JBAT1
Normal (Default)	1-2
Clear CMOS	2-3

● **Location:**

17
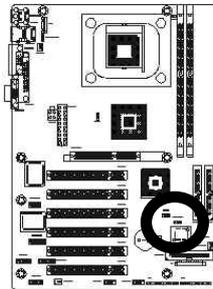
◆ COM4 Port Setting Select: JPB1

Function	JPB1					
	1-2	3-4	5-6	7-8	9-10	11-12
RS-232	Off	Off	Off	Off	Off	On
RS-422	On (Term.)	On (Term.)	Off	On	On	Off
RS-485	On (Term.)	On (Term.)	On	Off	On	Off
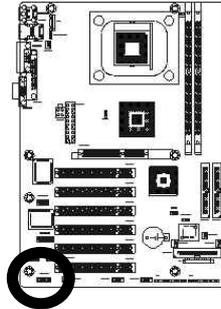
● **Location:**

◆ COM3 Port Setting Select: JPB2

Function	JPB2					
	1-2	3-4	5-6	7-8	9-10	11-12
RS-232	Off	Off	Off	Off	Off	On
RS-422	On (Term.)	On (Term.)	Off	On	On	Off
RS-485	On (Term.)	On (Term.)	On	Off	On	Off

● **Location:**

18
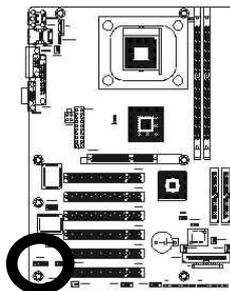
◆ **Keyboard Power On Setting Select: JKBPO1**

Function	JKBPO1
Enable KBPO (Default)	1-2
Disable KBPO	2-3

● **Location:**
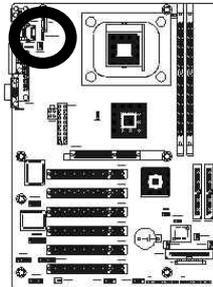
2.4   Connector's Description
Connector Location

20
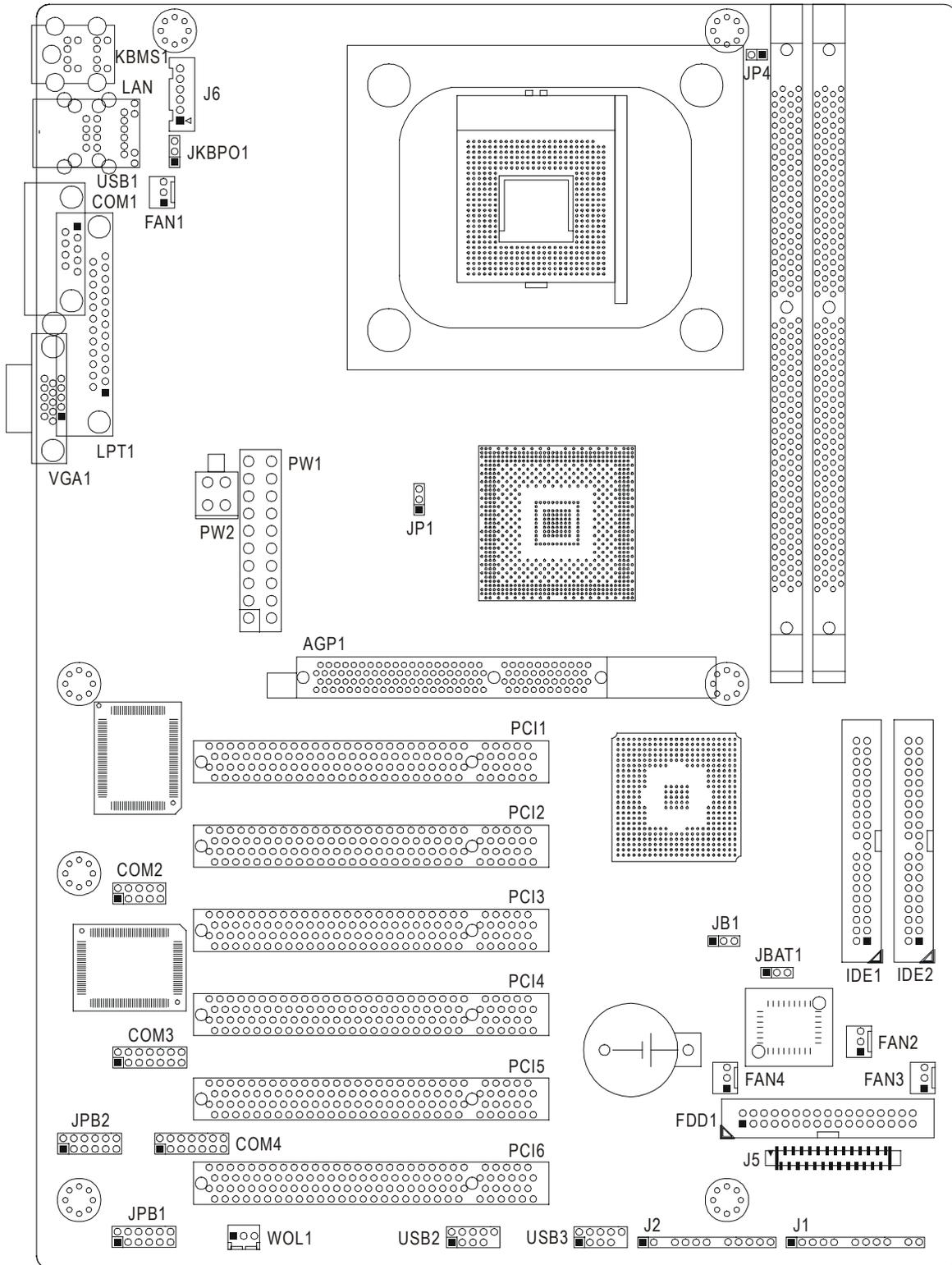
Table for Connector's Location Description:

Use the information in the following table to change the connector.

Connectors	Functions
IDE1	Primary IDE Connector
IDE2	Secondary IDE Connector
FDD1	Floppy Disk Connector
KB1	PS/2 Keyboard Connector
MS1	PS/2 Mouse Connector
LAN	Ethernet RJ-45 Connector
USB1	USB 0/1 Connector
COM1	COM1 RS-232 Serial Port Connector
VGA1	CRT VGA Port Connector
LPT1	Parallel Port Connector
USB2	USB 2/3 (Pin-Header) Connector
USB3	USB 4/5 (Pin-Header) Connector
COM2	COM2 RS-232 Serial Port Connector
COM3/4	COM3/4 RS-232/422/485 Serial Port Connectors
PW1	ATX Power Connector
PW2	ATX 12V Power Connector
FAN1/2/3/4	Fan Power Connector
WOL1	Wake On LAN Connector
J1/J2	System Panel Indicate Connector
J5	Slim Floppy Disk Connector
J6	External K/B & M/S Connector

◆ Primary IDE Connector (40-pin 2.54mm Pitch Pin-Header with Housing): IDE1

Pin #	Assignment	Pin #	Assignment
1	Reset IDE	2	Ground
3	Host Data 7	4	Host Data 8
5	Host Data 6	6	Host Data 9
7	Host Data 5	8	Host Data 10
9	Host Data 4	10	Host Data 11
11	Host Data 3	12	Host Data 12
13	Host Data 2	14	Host Data 13
15	Host Data 1	16	Host Data 14
17	Host Data 0	18	Host Data 15
19	Ground	20	NC
21	DRQ 0	22	Ground
23	Host IOW	24	Ground
25	Host IOR	26	Ground
27	IOCHRDY	28	Host ALE
29	DACK 0	30	Ground
31	IRQ 14	32	No Connect
33	Address 1	34	No Connect
35	Address 0	36	Address 2
37	Chip Select 0	38	Chip Select 1
39	Activity	40	Ground

● **Figure:**

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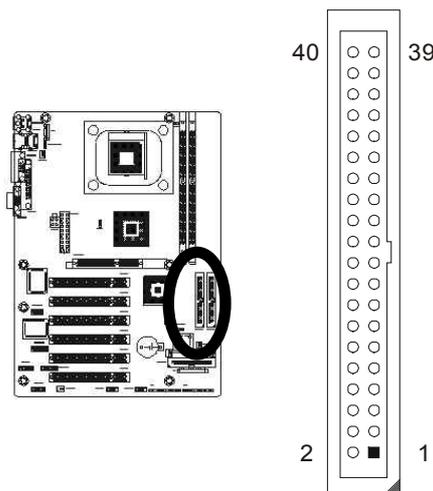
◆ **Secondary IDE Connector (40-pin 2.54mm Pitch Pin-Header with Housing): IDE2**

Pin #	Assignment	Pin #	Assignment
1	Reset IDE	2	Ground
3	Host Data 7	4	Host Data 8
5	Host Data 6	6	Host Data 9
7	Host Data 5	8	Host Data 10
9	Host Data 4	10	Host Data 11
11	Host Data 3	12	Host Data 12
13	Host Data 2	14	Host Data 13
15	Host Data 1	16	Host Data 14
17	Host Data 0	18	Host Data 15
19	Ground	20	NC
21	DRQ 1	22	Ground
23	Host IOW	24	Ground
25	Host IOR	26	Ground
27	IOCHRDY	28	Host ALE
29	DACK 1	30	Ground
31	IRQ 15	32	No Connect
33	Address 1	34	No Connect
35	Address 0	36	Address 2
37	Chip Select 0	38	Chip Select 1
39	Activity	40	Ground

● **Figure:**
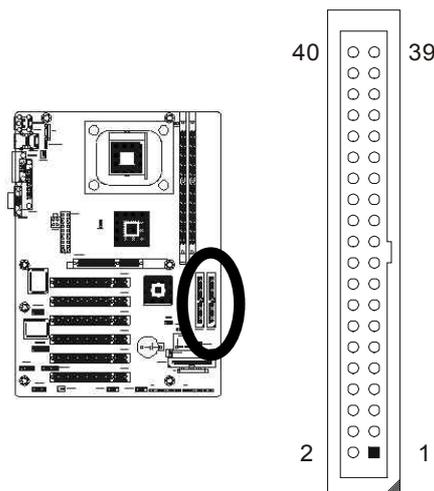
◆ Floppy Disk Connector (34-pin 2.54mm Pitch Pin-Header with Housing): FDD1

Pin #	Assignment	Pin #	Assignment
1	Ground	2	Drive Density Selection
3	Ground	4	No Connect
5	Ground	6	Drive Density Selection
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	Track 00
27	Ground	28	Write Protect
29	Ground	30	Read Data
31	Ground	32	Side 1 Select
33	Ground	34	Diskette Change

● **Figure:**
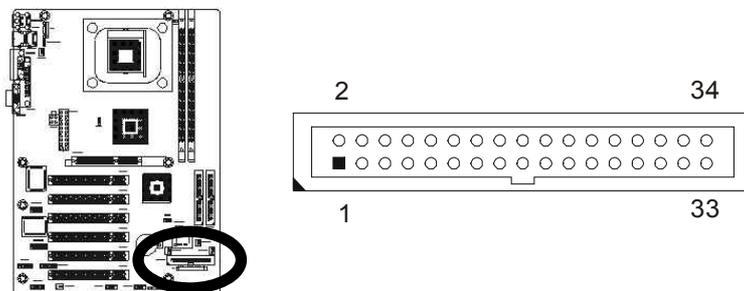
◆ PS/2 Keyboard Connector (6-pin Green Mini Din): KB1

Pin #	Assignment	Pin #	Assignment
1	Keyboard data	2	NC
3	Ground	4	+5V
5	Keyboard clock	6	NC

● **Figure:**
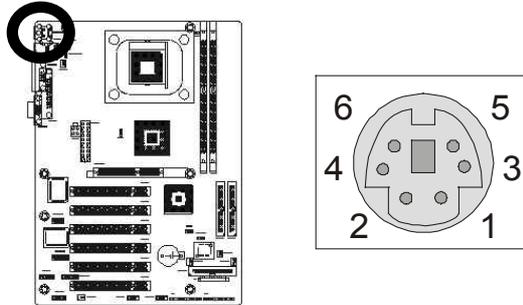
◆ PS/2 Mouse Connector (6-pin Purple Mini Din): MS1

Pin #	Assignment	Pin #	Assignment
1	Mouse data	2	NC
3	Ground	4	+5V
5	Mouse clock	6	NC

● **Figure:**
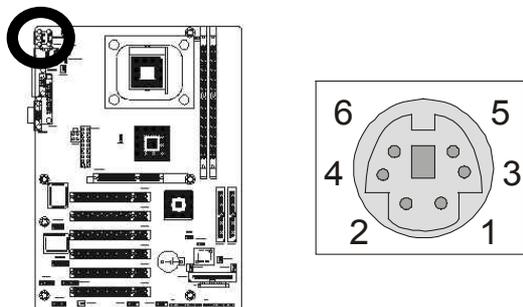
◆ Ethernet (82562ET) RJ-45 Connector (RJ-45 Phone–jacket): LAN

Pin #	Assignment	Pin #	Assignment
1	Transmit output (+)	5	NC
2	Transmit output (-)	6	Receive input (-)
3	Receive input (+)	7	NC
4	NC	8	NC

● **Figure:**
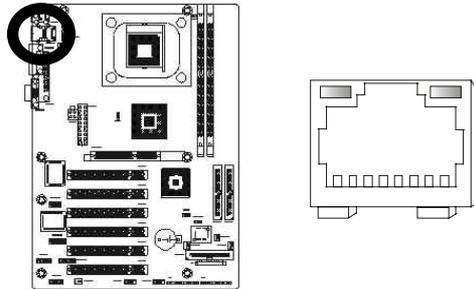
◆ USB 0/1 Connector (4-pin Female): USB1

Pin #	Assignment	Pin #	Assignment
1a	Vcc via Ploy-fuse	1b	Vcc via Poly-fuse
2a	USBPO	2b	USBP1
3a	USBP0 +	3b	USBP1 +
4a	Signal ground	4b	Signal ground

● **Figure:**
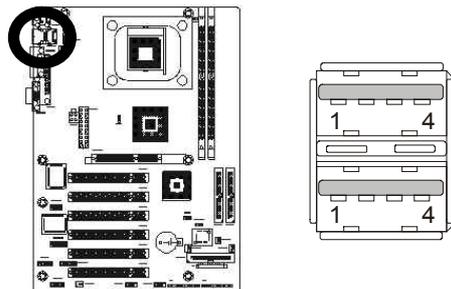
◆ COM1 RS-232 Serial Port Connector (D-Sub 9-pin Male): COM1

Pin #	Assignment	Pin #	Assignment
1	DCD (Data Carrier Detect)	6	DSR (Data Set Ready)
2	RXD (Receive Data)	7	RTS (Request to Send)
3	TXD (Transmit Data)	8	CTS (Clear to Send)
4	DTR (Data Terminal Ready)	9	RI (Ring Indicator)
5	Ground		

● **Figure:**
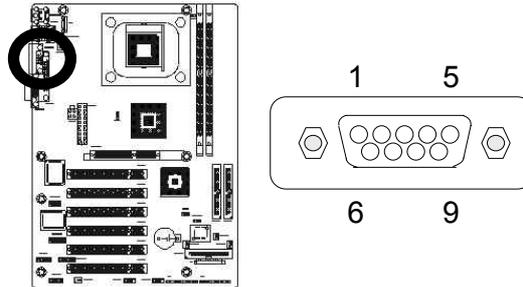
◆ CRT VGA Port Connector (D-SUB 15-pin Female): VGA1

Pin #	Assignment	Pin #	Assignment
1	Red	2	Green
3	Blue	4	NC
5	Ground	6	Ground
7	Ground	8	Ground
9	VCC	10	Ground
11	NC	12	DDData
13	HSync	14	VSync
15	DDClk		

● **Figure:**
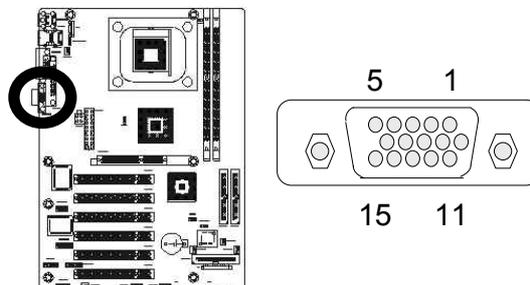
◆ Parallel Port Connector (D-Sub 25-pin Male): LPT1

Pin #	Assignment	Pin #	Assignment
1	Line Printer Strobe	14	Auto Feed
2	PD 0, Parallel Data 0	15	Error
3	PD 1, Parallel Data 1	16	Initialize
4	PD 2, Parallel Data 2	17	Select
5	PD 3, Parallel Data 3	18	Ground
6	PD 4, Parallel Data 4	19	Ground
7	PD 5, Parallel Data 5	20	Ground
8	PD 6, Parallel Data 6	21	Ground
9	PD 7, Parallel Data 7	22	Ground
10	ACK, Acknowledge	23	Ground
11	Busy	24	Ground
12	Paper Empty	25	Ground
13	Select	26	N/A

● **Figure:**
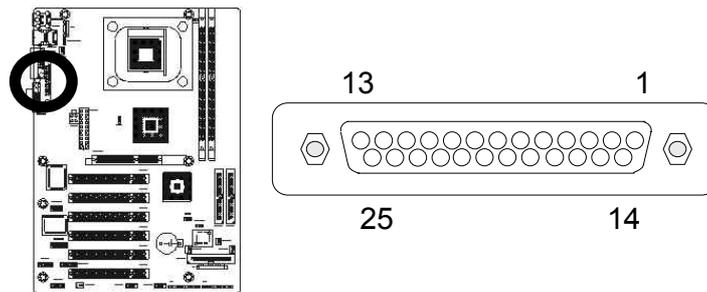
◆ USB 2/3 Connector (9-pin Pin-Header): USB2

Pin #	Assignment	Pin #	Assignment
1	VCC	2	VCC
3	USB2 -	4	USB3 -
5	USB2 +	6	USB3 +
7	Ground	8	Ground
9	---	10	NC
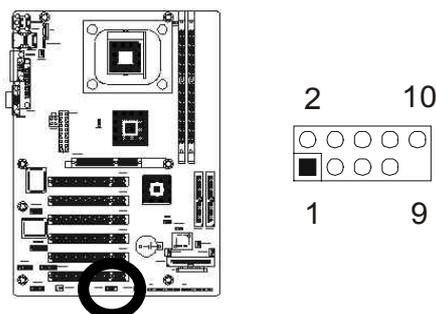
● **Figure:**

◆ USB 4/5 Connector (9-pin Pin-Header): USB3

Pin #	Assignment	Pin #	Assignment
1	VCC	2	VCC
3	USB4 -	4	USB5 -
5	USB4 +	6	USB5 +
7	Ground	8	Ground
9	---	10	NC

● **Figure:**
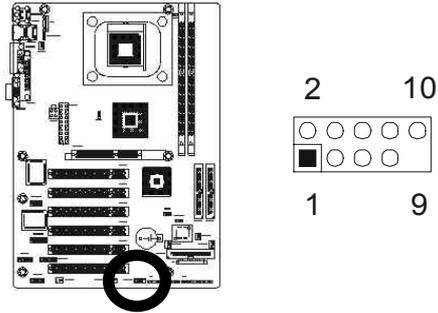
◆ COM2 RS-232 Serial Port Connector (10-pin Pin-Header): COM2

Pin #	Assignment	Pin #	Assignment
1	DCD (Data Carrier Detect)	2	DSR (Data Set Ready)
3	RXD (Receive Data)	4	RTS (Request to Send)
5	TXD (Transmit Data)	6	CTS (Clear to Send)
7	DTR (Data Terminal Ready)	8	RI (Ring Indicator)
9	Ground	10	Ground

● **Figure:**
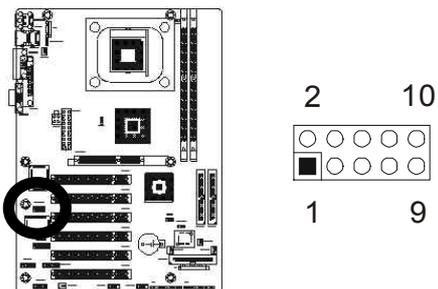
◆ COM3/COM4 RS-232/422/485 Serial Port Connector (14-pin Pin-Header): COM3 & COM4

Pin #	Assignment	Pin #	Assignment
1	DCD (Data Carrier Detect)	2	DSR (Data Set Ready)
3	RXD (Receive Data)	4	RTS (Request to Send)
5	TXD (Transmit Data)	6	CTS (Clear to Send)
7	DTR (Data Terminal Ready)	8	RI (Ring Indicator)
9	Ground	10	Ground
11	TXD+ (Transmit Data+)	12	TXD- (Transmit Data-)
13	RXD+ (Receive Data+)	14	RXD- (Receive Data-)

● **COM3 Figure:**
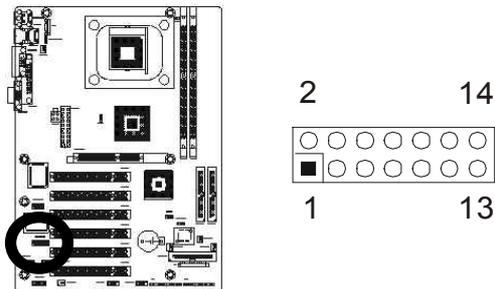
● **COM4 Figure:**
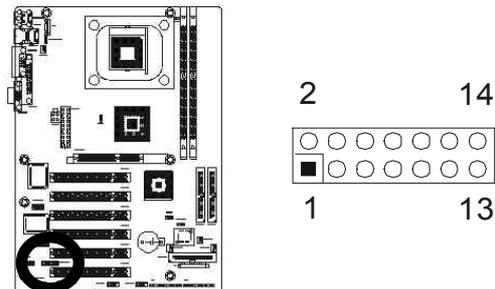
Note: How to connect RS485 device with COM port ribbon cable?

Our Industrial Board encloses a COM port ribbon cable for internal connection. RS422/485 device must connect to downside D-Sub with 5-pin cable and signal indication as below.

For RS-232 Connector

RS-422/485:
1: TXD-
2: TXD+
3: RXD-
4: RXD+
5: GND

For RS-422/485 Connector
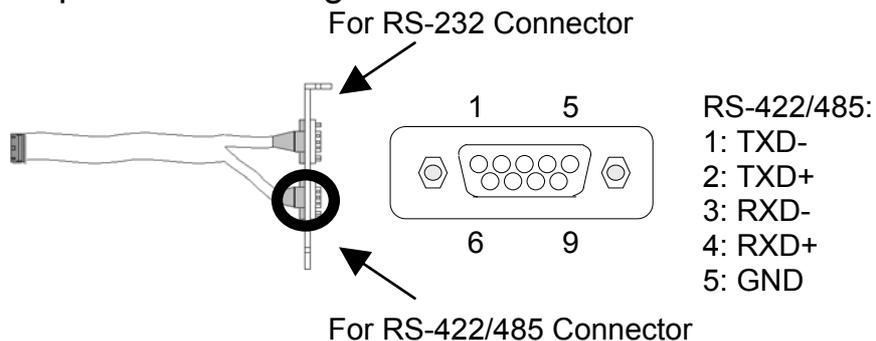
◆ ATX Power Connector: PW1

Pin #	Assignment	Pin #	Assignment
1	+3.3V	11	+3.3V
2	+3.3V	12	-12V
3	Ground	13	Ground
4	+5V	14	PS-ON
5	Ground	15	Ground
6	+5V	16	Ground
7	Ground	17	Ground
8	PW-OK	18	-5V
9	5VSB	19	+5V
10	+12v	20	+5V

● **Figure:**
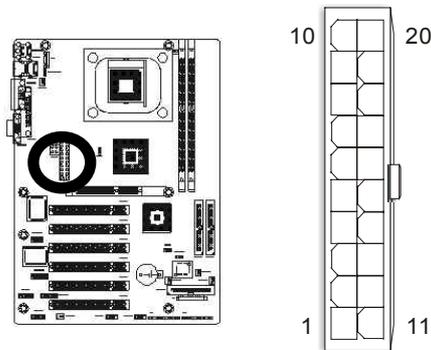
◆ ATX 12V Power Connector: PW2

Pin #	Assignment	Pin #	Assignment
1	Ground	2	Ground
3	+12V	4	+12V

● **Figure:**

31
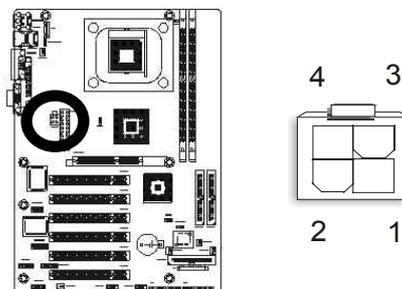
◆ **Fan Power Connector: FAN1/FAN2/FAN3/FAN4**

Pin #	Assignment
1	Ground
2	+12V
3	Sense

● **Figure:**
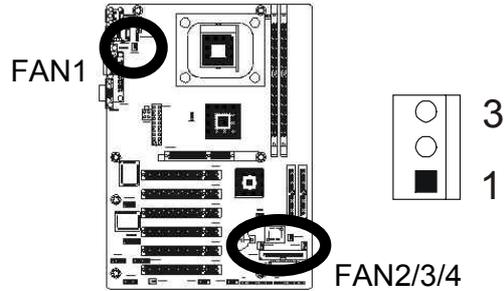
◆ **Wake On LAN Connector: WOL1**

Pin #	Assignment
1	5VSB
2	Ground
3	Data

● **Figure:**

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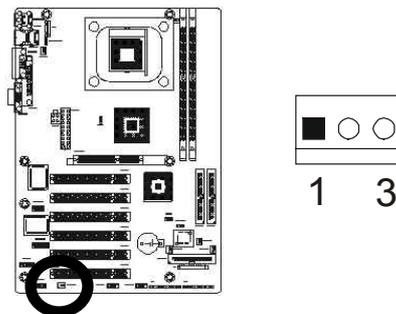
◆ System Panel Indicate Connector: J1 & J2

Pin #	J1 Assignment	Pin #	J2 Assignment
IR		**RESET**	
1	+5V	1	RESET+
2	FIRTX	2	RESET-
3	IRRX	**SPEAKER**	
4	Ground	4	SPEAKER
5	IRTX	5	NC
HDD LED		6	Ground
7	HDLED+	7	+5V
8	HDLED-	**PWR LED**	
TB LED		9	PWLED+
9	TBLED+	10	NC
10	TBLED-	11	PWLED-
PWR ON		**KEYLOCK**	
12	PWRBT+	12	KBLOCK
13	PWRBT-	13	Ground

● Figure:

33
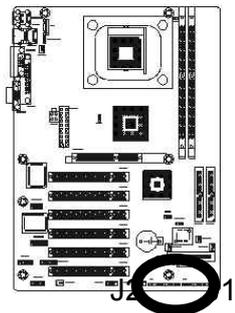
◆ Slim Floppy Disk Connector (26-pin FPC Connector): J5

Pin #	Assignment	Pin #	Assignment
1	+5V	14	Step
2	Index	15	Ground
3	+5V	16	Write_Data
4	Drive_Select	17	Ground
5	+5V	18	Write_Gate
6	Disk_Change	19	Ground
7	NC	20	Track
8	Ready	21	Ground
9	HD_Out	22	Write_Protect
10	Motor_On	23	Ground
11	Reserve	24	Read_Data
12	Direction	25	Ground
13	NC	26	Side_One

● **Figure:**

1   26
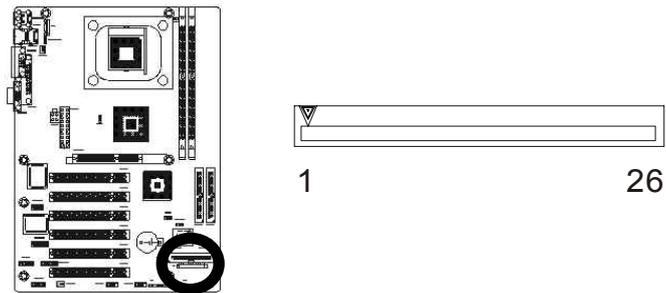
◆ **External K/B & M/S Connector (6-pin Male): J6**

Pin #	Assignment
1	MS Clock
2	MS Data
3	KB Clock
4	KB Data
5	Ground
6	VCC

● **Figure:**
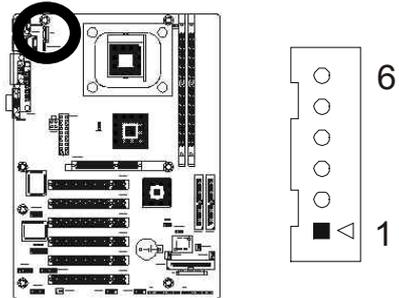
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AWARD BIOS SETUP

3.1 BIOS Instructions

Award's ROM BIOS provides a built-in Setup program, which allows user to modify the basic system configuration and hardware parameters. The modified data will be stored in a battery-backed CMOS, so that data will be retained even when the power is turned off. In general, the information saved in the CMOS RAM will stay unchanged unless there is a configuration change in the system, such as hard drive replacement or a device is added.

It is possible for the CMOS battery to fail, this will cause data loss in the CMOS only. If this does happen you will need to reconfigure your BIOS settings.

3.2 Main Menu

Once you enter the AwardBIOS™ CMOS Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from several setup functions and two exit choices. Use the arrow keys to select among the items and press <Enter> to accept and enter the sub-menu.

Phoenix - AwardBIOS CMOS Setup Utility

➤ Standard CMOS Feature	➤ Power BIOS Feature
➤ Advanced BIOS Feature	Load Fail-Safe Defaults
➤ Advanced Chipset Feature	Load Optimized Defaults
➤ Integrated Peripherals	Set Supervisor Password
➤ Power Management Setup	Set User Password
➤ PnP/PCI Configurations	Save & Exit Setup
➤ PC Health Status	Exit Without Saving

Esc: Quit	↑↓→←: Select Item
F10: Save & Exit Setup	
F6: Save CMOS To BIOS	F7: Load CMOS From BIOS

Time, Date, Hard Disk Type….

Note: that a brief description of each highlighted selection appears at the bottom of the screen.

Setup Items:
The main menu includes the following main setup categories. Recall that some systems may not include all entries.

Standard CMOS Features:
Use this menu for basic system configuration. See 3.3 for the details.

Advanced BIOS Features:
Use this menu to set the Advanced Features available on your system. See 3.5 for the details.

Advanced Chipset Features:
Use this menu to change the values in the chipset registers and optimize your system's performance. See 3.6 for the details.

Integrated Peripherals:
Use this menu to specify your settings for integrated peripherals. See 3.7 for the details.

Power Management Setup:
Use this menu to specify your settings for power management. See 3.8 for the details.

PnP / PCI Configuration:
This entry appears if your system supports PnP / PCI. See 3.9 for the details.

PC Health Status:
Use this menu to show your system temperature, speed and voltage status. See 3.10 for the details.

Power BIOS Feature:
Use this menu to specify your settings for frequency/voltage control. See 3.11 for the details.

Load Fail-Safe Defaults:
Use this menu to load the BIOS default values for the minimal/stable performance for your system to operate. See 3.12 for the details.

Load Optimized Defaults:
Use this menu to load the BIOS default values that are factory settings for optimal performance system operations. While Award has designed the custom BIOS to maximize performance, the factory has the right to change these defaults to meet their needs. See 3.13 for the details.

Supervisor / User Password:
Use this menu to set User and Supervisor Passwords. See 3.14 for the details.

Save & Exit Setup:
Save CMOS value changes to CMOS and exit setup. See 3.15 for the details.

Exit Without Save:
Abandon all CMOS value changes and exit setup. See 3.15 for the details.

3.3 Standard CMOS Features

The items in Standard CMOS Setup Menu are divided into 10 categories. Each category includes no, one or more than one setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.

```
            Phoenix - AwardBIOS CMOS Setup Utility
                    Standard CMOS Features
┌──────────────────────────────────────┬────────────────────────────┐
│                                       │                            │
│   Date (mm:dd:yy):     Mon, Aug 4 2003│       Item Help            │
│   Time (hh:mm:ss):     16:19:20       │ _____│
│                                       │                            │
│ ➢ IDE Primary Master   13579 MB       │ Menu Level    ➢            │
│ ➢ IDE Primary Slave    None           │                            │
│ ➢ IDE Secondary Master None           │ Change the day, month, year│
│ ➢ IDE Secondary Slave  None           │ and century                │
│                                       │                            │
│   Drive A              1.44M, 3.5 in. │                            │
│   Drive B              None           │                            │
│                                       │                            │
│   Video                EGA/VGA        │                            │
│   Halt On              All, But Keyboard                           │
│                                       │                            │
│   Based Memory         640K           │                            │
│   Extended Memory      515072K        │                            │
│   Total Memory         516096K        │                            │
│                                       │                            │
├──────────────────────────────────────┴────────────────────────────┤
│ ↑↓→←Move  Enter: Select  +/-/PU/PD: Value  F10: Save  ESC: Exit  F1: General Help│
│ F5: Previous Values   F6: Fail-safe defaults     F7: Optimized Defaults│
└────────────────────────────────────────────────────────────────────┘
```

Date: Options Month/DD/YYYY
Set the system date. Note that the 'Day' automatically changes when you set the date.

Time: Options HH : MM : SS
Set the system time.

IDE Primary Master: Options are in its sub menu (described in 3.4)
Press <Enter> to enter the sub menu of detailed options.

IDE Primary Slave: Options are in its sub menu (described in 3.4)
Press <Enter> to enter the sub menu of detailed options.

IDE Secondary Master: Options are in its sub menu (described in 3.4)
Press <Enter> to enter the sub menu of detailed options.

IDE Secondary Slave: Options are in its sub menu (described in 3.4)
Press <Enter> to enter the sub menu of detailed options.

Drive A/ Drive B: Options None 360K, 5.25 in/1.2M, 5.25 in/720K, 3.5 in/
1.44M, 3.5 in/2.88M, 3.5 in
Select the type of floppy disk drive installed in your system.

Video: Options EGA/VGA/CGA 40/CGA 80/MONO
Select the default video device.

Halt On: Options All Errors/No Errors/All, but Keyboard/All, but Diskette/All,
but Disk/Key
Select the situation in which you want the BIOS to stop the POST process
and notify you.

Base Memory: Option N/A
Displays the amount of conventional memory detected during boot up.

Extended Memory: Option N/A
Displays the amount of extended memory detected during boot up

Total Memory: Option N/A
Displays the total memory available in the system

3.4 IDE Adapters

The IDE adapters control the hard disk drive. Use a separate sub menu to configure each hard disk drive.

CMOS Setup Utility – Copyright © 1984 - 2001 Award Software
IDE Primary Master

IDE HDD Auto-Detection	Press Enter	Item Help
Write Cache	Enabled	
IDE Primary Master	Auto 2557 MB	
Access Mode	Auto	Menu Level ➢➢
Capacity	0MB	To auto-detect the HDD's size, head... on this channel
Cylinder	4956	
Head	16	
Precomp	0	
Landing Zone	4955	
Sector	63	

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

IDE HDD Auto-detection: Options Press Enter
Press Enter to auto-detect the HDD on this channel.   If detection is successful, it fills the remaining fields on this menu.

Write Cache: Options Enabled, Disabled.
This item allows you to enable or disable write cache.

IDE Primary Master: Options None, Auto and Manual
Selecting "Manual" lets you set the remaining fields on this screen. Selects the type of fixed disk. "User Type" will let you select the number of cylinders, heads, etc. Note: PRECOMP=65535 means NONE !

Access Mode: Options CHS, LBA, Large and Auto
Choose the access mode for this hard disk

Capacity: Options Auto Display your disk drive size
Disk drive capacity (Approximated). Note that this size is usually slightly greater than the size of a formatted disk given by a disk-checking program.

The following options are selectable only if the 'IDE Primary Master' item is set to "Manual"

Cylinder: Options Min = 0, Max = 65535
Set the number of cylinders for this hard disk.

Head: Options Min = 0, Max = 255
Set the number of read/write heads

Precomp: Options Min = 0, Max = 65535
**** **Warning**: Setting a value of 65535 means no hard disk

Landing zone: Options Min = 0, Max = 65535
****

Sector: Options Min = 0, Max = 255
Number of sectors per track

3.5 Advanced BIOS Features

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

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

Virus Warning	Disabled	Item Help
CPU L1 & L2 Cache	Enabled	
Quick Power On Self Test	Enabled	
APIC Mode	Enabled	Menu Level ➢
X MPS Version Control For OS	1.4	
HDD S.M.A.R.T. Capability	Disabled	Allow you to choose the VIRUS
➢ Boot Seq. & Floppy Setup	Press Enter	warning feature for IDE Hard Disk
Boot Up NumLock Status	On	boot sector protection. If this
Gate A20 Option	Fast	function is enabled and someone
Typematic Rate Setting	Disabled	attempt to write data into this area,
X Typematic Rate (Chars/Sec)	6	BIOS will show a warning message
X Typematic Delay (Msec)	250	on screen and alarm beep
Security Option	Setup	
OS Select For DRAM > 64MB	Non-OS2	

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

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

  Enabled---Activates automatically when the system boots up causing a warning message to appear when anything attempts to access the boot sector or hard disk partition table.

  Disabled---No warning message will appear when anything attempts to access the boot sector or hard disk partition table.

CPU L1 & L2 Cache:
These two categories speed up memory access. However, it depends on CPU/chipset design.

  Enabled---Enable cache
  Disabled---Disable cache

Quick Power On Self Test:

This category speeds up Power On Self Test (POST) after you power up the computer. If it is set to Enable, BIOS will shorten or skip some check items during POST.

     Enabled---Enable quick POST

     Disabled--- Normal POST

APIC Mode:

This item allows you to enable/disable APIC Mode.

     The choice: Enabled, Disabled.

MPS Version Control For OS:

Select the operating system that is Multi-Processors Version Control for OS.

     The choice: 1.4, 1.1.

HDD S.M.A.R.T Capability:

Enabled SMART hard driver functions for compatible. The default is disabled.

     The choice: Enabled, Disabled.

Boot Seq. & Floppy Setup:

Boot Seq. & Floppy Setup

		Item Help
First Boot Device	Floppy	
Second Boot Device	HDD-0	
Third Boot Device	LS120	
Boot Other Device	Enabled	Menu Level ➢
Swap Floppy Drive	Disabled	
Boot Up Floppy Seek	Enabled	
Report NO FDD For Win 95	No	

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

First/Second/Third Device:

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

     The choice: Floppy, LS/ZIP, HDD, SCSI, CDROM and Disabled.

Boot Other Device:
When enabled, the system searches all other possible locations for an operating system if it fails to find one in the devices specified under the first, second, and third boot devices.
        The Choice: Enabled, Disabled

Swap Floppy Drive:
If the system has two floppy drives, you can swap the logical drive name assignments.
        The choice: Enabled, Disabled.

Boot Up Floppy Seek:
Seeks disk drives during boot up. Disabling speeds boot up.
        The choice: Enabled, Disabled.

Report No FDD For Win 95:
Whether report no FDD for Win 95 or not.
        The choice: Yes, No.

Boot Up NumLock Status:
Select power on state for NumLock.
        The choice: On, Off.

Gate A20 Option:
Select if chipset or keyboard controller should control GateA20.
        Normal---A pin in the keyboard controller controls GateA20
        Fast---Lets chipset control GateA20

Typematic Rate Setting:
Keystrokes 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 Rate (Chars/Sec):
Sets the number of times a second to repeat a keystroke when you hold the key down.
        The choice: 6, 8, 10, 12, 15, 20, 24 and 30.

Typematic Delay (Msec):
Sets the delay time after the key is held down before it begins to repeat the keystroke.
    The choice: 250, 500, 750 and 1000.

Security Option:
Select whether the password is required every time the system boots or only when you enter setup.
    System---The system will not boot and access to Setup will be denied if the correct password is not entered at the prompt.
    Setup---The system will boot, but access to Setup will be denied if the correct password is not entered at the prompt.

Note: To disable security, select PASSWORD SETTING at Main Menu and then you will be asked to enter password. Do not type anything and just press <Enter>, it will disable security. Once the security is disabled, the system will boot and you can enter Setup freely.

OS Select For DRAM > 64MB:
Select the operating system that is running with greater than 64MB of RAM on the system.
    The choice: Non-OS2, OS2.

3.6 Advanced Chipset Features

This section allows you to configure the system based on the specific features of the installed chipset. This chipset manages bus speeds and access to system memory resources, such as DRAM and the external cache. It also coordinates communications between the conventional ISA bus and the PCI bus. It must be stated that these items should never need to be altered. The default settings have been chosen because they provide the best operating conditions for your system. The only time you might consider making any changes would be if you discovered that data was being lost while using your system.

```
              Phoenix - AwardBIOS CMOS Setup Utility
                     Advanced Chipset Features
┌──────────────────────────────────────────┬──────────────────────────┐
│   DRAM Timing Selectable      By SPD      │        Item Help         │
│ X CAS Latency Time            2           │                          │
│ X Active To Precharge Delay   6           │                          │
│ X DRAM RAS# To CAS# Delay     3           │ Menu Level    ➢          │
│ X DRAM RAS# Precharge         3           │                          │
│   System BIOS Cacheable       Enabled     │                          │
│   Video BIOS Cacheable        Disabled    │                          │
│   Delayed Transaction         Enabled     │                          │
│   Command Per Clock           Auto        │                          │
│   Fast CS#                    Auto        │                          │
│   Delay Prior To Thermal      16Min.      │                          │
│   AGP Aperture Size (MB)      64          │                          │
│ ** On-Chip VGA Setting **                 │                          │
│   On-Chip VGA                 Enabled     │                          │
│   On-Chip Frame Buffer Size   8MB         │                          │
│   Boot Display                Auto        │                          │
│   TV Format                   Auto        │                          │
├──────────────────────────────────────────┴──────────────────────────┤
│ ↑↓→←Move  Enter: Select  +/-/PU/PD: Value  F10: Save  ESC: Exit  F1: General Help │
│ F5: Previous Values    F6: Fail-safe defaults      F7: Optimized Defaults │
└──────────────────────────────────────────────────────────────────────┘
```

DRAM Timing Selectable:
Select the operating system that is selecting DRAM timing, so select SPD for setting SDRAM timing by SPD.
     The choice: Manual, By SPD.

CAS Latency Time:
When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing.
     The choice: 1.5, 2, 2.5.

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Active To Precharge Delay:
Select the operating system that is active to precharge delay.
The choice: 5, 6, 7.

DRAM RAS# To CAS# Delay:
This field let's 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.
The choice: 2, 3.

DRAM RAS# Precharge:
If an insufficient number of cycles are 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.
The choice: 2, 3.

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 choice: Enabled, Disabled.

Video BIOS Cacheable:
Select "Enabled" allows caching of the video BIOS, resulting in better system performance. However, if any program writes to this memory area, a system error may result.
The choice: Enabled, Disabled.

Delayed Transaction:
The chipset has an embedded 32-bit posted write buffer to support delay transactions cycles. Select "Enabled" to support compliance with PCI specification version 2.2.
The choice: Enabled, Disabled.

Command Per Clock:
Select this item allows the command per clock for system.
The choice: Auto, Enabled, Disabled.

Fast CS#:
Select this item allows the Fast CS# function.
The choice: Auto, Enabled, Disabled.

Delay Prior To Thermal:
Select this item allows the delay prior to thermal time.
The choice: 4Min, 8Min, 16Min, 32Min.

AGP Aperture Size (MB):
This field determines the effective size of the Graphic Aperture used for a particular GMCH configuration. It can be updated by the GMCH-specific BIOS configuration sequence before the PCI standard bus enumeration sequence takes place. If it is not updated then a default value will select an aperture of maximum size.
The choice: 32, 64, 128 and 256.

On-Chip VGA
Select this item allows you to control the on-chip VGA.
The choice: Enabled, Disabled.

On-Chip Frame Buffer Size:
Select this item allows you to control the on-chip frame buffer size.
The choice: 1MB, 8MB.

Boot Display:
Select this item allows you to set the boot display device.
The choice: Auto, CRT, TV, EFP.

TV Format:
Select this item allows you to set the TV format.

3.7   Integrated Peripherals

Phoenix - AwardBIOS CMOS Setup Utility
Integrated Peripherals

		Item Help
➢ Onboard IDE Device Setup	Press Enter	
➢ Onboard PCI Device Setup	Press Enter	_____
➢ Onboard I/O Chip Setup	Press Enter	
Init Display First	Onboard AGP	Menu Level ➢
Onboard Serial Port 3	3E8	
Serial Port 3 Use IRQ	IRQ10	
Onboard Serial Port 4	2E8	
Serial Port 4 Use IRQ	IRQ11	
Intel LAN Boot ROM	Disabled	

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

Onboard IDE Device Setup:

Onboard IDE Device Setup

		Item Help
On-Chip Primary PCI IDE	Enabled	
IDE Primary Master PIO	Auto	_____
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 Values   F6: Fail-safe defaults   F7: Optimized Defaults

OnChip 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.
The choice: Enabled, Disabled.

IDE Primary/Secondary Master/Slave PIO:
The four IDE PIO (Programmed Input/Output) fields let you set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.
     The choice: Auto, Mode 0, Mode 1, Mode 2, Mode 3 and 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 choice: Auto, 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 optimal number of block read/writes per sector the drive can support.
     The choice: Enabled, Disabled

Onboard PCI Device Setup:

Onboard PCI Device Setup

		Item Help
USB Controller	Enabled	
USB 2.0 Controller	Enabled	
USB Keyboard Support	Auto	
USB Mouse Support	Disabled	Menu Level ➢
Onboard LAN Controller	Enabled	

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

USB / USB 2.0 Controller:
Select "Enabled" if your system contains a Universal Serial Bus (USB) / USB 2.0 controller and you have USB peripherals.
     The choice: Enabled, Disabled.

USB Keyboard Support:

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

The choice: Enabled, Disabled, Auto.

USB Mouse Support:

Select "Enabled" if your system contains a Universal Serial Bus (USB) controller and you have a USB mouse.

The choice: Enabled, Disabled.

Onboard LAN Controller:

Select "Enabled" to Enables the onboard LAN feature.

The choice: Enabled, Disabled.

Onboard I/O Chip Setup:

Onboard I/O Chip Setup

		Item Help
Onboard FDC Controller	Enabled	
Onboard Serial Port 1	3F8/IRQ4	
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 Values   F6: Fail-safe defaults   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 and-in FDC or the system has no floppy drive, select Disabled in this field.

The choice: Enabled, Disabled.

Onboard Serial Port 1/Port 2:
Select an address and corresponding interrupt for the first and second serial ports.
> The choice: 3F8/IRQ4, 2E8/IRQ3, 3E8/IRQ4, 2F8/IRQ3, Disabled and Auto.

UART Mode Select:
This item allows you to select UART mode.
> The choice: IrDA, ASKIR and Normal.

RxD, TxD Active:
This item allows you to determine the active of RxD, TxD.
> The Choice: "Hi, Hi", "Lo, Lo", "Lo, Hi" and "Hi, Lo".

IR Transmission delay:
This item allows you to enable/disable IR transmission delay.
> The choice: Enabled, Disabled.

UR2 Duplex Mode:
This item allows you to select the IR half/full duplex function.
> The choice: Half, Full.

Use IR Pins:
This item allows you to select IR transmission routes, one is RxD2m, TxD2 (COM Port) and the other is IR-Rx2Tx2.
> The choice: IR-Rx2Tx2, RxD2 and TxD2.

Onboard Parallel Port:
This item allows you to determine access onboard parallel port controller with which I/O address.
> The choice: 3BC/IRQ7, 378/IRQ7, 278/IRQ5 and Disabled.

Parallel Port Mode:
Select an operating mode for the onboard parallel (printer) port. Select Normal, Compatible, or SPP unless you are certain your hardware and software both support one of the other available modes.
> The choice: SPP, EPP, ECP and ECP+EPP.

EPP Mode Select:
Select EPP port type 1.7 or 1.9.
        The choice: EPP1.7, 1.9.

ECP Mode Use DMA:
Select a DMA channel for the parallel port for use during ECP mode.
        The choice: 3, 1.

Init Display First:
This item allows you to decide to active whether PCI Slot or on-chip VGA first.
        The choice: PCI Slot, Onboard/AGP.

Onboard Serial Port 3/Port4:
Select an address for the third and forth serial ports.

Serial Port 3/Port 4 Use IRQ:
Select an IRQ for the third and forth serial ports.

Intel Lan Boot ROM:
This item allows you to decide whether to invoke the boot ROM of the onboard LAN chip.
        The choice: Enabled, Disabled.

3.8 Power Management Setup

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

```
                    Phoenix - AwardBIOS CMOS Setup Utility
                           Power Management Setup
┌─────────────────────────────────────────────┬─────────────────────────────┐
│                                              │                             │
│   Power ON Function          Hot Key         │          Item Help          │
│   KB Power ON Password       Enter           │  _____   │
│   Hot Key Power ON           Ctrl-F1         │                             │
│   PWRON After PWR-Fail       Off             │  Menu Level      ➢          │
│   Power Management           User Define     │                             │
│   Video Off Method           DPMS            │                             │
│   Video Off In Suspend       Yes             │                             │
│   Suspend Type               Stop Grant      │                             │
│   MODEM Use IRQ              3               │                             │
│   Suspend Mode               Disabled        │                             │
│   HDD Power Down             Disabled        │                             │
│   Soft-Off by PWR-BTTN       Instant-Off     │                             │
│   CPU THER-Throttling        50.0%           │                             │
│   Wake-Up by PCI card        Disabled        │                             │
│   Power On By Ring or WOL    Enabled         │                             │
│   Resume by Alarm            Disabled        │                             │
│ X Date (of Month) Alarm      0               │                             │
│ X Time (hh:mm:ss) Alarm      0 : 0 : 0       │                             │
│                                              │                             │
│ ** Reload Global Timer Events **             │                             │
│   Primary IDE 0              Disabled        │                             │
│   Primary IDE 1              Disabled        │                             │
│   Secondary IDE 0            Disabled        │                             │
│   Secondary IDE 1            Disabled        │                             │
│   FDD, COM, LPT Port         Disabled        │                             │
│   PCI PIRQ [A-D]#            Disabled        │                             │
│                                              │                             │
├─────────────────────────────────────────────┴─────────────────────────────┤
│  ↑↓→←Move  Enter: Select  +/-/PU/PD: Value  F10: Save  ESC: Exit  F1: General Help │
│  F5: Previous Values    F6: Fail-safe defaults      F7: Optimized Defaults  │
└────────────────────────────────────────────────────────────────────────────┘
```

Power On Function:
You can use this item to select operating Power On the system.
    The choice: Password, Hot Key, Any Key, Button only, Keyboard 98.

KB Power ON Password:
You can use this item to limit operating KB Power On system.
    The choice: Enter.

Hot Key Power ON:
You can use this item to select operating Hot Key to Power On system.
     The choice: Ctrl-F1~F12.

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

> **Min. Power Saving:**
> Minimum power management. Doze Mode = 1 hr. Standby Mode = 1 hr., Suspend Mode = 1 hr., and HDD Power Down = 15 min.

> **Max. Power Saving:**
> Maximum power management -- **ONLY AVAILABLE FOR SL CPU's**. Doze Mode = 1 min., Standby Mode = 1 min., Suspend Mode = 1 min., and HDD Power Down = 1 min.

> **User Defined:**
> Allow you to set each mode individually. When not disabled, each of the ranges is from 1 min. to 1 hr. except for HDD Power Down, which ranges from 1 min. to 15 min. and disable.

Video Off Method:
This determines the manner in which the monitor is blanked.

> **V/H SYNC+Blank:**
> This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.

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

> **DPMS:**
> Initial display power management signaling.

Video Off In Suspend:
This determines the manner in which the monitor is blanked.
    The choice: Yes, No.

Suspend Type:
Select the Suspend Type.
    The choice: PWRON Suspend, Stop Grant.

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

Suspend Mode:
When "Enabled" and after the set time of system inactivity. All devices except the CPU will be shut off.
    The choice: Disabled, 1, 2, 4, 8, 12, 20, 30, 40 Min and 1Hour.

HDD Power Down:
When "Enabled" and after the set time of system inactivity, the hard disk drive will be powered down while all other devices remain active.
    The choice: Disabled, 1~15Min.

Soft-Off by PWR-BTTN:
Pressing the power button for more than 4 seconds forces the system to enter the Soft-Off state when the system has "hung."
    The choice: Delay 4 Sec, Instant-Off.

CPU THER-Throttling:
Select the CPU THRM-Throttling rate.
    The choice: 12.5%, 25.0%, 37.5%, 50.0%, 62.5%, 75.0% and 87.5%.

Wake-Up by PCI Card:
An input signal from PME on the PCI card awakens the system from a soft off state.
    The choice: Enabled, Disabled.

Power On by Ring or WOL:
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 choice: Enabled, Disabled.

Resume by Alarm:
When "Enabled", your can set the date and time at which the RTC (real-time clock) alarm awakens the system from Suspend mode.
The choice: Enabled, Disabled.

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

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

3.9 PnP/PCI Configurations

This section describes configuring the PCI bus system. PCI, or **P**ersonal **C**omputer **I**nterconnect, is a system, which allows I/O devices to operate at speeds nearing the speed the CPU itself uses when communicating with its own special components. This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.

```
                Phoenix - AwardBIOS CMOS Setup Utility
                       PnP/PCI Configurations
┌──────────────────────────────────────────────┬──────────────────────────┐
│                                               │                          │
│   Resources Controlled By      Auto (ESCD)    │      Item Help           │
│ X IRQ Resources                Press Enter    │ _____ │
│                                               │                          │
│   PCI/VGA Palette Snoop        Disabled       │ Menu Level    ➤          │
│   PCI Latency Timer (CLK)      32             │                          │
│   AGP SLOT4 INT Assignment     Auto           │ BIOS can automatically   │
│   SLOT 5 INT Assignment        Auto           │ configure all the boot and Plug │
│   SLOT 1/6 INT Assignment      Auto           │ Play compatible devices. │
│   SLOT 2 INT Assignment        Auto           │                          │
│   SLOT 3 INT Assignment        Auto           │ If you choose Auto, you cannot │
│                                               │ select IRQ DMA and base  │
│                                               │ address fields since BIOS │
│                                               │ automatically assigns them. │
│                                               │                          │
├──────────────────────────────────────────────┴──────────────────────────┤
│  ↑↓→←Move  Enter: Select  +/-/PU/PD: Value  F10: Save  ESC: Exit  F1: General Help │
│  F5: Previous Values    F6: Fail-safe defaults      F7: Optimized Defaults │
└──────────────────────────────────────────────────────────────────────────┘
```

Resource 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 preceded by a "➤").

The choice: Auto (ESCD), Manual.

IRQ Resources:

Phoenix - AwardBIOS CMOS Setup Utility

IRQ Resources

			Item Help
IRQ3	assigned to	PCI Device	_____
IRQ4	assigned to	PCI Device	
IRQ5	assigned to	PCI Device	
IRQ7	assigned to	PCI Device	Menu Level ➤
IRQ8	assigned to	PCI Device	
IRQ9	assigned to	PCI Device	
IRQ10	assigned to	PCI Device	
IRQ11	assigned to	PCI Device	
IRQ12	assigned to	PCI Device	
IRQ14	assigned to	PCI Device	
IRQ15	assigned to	PCI Device	

↑↓→←Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help

F5: Previous Values F6: Fail-safe defaults F7: Optimized Defaults

IRQ3~15:
When resources are controlled manually, assign each system interrupt a type, depending on the type of device using the interrupt.

PCI/VGA Palette Snoop:
Leave this field at "Disabled".
   The choice: Enabled, Disabled.

SLOTs INT Assignment:
It allows you to assign slots IRQ DMA and address. If you choose Auto, you can't select IRQ DMA and base address fields since BIOS automatically assigns them.

3.10 PC Health Status

Phoenix - AwardBIOS CMOS Setup Utility

PC Health Status

CPU Warning Temperature	Disabled	Item Help
Current CPU Temp.	40°C / 104°F	
Current System Temp.	24°C / 75°F	
Current Chassis Fan Speed	3283RPM	Menu Level ➢
Current CPU Fan Speed	5152RPM	
Current Power Fan Speed	4182RPM	
Current CPUFan4 Speed	0	
Vagp (V)	1.52V	
Vcore (V)	1.71V	
Vdimm (V)	2.48V	
+ 5 V	4.81V	
+12 V	11.73V	
-12 V	-11.78V	
- 5 V	-5.04V	
VBAT (V)	3.02V	
5VSB (V)	5.04V	
ACPI Shutdown Temperature	Disabled	

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

CPU Warning Temperature:
This item will prevent CPU from overheating.
        The choice: The choice: 50°C / 122°F~70°C / 158°F, Disabled.

Current CPU Temp:
Show you the current CPU temperature.

Current System Temp:
Show you the current system temperature.

Current Chassis Fan Speed:
Show you the current CPU fan operating speed.

Current CPU Fan Speed:
Show you the current CPU fan operating speed.

Current Power Fan Speed:
Show you the current Power fan operating speed.

Current CPUFan4 Speed:

Show you the current Fan4 operating speed.

+5V/+12V/-12V/-5V:

Show you the voltage of +5V/+12V/-12V/-5V.

Shutdown Temperature:

This item allows you to set up the CPU shutdown Temperature. This item is only effective under Windows[®] 98 ACPI mode.

> The choice: Disabled, 60°C / 140°F, 65°C / 149°F, 70°C / 159°F
> 5°C / 167°F, 80°C / 176°F, 85°C / 185°F, 90°C / 194°F
> and 95°C/ 203°F

3.11 Power BIOS Feature

Phoenix - AwardBIOS CMOS Setup Utility
Frequency/Voltage Control

CPU Clock Ratio	21X	Item Help
Auto Detect PCI CLK	Enabled	
Spread Spectrum Modulated	Disabled	
CPU FSB / SPEED	133MHz/2.40GHz	Menu Level ➢
Memory Frequency	Auto=>DDR266	
Next boot AGP/PCI is	66/33MHz	
AGP / PCI Clock	Auto	

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

CPU Clock Ratio:
This item allows you to set up the CPU clock ratio, but this function depends on different CPU performance. It is only effective for those clock ratio haven't been locked.
        The choice: X12 ~ X21

Auto Detect PCI CLK:
When "Enabled", this item will auto detect if the PCI slot have devices and will send clock signal to PCI devices. When disabled, it will send the clock signal to PCI slot.
        The choice: Enabled, Disabled.

Spread Spectrum Modulated:
This item allows you to enabled or disabled the Spread Spectrum Modulated.
        The choice: Disabled, -0.25%, -0.50% and -0.75%.

CPU FSB / SPEED:
This item allows you to enabled or disabled the CPU FSB speed.
        The choice: 90MHz, 100MHz, 133MHz and 200MHz.

Memory Frequency:
This item allows you to select the Memory Frequency.
        The choice: 200MHz, 266MHz, 333MHz and Auto.

AGP / PCI Clock:
This item allows you to select the AGP/PCI Clock.

3.12 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 Defaults (Y/N)? N

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

3.13 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)? N

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

3.14 Supervisor/User Password Setting

You can set either supervisor or user password, or both of then. The differences between are:

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

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

<div align="center">ENTER PASSWORD:</div>

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

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

<div align="center">PASSWORD DISABLED.</div>

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

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

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

3.15 Exit Selecting

Save & Exit Setup
Pressing <Enter> on this item asks for confirmation:

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

Pressing "Y" stores the selections made in the menus in CMOS – a special section of memory that stays on after 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
Pressing <Enter> on this item asks for confirmation:

Quit without saving (Y/N)? Y

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.