

PM845GV1/ PM845GE1/ PM845GL1/ PM845GL1-533

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FCC Compliance Statement

This equipment has been tested and found to comply with the limits of a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. However, there is no guarantee that interference will not occur in a particular installation.

**PM845GV1/ PM845GE1/
PM845GL1/ PM845GL1-533**
Intel® 82845GV / GE / GL & 82801DB
Supports Socket-478 Intel® Pentium® 4 Processor

Hyper-Threading Technology

Enabling Hyper-Threading Technology for your computer system requires ALL of the following:

- **CPU:** An Intel® Pentium® 4 Processor with HT Technology
- **Chipset:** An Intel® Chipset that supports HT Technology
- **BIOS:** A BIOS that supports HT Technology
- **OS:** An operating system that supports HT Technology

For more information on Hyper-Threading Technology, go to:
www.intel.com/info/hyperthreading

** Note: PM845GL1/ PM845GL1-533 does not support the Hyper-Threading Technology!*

** Note: PM845GE1 supports only 4X, 1.5V AGP cards. Installing any other AGP card may damage some of the components.*

** Note: The PM845GV1/ PM845GL1/ PM845GL1-533 supports only ADD cards. You cannot install AGP cards on these mainboards!!*

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Chapter 1. Introduction

Introduction

Congratulations for choosing from the recent line of high performance mainboards: the PM845GV1/ PM845GE1/ PM845GL1/ PM845GL1-533. These mainboards were designed to take advantage of the latest industry technology to provide you with the ultimate solution in data processing. In the tradition of its predecessors, these mainboard continue a commitment to reliability and performance and strives for full compliance and compatibility with industry software and hardware standards. These mainboards contain on board I/O facilities, which include a parallel port, a VGA port, a PS/2 mouse port, a PS/2 keyboard port, audio ports, 4 USB ports (two require a bracket), a LAN port, and a game port. They also contain on board IDE facilities for IDE devices such as hard disks and CD-ROM Drives. These mainboards all support the Pentium® 4 CPU, an industry leading processor. They also comply with the PC Micro-ATX form factor specifications. This mainboard supports the most popular operating systems such as Windows® 9X/ ME/ 2000/ XP.

Specification

CPU

- Supports Socket-478 Pentium® 4 processors
- The PM845GV1/ PM845GE1 supports Hyper-Threading Technology

Speed

- PM845GV1/PM845GE1/PM845GL1-533 supports Front Side Bus 400/533 MHz
PM845GL1 supports Front Side Bus 400 MHz
- 33MHz 32-bit PCI slot
- The PM845GE1 supports AGP 4X (AGP 2.0) data transfer mode

Flash Memory

- Supports flash memory functionality
- Supports ESCD functionality

Shadow RAM

- Mainboard is equipped with a memory controller providing shadow RAM and support for ROM BIOS.

Graphics Controller

- Integrated 2D/3D graphics accelerator
- 256-bit graphics core
- Texture mapped 3D with point sampled, Bilinear, Trilinear, and Anisotropic filtering
- Hardware motion compensation assistance for software MPEG/DVD decoding
- Intel Digital Video (DVO) ports support digital displays and TV-out
- Integrated 350MHz RAMDAC
- PM845GV1/ PM845GE1/ PM845GL1/ PM845GL1-533 analog port utilizes an integrated 350 MHz RAMDAC that can enhance the resolution of a standard progressive scan analog monitor to 2048x1536 pixels with 32-bit color at 60Hz.
- In dual-channel mode, the PM845GV1/ PM845GE1/ PM845GL1/ PM845GL1-533 can increase the resolution of a flat panel monitor to 2048x1536 @ 60 Hz or increase the resolution of a dCRT/HDTV monitor to 1920x1080 @ 85 Hz.

Chipset

- North Bridge – Intel 82845GV (PM845GV1) /
Intel 82845GE (PM845GE1) /
Intel 82845GL (PM845GL1/ PM845GL1-533)
- South Bridge – Intel 82801DB(ICH4)
- IO – Winbond Smart IO 83627HF
- LAN Chip –3COM 3C910-A01
- AC'97 Codec – Realtek ALC202A

Memory Controller

- PM845GV1/PM845GL1/ PM845GL1-533 supports 200/ 266 DDR SDRAM, total capacity 2GB, PM845GE1 supports 266/ 333 DDR SDRAM, total capacity 2 GB
- Supports 2-bank DIMM memory with a total capacity of up to 1 GB
- Supports 64 MB, 128 MB, 256 MB, 512 MB and 1 GB DDR DIMM module
- Supports unbuffered non-ECC DIMM only
- Supports only x8 and x16 DDR SDRAM devices with 4-banks
- Does not support double-sided x16 DDR DIMM

Accelerated Graphics Port interface

- PM845GE1 supports a single, 1.5V, AGP 2.0 compliant device
- PM845GV1/ PM845GL1/ PM845GL1-533 supports ADD cards only

Green Functionality

- Supports PHOENIX-AWARD™ BIOS power management functionality
- Wakes from power saving sleep mode with any keyboard or mouse activity

BUS Slots

- Contains one AGP slot
(PM845GV1/ PM845GL1/ PM845GL1-533 supports ADD cards only)
- Contains two 32-bit PCI bus slots (PCI 2.2 compliant)

Ultra ATA 100 Support (IDE 1/ 2)

- IDE 1,2 supports Ultra ATA 100/66/33, BMIDE and PIO modes
- Supports up to 4 drives, using cables with separate IDE connections for master and slave drives

LAN Integrated

- Supports 10/100 Mbit/s Ethernet

Hardware Monitor Function

- Monitors CPU Fan Speed
- Monitors Chassis Fan Speed
- Monitors System Voltage

Universal Serial Bus

- Supports two back panel Universal Serial Bus Ports and two front panel Universal Serial Bus Ports
- USB 2.0 compliance

AC'97 Sound Codec Onboard

- High performance CODEC with high S/N ratio (>90 dB)
- Compatible with AC'97 2.2 specification
- 2 channel slot selectable DAC output for multi-channel applications.
- 3D Stereo enhancement
- Digital S/PDIF output

I/O facilities

- One multi-mode Parallel Port capable of supporting the following specifications:
 1. Enhanced Parallel Port (EPP)
 2. Extended Capabilities Port (ECP)
 3. PS/2 compatible bi-directional parallel port
- One serial port, 16550 UART with 16-byte send/receive FIFOs
- One VGA port
- PS/2 mouse and PS/2 keyboard connectors
- Supports 360 KB, 720 KB, 1.2 MB, 1.44 MB, and 2.88 MB floppy disk drives
- MIDI compatible
- Game port compatible

Dimensions (Micro-ATX form-factor)

- 200mm x 244mm (WxL)

BIOS

- PHOENIX legal BIOS
- Supports APM1.2
- Supports USB legacy
- Supports ACPI Power Management

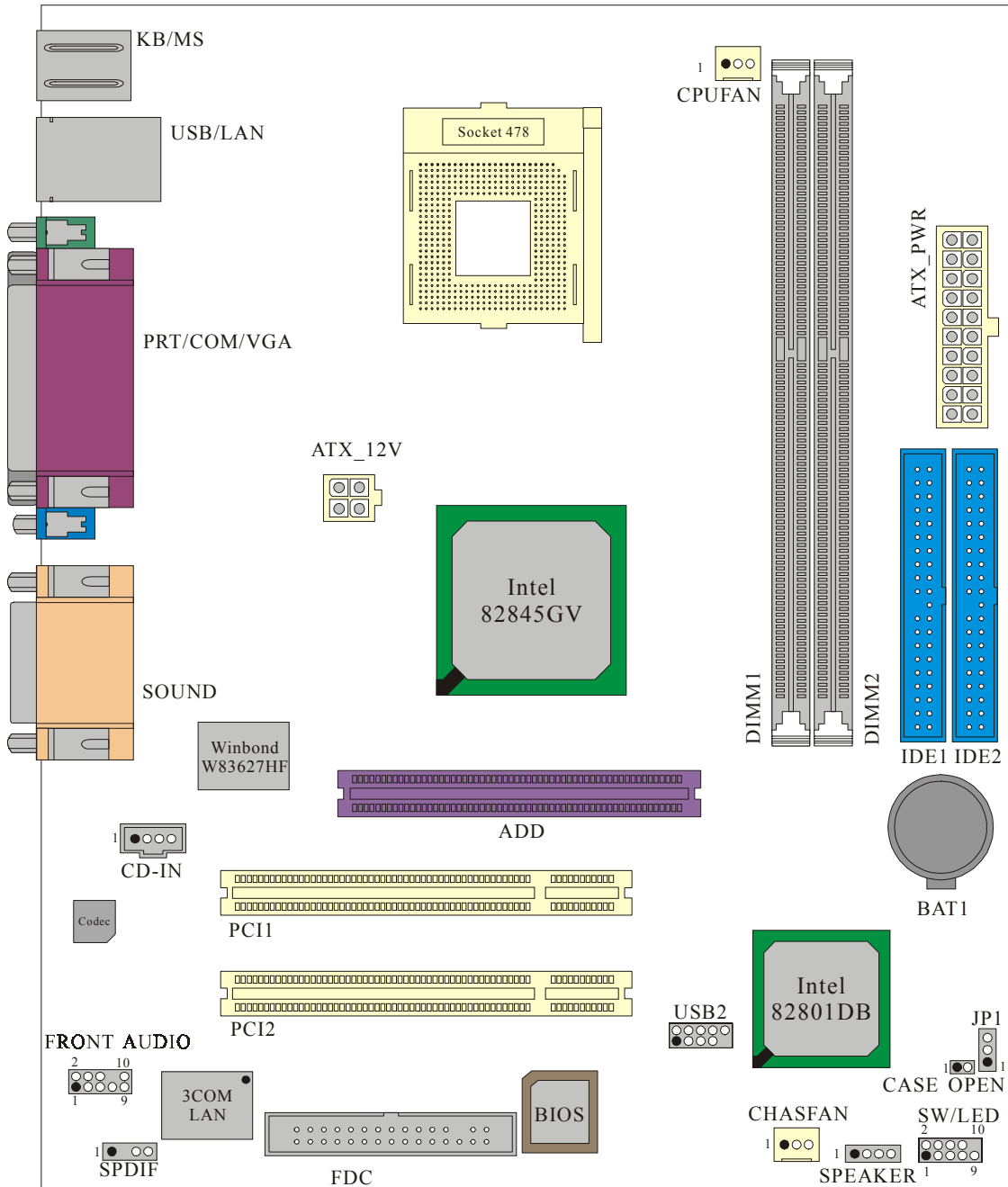
Watch Dog Timer

- This mainboard contains a special feature called the “Watch Dog Timer” which is used to detect when the system is unable to handle over-clocking configurations during POST stage. Once detected the system will reset the configurations and reboot the system after five seconds.

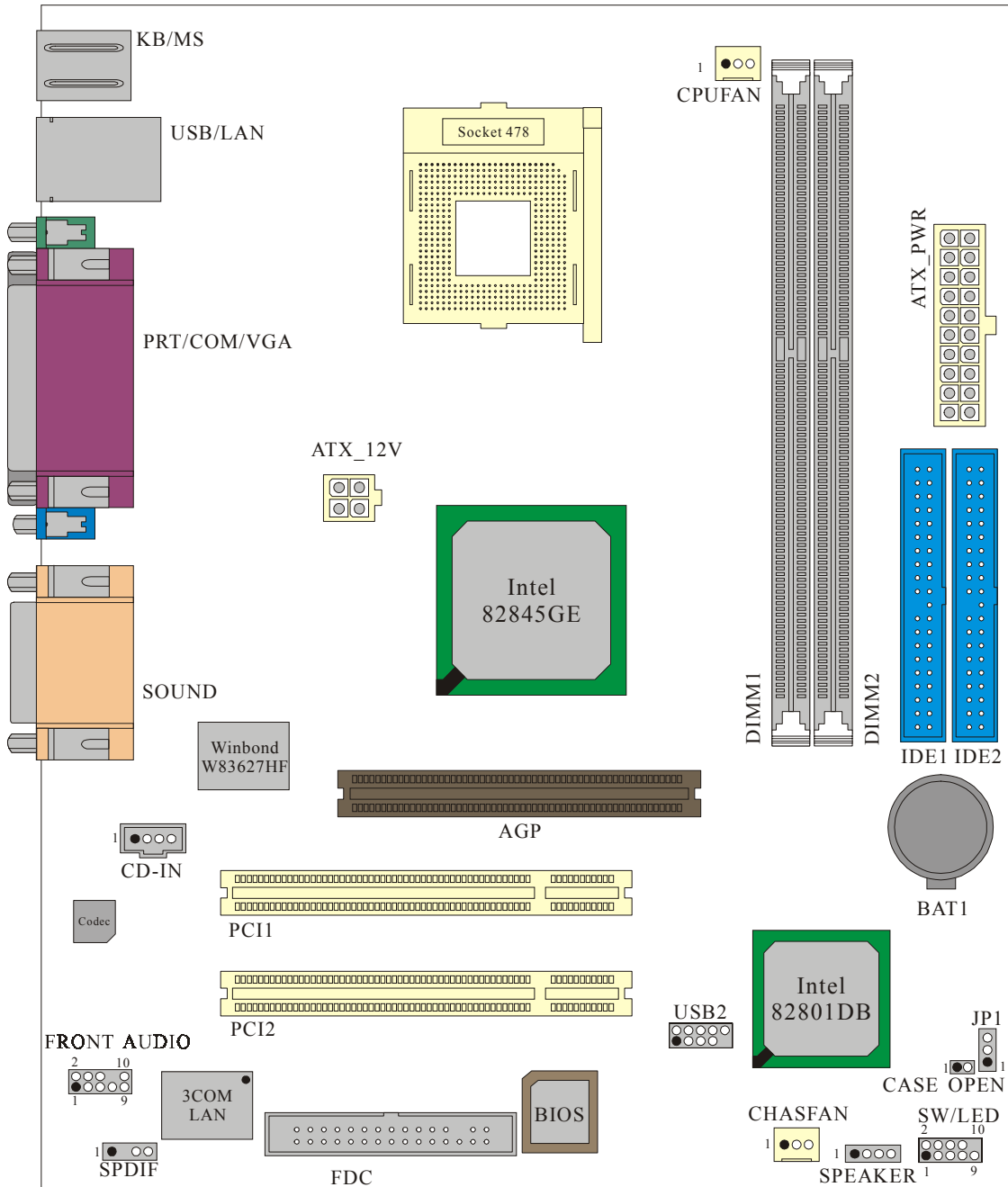
Package Contents

- HDD Cable
- FDD Cable
- Installation and Setup CD
- User’s Manual

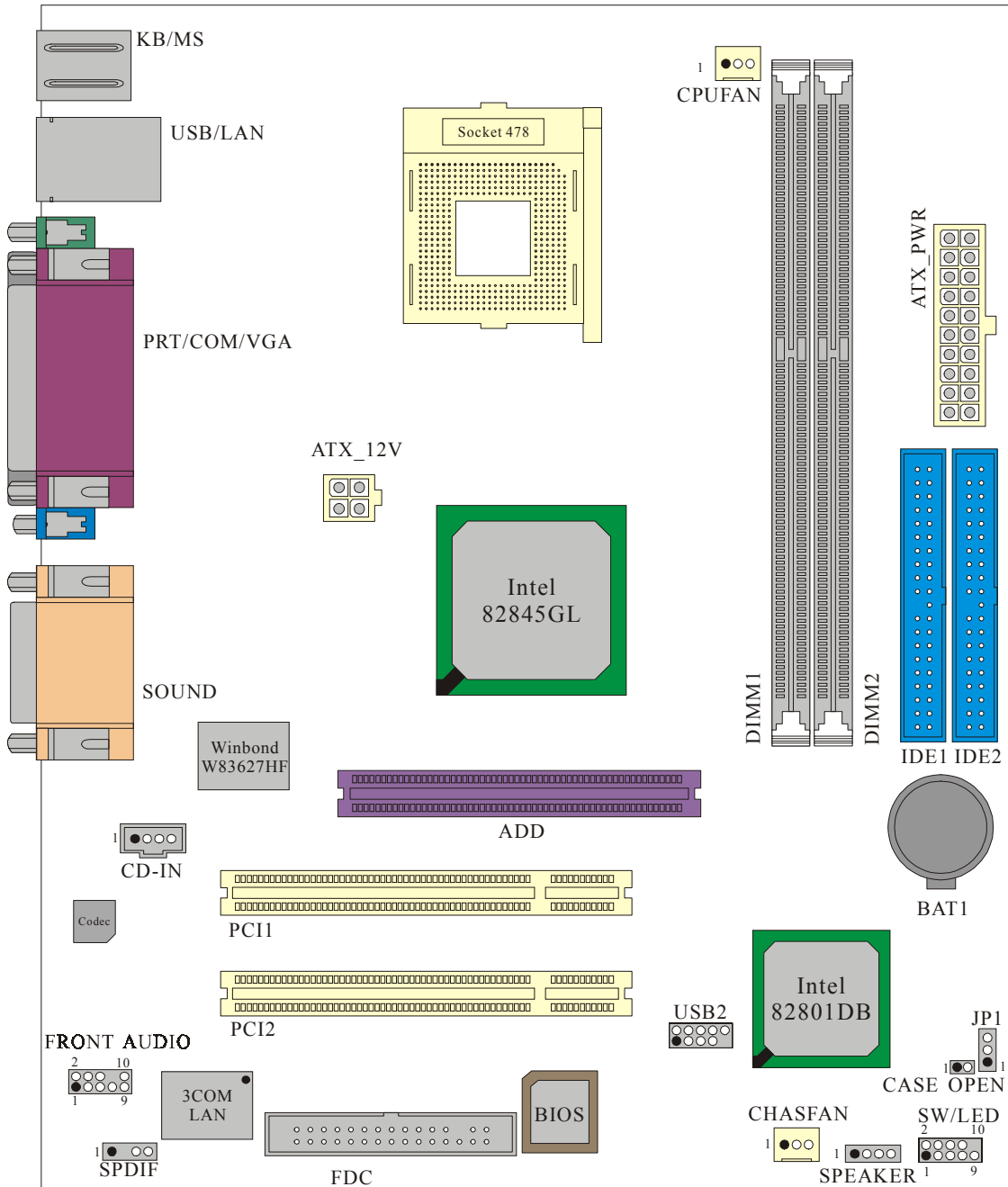
Configuration Layout of PM845GV1



Layout of PM845GE1



Layout of PM845GL1/ PM845GL1-533



CPU Processor Installation

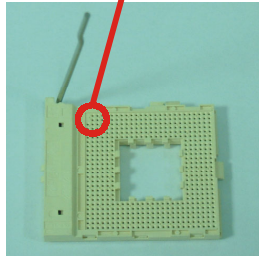
This mainboard supports Intel® Pentium® 4 processors using a Socket-478.

Before installation of your CPU, we suggest you visit the Intel website and review the processor installation procedures. <http://www.intel.com>

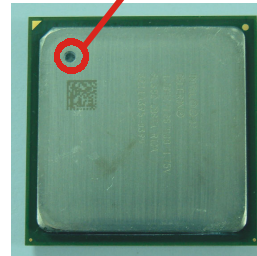
CPU Socket-478 Configuration Steps:

1. Locate the CPU socket on your mainboard and nudge the lever away from the socket. Then lift the lever to a 90-degree angle.
2. On the socket, locate the corner that has the pin-1 receptor. This corner will have a cut-corner on the rectangular shaped pattern of pin holes on the socket. Match the dot on the CPU with the pin-1 receptor on the socket and lower the CPU onto the socket. The bottom of CPU should be flush with the face of socket.

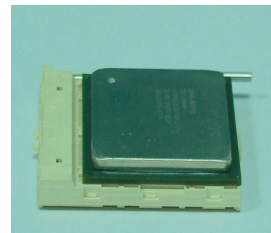
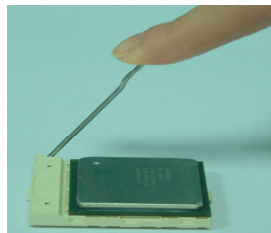
Pin1 Receptor



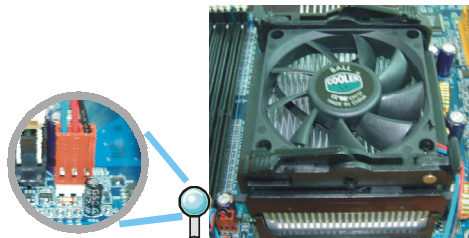
Dot



3. Lower the lever until it snaps back into position. This will lock down the CPU.




4. Smear thermal grease on top of the CPU. Lower the CPU fan onto the CPU and use the clasps on the fan to attach it to the socket. Finally, extend the power cable from the fan and insert it into the CPUFAN adapter.



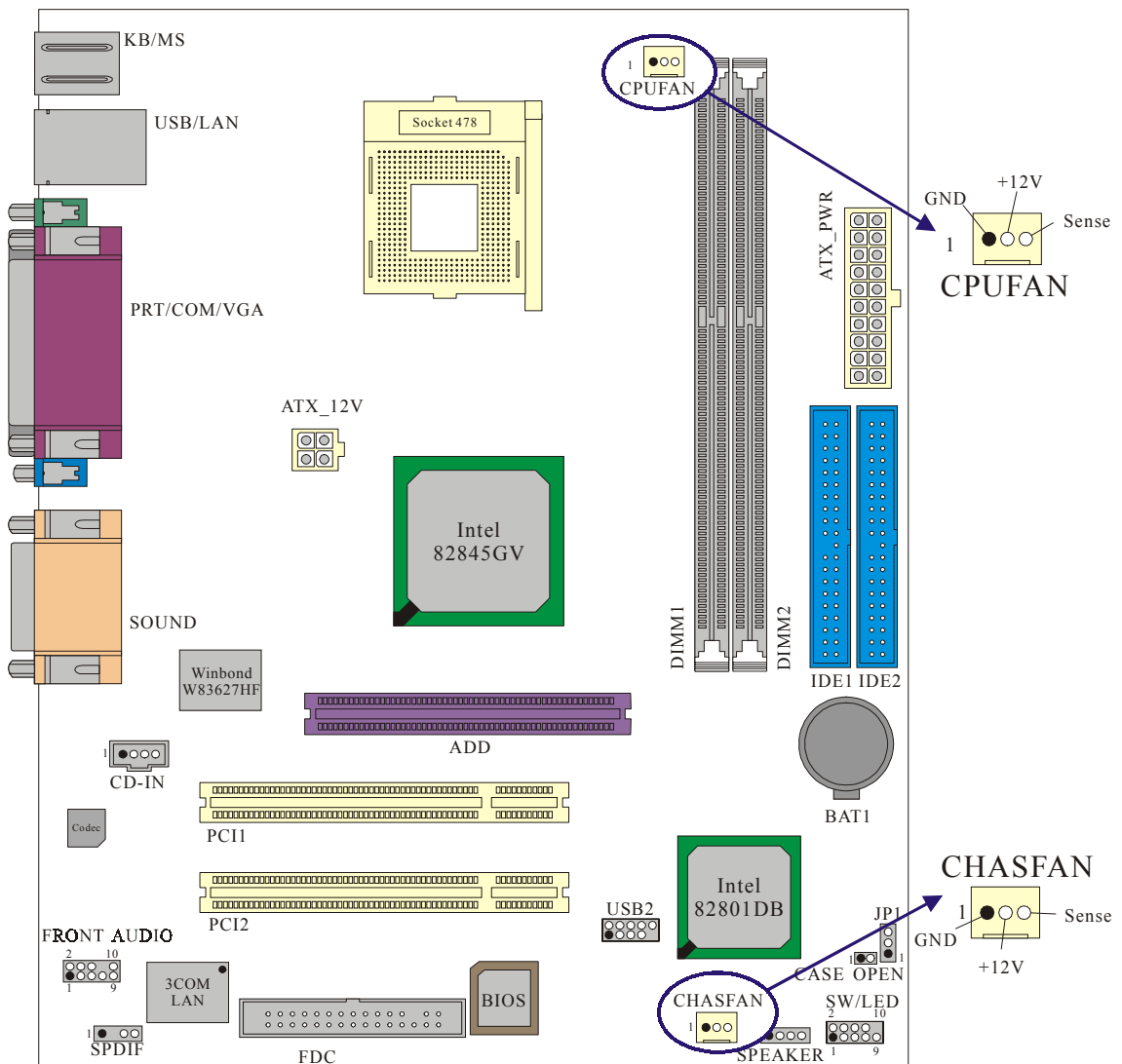
Attention: Overheating can damage the CPU and other sensitive components. Verify that the heatsink is properly installed and make sure the CPU fan is connected.

Fan Headers

There are two power headers used for cooling fans, which play an important role in maintaining the ambient temperature in your system .



Warning: This system has a BIOS configuration feature that issues a warning when the CPU fan is not plugged in or is not functioning. In order to make use of this function, you must make sure that the CPU fan power cable is attached specifically to the “CPUFAN” header. The BIOS configuration option is described in the “Hardware Monitor” section of the BIOS Setup Utility Chapter.



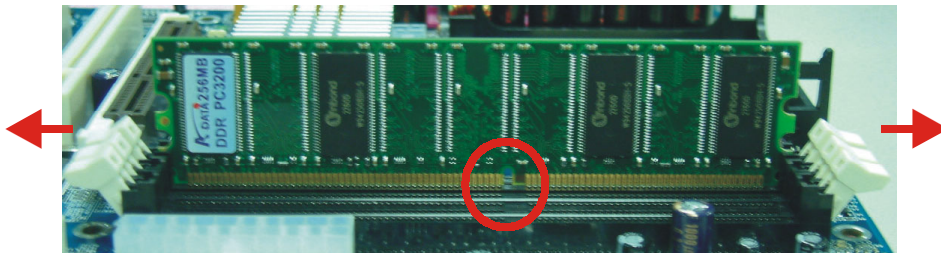
The layout is PM845GV1.

Memory Configuration

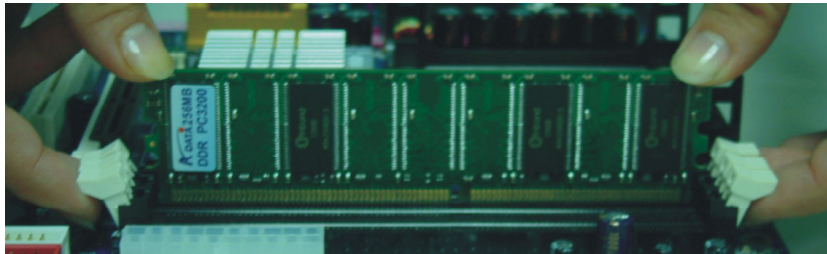
The PM845GV1/ PM845GE1/ PM845GL1/ PM845GL1-533 contains 2 sockets for 184-pin DDR SDRAM with a total memory capacity of up to 2GB. You can install DDR 333/ 266 (PC 2700/ 2100) SDRAM for PM845GE1, and DDR 266/ 200 (PC 2100/ 1600) SDRAM for PM845GV1/ PM845GL1/ PM845GL1-533.

RAM Module Installation:

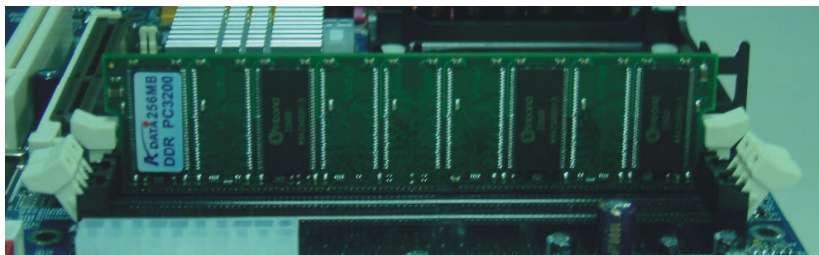
1. Match the notch on the bottom of the RAM module with the corresponding pattern in the DIMM slot.



2. Lower the RAM module into the DIMM Slot and press firmly using both thumbs until the module snaps into place.

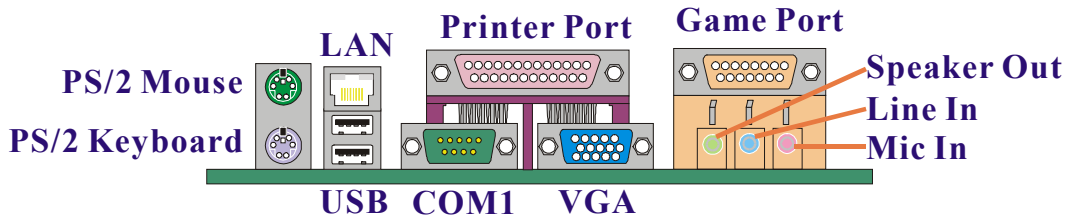


3. Repeat step 1 & 2 for the remaining RAM modules.



The pictures are for reference only and may vary based on model and brand.

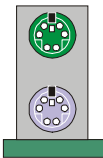
Back Panel Configuration



PS/2 Mouse & PS/2 Keyboard Connectors: KB/MS

This mainboard provides a standard PS/2 mouse connector and PS/2 Keyboard connector. The pin assignments are described below:

PS/2 Mouse

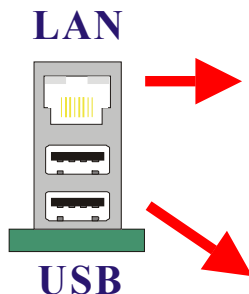


PS/2 Keyboard

Pin	Assignment	Pin	Assignment
1	Data	4	+5 V (fused)
2	No connect	5	Clock
3	Ground	6	No connect

USB & LAN Connectors: USB/LAN

There are two USB connectors on the back panel. These OHCI (Open Host Controller Interface) Universal Serial Bus connectors are used to attach to USB devices such as: keyboards, mice and other USB devices. You can plug the USB devices directly into this connector. The mainboard also provides a LAN port. You can plug LAN devices directly into this connector.



Pin	Assignment	Pin	Assignment
1	TDP	7	NC
2	TDN	8	NC
3	RDP	9	VCC3 SBY
4	NC	10	ACT LED
5	NC	11	VCC3 SBY
6	RDN	12	Speed LED

Pin	Assignment	Pin	Assignment
1/5	+5 V (fused)	3/7	USBP0+/P1+
2/6	USBP0-/P1-	4/8	Ground

Serial and Parallel Interface Ports

This system comes equipped with two serial ports and one parallel port.

The Serial Interface: COM1

The serial interface port is sometimes referred to as an RS-232 port or an asynchronous communication port. Mice, printers, modems and other peripheral devices can be connected to a serial port.

Parallel Interface Port: PRT

The parallel port on your system has a 25-pin, DB25 connector and is used to interface with parallel printers and other devices using a parallel interface.

Video Graphics Array Connector: VGA

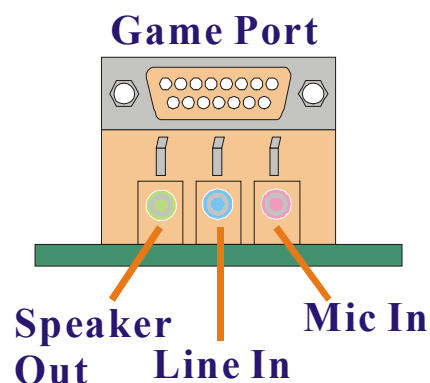
This mainboard has built in video facilities. Your monitor attaches directly to the VGA Connector on this mainboard.

Game Port Connector: SOUND

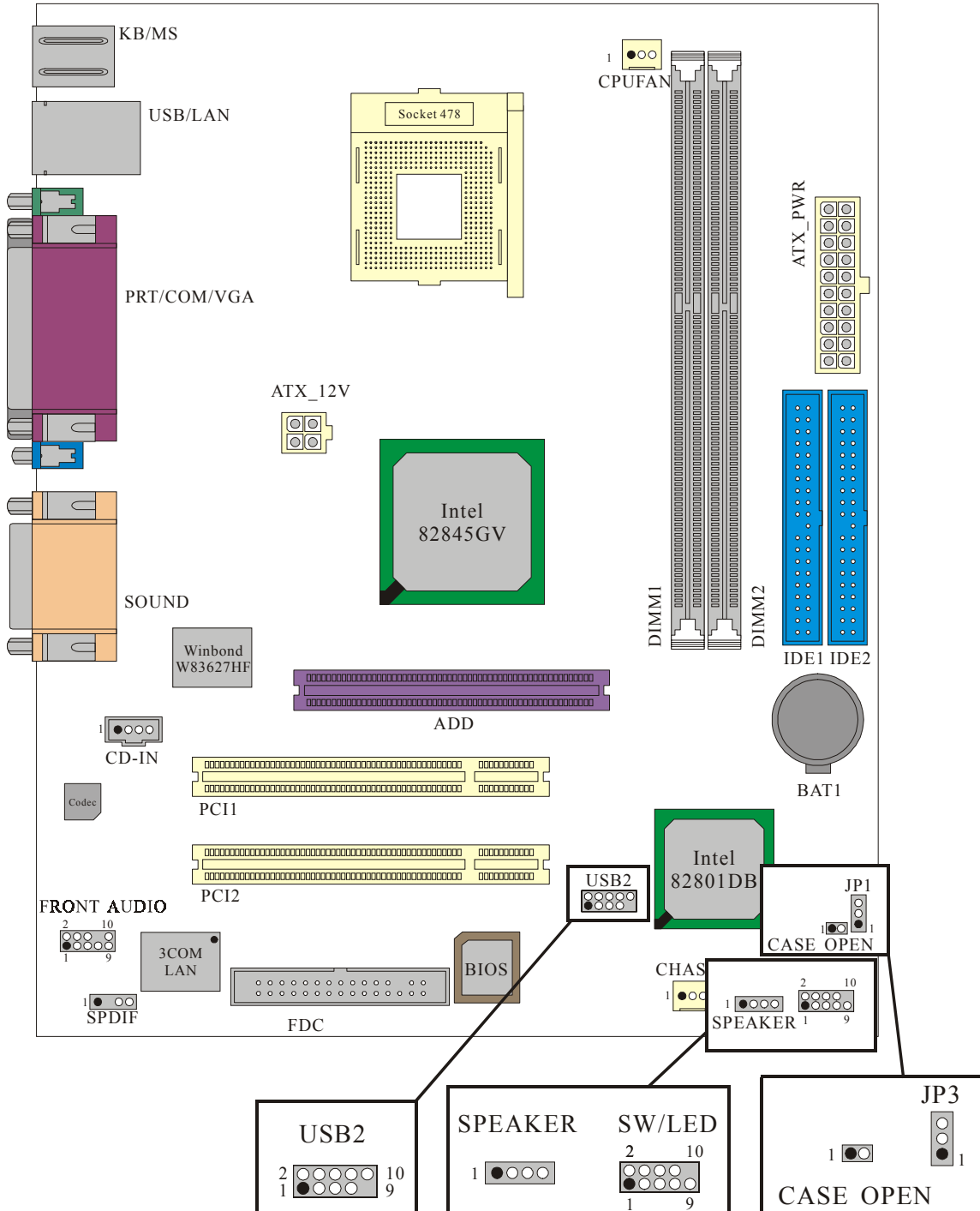
This connector allows you to connect a joystick or game pad for playing computer games. Also, you may play or edit professional music by connecting MIDI devices.

Audio Port Connectors

1. **Speaker Out** is used to connect speakers or headphones for audio output.
2. **Line In** can be connected to an external CD player, a Tape player or any other audio device for audio input.
3. **Mic In** is used to connect a microphone that allows you to input audio.



Connector Configuration



The layout is PM845GV1

Front Panel Indicators: SW/LED

Pin	Assignment	Function	Pin	Assignment	Function
1	HD LED (+)	Hard Drive LED	2	ACPI LED (+)	POWER LED
3	HD LED (-)		4	ACPI LED (-)	
5	Reset SW (-)	Reset Switch	6	Power SW(+)	Power-on Switch
7	Reset SW (+)		8	Power SW(-)	
9	NA	NA	10	NC	NC

HD LED (Hard Drive LED Connector)

This connector can be attached to an LED on the front panel of a computer case. The LED will flicker during disk activity. This disk activity only applies to those IDE drives directly attached to the system board.

RST SW (Reset Switch)

This connector can be attached to a momentary SPST switch. This switch is usually open and when closed will cause the mainboard to reset and run the POST (Power On Self Test).

ACPI LED (Power LED Connector)

This connector can be attached to an LED on the front panel of a computer case. The LED will illuminate while the computer is powered on.

PWR SW (Power Switch)

This connector can be attached to a front panel power switch. The switch must pull the Power Button pin to ground for at least 50 ms to signal the power supply to switch on or off. (The time required is due to internal debounce circuitry on the system board). At least two seconds must pass before the power supply will recognize another on/off signal.

SPEAKER (Speaker Connector):

Pin	Assignment	Pin	Assignment
1	PC_BEEP	3	GND
2	NC	4	+5V

An off-board speaker can be installed on the mainboard as a manufacturing option. An off-board speaker can be connected to the mainboard a Speaker connector. The speaker can provide error beep code information during the Power On Self-Test when the computer cannot access the video interface. Note that this speaker is not connected to the audio subsystem and does not receive output from the audio subsystem.

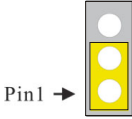
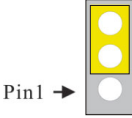
Front USB Headers: USB2

You can attach a bracket cables to the USB2 header. Then you may connect your USB devices to the bracket.

* Microsoft has not published the USB 2.0 driver for Windows 9X/ ME, if your OS is Windows 2000/ XP, download the USB 2.0 driver from Microsoft® the website.

Pin	Assignment	Pin	Assignment
1	+5V(fused)	2	+5V(fused)
3	DATA_A-	4	DATA_B-
5	DATA_A+	6	DATA_B+
7	GND	8	GND
9	NC	10	OVC

Clear CMOS Jumper: JP1

JP1	Assignment
 <p>Pin1 →</p>	Pin 1-2 Close → Normal (default)
 <p>Pin1 →</p>	Pin 2-3 Close → Clear CMOS



The following procedures are for resetting the BIOS password. It is important to follow these instructions closely.

1. Turn off your system and remove AC power line.
2. Set JP1 to OFF (2-3 Closed).
3. Wait several seconds.
4. Set JP1 to ON (1-2 closed).
5. Connect the AC power line and turn on your system.
6. Reset your desired password or clear CMOS data.

Case Open Warning Header: CASE OPEN

This connector is used to notify the user when the computer case has been previously opened. To configure this functionality, your computer case must be equipped with a “case open” cable which you need to attach to the CASE OPEN connector. Also, you must enable CASE OPEN Warning Functionality in the BIOS setup utility. When your computer case is opened, your system will display alert messages upon boot up.

Case Open	Assignment
1	INTRUDR-
2	GND

Floppy Disk Connector: FDC

The mainboard provides a standard floppy disk connector (FDC) that supports 360K, 720K, 1.2M, 1.44M and 2.88M floppy disk types. This connector supports the provided floppy drive ribbon cables provided.

Hard Disk Connectors: IDE1/IDE2

This mainboard has a 32-bit Enhanced PCI IDE Controller that provides PIO Mode 0~4, Bus Master, and Ultra DMA/33, Ultra DMA/66, Ultra DMA/100, functionality. It has two HDD connectors, IDE1 (primary) and IDE2 (secondary).

IDE1 (Primary IDE Connector)

You can connect up to two hard drives to IDE1. If you attach two drives, you must use a ribbon cable with three connectors. You must also configure one drive as the master and one drive as the slave, using the jumpers located on each drive.

IDE2 (Secondary IDE Connector)

The IDE2 controller can also support a Master and a Slave drive. The configuration is similar to IDE1. The second drive on this controller must be set to slave mode.

Power Supply Attachments

ATX Power Connector: ATX_PWR & ATX_12V

This mainboard requires two ATX power connections; a 20-pin connector and a 4-pin connector. Your power supply must have both connectors. Attach the 4-pin connector first then attach the 20-pin connector. Make sure the connectors are secure before applying power.

ATX_12V

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

ATX_PWR

Pin	Assignment	Pin	Assignment	Pin	Assignment	Pin	Assignment
1	+3.3V	6	+5V	11	+3.3V	16	GND
2	+3.3V	7	GND	12	-12V	17	GND
3	GND	8	NC	13	GND	18	-5V
4	+5V	9	5V_SB	14	PS_ON	19	+5V
5	GND	10	+12V	15	GND	20	+5V

Slots: AGP/ PCI

The slots in this mainboard are designed for expansion cards and are used as an interface between the card and the system bus. Expansion cards are a means of enhancing the mainboards features by performing tasks that are not part of the basic system.

AGP (Accelerated Graphics Port) Slot

PM845GE1 supports video cards for PCI slots but is also equipped with an Accelerated Graphics Port (AGP). An AGP card will take advantage of AGP technology for improved video efficiency and performance, especially with 3D graphics.

If you try to install 1X or 2X AGP cards (3.3V Core) onto the AGP slot of PX845GE1, some of the components could incur damage. Use the onboard VGA or install 4X/1.5V AGP cards.

PM845GV1/ PM845GL1/ PM845GL1-533 supports ADD cards only. The digital display channels are capable of supporting a variety of DVO devices (e.g. TMDS, LVDS and TV-OUT).

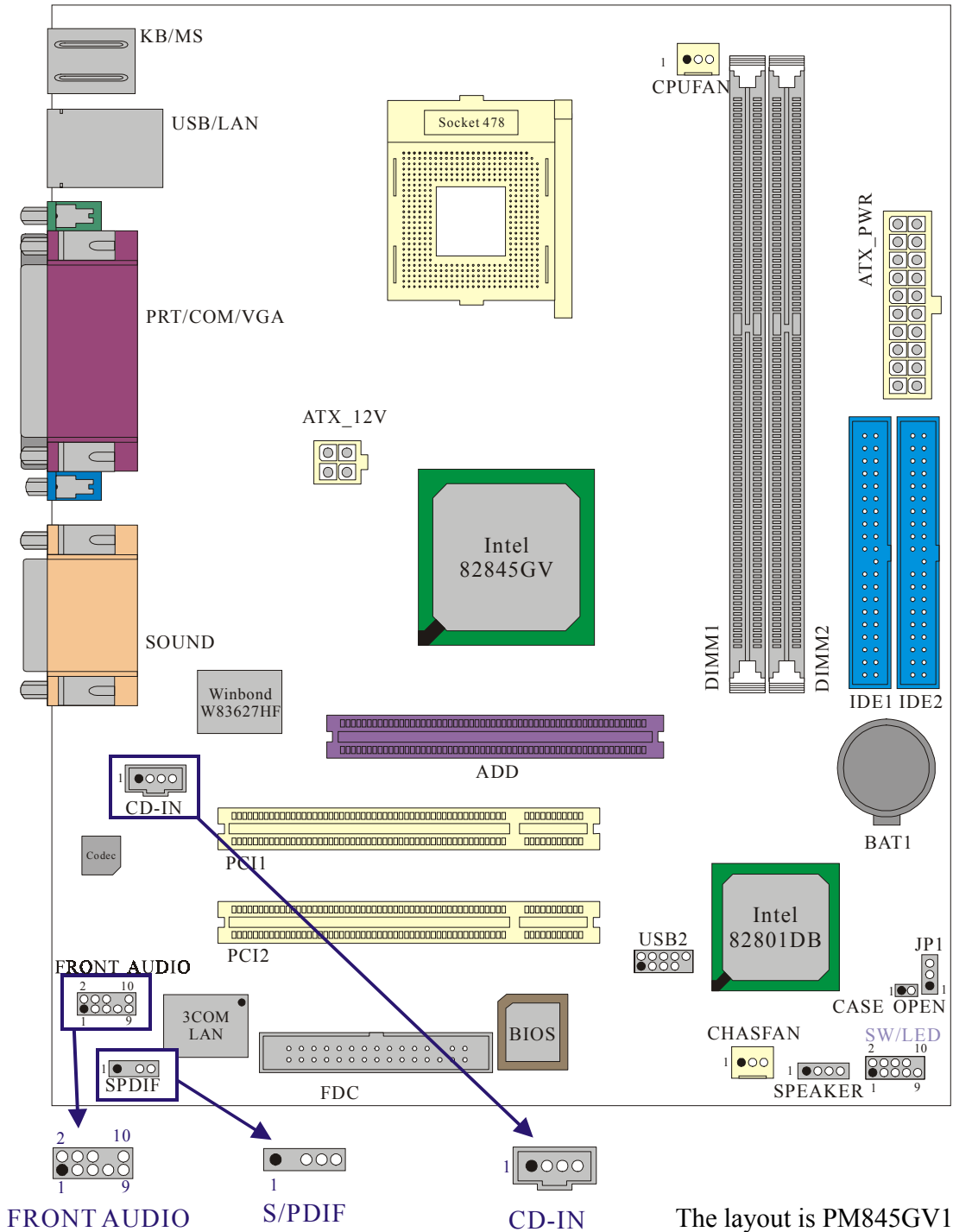
If you try to install the other graphics cards onto the AGP slot of PM845GV1/ PM845GL1/ PM845GL1-533, the display would be not correctly. Use the onboard VGA or install an ADD card.

PCI (Peripheral Component Interconnect) Slots

This mainboard is equipped with 2 standard PCI slots. PCI stands for Peripheral Component Interconnect and is a bus standard for expansion cards, this PCI slot is designated as 32-bit.

Audio Connectors

This mainboard provides three connectors as part of its audio Subsystem.



CD-ROM Audio-In Header: CD-IN

This header is used to connect a CD Audio Cable from a CD-ROM / DVD drive to the onboard audio subsystem.

Pin	Assignment	Pin	Assignment
1	Left Channel Input	3	GND
2	GND	4	Right Channel Input

S/PDIF Connector: SPDIF

S/PDIF (Sony/Philips Digital Interface) is a recent audio transfer file format, which provides high quality audio using optical fiber and digital signals. This mainboard is capable of delivering audio output through the SPDIF header. One way you would use this header is by using an SPDIF bracket attached to your computer. This bracket will have a cable that you can attach to the SPDIF header. This bracket will also have an RCA connector, similar to that used with most consumer audio products that can output the data to an S/PDIF device. On the SPDIF header, SPD-OUT is used for output. The devices that are receiving information from this header must be S/PDIF compliant for optimal effect. Note that the SPDIF bracket is optional in the packaging that comes with this mainboard. (See table below for S/PDIF connector pin assignments)

Pin	Assignment	Pin	Assignment
1	+5V	3	SPD-OUT
2	NC	4	GND

Front Panel Audio Header: FRONT_AUDIO

If your computer case has been designed with embedded audio equipment. You can attach these components to the FRONT_AUDIO panel of the mainboard. First remove the jumper caps covering the FRONT_AUDIO pins. Use pins 1, 3 to connect to the case microphone. Use pins 9,5 to connect to the earphone. If you do not intend to use the FRONT_AUDIO panel, do not remove the jumper caps.

Pin	Assignment	Pin	Assignment
1	FP_MIC	2	GND
3	FP_VREF	4	+5V
5	SPOUT_R (From IC)	6	SPOUT_R (To Connector)
7	NC	8	NC
9	SPOUT_L (From IC)	10	SPOUT_L (To Connector)



If the jumper caps are in place, jumper cap 1 is on pin 5, pin 6 and jumper cap 2 is on pin 9, pin 10.

Chapter 2. BIOS Setup

Introduction

This section describes the PHOENIX-AWARD™ BIOS Setup program which resides in the ROM BIOS firmware. The Setup program allows users to modify the basic system configurations. The configuration information is then saved to CMOS RAM where the data is sustained by battery after power-down.

The BIOS provides critical low-level support for standard devices such as disk drives, serial ports and parallel ports. As well, the BIOS controls the first stage of the boot process, loading and executing the operating system.

The PHOENIX-AWARD™ BIOS installed in your computer system's ROM is a custom version of an industry standard BIOS. This means that it supports the BIOS of Intel® based processors.

This version of the PHOENIX-AWARD™ BIOS includes additional features such as virus and password protection as well as special configurations for fine-tuning the system chipset. The defaults for the BIOS values contained in this document may vary slightly with the version installed in your system.

Plug and Play Support

This PHOENIX-AWARD™ BIOS supports the Plug and Play Version 1.0A specification as well as ESCD (Extended System Configuration Data) write.

EPA Green PC Support

This PHOENIX-AWARD™ BIOS supports Version 1.03 of the EPA Green PC specification.

APM Support

This PHOENIX-AWARD™ BIOS supports Version 1.1 & 1.2 of the Advanced Power Management (APM) specification. These features include system sleep and suspend modes in addition to hard disk and monitor sleep modes. Power management features are implemented using the System Management Interrupt (SMI).

PCI Bus Support

This PHOENIX-AWARD™ BIOS also supports Version 2.2 of the Intel PCI (Peripheral Component Interconnect) local bus specification.

DRAM Support

DDR (Double Data Rate) SDRAM (Synchronous DRAM) is supported.

Supported CPUs

This PHOENIX-AWARD™ BIOS supports the Intel® Pentium® 4 CPUs.

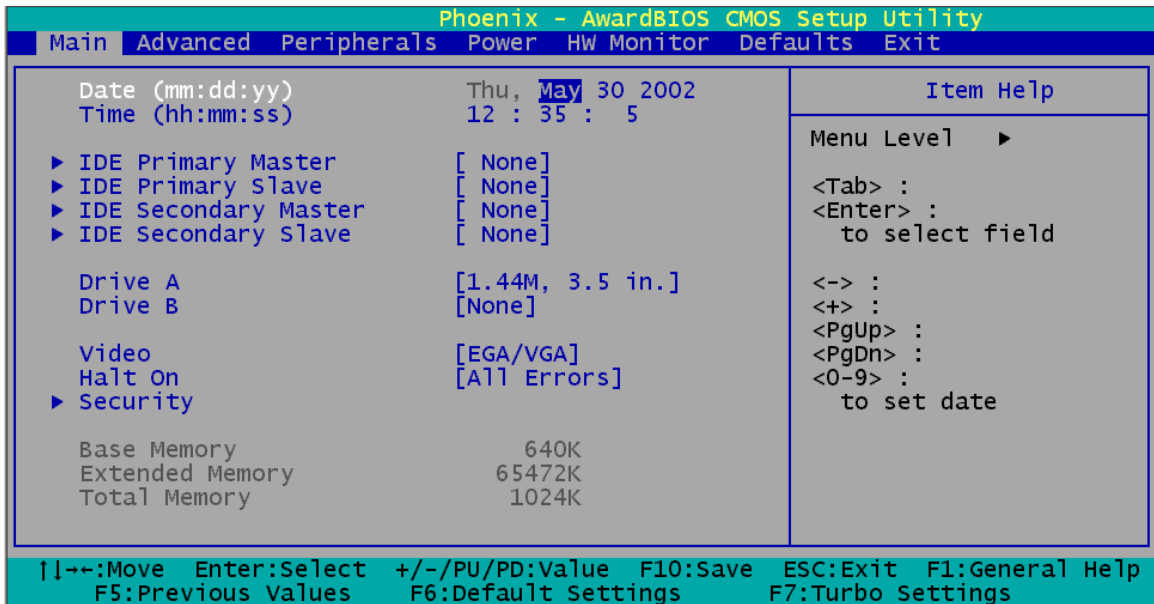
Key Function

In general, use the arrow keys to highlight items, press <Enter> to select, use the <PgUp> and <PgDn> keys to change entries, press <F1> for help and press <Esc> to quit. The following table provides more detail about how to navigate within the Setup program using the keyboard.

Keystroke	Function
Up arrow	Move to previous item
Down arrow	Move to next item
Left arrow	Move to the item on the left (menu bar)
Right arrow	Move to the item on the right (menu bar)
Esc	Main Menu: Quit without saving changes Submenus: Exit Current page to the next higher level menu
Move Enter	Move to the item you desired
PgUp key	Increase the numeric value or make changes
PgDn key	Decrease the numeric value or make changes
+ Key	Increase the numeric value or make changes
- Key	Decrease the numeric value or make changes
Esc key	Main Menu – Quit Current page and go to EXIT Menu Setup Menu – Exit Current page and return to Main Menu
F1 key	General help on Setup navigation keys
F5 key	Load previous values from CMOS
F6 key	Load the fail-safe defaults from BIOS default table
F7 key	Load the optimized defaults
F10 key	Save all the CMOS changes and exit

Main Menu

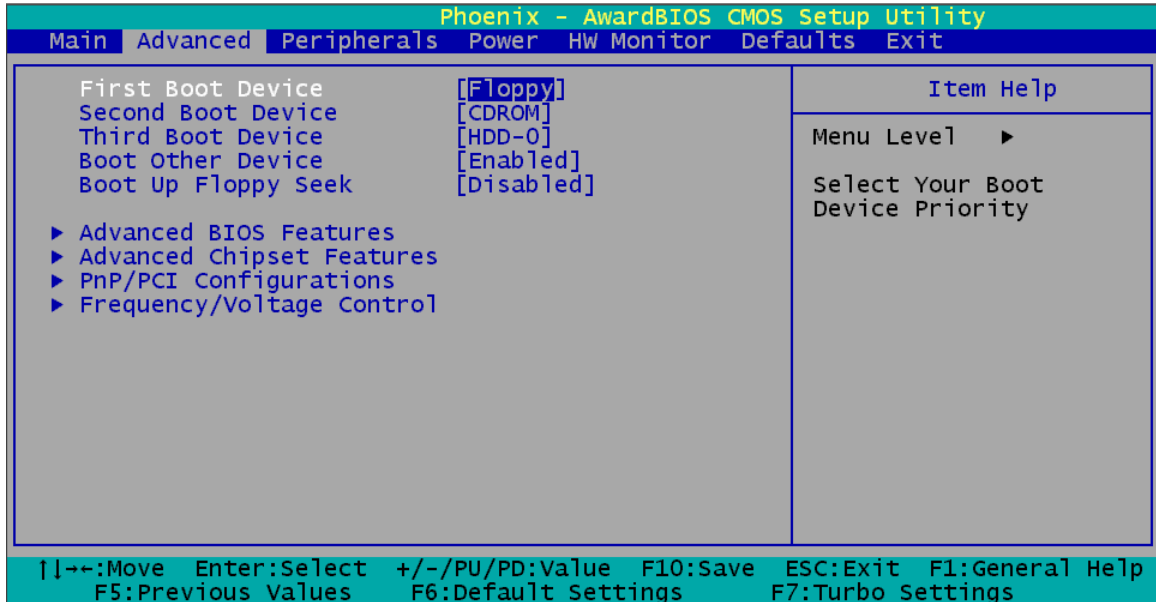
When you enter the PHOENIX-AWARD™ BIOS Utility, the Main Menu will appear on the screen then Main menu allows you to select from several configuration options. Use the left/right arrow keys to select a particular configuration screen from the top menu bar or use the down arrow key to access and configure the information below.



Main Menu Setup Selections

Item	Options	Description
Date	mm:dd:yy	Set system date. Note that the 'Day' automatically changes when you set the date.
Time	hh: mm: ss	Set current time of the system.
IDE Primary Master	Options are in its sub menu.	Press <Enter> to enter the sub menu of detailed options.
IDE Primary Slave	Options are in its sub menu.	Press <Enter> to enter the sub menu of detailed options.
IDE Secondary Master	Options are in its sub menu.	Press <Enter> to enter the sub menu of detailed options.
IDE Secondary Slave	Options are in its sub menu.	Press <Enter> to enter the sub menu of detailed options.
Drive A Drive B	360K, 5.25 in 1.2M, 5.25 in 720K, 3.5 in 1.44M, 3.5 in 2.88M, 3.5 in None	Select type of floppy disk drive installed in your system.
Video	EGA/VGA CGA 40 CGA 80 MONO	Select default video device.
Halt On	All Errors No Errors All, but Keyboard All, but Diskette All, but Disk/ Key	Select situation in which you want the BIOS to stop the POST process and notify you.
Security	Options are in its sub menu.	Press <Enter> to enter the sub menu of detailed options.
Base Memory	N/A	Displays the amount of conventional memory detected during boot up.
Extended Memory	N/A	Displays the amount of extended memory detected during boot up.
Total Memory	N/A	Displays the total memory available in the system.

Advanced Features



First /Second/Third Boot Device

Select the order in which devices will be searched in order to find a boot device.

Options: Floppy, LS120, HDD-0, SCSI, CDROM, HDD-1, HDD-2, HDD-3, ZIP100, USB-FDD, USB-ZIP, USB-CDROM, USB-HDD, LAN, Disabled.

Boot Other Device

This setting allows the system to try to boot from other devices if the system fails to boot from the 1st/ 2nd/ 3rd boot devices. Options: Enabled (default), Disabled

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 720KB, 1.2MB, and 1.44MB 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.

Options: Enabled, Disabled (default)

Advanced BIOS Features

Virus Warning

This item allows you to choose the VIRUS warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempts to write data into this area, BIOS will display a warning message on the screen and sound an audio alarm (beep). Options:

Disabled (default) Virus protection is disabled.
Enabled Virus protection is activated.

CPU L1 & L2 Cache

Make CPU internal cache active or inactive. The system will slow down if you disable this item. Options: Enabled (default), Disable.

CPU Hyper-Threading (this item only displays if you are using the PM845GV1 or GE1 with a CPU that supports HT)

Use this field to enable or disable Hyper-Threading. Options: Disabled (default), Enabled.

Quick Power On Self Test

Allows the system to skip certain tests while booting. This will decrease the time needed to boot the system. Options: Enabled (default), Disabled.

Swap Floppy Drive

If the system has two floppy drives, choose “Enabled” to assign physical drive B to logical drive A and vice-versa. Options: Disabled (default), Enabled.

Boot Up NumLock Status

Selects power on state for NumLock. Options: On (default), Off

Typematic Rate Setting

When “Enabled”, the “typematic rate” and “typematic delay” can be configured. Typematic Rate determines the keystroke repeat rate used by the keyboard controller. Options: Disabled (default), Enabled

Typematic Rate (Chars/Sec)

The rate at which character repeats when you hold down a key. Options: 6 (default), 8,10,12,15,20,24,30.

Typematic Delay (Msec)

The delay before keystrokes begin to repeat. Options: 250 (default), 500,750,1000.

APIC Mode

By enabling this option, “MPS version control” for OS can be configured.

Options: Disabled, Enabled (default).

MPS Version Control for OS

The 1.1 version is the elder version, which supports 8 more IRQs in Windows NT. Choose the new 1.4 version for Windows 2000 and XP. Options: 1.1, 1.4 (default).

OS Select For DRAM > 64MB

Select OS2 only if you are running the OS/2 operating system with greater than 64MB of RAM on the system. Options: Non-OS2 (default), OS2.

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

Self Monitoring Analysis and Reporting Technology is a technology that enables a PC, in some cases, to predict the future failure of storage drives.

Options: Disabled (default), Enabled.

Small LOGO (EPA) Show

This option enables you to choose show or hide the small LOGO of EPA. Options: Disabled (default), Enabled.

Advanced Chipset Features

Dram Timing Selectable

Set the way to select the dram timing. Choose Manuel, the following options become adjustable. Options: Manuel, By SPD (default)

CAS Latency Time/ Active to Precharge Delay/DRAM RAS # to CAS# Delay/ DRAM RAS # Precharge

This item determines CAS Latency. When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing. Do not change this field from the default value specified by system engineer. Options: 1.5, 2, 2.5, 3 and By SPD(default).

Refresh Mode Select

Select the refresh mode. Options: 15.6, 7.8, 64, Auto (default).

Turbo Mode (only for PM845GV1)

Allows you to activate the turbo mode. Options: Disabled (default), Enabled.

Memory Frequency For

This option allows you to set the memory frequency. Options of PM845GE1: Default, DDR 333, 266, for PM845GV1/ PM845GL1/ PM845GL1-533: Default, DDR 266, 200.

System BIOS Cacheable

When enabled, access to the system BIOS ROM addressed at F0000H-FFFFFH are cached, provided that the cache controller is enabled.

Options: Enabled (default), Disabled.

Video BIOS Cacheable

Select “Enable” to cache video BIOS, resulting in better system performance. If any program writes to this memory area, a system error may result. Options: Enabled, Disabled (default).

Memory Hole at 15M-16M

When enabled, you can reserve an area of system memory for the ISA adapter ROM, which disables caching to this area. Refer to the user documentation of the peripheral you are installing for more information. Options: Disabled (default), Enabled.

Delayed Transaction

The chipset has an embedded 32-bit posted write buffer to support delay transaction cycles. Select “Enabled” to support compliance with PCI specifications.

Options: Disabled, Enabled (default).

Delay Prior to Thermal

Select the delay time before thermal activation from high temperatures.

Options: 4 Min, 8 Min, 16 Min (default), 32 Min

AGP Aperture Size

Select the size of the AGP (Accelerated Graphics Port) aperture. The aperture is a portion of the PCI memory address range dedicated for graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation. Options: 4, 8, 16, 32, 64 (default), 128, 256.

On-Chip VGA (only for PM845GE1)

This item allows you to enable or disable the on-chip VGA.

Options: Disabled, Enabled (default).

On-Chip Frame Buffer Size

Choose the size of the on-chip frame buffer. Options: 1MB, 8MB(default).

PnP/PCI Configurations

Reset Configuration Data

Select “Enabled” to reset Extended System Configuration Data (ESCD) in the case where you have installed a new add-on peripheral and the system OS can no longer boots.

Options: Disabled (default), Enabled (default).

Resources Controlled By

BIOS can automatically configure all the boot and Plug & Play compatible devices. If you choose Auto, you cannot select IRQ DMA and memory base address fields, since BIOS automatically assigns them. Options: Auto<ESCD> (default) \ Manual.

IRQ Resources

When resources are controlled manually, you can assign each system interrupt a type depending on the type of device using the interrupt. This is only configurable when “Resources Controlled By” is set to “Manual”.

IRQ-3	assigned to: PCI device	IRQ-10	assigned to: PCI device
IRQ-4	assigned to: PCI device	IRQ-11	assigned to: PCI device
IRQ-5	assigned to: PCI device	IRQ-12	assigned to: PCI device
IRQ-7	assigned to: PCI device	IRQ-14	assigned to: PCI device
IRQ-9	assigned to: PCI device	IRQ-15	assigned to: PCI device

PCI / VGA Palette Snoop

Some graphic controllers that are not VGA compatible take the output from a VGA controller and map it to their display as a way to provide boot information and VGA compatibility. Options: Disabled (default), Enabled

PCI Latency Timer (CLK)

This item allows you to set the PCI Latency Time (0-255). For best results set this field to 32. Options: 0-255, 32 (default).

PCI SLOT 1-2

This item allows you to select an IRQ number for your PCI slot 1-2.
Options: Auto, 3, 4, 5, 7, 9, 10, 11, 12, 14, 15.

Frequency/Voltage Control

CPU Clock Ratio (displays only if the CPU Ratio is unlocked)

You can adjust the CPU Ratio using this field.

Spread Spectrum

This item allows you to enable (default) /disable the Spread Spectrum function.

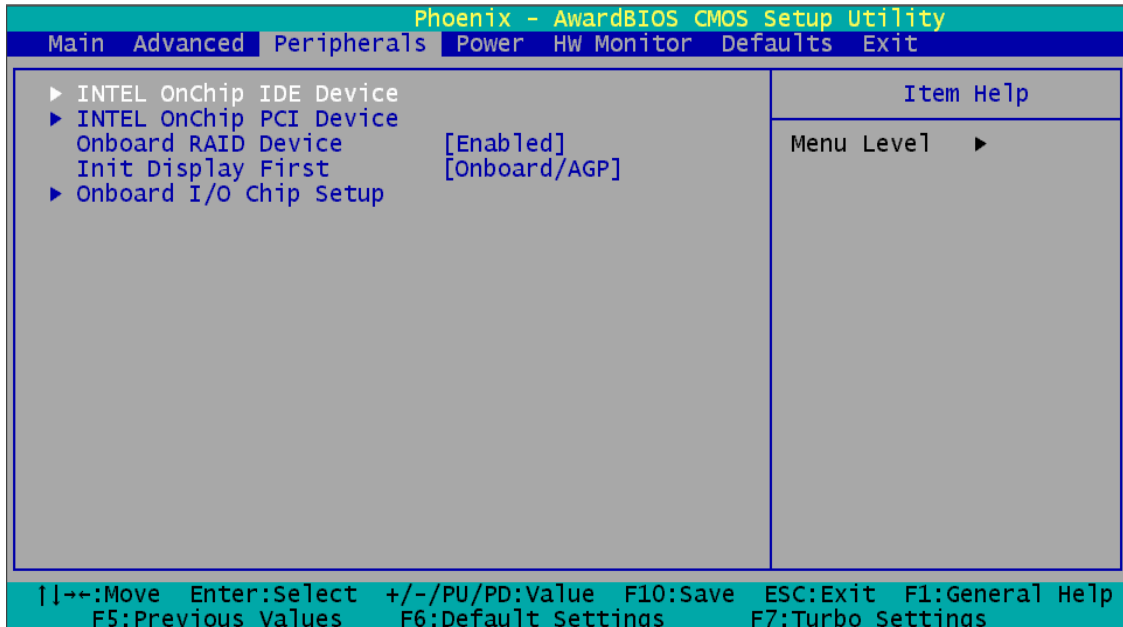
CPU HOST/PCI Clock

This item allows you to select CPU HOST to PCI Clock. The default depends on CPU frequency. This item is for over-clocking. When CPU FSB is 100, options are: Default, 100/33, 108/36, 114/38, 117/39, 120/40, 123/41, and 133/33MHz. When CPU FSB is 133, options are: Default, 133/33, 148/37, 152/38, 156/39, 160/40, and 164/41 MHz.

Fixed AGP/PCI Output Freq

This item allows you to fix the AGP/PCI output frequency. You may need to adjust this value when over-clocking is unsuccessful. Options: Disabled (default), 66MHz/33MHz.

Peripherals



INTEL OnChip IDE Device

Highlight this field and press “Enter”, it will take you a submenu with following options:

On-Chip Primary / Secondary PCI IDE

This item allows you to enable / disable the on-chip primary / secondary PCI IDE. Options: Enabled (default), Disabled.

IDE Primary / Secondary /Master / Slave PIO

The IDE PIO (Programmed Input / Output) fields let you set a PIO mode (0-4) for each IDE devices that onboard IDE interface supports. Modes 0 to 4 will increase performance progressively. In Auto mode, the system automatically determines the best mode for each device. Options: Auto (default), Mode0, Mode1, Mode2, Mode3, Mode4.

Primary / Secondary /Master / Slave Ultra DMA

Ultra DMA functionality can be implemented if it is supported by the IDE hard drives in your system. As well, your operating environment requires 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/100, select “Auto” to enable BIOS support.

Options: Auto (default), Disabled.

IDE HDD Block Mode

Block mode is otherwise known as block transfer, multiple commands, or multiple sector read/write. Select the “Enabled” option if your IDE hard drive supports block mode (most new drives do). The system will automatically determine the optimal number of blocks to read and write per sector. Options: Enabled (default), Disabled.

INTEL OnChip PCI Device

Highlighting the “Intel On-Chip PCI Device” label and then press “Enter”, it will take you a submenu with the following options:

USB Controller

This option should be enabled if your system has a USB device installed on the system board. You will need to disable this feature if you add a higher performance controller. Options: Enabled (default), Disabled.

USB 2.0 Controller

This option should be enabled if your system has a USB 2.0 device installed on the system board. You will need to disable this feature if you install a USB 1.1 device. Options: Enabled (default), Disabled.

USB Keyboard Support

Enables support for USB attached keyboards. Options: Enabled (default), Disabled.

AC97 Audio

This option allows you to control the onboard AC97 audio. Options: Auto (default), Disabled.

Onboard LAN Device

This option allows you to enable (default) / disable the onboard LAN Device.

Init Display First

With systems that have multiple video cards, this option determines whether the primary display uses a PCI Slot or onboard/AGP (onboard).

PM845GE1 => Options: PCI Slot, Onboard/AGP (default)

PM845GV1/ PM845GL1/ PM845GL1-533=> Options: PCI Slot, Onboard (default)

Onboard I/O Chip Setup

PWRON After PWR-Fail

This field will determine whether your system will boot after restoring power after a power failure. If you select “On”, the system will boot whether or not the system was on before power failure. If you select “Former-Sts”, the system will be restored to the status before the power failure. Options: Off (default), On , Former-Sts.

Power On Function

This allows you to select a “Power On” option for your computer. Options: Password, Hot KEY, Mouse Left, Mouse Right, Any KEY, BUTTON ONLY, and Keyboard 98.

KB Power ON Password

Supply a password that your system will use as part of the power-on sequence.

HOT Key Power ON

This option allows you to use the Ctrl key along with a hot key (function key) to power on your system. Options: Ctrl – F1, Ctrl – F2, Ctrl – F3, ... to Ctrl – F12.

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”. Options: Enabled (default), Disabled.

Onboard Serial Port 1

Select an address and corresponding interrupt for the first serial port. Options: Disabled, 3F8/IRQ4 (default), 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3, Auto.

Onboard Parallel Port

This item allows you to determine the onboard parallel port controller I/O address. Options: Disabled, 378/IRQ7 (default), 278/IRQ5, 3BC/IRQ7.

Parallel Port Mode

This item allows you to select a parallel port mode for the on board parallel port.

EPP	Using Parallel Port as Enhanced Parallel Port.
ECP (default)	Using Parallel Port as Extended Capabilities Port.
SPP	Using Parallel port as Standard Printer Port.
ECP+EPP	Using Parallel port as ECP & EPP mode.
Normal	

EPP Mode Select

Select EPP port type 1.7 or 1.9 (default).

ECP Mode Use DMA

Select a DMA Channel for the port. Options: 3 (default), 1.

Game Port Address

Set the Game Port I/O Address. Options: Disabled, 201 (default), 209.

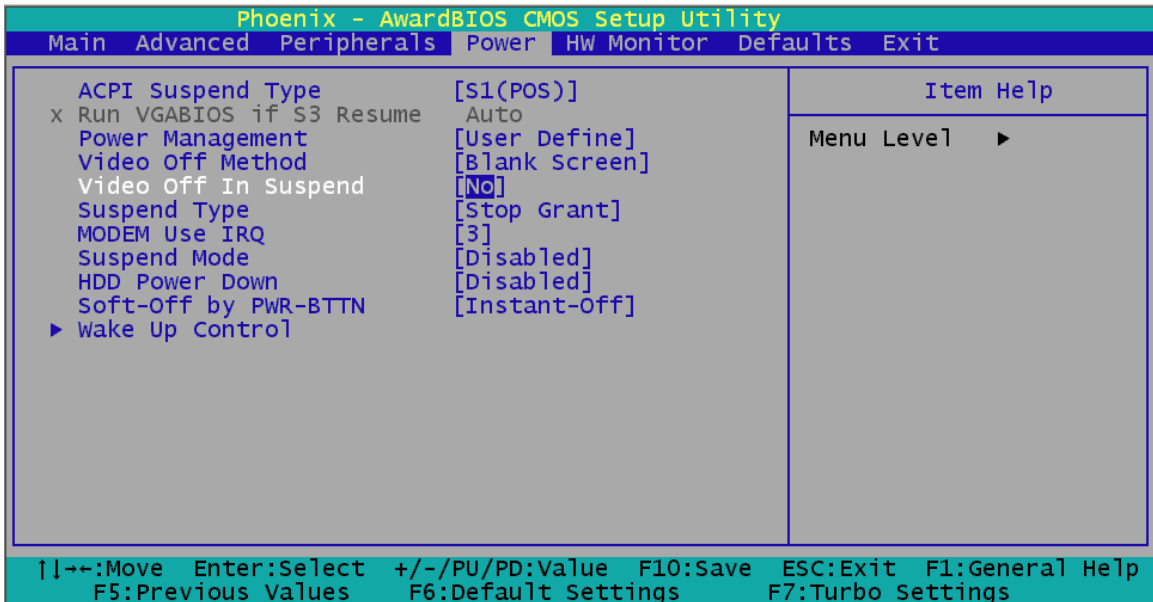
Midi Port Address

Set Midi Port Base I/O Address. Options: Disabled, 330, 300 (default), 290.

Midi Port IRQ

Set the Midi Port IRQ. Options: 5, 10 (default).

Power Menu



The Power Management Setup Menu allows you to configure your system to utilize energy conservation and power up/power down features.

ACPI Suspend Type

The item allows you to select the suspend type under the ACPI operating system.

Options: S1 (POS) (default) Power on Suspend
 S3 (STR) Suspend to RAM
 S1 & S3 POS+STR

Run VGA BIOS if S3 Resume

Set whether you want to run VGA BIOS when the system wakes up from S3.

Options: Auto, yes, no.

Power Management

There are three options of Power Management:

1. Min. Saving: Minimum power management
 Suspend Mode = 1 hr. HDD Power Down= 30 mins.
2. Max. Saving: Maximum power management only available for sl CPUs.
 Suspend Mode = 1 min. HDD Power Down= 6 mins.
3. User Defined (default): Allow you to set each mode individually.
 When not disabled, each of the ranges is from 1 min. to 1 hr.

Video Off Method

This option determines the manner in which the monitor is goes blank. Options:

1. Blank Screen (default): This option only writes blanks to the video buffer.
2. 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.
3. DPMS Support: Initial display power management signaling.

Video Off In Suspend

Set if the monitor will be on when the system suspend. Options: No (default), yes.

Suspend Type

The item allows you to select the suspend type under ACPI operating system.

Options: Stop grant (default), PWROn Suspend.

Modem Use IRQ

This determines the IRQ, which can be applied in MODEM use.

Options: NA, 3 (default), 4, 5, 7, 9, 10, 11.

Suspend Mode

This allows you to select the suspend type under the ACPI operating system. Options: Disabled (default), 1 Min, 2 Min, 4 Min, 6 Min, 8 Min, 10 Min, 20 Min, 30 Min, 40 Min, 1 Hour.

HDD Power Down

When “Enabled”, the hard disk drive will power down after a certain configurable period of system inactivity. All other devices remain active.

Options: Disabled (default), 1Min ~ 15Min.

Software-Off by PWR-BTTN

When you select Enabled, pressing the power button for more than 4 seconds forces the system to enter the Soft-Off state when the system has “hung.”

Options: Instant Off (default), Delay 4 Sec.

Wake Up Control

If you highlight the “Wake Up Control” label and then press the enter key, it will take you a submenu with the following options:

PCI PME Wake Up

When “Enabled”, any events occur to PCI card or Onboard LAN Device will wake up the system by PME message. Options: Disabled (default), Enabled.

RTC Wake Up

When “Enabled”, you can set the date and time at which the RTC (real-time clock) alarm awakens the system from Suspend mode. For Windows based system, if you have scheduled any tasks as part of the “Scheduled Tasks” function, RTC Wake Up will be disabled. Options: Enabled, Disabled (default).

Date (of Month) Alarm

Select a date of month. Set 0 if you prefer to set a weekly alarm.

Time (hh:mm:ss) Alarm

Set the time you want the alarm to go off.

USB KB Wake Up From S3

This item allows you to awake the system from suspend mode by USB keyboard. Options: Enabled, Disabled (default).

Ring Wake up

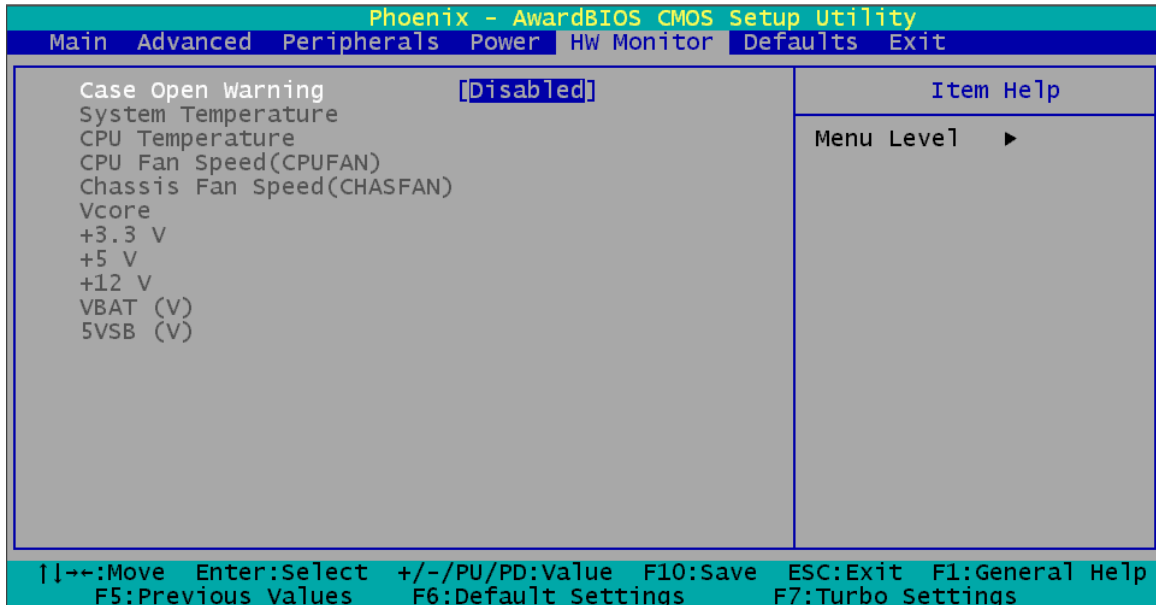
This item allows you to allow modem devices to awaken the system from suspend mode. Options: Enabled, Disabled (default).

Reload Global Timer Events

When a system goes into suspend mode, certain devices must be inactive for a period of time. Conversely, if any of those devices have any activity, the system will awaken. You can select the devices that will participate I suspend/ power-on activity by configuring these fields. Devices include: Primary IDE 0/ Primary IDE 1/ Secondary IDE 0 / Secondary IDE 1/ FDD, COM, LPT Port /PCI PIRQ [A-D]#

Options: Enabled, Disabled (default).

HW Monitoring

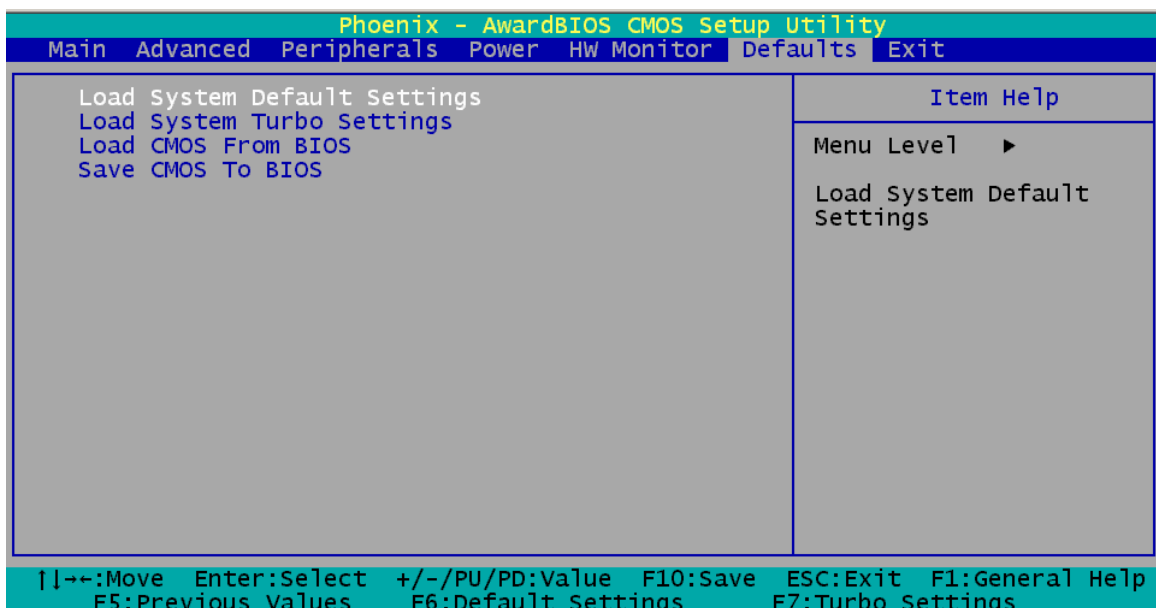


Case Open Warning

If this function is set to “Enabled” and the case had been previously opened, the system will automatically display alert messages on the screen when you power on your computer. If this function is set to “Disabled”, the system will not show alert messages when you power your computer even if the case is opened by others.

Options: Disabled (default), Enabled.

Defaults



Load System Default settings

Load system Default settings.

Load System Turbo Settings

Load system Turbo Settings.

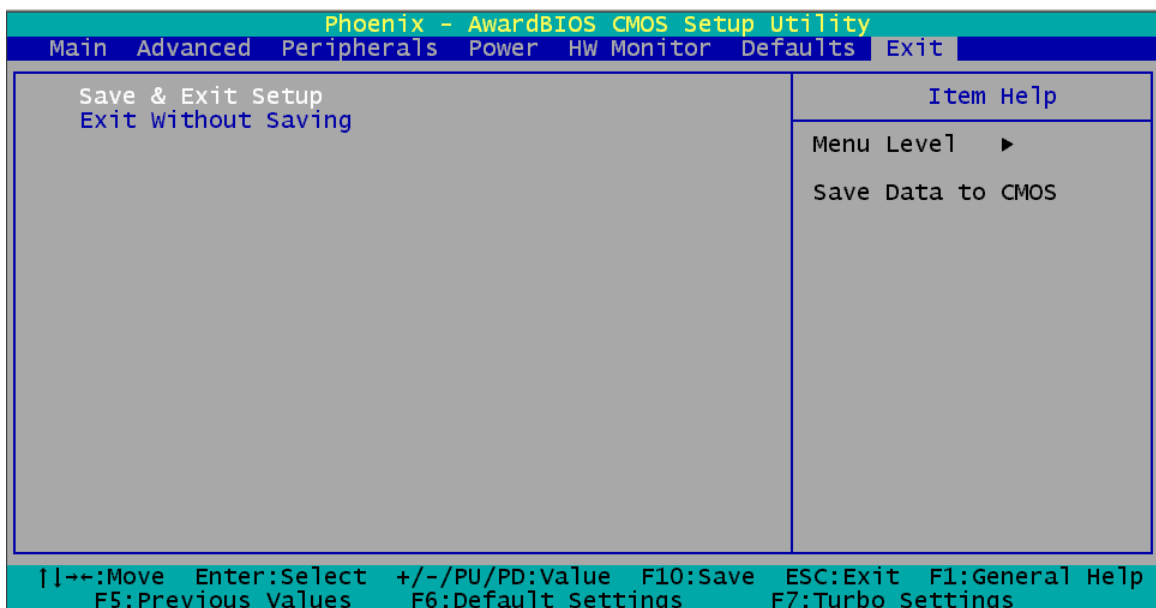
Load CMOS From BIOS

Load defaults from flash ROM from the systems without batteries.

Save CMOS To BIOS

Save defaults to flash ROM for systems without batteries.

Exit Menu



Save & Exit Setup

Save all configuration changes to CMOS (memory) and exit setup. A confirmation message will be displayed before proceeding.

Exit Without Saving

Abandon all changes made during the current session and exit setup. A confirmation message will be displayed before proceeding.

Chapter 3. Software Setup

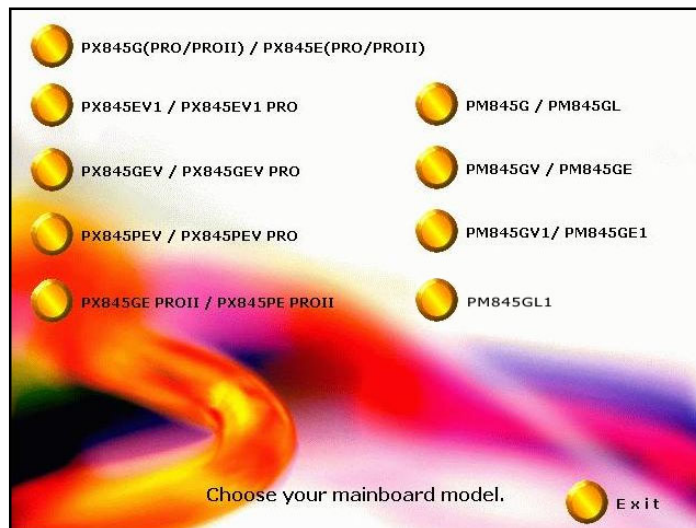
Software List

Category	Platform
Intel Chipset INF update	Windows 9X/ ME /2000/ XP
Intel Ultra ATA Utility(IAA)	
Intel 845 Extreme Graphics Driver	
Realtek Audio Driver	
Intel LAN Driver	
PC-cillin 2002	
Acrobat Reader	

Software Installation

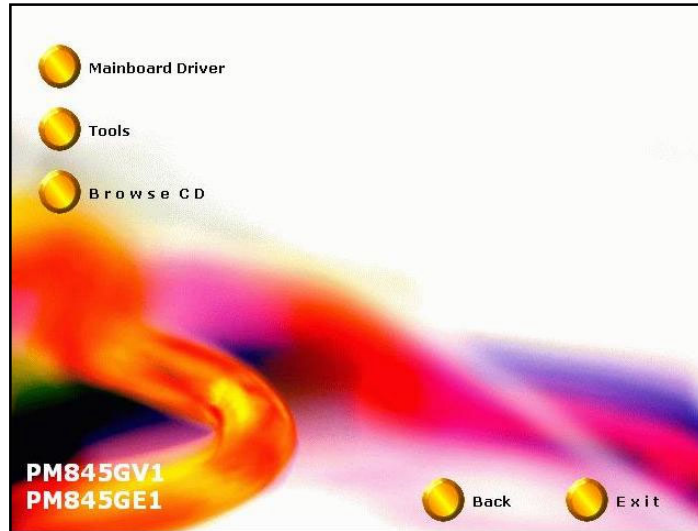
Simply put Driver CD into CD-ROM drive and the Installation Utility will auto-run. You can also launch the Driver CD Installation Utility manually:

1. The Driver CD Installation Utility will display. Click the button which corresponds to the model of your mainboard, e.g.:“PM845GV1/ PM845GE1”.

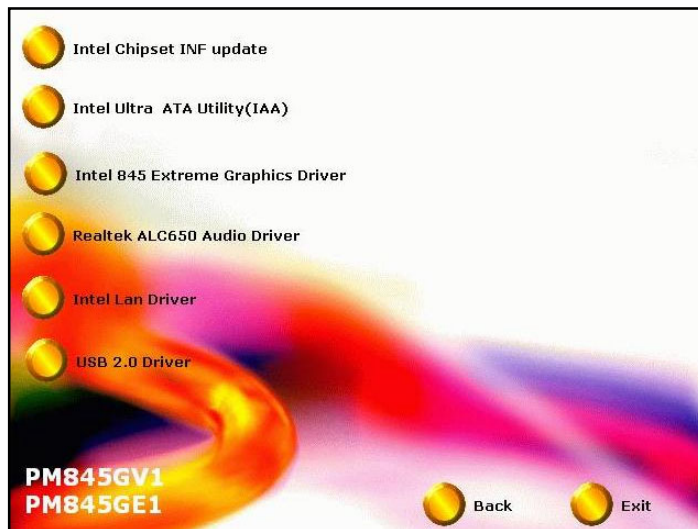


Note: The screens are for your reference only and may vary slightly according to the version of software you received.

2. The next screen displays three options: Mainboard Driver, Tools, and Browse CD. Click “Mainboard Driver”.

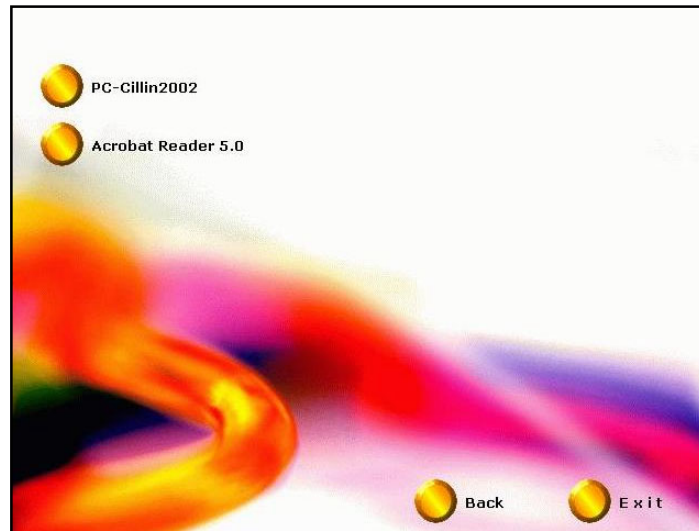


3. This next screen displays a list of available software drivers. Click the driver you wish to install.



Note: Intel® and Microsoft® does not provide USB 2.0 drivers for use with Windows® 9X and Windows® ME. If your operation system is Windows® 2000 or Windows® XP, download the drivers from the Microsoft® website. (<http://windowsupdate.microsoft.com>)

4. From the screen in step 2, click the “Tools” button. The next screen will display two programs to install. Follow the instructions after clicking the button if you need to install the software.



Note: you can click “Back” to go to the previous page, or click “Exit” to exit the Installation Utility.

Chapter 4. Troubleshooting

Problem 1:

No power to the system. Power light does not illuminate. Fan inside power supply does not turn on. Indicator lights on keyboard are not lit.

Causes:

1. Power cable is unplugged.
2. Defective power cable.
3. Power supply failure.
4. Faulty wall outlet; circuit breaker or fuse blown.

Solutions:

1. Make sure power cable is securely plugged in.
2. Replace cable.
3. Contact technical support.
4. Use different socket, repair outlet, reset circuit breaker or replace fuse.

Problem 2:

System inoperative. Keyboard lights are on, power indicator lights are lit, hard drive is active but system seems "hung".

Causes: Memory DIMM is partially dislodged from the slot on the mainboard.

Solutions:

1. Power Down
2. Using even pressure on both ends of the DIMM, press down firmly until the module snaps into place.

Problem 3:

System does not boot from the hard disk drive but can be booted from the CD-ROM drive.

Causes:

1. Connector between hard drive and system board unplugged.
2. Damaged hard disk or disk controller.
3. Hard disk directory or FAT is corrupted.

Solutions:

1. Check the cable running from the disk to the disk controller board. Make sure both ends are securely attached. Check the drive type in the standard CMOS setup.
2. Contact technical support.
3. Backing up the hard drive is extremely important. Make sure you periodically perform backups to avoid untimely disk crashes.

Problem 4:

System only boots from the CD-ROM. The hard disk can be read and applications can be used but booting from the hard disk is impossible.

Causes: Hard Disk boot sector has been corrupted.

Solutions: Back up data and applications files. Reformat the hard drive. Re-install applications and data using backup disks.

Problem 5:

Error message reading "SECTOR NOT FOUND" displays and the system does not allow certain data to be accessed.

Causes: There are many reasons for this such as virus intrusion or disk failure.

Solutions: Back up any salvageable data. Then performs low level format, partition, and then a high level format the hard drive. Re-install all saved data when completed.

Problem 6:

Screen message says "Invalid Configuration" or "CMOS Failure."

Causes: Incorrect information entered into the BIOS setup program.

Solutions: Review system's equipment. Reconfigure the system.

Problem 7:

The Screen is blank.

Causes: No power to monitor.

Solutions: Check the power connectors to the monitor and to the system.

Problem 8:

Blank screen.

Causes:

1. Memory problem. 2. Computer virus.

Solutions:

1. Reboot computer. Reinstall memory. Make sure that all memory modules are securely installed.

2. Use anti-virus programs to detect and clean viruses.

Problem 9:

Screen goes blank periodically.

Causes: Screen saver is enabled.

Solutions: Disable screen saver.

Problem 10:

Keyboard failure.

Causes: Keyboard is disconnected.

Solutions: Reconnect keyboard. Replace keyboard if you continue to experience problems.

Problem 11:

No color on screen.

Causes: 1. Faulty Monitor. 2. CMOS incorrectly set up.

Solutions:

1. If possible, connect monitor to another system. If no color appears, replace monitor.
2. Call technical support.

Problem 12:

The screen displays "C: drive failure."

Causes: Hard drive cable not connected properly.

Solutions: Check hard drive cable.

Problem 13:

Cannot boot the system after installing a second hard drive.

Causes:

1. Master/slave jumpers not set correctly.
2. Hard drives are not compatible / different manufacturers.

Solutions:

1. Set master/slave jumpers correctly.

Run SETUP program and select the correct drive types. Call drive manufacturers for possible compatibility problems with other drives.

Problem 14:

Missing operating system on hard drive.

Causes: CMOS setup has been changed.

Solutions: Run setup and select the correct drive type.

Problem 15:

Certain keys do not function.

Causes: Keys jammed or defective.

Solutions: Replace keyboard.

§ If you still require assistance after reading this section, please contact with your local distributor for more technical support.