Handling Precautions

CAUTION

High potential static charge may cause damage to the integrated circuits on the board. Before handling any mainboard outside of its protective packaging, ensure that there is no static electric charge in your body.

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer.

There are some basic precautions when handling the motherboard or other computer components:

- Keep the board in its anti-static bag until you are ready to install it.
- Protect you board form static electricity by well grounding of you body and the equipment during the installation, such as wearing a grounded wrist strap.
- Always handle the board by its edges.
- Do not touch with the components on the boards, add-on cards and modules and with the "gold finger" connectors plugged into the expansion slot. It is best to handle system components by their mounting bracket.
- Ensure the system power is completely turn-off before doing any installation work.

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Features of the Board

Overview

Congratulations on purchasing the highest performance Pentium® Pro motherboard. With the advanced technologies available today, this motherboard is designed to run Intel's Pentium® Pro processors at speeds of 150 MHz, 166 MHz, 180 MHz and 200 MHz. The on-board system memory consists of SIMM and DIMM which gives you the most flexibility for system design. It supports up to 256 MB of DRAM using standard 72-pin SIMM sockets that accept either Fast Page Mode (FPM), Extended Data Out (EDO) and Burst EDO memory. In addition, two unbuffered, 3.3 Volts, 168-pin DIMM sockets are also included for 16 to 256MB EDO memory support. A 387-pin ,type 8, Zero Insertion Force (ZIF) socket allows an easy upgrade path for the future Pentium Pro Overdrive® processors.

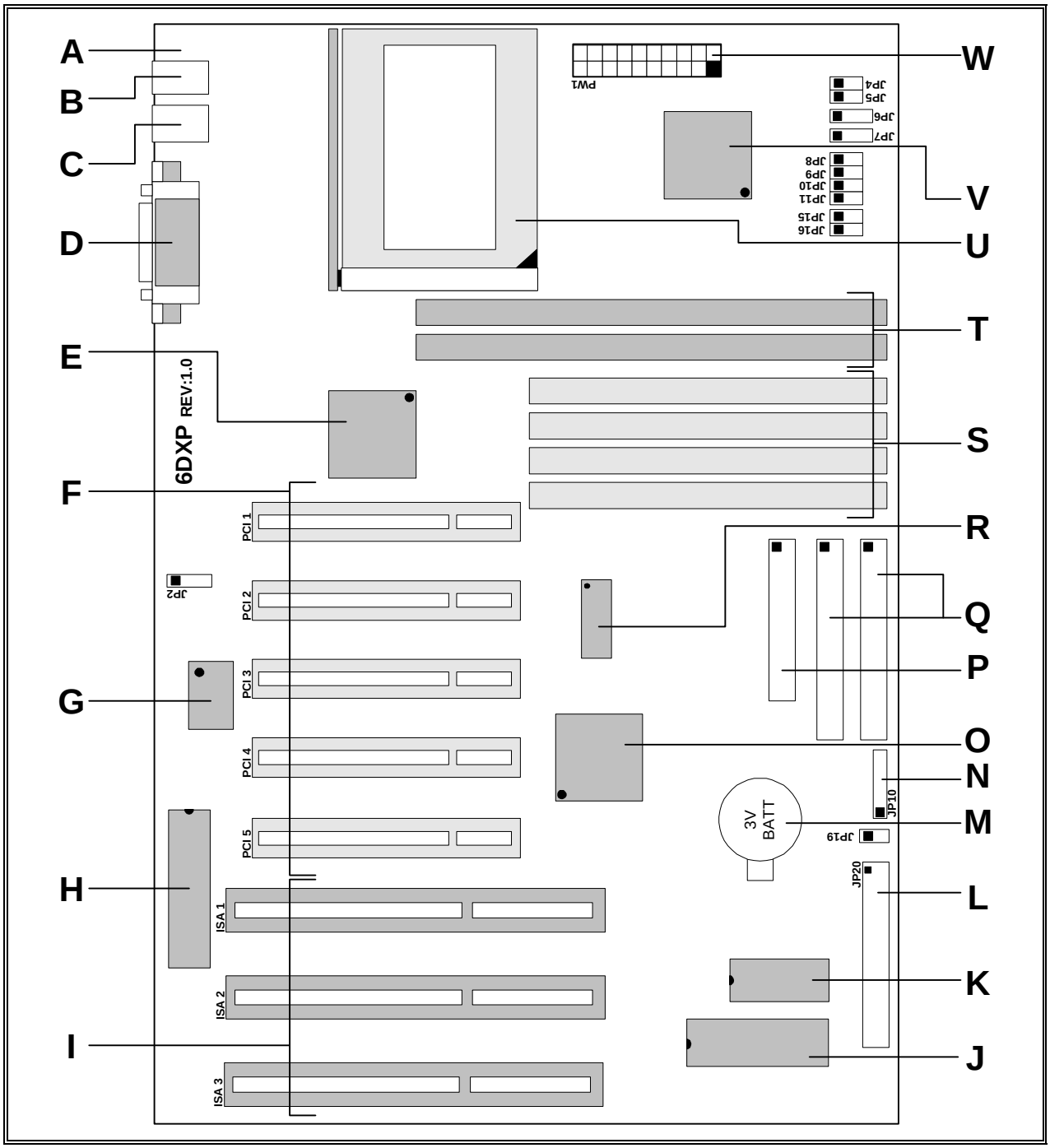
This motherboard maximum utilizes Intel's 82440FX PCI chipset. The Intel 82371SB PCI/ISA IDE Xccelerator (PIIX3) provides an integrated Bus Mastering IDE controller with two high performance IDE interfaces for up to four IDE devices (such as hard drives or CD-ROM). The integrated super I/O controller integrates the standard PC I/O functions: floppy interface, two FIFO serial ports, one EPP/ECP capable parallel port, and support for an IrDA and Consumer Infra Red compatible interface.

The five on-board 32-bit PCI local bus slots allows a higher bandwidth data path , which serves as a super highway, for intensive data-movement such as video or networking. The BIOS support PCI bridge user configuration, which allows for further expansion of the system with PCI peripherals. Up to three 16-bit ISA slots allow this board backward hardware compatible with the older expansion card. A total of seven expansion slots may be populated with full length add-in cards, since one PCI and ISA slot share the same chassis I/O panel.

Features Summary

This motherboard comes with following features:

- ☑ Supports Intel Pentium® Pro Processor 150/166/180/200MHz with automatically voltage adjustment
- ☑ Intel 440FX PCIset, including a 82441FX PCI/Memory controller (PMC), 82442FX data bus Accelerator (DBX) and 82371SB PCI ISA IDE Accelerator (PIIX3).
- ☑ Award PnP BIOS with support for power management, enhanced IDE/SCSI features and desktop management interface (DMI) which allows higher level of hardware compatibility.
- ☑ Flash BIOS for a more easy upgrade path
- ☑ Up to 4 each 72-pin SIMM sockets, supports up to 256 MB DRAM in two banks, which included FPM, EDO and BEDO DRAM types
- ☑ Two high speed unbuffered DRAM sockets
- ☑ Three 16-bit ISA expansion slots and five 32-bit PCI expansion slots.
- ☑ Integrated two PCI bus master IDE controller with two on-board connectors supports up to four IDE devices such as Hard Disk, CD-ROM or Tape Backup drives.
- ☑ Integrated super I/O chipset featuring one floppy disk controller, two 16550 UART compatible serial ports, one high speed EPP/ECP capable parallel port, one Infra Red port.



Parts Location on the Motherboard

Quick Reference of Your Motherboard

A ATX Form Factor Motherboard
B PS/2 Connectors
C Universal Serial Bus (USB) Connectors
D External I/O Connectors
E Intel SB82442FX (DBX)
F PCI Add-in Board Connectors
G Integrated I/O Controller
H Keyboard Controller
I ISA Add-in Board Connectors
J Flash BIOS
K Real Time Clock
L Front Panel Function Connectors
M 3V Lithium Battery
N Infra-Red (IR) Connector
O Intel 82371SB (PIIX3)
P Floppy Drive Connector
Q IDE Connectors
R System Clock Chip
S SIMM Sockets
T DIMM Sockets
U Pentium Pro Type-8 Socket
V Intel SB82441FX (PMC)
W ATX Power Supply Connector

[A] ATX Form Factor Motherboard

ATX is an evolution of the popular Baby-AT form-factor defined to address four major areas of improvement over today's predominant form-factors: enhanced ease-of-use, better support for current and future I/O and better support for current and future processor technology.

This motherboard is designed to fit into a standard ATX form factor chassis in that the outer dimensions are 12" x 9.6" (30.48 cm x 24.38 cm). The location of I/O connectors, CPU socket, PCI and ISA slots, and mounting holes are also strictly based on the ATX specification.

By simply rotating the board through 90 degrees (with respect to bady -AT form factor) within the chassis, the end-user gains a great deal in ease-of-use and improved functionality.

- With the processor relocated, all expansion slots can be full-length.
- Since the processor is not located between or under the add-in cards, a processor upgrade can now be performed without removing the installed cards.
- The SIMM connectors can be relocated away from the expansion bays and slots, increasing ease-of-use by giving easy access to the user for memory upgrades, and increasing the total number of available full length slots.
- The use of only one fan within the system reduces noise levels.
- More I/O is integrated onto the baseboard, improving reliability and reducing the number of cables.
- Disk I/O connectors are located closer to the peripheral bays, reducing cable lengths. This reduces the clutter in the chassis and allows the use of faster hard disk drives.
- With increased ease of use, and a reduction in cable complexity, the technical support burden is lowered.

[B] PS/2 Connectors

PS/2 device, likes some PS/2 keyboard and mouse, are all have a standard 6-pin round shape connector. The benefit of PS/2 device is one of the serial port may be free for other serial device such as writing table. On this mother-board, there are two on-board PS/2 connectors, one for keyboard and one for mouse, which saves your money to buy any optional PS/2 connector module. If you are using a PS/2 mouse or keyboard, you can simply plug into the corresponding connector without any jumper setting.

[C] USB Connectors

Universal Serial Bus (USB) is new interface standard for any I/O device "Outside the Box". USB makes your peripherals have a real plug and play (PnP) capabilities with up to 12Mb/sec data speed In the coming soon, any external device connected to your computer will be standardized into USB standard which are all have a special 4-pin rectangle shape connector. Therefore, with the Intel chipset, this motherboard builds two USB connectors on-board for you future investment.

[D] External I/O Connectors

Based on the ATX standard, two 9-pin serial ports and one 25-pin parallel port are now built on the motherboard back panel , too! This design makes your motherboard's installation more easily. The parallel port can be BIOS configured into standard (SPP) mode, Enhanced Parallel Port (EPP) mode, and a high speed Extended Capabilities Port (ECP) compatible mode. EPP Mode requires a driver provided by the peripheral manufacturer in order to operate correctly.

[E] 82442FX Data Bus Accelerator (DBX)

The DBX connects to the 64 bit Pentium® Pro data bus, the 64/72 bit memory data bus and the 16 bit 82441FX PCI Bridge and Memory Controller (PMC) private data bus. The DBX works in parallel with the PMC to provide a high performance memory subsystem for Pentium® Pro based systems. The DBX comes in a 208 pin PQF package.

[F] PCI Add-in Board Connectors

This motherboard provides five 32 bit PCI slots with up to 133MB/sec burst data transfer rate.

[G] Integrated I/O Controller

On the motherboard, serial ports, parallel port and floppy drive is integrated into a single chip. The I/O port allows you to configure through the BIOS setup. This integrated I/O chip provides:

- Plug-and-Play, Version 1.0a compatible.
- Supports two 360K, 720K, 1.2M, 1.44, 2.88M floppy disk drives
- One multi-mode high performance parallel port which can be BIOS configured as standard (SPP) mode, enhanced (EPP) mode, high speed (ECP) mode.
- Supports two 16C550 compatible enhanced serial ports.
- Supports IrDA or ASKIR infra-red interface.

[H] Keyboard Controller

The Keyboard controller is pin-to-pin compatible with Intel 8042 keyboard controller used in IBM PC's which provides traditional keyboard and mouse control functions, supports Power-On/Reset (POR) and PS/2 compatible mouse.

[I] ISA Add-in Board Connectors

This motherboard provides three 16 bit ISA slots which allows backward hardware compatibility.

[J] Flash BIOS

The flash BIOS allows user have more flexibility to upgrade their motherboard. The flash BIOS can be programmed by software easily. For the latest BIOS upgrade information, please feel free to visit our web site: http://www.zida.com.

[K] Real Time Clock

The integrated Real Time Clock (RTC) provides a time of day clock for the system board, a 100-year calendar with alarm features, and a century register. The internal nonvolatile CMOS RAM can operate over 10 years in the absence of power. The RTC allows user to adjust the time, calendar, and alarm through the BIOS setup. For more detailed information, please refer to the Chapter of BIOS Setup.

[L] Front Panel Function Connectors

The integrated Real Time Clock (RTC) provides a time of day clock for the system board, a 100-year calendar with alarm features, and a century register. The internal nonvolatile CMOS RAM can operate over 10 years in the absence of power. The RTC allows user to adjust the time, calendar, and alarm through the BIOS setup. For more detailed information, please refer to the Chapter of BIOS Setup.

[M] 3V Lithium Battery

A on-board battery holder is used to hold a 3 Volts CR-2032 Lithium battery which makes the battery's replacement more convenient. This battery is used to supply power for the RTC CMOS RAM in order to save your system setting and date/time counting during system power-off. In general, the battery's life-time is about 5 years. If you see a "BIOS checksum error" message happened while system turn-on, it may be caused by the battery low. You can try to fix it by simply replaced the battery.

[N] Infra-Red (IR) Support

A 5-pin interface on the front panel I/O connector is provided to allow connection to a Hewlett Packard HSDSL-1000 compatible Infra-red (IrDA) transmitter/receiver. Once the module is connected to the front panel I/O header, Serial port 2 can be re-directed to the IrDA module. When configured for IrDA, the user can transfer files to or from portable devices such as laptops, PDA's and printers using application software such as LapLink. The IrDA specification provides for data transfers at 115kbps from a distance of 1 meter. Support for Consumer Infra Red (ASK-IR) is also included, please refer to your IR equipment for more detailed information.

[O] 82371SB PCI/ISA IDE Xccelerator (PIIX3)

The Intel 82371SB is a 208-pin QFP package IC which provides the following features:

- Interface between the PCI local bus and ISA bus.
- Supports for 2 Universal Serial Bus (USB) ports.
- Integrated fast IDE interface which supports up to 4 devices. With separated Master/Slave mode support, it provides data transfer rate up to 16 MB/sec in PIO Mode 4. In addition, it also integrated a 8 x 32-bit buffer for Bus Master IDE PCI burst transfers which further enhanced the system performance.
- Enhanced DMA controller with Fast Type-F DMA
- Counters/Timers which provides advanced power management with programmable system management interrupt (SMI).

[P] Floppy Drive Connector

A 34-pin connector on-board allows connection to two 360K, 720K, 1.2M, 1.44, 2.88M floppy disk drives.

[Q] IDE Connectors

This motherboard have two independent high performance bus-mastering PCI IDE interfaces capable of supporting up to Mode 4 devices. The system BIOS supports automatic detection of the IDE device data transfer rate and translation between different kinds of device mode such as Logical Block Addressing (LBA) and Extended Cylinder Sector Head (ECSH) translation modes and ATAPI (e.g., CD-ROM) devices on both IDE interfaces.

In a true multi-tasking operating systems like Windows® 95 and Windows® NT, the IDE interface can operate as a PCI bus master capable of supporting PIO Mode 4 devices with transfer rates of up to 16 MB/sec.

[R] System Clock Chip

This system clock chip provides all the clock signals for the system, such as CPU clock and PCI bus clock.

[S] SIMM Sockets

This motherboard provides four 72-pin SIMM sockets. The minimum memory size is 8 MB by using two 1M x 32 SIMM modules and maximum memory size is 256 MB by four 16M x 32 SIMM modules. Memory timing can be configured through the BIOS setup, please refer to the chapter of BIOS setup.They support both Fast Page Mode, Extended Date Output (EDO) and Burst EDO SIMM RAM. Both parity and non-parity memory are supported as well as ECC.

The four sockets are arranged into two banks, Bank 0 and Bank 1, of two sockets each. Each bank provides a 64/72-bit wide data path. Both SIMMs modules in a bank must be of the same memory size and type. There are no jumper settings required for the memory size or type, which is automatically detected by the system BIOS.

NOTE

Due to the electrical loading characteristics, 64 MB SIMMs using the 16 MB technology are not supported by this motherboard. 64 MB SIMMs using 64 MB technology will be supported by the motherboard when they become available, depending on the characteristics of the memory module.

EDO DRAM

Extended Data Out (or Hyper Page) DRAM is designed to improve the DRAM read performance. EDO DRAM holds the memory data valid until the next memory access cycle, unlike standard fast page mode DRAM that tri-states the memory data when the precharge cycle occurs, prior to the next memory access cycle. EDO DRAM timings are X-2-2-2 compared to FPM timings of X-3-3-3.

PARITY/ECC DRAM

Memory error checking and correction is supported via parity or ECC SIMMs. Parity or ECC SIMMs are automatically detected. However, the user must enter Setup to configure the SIMMs for either Parity or ECC operation. Parity memory will detect single bit errors. ECC memory will detect double bit errors and correct single bit errors. Errors may be generated by a defective memory module, different speeds of memory modules, or DMA or memory conflicts.

[T] DIMM Sockets

There are two Unbuffered, 3.3 Volts, DIMM sockets on-board provides more flexibility for your system memory upgrade.

[U] Pentium® Pro Type-8 Socket

The type-8 socket is a 387-pin, modified staggered pin grid array (SPGA) zero insertion force (ZIF) socket, along with a programmable voltage regulator for the CPU core. It provides users with a performance upgrade path to Pentium® Pro OverDrive technology.

The motherboard built-in a switching voltage regulator which supports from 2.1 V to 3.5 V Pentium®Pro processors running at 150, 166, 180, and 200 MHz. The regulator makes use of the VID capabilities to automatically adjust its voltage output to match that of the installed processor, which eliminated the traditional jumper setting .

PENTIUM® PRO PROCESSOR

The Pentium®Pro processor integrates second level cache and cache controller that were previously implemented on the motherboard. The internal non-blocking L2 cache on the 150, 180 and 200 MHz processors is 256 KB, while the 166 and a second version of the 200 MHz processors integrate a 512 KB cache.

The Pentium® Pro processor maintains full backward compatibility with the 8086, 80286, Intel386™, Intel486™ and Pentium processors. It also has a numeric coprocessor that significantly increases the speed of floating point operations, while maintaining backward compatibility with the i486DX math coprocessor and complying with ANSI/IEEE standard 754-1985.

PENTIUM®PRO PROCESSOR

An approved Pentium Pro heatsink is necessary for proper thermal dissipation in an ATX compliant chassis. The processor/heatsink assembly must be securely fastened to the Socket 8 ZIF socket by two clips. These clips fit over the heatsink assembly and attach to the outer wide tabs of the Socket 8 assembly.

CAUTION

Do not use the older style of bail-wire clips for securing the heatsink assembly. These clips have been found to damage the motherboard when installed or removed incorrectly.

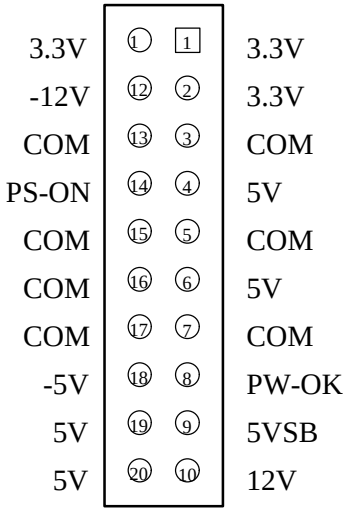
[V] 82441FX PCI Bridge and Memory Controller (PMC)

The 82441FX comes in a 208 pin QFP package and provides the following features:

- CPU interface control up to 66MHz with true 32-bit addressing.
- Integrated 64/72-bit DRAM controller, supporting from 8 MB to 256 MB main memory.
- Fully synchronous PCI bus interface with 25/30/33 MHz bandwidth.
- Write data Buffering and supports Pentium Pro-to-PCI burst writes.

[W] ATX Power Supply Connector

Based on the ATX specification, one 20-pin power connector covers all the required power sources, ±5V, ±12V and ±3.3V, with soft-touch button power on/off features. This connector reduces the installation time and minimizes the chance of defects caused by incorrect connection.



ATX Power connector pin out

Motherboard Installation

INSTALLATION PRECAUTIONS

During installation and initial test, use caution to avoid personal injury and damage to wiring due to sharp pins on connectors and printed circuit assemblies, rough chassis edges and corners, and hot components. Adhere to warnings and limitations regarding accessibility into areas designated only for authorized technical personnel.

A QUICK INTRODUCTION

To Install and operate your the new motherboard, you must follow the steps below:

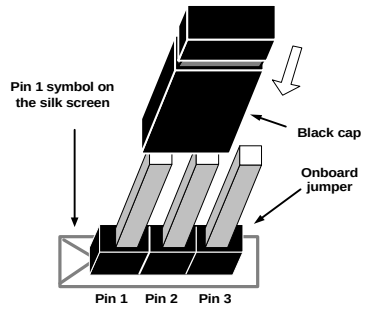
1. Set Jumpers on the motherboard
2. Install the CPU
3. Install RAM modules
4. Install expansion cards
5. Connect cables, wires and power connector

JUMPERS SETTING

There are several user-adjustable jumpers on the board which allow you to configure your system to match your requirements. This chapter contains the information on the various jumpers settings and connector on your motherboard.

Jumpers

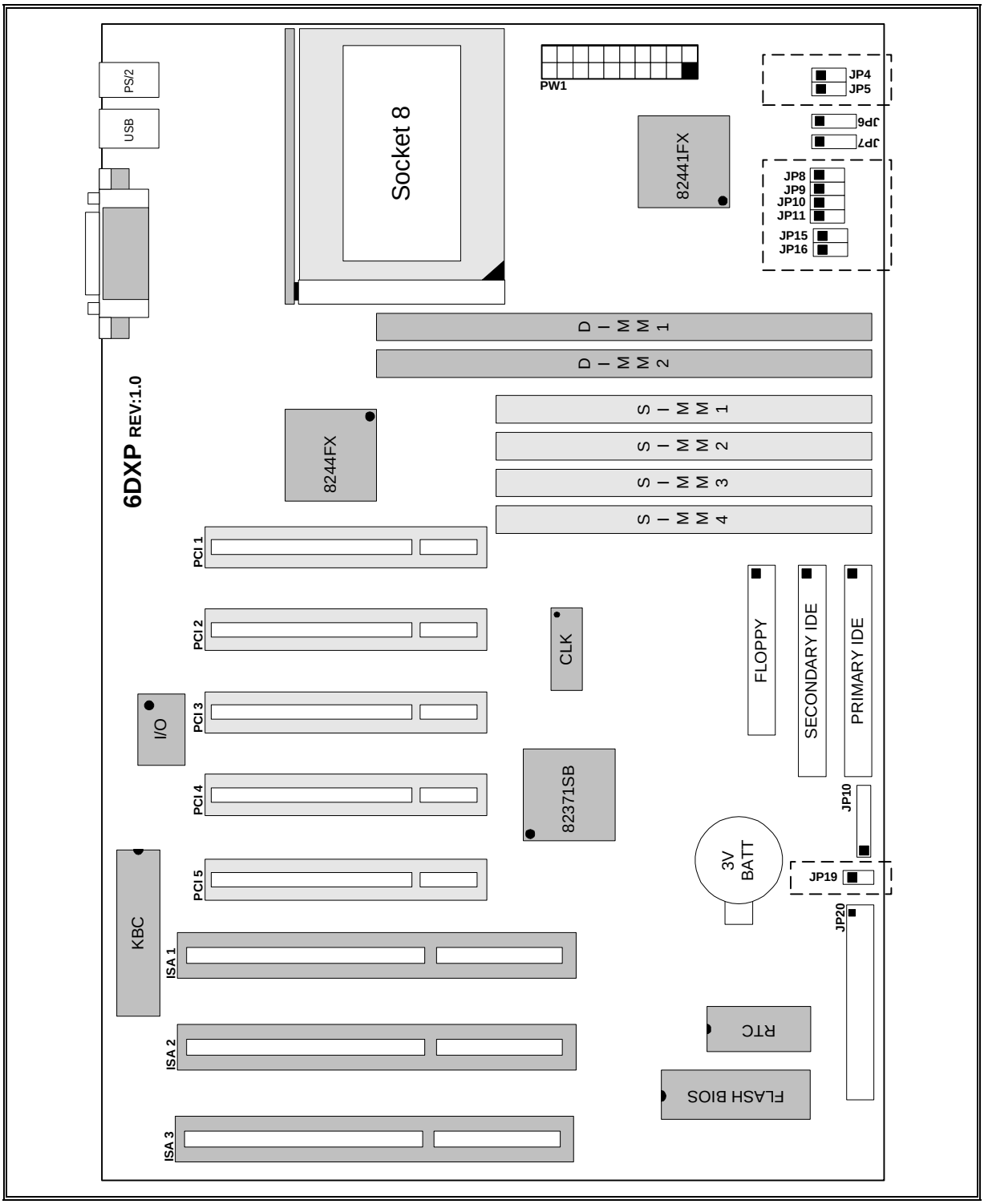
Jumpers are used to make several hardware settings on the motherboard. From the "Map of the Motherboard" shown above, you can identify the location of the jumpers. There are two kinds of jumper on-board, 2-pin jumper and 3-pin jumper. On the symbol of jumper likes " ", " " inside stands for pin 1. To set a jumper, a black cap containing metal contacts is placed across the jumper pin/s according to your required configuration. The jumper settings will also be described numerically such as [open] for open, [short] for short, [1-2] for connect pins 1&2, [2-3] for connects pins 2&3 respectively.



CAUTION

Users are not recommended to change any jumpers in it's default setting listed on this User's Guide. Changing the jumper settings improperly may affect the system performance.

The following figure is a completed “Map of the Onboard Jumpers” for the onboard jumpers (JP).



Map of the Onboard Jumpers

CPU Speed Selection

- JP4, JP5, JP15 and JP16 for external bus frequency
- JP8, JP9 and JP10 for frequency ratio setting

The table below shows the jumper setting for the CPU based on its internal clock speed.

Internal CPU speed	External Bus	JP4	JP5	JP15	JP16	Frequency Ratio	JP8	JP9	JP10
150	60MHz	[short]	[open]	[short]	[open]	2.5x	[open]	[short]	[short]
166	66MHz	[open]	[short]	[open]	[short]	2.5x	[open]	[short]	[short]
180	60MHz	[short]	[open]	[short]	[open]	3x	[short]	[open]	[short]
200 (*default*)	66MHz	[open]	[short]	[open]	[short]	3x	[short]	[open]	[short]

Voltage Regulator Output Selection

As mentioned before, the on-board regulator makes use of the VID capabilities to automatically adjust its voltage output to match that of the installed processor. Therefore, jumper setting is not longer required for this item on Pentium Pro CPU.

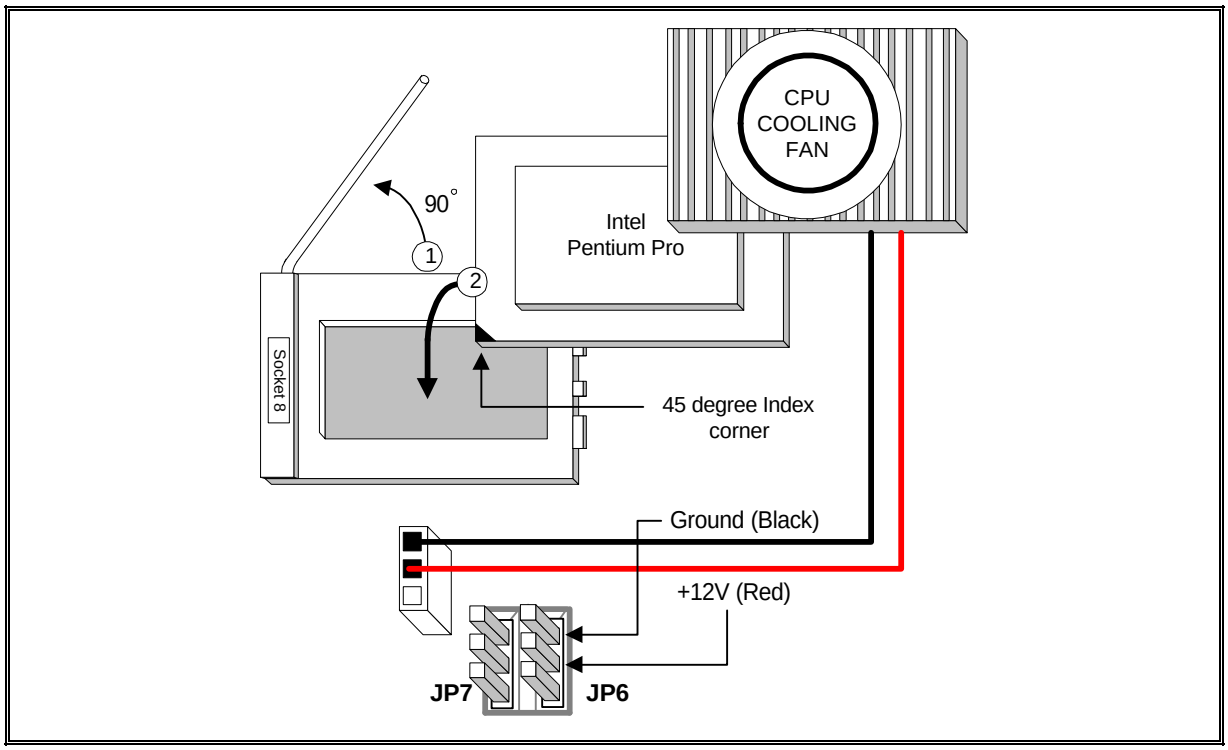
CMOS Reset

JP19 is used to clear the CMOS RAM data. After the CMOS reset, all the system BIOS configuration will lose at all.

	Description	
Jumper	**[short]**	**[open] (*default*)**
JP19	CMOS RAM clear	Normal operation

CPU INSTALLATION

The motherboard provides a 387-pin, type-8, ZIP socket. The CPU should have a fan attached to it to prevent overheating. If this is not the case then purchase a fan before you turn-on the system. There are two CPU fan power connector, JP7 and JP6, on-board.



CPU Installation Diagram

CAUTION

Without a effective cooling fan, the CPU can overheat and cause damage to both the CPU and the motherboard.

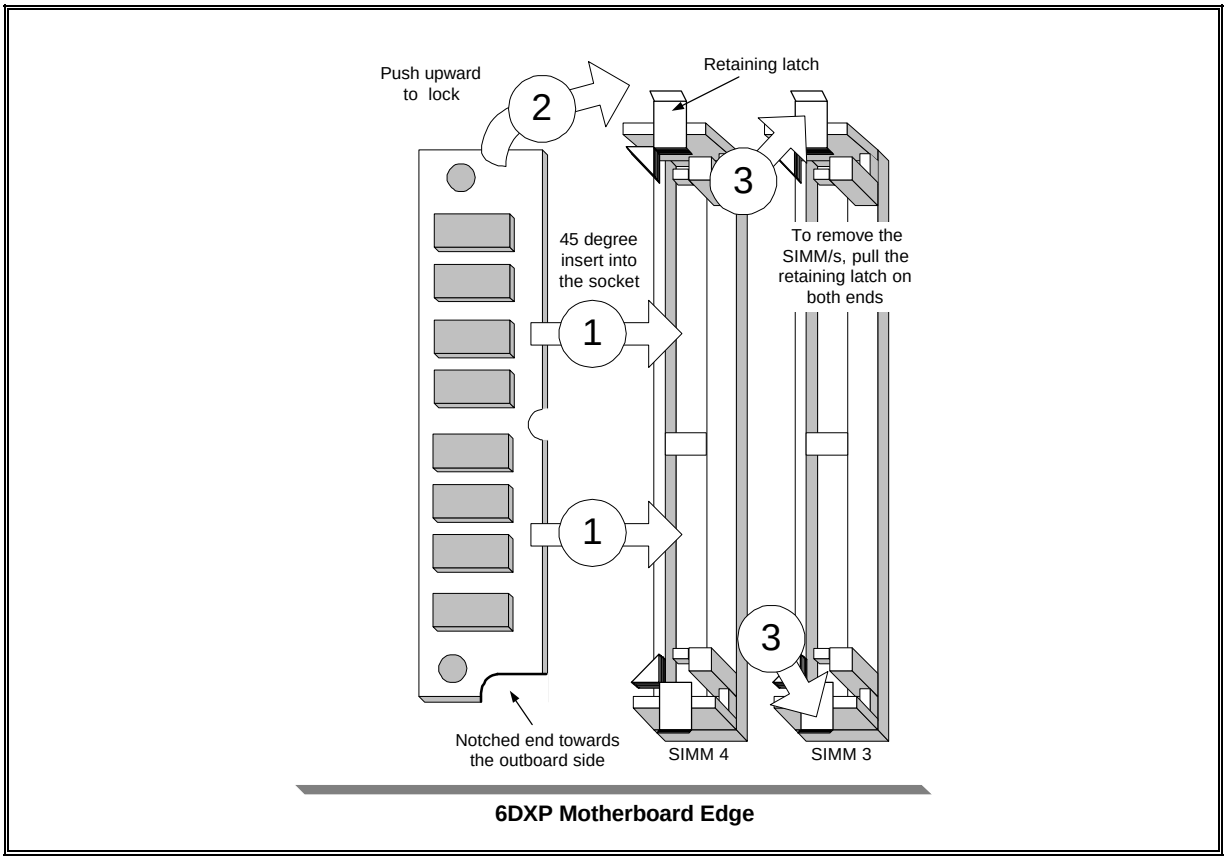
CPU Cooling fan Connector

JP6 and JP7 provide the +12 Volts d.c. for you CPU cooling fan

JP6 and JP7 Pin	Signal Name
1	Ground
2	+12V
3	Ground

INSTALLING SYSTEM MEMORY (RAM)

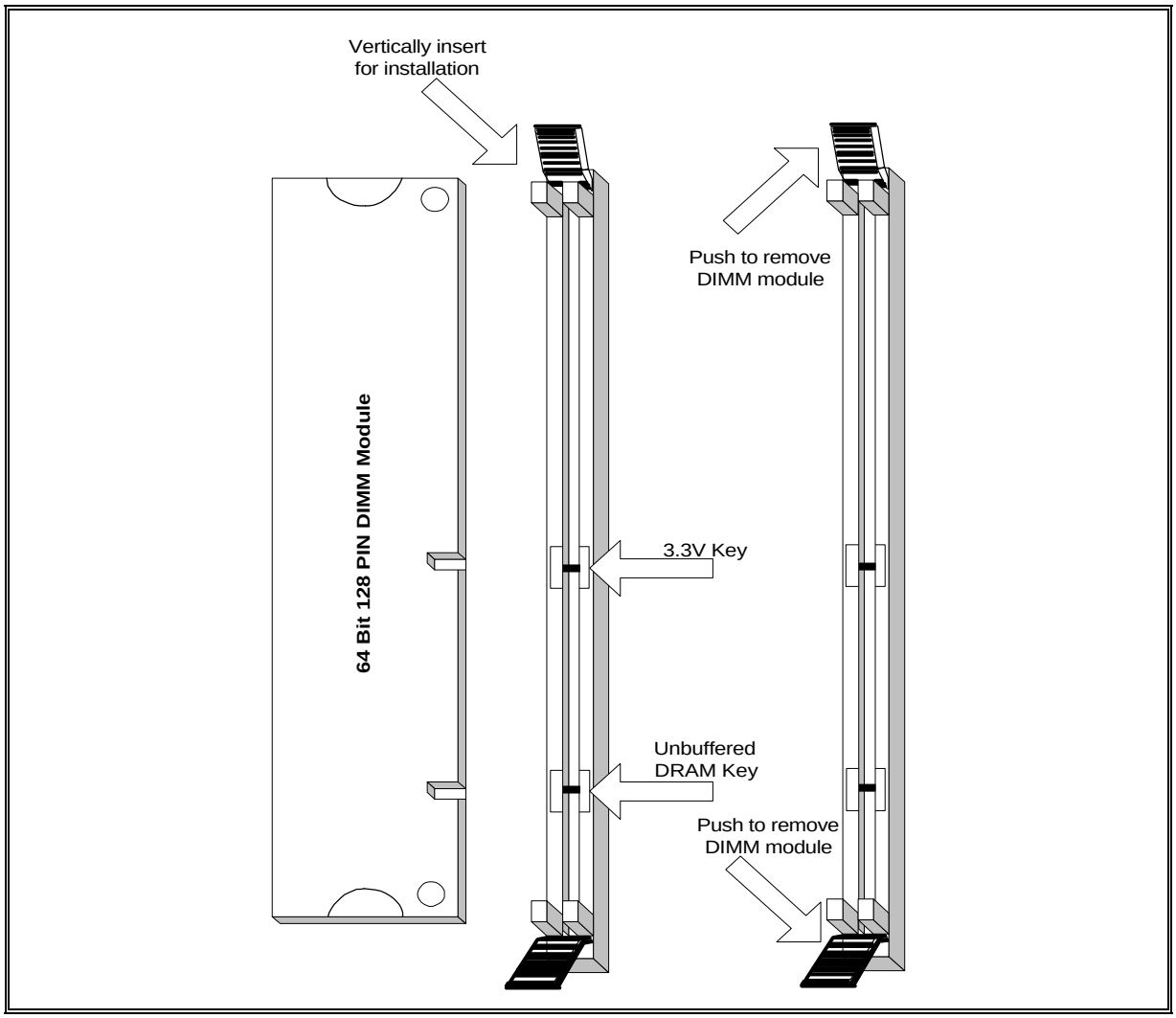
The motherboard supports four 72-pin SIMMs (Single-In-Line Memory Modules) from 8MB up to 256MB memory size and two 168-pin DIMM. The four 72-pin SIMMs sockets are divided into two memory banks, Bank 0 and Bank 1, and each bank has two SIMM sockets which accept either FPM or EDO DRAM module.



SIMM Module Installation Diagram

CAUTION

Each bank must have the same size and type of memory module installed in pairs..



128-Pin DIMM Module Installation Diagram

EXPANSION CARDS INSTALLATION

At the most of beginning, you must read your expansion card documentation on any hardware and software settings that may be required. The installation procedures are summaried as below:

1. Read the User's Guide/Manual of your expansion card.
2. If necessary, set any jumpers on your expansion card.
3. Power-off the system and then disconnected the power cord.
4. Remove your computer's cover.
5. Remove the metal bracket from one of the empty slot, ISA or PCI, corresponding to the type of expansion card.
6. Carefully align the card's connectors and press firmly, make sure that the connection is good.
7. Secure the card on the slot.
8. Replace the computer's cover.
9. Setup the BIOS configuration if necessary.
10. Install the required software drivers for your expansion card.

CAUTION

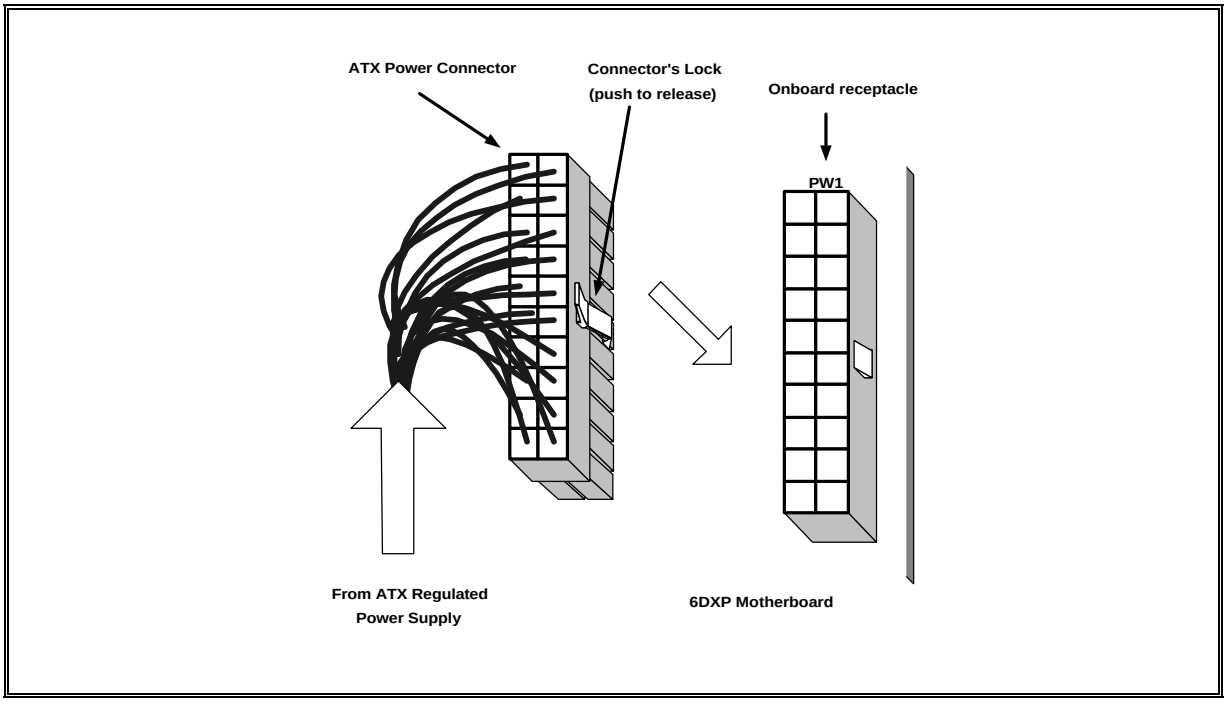
Before adding or removing any expansion card or other system conponents, make sure that you unplug your system power supply. Failure to do so may cause damage of your motherboard and expansion cards.

CONNECTING EXTERNAL CONNECTOR

Power Connector

PW1, single 20-pin connector incorporates standard ±5V and ±12V, optional 3.3V and soft-power signals. With a power supply supports remote power on/off, the motherboard can turn off the system power through software control, such as the shutdown in Windows 95 Start menu. The system BIOS will turn the system power off when it receives the proper APM command from the OS. APM must be enabled in the system BIOS and OS in order for the soft-off feature to work correctly.

Pin	Signal Name	Pin	Signal Name
1	+3.3V	11	+3.3V
2	+3.3V	12	-12V
3	Ground	13	Ground
4	+5V	14	PW_ON
5	Ground	15	Ground
6	+5V	16	Ground
7	Ground	17	Ground
8	PWRGOOD	18	-5V
9	+5VSB	19	+5V
10	+12V	20	+5V



ATX Power Connector Installation

Floppy Drive Connector

This 34-pin connector supports the provided floppy drive ribbon cable. After connecting the single end to the on-board "FLOPPY" connector, connect the remaining plugs on the other end to the floppy drives correspondingly.

IDE Connectors

The two on-board IDE connectors supports the provided 40-pin IDE hard disk ribbon cable. After connecting the single end to the board, connect the two remaining plugs at the other end of your hard disk(s). If you install two hard disks, you must configure the two drives by setting its jumpers according to the documentation of your hard disk. Also, you may connect the two hard disks to be both Masters using one ribbon cable on the primary IDE connector and one on the secondary IDE connector.

NOTICE

For the flat ribbon cable connection, please make sure that the pin 1 of the ribbon cable (the red wire side of the cable) is correctly connected to the on-board connector's pin 1 as shown on the "Map of the Motherboard".

Front Panel Function Connectors

All the front panel indicator , speaker, and switch functions are grouped into a on-board 26-pin connector, JP20. Front panel features supported include:

- System Reset, RESET
- Power LED, form KEYLOCK
- Hard Drive activity LED, IDE LED
- System Speaker, SPEAKER
- Soft-touch button power on/off, SW ON
- Turbo LED, TBLED
- External power saving control, EXTSMI (optional)

The connector pin out are described as the figure below:

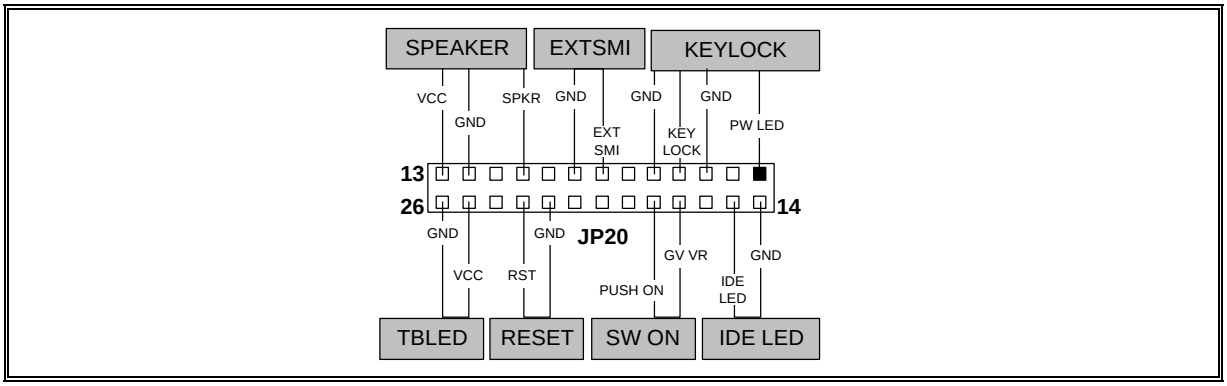


Figure . The onboard function connector pin out

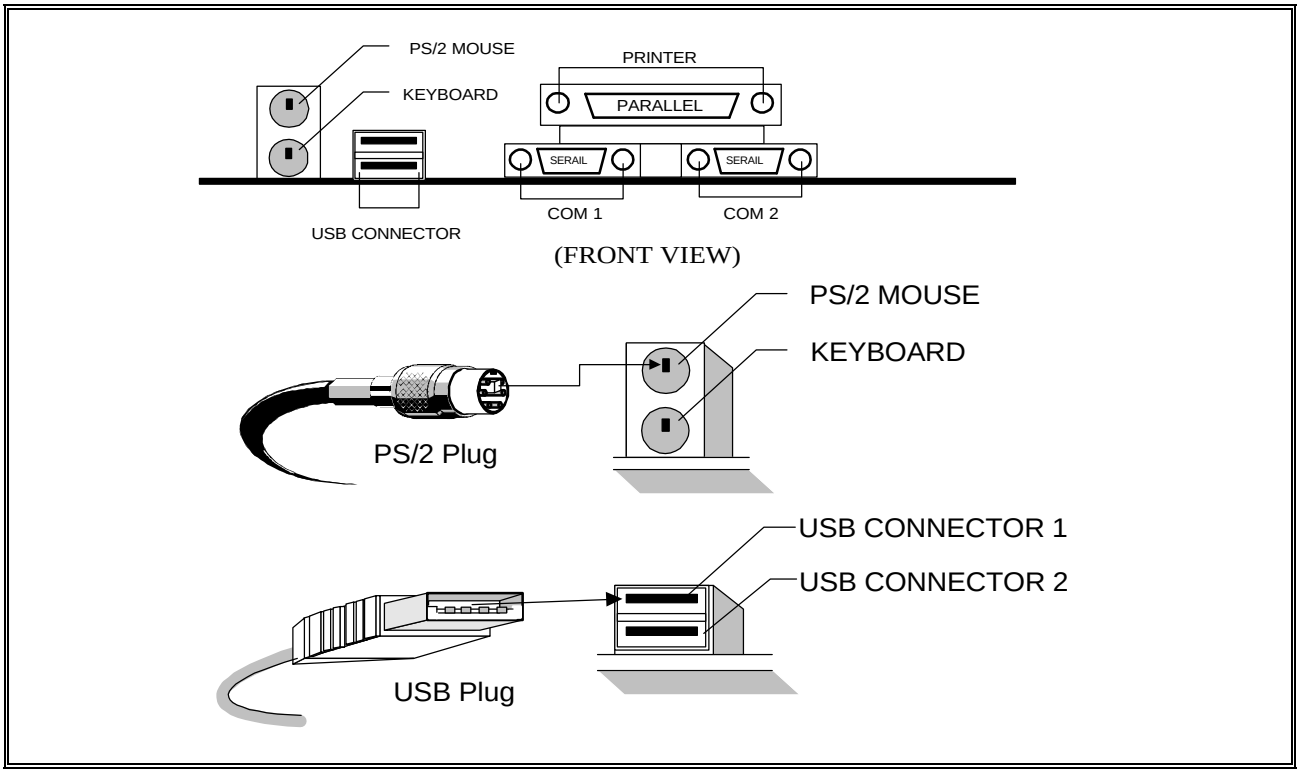
Infra-Red connector

Serial port 2 can be configured to support an IrDA module via a 5 pin header connector. Once configured for IrDA, the user can transfer files to or from portable devices such as laptops, PDA's and printers using application software such as LapLink. The IrDA specification provides for data transfers at 115 Kbps from a distance of 1 meter. Consumer IR is also supported by the same connector.

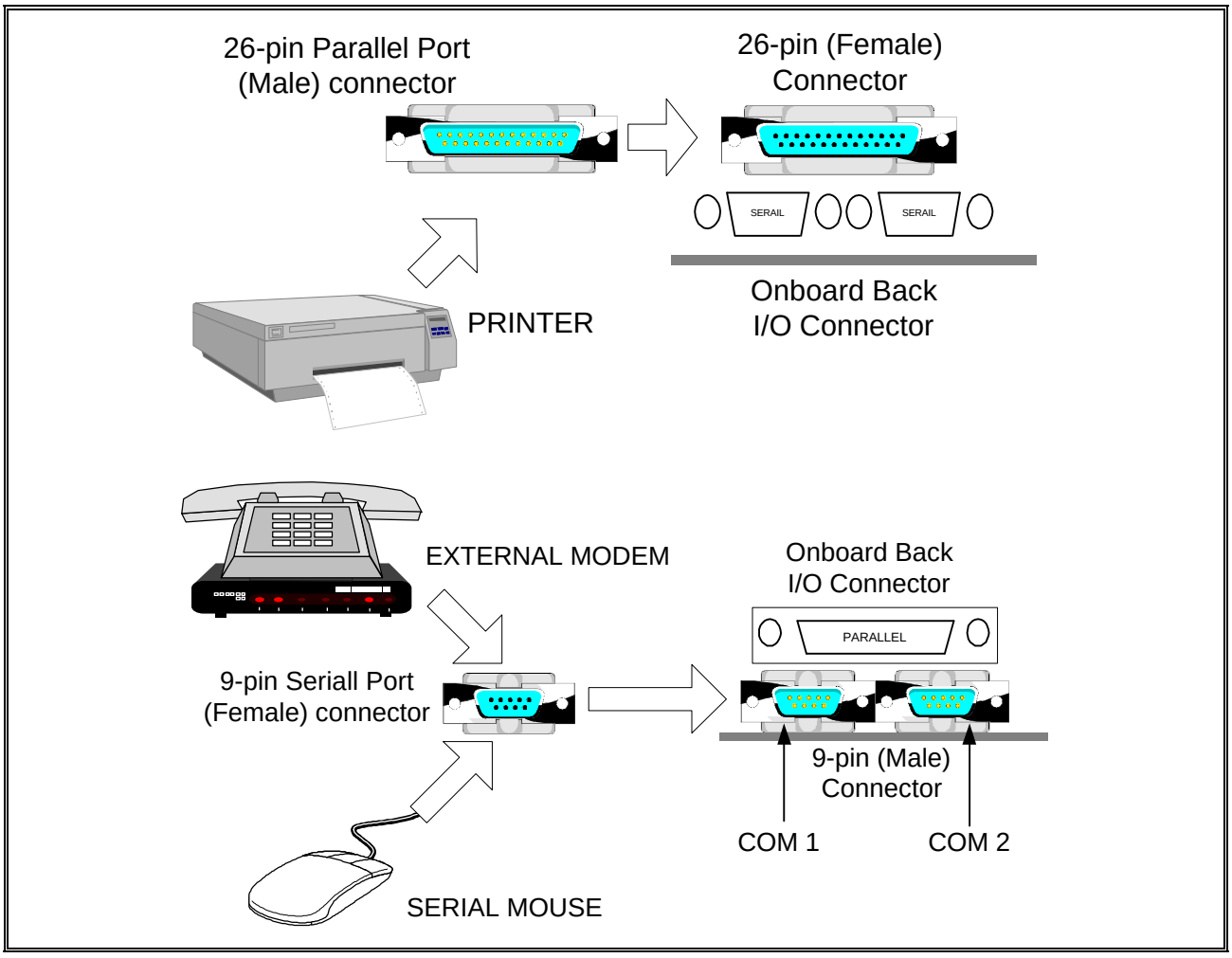
J10 Pin	Signal Name
1	VCC, power source
2	N/C
3	IRRX, infra-red receive
4	N/C
5	IRTX, infra-red transmit

I/O Back Panel Connectors

The I/O back panel allows external access to PS/2 keyboard and mouse connectors as well as two serial ports, and one parallel port, which are integrated on the motherboard. Figure below shown the general location of the I/O connectors.



I/O Back Panel Connnector Installation Diagram for PS/2 and USB



I/O Back Panel Connector Installation Diagram for Serial and Parallel Ports

REPLACING BATTERY

A 3V, CR-2030, Lithium battery is installed on the on-board battery socket (see the figure). This battery is used to supply the CMOS RAM backup power during system powered-off. Danger of explosion if battery is incorrectly replaced. Therefore, if you have any difficulty , please consult to the technical personnel.

AWARD BIOS and CMOS SETUP Utility

GETTING START

All computer motherboards provide a Setup utility program for specifying the system configuration and settings. If your motherboard came in a computer system, the proper configuration entries may have already been made.
This motherboard has been programmed with Award BIOS setup utility. The setup utility program is stored inside the on-board programmable Flash ROM chip. This Setup program allows user to modify the basic system configuration. The system configuration is stored in the battery backup CMOS RAM (inside the real time clock chip) so that it retains the setup information when the power is turned off. This chapter explains the setup utility for the Award BIOS.

ENTERING SETUP

When you trun on the computer, the system allows you an opportunity to enter the BIOS Setup utility. During the POST (**P**ower **O**n **S**elf **T**est), you can see the below message appears at the bottom of the screen, press <Del> key or simultaneously press <Ctrl>, <Alt> and <Esc> keys.

```
Press DEL to enter SETUP, ESC to skip memory test
```

If the message disappears before you respond, POST will continue with its test routines, thus preventing you from calling up the Setup utility. However, if you still want to enter Setup, restart the system to try again by turning it OFF and then ON or pressing the "RESET" button on the system case. You may also restart your system by simultaneously pressing <Ctrl>, <Alt> and <Delete> keys. If you do not press the keys at the correct time and the system does not boot up, and error message below may be displayed and you will again be asked to,

```
PRESS F1 TO CONTINUE, CTRL-ALT-DEL TO ENTER SETUP
```

Summary of Control Keys

Up arrow	Move to previous item
Down arrow	Move to next item
Left arrow	Move to the item in the left hand
Right arrow	Move to the item in the right hand
Esc key	Main Menu -- Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu
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
F1 key	General help, only for Status Page Setup Menu and Option Page Setup Menu
(Shift)F2 key	Change color from total 16 colors. F2 to select color forward, (Shift) F2 to select color backward
F3 key	Calendar, only for Status Page Setup Menu
F5 key	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
F6 key	Load the default CMOS value from BIOS default table, only for Option Page Setup Menu
F7 key	Load the setup default, only for Option Page Setup Menu
F10 key	Save all the CMOS changes, only for Main Menu

GETTING HELP

Main Menu

The on-line description of the highlighted setup function is displayed at the bottom of the screen.

Status Page Setup Menu/Option Page Setup Menu

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

THE MAIN MENU

Once you enter Award BIOS CMOS Setup Utility, the Main Menu (Figure 1) will appear on the screen. The Main Menu allows you to select from ten setup functions and two exit choices. Use arrow keys to select among the items and press <Enter> to accept or enter the sub-menu.

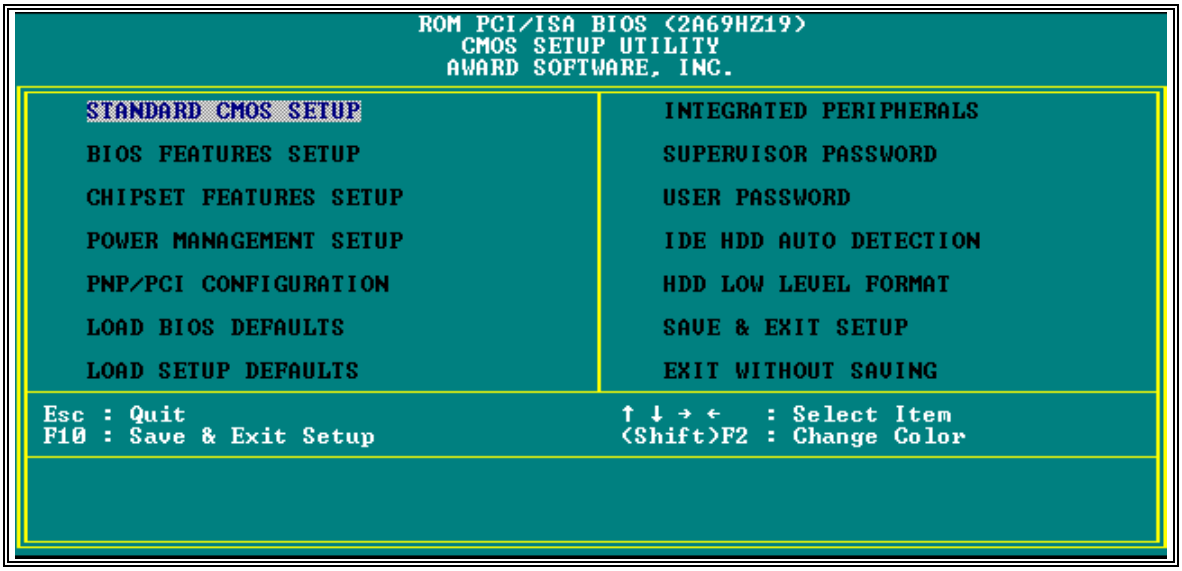


Figure of CMOS Setup Utility Main Menu

Standard CMOS Setup

This setup page includes all the items in a standard compatible BIOS.

BIOS Features Setup

This setup page includes all the items of Award special enhanced features.

Chipset Features Setup

This setup page includes all the items of chipset special features.

Power Management Setup

This setup page includes all the items of green features.

PnP/PCI Configuration

This setup page includes all the items of PnP , PCI IRQ and ISA IRQ settings. You can allocate these resources for your system use in this menu.

Integrated Peripherals

This setup page is used to configure the On-board multi I/O and IDE interface.

Load BIOS Defaults

This function is for user to load the BIOS default settings. The BIOS defaults indicates the most appropriate value of the system parameter which the system would be in minimum performance.

Load SETUP Defaults

This function is for user to load the SETUP default settings. SETUP defaults indicates the values required by the system for the maximum performance.

Supervisor/User Password

This function is for Change, set, or disable the supervisor or user password. The supervisor password allows you to limit the user access to the system and Setup.

IDE HDD Auto Detection

Automatically configure hard disk parameters.

HDD Low Level Format

This Automatically configure hard disk parameters.

Save & Exit Setup

Save CMOS value changes to CMOS and exit setup.

Exit Without Save

Abandon all CMOS value changes and exit setup.

STANDARD CMOS SETUP

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.

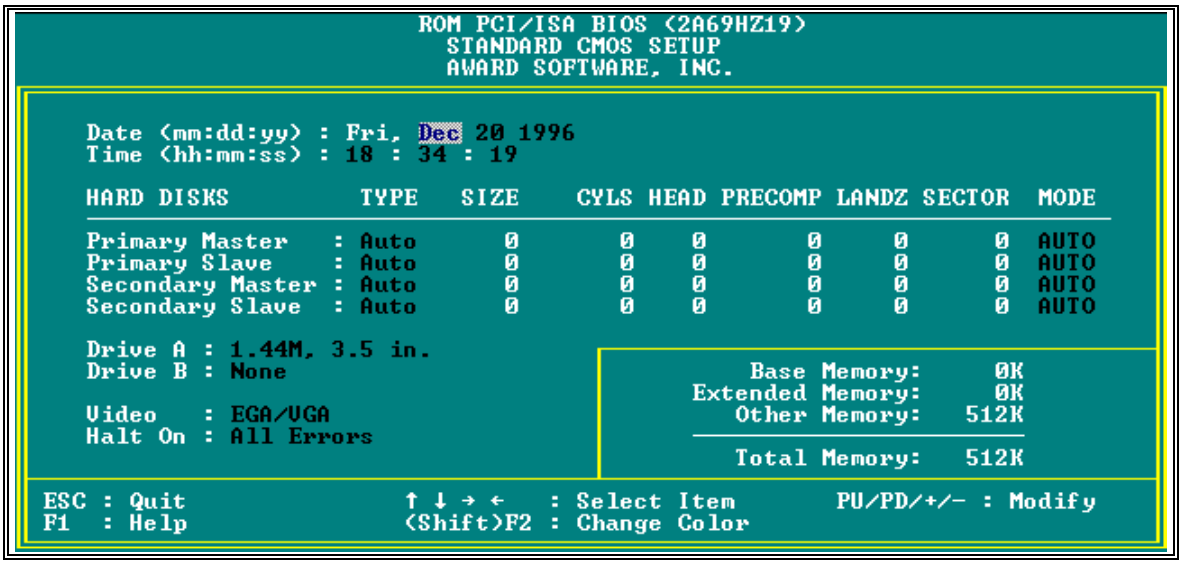


Figure of Standard CMOS Setup

Date & Time

Enter current Date & Time to set system clock. The date format is <month> <day> <year> and the time format is <hour> <minute> <second>. The time is calculated based on the 24-hour military-time clock.

Primary and Secondary Master / Slave

The categories identify the types of IDE hard disk on primary or secondary IDE channel that have been installed in the computer. There are 46 pre-defined types and a user definable type. Type “1” to Type “46” are predefined. Type “User” is user-definable.

Press PgUp or PgDn to select a numbered hard disk type or type the number and press <Enter>. Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category. If your hard disk drive type is not matched or listed, you can use Type User to define your own drive type manually.

If you select Type “User”, related information is asked to be entered to the following items. Enter the information directly from the keyboard and press <Enter>. This information should be provided in the documentation from your hard disk vendor or the system manufacturer.
There are the option of Type “AUTO” and Mode “AUTO” to auto detect the hard disk type and the hard disk mode (Normal, LBA and Large). If a hard disk has not been installed select NONE and press <Enter>.

NOTICE FOR HARD DISK LARGER THAN 528MB

The Mode settings are for IDE hard disks only. There are three entries you can select from in the mode field, "Normal", "Large" and "LBA".

Set Mode to the Normal settings for IDE hard disk drives smaller than 528MB. Use the LBA setting for drives over 528MB that use Logical Block Addressing mode to allow larger IDE hard disks.

Drive A / Drive B

This category identifies the types of floppy disk drive A or drive B that have been installed in the computer.

Video

This category selects the type of adapter used for the primary system monitor that must match your video display card and monitor. Although secondary monitors are supported, you do not have to select the type in Setup.

Halt On

This category determines whether the computer will stop if an error is detected during power up. There are different types of error can be config in this category.

Total Memory

This category is display-only which is determined by POST (Power On Self Test) of the BIOS.

Base Memory

The POST of the BIOS will determine the amount of base (or conventional) memory installed in the system. The value of the base memory is typically 640K for systems with 640K or more memory installed on the motherboard.

Extended Memory

The BIOS determines how much extended memory is present during the POST. This is the amount of memory located above 1MB in the CPU's memory address map.

Other Memory

This refers to the memory located in the 640K to 1024K address space. This is memory that can be used for different applications. DOS uses this area to load device drivers to keep as much base memory free for application programs. Most applicause for this area is Shadow RAM.

BIOS FEATURES SETUP

The item BIOS Features Setup Menu is divided into 23 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.

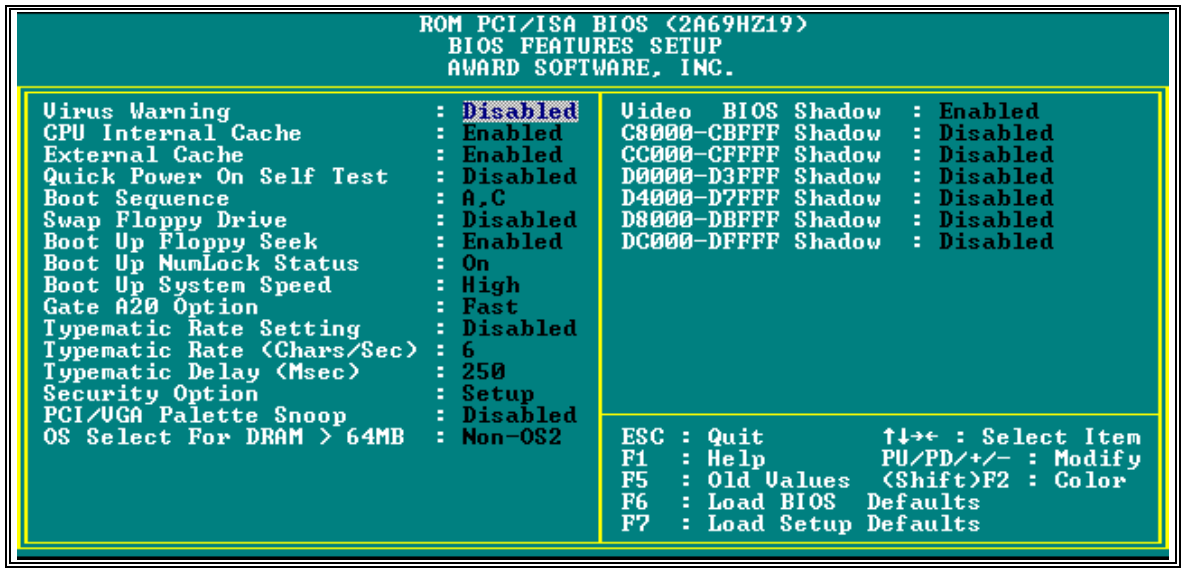


Figure of BIOS Features Setup

Virus Warning

You can “Enable” or “Disable” this feature. When enabled, it will activate automatically if anything attempt to access the boot sector or hard disk partition table during system bootup. The default value is “Disabled”.

CPU Internal Cache

This category enables or disables the internal cache to speed up memory access. The default value is “Enabled”.

External Cache

This category enables or disables the secondary (L2) cache to speed up memory access. The default value is “Enabled”.

Quick Power On Self Test

This category speeds up Power On Self Test (POST) after you power on the computer. If it is set to “Enabled”, BIOS will shorten or skip some check items during POST. The default value is “Disabled”.

Boot Sequence

This category determines which drive computer searches first for the disk operating system (i.e., DOS). The default setting is “A,C”, means that the system will determine the drive A before drive C.

Swap Floppy Drive

This feature allows you to enable the system swap floppy function, the default is “Disabled”. When this function enables, the system will assign the Drive A as Drive B, and vice versa.

Boot Up Floppy Seek

The default setting is “Enabled”, so that the BIOS will search for floppy disk drive to determine if it is 40 or 80 tracks. If disabled, BIOS will not search for the type of floppy disk drive by track number. Note that there will be no warning message if the drive installed is 360K.

Boot Up NumLock Status

It determine the Num-Lock is turned on/off Num Lock. when the system is powered on so that the end user can use the arrow keys on both the numeric keypad and the keyboard. The default value is “On”.

Boot Up System Speed

It selects the default system speed - the speed that the system will run at immediately after power up. The default value is “High”.

Gate A20 Option

The A20 signal option specify A20 controlled by keyboard controller or chipset hardware. The default is “Fast”, therefore, the A20 signal is controlled by chipset specific method.

Typematic Rate Setting

Typematic Rate sets the rate at which characters on the screen at which characters on the screen repeat. The default setting is Disabled.

Typematic Rate (Chars/Sec)

Typematic rate sets the rate at which characters on the screen repeat when a key is pressed and held down. You can select 6-30 characters per second. The default setting is “6”.

Typematic Delay (Msec)

When holding down a key, the time between the first and second character display. you specified numbers of times of character repeat on the screen. The default setting is “250”.

Security Option

This category allows you to limit access to the system and Setup or just to Setup. When you select system, the system will not boot and access to Setup will be denied if the correct password is not entered at the prompt. If you select Setup, the system will boot but access to Setup will be denied if the correct password is not entered at the prompt. The default setting is “Setup”.

PCI/VGA Palette Snoop

This option controls the system to access the PCI VGA card palette register. In general, this option is “Disabled”. However, you may need to enable this option for some VGA cards which have incorrect color displayed on some software application.

OS Select For DRAM > 64MB

Some the OS/2 application access the memory in different mode. Enable this option to allow the system use another mode to access the main memory for OS/2 applications.

VIDEO BIOS Shadow

The system BIOS is automatically shadowed. The default setting for the “Video BIOS Shadow” is “Enabled”. It determines whether video BIOS will be copied to RAM. However, it is optional from chipset design. Video Shadow will increase the video speed.

C8000 - CFFFF Shadow/E8000 - EFFFF Shadow

These categories determine whether optional ROM will be copied to RAM by 16K byte. You can enable the optional shadow or you can disable it. The default setting is disabled.

CHIPSET FEATURES SETUP

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.

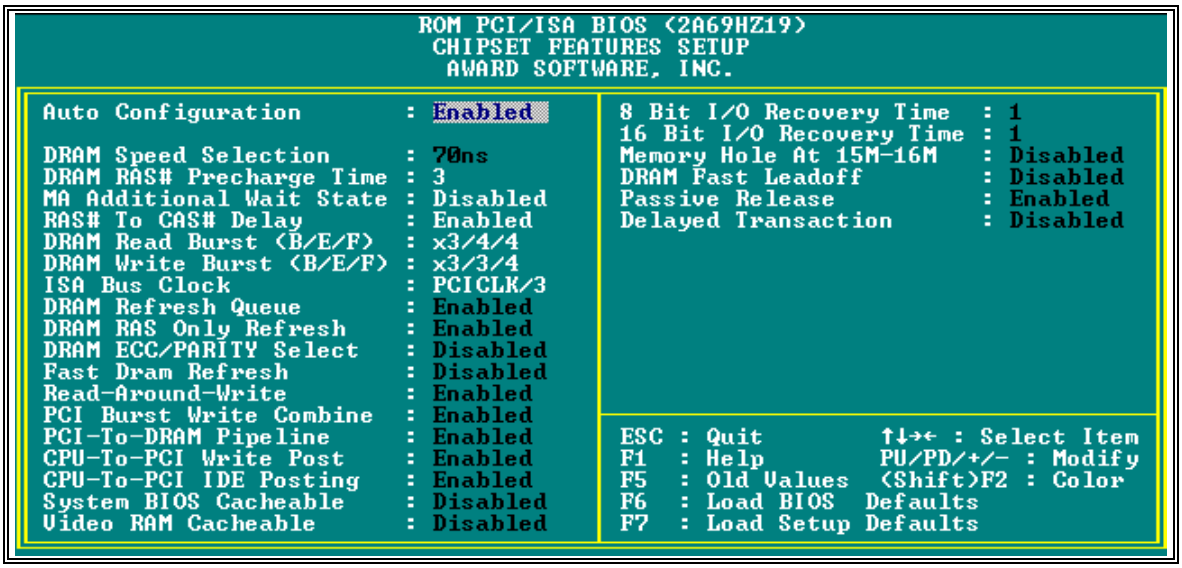


Figure of Chipset Features Setup

Auto Configuration

The “Auto Configuration” default is “Enabled”. This automatically setting up your system at optimum performance. You cannot change the setting with the Auto Configuration enabled. You are not recommended to change the setting unless you know what are the functions of the item.

POWER MANAGEMENT SETUP

Power Management setup controls the system board Power Management features. This is a feature of microprocessor with the energy-efficient technology. The setup screen is shown in figure below.

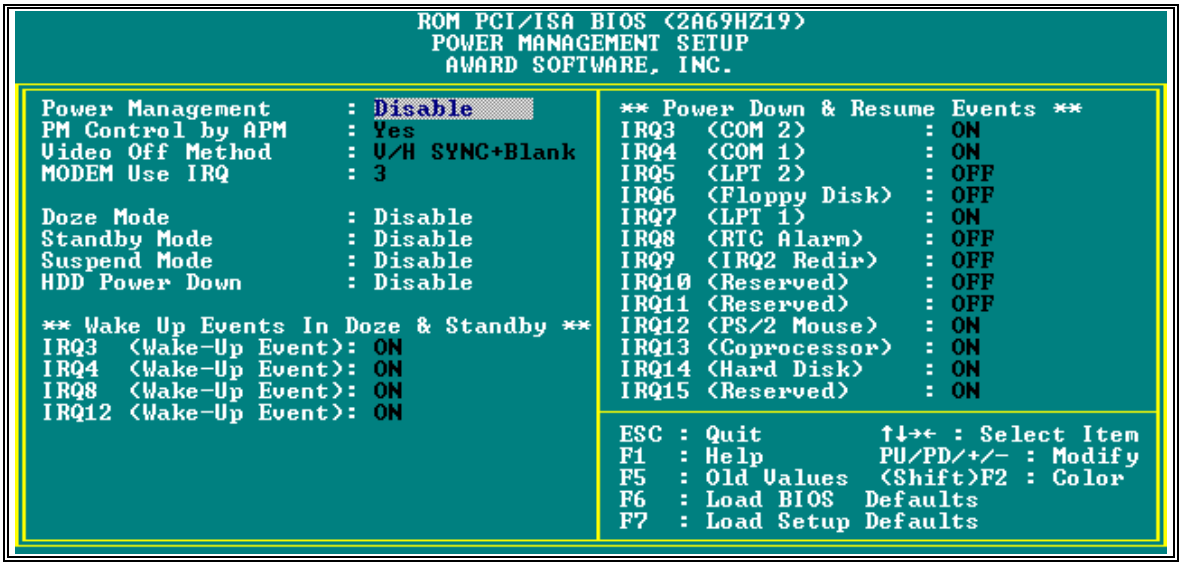


Figure of Power Management Setup

Power Management

"Power Management" is the master control for the power saving features, including HDD power down, Doze, Standby and suspend Modes and the I/O Device Timer, that together form the hard-ware power conservation scheme. There are three options:

User Defined	- Allows you to configure the power conservation features by yourself.
Max Saving	- Factory presetted setting for optimal power saving setting
Min Saving	- Factory presetted setting for minimal power saving setting
Disable	- Turn off all the power conservation features.

PM Control by APM

This feature is automatically set to "Yes", the system BIOS will wait for APM prompt before it enters the GREEN mode.

NOTICE

If APM is installed, & if there is a task running, event the timer is time out, the APM will not prompt the BIOS to put the system into any power saving mode!

Video Off Method

There are three options you can choose to turn off the VGA display.

- Blank Screen — The system will blank the screen only.
- DPMS — This function is enabled for only the VGA card supporting DPM.
- V/H SYNC + Blank — Choose this mode if your system use the monitor with power management feature. In addition to the blank screen, the system will turn off the horizontal and vertical sync signal. Most monitor will turn off itself if these signal are inactive.

The default setting is "V/H SYNC+Blank".

Modem Use IRQ

If you installed the MODEM on your system, you can use this option to specify the MODEM use which IRQ. Normally, if you install the external modem on COM1, it will use IRQ4 and COM2 will use IRQ3. The default setting is "3".

Standby Mode/Suspend Mode/Doze Mode

These option specify the continuous idle time before the system enter the power saving mode. Normally, Doze and Standby mode puts the system into low speed clock and suspend mode puts the system clock stopped. The default setting is "Disabled".

HDD Power Down

This option defines the continuous HDD idle time before the HDD enter power saving mode (motor off).

Wake Up Events In Doze & Standby

These option specifies the amount of continuous system idle time before the system enter the power saving mode. Normally, Doze mode puts the system into low speed clock and Standby mode will shut off the fixed disk drive and video while all other devices still operate at full speed.

- IRQ 3 (Wake-Up Event) — COM 2 Ativity
- IRQ 4 (Wake-Up Event) — COM 1 Ativity
- IRQ 8 (Wake-Up Event) — RTC Alarm
- IRQ 12 (Wake-Up Event) — PS/2 Mouse Activity

Power Down & Resume Events

Power Down and Resume 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 "On", even when the system is in a power down mode.

The listing of IRQ's (on the Figure of Power Management Setup), **I**nterrupt **R**e**Q**uests, which can be exempted much as the COM ports and LPT ports above can. When an I/O device wants to gain the attention of the operating system, it signals this by causing an IRQ to occur. When the operating system is ready to respond to the request, it interrupts itself and performs the service.

As above, the choices are "On" and "Off". The default setting is listed on the Figure above.

PNP/PCI CONFIGURATION

The System BIOS on a PCI platform plays the role of a System Resources Manager. Its main job is to dynamically allocate system resources such as I/O, Memory & IRQs to all PCI devices without any conflicts!

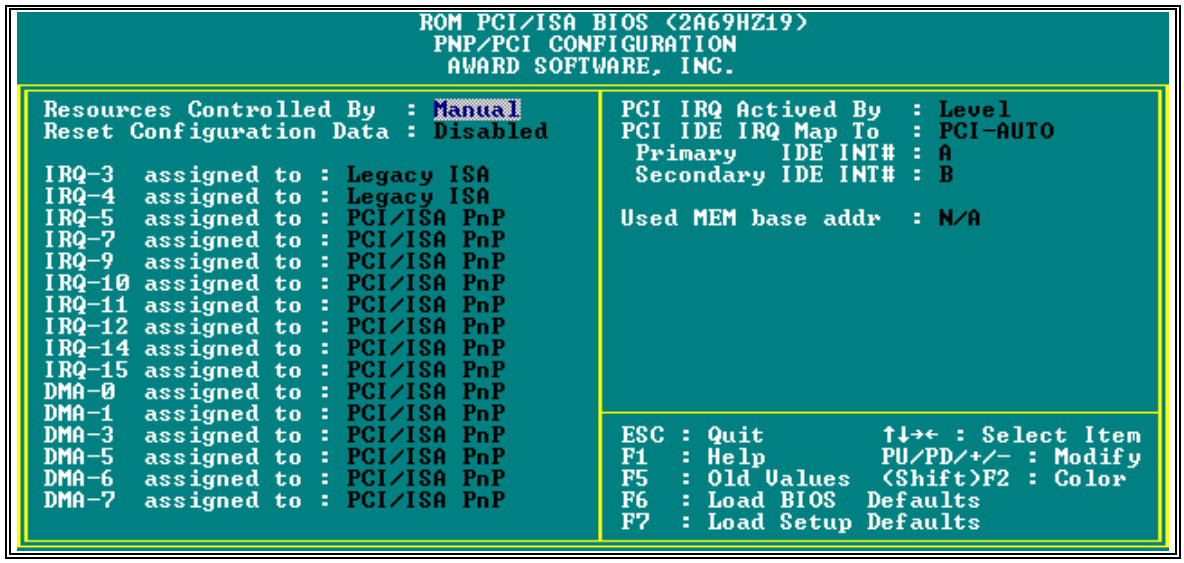


Figure of PnP/PCI Configuration

Resources Controlled By

You can allocate the system resources manually by choosing manual. If choose AUTO in this option, the system resources will be allocated automatically.

Reset Configuration Data

Select enabled in this option if you want to reset your PnP hardware information which stored in the system board. For normal use, this option should be set to disabled.

IRQ-3 to 15, DMA-0 to 7

If you select manual in the Resources Controlled by option, you need to assign the system resources manually. In the resources list, you can assign the resources either for PCI / ISA PnP or for legacy (non-PnP) ISA. If you are using a legacy ISA card and using a specified IRQ or DMA, you should assign your system resources correctly for that ISA card otherwise you system / peripheral card will not function correctly.

PCI IRQ Actived By

This option is hardware related setting and it tell the system the IRQ signals level or edge trigger. You can select either level or edge in this option. Most PCI IRQ function actived by level. If you PCI card is not function on your board, you can try to select edge option. Please consult your hardware supplier for information.

PCI IDE IRQ Map To
Primary IDE INT:
Secondary IDE INT:

This option indicates the presence and the information of an offboard PCI IDE device. The first option indicates the slot number of PCI IDE and the other options indicate how IRQ14 and IRQ15 are routed to the device. If an IDE IRQ MAP To is set to PCI-AUTO, this means that the system will scan for PCI IDE devices & determine the location of the PCI IDE device. If this option is set to PCI-SLOT, this indicates that the offboard PCI IDE device is present and the system will route the IRQ to that SLOT. If an IDE IRQ MAP is set to ISA, the system does not need to route the IRQ because a paddle card is installed and the IRQ is received from an ISA slot. Otherwise, the IRQ can be routed correctly according to the specification of the INT# value.

Used MEM Base Addr

If you have a Legacy ISA card, which uses any memory segment between C800H and DC00H address range. This option allows you to select the base address form the six available options and the Used MEM Length field will then appear for selecting the block size. The default setting is “N/A” for disabled.

INTEGRATED PERIPHERALS SETUP

The Integrated Peripherals Setup Menu is divided into different categories. 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.

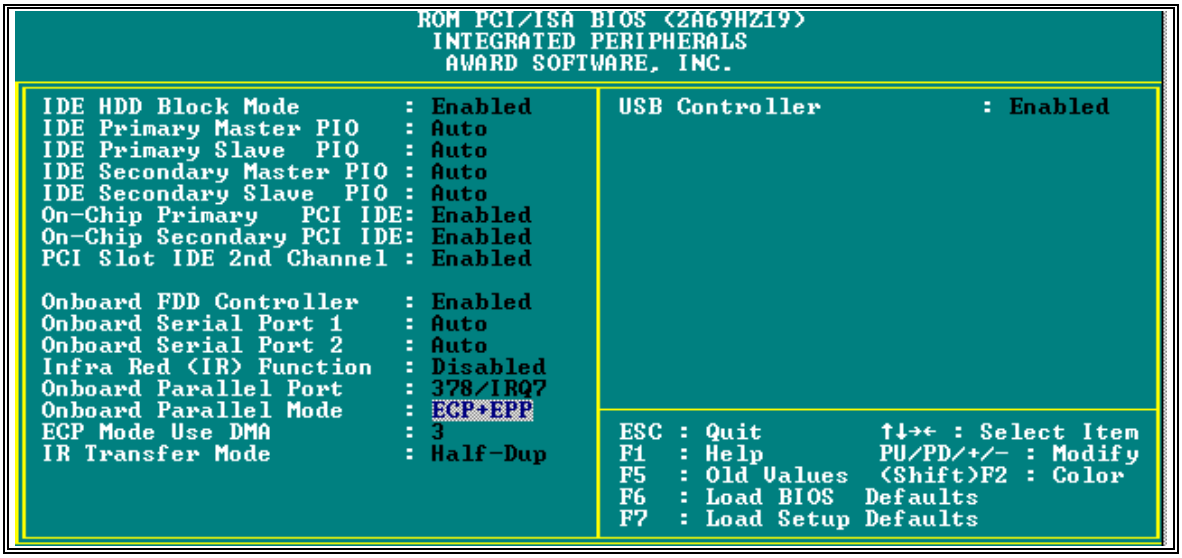


Figure of Integrated Peripherals

IDE HDD Block Mode

If IDE HDD Block Mode Enabled, the BIOS will detect the block size of the HDD and send block command automatically. Select Disable if your harddisk not support the Block mode transfer. The default setting is “Enabled”.

IDE Primary/Secondary PIO Mode

This option sets the PIO mode for all drives connected to the onboard PCI IDE. If this option is set to AUTO, the PIO mode will be set according to the value the drive reports with the auto detect harddisk function. The user may decrease the PIO mode by modifying this option, default is “AUTO”.

Primary/Secondary PCI IDE

This option allows you to disable the IDE interface if you are not using it or you are using another peripheral as IDE interface, such as SCSI controller. .The default setting is “Enabled”.

PCI Slot IDE 2nd Channel

This option allows you disable the second channel IDE interface if you are not using it or you are using another peripheral as second channel IDE interface.

Onboard FDD Controller

The on-board floppy disk controller can be enabled or disabled by this option..

Onboard Serial Port 1 / Port 2

You can config the on-board serial port as COM1-COM4 or select “none” to disable the serial port.

Infra Red (IR) Function

The communication link between the system to the device can be half or full duplex. This option allows you specify the communication link is a half or full duplex. Please refer to your IR device for detailed information

Onboard Parallel Port

The on-board parallel port can be configed as LPT1 (378), LPT2 (278) or select “none” to disable the parallel port.

Onboard Parallel Mode

You can select SPP (Standard mode), EPP(Enhanced mode) and ECP(Extended mode) for parallel port mode in this menu. This communication mode is hardware dependent, please refer to your hardware manual for the Mode setting.

ECP Mode Use DMA

This option specifies which DMA channel will be used when the parallel port is set to ECP mode.

IR Transfer Mode

This field allows you to select the communication mode for your IR devices, either Half-Duplex or Full Duplex. The default setting is “Half-Duplex”.

USB Controller

The option allows you enable or disable the USB connector functions.

LOAD BIOS DEFAULTS

This features stay in the default system values before the user has changed any CMOS values. If CMOS setting is lost. the BIOS defaults will automatically be loaded.

LOAD SETUP DEFAULTS

This features load the default setting for normal use.

PASSWORD SETTING

When you select the supervisor or user password function, the following message will appear on the screen to assist you in creating a password.

ENTER PASSWORD:

Type the password, up to eight characters, 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 to enter a password.

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

PASSWORD DISABLED.

If you select System at Security Option of BIOS Features Setup Menu, you will be prompted for the password every time the system is rebooted or any time you try to enter Setup. If you select Setup at Security Option of BIOS Features Setup Menu, you will be prompted only when you try to enter Setup.

IDE HDD AUTO DETECTION

You can use this utility to detect the IDE hard disk parameters. It can automatically detect up to four hard disk.

SAVE AND EXIT SETUP

Select this option when you finished setup the CMOS and it will save the change you made and reboot the system after you press “YES”.

EXIT WITHOUT SAVING

If you decided not to save any change you had made, you can select this option to exit the CMOS setup and all the change you made will be ignored.

Motherboard Technical Specification

ENVIRONMENT

Parameter	Specification
Operating Temperature Humidity Atmosphere	 +0°C to +55°C 20% to 80% Noncondensing
Non-operating/Transportation Temperature Humidity Atmosphere	 -20°C to +65°C 10% to 90% Noncondensing
ATX Power Supply Requirement +3.3 V ±5 V ±12 V	 ±5 % ±5 % ±5 %
Vibration Operating	 0.2G Z axis (up and down), 5 to 300 Hz 0.1G X axis (front and rear), 5 to 300 Hz Y axis (left and right), 5 to 300 Hz

DIMENSIONS AND WEIGHT

Dimension Approx.	305 x 244 mm (12 x 9.6 inches)
Net Weight	0.65 Kg (1.43 lb.)

ELECTRICAL SPECIFICATION

Onboard Voltage Regulation	Under 3.3V condition
Voltage transient	± 5%
Set point variation	± 1%
Onboard Current Limitation	
Under 3.3V condition	about 14 Ampere (max)

POWER CONSUMPTION

The is designed to operate with a 200 W ATX power supply. For a system configured with the motherboard including a 200 MHz Pentium Pro processor w/ 256 KB Cache, 64 MB EDO DRAM, 3.5-inch floppy drive, 2.1 GB IDE hard drive, 8X IDE CD-ROM, and a PCI graphics card, The overall power dissipation is about 80W. However, this information is provided only as reference for the total system power usage.

Request For Technical Support

In order to provide you with effective and quick technical support, we need to know your system specification and environments. Please fill the following form as complete as possible so we can give you assistance.

PRODUCT INFORMATION	
MODEL	
CHIPSET MODEL	
RAM TYPE/SIZE/BRAND/SPEED	
BIOS VERSION	
PURCHASE DATE	
PROBLEM DESCRIPTION	
OPERATING SYSTEM	
APPLICATION SOFTWARE	
PROBLEM DESCRIPTION	

SYSTEM CONFIGURATION		
Display Card (Brand/Model)		
Resolution		
IDE Controller Card (Brand/Model)		
LAN Card (Brand/Model)		
Fax/Modem Card (Brand/Model)		
SCSI Controller (Brand/Model)		
Multi I/O Card (Brand/Model)		
Other Add-on Card (Brand/Model)		
IDE Disk Drive	PRIMARY MASTER (Brand/Model)	
	PRIMARY SLAVE (Brand/Model)	
	SECONDARY MASTER (Brand/Model)	
Floppy Drive	SECONDARY SLAVE (Brand/Model)	
	DRIVE A (Brand/Model)	
	DRIVE B (Brand/Model)	
Other Device (Brand/Model)		