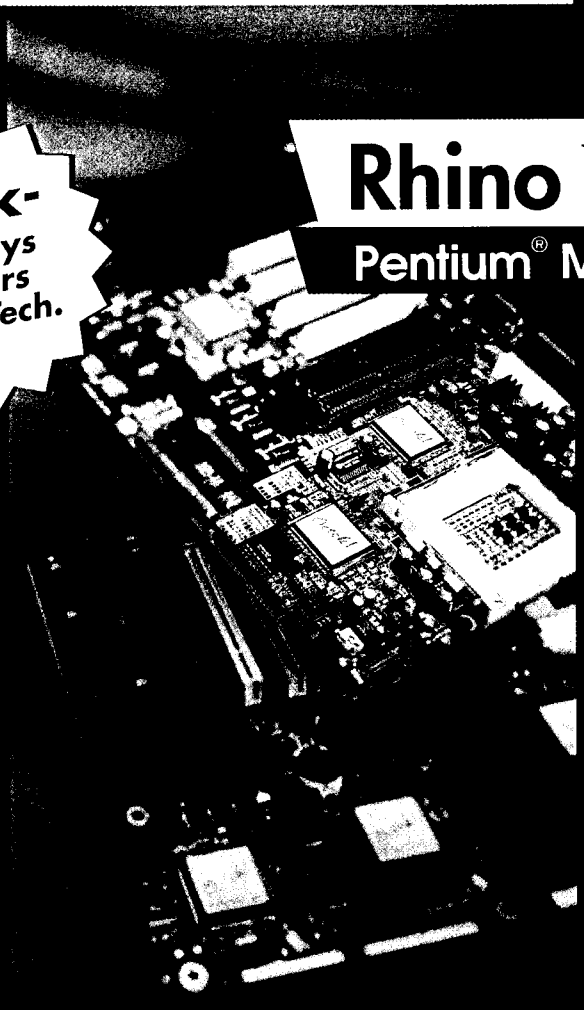
Jazz Up Your PC by

Octek Mainboard



Octek-
It Always
Delivers
Better Tech.

Rhino VP3

Pentium® Mainboard

English

PCI LOCAL BUS

Octek Mainboard

VP3 ATX

Pentium Motherboard

WITH PCI LOCAL BUS AND AGP BUS

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1.1 General Specifications

Processor:

• Processor Type	Intel Pentium, Pentium with MMX, Cyrix/IBM 6x86/6x86L/6x86MX, AMD K5/K6
• External CPU Clock	55/60/66/75 MHz
• CPU Voltage	2.0~3.5V support single/dual internal power planes

Chipset:

• Motherboard Chipset	APPLO-VP3 chipset with I/O subsystems

Cache Architecture:

• External Cache	256K/512K Byte on-board Synchronous Pipeline Burst SRAM

Memory Subsystem:

• DRAM SIMM Sockets	2 x 72 pin 4MB/8MB/16MB/32MB/64MB module.
• SDRAM DIMM Sockets	2 x 168 pin 8MB/16MB/32MB/64MB/128MB Synchronous DRAM / EDO RAM modules
• Max. Memory Size	384MB
• DRAM Type	Fast Page Mode, EDO DRAM or Synchronous DRAM,SDRAM-II
• Enhancement	Mix of Fast Page Mode, EDO DRAM, SDRAM or SDRAM-II

Input/Output Subsystem

• PCI Bus Slots	2 x 32-bit PCI bus slots (master)
• ISA Bus Slots	2 x 16-bit ISA slots
• Shared Bus slots	1x32-bit PCI bus slot(master) or 1x16-bit ISA slot
• AGP Bus slots	1x 32-bit AGP bus slot (master)

Integrated IDE, Super I/O Subsystem

• IDE Support	Built-in PCI IDE controller Two connectors supporting up to 4 IDE drives Support Mode 3,4 IDE,Ultra DMA-33 IDE, LS-120 floppy drive,Internal ZIP ATAPI drive & ATAPI CD-ROM.
• On Board I/O	One Floppy Port supporting 2 floppy drives of 360KB/720KB/1.2MB/1.44MB/2.88MB capacity. Two Serial Ports (COM2 with alternate IR) One Parallel Port (Standard, ECP, EPP supported)

PS/2 Mouse/Keyboard

• PS/2 Mouse/Keyboard 6-pin mini-DIN connector on board

Power Management

• Green Functions	Support various Power Management schemes Power On Suspend Suspend to RAM Suspend to Disk

BIOS Subsystem

• BIOS Type	AWARD
• BIOS Shadowing	Shadow RAM for System and Video BIOS
• BIOS Features	Built-in setup, Power-on self test, Drive table optimization, User-definable drive types, Password Protection, Shadowing options

Plug & Play / BIOS Update

• Plug & Play BIOS	Microsoft Windows95™ and Plug and Play BIOS compliant
• Flash EEPROM	Use Flash EEPROM (1M or 2M bits) to allow easy BIOS update

USB Devices

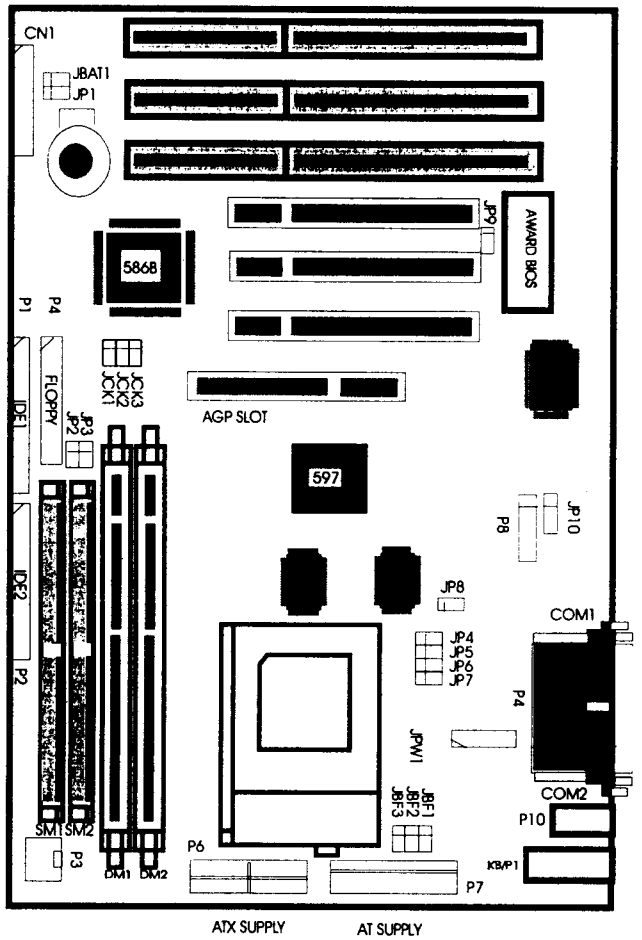
• USB Devices	USB v1.0 and Intel Universal HCI v1.0 compatible 2 programmable USB ports

Other Features

• 3.3V/3.5V Supply	Maximum rating: 41 W
• 2.0V~3.5V Supply	On board 2.0~3.5V supports MMX grade CPUs.
• Connectors	Reset, Keylock Switches, Speaker, HDD LED, Power LED, CPU Fan.
• Size	190.5x304.8mm(7500x12000mils)
• Modem Ring on	Remote turn on the system through a modem (requires ATX power supply)
• Fan Control	Automatic fan off
• Power Button	Wake up system Support Power/On switch when ATX power supply is plugged Hold 4 sec. to turn off system (soft-off) when ATX power supply is plugged Switch system to power save mode
• Auto power off	Automatic power off when Win95 shutdown option is selected (function with ATX power supply only)
• Power Supply	Support both AT and ATX power supply
• ACPI Ready	
• PC'97 Compliant	
• DMI Support	

HARDWARE INSTALLATION & UPGRADE

2.1 Layout of this Main Board



2.2 CPU Related Settings

CPU Core Voltage Selection

The mainboard supports Intel Pentium (P54C) & Pentium with MMX (P55C), AMD K5/K6, Cyrix/IBM 6x86/6x86L/6x86MX. Both single & dual voltage CPUs are supported. For dual voltage CPUs, JP4/5/6/7 must be set as 2-3 to separate the core voltage & I/O voltage. The voltage selection for core voltage is as follows :

CPU core voltage	JPW1				JP4/5/6/7
	1-2	3-4	5-6	7-8	
3.5	CLOSE	CLOSE	CLOSE	CLOSE	1-2
3.4	OPEN	CLOSE	CLOSE	CLOSE	
3.3	CLOSE	OPEN	CLOSE	CLOSE	
3.2	OPEN	OPEN	CLOSE	CLOSE	2-3*
3.1	CLOSE	CLOSE	OPEN	CLOSE	
3.0	OPEN	CLOSE	OPEN	CLOSE	
2.9	CLOSE	OPEN	OPEN	CLOSE	
2.8*	**OPEN**	**OPEN**	**OPEN**	**CLOSE**	
2.7	CLOSE	CLOSE	CLOSE	OPEN	
2.6	OPEN	CLOSE	CLOSE	OPEN	
2.5	CLOSE	OPEN	CLOSE	OPEN	
2.4	OPEN	OPEN	CLOSE	OPEN	
2.3	CLOSE	CLOSE	OPEN	OPEN	
2.2	OPEN	CLOSE	OPEN	OPEN	
2.1	CLOSE	OPEN	OPEN	OPEN	
2.0	OPEN	OPEN	OPEN	OPEN	

NOTE: All factory default settings are marked by "*"

☞ **Be careful to select the appropriate Core voltage for different CPUs. Improper Core voltage supplied to CPU may result in "PERMANENT DAMAGE" to CPU !**

☞☞ **The Official Name of P55C is "Pentium Processor with MMX Technology".**

NOTE: All factory default settings are marked by "*".

Intel CPU

JBF1	JBF2	JBF3 (For AMD K6)	JCK1	JCK2	CPU Clock	Bus Ratio	CPU TYPE
1-2	1-2	Open	1-2	2-3	60 MHz	x1.5	P54C-90
2-3	1-2	Open	1-2	2-3		x2	P54C-120
2-3	2-3	Open	1-2	2-3		x2.5	P54C-150
1-2	2-3	Open	1-2	2-3		x3	P54C-180
1-2	1-2	Open	2-3	2-3	66 MHz	x1.5	P54C-100
2-3	1-2	Open	2-3	2-3		x2	P54C-133
2-3	2-3	Open	2-3	2-3		x2.5	P54C-166
2-3	2-3	Open	2-3	2-3		x2.5	P55C-166 (MMX)*
1-2	2-3	Open	2-3	2-3		x3	P54C-200
1-2	2-3	Open	2-3	2-3		x3	P55C-200 (MMX)
1-2	1-2	Open	2-3	2-3		x3.5	P55C-233 (MMX)

AMD CPU

JBF1	JBF2	JBF3 (For AMD K6)	JCK1	JCK2	CPU Clock	Bus Ratio	CPU TYPE
1-2	1-2	Open	1-2	2-3	60 MHz	x1.5	K5-PR90
2-3	1-2	Open	1-2	2-3		x2	K5-PR120
2-3	2-3	Open	1-2	2-3		x2.5	K5-PR150
1-2	1-2	Open	2-3	2-3	66 MHz	x1.5	K5-PR100
1-2	1-2	Open	2-3	2-3		x1.5	K5-PR133
2-3	2-3	Open	2-3	2-3		x2.5	K5-PR166
2-3	2-3	Open	2-3	2-3		x2.5	K6/166
1-2	2-3	Open	2-3	2-3		x3	K6/200
1-2	1-2	Open	2-3	2-3		x3.5	K6/233

Cyrix/IBM CPU

JBF1	JBF2	JBF3 (For AMD K6)	JCK1	JCK2	CPU Clock	Bus Ratio	CPU TYPE
2-3	1-2	Open	1-2	1-2	55 MHz	x2	6x86-PR133+
2-3	1-2	Open	1-2	2-3	60 MHz	x2	6x86-PR150+
2-3	1-2	Open	1-2	2-3		x2	6x86L-PR150+
2-3	2-3	Open	1-2	2-3		x2.5	6x86MX-PR166
2-3	1-2	Open	2-3	2-3	66 MHz	x2	6x86-PR166+
2-3	1-2	Open	2-3	2-3		x2	6x86L-PR166+
2-3	1-2	Open	2-3	2-3		x2	6x86MX-PR166
2-3	2-3	Open	2-3	2-3		x2.5	6x86MX-PR200
2-3	1-2	Open	2-3	1-2	75 MHz	x2	6x86-PR200+
2-3	1-2	Open	2-3	1-2		x2	6x86L-PR200+
2-3	1-2	Open	2-3	1-2		x2	6x86MX-PR200
2-3	2-3	Open	2-3	1-2		x2.5	6x86MX-PR233

Remark: For Cyrix/IBM CPU, please make sure the Bus Ratio and CPU Clock set correctly.
For AMD K6 CPU, JBF3 is reserved for future K6 CPUs.

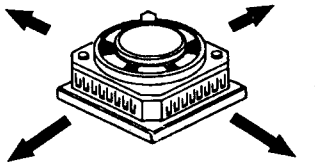
2.3 CPU Cooling Fan and Heatsink

Cooling Fan Connector (P3)

Pin No.	Pin Name
1	FAN GND
2	+12V
3	FAN GND

CPU cooling fan is inevitable to the functionality of high speed CPU. The higher the core frequency of CPU, the more heat will be generated. Poor ventilation of the CPU and the voltage regulator will cause overheat. Permanent damage to the motherboard or even damage to the CPU itself will result in the worst case.
Besides, the orientation of the CPU cooling fan can improve the ventilation of the motherboard in the case. The conduction of the airflow can enhance the cooling effect to the voltage regulator and onboard heatsink by continuously keeping the air-stream flows.

☞ ***Important :*** **Make sure the fins of the heating beneath the CPU cooling fan is pointed to the direction of the voltage regulator.**



2.4 Reset CMOS

If the setting of the system setup is done improperly, it may make the system malfunction. If this happens, turn off the power and set jump JBAT1 to 2-3 to clear the internal CMOS status register. Wait for at least 5 seconds to ensure that the CMOS content has been completely cleared. Next, set the jumper JBAT1 back to 1-2 and turn on the power. The BIOS will find the CMOS status register having been reset and will regard the setup information invalid, so it will prompt you to correct the information.

2.5 Modem Ring

JP10	Modem Ring Port
1-2	COM1
2-3*	COM2

If the serial port is used for a modem, set correctly jumper JP10 to 1-2 for COM1 or 2-3 for COM2. The computer will be turned on when modem receives a call.

2.6 PS/2 Mouse Enable (JP1)

JP1	PS/2 Mouse
1-2*	Enable
2-3	Disable

2.7 Cache Access Mode(JP8)

JP8	Cache Access Mode
1-2*	Interleave
2-3	Linear Burst

2.8 ROM BIOS Program Voltage(JP9)

JP9	Program Voltage
1-2*	+12V
2-3	SST FLASH ROM

2.9 Voltage for DIMM Sockets

	JP2, JP3
3.3V*	1-2
5V	2-3

2.10 Connectors Pinout

Power LEDConnector(CN1:5-9)

Pin No.	Pin Name
5	+5V
7	NC
9	LED

Keylock Connector (CN1:1-3)

Pin No.	Pin Name
1	KB LOCK
3	GND

PS/2 Mouse Connector(P1,Upper)

Pin No.	Pin Name
1	+5V
2	GND
3	MSDATA
4	MSCLK

Speaker Connector(CN1:13-19)

Pin No.	Pin Name
13	SPEAK OUT
15	NC
17	GND
19	+5V

HD LED Connector(CN1:23-24)

Pin No.	Pin Name
23	LED-
24	LED+

Reset Connector (CN1:18-20)

Pin No.	Pin Name
18	GND
20	RESET

ATX Power Connector (P6)

Pin No.	Pin Name
1	+3.3V
2	+3.3V
3	GND
4	+5V
5	GND
6	+5V
7	GND
8	PWR GD
9	STB5V
10	+12V
11	+3.3V
12	-12V
13	GND
14	PWR ON
15	GND
16	GND
17	GND
18	-5V
19	+5V
20	+5V

PS/2 Keyboard Connector (KB1, Lower)

Pin No.	Pin Name
1	Data
2	NC
3	GND
4	+5V
5	CLK

Power Button Connector (CN1:12-14)

Pin No.	Pin Name
12	GND
14	PWR BT

USB Connector (P10)

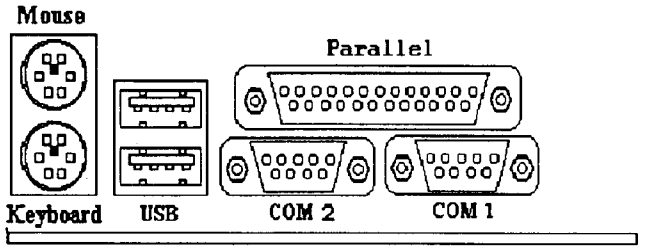
Pin No.	Pin Name
1	+5V
2	Port 0-
3	Port 0+
4	GND
5	NC
6	+5V
7	Port 1-
8	Port 1+
9	GND
10	NC

AT Power Connector (P7)

Pin No.	Pin Name
1	PWR GD
2	+5V
3	+12V
4	-12V
5	GND
6	GND
7	GND
8	GND
9	-5V
10	+5V
11	+5V
12	+5V

2.11 Back Panel Connections

The back panel provides external access to PS/2 style keyboard and mouse connectors as well as two serial ports and one parallel port.



MEMORY CONFIGURATION

3.1 SDRAM (Synchronous DRAM) / Fast Page mode / EDO DRAM Installation

There are two SIMM sockets and two DIMM sockets located on the motherboard, marked SM1, SM2 and DM1,DM2 which support EDO, Fast Page Mode DRAM , unbuffered Synchronous DRAM and SDRAM-II.

For SIMM Modules, either Single or Double sided memory module can be installed in pairs on each Memory Bank. For DIMM Modules, either Single or Double sided memory module can be installed.

The mainboard supports up to 384MB memory. Either (SM1, 2& DM1) or (SM1, 2 & DM1, 2) can be installed simultaneously, Each SIMM can support 4MB, 8MB, 16MB, 32MB and 64MB, while each DIMM can support 8MB, 16MB, 32MB, 64MB and 128MB. Any combinations of SIMM and DIMM installed should not exceed the maximum memory size (384MB).
The memory installation can be combined as following:

SIMM/DIMM	Module Type	72-pin SIMM Memory Modules or 168-pin DIMM Memory Modules
SM 1 & 2	FPM/EDO SIMM	4MB, 8MB, 16MB, 32MB, 64MB DM1,DM2 128M can be used.
DM 2	SDRAM/EDO DIMM	8MB,16MB,32MB,64MB,128MB, SM1&2 64MB can be used DM1 128M can be used
DM 1	SDRAM/EDO DIMM	8MB,16MB,32MB,64MB,128MB SM1&2 64M can be used DM2 128M can be used
	Total Memory	Maximum: 384MB

NOTE:

1. A bank consists of 64 bit. So SM1 and SM2 are installed or not in the same time
2. Both SDRAM and EDO DIMM modules can be used on this mainboard System BIOS will automatically detect the memory type and size.

☞ **To use 3.3V SDRAM module, make sure to set JP2 & JP3 to 1-2 for 3.3V supply. It is not recommended to mix 3.3V module with 5V module at the same time.**

CMOS SETUP CONFIGURATION

BIOS Setup

Award's BIOS provides a built-in Setup utility for specifying the basic system configurations and hardware settings. The parameters will be stored in a battery backed CMOS RAM so data will be retained even when the power is turned off. In general, the information saved in the CMOS RAM stays unchanged unless there is configuration change in the system, such as hard drive replacement or new equipment change.

It is possible that CMOS had a battery failure which cause data lose in CMOS RAM. If so, re-enter system configuration parameters become necessary.

When you need to enter setup message, turn on the computer, the system provides you with the opportunity to run setup utility. This appears during the Power-On Self Test (POST). Press the <Delete> key to call up the Setup utility. If you are little bit late pressing the mentioned key(s), POST will continue with its test routines, thus preventing you from calling up Setup.

The BIOS supports Software Turbo Speed features. You can simply press the **<Ctrl>**, **<Alt>**, and <+> keys at the same time to enable the Turbo Speed feature; and press the **<Ctrl>**, **<Alt>**, and <-> keys at the same time to disable the feature.

4.1 CMOS Setup Utility

When you invoke Setup utility, the CMOS Setup Utility main program screen will appear with the follow options:

ROM PCI/ISA BIOS
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	SUPERVISOR PASSWORD
BIOS FEATURES SETUP	USER PASSWORD
CHIPSET FEATURES SETUP	IDE HDD AUTO DETECTION
POWER MANAGEMENT SETUP	HDD LOW LEVEL FORMAT
PNP/PCI CONFIGURATION	SAVE & EXIT SETUP
INTEGRATED PERIPHERALS	EXIT WITHOUT SAVING
LOAD SETUP DEFAULTS	
ESC: QUIT	↑↓→← : SELECT ITEM
F10: Save & Exit Setup	(Shift)F2: Change Color

Time, Date, Hard Disk Type..

The menu displays all the major selection items and allow user to select any one of shown items. The selection is made by moving cursor (press any direction key) to the item and press 'Enter' key. An on line help message is displayed at the bottom of the screen as cursor is moving to various items which provides user better understanding of each function. When a selection is made, the menu of selected item will appear so the user can modify associated configuration parameters.

4.2 Standard CMOS Setup

ROM PCI/ISA BIOS
STANDARD CMOS SETUP
AWARD SOFTWARE, INC.

Date (mm:dd:yy) : Wed, Apr 28 1997
Time (hh:mm:ss) : 15:38:55

HARD DISKS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE
Primary Master	:Auto	0	0	0	0	0	0	Auto
Primary Slave	:Auto	0	0	0	0	0	0	Auto
Secondary Master	:Auto	0	0	0	0	0	0	Auto
Secondary Slave	:Auto	0	0	0	0	0	0	Auto

Drive A : 1.44M, 3.5 in.
Drive B : None
Video : EGA/VGA
Halt On : All Errors

Base Memory:	640K
Extended memory:	15360K
Other Memory:	384K
Total Memory:	16384K

ESC: Quit ↑↓→← : Select Item PU/PD/+/- : Modify
F1 : Help (Shift)F2: Change Color

The Standard CMOS Setup screen is displayed above. System BIOS automatically detects memory size, thus no changes are necessary. It has a few items for setting. Each item may have one or more option settings. It allows you to change the system Date and Time, IDE hard disk, floppy disk drive types for drive A: and B:, boot up video display mode, and POST error handling selection. 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.

Hard Disk Configurations

TYPE:
Select from "1" to "45" to fill remaining fields with pre-defined values of disk drives. Select "User" to fill the remaining fields. Select "Auto" to detect the HDD type automatically.

SIZE:
The hard disk size. The unit is Mega Bytes.

CYLS:
The cylinder number of the hard disk.

HEAD:
The read/write head number of hard disk. The range is from "1" to "16".

PRECOMP:
The cylinder number at which the disk drive changes the write timing.

LANDZ:
The cylinder number that the disk drive heads (read/ write) are seated when the disk drive is parked.

SECTOR:
The sector number of each track defined on the hard disk. The range is from "1" to "64".

MODE:
Select "Auto" to detect the mode type automatically. If your hard disk supports the LBA mode, select "LBA" or "Large". However, if your hard disk cylinder is more than 1024 and does not support the LBA function, you have to set at "Large". Select "Normal" if your hard disk supporting cylinders is below 1024.

4.3 BIOS Features Setup

ROM PCI/ISA BIOS
BIOS FEATURES SETUP
AWARD SOFTWARE, INC.

Virus Warning	: Disabled	Video BIOS Shadow	: Enabled
CPU Internal Cache	: Enabled	C8000 - CBFFF Shadow	: Disabled
External Cache	: Enabled	CC000 - CFFFF Shadow	: Disabled
Quick Power On Self Test	: Enabled	D0000 - D3FFF Shadow	: Disabled
Boot Sequence	: A, C ,SCSI	D4000 - D7FFF Shadow	: Disabled
Swap Floppy Drive	: Disabled	D8000 - DBFFF Shadow	: Disabled
Boot Up Floppy Seek	: Disabled	DC000 - DFFFF Shadow	: Disabled
Boot Up NumLock Status	: On		
Boot Up System Speed	: High		
Typematic Rate Setting	: Disabled		
Typematic Rate (Chars/Sec)	: 6		
Typematic Delay (Msec)	: 250		
Security Option	: Setup	ESC : Quit ↑↓→← : Select Item	
PCI/VGA Palette Snoop	: Disabled	F1 : Help PU/PD/+/- : Modify	
OS Select For DRAM > 64MB	: Non-OS2	F5 : Old Values (Shift) F2 : Color	
		F7 : Load Setup Defaults	

Moving around the BIOS and Chipset Features (refer to the next section) Setup programs shown works the same way as moving around the Standard CMOS Setup program. Users are not encouraged to run the BIOS and Chipset Features Setup programs. Your system should have been fine-tuned before shipping. Improper Setup may cause the system to fail, consult your dealer before making any changes.

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

NOTE: Many disk diagnostic programs that access the boot sector table can trigger the virus warning message. If you plan to run such a program, we recommend that you first disable the virus warning.

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

External Cache
There is 256K/512K on-board external cache on this mainboard. Enabled this field can get better performance.

Quick Power On Self Test
Select Enabled to reduce the amount of time required to run the power-on self-test (POST). A quick POST skips certain steps. We recommend that you normally disable quick POST. Better to find a problem during POST than lose data during your work.

Boot Sequence
The original IBM PCs loaded the DOS operating system from drive A (floppy disk), so IBM PC-compatible systems are designed to search for an operating system first on drive A, and then on drive C (hard disk). However, modern computers usually load the operating system from the hard drive, and may even load it from a CD-ROM drive.

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

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

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

Boot Up System Speed
Select High to boot at the default CPU speed; select Low to boot at the speed of the AT bus. Some add-in peripherals or old software (such as old games) may require a slow CPU speed. The default setting is High.

Typematic Rate Setting
When Disabled, the following two items (Typematic Rate and Typematic Delay) are irrelevant. Keystrokes repeat at a rate determined by the keyboard controller in your system. When Enabled, you can select a typematic rate and typematic delay.

Typematic Rate (Chars/Sec)
When the typematic rate setting is enabled, you can select a typematic rate (the rate at which character repeats when you hold down a key) of 6, 8, 10,12, 15, 20, 24 or 30 characters per second.

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

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

PCI/VGA Palette Snoop
Some nonstandard VGA such as graphics accelerators or MPEG video cards may not show colors properly. The setting Enabled can correct it. Otherwise, leave at Disabled.

OS Select for DRAM > 64MB
Select OS2 only if you are running OS/2 operating system with greater than 64 MB of RAM on your system.

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

Shadowing copies firmware from ROM into system RAM, where the CPU can read it through the 16-bit or 32-bit DRAM bus. Firmware not shadowed must be read by the system through the 8-bit X-bus. Shadowing improves the performance of the system BIOS and similar ROM firmware for expansion peripherals, but it also reduces the amount of high memory (640 KB to 1 MB) available for loading device drivers, etc.
Enable shadowing into each section of memory separately. Many system designers hardware shadowing of the system BIOS and eliminate a System BIOS Shadow option.

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

4.4 Chipset Features Setup

ROM PCI/ISA BIOS
CMOS SETUP UTILITY
CHIPSET FEATURES SETUP

Bank 0 DRAM Timing	: 70ns	OnChip USB	: Disabled
Bank 1 DRAM Timing	: 70ns		
Bank 2 DRAM Timing	: 70ns		
SDRAM Cycle Length	: 3		
SDRAM Bank Interleave	: Disabled		
DRAM Read Pipeline	: Enabled		
Sustained 3T Write	: Enabled		
Cache Rd+CPU Wt Pipeline	: Enabled		
Read Around Write	: Enabled		
Cache Timing	: Fastest		
Video BIOS Cacheable	: Enabled		
System BIOS Cacheable	: Enabled		
Memory Hole At 15Mb Addr.	: Disabled		
AGP Aperture Size	: 256M		

ESC : Quit ↑↓→← : Select Item
F1 : Help PU/PD/+/- : Modify
F5 : Old Values (Shift) F2 : Color
F7 : Load Setup Defaults

Bank x DRAM Timing
This value in this field is access speed, a lower value means a faster system. The value in this field must correspond to the speed of the DRAM installed in your system. The default setting is 70ns, If you are using 60ns DRAM modules, you must change this field to 60ns.

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

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

Memory Hole at 15Mb Addr.

You can reserve this area of system memory for ISA adapter ROM. When this area is reserved, it cannot be cached. The user information of peripherals that need to use this area of system memory usually discusses their memory requirements.

AGP Aperture Size

AGP could use the DRAM as its video RAM. Choose the DRAM size that you want it to be used as video RAM. The range is from 4MB to 256MB.

OnChip USB

Default is Disabled. Enabled this function when you use USB devices.

USB Keyboard Support

Enable this function when you use the USB keyboard. User must use a regular keyboard to enable this option before use the USB keyboard.

4.5 Power Management Setup

ROM PCI/ISA BIOS
CMOS SETUP UTILITY
POWER MANAGEMENT SETUP

Power Management	: User Define	Primary INTR	: On
PM Control by APM	: Yes	IRQ3 (COM2)	: Primary
Video Off Option	: Suspend -> Off	IRQ4 (COM1)	: Primary
Video Off Method	: V/H SYNC+Blank	IRQ5 (LPT 2)	: Primary
MODEM Use IRQ	: 3	IRQ6 (Floppy Disk)	: Primary
Soft-Off by PWRBTN	: Delay 4 Sec	IRQ7 (LPT 1)	: Primary
** PM Timer	**	IRQ8 (RTC Alarm)	: Disabled
HDD Power Down	: Disabled	IRQ9 (IRQ2 Redir)	: Secondary
Doze Mode	: Disabled	IRQ10 (Reserved)	: Secondary
Suspend Mode	: Disabled	IRQ11 (Reserved)	: Secondary
** PM Events	**	IRQ12 (PS/2 Mouse)	: Primary
VGA	: OFF	IRQ13 (Coprocessor)	: Primary
LPT & COM	: LPT/COM	IRQ14 (Hard Disk)	: Primary
HDD & FDD	: ON	IRQ15 (Reserved)	: Disabled
DMA/master	: OFF		
Modem Ring Resume	: Disabled	ESC : Quit	↑↓→← : Select Item
RTC Alarm Resume	: Disabled	F1 : Help	PU/PD/+/- : Modify
		F5 : Old Values	(Shift) F2 : Color
		F7 : Load Setup Defaults	

Power Management

This option allows you to select the type (or degree) of power saving for Doze, Standby, and Suspend modes. See the section PM Timers for a brief description of each mode.

This table describes each power management mode:

Max Saving Maximum power savings. Only Available for SL CPUs. Inactivity period is 1 minutes in each mode.

User Define Set each mode individually. Select time-out periods in the PMTimers section. following.

Min Saving Minimum power savings. Inactivity period is 1 hours in each mode.

PM Control by APM

If Advanced Power Management (APM) is installed on your system, selecting Yes gives better power savings.

Video Off Method

Determines the manner in which the monitor is blanked.

V/H SYNC+Blank System turns off vertical and horizontal synchronization ports and writes blanks to the video buffer.

DPMS Support Select this option if your monitor supports the Display Power Management Signaling (DPMS) standard of the Video Electronics Standards Association (VESA). Use the software supplied for your video subsystem to select video power management values.

Blank Screen System only writes blanks to the video buffer.

Modem Ring Resume

This option allow a computer to be turned on remotely through a modem. With this function, user can access information from their computer from anywhere in the world.

4.6 PnP/PCI Configuration

ROM PCI/ISA BIOS
PNP/PCI CONFIGURATION
AWARD SOFTWARE, INC.

PnP OS Installed	: Yes	CPU to PCI Write Buffer	: Enabled
Resources Controlled By	: Auto	PCI Dynamic Bursting	: Enabled
Reset Configuration Data	: Disabled	PCI Master 0 WS Write	: Enabled
ACPI I/O Device Node	: Enabled	PCI Delay Transaction	: Enabled
		PCI Master Read Prefetch	: Enabled
		PCI#2 Access #1 Retry	: Disabled
		AGP Master 1 WS Write	: Enabled
		AGP Master 1 WS Read	: Disabled
		PCI IRQ Actived By	: Level
		Assign IRQ For USB	: Enabled
		Assign IRQ For VGA	: Enabled
		ESC : Quit	↑↓→← : Select Item
		F1 : Help	PU/PD/+/- : Modify
		F5 : Old Values	(Shift) F2 : Color
		F7 : Load Setup Defaults	

Resources Controlled By

The Award Plug and Play BIOS can automatically configure all the boot and Plug and Play compatible devices. If you select Auto, all the interrupt request (IRQ) and DMA assignment fields disappear, as the BIOS automatically assigns them.

Reset Configuration Data

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

IRQ n Assigned to

When resources are controlled manually, assign each system interrupt as one of the following types, depending on the type of device using the interrupt:
Legacy ISA Devices compliant with the original PC AT bus specification, requiring a specific interrupt (such as IRQ4 for serial port 1). PCI/ISA PnP Devices compliant with the Plug and Play standard, whether designed for PCI or ISA bus architecture.

DMA n Assigned to

When resources are controlled manually, assign each system DMA channel as one of the following types, depending on the type of device using the interrupt:
Legacy ISA Devices compliant with the original PC AT bus specification, requiring a specific DMA channel . PCI/ISA PnP Devices compliant with the Plug and Play standard, whether designed for PCI or ISA bus architecture.

PCI IDE IRQ Map to

This field lets you select PCI IDE IRQ mapping or PC AT (ISA) interrupts. If your system does not have one or two PCI IDE connectors on the system board, select values according to the type of IDE interface(s) installed in your system (PCI or ISA). Standard ISA interrupts for IDE channels are IRQ14 for primary and IRQ15 for secondary.

Primary/Secondary IDE INT#

Each PCI peripheral connection is capable of activating up to four interrupts: INT# A, INT# B, INT# C and INT# D. By default, a PCI connection is assigned INT# A. Assigning INT# B has no meaning unless the peripheral device requires two interrupt services rather than just one. Because the PCI IDE interface in the Chipset has two channels, it requires two interrupt services. The primary and secondary IDE INT# fields default to values appropriate for two PCI IDE channels, with the 0primary PCI IDE channel having a lower interrupt than the secondary.

4.7 Integrated Peripherals

ROM PCI/ISA BIOS
INTEGRATED PERIPHERALS
AWARD SOFTWARE, INC.

OnChip IDE First Channel	: Enabled	Parallel Port Mode	: Normal
OnChip IDE Secondary Channel	: Enabled		
IDE Pretch Mode	: Enabled		
IDE HDD Block Mode	: Enabled		
IDE Primary Master PIO	: Auto		
IDE Primary Slave PIO	: Auto		
IDE Secondary Master PIO	: Auto		
IDE Secondary Slave PIO	: Auto		
IDE Primary Master UDMA	: Auto		
IDE Primary Slave UDMA	: Auto		
IDE Secondary Master UDMA	: Auto		
IDE Secondary Slave UDMA	: Auto		
Onboard FDC Controller	: Enabled		
Onboard UART 1	: 3F8/IRQ4	ESC : Quit	↑↓→← : Select Item
Onboard UART 2	: 2F8/IRQ3	F1 : Help	PU/PD/+/- : Modify
Onboard UART 2 Mode	: Standard	F5 : Old Values	(Shift) F2 : Color
		F7 : Load Setup Defaults	
Onboard Parallel Port	: 378/IRQ7		

IDE HDD Block Mode

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

IDE Primary/Secondary Master/Slave PIO

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

IDE Primary/Secondary Master/Slave UDMA

The integrated peripheral controller contains an IDE interface with support for DMA-33 mode. Select Enabled to activate each channel separately.

On-Chip Primary/Secondary PCI IDE

You may separately disable the primary/secondary channel.

Onboard FDC Controller

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

Onboard UART 1/2
Select a logical COM port name and matching address for the first and second serial ports.

Onboard Parallel Port
Select a logical LPT port name and matching address for the physical parallel (printer) port.

Parallel Port Mode
Select an operating mode for the onboard parallel port. Select Compatible or Extended unless you are certain both your hardware and software support EPP (Enhanced Parallel Port) or ECP (Extended Capabilities Port) mode.

Normal	PC AT parallel port
EPP	Fast, bi-directional port used primarily by non-printer peripherals, CD-ROM, tape, hard drive, network adapters, etc.
ECP	Fast, buffered port, used primarily by new generation of printers and scanners.

4.8 Load Setup Defaults

Load the system default data directly from ROM and initialize associated hardware properly. This function will be necessary only when the system CMOS data is corrupted.

4.9 Supervisor/ User Password

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

```
ENTER PASSWORD:
```

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

```
CONFIRM PASSWORD:
```

Again, type the password and press Enter. To abort the process at any time, press Esc.

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

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

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

4.10 IDE HDD Auto Detection

ROM PCI/ISA BIOS
STANDARD CMOS SETUP
AWARD SOFTWARE, INC.

HARD DISKS TYPE SIZE CYLS HEAD PRECOMP LANDZ SECTOR MODE
Primary Master :

Select Primary Master Option (N=Skip): N

OPTIONS	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE
2(Y)	540	524	32	0	1047	63	LBA
1	540	1048	16	65535	1047	63	NORMAL
3	540	524	32	65535	1047	63	LARGE

Note: Some OSes (like SCO-UNIX) must use "NORMAL" for installation

The IDE Hard Disk Drive Auto Detection feature automatically configurations your new hard disk. Use it for a quick configuration of new hard drives. This feature allows you to set the parameters of up to four IDE HDDs. The option with "(Y)" are recommended by the system BIOS. You may also keys in your own parameters instead of setting by the system BIOS. After all setting, press ESC key to return the main menu. For confirmation, enter the Standard CMOS Setup feature.

4.11 Save and Exit Setup

After you have made changes under Setup, press <ESC> to return to the main menu. Move cursor to "Save and Exit Setup" or press "F10" and then press "Y" to change the CMOS Setup. If you did not change anything, press <ESC> again or move cursor to "Exit Without Saving" and press "Y" to retain the Setup settings. The following message will appear at the center of the screen to allow you to save data to CMOS and exit the setup utility:

> SAVE to CMOS and EXIT (Y/N)?

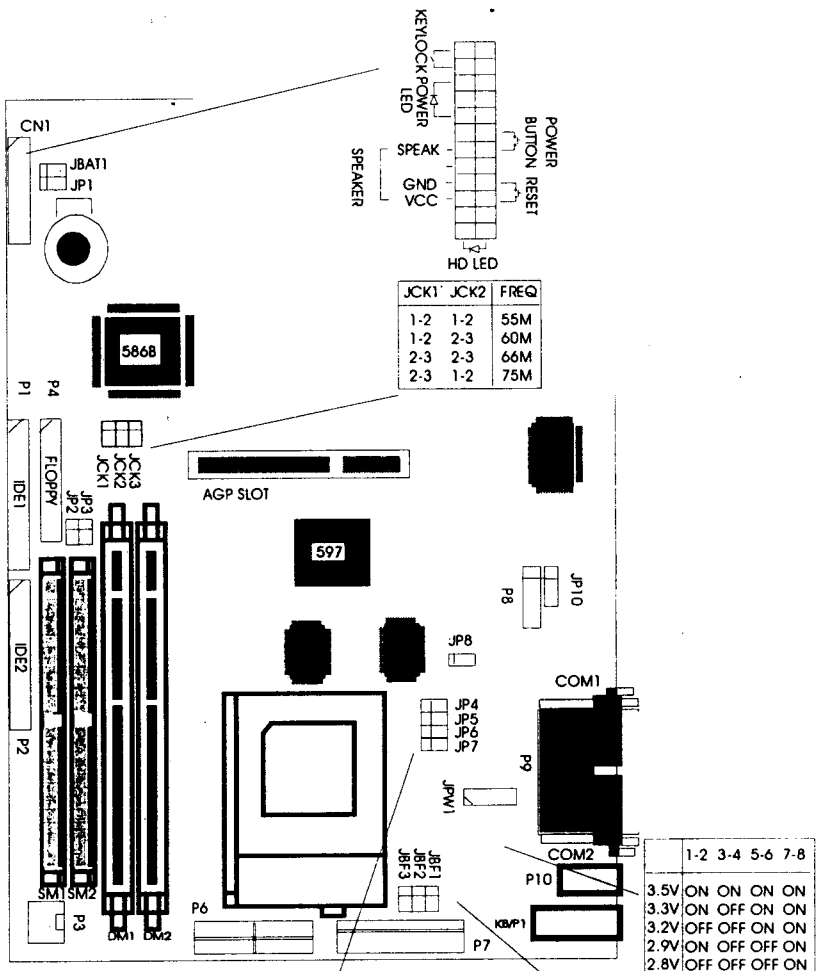
4.12 Exit without Saving

If you select this feature, the following message will appear at the center of the screen to allow you to exit the setup utility without saving CMOS modifications:

> Quit Without Saving (Y/N)?

Jumper Setting

(If some jumpers aren't mentioned in whole manual, they must be set manufacturly.)



JCK1	JCK2	FREQ
1-2	1-2	55M
1-2	2-3	60M
2-3	2-3	66M
2-3	1-2	75M

	1-2 3-4 5-6 7-8
3.5V	ON ON ON ON
3.3V	ON OFF ON ON
3.2V	OFF OFF ON ON
2.9V	ON OFF OFF ON
2.8V	OFF OFF OFF ON

JP4 JP5 JP6 JP7	
1-2	SINGLE VOLTAGE CPU
2-3	DUAL VOLTAGE CPU

JBF3	JBF2	JBF1	
—	1-2	1-2	1.5X
—	1-2	2-3	2.0X
—	2-3	2-3	2.5X
—	2-3	1-2	3.0X
—	1-2	1-2	3.5X

ON : CLOSE
OFF : OPEN

JBF3 is reserved for future AMD K6 CPUs