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SYSTEM OVERVIEW

1.01 General Specifications Overview

Processor:

- ◆ Processor Type Intel Pentium, Pentium with MMX, AMD K5/K6, Cyrix/IBM 6x86/6x86L, Cyrix 6x86MX
- ◆ External CPU Clock 55/60/66/75 MHz
- ◆ CPU Voltage Switching Voltage Regulator support single/dual internal power planes

Chipset:

- ◆ Motherboard Chipset Intel's 430TX PCIsset with I/O subsystems

Cache Architecture:

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

Memory Subsystem:

- ◆ DRAM SIMM Sockets 4 x 72 pin 4MB/8MB/16MB/32MB/64MB modules
- ◆ SDRAM DIMM Sockets 2 x 168 pin 8MB/16MB/32MB/64MB/128MB Synchronous DRAM / EDO DRAM modules
- ◆ Max. Memory Size 256MB
- ◆ DRAM Type Fast Page Mode, EDO DRAM or Synchronous DRAM
- ◆ Enhancement Mix of Fast Page Mode, EDO DRAM or SDRAM supported

Input/Output Subsystem

- ◆ PCI Bus Slots 2 x 32-bit PCI bus slots (master)
- ◆ ISA Bus Slots 3 x 16-bit ISA slots
- ◆ Shared Bus Slots 1 x 32-bit PCI bus slot (master) or 1x 16-bit ISA slot

Onboard FDC Controller(主板软盘驱动器FDC控制)

主板上带有软盘驱动器FDC接口，选择Enable使能该接口；如果你安装了带FDC接口的输入/输出功能卡，并想使用卡上FDC接口，请选择Disable，屏蔽板上FDC接口。

Onboard Serial Port 1/2(分配主板上串行口逻辑地址)

Onboard Parallel Port(分配主板上并行口逻辑地址)

Parallel Port Mode

设置并行口通讯模式，包括SPP, EPP, ECP等。

SPP PC AT并行通讯协议

EPP 提供除除了非打印机的其它设备使用的快速双向传输协议。
ECP 快速，带缓冲的传输协议，提供给新型打印机和扫描仪。

4.08 载入设置程序缺省值(Load Setup Defaults)

建议使用这个功能，然后再在缺省值的基础上对你使用设备的相关项作修改。

4.09 管理者/使用者密码(Supervisor/ User Password)

如果你选择了该功能，萤屏将出现应答框：

ENTER PASSWORD:

输入8位字符密码，按回车，萤屏出现应答框：

CONFIRM PASSWORD:

提示你重复输入密码一次，按回车，以确认密码创建成功；如果你终止输入的密码，按ESC键。

如果想取消已经生效的密码，请进入密码设置窗口，萤屏将出现应答框：

ENTER PASSWORD:

按回车键，即可。

CPUFAN off in suspend

选择Enable, 在省电模式下, CPU风扇会自动停止, 以降低电源开销和系统噪音。

Resume by Ring

选择Enabled, 用户可通过一根电话线和连接在你的计算机上的Modem打开你的计算机, 实现远程通讯。

4.06 即插即用PCI设备设置(PnP/PCI Configuration)

ROM PCI/ISA BIOS PCI CONFIGURATION SETUP AWARD SOFTWARE, INC.			
PnP OS Installed	: No	PCI IDE IRQ Map To	: PCI-AUTO
Resources Controlled By	: Auto	Primary IDE INT#	: A
Reset Configuration Data	: Disabled	Secondary IDE INT#	: B
		ESC : Quit	↑↓→← : Select Item
		F1 : Help	PU/PD+/- : Modify
		F5 : Old Values (Shift) F2 : Color	
		F7 : Load Setup Defaults	

Resources Controlled By (资源控制)

系统BIOS在开机后能够自动配置支持即插即用的设备, 分配中断和DMA通道。如果对系统及内部结构不是很清楚, 建议你采用AUTO, 即系统自动配置。

Reset Configuration Data(恢复配置参数)

如果安装新的设备, 发生了资源纠纷, 导致不能进入操作系统, 建议你选择Enable; 正常运转后, 该项将自动关闭(Disable)。

IRQ n Assigned to(分配中断IRQ)

当资源控制被选为MANUAL, 你可以为所用的设备分配合理的中断。例如: 分配中断IRQ3给串行口1。

DMA n Assigned to(分配DMA通道)

当资源控制被选为MANUAL, 你必须为所用的设备分配合理的DMA通道。

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
- 2.0V~3.2V Supply
- Connectors
- Maximum power : 41 W
- On board 2.0V~3.2V supply supports MMX grade CPUs.
- Size
- Reset, Keylock Switches, Speaker, HDD LED, Power LED, CPU Fan.
- 8.5" x 9.0"
- Modem Ring on
- Remotely turn on the system through a modem (requires ATX power supply in soft-off status)
- 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)
- Switch system to power save mode
- Automatic power off when Windows 95 shutdown option is selected (function with ATX power supply only)
- Auto Power off
- Support both AT and ATX power supply
- Power Supply
- ACPI Ready
- PC'97 Compliant
- DMI Support

DRAM Leadoff Timing

设置内存的预备时序。

Fast EDO Lead Off

设置EDO充电时序。

Fast MA to RAS# Delay(插入RAS#等待周期)

SDRAM (CAS Lat/RAS -to- CAS)(插入内存读, 写及刷新延时)

SDRAM Speculatively

设置SDRAM探测时序。

DRAM Read Burst (EDO/FP)

设置卒发(Burst)读内存DRAM的时序。

DRAM Write Burst Timing

设置卒发(Burst)写内存DRAM的时序。

System BIOS Cacheable(缓冲系统BIOS)

选择Enabled, 使能缓冲BIOS ROM从F0000h到FFFFFFh的内容, 提高系统性能。

Video BIOS Cacheable

选择Enabled, 使能缓冲视频BIOS ROM从C0000h到C7FFFh的内容, 提高系统性能。

8/16 Bit I/O Recovery Time(8/16_位输入/输出延时)

插入输入/输出总线等待周期。

Memory Hole at 15M-16M(保留15-16M内存洞)

2.02 CPU Related Settings

CPU Core Voltage Selection

RHINO 15+ supports Intel Pentium (P54C) & Pentium with MMX (P55C), AMD K5/K6, Cyrix/IBM 6x86/6x86L/6x86MMX. Both single & dual voltage CPUs are supported. For dual voltage CPUs, JP4/5/6/7 must be set as 1-2 to separate the core voltage & I/O voltage. The voltage selection for core voltage is as follows :

CPU core voltage	JP9				JP4/5/6/7
	1-2	3-4	5-6	7-8	
3.5	ON	ON	ON	ON	2-3 *
3.4	ON	ON	ON	OFF	
3.3*	ON	ON	OFF	ON	
3.2	ON	ON	OFF	OFF	1-2
3.1	ON	OFF	ON	ON	
3.0	ON	OFF	ON	OFF	
2.9	ON	OFF	OFF	ON	
2.8	ON	OFF	OFF	OFF	
2.7	OFF	ON	ON	ON	
2.6	OFF	ON	ON	OFF	
2.5	OFF	ON	OFF	ON	
2.4	OFF	ON	OFF	OFF	
2.3	OFF	OFF	ON	ON	
2.2	OFF	OFF	ON	OFF	
2.1	OFF	OFF	OFF	ON	
2.0	OFF	OFF	OFF	OFF	

⚠ 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".

Quick Power On Self Test(快速开机系统自检)

选择Enable, 可以通过跳过自检程序的某些可选项, 缩短系统启动时间; 建议你选择Disable, 诊断系统各部件正常后再进行工作。

Boot Sequence(开机磁碟机的顺序)

标准IBM PC机是从软盘驱动器A装载DOS操作系统, 所以, IBM兼容机被设计首先从驱动器A启动, 再到硬盘驱动器C; 随着光盘驱动器C的普及, 增添了其它9种不同的启动顺序。你可以通过此选项改变开机时磁碟机的顺序。

Swap Floppy Driver(软盘驱动器逻辑互换)

系统有两个软盘驱动器, 选择Enable可以互换彼此的逻辑驱动器, 而物理连接不变。

Boot Up Floppy Seek(检测软盘驱动器)

选择Enable, BIOS在开机时会检测软盘驱动器是否存在。如果BIOS没有发现软驱, BIOS会给出提示信息。

Boot Up NumLock Status(开机后数字键盘的状态)

选择ON设定开机后数字键盘为数字键输入模式; OFF为方向键输入模式。

Boot Up System Speed(系统速度)

选择High开机后系统速度为CPU本身速度; Low为AT总线的速度。当你使用了一些低速的外设或者运行了一些早期的软件, 请选择Low选项。

Typematic Rate Setting(键盘输入设定)

选择Enable, 键盘重复输入的速率由键盘输入速率和键盘输入延时决定。当然, 你选择Disable得到的是出厂时的预设值, 如果不是特殊要求, 它应该能满足一般要求。

Typematic Rate (键盘输入速率; 单位: 字符/秒)

键盘输入设置选择为Enable时, 键盘输入速率可供选项为: 6/8/10/12/15/20/24/30字符每秒。

Typematic Delay (键盘输入延时; 单位: 毫秒)

键盘输入设置选择为Enable时, 键盘输入延时可供选项为 250, 500, 750和 1000毫秒。

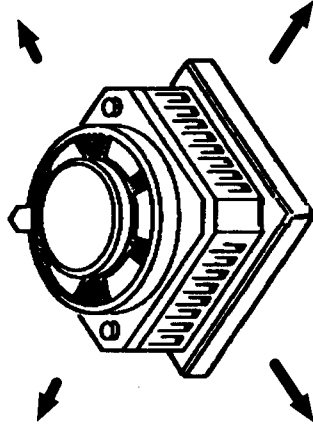
Security Option(密码设置选项)

选择System, 而且在输入密码应答框输入了密码, 系统在每次开机时会要求你输入密码, 保障系统的安全性; 当然, 你可以选择Setup, 仅是进入BIOS时才需要输入密码。

PCI/VGA Palette Snoop(PCI/VGA反白监视)

选择Enable可以避免PCI/VGA显示卡出现反白现象, 保证彩色显示正常。

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.

2.04 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 jumper JP17 to 2-3 to clear the internal CMOS status register. Wait at least 5 seconds to ensure that the CMOS content has been completely cleared.

Next, set the jumper JP17 back to 1-2 and turn on the power. The BIOS will find the CMOS status register is reset and will regard the setup information invalid, so it will prompt you to correct the information.

2.05 Modem Ring

JP12	COM Port
1-2	COM 1
2-3*	COM 2

RHINO 15+ will detect Modem Ring Signal of COM Port to wake up system. Set JP12 to select which COM port to be monitored. To use this feature, "Resume by Ring" must be enabled in BIOS.

4.02 BIOS基本参数设置(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	<div>Base Memory: 640K Extended memory: 15360K Other Memory: 384K Total Memory: 16384K</div>
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									
ESC: Quit			↑↓→← : Select Item				PU/PD/+/- : Modify		
F1 : Help			(Shift)F2: Change Color						

BIOS基本参数设置显示如上，系统 BIOS能够自动检测内存的大小，类型，因此无须改变内存部分。这里只有几项需设置，每一项可以有一个或多个选择。它允许你改变系统的日期、时间，IDE硬盘，软驱A:和B:的形式，以及开机显示器模式和POST错误。

硬盘设置

TYPE:

根据驱动器的参数值，选择“1”~“45”填入空格；选择“User”填入空格，自定义硬盘参数；或者选择“Auto”，由系统自动检测硬盘驱动器的形式。

SIZE:

硬盘的大小，单位为MB。

CYL:

硬盘的柱面数。

HEAD:

硬盘的读写磁头数，范围为：1-16。

PRECOMP:

硬盘改变与时间的柱面数。

LANDZ:

硬盘停止工作时磁头在硬盘柱面的位置。

SECTOR:

硬盘每个磁道的扇驱数。数值为“1”到“64”。

ATX Power Connector (P11)

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

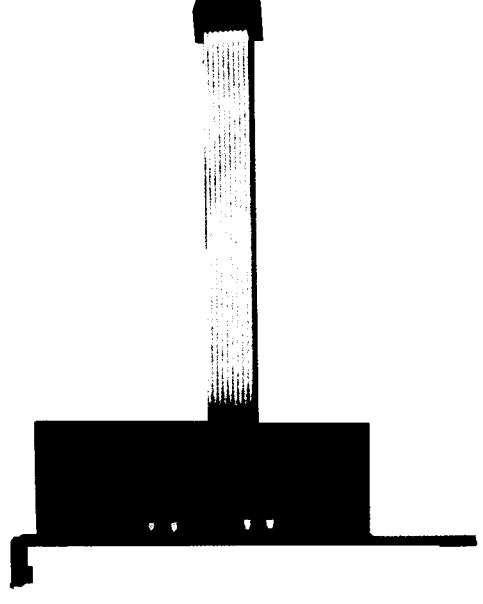
Keyboard Connector (KB1)

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

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

USB Module



CMOS SETUP CONFIGURATION

BIOS Setup

Award's BIOS provides a built-in Setup utility for specifying the basic system configuration 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 stay 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.

4.01 CMOS Setup Utility

When you invoke Setup Utility, the CMOS Setup Utility main program screen will appeared with the follow option:

ROM PCI/ISA BIOS CMOS SETUP UTILITY AWARD SOFTWARE, INC.	
STANDARD CMOS SETUP BIOS FEATURES SETUP CHIPSET FEATURES SETUP POWER MANAGEMENT SETUP PNP/PCI CONFIGURATION LOAD SETUP DEFAULTS	INTEGRATED PERIPHERALS SUPERVISOR PASSWORD USER PASSWORD IDE HDD AUTO DETECTION HDD LOW LEVEL FORMAT SAVE & EXIT SETUP EXIT WITHOUT SAVING
ESC: QUIT F10: Save & Exit Setup	↑↓→←: SELECT ITEM (Shift)F2: Change Color Time, Date, Hard Disk Type..

存储子系统配置

3.01 同步SDRAM (Sync. DRAM) (快页模式/EDO DRAM) 的安装

RHINO15+有4个SIMM和2个DIMM内存插槽，分别标注 SM1, SM2, SM3, SM4和DM1, DM2。因为CPU是64-位，对32-位的SIMM，必须成对安装，SM1和SM2同BANK, SM3和SM4同BANK; 当然对同是64-位的DIMM, DM1, DM2不作这样的要求。

如果你同时使用DIMM,SIMM,DM1和SM3,SM4不要同时安装；你的DM1,DM2是64M时，SM1和SM2不能安装。建议同时安装(SM1, SM2, SM3, SM4和DM2)，或者(SM1, SM2和DM1, DM2)。

RHINO15+能支持256M容量内存。SIMM支持4M/8M/16M/32M/64M快页模式和EDO，DIMM支持8M/16M/32M/64M/128M快页模式(FPM)，EDO或者SDRAM。

如果你使用DIMM，务必正确为其设定电压。

为了你的方便，我们总结下表供你参考：

	内存类型	72-脚 SIMM内存条，168-脚 DIMM内存条
SM 1, 2	快页式(FPM)/EDO	4MB, 8MB, 16MB, 32MB, 64MB (DM1, DM2不能用64M和128M)
SM 3, 4	快页式(FPM)/EDO	4MB, 8MB, 16MB, 32MB, 64MB (DM1不能使用)
DM 1	同步 SDRAM/EDO	8MB, 16MB, 32MB: (SM 3,4不能使用) 64MB, 128MB: (SM 1,2, 3,4不能使用)
DM 2	同步 SDRAM/EDO	8MB, 16MB, 32MB, 64MB, 128MB (SM1, 2,3,4不能使用)
	内存最大容量	256MB

2.04 选择串行通讯口

JP12	串行通讯口
1-2	COM 1
2-3*	COM 2

如果你启用Modem Ring功能，请设置跳线选取连接调制解调器的串行口，并使能BIOS的Resume By Ring. RHINO 15+ 将监测Modem状态，当有电话打进时，自动启动系统。

2.05 清除CMOS内容

关掉电源，设置跳线JP17为2-3，等候5秒可以擦除CMOS内容；然后，重新设置跳线JP17为1-2开机，BIOS会自动检测系统有关信息，并给出相应信息。

2.06 设定内存DIMM的电压

	JP8, JP19
3.3V*	1-2
5V	2-3

2.07 接口连线

电源指示灯接头(P1:1-3)

Pin	信号名称
1	LED
2	空
3	地

键盘锁定接头(P1:4-5)

Pin	信号名称
4	键盘锁定
5	地

复位接头 (P5)

Pin	信号名称
1	复位信号
2	地

扬声器接头(P2)

Pin	信号名称
1	数据输出
2	空
3	地
4	+5V

硬盘指示灯(P3)

Pin	信号名称
1	+5V
2	LED-
3	LED-
4	+5V

USB Module

请参照英文部分。

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.

4.03 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
Report No FDD For WIN 95	: No	F7 : Load Setup Defaults	

硬件安装及升级介绍

2.01 RHINO 15+ 主板零件位置图

请参照英文部分。

2.02 CPU设定

RHINO 15+ 支持Intel Pentium P54C,P55C,AMD K5/K6,Cyrix/IBM 6x86/6x86L,Cyrix/IBM 6x86MX等CPU。

- ◆ 根据不同的CPU，小心设置其内核电压，选择错误会对CPU造成物理性的损坏。
- ◆ P55C是带MMX技术的Pentium处理器的统称。
- ◆ 跳线中的“*”标记为出厂时的缺省设置

选择CPU的工作频率

JP1	JP2	JP3	JP15 (for AMD K6)	JP10	JP11 (Option)	CPU Clock	CPU TYPE
1-2	1-2	2-3	Open	1-2	1-2	55 MHz	Cyrix 6x86-P133+
1-2	1-2	1-2	Open	1-2	2-3	60 MHz	Intel P54C-90 *
1-2	1-2	2-3	Open	1-2	2-3		Intel P54C-120
1-2	2-3	2-3	Open	1-2	2-3		Intel P54C-150
1-2	2-3	1-2	Open	1-2	2-3		Intel P54C-180
1-2	1-2	2-3	Open	1-2	2-3		Cyrix 6x86-P150+
1-2	2-3	2-3	Open	1-2	2-3		Cyrix 6x86MX-PR166
1-2	1-2	1-2	Open	1-2	2-3		AMD K5-PR90
1-2	1-2	2-3	Open	1-2	2-3		AMD K5-PR120
1-2	2-3	2-3	Open	1-2	2-3		AMD K5-PR150
2-3	1-2	1-2	Open	2-3	2-3	66 MHz	Intel P54C-100
2-3	1-2	2-3	Open	2-3	2-3		Intel P54C-133
2-3	2-3	2-3	Open	2-3	2-3		Intel P54C-166
2-3	2-3	2-3	Open	2-3	2-3		Intel P55C-166
2-3	2-3	1-2	Open	2-3	2-3		Intel P54C-200
2-3	2-3	2-3	Open	2-3	2-3		Intel P55C-200
2-3	1-2	1-2	Open	2-3	2-3		Intel P55C-233
2-3	1-2	2-3	Open	2-3	2-3		Cyrix/IBM 6x86-P166+
2-3	1-2	2-3	Open	2-3	2-3		Cyrix/IBM 6x86L-P166+
2-3	2-3	2-3	Open	2-3	2-3		Cyrix 6x86MX-PR200
2-3	2-3	2-3	Open	2-3	2-3		AMD K5-PR100
2-3	1-2	1-2	Open	2-3	2-3		AMD K5-PR133
2-3	2-3	2-3	Open	2-3	2-3		AMD K5-PR166
2-3	2-3	2-3	Open	2-3	2-3		AMD K6/166
2-3	2-3	1-2	Open	2-3	2-3		AMD K6/200
2-3	1-2	1-2	Open	2-3	2-3		AMD K6/233
2-3	1-2	2-3	Open	2-3	1-2	75 MHz	Cyrix/IBM 6x86-P200+
2-3	2-3	2-3	Open	2-3	2-3		Cyrix/IBM 6x86MX-PR233

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.

集成IDE, 超级I/O系统

- ◆ IDE接口
内置PCI IDE控制接口
2个IDE接口, 支持4个IDE设备
支持Mode 3, 4, 超级DMA-33, LS-120软盘驱动器, 内置极碟软盘驱动器(Internal Zip Drive)和唯读光盘(ATAPI CD-ROM)
- ◆ I/O接口
1个软驱接口, 支持2个软盘驱动器
(360KB/720KB/1.2MB/1.44MB/2.88MB)
2个串行口 (16550 Fast UART)
1个并行口 (Standard, ECP, EPP)

PS/2鼠标

- ◆ PS/2鼠标
通过1个4脚接头可支持PS/2鼠标

电源管理

- ◆ 环保功能
支持多个电源管理规范
支持电源暂停工作(Power-on-Suspend)
支持内存暂停工作(Suspend-to-RAM)
支持硬盘暂停工作(Suspend-to-Disk)

BIOS子系统

- ◆ BIOS类型
◆ BIOS影像
◆ BIOS特征
AWARD BIOS
影像系统及其它BIOS到专门的RAM
具有设置, 通电自检, 驱动器优化, 用户自定义驱动器类型, 密码保护, 屏蔽选项等功能

BIOS升级

- ◆ 即插即用(PnP)BIOS
◆ 用电擦写 EEPROM
符合Windows 95即插即用规范
使用电可擦写EEPROM内容, 方便升级

Auto Configuration

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

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 can change this field to 60ns to get better performance.

DRAM Leadoff Timing

Lower value shorten the leadoff cycles and optimize performance.

Fast EDO Lead Off

Selecting Enabled shorten the leadoff cycles and optimize performance.

Fast MA to RAS# Delay

Inserts an additional wait state before the beginning of a memory read. The setting of this parameter depends on the board design. Do not change from the manufacturer's default unless you are getting memory addressing errors.

SDRAM (CAS Lat/RAS -to- CAS)

This field lets you insert a timing delay between the CAS and RAS strobe signals, used when DRAM is written to, read from, or refreshed. Lower value gives faster performance; and upper value gives more stable performance.

SDRAM Speculatively

Leave this field at default of Disabled

DRAM Read Burst (EDO/FP)

Set the timing for burst-mode reads from DRAM. The lower the timing numbers, the faster the system addresses memory.

DRAM Write Burst Timing

Set the timing for burst-mode writes from DRAM. The lower the timing numbers, the faster the system addresses memory.

System BIOS Cacheable

Selecting Enabled allows caching of the system BIOS ROM at F0000h-FFFFh, 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.

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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 PM Timers 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.

IRQ 8 Break Suspend

Enable real-time to wake up system.

Reload Global Timer Events

Set Enabled to wake up system when selected device active.

CPUFAN off in suspend

When enabled this option, the CPU fan will power off automatically in suspend mode.

This feature reduces both energy consumption and noise, and it is a important feature in future PC systems.

Resume by Ring

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.

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 settings, 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)?

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 primary PCI IDE channel having a lower interrupt than the secondary.

4.07 Integrated Peripherals

ROM PCI/ISA BIOS INTEGRATED PERIPHERALS AWARD SOFTWARE, INC.	
IDE HDD Block Mode	: Enabled : Disabled
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
On-Chip Primary PCI IDE	: Enabled
On-Chip Secondary PCI IDE	: Enabled
KBC input clock	: 8 MHz
Onboard FDC Controller	: Enabled
Onboard Serial Port 1	: 3F8/IRQ4
Onboard Serial Port 2	: 2F8/IRQ3
UR2 Mode	: Standard
Onboard Parallel Port	: 378/IRQ7
Parallel Port Mode	: SPP
ESC : Quit ↑↓←→ : Select Item F1 : Help PU/PD/+/- : Modify F5 : Old Values (Shift) F2 : Color F7 : Load Setup Defaults	

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.

USB Keyboard Support

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

Onboard FDC Controller

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

Onboard Serial Port 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.

SPP

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.

4.08 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.

4.09 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

Jumper Setting

ROM PCI/ISA BIOS PCI CONFIGURATION SETUP AWARD SOFTWARE, INC.			
PnP OS Installed	: No	PCI IDE IRQ Map To	: PCI-AUTO
Resources Controlled By	: Auto	Primary IDE INT#	: A
Reset Configuration Data	: Disabled	Secondary IDE INT#	: B
		ESC : Quit	: Select Item
		F1 : Help	PU/PD/+/- : Modify
		F5 : Old Values (Shift) F2 : Color	
		F7 : Load Setup Defaults	

4.06 PnP/PCI Configuration

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

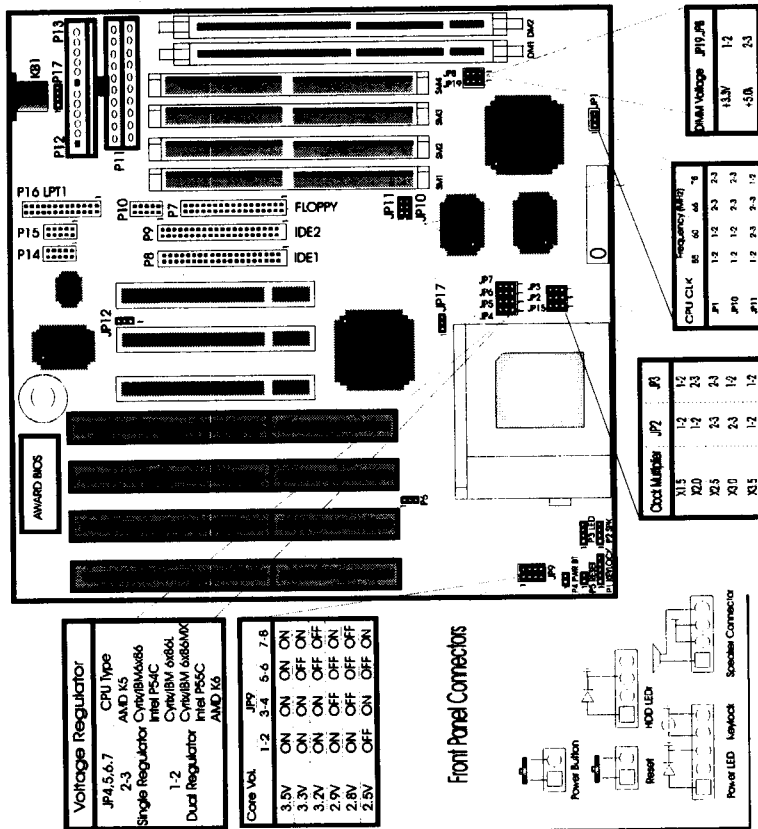
When resources are controlled manually, assign each system interrupt as one of the following types, depending on the type of device using the interrupt:
Legacy ISA Devices compliant with the original PC AT bus specification, requiring a specific interrupt (such as IRQ4 for serial port 1). PCI/ISA PnP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



8/16 Bit I/O Recovery Time

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

These two fields let you add recovery time (in bus clock cycles) for 16-bit and 8-bit I/O.

Memory Hole at 15M-16M

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.

4.05 Power Management Setup

ROM PCI/ISA BIOS	
CMOS SETUP UTILITY	
POWER MANAGEMENT SETUP	
Power Management	: Disabled
PM Control by APM	: Yes
Video Off Method	: V/H SYNC+Blank
Video Off After	: Standby
Modem use IRQ	: 3
Doze Mode	: Disabled
Standard Mode	: Disabled
Suspend Mode	: Disabled
HDD Power Down	: Disabled
Throttle Duty Cycle	: 62.5%
ZZ Active in Suspend	: Disabled
VGA Active Monitor	: Disabled
Soft-Off by PWR-BTTN	: Delay 4 Sec.
CPUFAN off in suspend	: Enabled
Resume by Ring	: Disabled
IRQ8 Break Suspend	: Disabled

** Reload Global Timer Events **	
IRQ [3-7, 9-15], NMI	: Enabled
Primary IDE 0	: Disabled
Primary IDE 1	: Disabled
Secondary IDE 0	: Disabled
Secondary IDE 1	: Disabled
Floppy Disk	: Disabled
Serial Port	: Enabled
Parallel Port	: Disabled

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

系统综述

1.01 基本功能综述

处理器

◆处理器类型

Intel Pentium, Pentium with MMX,
AMD K5/K6, Cyrix/IBM 6x86/6x86L,
Cyrix 6x86MX

◆CPU外部时钟

55/60/66/75 MHz

◆CPU电压

采用Switching Voltage Regulator
支持单/双电压

芯片

◆主板芯片

Intel's 430TX芯片带输入/输出子系统

高速缓冲存储器

◆外部缓存

256K/512K同步管线突发(Sync. Pipelined Burst)SRAM

存储器子系统

◆DRAM SIMM插槽

4 x 72脚4MB/8MB/16MB/32MB/64MB
DRAM模块

◆SDRAM DIMM插槽

2 x 168脚8MB/16MB/32MB/64MB/128MB
Sync.DRAM/EDO DRAM模块

◆最大内存容量

256MB

◆DRAM类型

快速页模式(FPM), EDO DRAM
或Sync. DRAM

◆增强功能

支持FPM, EDO DRAM/Sync. DRAM
混合使用

输入输出子系统

◆PCI总线插槽

2个32-bit PCI总线插槽 (master)

◆ISA总线插槽

3个16-bit ISA总线插槽

◆共享总线插槽

1个32-bit PCI总线插槽 (master) 或者
1个16-bit ISA总线插槽

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.

4.04 Chipset Features Setup

ROM PCI/ISA BIOS CMOS SETUP UTILITY CHIPSET FEATURE SETUP	
Auto Configuration DRAM Timing	: Enabled : 70ns
DRAM Leadoff Timing	: 10/6/4
DRAM Read Burst (EDO/FP)	: x333/x444
DRAM Write Burst Timing	: x333
Fast EDO Lead Off	: Disabled
Fast RAS To CAS Delay	: 5 Ckls
Refresh RAS# Assertion	: 3
DRAM Page Idle Timer	: 2 Ckls
DRAM Enhanced Paging	: Enabled
Fast MA to RAS# Delay	: 2 Ckls
SDRAM (CAS Lat/RAS-to-CAS)	: 3/3
SDRAM Speculatively Read	: Disabled
System BIOS Cacheable	: Enabled
Video BIOS Cacheable	: Enabled
8 Bit I/O Recovery	: 1
16 Bit I/O Recovery	: 2
Memory Hole At 15M-16M	: Disabled
PCI 2.1 compliance	: Enabled
ESC : Quit ↑↓→← : Select Item F1 : Help PUPD/+/- : Modify F5 : Old Values (Shift) F2 : Color F7 : Load Setup Defaults	

USB设备

◆USB设备

- 兼容 Intel Universal HCI v1.0和USB v1.0标准
- 2个可编程USB接口

系统支持其它功能

◆最大消耗功率:

41 W

◆3.3V~3.5V供电VIO

◆2.0V~3.2V供电VCORE以支持MMX技术的CPUs

- ◆接头
复位, 键盘锁定, 扬声器, 硬盘指示灯, 电源指示灯, CPU风扇等 8.5" x 9.0"
- ◆主板大小尺寸

◆系统停止工作时CPU风扇亦即自动停止工作

◆通过调制解调器(Modem)自动打开计算机, 实现资源共享

- ◆电源按钮
当连接ATX电源供应器时, 支持电源开关; 在系统待机(Doze)、待命(Standby)、沉睡(Suspend)时唤醒系统; 在系统满负荷工作时按下该按钮可将系统带进不同的省电模式; 当连接ATX电源供应器时, 按住按钮持续4秒关电源

◆自动关机

- 当用ATX电源和选择WIN95自动关机时, 关闭WIN95后系统自动关机

◆任选AT或者ATX电源

◆兼容ACPI标准

◆兼容PC'97标准

◆支持桌面管理界面(DMI)功能

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. User 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

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

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, the BIOS now offers 10 different boot sequence options of three drives each. In addition to the traditional drives A and C, options include IDE hard drives D, E, and F; plus a SCSI hard drive and 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.

选择CPU工作电压

对于双电压的CPU, JP4/5/6/7必须设置为1-2以区分内核电压与I/O电压。

CPU内核电压	JP9				JP4/5/6/7
	1-2	3-4	5-6	7-8	
3.5	ON	ON	ON	ON	2-3 *
3.4	ON	ON	ON	OFF	
3.3*	ON	ON	OFF	ON	
3.2	ON	ON	OFF	OFF	1-2
3.1	ON	OFF	ON	ON	
3.0	ON	OFF	ON	OFF	
2.9	ON	OFF	OFF	ON	
2.8	ON	OFF	OFF	OFF	
2.7	OFF	ON	ON	ON	
2.6	OFF	ON	ON	OFF	
2.5	OFF	ON	OFF	ON	
2.4	OFF	ON	OFF	OFF	
2.3	OFF	OFF	ON	ON	
2.2	OFF	OFF	ON	OFF	
2.1	OFF	OFF	OFF	ON	
2.0	OFF	OFF	OFF	OFF	

2.03 CPU风扇及散热片

风扇接头(P6)

Pin	信号名称
1	地
2	+12V
3	地

CPU风扇对保障系统正常工作是必须的。CPU电压调节器(Regulator)以及板上其它元件在持续工作时将产生大量的热量, CPU风扇加强空气流通, 把热量有效的散发。

注意: 请确认散热片相对电压调节器的方向。参照英文部分。

The menu displays all the major selection items and allow user to select any one of shown item. 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.

4.02 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.									Base Memory: 640K
Drive B : None									Extended memory: 15360K
Video : EGA/VGA									Other Memory: 384K
Halt On : All Errors									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.

键盘接头(KB1)

Pin	信号名称
1	时序输出
2	数据输出
3	空
4	地
5	+5V

PS/2鼠标接头(P17)

Pin	信号名称
1	+5V
2	地
3	数据输出
4	时序输出

电源按钮接头(P4)

Pin	信号名称
1	STB3V
2	PWR BT

AT电源接头(P12-P13)

Pin	信号名称
1	电源正常
2	+5V
3	+12V
4	-12V
5	地
6	地
7	地
8	地
9	-5V
10	+5V
11	+5V
12	+5V

USB接头(P10)

Pin	信号名称
1	+5V
2	Port 0-
3	Port 0+
4	地
5	空
6	+5V
7	Port 1-
8	Port 1+
9	地
10	空

ATX电源接头(P11)

Pin	信号名称
1	+3.3V
2	+3.3V
3	地
4	+5V
5	地
6	+5V
7	地
8	电源正常
9	STB5V
10	+12V
11	+3.3V
12	-12V
13	地
14	PWR ON
15	地
16	地
17	地
18	-5V
19	+5V
20	+5V

MEMORY CONFIGURATION

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

There are four SIMM sockets and two DIMM sockets located on the RHINO 15+ motherboard, marked SM1, SM2, SM3, SM4 and DM1, DM2 which support EDO, Fast Page Mode DRAM and unbuffered Synchronous DRAM.

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. Please refer to the following tables.

RHINO 15+ supports up to 256MB memory. Either (SM1, 2, 3, 4 & DM2) or (SM1, 2 & DM1, 2) can be installed simultaneously, but the following table must be followed. 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 (256MB).

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 cannot be 64MB or 128MB
SM 3 & 4	FPM/EDO SIMM	4MB, 8MB, 16MB, 32MB, 64MB DM1 cannot be used
DM 1	SDRAM/EDO DIMM	8MB, 16MB, 32MB: SM 3 & 4 cannot be used 64MB, 128MB: SM 1, 2, 3 & 4 cannot be used
DM 2	SDRAM/EDO DIMM	8MB, 16MB, 32MB 64MB, 128MB: SM 1 & 2 cannot be used
	Total Memory	Maximum: 256MB

NOTE:

- DM1 and SM 3, 4 share the same memory rows and cannot be used at the same time.
- For DM 1 & 2, if 64Mbit SDRAM is used, SM 1 & 2 must be empty.
- Both SDRAM and EDO DIMM modules can be used on RHINO 15+. System BIOS will automatically detect the memory type and size.

To use 3.3V SDRAM module, make sure to set JP8 & JP19 to 1-2 for 3.3V supply. It is not recommended to mix 3.3V module with 5V module at the same time.

CMOS参数设置

BIOS设置

AWARD'S BIOS 提供了配置系统和硬件参数的设置程序，并将所修改的数据存储在CMOS RAM内，关闭系统时，板上电池可保持CMOS RAM的内容。如果更换了硬盘，其它设备，或是因为电池掉电使CMOS RAM丢失，你可在BIOS完成自检，萤屏出现“Press F1 to continue, DEL to enter SETUP”信息时按下DEL键进入设置程序。

当然，BIOS作为操作系统和硬件的桥梁，务必保证其参数的正确性，才能正常工作，建议不要轻易改变你不熟悉参数。

4.01 CMOS设置程序

按下键，进入CMOS设置程序的主萤幕。

ROM PCI/ISA BIOS CMOS SETUP UTILITY AWARD SOFTWARE, INC.	
STANDARD CMOS SETUP BIOS FEATURES SETUP CHIPSET FEATURE SETUP POWER MANAGEMENT SETUP PNP/PCI CONFIGURATION LOAD SETUP DEFAULTS	INTEGRATED PERIPHERALS SUPERVISOR PASSWORD USER PASSWORD IDE HDD AUTO DETECTION HDD LOW LEVEL FORMAT SAVE & EXIT SETUP EXIT WITHOUT SAVING
ESC: QUIT F10: Save & Exit Setup	↑↓←→: SELECT ITEM (Shift)F2: Change Color Time, Date, Hard Disk Type...

萤屏显示了主要功能的选择项。每一主功能选项有许多次功能项，本节将在后面详细介绍。这里先为你介绍需要用到功能键：

- 方向键：↑↓←→-选择功能项
翻页键：Page Up/Page Down修改参数
上档键：F10存储参数，退出CMOS设置程序
ESC退出CMOS设置程序，不存储参数
F2改变显示颜色

2.06 Voltage for DIMM Sockets

	JP8, JP19
3.3V*	1-2
5V	2-3

2.07 Connectors Pinout

Power LED Connector (P1:1-3)

Pin No.	Pin Name
1	LED
2	NC
3	GND

Keylock Connector (P1:4-5)

Pin No.	Pin Name
4	KB LOCK
5	GND

Speaker Connector (P2)

Pin No.	Pin Name
1	SPK OUT
2	NC
3	GND
4	+5V

HD LED Connector (P3)

Pin No.	Pin Name
1	+5V
2	LED-
3	LED-
4	+5V

Power Button Connector (P4)

Pin No.	Pin Name
1	STB3V
2	PWR BT

Reset Connector (P5)

Pin No.	Pin Name
1	RESET
2	GND

PS/2 Mouse Connector (P17)

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

AT Power Connector (P12-P13)

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

MODE:

选择“Auto”自动检测模式。如果你的硬盘支持LBA模式，请选择“LBA”或“Large”；如果你的硬盘柱面数超过1024并且不支持LBA功能，你必须将其设置为“Large”；如果你的硬盘柱面数在1024以下，请选择“Normal”。

4.03 BIOS工作模式设置 (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		
Typeomatic Rate Setting	: Disabled		
Typeomatic Rate (Chars/Sec)	: 6		
Typeomatic 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	
Report No FDD For WIN95	: No	F7 : Load Setup Defaults	

Virus Warning(病毒警告)

启动此功能时后，如果有任何程序(特别是病毒)企图写入启动扇区(Boot Sector)或者硬盘分配表，BIOS都将发出警告。你应该运行抗病毒软件，注意此功能仅是保护开机扇区的程序并能发出病毒警告信息。如果你准备运行许多硬盘具有诊断开机扇区的程序，建议你首先关掉BIOS的病病毒警告功能。

CPU Internal Cache(CPU内部缓冲存储器)

缓冲存储器是比内存快得多的辅助存储器SRAM。CPU从486开始就内置缓存，但不是所有CPU都有。选择Enable，系统速度会比关闭(Disable)时快得多。

External Cache(CPU外部缓冲存储器)

选择Enable，系统速度会比关闭(Disable)时快得多。当然你的系统必须存在外部缓存。

CPU Type

JP1	JP2	JP3	JP15 (for AMD K6)	JP10	JP11 (Option)	CPU Clock	CPU TYPE
1-2	1-2	2-3	Open	1-2	1-2	55 MHz	Cyrix 6x86-P133+
1-2	1-2	1-2	Open	1-2	2-3	60 MHz	Intel P54C-90 *
1-2	1-2	2-3	Open	1-2	2-3		Intel P54C-120
1-2	2-3	2-3	Open	1-2	2-3		Intel P54C-150
1-2	2-3	1-2	Open	1-2	2-3		Intel P54C-180
1-2	1-2	2-3	Open	1-2	2-3		Cyrix 6x86-P150+
1-2	2-3	2-3	Open	1-2	2-3		Cyrix/IBM 6x86MX-PR166
1-2	1-2	1-2	Open	1-2	2-3		AMD K5-PR90
1-2	1-2	2-3	Open	1-2	2-3		AMD K5-PR120
1-2	2-3	2-3	Open	1-2	2-3		AMD K5-PR150
2-3	1-2	1-2	Open	2-3	2-3	66 MHz	Intel P54C-100
2-3	1-2	2-3	Open	2-3	2-3		Intel P54C-133
2-3	2-3	2-3	Open	2-3	2-3		Intel P54C-166
2-3	2-3	2-3	Open	2-3	2-3		Intel P55C-166
2-3	2-3	1-2	Open	2-3	2-3		Intel P54C-200
2-3	2-3	1-2	Open	2-3	2-3		Intel P55C-200
2-3	1-2	1-2	Open	2-3	2-3		Intel P55C-233
2-3	1-2	2-3	Open	2-3	2-3		Cyrix/IBM 6x86-P166+
2-3	1-2	2-3	Open	2-3	2-3		Cyrix/IBM 6x86L-P166+
2-3	2-3	2-3	Open	2-3	2-3		Cyrix/IBM 6x86MX-PR200
2-3	1-2	1-2	Open	2-3	2-3		AMD K5-PR100
2-3	1-2	1-2	Open	2-3	2-3		AMD K5-PR133
2-3	2-3	2-3	Open	2-3	2-3		AMD K5-PR166
2-3	2-3	2-3	Open	2-3	2-3		AMD K6/166
2-3	2-3	1-2	Open	2-3	2-3		AMD K6/200
2-3	1-2	1-2	Open	2-3	2-3		AMD K6/233
2-3	1-2	2-3	Open	2-3	1-2	75 MHz	Cyrix/IBM 6x86-P200+
2-3	2-3	2-3	Open	2-3	1-2		Cyrix/IBM 6x86MX-PR233

NOTE: All factory default settings are marked by “*”.

2.03 CPU Cooling Fan and Heatsink

Cooling Fan Connector (P6)

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.

OS Select for DRAM > 64MB

如果你的系统采用OS/2操作系统，并且内存超过64MB，请选择OS2；否则选择Non-OS2。

Shadow(影像ROM)

系统以及一些外部设备工作在X-BUS总线上，例如系统BIOS，显示卡BIOS，和SCSI卡的BIOS等。选择Enable，系统影像ROM内容到640KB到1MB之间内存，改向系统读ROM为读内存操作，提高系统运行性能。当然，这将减少提供给应用程序访问的内存总量，而且可能与一些要求占用这部分内存的设备发生冲突。

Video BIOS Shadow(影像视屏BIOS)

分配给影像视屏BIOS的内存为C000-C7FFF。当然，可能与一些要求占用这部分内存的设备发生冲突。

4.04 芯片参数设定(Chipset Features Setup)

ROM PCI/ISA BIOS CMOS SETUP UTILITY CHIPSET FEATURES SETUP	
Auto Configuration	: Enabled
DRAM Timing	: 70ns
DRAM Leadoff Timing	: 10/6/4
DRAM Read Burst (EDO/FP)	: x333/x444
DRAM Write Burst Timing	: x333
Fast EDO Lead Off	: Disabled
Fast RAS To CAS Delay	: 5 Ckls
Refresh RAS# Assertion	: 3
DRAM Page Idle Timer	: 2 Ckls
DRAM Enhanced Paging	: Enabled
Fast MA to RAS# Delay	: 2 Ckls
SDRAM (CAS Lat/RAS-to-CAS)	: 3/3
SDRAM Speculatively Read	: Disabled
System BIOS Cacheable	: Disabled
Video BIOS Cacheable	: Disabled
8 Bit I/O Recovery	: 1
16 Bit I/O Recovery	: 1
Memory Hole At 15M-16M	: Disabled
PCI 2.1 compliance	: Enabled
ESC : Quit	↑↓→← : Select Item
F1 : Help	PU/PD/+/- : Modify
F5 : Old Values (Shift) F2 : Color	
F7 : Load Setup Defaults	

Auto Configuration(自动设置)

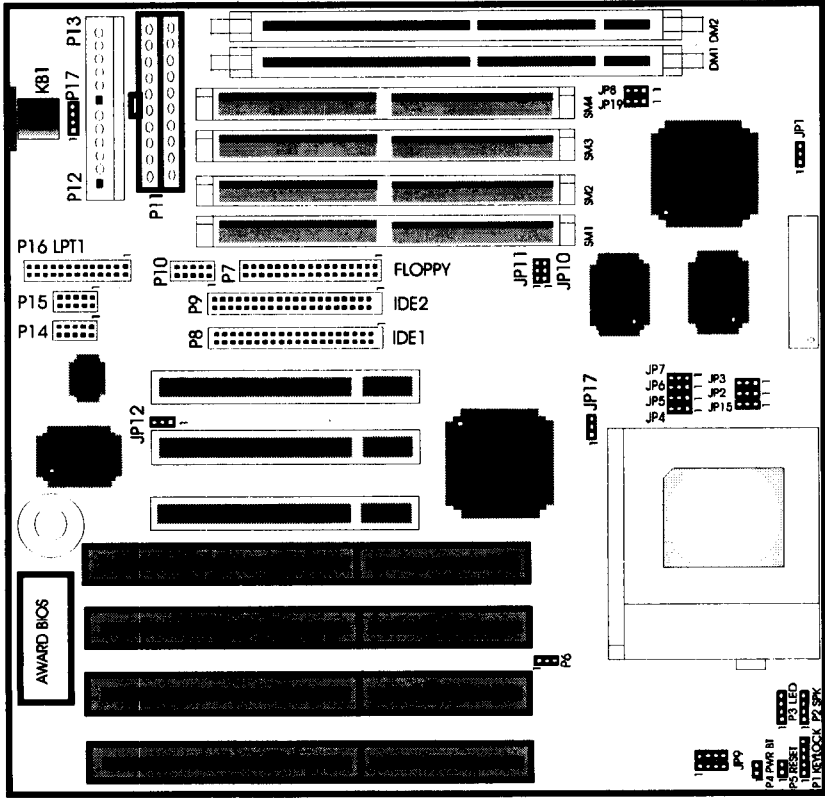
选择Enable，系统将自动设置与内存有关的参数；选择Disable，系统会提供可选项给你调整。

注意：如果对系统及内存的内部结构不是很清楚，建议你采用Enable，即系统自动配置并优化内存参数。有关可选项参数请参考英文部份。

DRAM Timing(选择内存速度)

HARDWARE INSTALLATION & UPGRADE

2.01 Layout of RHINO 15+ Main Board



4.05 电源管理设置(Power Management Setup)

ROM PCI/ISA BIOS	
CMOS SETUP UTILITY	
POWER MANAGEMENT SETUP	
Power Management	: Disabled
PM Control by APM	: Yes
Video off Method	: V/H SYNC+Blank
Video off after	: Standby
Modem use IRQ	: 3
Doze Mode	: Disabled
Standard Mode	: Disabled
Suspend Mode	: Disabled
HDD Power Down	: Disabled
Throttle Duty Cycle	: 62.5%
ZZ Active in Suspend	: Disabled
VGA Active Monitor	: Disabled
Soft-Off by PWR-BTTN	: Delay 4 Sec.
CPUFAN off in suspend	: Enabled
Resume by Ring	: Disabled
IRQ 8 Break Suspend	: Disabled
** Reload Global Timer Events **	
IRQ [3-7, 9-15], NMI	: Enabled
Primary IDE 0	: Disabled
Primary IDE 1	: Disabled
Secondary IDE 0	: Disabled
Secondary IDE 1	: Disabled
Floppy Disk	: Disabled
Serial Port	: Enabled
Parallel Port	: Disabled
ESC : Quit ↑↓←→ : Select Item	
F1 : Help PU/PD/+/- : Modify	
F5 : Old Values (Shift) F2 : Color	
F7 : Load Setup Defaults	

Power Management(电源管理)

提供三种能源管理省电的模式: 打盹模式(Doze), 待命模式(Standby), 沉睡模式(Suspend).

Max Saving(省电最多设定)

Min Saving (省电最少设定)

User Define(用户定义)

Disable

PM Control by APM(APM控制电源管理)

如果你的操作系统支持APM(Advanced Power Management), 建议选择Yes.

Video Off Method(显示器节能方式)

屏幕显示节能方式包括: V/H SYNC+Blank, DPMS, Blank.

IRQ 8 Break Suspend(唤醒事件)

选择Enable使能IRQ8作为实时钟唤醒系统的事件.

Reload Global Timer Events

选择唤醒事件Enable, 系统将对这些事件进行监测; 当然, 选择Disable, 在省电模式下, 这些事件不被系统监测.

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, Intel 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 (16550 Fast UART compatibles)
 - One Parallel Port (Standard, ECP, EPP supported)

PS/2 Mouse

- ◆ PS/2 Mouse
 - Supports PS/2 Mouse through a 1x4 header

Power Management

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

BIOS Subsystem

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

Plug & Play / BIOS Update

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

PCI IDE IRQ Map to (分配PCI IDE卡中断)

选择适当的 中断分配给PCI IDE卡。
标准ISA总线固定第一个IDE通道使用中断14，第二个IDE通道使用中断15。
Primary/Secondary IDE INT#(第一-/第二通道IDE中断)

4.07 综合周边设备(Integrated Peripherals)

ROM PCI/ISA BIOS INTEGRATED PERIPHERALS AWARD SOFTWARE, INC.	
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
On-Chip Primary PCI IDE	: Enabled
On-Chip Secondary PCI IDE	: Enabled
KBC input clock	: 8 MHz
Onboard FDC Controller	: Enabled
Onboard Serial Port 1	: 3F8/IRQ4
Onboard Serial Port 2	: 2F8/IRQ3
UR2 Mode	: Standard
Onboard Parallel Port	: 378/IRQ7
Parallel Port Mode	: SPP
USB Keyboard Support : Disabled	
ESC : Quit ↑↓→← : Select Item	
F1 : Help PU/PD/+/- : Modify	
F5 : Old Values (Shift) F2 : Color	
F7 : Load Setup Defaults	

IDE HDD Block Mode(硬盘IDE模式传输)

IDE Primary/Secondary Master/Slave PIO(硬盘IDE PIO模式传输)

IDE Primary/Secondary Master/Slave UDMA
(硬盘IDE Ultra DMA-33模式传输)

On-Chip Primary/Secondary PCI IDE

你可以单独使能第一个IDE或者第二个IDE通道。

USB Keyboard Support

主板上带有USB接口；如果你安装了带USB接口的键盘，请选择Enable。

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4.10 硬盘IDE自动检测(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

此功能选项可以自动检测你的硬盘参数，仅仅要求你回答“Y”确认，免去你输入之烦恼。

4.11 存储并退出设置程序(Save and Exit Setup)

最后，在完成修改系统参数，你可以选择主萤幕“Save and Exit Setup”项或者按“F10”键，应答“Y”存储所设置的参数。

SAVE to CMOS and EXIT (Y/N)?

4.12 退出并且不存储(Exit without Saving)

或许，你愿意保留修改前的系统参数，请选择此功能或者“ESC”键，应答“Y”放弃存储，退出设置程序。

Quit Without Saving (Y/N)?

4.13 RHINO 15+ 快速设置引导图

请参照英文部分。