

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.

4.8 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

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.

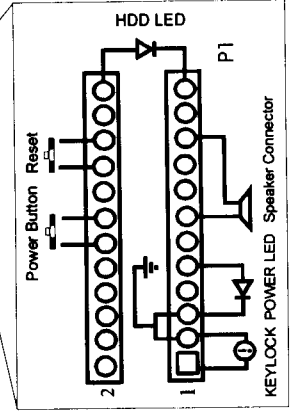
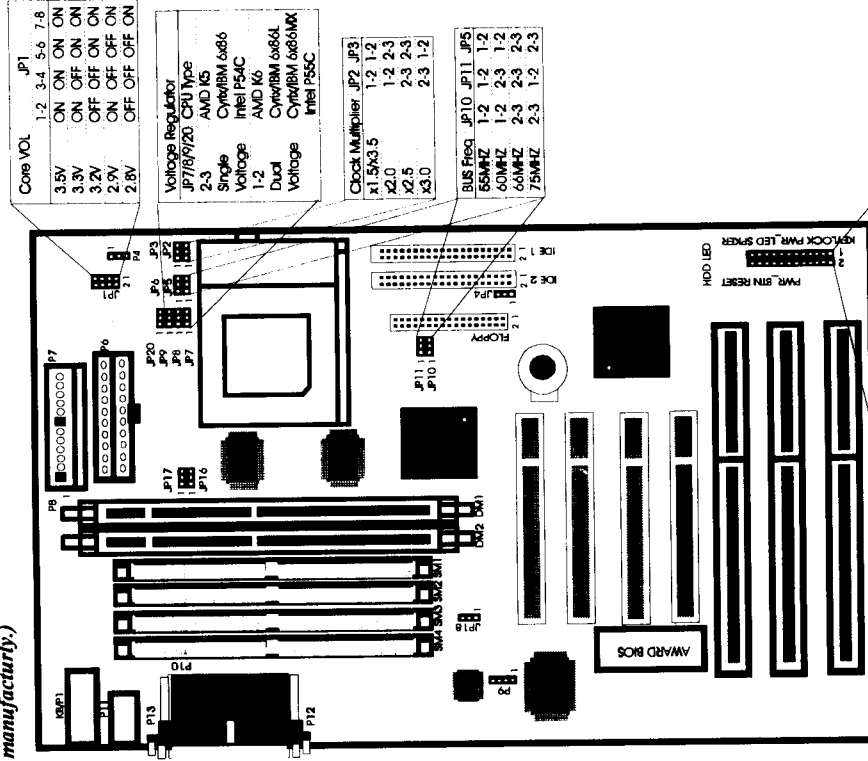
Primary/Secondary IDE INT#

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

Quick Manual of Rhino 20+

Jumper Setting

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



4.5 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

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.

1. 系统综述

1.1 基本功能综述

处理器

- ◆ 处理器类型
Intel Pentium, Pentium with MMX, Cyrix/IBM 6x86/6x86L/6x86MMX, AMD K5/K6
- ◆ 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 RAM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/Syn. DRAM混合使用

输入输出子系统

- ◆ PCI总线插槽
3个32-bit PCI总线插槽 (3 master)
- ◆ ISA总线插槽
2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

集成IDE, 超级I/O系统

- ◆ IDE接口
内置PCI IDE控制接口
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) & ATAPI CD-ROM唯读光盘
2个IDE接口, 支持4个IDE设备

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	
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
Refresh RAS# Assertion	: 5 Clks
Fast RAS To CAS Delay	: 3
DRAM Page Idle Timer	: 4 Clks
DRAM Enhanced Paging	: Enabled
Fast MA to RAS# Delay	: 2 Clks
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 PU/PD/+/- : Modify F5 : Old Values (Shift) F2 : Color F7 : Load Setup Defaults	

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 must change this field to 60ns.

◆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. 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

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, 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.

选择CPU工作电压

对于双电压的CPU, JP7/8/9/20必须设置为1-2以区分内核电压与I/O电压。

CPU内核电压	JP1				JP7/8/9/20
	1-2	3-4	5-6	7-8	
3.5	ON	ON	ON	ON	2-3*
3.4	OFF	ON	ON	ON	
3.3*	ON	OFF	ON	ON	
3.2	OFF	OFF	ON	ON	
3.1	ON	ON	OFF	ON	
3.0	OFF	ON	OFF	ON	
2.9	ON	OFF	OFF	ON	
2.8	OFF	OFF	OFF	ON	
2.7	ON	ON	ON	OFF	
2.6	OFF	ON	ON	OFF	
2.5	ON	OFF	ON	OFF	1-2
2.4	OFF	OFF	ON	OFF	
2.3	ON	ON	OFF	OFF	
2.2	OFF	ON	OFF	OFF	
2.1	ON	OFF	OFF	OFF	
2.0	OFF	OFF	OFF	OFF	

2.3 CPU风扇及散热片

风扇接头(P4)

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, 把热量有效地散发。

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 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	HEAD	PRECOMP	LANDZ	SECTOR	MODE		
Primary Master	:Auto	0	0	0	0	0	Auto		
Primary Slave	:Auto	0	0	0	0	0	Auto		
Secondary Master	:Auto	0	0	0	0	0	Auto		
Secondary Slave	:Auto	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		
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.

PS/2鼠标接头(KB/P1,Upper)

Pin	信号名称
1	数据输出
2	空
3	地
4	+5V
5	时序输出
6	空

PS/2 Keyboard 接头

(KB/P1, Lower)

Pin	Pin Name
1	数据输出
2	空
3	地
4	+5V
5	时序输出
6	NC

电源接头(P7-P8)

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(P11)

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

ATX电源接头(P6)

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

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

There are four SIMM sockets and two DIMM sockets located on the RHINO 20+ 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 table.

RHINO 20+ supports up to 256MB memory. Either (SM1, 2, 3, 4 & DM1) or (SM3, 4 & 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 3 & 4	FPM/EDO SIMM	4MB, 8MB, 16MB, 32MB, 64MB DM1 & DM2 cannot be 64MB or 128MB
SM 1 & 2	FPM/EDO SIMM	4MB, 8MB, 16MB, 32MB, 64MB DM2 cannot be used
DM 2	SDRAM/EDO DIMM	8MB, 16MB, 32MB: SM 1 & 2 cannot be used 64MB, 128MB: SM 1, 2, 3 & 4 cannot be used
DM 1	SDRAM/EDO DIMM	8MB, 16MB, 32MB 64MB, 128MB: SM 3 & 4 cannot be used
	Total Memory	Maximum: 256MB

NOTE:

- DM2 and SM 1, 2 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 20+. System BIOS will automatically detect the memory type and size.

To use 3.3V SDRAM module, make sure to set JP16 & JP17 to 2-3 for 3.3V supply. It is not recommended to mix 3.3V module with 5V module at the same time.

4. 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 的内容不致丢失。如果更换了硬盘, 其它设备, 或是因为电池耗电使 CMOS RAM 内容丢失, 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的参数。

4.1 CMOS 设置程序

按下 键, 进入 CMOS 设置程序的主屏幕。

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

屏幕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, 不存储问

F2 改变显示颜色

2.6 Voltage for DIMM Sockets

	JPI6, JPI7
3.3V*	2-3
5V	1-2

2.7 Connectors Pinout

Power LED Connector (P1:5-9)

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

Keylock Connector (P1:1-3)

Pin No.	Pin Name
1	KB LOCK
3	GND

PS/2 Mouse Connector (KB/P1, Upper)

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

Speaker Connector (P1:13-19)

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

HD LED Connector (P1:23-24)

Pin No.	Pin Name
23	LED-
24	LED+

Reset Connector (P1:18-20)

Pin No.	Pin Name
18	GND
20	RESET

Power Button Connector (P1:12-14)

Pin No.	Pin Name
12	PWR BT
14	+3V

AT Power Connector (P7-P8)

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，如果硬盘支持LBA模式，请选择“LBA”或“Large”；如果硬盘柱面数超过1024并且不支持LBA功能，必须将其设置为“Large”；如果硬盘柱面数在1024以下，请选择“Normal”。

4.3 BIOS工作模式设置 (BIOS Features Setup)

ROM PCI/ISA BIOS BIOS FEATURES SETUP AWARD SOFTWARE, INC.	
Video BIOS Shadow	: Enabled
C8000 - CBFFF Shadow	: Disabled
CC000 - CFFFF Shadow	: Disabled
D0000 - D3FFF Shadow	: Disabled
D4000 - D7FFF Shadow	: Disabled
D8000 - DBFFF Shadow	: Disabled
DC000 - DFFFF Shadow	: Disabled
Virus Warning	: Disabled
CPU Internal Cache	: Enabled
External Cache	: Enabled
Quick Power On Self Test	: Enabled
Boot Sequence	: A, C, SCSI
Swap Floppy Drive	: Disabled
Boot Up Floppy Seek	: 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
PCI/VGA Palette Snoop	: Disabled
OS Select For DRAM > 64MB	: Non-OS2
ESC	: Quit
F1	: Help
F5	: Old Values (Shift) F2 : Color
F7	: Load Setup Defaults

Virus Warning(病毒警告)

启动此功能后，如果有任何程序(特别是病毒)企图写入启动扇区(Boot Sector)或者硬盘分区表，BIOS将发出警告，注意此功能仅是保护启动扇区。许多硬盘具有诊断开机扇区的程序并能发出病毒警告信息。如果运行这样的程序，建议首先关掉BIOS的病毒警告功能。

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(亦存在个别意外)。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，则系统速度会比选择Disable时快得多，但系统必须存在外部缓存。

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。

CPU Type

JP2	JP3	JP10	JP11 (Option)	JP5	JP6 (For AMD K6)	CPU Clock	CPU TYPE
1-2	2-3	1-2	1-2	1-2	Open	55 MHz	Cyrix/IBM 6x86-P133+
1-2	1-2	1-2	2-3	1-2	Open	60 MHz	Intel P54C-90 *
1-2	2-3	1-2	2-3	1-2	Open		Intel P54C-120
2-3	2-3	1-2	2-3	1-2	Open		Intel P54C-150
2-3	1-2	1-2	2-3	1-2	Open		Intel P54C-180
1-2	2-3	1-2	2-3	1-2	Open		Cyrix 6x86-P150+
2-3	2-3	1-2	2-3	1-2	Open		Cyrix/IBM 6x86MX-PR166
1-2	1-2	1-2	2-3	1-2	Open		AMD K5-PR90
1-2	2-3	1-2	2-3	1-2	Open		AMD K5-PR120
2-3	2-3	1-2	2-3	1-2	Open		AMD K5-PR150
1-2	1-2	2-3	2-3	2-3	Open	66 MHz	Intel P54C-100
1-2	2-3	2-3	2-3	2-3	Open		Intel P54C-133
2-3	2-3	2-3	2-3	2-3	Open		Intel P54C-166
2-3	2-3	2-3	2-3	2-3	Open		Intel P55C-166
2-3	1-2	2-3	2-3	2-3	Open		Intel P54C-200
2-3	1-2	2-3	2-3	2-3	Open		Intel P55C-200
1-2	1-2	2-3	2-3	2-3	Open		Intel P55C-233
1-2	2-3	2-3	2-3	2-3	Open		Cyrix/IBM 6x86-P166+
1-2	2-3	2-3	2-3	2-3	Open		Cyrix/IBM 6x86L-P166+
2-3	2-3	2-3	2-3	2-3	Open		Cyrix/IBM 6x86MX-PR200
1-2	1-2	2-3	2-3	2-3	Open		AMD K5-PR100
1-2	1-2	2-3	2-3	2-3	Open		AMD K5-PR166
2-3	2-3	2-3	2-3	2-3	Open		AMD K6/166
2-3	1-2	2-3	2-3	2-3	Open		AMD K6/200
1-2	1-2	2-3	2-3	2-3	Open		AMD K6/233
1-2	2-3	2-3	1-2	2-3	Open	75 MHz	Cyrix/IBM 6x86-P200+
2-3	2-3	2-3	1-2	2-3	Open		Cyrix 6x86MX-PR233

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

2.3 CPU Cooling Fan and Heatsink

Cooling Fan Connector (P4)

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 overheating. 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内存到640KB到1MB之间内存，使系统读ROM操作成为读内存操作，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(影像显示BIOS)

分配给影像显示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。

4.4 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
Refresh RAS# Assertion	: 5 Ckls
Fast RAS To CAS Delay	: 3
DRAM Page Idle Timer	: 4 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	: 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)

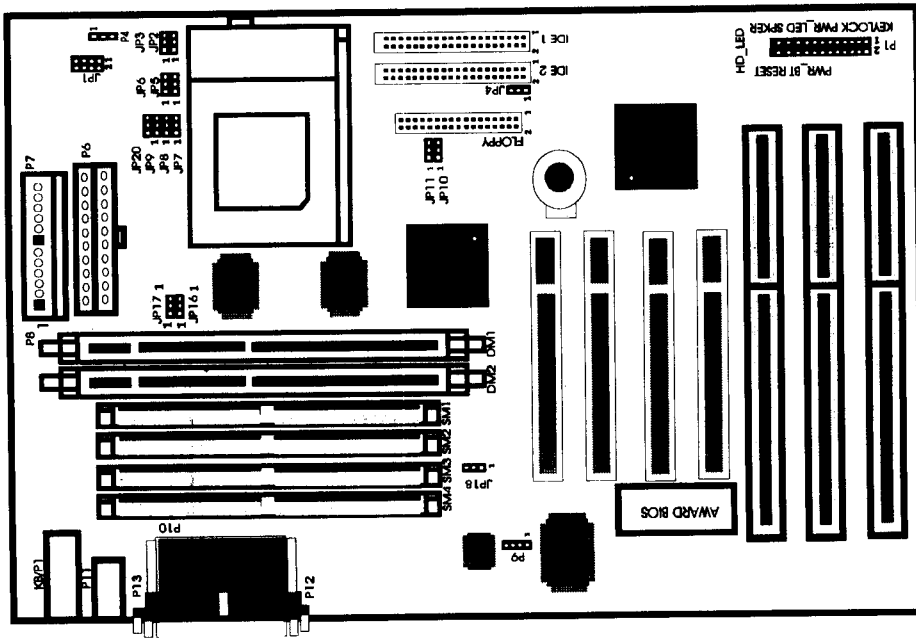
选择Enable，系统将自动设置与内存有关的参数；选择Disable，系统会提供可选项给你调整。

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。

HARDWARE INSTALLATION & UPGRADE

2.1 Layout of RHINO 20+ Main Board



4.5 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
Standby 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)
 每个省电模式均为1分钟
Min Saving(省电最少设定)
 每个省电模式均为1小时
User Define(用户定义)
 你可以自定义进入每种省电模式的等待时间

Disable
 关闭能源管理功能

PM Control by APM(APM控制电源管理)

如果你的操作系统支持APM(Advanced PowerManagement), 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)

系统在省电模式下, 将监测预设的唤醒事件, 即使能用的各个中断, 以恢复系统正常工作. 选择Enable使能IRQ8作为实时钟唤醒系统的事件.

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

PS/2 Mouse

- ◆ PS/2 Mouse
 - 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 bits) to allow easy BIOS update

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。

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)

4.7 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
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模块传输)

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)

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4.9 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。

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	SECTOR	MODE
2(Y)	540	524	32	0	1047	63	LBA	63	LBA
1	540	1048	16	65535	1047	63	NORMAL	63	NORMAL
3	540	524	32	65535	1047	63	LARGE	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 20+快速设置引导图

请参照英文部分。

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Ocean Office Automation Ltd.
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SYSTEM OVERVIEW

1.1 General Specifications Overview

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 Switching Voltage Regulator support single/dual internal power planes

Chipset:

- ◆ Motherboard Chipset Intel's 430TX PCIset 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 RAM 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 3 x 32-bit PCI bus slots (master)
- ◆ ISA Bus Slots 2 x 16-bit ISA slots
- ◆ Shared Bus Slots 1 x 32-bit PCI bus slot (master) or 1 x 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 提供给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。

4.8 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。

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。

CPU FAN off in suspend

选择Enabled, 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。

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

ROM PCI/ISA BIOS PNP/PCI CONFIGURATION 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。

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~3.5V Supply
 - ◆ Connectors
 - ◆ Size
 - ◆ Modem Ring on
 - ◆ Fan Control
 - ◆ Power Button
 - ◆ Auto power off
 - ◆ Power Supply
 - ◆ ACPI Ready
 - ◆ PC'97 Compliant
 - ◆ DMI Support
- Maximum rating: 41 W
On board 2.0~3.5V supports MMX grade CPUs.
Reset, Keylock Switches, Speaker, HDD LED, Power LED, CPU Fan.
192mm x302mm
Remote turn on the system through a modem (requires ATX power supply)
Automatic fan off
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
Automatic power off when Win95 shutdown option is selected (function with ATX power supply only)
Support both AT and ATX power supply

DRAM Timing(选择内存速度)

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)

设置突发(Burst)读内存DRAM的时序。

DRAM Write Burst Timing

设置突发(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, 使能缓冲显示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)

2.2 CPU Related Settings

CPU Core Voltage Selection

RHINO 20+ 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, JP7/8/9/20 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	JP1						JP7/8/9/20
	1-2	3-4	5-6	7-8			
3.5	ON	ON	ON	ON			
3.4	OFF	ON	ON	ON		2-3*	
3.3*	ON	OFF	ON	ON			
3.2	OFF	OFF	ON	ON			
3.1	ON	ON	OFF	ON			
3.0	OFF	ON	OFF	ON			
2.9	ON	OFF	OFF	ON			
2.8	OFF	OFF	OFF	ON			
2.7	ON	ON	ON	OFF		1-2	
2.6	OFF	ON	ON	OFF			
2.5	ON	OFF	ON	OFF			
2.4	OFF	OFF	ON	OFF			
2.3	ON	ON	OFF	OFF			
2.2	OFF	ON	OFF	OFF			
2.1	ON	OFF	OFF	OFF			
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".

Boot Sequence(开机磁碟装载次序)

标准IBMPC机是从软盘驱动器A装载DOS操作系统，所以，IBM兼容机被设计为首先从驱动器A启动，再到硬盘驱动器；随着光盘驱动器的普及，增添了首先从光驱CD-ROM启动的功能。你可以通过此选择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。

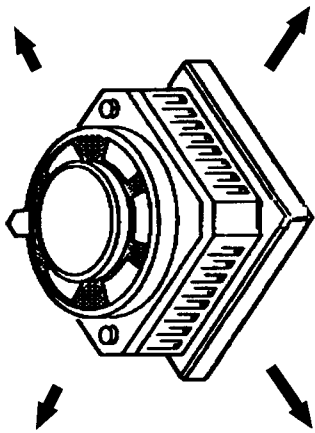
Security Option(密码设置选项)

选择System,而且在输入密码应答框输入了密码，系统在每次开机进入操作系统时会要求你输入密码，以保障系统的安全性；当然，你可以选择Setup，使仅仅进入BIOS时才需要输入密码。

PC/VGA Palette Snoop(PC/VGA反白监视)

选择Enable可以避免PC/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.

2.4 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 JP4 to 1-2 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 JP4 back to 2-3 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

JP18	Modem Ring Port
1-2	COM1
2-3*	COM2

If the serial port is used for a modem, set correctly jumper JP18 to 1-2 for COM1 or 2-3 for COM2. The computer will be turned on when modem receives a call.

4.2 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	
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		PUPD/+/- : Modify						
F1 : Help	(Shift)F2: Change Color								
Base Memory:		640K							
Extended memory:		15360K							
Other Memory:		384K							
Total Memory:		16384K							

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，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，它允许您改变系统的日期，时间，IDE硬盘，软驱A:和B:的规格，以及开机显示模式和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(兆字节)。

CYLS:

硬盘的柱面数。

HEAD:

硬盘的读写磁头数，范围为：1-16。

PRECOMP:

硬盘改变写时间的柱面数。

LANDZ:

硬盘停止工作时磁头在硬盘柱面的停留位置。

SECTOR:

硬盘每个磁道的扇区数。数值为“1”到“64”。

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 (KB/P1, Lower)

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

USB Connector (P11)

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

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

3. 存储器子系统设计

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

RHINO 20+ 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位数据界面，对32位数据的SIMM，必须成对安装，SM1和SM2同BANK, SM3和SM4同BANK；当然对同64-位数据的DIMM, DM1, DM2不作这样的要求。

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

RHINO 20+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。

如果您使用DIMM，务必正确为其设定电压。

为了您的方便，我们总结下表供您参考：

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 (DM2不能使用)
SM 3, 4 快页式(FPM)/EDO	4MB, 8MB, 16MB, 32MB, 64MB (DM1, DM2不能用64M和128M)
DM 1 同步SDRAM/EDO	8MB, 16MB, 32MB 64MB, 128MB (SM1, 2, 3, 4不能使用)
DM 2 同步SDRAM/EDO	8MB, 16MB, 32MB (SM1, 2 不能使用) 64MB, 128MB (SM 1, 2, 3, 4 不能使用)
内存最大容量	256MB

2.4 选择串行通讯口

JP18	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 20+将监测Modem状态，当有电话打进来时，自动启动系统。

2.5 清除CMOS内容

关掉电源设置跳线JP4为1-2，等候5秒可以擦除CMOS内容；然后再重新设置跳线JP4为2-3开机，BIOS会自动检测系统有关信息，并给出相应信息。

2.6 设定内存DIMM的电压

	JP16, JP17
3.3V*	2-3
5V	1-2

2.7 接口连线

电源指示灯接头(P1:5-9)

Pin	信号名称
5	+5V
7	空
9	LED

键盘锁定接头(P1:1-3)

Pin	信号名称
1	键盘锁定
3	地

电源按钮接头(P1:12-14)

Pin	信号名称
12	PWR BT
14	+3V

扬声器接头(P1:13-19)

Pin	信号名称
13	+5V
15	空
17	空
19	数据输出

复位接头 (P1:18-20)

Pin	信号名称
18	地
20	复位信号

硬盘指示灯(P1:23-24)

Pin	信号名称
23	LED-
24	LED+

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
CPU Internal Cache	: Enabled
External Cache	: Enabled
Quick Power On Self Test	: Enabled
Boot Sequence	: A, C, SCSI
Swap Floppy Drive	: Disabled
Boot Up Floppy Seek	: 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
PCI/VGA Palette Snoop	: Disabled
OS Select For DRAM > 64MB	: Non-OS2
Video BIOS Shadow	: Enabled
C8000 - C8FFF Shadow	: Disabled
CC000 - CFFFF Shadow	: Disabled
D0000 - D3FFF Shadow	: Disabled
D4000 - D7FFF Shadow	: Disabled
D8000 - DBFFF Shadow	: Disabled
DC000 - DFFFF Shadow	: Disabled
ESC : Quit	: Select Item
F1 : Help	: PU/PD/+/- : Modify
F5 : Old Values (Shift) F2 : Color	
F7 : Load Setup Defaults	

2. 硬件安装及升级介绍

2.1 RHINO 20+ 主板零件位置图

请参照英文部分。

2.2 CPU相关设定

RHINO 20+支持Intel Pentium P54C,P55C,AMD K5/K6,Cyrix/IBM 6x86/6x86MX 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

JP2	JP3	JP10	JP11 (Open)	JP5	JP6 (For AMD K6)	CPU Clock	CPU TYPE
1-2	2-3	1-2	1-2	1-2	Open	55 MHz	Cyrix/IBM 6x86-P133+
1-2	1-2	1-2	2-3	1-2	Open	60 MHz	Intel P54C-90 *
1-2	2-3	1-2	2-3	1-2	Open		Intel P54C-120
2-3	2-3	1-2	2-3	1-2	Open		Intel P54C-150
2-3	1-2	1-2	2-3	1-2	Open		Intel P54C-180
1-2	2-3	1-2	2-3	1-2	Open		Cyrix/IBM 6x86-P150+
2-3	2-3	1-2	2-3	1-2	Open		Cyrix/IBM 6x86MX-PR166
1-2	1-2	1-2	2-3	1-2	Open		AMD K5-PR90
1-2	2-3	1-2	2-3	1-2	Open		AMD K5-PR120
2-3	2-3	1-2	2-3	1-2	Open		AMD K5-PR150
1-2	1-2	2-3	2-3	2-3	Open	66 MHz	Intel P54C-100
1-2	2-3	2-3	2-3	2-3	Open		Intel P54C-133
2-3	2-3	2-3	2-3	2-3	Open		Intel P54C-166
2-3	2-3	2-3	2-3	2-3	Open		Intel P55C-166
2-3	1-2	2-3	2-3	2-3	Open		Intel P54C-200
2-3	1-2	2-3	2-3	2-3	Open		Intel P55C-200
1-2	1-2	2-3	2-3	2-3	Open		Intel P55C-233
1-2	2-3	2-3	2-3	2-3	Open		Cyrix/IBM 6x86-P166+
1-2	2-3	2-3	2-3	2-3	Open		Cyrix/IBM 6x86L-P166+
2-3	2-3	2-3	2-3	2-3	Open		Cyrix/IBM 6x86MX-PR200
1-2	1-2	2-3	2-3	2-3	Open		AMD K5-PR100
1-2	1-2	2-3	2-3	2-3	Open		AMD K5-PR133
2-3	2-3	2-3	2-3	2-3	Open		AMD K5-PR166
2-3	2-3	2-3	2-3	2-3	Open		AMD K6/166
2-3	1-2	2-3	2-3	2-3	Open		AMD K6/200
1-2	1-2	2-3	2-3	2-3	Open		AMD K6/233
1-2	2-3	2-3	1-2	2-3	Open	75 Mhz	Cyrix/IBM 6x86-P200+
2-3	2-3	2-3	1-2	2-3	Open		Cyrix/IBM 6x86MX-PR233

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.

- ◆ 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

PS/2鼠标接口为板上 PS/2插座

电源管理

- ◆ 环保功能

支持多种电源管理规范
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 TYPE
- ◆ 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

即插即用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

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

其它功能

- ◆ 最大消耗功率:
- ◆ 3.3V/3.5V供电VIO
- ◆ 2.0~3.5V供电VCORE
- ◆ 接头
- ◆ 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

41 W
以支持MMX技术的CPU
复位, 键盘锁定, 扬声器, 硬盘指示灯,
电源指示灯, CPU风扇等
192毫米X302毫米
当连接ATX电源供应器时, 支持电源开关;
在系统打盹(Doze), 待命(Standby), 沉睡
(Suspend)时唤醒系统; 在系统满负荷工作
时按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

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.

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.

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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.

4.6 PnP/PCI Configuration

ROM PCI/ISA BIOS	
PNP/PCI CONFIGURATION AWARD SOFTWARE, INC.	
PnP OS Installed	: No
Resources Controlled By	: Auto
Reset Configuration Data	: Disabled
PCI IDE IRQ Map To	
Primary IDE INT#	: A
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

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.

