USER'S MANUAL

ENGLISH

中文

RHINO 8

Pentium PCI Local Bus Motherboard

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REVISION 1.1 Sep, 1996

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CHAPTER 1 GENERAL SPECIFICATION

Processor:

• Processor Type	Intel Pentium CPU, AMD K5 CPU, Cyrix 6x86 CPU and future upgraded CPU
• External CPU clock	50/60/66 Mhz

Chipset:

• Motherboard chipset	Opti Viper-M PCI/ISA Pentium motherboard chipset
• Super I/O chipset	Advanced super I/O chipset

Cache Architecture:

• Internal Cache	8KB/16KB data cache 8KB/16KB code cache
• External Cache	On-board 256KB Sync. Pipeline Burst SRAM

Memory Subsystem:

• DRAM SIMM sockets	4 x 72 pin 4MB / 8MB / 16MB / 32MB DRAM modules
• Max. Memory Size	128MB
• DRAM Type	Fast Page Mode or EDO DRAM supported

Input/Output Subsystem

• PCI bus slots	2 x 32-bit PCI Bus slots (2 masters)
• ISA bus slots	3 x 16-bit ISA slots
• Shared bus slots	1x 32 bit PCI bus slot (master) or 1 x 16-bit ISA slot
• I/O bus speed	Up to 33MHz (PCI bus)

Integrated IDE, Super I/O Subsystem

• IDE support	Chipset built-in PCI IDE support up to 4 IDE Drives
• On board I/O	One Floppy Port supporting 2 floppy drives of 360K / 720K / 1.2M/ 1.44M/ 2.88M capacity. Two serial ports (16550 Fast UART compatibles) One parallel Port (Standard, ECP, EPP)

PS/2 Mouse

• PS/2 Mouse	Supports PS/2 Mouse through a 1x4 header

Power Management

• Green functions	Support various Power Management schemes

BIOS Subsystem

• 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	Support Plug & Play for easy installation
• Flash EEPROM	Use Flash EEPROM (1M bit) to allow easy BIOS update

System Support Functions

• System functions	7 DMA channels, 16 level interrupts, Programmable timers
• Support functions	Fast A20 gate and Fast Reset
• Clock	Enhanced real time clock/calendar with battery back-up

Other Features

• 3.3V supply	On board 3.3V supply to eliminate the need for special power supply for 3.3V component e.g. CPU, SRAM.
• Switches	EPMI, Reset, Keylock switches
• Size	8.5" (W) x 11" (L)

CHAPTER 2 INSTALL & UPGRADE

2.1 CPU Installation

The CPU is composed of pins that can easily be bent during installation, causing permanent damage to the processor. It is therefore very important that you make sure the pins are straight before installing the CPU onto the SPGA socket located on RHINO 8 (refer to layout for exact location). To properly align the CPU with the socket, align pin 1 of the CPU (with a notch at the corner) with pin 1 of the CPU socket as demonstrated below.

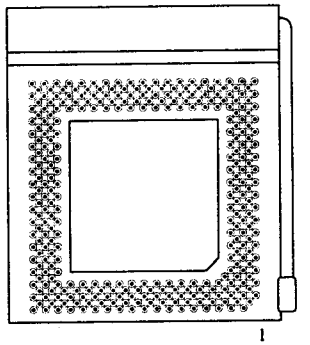


Figure 1 Socket 7 for Pentium CPU

2.2 Fast Page mode / EDO DRAM Installation

There are two memory banks located on the RHINO 8 motherboard, marked Bank1 & Bank2. They are counted starting from right to left consecutively. Start to install the SIMM modules (IN PAIRS) from the right hand side first. Depending on how your memory is configured, you may not need to use all the memory banks. Either X32 or X36 of 72 pins SIMM can be installed.

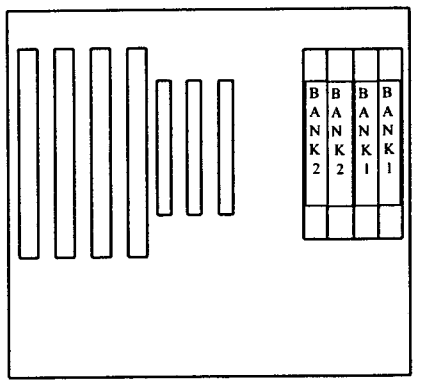


Figure 2 SIMM Sockets Location

To insert the modules into the banks follow these steps:

- Locate the notch (near pin 1) on the corner of the module.
- Hold the module so that the notch is at the bottom left corner.
- Insert the bottom edge of the module into the bank at an angle, then pull the module in the direction towards yourself so that it is locked into place by the latches located on the sides of the bank. The latches should be locked tightly and the holes in the module should be aligned with the tabs on the bank.

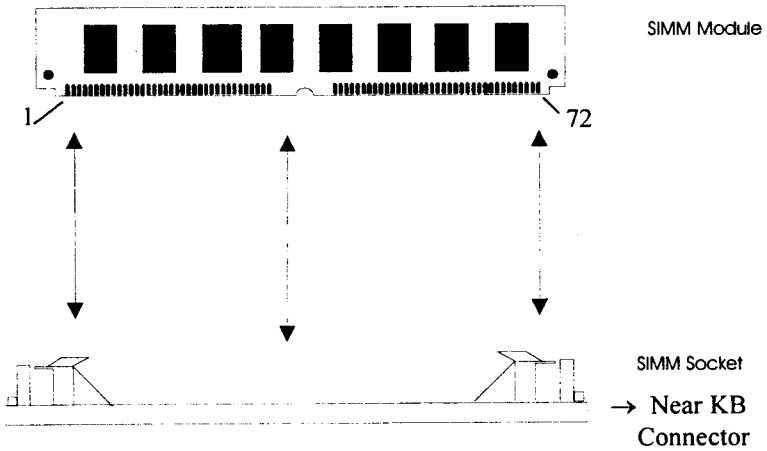


Figure 3 Proper Memory Module Installation

2.3 Control of System Speed

System speed can be controlled by keyboard. To change the speed by keyboard, use the minus sign (-) and the plus sign (+). Press <control> + <alt> + <"-"> for slow speed and <control> + <alt> + <"+"> for fast speed.

2.4 Reset CMOS

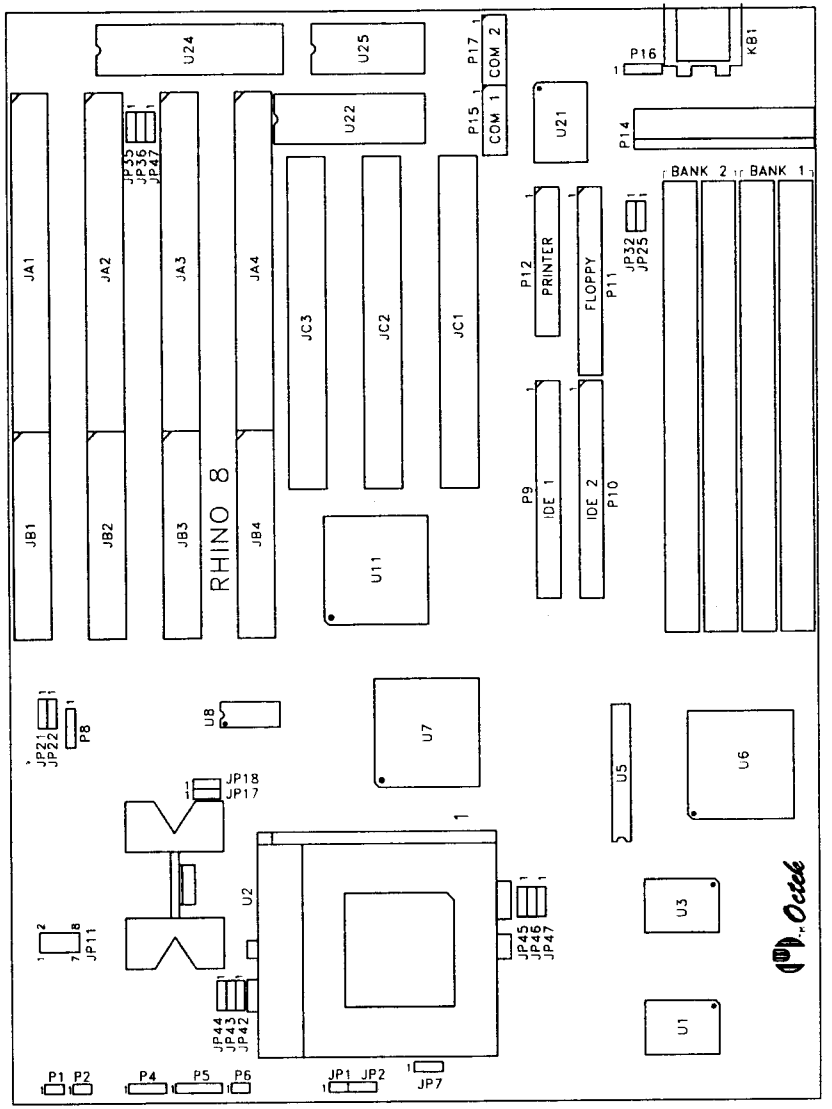
If the setting of the system setup is done improperly, it may make the system malfunction. If this happens, turn off the power and set jumper JP29 to 2-3 to clear the internal CMOS status register. Next, set the jumper JP29 back to 1-2 and turn on the power. The BIOS will find the CMOS status register is reset and will regard the setup information invalid, so it will prompt you to correct the information.

2.5 System Component Map

Jumper Connectors	Function
P1	Reset
P2	Turbo LED
P4	Speaker
P5	Keylock
P6	IDE LED
P8	External Battery
P9	Primary IDE
P10	Secondary IDE
P11	Floppy Drive
P12	Printer Port
P14	Power Connector
P15	Serial Port 1
P16	PS/2 Mouse
P17	Serial Port 2
KB1	Keyboard Connector

CHAPTER 3 CONNECTORS PINOUT

3.1 Layout of RHINO 8 Main Board



3.2 CONNECTORS PINOUT

3.2.1 Reset Connector (P1)

Pin	Signal Name
1	Reset
2	Ground

3.2.2 Turbo LED Connector (P2)

Pin	Signal Name
1	Pull_Up_150
2	LED_Turbo-

3.2.3 Speaker Connector (P4)

Pin	Signal Name
1	Speaker Data_Out
2	N.C.
3	Ground
4	+5Vdc

3.2.4 Keylock Connector (P5)

Pin	Signal Name
1	+5V
2	Mechanical Key
3	Ground
4	Keyboard Inhibit
5	Ground

3.2.5 IDE LED Connector (P6)

Pin	Signal Name
1	+5Vdc
2	HD_LED-

3.2.6 External Battery Connector (P8)

Pin	Signal Name
1	+3.6Vdc
2	N.C.
3	Ground
4	Ground

3.2.7 Power Connector (P14)

Pin	Signal Name
1	Power Good
2	+5Vdc
3	+12Vdc
4	-12V dc
5	Ground
6	Ground
7	Ground
8	Ground
9	-5Vdc
10	+5Vdc
11	+5Vdc
12	+5Vdc

3.2.8 PS/2 Mouse Connector (P16)

Pin	Signal Name
1	+5Vdc
2	Ground
3	MDATA
4	MClock

CHAPTER 4 HARDWARE SETTING

4.1 Jumper Setting

All factory settings are marked by * in the following sections.

4.1.1 CPU Settings

JP2	JP7	JP17	JP18	CPU Clock	CPU Type
2-3	2-3	2-3	1-2	50 MHz	Intel P54C-75
1-2	2-3	2-3	1-2		Cyrix 6x86-P120+(100MHz)
2-3	2-3	2-3	1-2		AMD- K5 - PR75 (75MHz)
2-3	2-3	1-2	2-3	60 MHz	Intel P54C-90
1-2	2-3	1-2	2-3		Intel P54C-120
1-2	1-2	1-2	2-3		Intel P54C-150
2-3	1-2	1-2	2-3		Intel P54C-180
1-2	2-3	1-2	2-3		Cyrix 6x86-P150+(120MHz)
2-3	2-3	1-2	2-3		AMD-K5-PR90 (90MHz)
2-3	2-3	1-2	1-2	66 MHz	Intel P54C-100
1-2	2-3	1-2	1-2		Intel P54C-133
1-2	1-2	1-2	1-2		Intel P54C-166
2-3	1-2	1-2	1-2		Intel P54C-200
1-2	2-3	1-2	1-2		Cyrix 6x86-P166+(133MHz)
2-3	2-3	1-2	1-2		AMD-K5-PR100 (100MHz)

Note: JP17 & JP18 are Clock frequency select while JP2 & JP7 are Clock multiple.

4.1.2 CPU Core Voltage

JP11	CPU Core Voltage
1-2	3.3V
3-4	3.5V (VRE)
5-6	Reserved
7-8	Reserved

4.1.3 DRAM Type

	JP25
EDO DRAM(60ns or 70ns)	1-2
Fast page mode DRAM(60ns or 70ns)	2-3 *

4.1.4 PS/2 MOUSE support

	JP35	JP38	JP39
Enabled	2-3	1-2	2-3
Disabled	1-2 *	2-3 *	1-2 *

4.1.5 CMOS discharge

	JP29
Normal CMOS	1-2 *
Clear CMOS	2-3

4.1.6 Battery select

	JP21
On-board Battery	1-2 *
External Battery	2-3