



# Screamer Pro

Rev. B+  
System Board  
User's Manual



-D30460716-





## FCC Statement on Class B

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio TV technician for help.

### **Notice:**

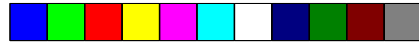
1. The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
2. Shielded interface cables must be used in order to comply with the emission limits.

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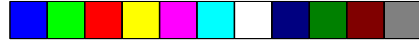


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## Chapter 1 Introduction

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The Screamer Pro design is based on the VLSI Lynx system controller chipset. It is equipped with a 321-pin Zero Insertion Force (ZIF) CPU socket to support various Cyrix® 6x86 and Intel® Pentium™ CPUs.

The Screamer Pro supports 8MB to 256MB of system memory using EDO or fast page mode DRAM. It is equipped with 4 SIMM sockets allowing you to install x32 or x36 SIMM. The x36 SIMM supports parity checking which informs the user of memory failure and prevents error accumulation. The system board also supports 256KB or 512KB fast pipeline burst cache.

The Screamer Pro system board has two PCI IDE connectors with bus mastering capabilities that highly reduce CPU use during disk transfer. This system board is also equipped with two NS16C550A-compatible serial ports, an SPP/ECP/EPP parallel port, a floppy disk drive controller, one PS/2 mouse port, one PS/2 or AT keyboard connector and one IrDA connector for wireless connectivity between your computer and peripheral devices.

## Features and Specifications

### PROCESSOR

- Cyrix 6x86 P120+/P133+/P150+/P166+/P200+ CPUs
- Intel Pentium™ 75/90/100/120/133/150/166/200MHz CPUs
- Future Intel Pentium™ OverDrive processor

### SYSTEM CLOCK

- CPU external clock: supports 75MHz, 66.6MHz, 60MHz, 55MHz and 50MHz
- PCI clock: 33MHz - 25MHz depending on the CPU external clock
- Relation between CPU clock and PCI clock:

CPU Clock	PCI Clock	ISA Bus Clock
75MHz	32MHz	8MHz
66.6MHz	33.3MHz	8.4MHz
60MHz	30MHz	7.5MHz
55MHz	27.5MHz	7MHz
50MHz	25MHz	6MHz

PCI bus clock/4 = ISA bus clock  
ISA bus clock = Keyboard clock

### SYSTEM CONTROLLER

- VLSI Lynx system controller
  - VL82C541: CPU interface, cache and DRAM control, data bus control, and PCI control
  - VL82C543: ISA control, PCI to ISA bridge, DMA, and interrupt control

### CACHE MEMORY

- 256KB (32Kx32x2-6ns) or 512KB (64Kx32x2-6ns) pipeline burst, direct map write-back cache installed on the system board

### SYSTEM MEMORY

- Four 72-pin SIMM sockets
- 8MB to 256MB onboard memory
- Uses EDO (60ns) or fast page mode (60ns) x32 or x36 DRAM, 50ns or 60ns 5V
- Parity check supported (using x36 DRAM)



### **BIOS**

- Award BIOS, Windows 95 Plug and Play compatible
- Flash EPROM for easy BIOS upgrade

### **ENERGY EFFICIENT DESIGN**

- System power management supported
- CPU stop clock control
- Hardware supports SMI green mode
- Microsoft/Intel APM 1.1 compliant
- External power management switch supported

### **PCI IDE INTERFACE**

- CMD 646 Bus Master PCI IDE chip
- PIO Mode 3/Mode 4 enhanced IDE
- DMA Mode 2 Bus Master IDE
- Supports ATAPI IDE CD-ROM
- 2 IDE connectors

### **INTEGRATED I/O**

- NS 306 ultra I/O controller
- Supports 360KB, 720KB, 1.2MB, 1.44MB and 2.88MB floppy drives
- Supports COM 1 and COM 2, NS16C550A compatible high speed UARTS
- One printer port supporting EPP/ECP and compatible mode
- IrDA infrared interface using UART 2 with dedicated pins
- Keyboard controller with PS/2 mouse interface
- A separate battery with battery holder: 3.3V, 150mA/hr

### **CPU SOCKET**

- 321-pin ZIF socket (Socket 7)

### **CPU POWER SUPPLY**

- Supports dual voltage sources for CPU core logic, CPU I/O interface, SRAM and chipset
  - CPU, I/O, SRAM, and chipset: 3.3V, 5A, linear regulator with heat sink
  - CPU core voltage: 2.5V/2.7V/2.9V/3.3V/3.52V selectable, 7A/5A, linear regulator with heat sink or optional 10A switching power supply



### CONNECTORS

- 2 serial ports
- 1 parallel port
- 2 IDE connectors
- 1 floppy connector
- 1 PS/2 mouse port
- 1 PS/2 or AT keyboard connector

### EXPANSION SLOTS

- 3 dedicated PCI slots
- 3 dedicated 16-bit ISA slots
- 1 shared PCI/ISA slot

### PCI MASTER

- PCI slots 2, 3 and 4 are Master or Slave slots
- PCI slot 1 and the onboard PCI IDE shares one Master. Master is selected by setting a jumper. The default Master is the onboard PCI IDE. If the onboard PCI IDE is Master, then PCI slot 1 is Slave.
- PCI 2.1 compliant

### PCB

- 4 layers, Baby AT
- 28.5cm (11.22") x 22cm (8.58")

## Package Checklist

The Screamer Pro package contains the following items:

- The Screamer Pro system board
- The Screamer Pro user's manual
- One 40-pin IDE hard disk cable
- One 34-pin floppy disk drive cable
- One 25-pin printer port cable for chassis mounting
- One card-edge bracket for mounting the printer port cable
- One card-edge bracket with serial and mouse port cables
- One IDE driver diskette

If any of these items are missing or damaged, please contact your dealer or sales representative for assistance.





## Chapter 2 Hardware Installation

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This chapter summarizes the steps to install the Screamer Pro system board into your system unit. It also includes a description of the area in which you must work and directions for memory installation. Before installing the system board, obtain the memory you plan to install. Please refer to the information on page 13 for the type of SIM modules needed for the amount of memory you require.

### Preparing the Area

Before unpacking the system board, make sure the location you have selected is relatively free of dust and static electricity. Excessive exposure to dust, static electricity, direct sunlight, excessive humidity, extreme cold, and water can damage the operational capabilities of your system board. Avoid placing the unit on surfaces such as carpeted floors. These areas also attract static electricity which can damage some circuits on your system board.

Make sure the power source has a properly grounded, three-pronged socket. It is essential that the power connection be properly grounded for correct functioning of your system board. For further protection, we recommend that you use a surge suppressor. This will protect the system board from damage that may result from a power surge on the electrical line.

Move items that generate magnetic fields away from your system board since magnetic fields can also damage your system board. Once you have selected the ideal location, unpack the Screamer Pro system board carefully.

### Handling the System Board

It is quite easy to inadvertently damage your system board even before installing it in your system unit. Static electrical discharge can damage computer components without causing any signs of physical damage. You must take extra care in handling the system board to ensure against electrostatic build-up.



## Static Electricity Precautions

1. To prevent electrostatic build-up, leave the board in its anti-static bag until you are ready to install it.
2. Wear an antistatic wrist strap.
3. Do all preparation work on a static-free surface with the system board components facing up.
4. Hold the system board only by its edges. Be careful not to touch any of the components, contacts or connections, especially gold contacts, on the board.
5. Avoid touching the pins or contacts on all modules and connectors. Hold modules and connectors by their ends.

### **Warning:**

*Electrostatic discharge (ESD) can damage your processor, disk drives, add-in boards, and other components. Perform the upgrade instruction procedures described at an ESD workstation only. If such a station is not available, you can provide some ESD protection by wearing an anti-static wrist strap and attaching it to a metal part of the system chassis. If a wrist strap is unavailable, establish and maintain contact with the system chassis throughout any procedures requiring ESD protection.*

## Installing the System Board

If you are installing the Screamer Pro system board, the following outlines the basic installation steps. Before installing the system board into your system unit, you should prepare the tools you will need.

You will need:

- One medium size, flat-bladed screwdriver
- One medium Phillips screwdriver
- One needle-nosed pliers
- One nutdriver

1. Unlock your system unit. Turn off the power and disconnect all power cords and cables.

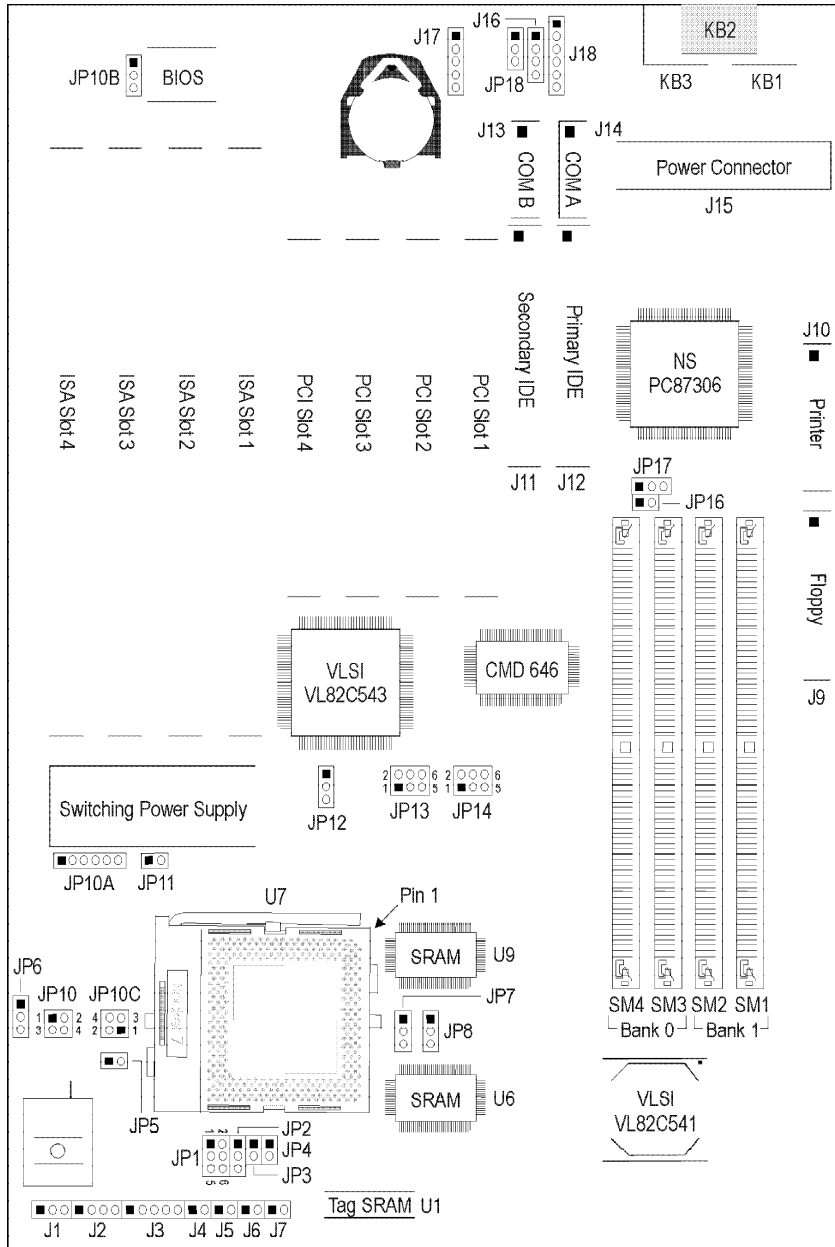


2. Remove the system unit cover. Refer to the manufacturer's instructions if necessary.
3. Detach all connectors from the old system board and remove expansion cards seated in any of the expansion slots.
4. Loosen the screws holding the original system board and remove the board from the system. Save the screws.
5. Remove the Screamer Pro from its original packing box. Be careful to avoid touching all connectors and pins on the board. Please refer to the handling instructions on pages 9-10 for proper handling techniques.
6. Insert the SIMMs into the SIMM banks on the system board. The quantity and location of the SIMMs depends on the memory configuration and type of modules you intend to use.
7. Install the CPU. Be sure pin 1 of the CPU is aligned with pin 1 of the socket.
8. Set the corresponding jumpers.
9. Install the prepared Screamer Pro system board into the case and replace the screws.
10. Reinstall all cards and connectors and replace the system unit cover. Reconnect all power cords and cables.





# Board Layout



“■” - square denotes pin 1

## System Memory

The SIMM (Single In-line Memory Module) sockets are divided into two banks on the system board, Bank 0 and Bank 1. Each bank consists of 2 SIMM sockets.

You will need either 2 or 4 pieces of SIM modules, depending on the amount of memory you intend to install. The system board will not work if you install 1 or 3 pieces. Make sure you insert the same type of SIMMs in one bank. You can install SIMMs in either of the banks, Bank 0 or Bank 1, but you must populate a bank first before going to the next bank.

The Screamer Pro system board can support 8MB to 256MB of memory using 1MBx32/x36, 2MBx32/x36, 4MBx32/x36, 8MBx32/x36, or 16MBx32/x36 72-pin SIMMs. The table below shows the supported SIM modules and their corresponding memory sizes.

SIMMs	Memory Size
1MBx32/x36	4MB
2MBx32/x36	8MB
4MBx32/x36	16MB
8MBx32/x36	32MB
16MBx32/x36	64MB

Examples:

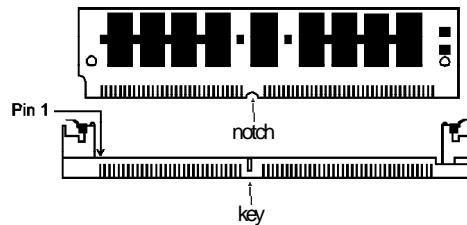
If you are installing 8MB of memory, you must insert two 1MBx32/x36 SIMMs in Bank 0 or Bank 1. Inserting one 2MBx32/x36 module will not work.

If you are installing 256MB of memory, you must insert four 16MBx32/x36 SIMMs in Bank 0 and Bank 1.

If you are installing 24MB of memory, you must insert two 1MBx32/x36 SIMMs in Bank 0 and two 2MBx32/x36 SIMMs in Bank 1. You may also install it vice versa by inserting two 1MBx32/x36 SIMMs in Bank 1 and two 2MBx32/x36 SIMMs in Bank 0.

## Installing a SIM Module

A SIM module simply snaps into a socket on the system board. Pin 1 of the SIM module must correspond with Pin 1 of the socket.



1. Position the SIMM above the socket with the “notch” in the module aligned with the “key” on the socket.
2. Seat the module at a 45° angle into the bank. Make sure it is completely seated. Tilt the module upright until it locks in place in the socket.

## Cache Memory

The Screamer Pro system board supports 256KB (32Kx32x2) or 512KB (64Kx32x2) pipeline burst, direct map write-back cache installed at locations U6 and U9 of the system board. Regardless of the amount of cache memory installed, one 32Kx8 mixed mode SRAM is mounted on location U1 for tag RAM to store the cacheable addresses. Refer to page 12 for the locations of the SRAMs.

The table below shows the cacheable memory of the cache installed on the system board.

Onboard Cache	Cacheable Memory
256KB	64MB
512KB	128MB

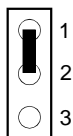


## Jumper Settings for Cache Memory

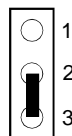
### Jumper JP7

#### Cache Memory Select

Set jumper JP7 according to the type of cache memory installed on the system board.



1-2 On: 512KB



2-3 On: 256KB  
(default)

## CPU Installation

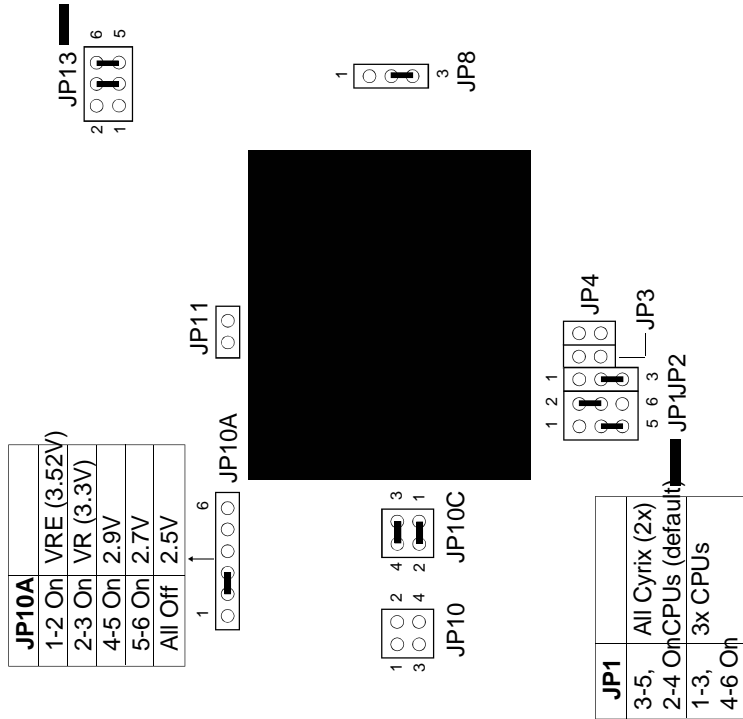
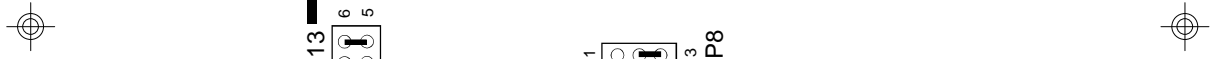
The Screamer Pro allows for easy installation of CPUs. Make sure all jumpers are set correctly before applying power or you may damage the CPU or system board. Please see the jumper settings on the following pages.

# Jumper Settings for Various CPUs

## Cyrix 6x86 CPUs

P-rating	CPU Speed	System Bus CLK	PCI CLK	JP13		
				Pins 1-2	Pins 3-4	Pins 5-6
P200+	150MHz	75MHz	32MHz	Off	On	On
P166+	133MHz	66.6MHz	33.3MHz	Off	Off	Off
P150+	120MHz	60MHz	30MHz	On	Off	Off
P133+	110MHz	55MHz	27.8MHz	On	On	On
P120+	100MHz	50MHz	25MHz	Off	On	Off

\* Default



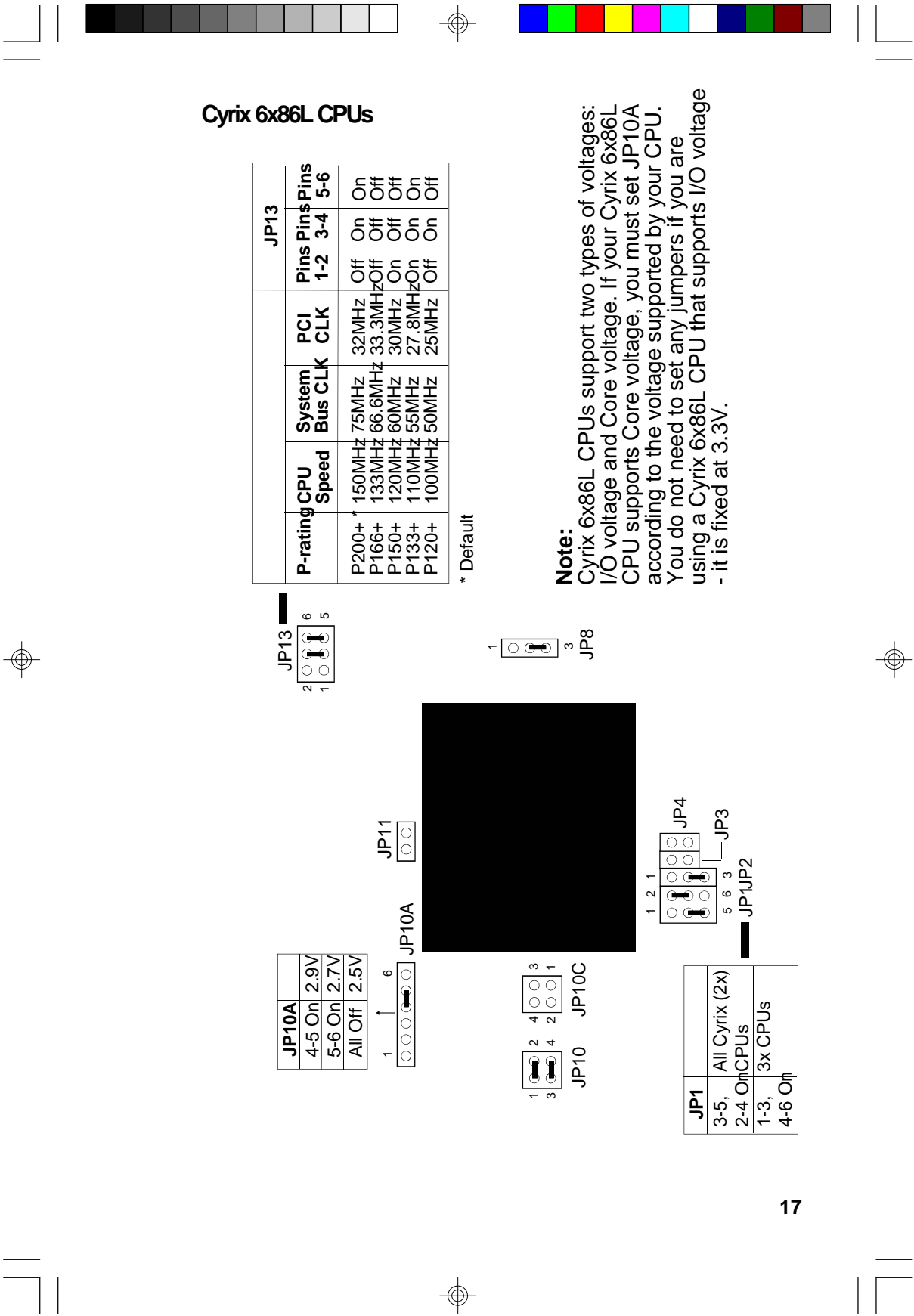


## Cyrix 6x86L CPUs

P-rating	CPU Speed	System Bus CLK	PCI CLK	JP13		
				Pins 1-2	Pins 3-4	Pins 5-6
P200+	150MHz	75MHz	32MHz	Off	On	On
P166+	133MHz	66.6MHz	33.3MHz	Off	Off	Off
P150+	120MHz	60MHz	30MHz	On	Off	Off
P133+	110MHz	55MHz	27.8MHz	On	On	On
P120+	100MHz	50MHz	25MHz	Off	On	Off

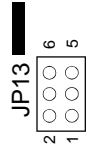
\* Default

**Note:** Cyrix 6x86L CPUs support two types of voltages: I/O voltage and Core voltage. If your Cyrix 6x86L CPU supports Core voltage, you must set JP10A according to the voltage supported by your CPU. You do not need to set any jumpers if you are using a Cyrix 6x86L CPU that supports I/O voltage - it is fixed at 3.3V.



### Intel CPUs

CPU Speed	System Bus CLK	PCI CLK	Pins 1-2	Pins 3-4	Pins 5-6
200/166/133/100MHz	66.6MHz	33.3MHz	Off	Off	Off
150/120/90MHz	60MHz	30MHz	On	Off	Off
75MHz	50MHz	25MHz	Off	On	Off



JP10A	JP10A
1-2 On	VRE CPU
2-3 On	VR/STD CPU
4-5 On	2.9 core (P55C)

JP10A



JP10	JP10C
P54C Off	1-2, 3-4 On
P55C 1-2, 3-4 On	Off

JP10

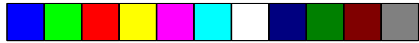
JP10C

JP1	P54C/P55C
1-3, 2-4 On	75/50, 90/60, 100/66 (1.5x)
3-5, 2-4 On	120/60, 133/66 (2x)
3-5, 4-6 On	150/60, 166/66 (2.5x)
1-3, 4-6 On	200/66 (3x) reserved

JP4

JP3

JP1



## Installing Upgrade CPUs

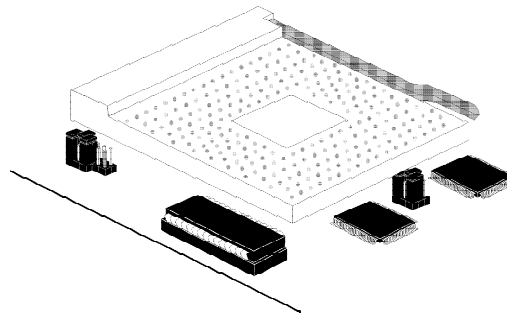
The Screamer Pro is equipped with a 321-pin Zero Insertion Force (ZIF) socket at location U7 of the system board. Refer to page 12 for the location of the ZIF socket. This socket is designed for easy removal of an old CPU and easy insertion of an upgrade CPU. The socket allows you to carefully place the new CPU into its position. If you need to apply excessive force to insert the CPU, you are not installing the CPU correctly.

### **Warning:**

*Open the socket only if you are actually installing a CPU.*

*Before proceeding with the upgrade, take note of the following. The microprocessor and heat sink may be hot if the system has been running. To avoid the possibility of a burn, power the system off and let the processor and heat sink cool for 15 minutes.*

The 321-pin ZIF socket consists of five rows of pin holes on each side. To prevent improper CPU installation, the ZIF socket has a Plug/Keying mechanism. Several holes in the socket are plugged so that the CPU will go in only one way. If you cannot easily insert the CPU, verify that pin 1 of the CPU is aligned with pin 1 of the socket.

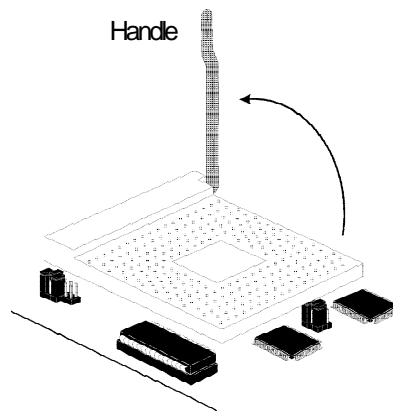


**Zero Insertion Force (ZIF) Socket**



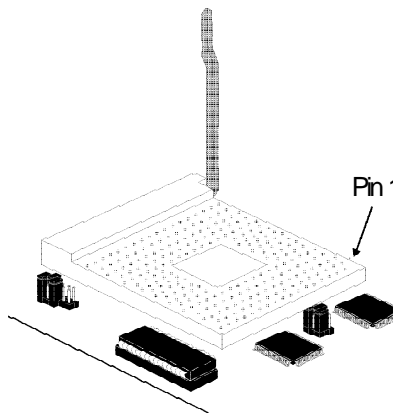
To install an upgrade CPU, do the following.

1. Make sure the handle on the side of the ZIF socket is up. To raise the handle, push it down, slightly pull it out to the side, then raise it as far as it will go. It may be necessary to initially apply a small amount of sideways force to free the handle from its retaining "tab." Once clear of the "tab," the handle will open relatively easily. The top plate will slide back. Do not use screwdrivers or other tools to open the socket, or you may damage the system or socket.



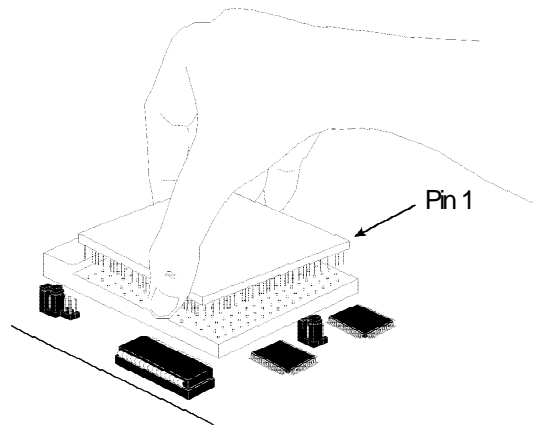
**Lifting the Handle**

2. Once the lever is completely up, remove the old CPU carefully by lifting it straight out of the socket. You are now ready to insert the new CPU.





3. Position the CPU above the ZIF socket. Make sure pin 1 of the CPU is aligned with pin 1 of the socket. Lower the chip until the pins are inserted properly in their corresponding holes. Remember that very little force is needed to install the CPU. If the CPU is not easily inserted, verify whether or not pin 1 of the CPU is aligned with pin 1 of the socket. Applying too much pressure can damage the CPU or the socket.



#### **Positioning the CPU Above the ZIF Socket**

4. Push the handle down until the handle locks into place. The top plate will slide forward. You will feel some resistance as the pressure starts to secure the CPU in the socket. This is normal and will not damage the CPU. However, if the handle is not completely closed, damage to the CPU and/or system board may result.



## Clearance Requirements

Your CPU comes with a heat sink mounted on top. To maintain proper airflow once the upgrade is installed on the system board, the CPU and heat sink require certain space clearances.

The clearance above the CPU's fan/heat sink must be at least 0.4 inches. The clearance on at least 3 of 4 sides of the CPU must be at least 0.2 inches. The cables (for floppy drive, hard drive, CD-ROM, etc.) must be routed clear of the CPU and its airspace.

## Fan Exhaust

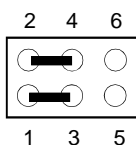
The CPU must be kept cool by using a fan with heat sink. The temperature of the air entering the fan/heat sink cannot exceed 45°C (113°F). The ambient or room temperature must be below 37°C (99°F).

In order to provide proper airflow to the CPU and fan/heat sink, all movable obstructions (power supply cables, cards, floppy disk cables) must be clear of the CPU fan/heat sink component in accordance with the space clearance discussed in the Clearance Requirements section of this manual.

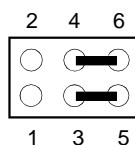
## Jumper Settings for Master IDE

### Jumper JP14

Master IDE Select



1-3, 2-4 On  
IDE: PIO mode  
PCI slot 1: Master mode



3-5, 4-6 On  
IDE: Master mode  
PCI slot 1: Slave mode  
(Default)

## Jumper Settings for Password Clear

### Jumper JP16

Password Clear

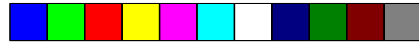
If you set a password in the “Password Setting” option and forget your password, power off your system and set Jumper JP16 to On to clear the password stored in your CMOS. Now power on your system. After your system has detected the floppy or hard drive, turn it off again and set JP16 to Off.



Off: Normal  
(Default)



On: Password Clear

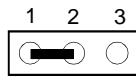


## Jumper Settings for Display

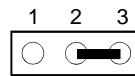
### Jumper JP17

Display Type Select

Jumper JP17 sets the display adapter to color or mono. This jumper must match the type of display adapter installed. If you change your video adapter, make sure this jumper is changed accordingly.



1-2 On: Color  
(Default)



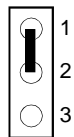
2-3 On: Mono

## Jumper Settings for Internal/External Battery

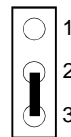
### Jumper JP18

Internal/External Battery Select

The Screamer Pro comes with an internal lithium battery. Set JP18 pins 1 and 2 to On to use the internal battery. If you are connecting an external battery to connector J16, you must set JP18 pins 2 and 3 to On or your system will lose its CMOS settings when powered off.



1-2 On: Internal battery  
(Default)



2-3 On: External battery





## Factory Testing Jumper

The jumpers below are for factory testing only and should always be set to their default configuration. Reconfiguring these jumpers will cause problems with your system board.

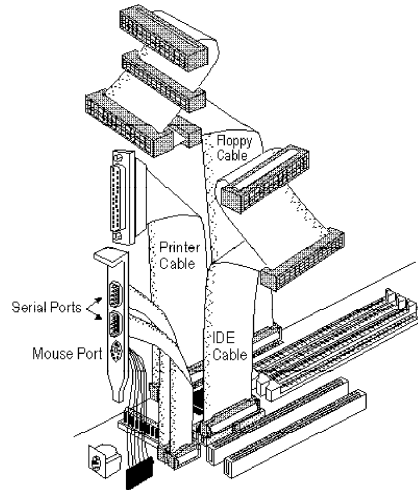
- JP5:** On
- JP6:** 1-2 On
- J7:** Off
- JP10B:** 1-2 On
- JP12:** 2-3 On





## Built-in Ports

The Screamer Pro system board is equipped with two serial ports, one parallel printer port, one FDD connector, two IDE hard disk shrouded headers and one PS/2 mouse connector. Refer to page 12 for the locations of the built-in connectors and pin 1 of those connectors.



## Serial Ports

The built-in serial ports are RS-232C asynchronous communication ports with 16C550A-compatible UARTs that can be used with modems, serial printers, remote display terminals, and other serial devices. They use the following system I/O addresses:

Port Configuration	COM 1	COM 2	COM 3	COM 4
Serial Port 1	3F8h*	2F8h	3E8h	2E8h
Serial Port 2	3F8h	2F8h*	3E8h	2E8h

\* Default

## Connecting the Serial Ports

Two 9-pin serial port cables are provided with the system board. They are mounted on a card-edge bracket along with the PS/2 mouse cable. The upper serial port cable should be used for the COM A primary serial port; connect it to connector J14 on the system board. The lower



serial port cable should be used for the COM B secondary serial port; connect it to connector J13 on the system board. Make sure the colored stripes on the ribbon cables are aligned with pin 1 of connectors J13 and J14. Mount the card-edge bracket to the system chassis.

### PS/2 Mouse Port

The PS/2 mouse port is a 6-pin connector on the system board. Attach the 6-pin mouse port cable, which is mounted on the card-edge bracket, to connector J18. Make sure the brown wire on the PS/2 mouse connector is aligned with pin 1 of connector J18. Mount the card-edge bracket to the system chassis.

### Parallel Port

The Screamer Pro system board has a standard connector for interfacing your PC to a parallel printer. The parallel port on your system board can be set to any of the following system I/O addresses:

I/O Address: 3BC-3BE Hex  
378-37A Hex (default)  
278-27A Hex

### Connecting the Parallel Printer Port

Attach the DB-25S printer port cable, which came with the system board, to connector J10 on the Screamer Pro system board. Make sure the colored stripe on the ribbon cable aligns with pin 1 of connector J10. Use a small nutdriver to mount the cable into a DB-25 cutout in the system chassis.

You may also attach the cable to the card-edge bracket which came with the system board. After attaching the cable to the card-edge bracket, mount the bracket to the system chassis.

### Floppy Disk Drive Controller

The Screamer Pro system board has a built-in floppy disk controller that supports two standard floppy disk drives. You can install any 360KB, 720KB, 1.2MB, 1.44MB, or 2.88MB floppy disk drives.



## Connecting the Floppy Disk Cable

1. Install the 34-pin header connector into the floppy disk connector (J9) on the system board. The colored edge of the ribbon should be aligned with pin 1 of connector J9.
2. Install the other 34-pin header connector(s) into the disk drive(s). Align the colored edge of the daisy chained ribbon cable with pin 1 of the drive edge connector(s). The end-most connector should be attached to the drive you want to designate as Drive A.

## IDE Hard Disk Interface

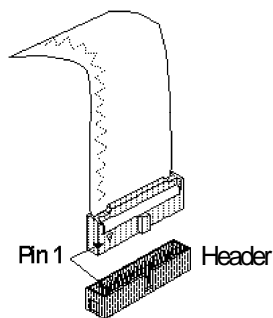
The Screamer Pro system board is equipped with two PCI IDE shrouded headers that will interface four Enhanced IDE (Integrated Drive Electronics) hard disk drives.

### Note:

*Only Enhanced IDE hard drives or ATAPI CD-ROMs can be connected to the IDE interface.*

## Connecting the IDE Hard Disk Interface

To prevent improper IDE cable installation, each PCI IDE shrouded header has a keying mechanism. The 40-pin connector on the IDE cable can be placed into the header only if pin 1 of the connector is aligned with pin 1 of the header.





**Note:**

*The IDE cable with a standard 40-pin connector (without the keying mechanism) can be installed in the PCI IDE shrouded header. Be extremely careful to match the colored edge of the ribbon with pin 1 of the header.*

### Connecting the Hard Disk Cable

1. If you are connecting two hard drives, install the 40-pin connector of the IDE cable into the primary IDE shrouded header (connector J12). If you are adding a third or fourth IDE device, install the 40-pin connector of the other IDE cable into the secondary IDE shrouded header (connector J11).
2. Install the other 40-pin header connector(s) into the device with the colored edge of the ribbon cable aligned with pin 1 of the drive edge connector(s).

**Note:**

*Refer to your disk drive user's manual for information about selecting proper drive switch settings.*


### Adding a Second IDE Hard Drive

When using two IDE drives, one must be set as the master and the other as the slave. Follow the instructions provided by the drive manufacturer for setting the jumpers and/or switches on the drives.

We recommend that the Enhanced IDE hard drives be from the same manufacturer. In a few cases, drives from two different manufacturers will not function properly when used together. The problem lies in the hard drives, not the Screamer Pro system board.

### Preparing an IDE Drive for Use

IDE disk drives are already low-level formatted, with any bad-track errors entered, when shipped by the drive manufacturer. Do not attempt to do a low-level format or you may cause serious damage to the drive.



To use an IDE drive, you need to enter the drive type (this information is provided by the drive manufacturer) into the system's CMOS setup table. Then run FDISK and FORMAT provided with DOS. You may also use the IDE HDD Auto Detection function which will allow the BIOS to auto detect your hard drive type. Refer to the IDE HDD Auto Detection section for details.

**Warning:**

*Do not run FDISK and FORMAT programs on a drive that has already been formatted or you will lose all programs and data stored on the drive.*

## Installing Expansion Cards

The Screamer Pro system board is equipped with 3 dedicated PCI slots, 3 dedicated 16-bit ISA slots and 1 shared PCI/ISA slot. You can only install one card in one or the other of the shared slots at a time; you cannot install devices in both slots.

PCI slots 1 to 4 are Bus Masters. Take note - PCI slot 1 and the PCI IDE controller share the same Master mode. The default Master is the PCI IDE controller. If you want to use PCI slot 1 as Master, set jumper JP14 pins 1-3, 2-4 to On. Refer to page 21 for the setting of JP14.

Due to the size of the CPU with its accompanying heatsink/fan component, the length of the add-in cards in PCI slots 3 and 4 and ISA slots 1 and 2 is limited to 18cm (measured from the bracket of the card).

Refer to page 12 for the locations of the expansion slots.

**Note:**

*The BIOS needs to be configured for the PCI add-in cards installed in the PCI slots. Refer to the "PCI Configuration Setup" presented in the "Software Installation" section of the manual.*



## Chapter 3 Software Installation

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After you power up your system, the BIOS message appears on your screen and the memory count begins.

After the memory test, the following message will appear on the screen:

*Press DEL to enter setup*

If the message disappears before you respond, restart your system or press the “Reset” button on the front of your computer. You may also restart the system by pressing the <Ctrl> <Alt> and <Del> keys simultaneously. If you do not press these keys at the correct time and the system does not boot, the following error message will appear:

*Press Del to enter Setup*

If you have set a password and selected “System” in the Security Option of the BIOS Features Setup menu, you will be prompted for the password every time the system is rebooted or any time you try to enter Setup. Type in the correct password and press <Enter>.

If you selected “Setup” in the Security Option, you will be prompted for the password only when you try to enter Setup. Refer to the “BIOS Features Setup” section for more information.

### Award BIOS Setup Utility

Press <Ctrl> <Alt> <Esc> simultaneously or <Del> to enter the Setup utility. A screen similar to the one on the next page will appear.



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 BIOS DEFAULTS 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...	

Use the arrow keys to highlight the option you want and press <Enter>. The following describes each of these options.

**Note:**

*The settings of the BIOS setup screens on the following pages are for reference only. These settings vary according to your system's configuration and should not be referred to as the standard default setting.*

**Standard CMOS Setup**

Use the arrow keys to highlight "Standard CMOS Setup" and press <Enter>. A screen similar to the one below will appear.

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

Date (mm:dd:yy) : Tue, Apr 2 1996							
Time (hh:mm:ss) : 13: 27: 50							
HARD DISKS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR MODE
Primary Master	: Auto	0	0	0	0	0	0 LBA
Primary Slave	: None	0	0	0	0	0	0 -----
Secondary Master	: None	0	0	0	0	0	0 -----
Secondary Slave	: None	0	0	0	0	0	0 -----
Drive A : 1.44M, 3.5 in.							
Drive B : None							
Video : EGA/VGA						Base Memory : 640K	
Halt on : All Errors						Extended Memory : 64512K	
						Other Memory : 384K	
						Total Memory : 65536K	
Esc : Quit		↑↓→← : Select Item		PU/PD/+/- : Modify			
F10 : Save & Exit Setup		(Shift)F2 : Change					





## Date

The date format is <day>, <month>, <date>, <year>.

Day	Displays a day, from Sunday to Saturday
Month	Displays the month, January through December
Date	Displays the date, from 1 to 31
Year	Displays the year, from 1900 through 2099

## Time

The time format is <hour>, <minute>, <second>. The time is calculated based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00.

Hour	Displays hours from 00 to 23
Minute	Displays minutes from 00 to 59
Second	Displays seconds from 00 to 59

## Primary Master, Primary Slave, Secondary Master and Secondary Slave

These categories allow you to enter the appropriate specifications for the type of hard disk drive(s) installed in your system. There are 45 predefined types and 4 user definable types for Enhanced IDE BIOS. Type 1 to Type 45 are predefined. Type user is user-definable.

Press <PgUp> or <PgDn> to select a numbered hard disk type or type the number and press <Enter>. The hard disk will not work properly if you enter improper information for this category. You can use Type "User" to define your own drive type manually.

If you select Type "User", you will need to know the information listed below. Enter the information and press <Enter>. This information should be included in the documentation from your hard disk vendor or the system manufacturer.

If the controller of the HDD interface is ESDI, you must select "Type 1".

If the controller of the HDD interface is SCSI, you must select "None".

If you select Type "Auto", the BIOS will auto-detect the HDD & CD-ROM drive at the POST stage and show the IDE for the HDD & CD-ROM drive.

Type	Drive type
Cyls	Number of cylinders
Heads	Number of heads
Precomp	Write precomp
Landzone	Landing zone
Sectors	Number of sectors
Mode	Mode type

If a hard disk has not been installed, select None and press <Enter>.

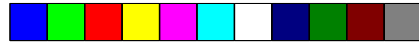
## Drive A and Drive B

This category identifies the types of floppy disk drive installed. The following are the options for drives A and B.

None	No floppy drive is installed
360K, 5.25 in.	5-1/4 inch PC-type standard drive; 360 kilobyte capacity
1.2M, 5.25 in.	5-1/4 inch AT-type high-density drive; 1.2 megabyte capacity
720K, 3.5 in.	3-1/2 inch double-sided drive; 720 kilobyte capacity
1.44M, 3.5 in.	3-1/2 inch double-sided drive; 1.44 megabyte capacity
2.88M, 3.5 in.	3-1/2 inch double-sided drive; 2.88 megabyte capacity

**Note:**

*Choosing an incorrect type might cause your system to format the floppy disk improperly.*



## Video

This category selects the type of video adapter used for the primary system monitor. Although secondary monitors are supported, you do not have to select the type in Setup. The default setting is EGA/VGA (BIOS default, Setup default).

EGAVGA	Enhanced Graphics Adapter/Video Graphics Array. For EGA, VGA, SEGA, SVGA and PGA monitor adapters.
CGA 40	Color Graphics Adapter. Power up in 40-column mode.
CGA 80	Color Graphics Adapter. Power up in 80-column mode.
Mono	Monochrome adapter. Includes high resolution monochrome adapters.

## Halt On

This category determines whether the system will stop if an error is detected during power up. The default setting is All Errors (BIOS default, Setup default).

No Errors	The system boot will not stop for any errors detected.
All Errors	The system boot will stop whenever the BIOS detects a non-fatal error.
All, But Keyboard	The system boot will not stop for a keyboard error; it will stop for all other errors.
All, But Diskette	The system boot will not stop for a disk error; it will stop for all other errors.
All, But Disk/Key	The system boot will not stop for a disk or keyboard error; it will stop for all other errors.



## Memory

The base memory size, extended memory size and the other memory size cannot be altered; your computer automatically detects and displays them.

**Base Memory:** The POST will determine the amount of base (or conventional) memory installed in the system. The value of the base memory is typically 512K for systems with 512K memory installed on the motherboard, or 640K for systems with 640K or more memory installed on the motherboard.

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

**Other Memory:** This refers to the memory located in the 640K to 1024K address space. This is the memory that can be used for different applications. DOS uses this area to load device drivers in an effort to keep as much base memory free for application programs. The BIOS is the most frequent user of this RAM area since this is where it shadows RAM.

## BIOS Features Setup

The BIOS Features Setup allows you to configure your system for basic operation. Some entries are defaults required by the system board, while others, if enabled, will improve the performance of your system or let you set some features according to your preference.

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	D4000-D7FFF Shadow	: Disabled
Swap Floppy Drive	: Disabled	D8000-DBFFF Shadow	: Disabled
Boot Up Floppy Seek	: Enabled	DC000-DFFFF Shadow	: Disabled
Boot Up NumLock Status	: On		
Boot Up System Speed	: High		
IDE HDD Block Mode	: Disabled		
Gate A20 Option	: Fast		
Memory Parity Check	: Disabled		
Typeomatic Rate Setting	: Disabled	ESC : Quit	↑↓←→ : Select Item
Typeomatic Rate (Chars/Sec)	: 6	F1 : Help	PU/PD/+/- : Modify
Typeomatic Delay (Msec)	: 250	F5 : Old Values (Shift) F2	: Color
Security Option	: Setup	F6 : Load BIOS Defaults	
PCI/VGA Palette Snoop	: Disabled	F7 : Load Setup Defaults	
OS Select For DRAM > 64MB	: Non-OS2		

## Virus Warning

This category protects the boot sector and partition table of your hard disk drive. When this item is enabled, the Award BIOS will monitor the boot sector and partition table of the hard disk drive. If an attempt is made, the BIOS will halt the system and the following error message will appear.

**! WARNING !**

Disk boot sector is to be modified  
Type "Y" to accept write or "N" to abort write  
Award Software, Inc.

Afterwards, if necessary, you will be able to run an anti-virus program to locate and remove the problem before any damage is done.



Many disk diagnostic programs which attempt to access the boot sector table will cause the warning message to appear. If you are running such a program, we recommend that you first disable this category. Also, disable this category if you are installing or running certain operating systems like Windows 95 or the operating system may not install nor work.

Enabled	BIOS issues a warning when any program or virus sends a Disk Format command or attempts to write to the boot sector of the hard disk drive.
Disabled	No warning message will appear when the hard disk drive is accessed.

### **CPU Internal Cache and External Cache**

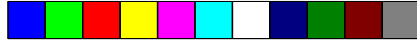
These categories speed up the memory access. However, it depends on the CPU/chipset design. The default value is enabled. Enable the External Cache for better performance.

Enabled	Enables the internal/external cache.
Disabled	Disables the internal/external cache.

### **Quick Power On Self Test**

This category speeds up Power On Self Test (POST) after you power on your system. If it is set to Enabled, the BIOS will shorten or skip some check items during POST.

Enabled	Enables quick POST.
Disabled	Normal POST.



## Boot Sequence

This category determines which drive to search first for the disk operating system (i.e. DOS). The default is A, C.

A, C	The system will first search for a floppy drive and then a hard disk drive.
C, A	The system will first search for a hard disk drive and then a floppy drive.
CDROM, C, A	The system will first search for a CD-ROM drive, then a hard disk drive and then a floppy drive.
C, CDROM, A	The system will first search for a hard disk drive, then a CD-ROM drive, and then a floppy drive.

## Swap Floppy Drive

Enabled	When this option is enabled and the system is booting from the floppy drive, this option causes the system to boot from drive B instead of drive A.
Disabled	When this option is disabled and the system is booting from the floppy drive, the system will boot from drive A.

## Boot Up Floppy Seek

During POST, the BIOS will determine if the floppy disk drive installed is 40 or 80 tracks. 360K type is 40 tracks while 760K, 1.2M and 1.44M are all 80 tracks.

Enabled	The BIOS will check whether the floppy disk drive installed is 40 or 80 tracks. Note that the BIOS cannot tell from 720K, 1.2M or 1.44M drive type as they are all 80 tracks.
Disabled	The BIOS will not search for the type of floppy disk drive by track number. Note that there will not be any warning message if the drive installed is 360KB.



### Boot Up NumLock Status

This allows you to determine the default state of the numeric keypad. By default, the system boots up with NumLock on.

On	The function of the numeric keypad is the number keys.
Off	The function of the numeric keypad is the arrow keys.

### Boot Up System Speed

Selects the default system speed - the normal operating speed at power up.

High	Sets the speed to high.
Low	Sets the speed to low.

### IDE HDD Block Mode

This allows your hard disk controller to use the fast block mode to transfer data to and from your hard disk drive (HDD).

Enabled	IDE controller uses block mode.
Disabled	IDE controller uses standard mode.

### Gate A20 Option

This entry allows you to select how the gate A20 is handled. The gate A20 is a device used to address memory above 1 Mbytes. Initially, the gate A20 was handled via a pin on the keyboard. Today, while keyboards still provide this support, it is more common, and much faster, for the system chipset to provide support for gate A20.

Normal	Keyboard
Fast	Chipset



## Memory Parity Check

Enabled	Enables the memory parity check. If the system DRAM has no parity bit, the system will display "RAM parity error".
Disabled	The system will ignore the memory parity check even if the DRAM has no parity bit and the system will not display "RAM parity error".

## Typematic Rate Setting

When disabled, continually holding down a key on your keyboard will cause the BIOS to report that the key is down. When the typematic rate is enabled, the BIOS will not only report that the key is down, but will first wait for a moment, and, if the key is still down, it will begin to report that the key has been depressed repeatedly. For example, you would use such a feature to accelerate cursor movements with the arrow keys.

Enabled	Enable the typematic rate.
Disabled	Disable the typematic rate.

## Typematic Rate (Chars/Sec)

When the typematic rate is enabled, this selection allows you to select the rate at which the keys are accelerated.

6	6 characters per second
8	8 characters per second
10	10 characters per second
12	12 characters per second
15	15 characters per second
20	20 characters per second
24	24 characters per second
30	30 characters per second



### Typematic Delay (Msec)

When the typematic rate is enabled, this selection allows you to select the delay between when the key was first depressed and when the acceleration begins.

250	250 msec
500	500 msec
750	750 msec
1000	1000 msec

### Security Option

This category allows you to limit access to your system and Setup, or just to setup.

System	The system will not boot and access to Setup will be denied if the correct password is not entered at the prompt.
Setup	The system will boot, but access to Setup will be denied if the correct password is not entered at the prompt.

### PCI/VGA Palette Snoop

This is used to select whether to allow the MPEG ISA/VESA VGA cards to work with PCI/VGA or not.

Enabled	PCI/VGA working with MPEG ISA/VESA VGA Card.
Disabled	PCI/VGA not working with MPEG ISA/VESA VGA Card.





### **OS Select for DRAM > 64MB**

This item allows you to access the memory that is over 64MB in OS/2. The options are: Non-OS2 and OS2.

### **Video BIOS Shadow**

Determines whether video BIOS will be copied to RAM. Video Shadow will increase the video speed.

Enabled	Video shadow is enabled.
Disabled	Video shadow is disabled.

### **C8000-CBFFF Shadow to DC000-DFFFF Shadow**

These categories determine whether option ROMs will be copied to RAM.

Enabled	Optional shadow is enabled.
Disabled	Optional shadow is disabled.



## Chipset Features Setup

The Screamer Pro system board uses the VLSI Lynx chipset. This section allows you to configure the system based on the specific features of the chipset. This chipset manages bus speeds and access to system memory resources, such as DRAM and the external cache. It also coordinates communications between the conventional ISA bus and the PCI bus. These items should not be altered unless necessary. The default settings have been chosen because they provide the best operating conditions for your system. The only time you might consider making any changes would be if you discovered that data was being lost while using your system.

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

Auto Configuration	: Enabled	PCI Concurrency	: Disabled
CAS Width For Read FP/EDO	: 4T/3T	PCI to DRAM Latency	: Disabled
CAS Address Setup (Read)	: 3T	PCI to DRAM Read Ahead	: Disabled
CAS Width For Write	: 2T	NA# Control on DRAM Write	: Disabled
CAS Address Setup (Burst)	: 2T	NA# Control on Cache Read	: Disabled
CAS Address Setup (Write)	: 2T	Arbitration Parking	: Chipset
RAS Address Hold Time	: 2T		
RAS Precharge Time	: 4T		
RAS to CAS delay	: 4T		
DRAM R To W Arbitration	: 4T		
CPU Bus Arbitration	: Enabled		
CPU to PCI Write Buffer	: 2 Deep		
Combine Memory Write	: Enabled		
Write Buffer Read Around	: Enabled	ESC : Quit	↑ ↓ → ← : Select Item
Shadow RAM Cacheable	: Disabled	F1 : Help	PU/PD/+/- : Modify
ISA DMA Wait Cycle	: Normal	F5 : Old Values (Shift)	F2 : Color
ISA Command Delay	: Disabled	F6 : Load BIOS Defaults	
ISA Bus Wait State	: Normal	F7 : Load Setup Defaults	
PCI 2.1 Compliant	: Enabled		
ISA Memory Post Write	: Disabled		

## Power Management Setup

The Power Management Setup allows you to configure your system to most effectively save energy.

ROM PCI/ISA BIOS POWER MANAGEMENT SETUP AWARD SOFTWARE, INC.			
Power Management	: Disable	IRQ1 (Keyboard)	: On
PM Control by APM	: Yes	IRQ3 (COM 2)	: On
Video Off Method	: Blank Screen	IRQ4 (COM 1)	: On
Video Off After	: Standby	IRQ5 (LPT 2)	: On
<u>PM Timers</u>		IRQ6 (Floppy Disk)	: On
Doze Mode	: Disable	IRQ7 (LPT 1)	: On
Standby Mode	: Disable	IRQ8 (RTC Alarm)	: Off
Suspend Mode	: Disable	IRQ9 (IRQ2 Redir)	: On
<u>Wake-Up Events</u>		IRQ10 (Reserved)	: On
COM Ports Accessed	: Off	IRQ11 (Reserved)	: On
LPT Ports Accessed	: Off	IRQ12 (PS/2 Mouse)	: On
Drive Ports Accessed	: Off	IRQ13 (Coprocessor)	: On
JOY Ports Accessed	: Off	IRQ14 (IDE Channel 0)	: On
		IRQ15 (IDE Channel 1)	: Off
		ESC : Quit	↑ ↓ → ← : Select Item
		F1 : Help	PU/PD/+/- : Modify
		F5 : Old Values (Shift)	F2 : Color
		F6 : Load BIOS Defaults	
		F7 : Load Setup Defaults	

## Power Management

This category allows you to select the type (or degree) of power saving and is directly related to the following modes: Doze Mode, Standby Mode, and Suspend Mode.

Disable (default)	No power management. Disables all four modes.
Min. Power Saving	Minimum power management. Doze Mode = 1 hr., Standby Mode = 1 hr., and Suspend Mode = 1 hr.
Max. Power Saving	Maximum power management. Doze Mode = 1 min., Standby Mode = 1 min., and Suspend Mode = 1 min.
User Defined	Allows you to set each mode individually. When enabled, each option ranges from 1 min. to 1 hr.



### PM Control by APM

Yes	An Advanced Power Management device will be activated to enhance the Max. Power Saving mode and stop the CPU's internal clock.
Nb	Default.

### Video Off Method

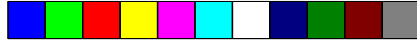
This determines the manner in which the monitor is blanked.

VH SYNC+ Blank	This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.
Blank Screen	This option only writes blanks to the video buffer.
DPMS	Initialize display power management signaling.

### PM Timers

The following modes are Green PC power saving functions which are only user configurable when the Power Management category is set to User Defined. Refer to the Power Management category for details.

Doze Mode	When enabled and after the set time of system inactivity begins, the CPU clock will run at a slower speed while all other devices still operate at full speed.
Standby Mode	When enabled and after the set time of system inactivity begins, the fixed disk drive and the video will be shut off while all other devices still operate at full speed.
Suspend Mode	When enabled and after the set time of system inactivity begins, all devices except the CPU will be shut off.



## Wake-Up Events - COM, LPT, Drive and JOY Ports Accessed

On	Access to the specified IRQ will cause the system to wake up completely from the power management mode.
Off	The system will not wake up from the power management mode despite access to the specified IRQ.

## IRQ1 - IRQ15

On	Access to the specified IRQ will cause the system to wake up completely from the power management mode.
Off	The system will not wake up from the power management mode despite access to the specified IRQ.

## PNP/PCI Configuration

This section describes configuring the PCI bus system. PCI, or Peripheral Computer Interconnect, is a system which allows I/O devices to operate at speeds nearing the speed the CPU itself uses when communicating with its own special components. This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.

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

Resources Controlled By : Auto Reset Configuration Data : Disabled	PCI IRQ Activated By : Level PCI IDE IRQ Map To : ISA
<p>ESC : Quit      ↑ ↓ → ← : Select Item  F1 : Help      PU/PD/+/- : Modify  F5 : Old Values (Shift) F2 : Color  F6 : Load BIOS Defaults  F7 : Load Setup Defaults</p>	




## Resources Controlled By


The Award Plug and Play BIOS has the capacity to automatically configure all of the boot and Plug and Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as Windows® 95.

Auto	The system will automatically detect the settings for you. The categories that follow will not be shown on the PNP/PCI Configuration screen.
Manual	This will allow you to set the IRQ (you have assigned your add-in card) to Legacy ISA or PCI/ISA PnP. For non-PnP ISA cards, select Legacy ISA. For PnP ISA or PCI cards, select PCI/ISA PnP.

## Load BIOS Defaults



The “Load BIOS Defaults” option loads the troubleshooting default values permanently stored in the ROM chips. These settings are not optimal and turn off all high performance features. You should use these values only if you have hardware problems. Highlight this option on the main menu and press <Enter>. The message below will appear.



*Load BIOS Defaults (Y/N)? N*

If you want to proceed, press <Y> and the default settings will be loaded.

## Load Setup Defaults

The “Load Setup Defaults” option loads optimized settings from the BIOS ROM. Use the Setup default values as standard values for your system.





Highlight this option on the main menu and press <Enter>. The message below will appear.

*Load Setup Defaults (Y/N)? N*

Type <Y> and press <Enter> to load the Setup default values.

## Integrated Peripherals

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

Onboard FDC Controller	: Enabled	
Onboard Serial Port 1	: COM1/3F8	
Onboard Serial Port 2	: COM2/2F8	
Onboard Parallel Port	: 378H/IRQ7	
Parallel Port Mode	: Compatible	
ECP Mode Use DMA	: 1	
EPP Version	: 1.7	
InfraRed Duplex Type	: Disabled	
Onboard IDE Controller	: Both	
IDE Primary Master	: Auto	
IDE Primary Slave	: Auto	
IDE Secondary Master	: Auto	
IDE Secondary Slave	: Auto	
		ESC : Quit      ↑↓→← : Select Item
		F1 : Help      PU/PD/+/- : Modify
		F5 : Old Values (Shift) F2 : Color
		F6 : Load BIOS Defaults
		F7 : Load Setup Defaults

### Onboard FDC Controller

Enabled	Enables the onboard floppy disk controller.
Disabled	Disables the onboard floppy disk controller.

### Onboard Serial Port 1 and Onboard Serial Port 2

COM1 to COM4	Selects COM1-COM4 for the onboard serial port 1 and serial port 2.
Disabled	Disables the onboard serial port 1 and serial port 2.

## Onboard Parallel Port

378-IRQ7	Selects the I/O address and IRQ for the onboard parallel port.
3BC-IRQ7	
278-IRQ5	
Disabled	Disables the onboard parallel port.

## Infrared Duplex Type

Disabled	The infrared function is disabled.
Half	Data is completely transmitted before receiving data.
Full	Transmits and receives data simultaneously.

The Screamer Pro supports IrDA function for wireless connectivity between your computer and peripheral devices. To use the IrDA function, follow the steps below.

1. Connect your IrDA cable to connector J17 of the Screamer Pro system board. Pin 1 of the IrDA cable must be aligned with pin 1 of connector J17.
2. Set the Infrared Duplex Type category to Half, which is the recommended setting.

You may not use IrDA (J17) and the COM B serial port (J13) at the same time. If you are using the COM B serial port, set the Infrared Duplex Type category to "Disabled".

### **Note:**

*The Screamer Pro only supports IrDA that is an HP standard.*



## Onboard IDE Controller

Both	Enables the primary and secondary IDE controller.
Primary	Enables the primary IDE controller. Disables the secondary IDE controller.
Disabled	Disables the primary and secondary IDE controller.

## Supervisor Password

If you want to protect your system and setup from unauthorized entry, set a supervisor's password with the "System" option selected in the BIOS Features Setup.

If you want to protect access to setup only, but not your system, set a supervisor's password with the "Setup" option selected in the BIOS Features Setup. You will not be prompted for a password when you cold boot the system.

Use the arrow keys to highlight the "Supervisor Password" option and press <Enter>. The message below will appear.

*Enter Password:*

Type in the password. You are limited to eight characters. When done, the message below will appear:

*Confirm Password:*

You are asked to verify the password. Type in exactly the same password. If you type in a wrong password, you will be prompted to enter the correct password again.



To delete or disable the password function, highlight “Supervisor Password” and press <Enter>, instead of typing in a new password. Press the <Esc> key to return to the main menu.

If you forget your password, you should clear any previously set password by setting Jumper JP3 to On for approximately two minutes. Please refer to page 21 for more information.

### **User Password**

If you want another user to have access only to your system but not to setup, set a user’s password with the “System” option selected in the BIOS Features Setup.

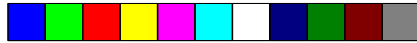
If you want a user to enter a password when trying to access setup, set a user’s password with the “Setup” option selected in the BIOS Features Setup. Using user’s password to enter Setup allows a user to access only the “User Password” option that appears on the main screen. Access to all other options is denied.

To set, confirm, verify, disable or delete a user’s password, follow the procedures described in the section “Supervisor Password”. If you forget your password, refer to the procedure described in the same section.

### **IDE HDD Auto Detection**

This option detects the hard disk parameters for the hard disk drives installed in your system. Highlight this option and press <Enter>. A screen similar to the one on the next page will appear.





ROM PCI/ISA BIOS  
 CMOS SETUP UTILITY  
 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	
1 (Y)	345	790	15	65535	789	57	NORMAL	
Note: Some OSes (like SCO-UNIX) must use "NORMAL" for installation								
ESC: Skip								

Enter your choice, and press <Enter> to accept the parameters or press <Esc> to abort. The parameters of the hard disk will be displayed in the Standard CMOS Setup.

### Hard Drive Mode

The Screamer Pro system board supports three HDD modes: Normal, LBA and Large. If your hard disk drive does not support LBA mode, the "LBA" option will not be displayed. If your HDD has 1024 or fewer cylinders, the "Large" option will not be displayed.

#### Normal Mode

The Normal mode is the generic access mode in which neither the BIOS nor the IDE controller will make any transformations during hard-drive access.

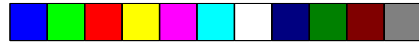
The maximum number of cylinders, heads and sectors for Normal mode are 1024, 16 and 63, respectively.

no. Cylinders	(1024)
x no. Heads	( 16)
x no. Sectors	( 63)
x bytes per sector	( 512)

---

528 megabytes

If you set your HDD to Normal mode, the maximum accessible HDD will be 528 megabytes even though the physical size of the HDD may be greater than that.



## LBA (Logical Block Addressing) Mode

The LBA mode is a HDD accessing method to overcome the 528 megabyte limitation. The number of cylinders, heads and sectors shown on the screen may not be the actual number for the HDD.

During the HDD accessing, the IDE controller will transform the logical address described by the sector, head and cylinder number into its own physical address inside the HDD.

The maximum HDD size supported by the LBA mode is 8.4 gigabytes. It is obtained by the following formula.

no. Cylinders	(	1024)
x no. Heads	(	225)
x no. Sectors	(	63)
x bytes per sector	(	512)

8.4 gigabytes

## Large Mode

The Large mode is the extended HDD access mode supported by the Screamer Pro system board. Some IDE HDDs have more than 1024 cylinders without LBA support (in some cases, you may not want the LBA mode). This system board provides another alternative to support these kinds of HDDs.

The BIOS tells the operating system that the number of cylinders is half of the actual number and that the number of heads is double the actual number. During disk access, the reverse conversion is done by the INT13h routine.

Example of Large mode:

CYLS.	HEADS	SECTORS	MODE
1120	16	59	NORMAL
560	32	59	LARGE



Maximum HDD size:

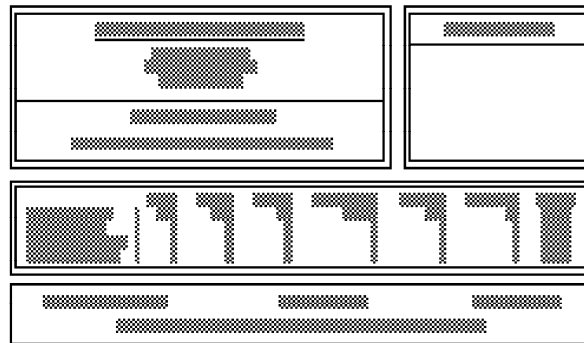
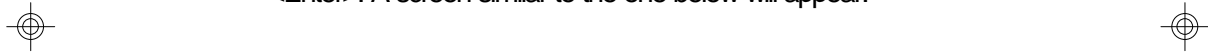
no. Cylinders	(1024)
x no. Heads	( 32)
x no. Sectors	( 63)
x bytes per sector	( 512)
<hr/>	
1 gigabyte	

**Note:**

*To support LBA or Large mode, address translation software is included in the Award BIOS HDD Service Routine (INT13h). If you are running an operating system that bypasses the BIOS Int13 Service Routine, LBA and Large Mode may fail.*

### HDD Low Level Format

The Low Level Format utility is designed as a tool to save you time formatting your hard disk. It automatically looks for the necessary information of the drive you selected. This utility also searches for bad tracks and lists them for your reference. Highlight this option and press <Enter>. A screen similar to the one below will appear.





## Save & Exit Setup

When all the changes have been made, highlight “Save & Exit Setup” and press <Enter>. The message below will appear:

*Save to CMOS and Exit (Y/N)? N*

Type “Y” and press <Enter>. The following message will appear:

*Reboot System (Y/N)? N*

Type “Y” and press <Enter>. The modifications you have made will be written into the CMOS memory, and the system will reboot. You will once again see the initial diagnostics on the screen. If you wish to make additional changes to the setup, press <Ctrl> <Alt> <Esc> simultaneously or <Del> after memory testing is done.

## Exit Without Saving

When you do not want to save the changes you have made, highlight “Exit Without Saving” and press <Enter>. The message below will appear:

*Quit Without Saving (Y/N)? N*

Type “Y” and press <Enter>. The system will reboot and you will once again see the initial diagnostics on the screen. If you wish to make any changes to the setup, press <Ctrl> <Alt> <Esc> simultaneously or <Del> after memory testing is done.





## System Error Report

When the BIOS encounters an error that requires the user to correct something, either a beep code will sound or a message will be displayed in a box in the middle of the screen and the message **PRESS F1 TO CONTINUE, CTRL-ALT-ESC or DEL TO ENTER SETUP**, will be shown in the information box at the bottom. Enter Setup to correct the error.

### POST Beep

There is one beep code in the BIOS. This code indicates that a video error has occurred and the BIOS cannot initialize the video screen to display any additional information. This beep code consists of a single long beep followed by two short beeps. If you get this error, contact your system board.

### Error Messages

One or more of the following messages may be displayed if the BIOS detects an error during the POST.

#### **DISK BOOT FAILURE, INSERT SYSTEM DISK AND PRESS ENTER**

No boot device was found. Insert a system disk into Drive A and press <Enter>. If the system normally boots from the hard drive, make sure the controller is inserted correctly and all cables are properly attached. Also be sure the disk is formatted as a boot device. Reboot the system.

#### **DISKETTE DRIVES OR TYPES MISMATCH ERROR - RUN SETUP**

The type of diskette drive installed in the system is different from the CMOS definition. Run setup to reconfigure the drive type correctly.

#### **DISPLAY SWITCH IS SET INCORRECTLY**

The display switch on the system board can be set to either monochrome or color. This error indicates the switch is set to a different setting than indicated in Setup. Determine which setting is correct and either turn off the system and change the jumper or enter Setup and change the VIDEO selection.



#### **DISPLAY TYPE HAS CHANGED SINCE LAST BOOT**

Since last powering off the system, the display adapter has been changed. You must configure the system for the new display type.

#### **ERROR ENCOUNTERED INITIALIZING HARD DRIVE**

The hard drive cannot be initialized. Be sure the adapter is installed correctly and all cables are correctly and firmly attached. Also, be sure the correct hard drive type is selected in Setup.

#### **ERROR INITIALIZING HARD DISK CONTROLLER**

The system cannot initialize the controller. Make sure the card is correctly and firmly installed in the bus. Be sure the correct hard drive type is selected in Setup. Also, check to see if any jumper needs to be set correctly on the hard drive.

#### **FLOPPY DISK CNTRLR ERROR OR NO CNTRLR PRESENT**

The system cannot find or initialize the floppy drive controller. Make sure the controller is installed correctly and firmly. If no floppy drive is installed, be sure the Diskette Drive selection in Setup is set to NONE.

#### **KEYBOARD ERROR OR NO KEYBOARD PRESENT**

Cannot initialize the keyboard. Make sure the keyboard is attached correctly and no keys are being pressed during the boot.

If you are purposely configuring the system without a keyboard, set the error halt condition in Setup to HALT ON ALL, BUT KEYBOARD. This will cause the BIOS to ignore the missing keyboard and continue the boot.

#### **MEMORY ADDRESS ERROR AT...**

Indicates a memory address error at a specific location. You can use this location along with the memory map for your system to find and replace the bad memory chips.

#### **MEMORY SIZE HAS CHANGED SINCE LAST BOOT**

Memory has been added or removed since the last boot. Enter Setup and enter the new memory size in the memory fields.

#### **MEMORY VERIFY ERROR AT...**

Indicates an error verifying a value already written to memory. Use the location along with your system's memory map to locate the bad chip.



#### **OFFENDING ADDRESS NOT FOUND**

This message is used in conjunction with the I/O CHANNEL CHECK and RAM PARITY ERROR messages when the segment that has caused the problem cannot be isolated.

#### **OFFENDING SEGMENT**

This message is used in conjunction with the I/O CHANNEL CHECK and RAM PARITY ERROR messages when the segment that has caused the problem has been isolated.

#### **PRESS A KEY TO REBOOT**

This will be displayed at the bottom screen when an error occurs that requires a reboot. Press any key and the system will reboot.

#### **SYSTEM HALTED, (CTRL-ALT-DEL) TO REBOOT...**

Indicates the present boot attempt has been aborted and the system must be rebooted. Press and hold down the CTRL, ALT and DEL keys simultaneously.

### **IDE Device Drivers**

To install the IDE device drivers supported by the Screamer Pro system board, please refer to the "Readme" file contained in the provided diskette.



## Chapter 4 Troubleshooting Checklist

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If you experience difficulty with the Screamer Pro system board, refer to the checklist below. If you still cannot identify the problem, please contact your dealer.

1. Check the jumper settings to ensure that the jumpers are properly set. If in doubt, refer to the “Hardware Installation” section.
2. Verify that all SIMMs are seated securely into the bank sockets.
3. Make sure the SIMMs are in the correct locations.
4. Check that all populated memory banks are filled with correctly sized SIMMs.
5. If your board fails to function, place the board on a flat surface and seat all socketed components (gently press each component into the socket).
6. If you made changes to the BIOS settings, re-enter setup and load the BIOS defaults.



## Appendix A Memory and I/O Maps

---

### Memory Address Map

Address	Name	Function
0000000 to 009FFFF	640KB System Board RAM	System Board Memory
00A0000 to 00BFFFF	128KB Video Display Memory	Reserved for Graphics Display Memory
00C0000 to 00E7FFF	160KB I/O Expansion ROM	Reserved for ROM on I/O Adapter Card
00E8000 to 00FFFFFF	96KB ROM on the System Board	System Board BIOS
0100000 to FFFFFFFF	Maximum Memory 256MB	System Board Memory

---



## I/O Address Map

I/O Address	Function
0000-001F	DMA Controller 1, 8237A-5
0020-003F	Interrupt Controller 1, 8259A, Master
0040-005F	Timer, 8254-2
0060-006F	8742 (Keyboard Controller)
0070-007F	Real-time Clock, NMI (Non-maskable Interrupt) Mask
0080-009F	DMA Page Memory, 74LS612
00A0-00BF	Interrupt Controller 2, 8259A
00C0-00DF	DMA Controller 2, 8237A-5
00E8	Shadow RAM and Cache Control Bit
00F0	Clear Numeric Processor Extension Busy
00F1	Reset Numeric Processor Extension
00F8-00FF	Numeric Processor Extension
01F0-01F8	Fixed Disk
0200-0207	Game I/O
0278-027F	Parallel Printer Port 2
02F8-02FF	Serial Port 2
0300-031F	Prototype Card
0360-036F	Reserved
0378-037F	Parallel Printer Port 1
0380-038F	SDLC, Bisynchronous 2
03A0-03AF	Bisynchronous 1
03B0-03BF	Monochrome Display and Printer Adapter
03C0-03CF	Reserved
03D0-03DF	Color/Graphics Monitor Adapter
03F0-03F7	Diskette Controller
03F8-03FF	Serial Port 1

**Note:**

*The I/O address hex 0000 to 00FF are reserved for the system board I/O.  
Hex 0100 to 03FF are available on the I/O channels.*



## Appendix B PCI I/O Pin Assignments

Component Side	B	A	Solder Side
-12V	- 01 -	TRST#	
TCK	- 02 -	+12V	
Ground	- 03 -	TMS	
TDO	- 04 -	TDI	
+5V	- 05 -	+5V	
+5V	- 06 -	INTA#	
INTB#	- 07 -	INTC#	
INTD#	- 08 -	+5V	
PRSNT1#	- 09 -	Reserved	
Reserved	- 10 -	+5V (I/O)	
PRSNT2#	- 11 -	Reserved	
Ground	- 12 -	Ground	
Ground	- 13 -	Ground	
Reserved	- 14 -	Reserved	
Ground	- 15 -	RST#	
CLK	- 16 -	+5V (I/O)	
Ground	- 17 -	GNT#	
REQ#	- 18 -	Ground	
+5V (I/O)	- 19 -	Reserved	
AD[31]	- 20 -	AD[30]	
AD[29]	- 21 -	N. C.	
Ground	- 22 -	AD[28]	
AD[27]	- 23 -	AD[26]	
AD[25]	- 24 -	Ground	
N. C.	- 25 -	AD[24]	
C/BE[3]#	- 26 -	IDSEL	
AD[23]	- 27 -	N. C.	
Ground	- 28 -	AD[22]	
AD[21]	- 29 -	AD[20]	
AD[19]	- 30 -	Ground	
N. C.	- 31 -	AD[18]	
AD[17]	- 32 -	AD[16]	
C/BE[2]#	- 33 -	N. C.	
Ground	- 34 -	FRAME#	
IRDY#	- 35 -	Ground	
N. C.	- 36 -	TRDY#	
DEVSEL#	- 37 -	Ground	
Ground	- 38 -	STOP#	
LOCK#	- 39 -	N. C.	
PERR#	- 40 -	SDONE	
N. C.	- 41 -	SBO#	
SERR#	- 42 -	Ground	
N. C.	- 43 -	PAR	
C/BE[1]#	- 44 -	AD[15]	
AD[14]	- 45 -	N. C.	
Ground	- 46 -	AD[13]	
AD[12]	- 47 -	AD[11]	
AD[10]	- 48 -	Ground	
Ground	- 49 -	AD[09]	
AD[08]	- 52 -	C/BE[0]#	
AD[07]	- 53 -	N. C.	
N. C.	- 54 -	AD[06]	
AD[05]	- 55 -	AD[04]	
AD[03]	- 56 -	Ground	
Ground	- 57 -	AD[02]	
AD[01]	- 58 -	AD[00]	
+5V (I/O)	- 59 -	+5V (I/O)	
ACK64#	- 60 -	REQ64#	
+5V	- 61 -	+5V	
+5V	- 62 -	+5V	



## Appendix C ISA I/O Pin Assignments

B		A
Gnd	- 01 -	-I/OChck
ResetDrv	- 02 -	SD7
+5VDC	- 03 -	SD6
IRQ9	- 04 -	SD5
-5VDC	- 05 -	SD4
DRQ2	- 06 -	SD3
-12VDC	- 07 -	SD2
O/S	- 08 -	SD1
+12VDC	- 09 -	SD0
Gnd	- 10 -	-I/OChrty
-SEMEMW	- 11 -	AEN
-SEMEMR	- 12 -	SA19
-IOW	- 13 -	SA18
-IOR	- 14 -	SA17
-DACK3	- 15 -	SA16
-DRQ3	- 16 -	SA15
-DACK1	- 17 -	SA14
DRQ1	- 18 -	SA13
-Refresh	- 19 -	SA12
CLK	- 20 -	SA11
IRQ7	- 21 -	SA10
IRQ6	- 22 -	SA9
IRQ5	- 23 -	SA8
IRQ4	- 24 -	SA7
IRQ3	- 25 -	SA6
-DACK2	- 26 -	SA5
T/C	- 27 -	SA4
BALE	- 28 -	SA3
+5VDC	- 29 -	SA2
O/S	- 30 -	SA1
Gnd	- 31 -	SA0

D		C
-MemCS16	- 01 -	SBHE
-I/OCS16	- 02 -	LA23
IRQ10	- 03 -	LA22
IRQ11	- 04 -	LA21
IRQ12	- 05 -	LA20
IRQ13	- 06 -	LA19
IRQ14	- 07 -	LA18
-DACK0	- 08 -	LA17
DRQ0	- 09 -	-MEMR
-DACK5	- 10 -	-MEMW
DRQ5	- 11 -	SD08
-DACK6	- 12 -	SD09
DRQ6	- 13 -	SD10
-DACK7	- 14 -	SD11
DRQ7	- 15 -	SD12
+5VDC	- 16 -	SD13
-Master	- 17 -	SD14
Gnd	- 18 -	SD15





## Appendix D Connector Pin Assignments

---

### Connector J1 Reset Switch Connector

Pin	Function
1	Ground
2	Reset
3	N. C.

---

### Connector J2 Speaker Connector

Pin	Function
1	Speaker out
2	N. C.
3	Ground
4	VCC

---

### Connector J3 Keylock Connector

Pin	Function
1	VCC
2	N. C.
3	Ground
4	Keylock signal
5	Ground

---

### Connector J4 Green LED

Pin	Function
1	SMI output (Suspend mode - LED On)
2	VCC

---



**Connector J5**  
Force Green Switch Connector

Pin	Function
1	External SMI I/P
2	Ground

The default setting of connector J5 is Off. If J5 is set to On, it will force the system to enter the Green mode.

**Connector J6**  
IDE LED

Pin	Function
1	Driver active signal (onboard IDE)
2	VCC

**Connector J9**  
Floppy Disk Drive Connector

Pin	Function	Pin	Function
1	Ground	18	Dir
2	DENSEL	19	Ground
3	Ground	20	Step
4	Reserved	21	Ground
5	Ground	22	Write Data
6	Drate0	23	Ground
7	Ground	24	Write Gate
8	Index	25	Ground
9	Ground	26	Track 0
10	MTR0	27	MSEN
11	Ground	28	Wr Protect
12	DR1	29	Ground
13	Ground	30	Read Data
14	DR0	31	Ground
15	Ground	32	Head Select
16	MTR1	33	Ground
17	Drate1	34	Disk Change



### Connector J10 Parallel Printer Port

Pin	SPP	EPP	ECP
1	-STB	-Write	-STB
2	PD <0:7>	PD <0:7>	PD <0:7>
3	PD <0:7>	PD <0:7>	PD <0:7>
4	PD <0:7>	PD <0:7>	PD <0:7>
5	PD <0:7>	PD <0:7>	PD <0:7>
6	PD <0:7>	PD <0:7>	PD <0:7>
7	PD <0:7>	PD <0:7>	PD <0:7>
8	PD <0:7>	PD <0:7>	PD <0:7>
9	PD <0:7>	PD <0:7>	PD <0:7>
10	-ACK	Intr	-ACK
11	BUSY	-Wait	BUSY, PeriphAck(2)
12	FE	FE	PEerror, -AckReverse(2)
13	SLCT	Select	SLCT
14	-AFD	-DStb	-AFD, HostAck(2)
15	-ERR	-Error	-Fault(1), -PeriphRequest(2)
16	-INIT	-Init	-INIT(1), -ReverseRqst(2)
17	-SLIN	-AStrb	-SLIN(1,2)
18	Ground	Ground	Ground
19	Ground	Ground	Ground
20	Ground	Ground	Ground
21	Ground	Ground	Ground
22	Ground	Ground	Ground
23	Ground	Ground	Ground
24	Ground	Ground	Ground
25	Ground	Ground	Ground

- (1) - Compatible mode  
(2) - High speed mode

## Connectors J11 and J12

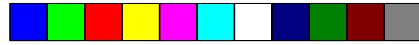
Primary and Secondary IDE Hard Disk Drive Connectors

Pin	Function	Pin	Function
1	-Reset	21	Reserved
2	Ground	22	Ground
3	D7	23	-IOW
4	D8	24	Ground
5	D6	25	-IOR
6	D9	26	Ground
7	D5	27	Reserved
8	D10	28	BALE
9	D4	29	Reserved
10	D11	30	Ground
11	D8	31	IRQ
12	D12	32	IOCS16
13	D2	33	SA1
14	D13	34	Reserved
15	D1	35	SA0
16	D14	36	SA2
17	D0	37	HCS0
18	D15	38	HCS1
19	Ground	39	LED
20	Reserved	40	Ground

## J13 (COM B) and J14 (COM A)

Serial Ports

Pin	Function
1	DCD (Data Carrier Detect)
2	RX (Receive Data)
3	TX (Transmit Data)
4	DTR (Data Terminal Ready)
5	Ground (Signal Ground)
6	DSR (Data Set Ready)
7	RTS (Request to Send)
8	CTS (Clear to Send)
9	RI (Ring Indicator)



### Connector J15 Power Connector

Pin	Function	Pin	Function
1	Power Good	7	Ground
2	+5V	8	Ground
3	+12V	9	-5V
4	-12V	10	+5V
5	Ground	11	+5V
6	Ground	12	+5V

### Connector J16 External Battery Connector

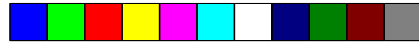
Pin	Function
1	+3.6V battery
2	N. C.
3	Ground
4	Ground

### Connector J17 Infrared Connector

Pin	Function
1	IRTX
2	Ground
3	IRRX
4	N. C.
5	VCC

### Connector J18 PS2 Mouse Connector

Pin	Function
1	Mouse data
2	N. C.
3	Ground
4	VCC
5	Mouse clock
6	N. C.



**Connector KB1**  
PS/2 Keyboard Connector

Pin	Function
1	Keyboard Data
2	Reserved
3	Ground
4	+5V
5	Keyboard Clock
6	Reserved

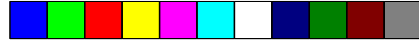
**Connector KB2**  
AT Keyboard Connector

Pin	Function
1	Keyboard Clock
2	Keyboard Data
3	Reserved
4	Ground
5	+5V



**Connector SSM1**  
Cache Module Slot

Pin	Function	Pin	Function
1	Ground	47	D48
2	TIO0	48	Ground
3	TIO2	49	D46
4	TIO6	50	D44
5	TIO4	51	D42
6	TIO8	52	+3.3V
7	+3.3V	53	D40
8	TWE#	54	D38
9	CADS#/CAA3	55	D36
10	Ground	56	Ground
11	HBE4#	57	D34
12	HBE6#	58	D32
13	HBE0#	59	D30
14	HBE2#	60	+3.3V
15	+3.3V	61	D28
16	CCS#/CAB4	62	D26
17	GVE#	63	D24
18	BWE#	64	Ground
19	Ground	65	D22
20	A3	66	D20
21	A7	67	D18
22	A5	68	+3.3V
23	A11	69	D16
24	A16	70	D14
25	+3.3V	71	D12
26	A18	72	Ground
27	Ground	73	D10
28	A12	74	D8
29	A13	75	D6
30	ADSP#	76	+3.3V
31	ECS1#/(CS#)	77	D4
32	ECS2#	78	D2
33	PD1	79	D0
34	PD3	80	Ground
35	Ground	81	Ground
36	CLK1	82	TIO1
37	Ground	83	TIO7
38	D62	84	TIO5
39	+3.3V	85	TIO3
40	D60	86	TIO9
41	D58	87	+5V
42	D56	88	TIO10
43	Ground	89	CADV#/CAA4
44	D54	90	Ground
45	D52	91	COE#
46	D50	92	HBE5#



Pin	Function	Pin	Function
93	HBE7#	127	D49
94	HBE1#	128	Ground
95	+5V	129	D47
96	HBE3#	130	D45
97	CAB3	131	D43
98	CALE	132	+5V
99	Ground	133	D41
100	RSVD	134	D39
101	A4	135	D37
102	A6	136	Ground
103	A8	137	D35
104	A10	138	D33
105	+5V	139	D31
106	A17	140	+5V
107	Ground	141	D29
108	A9	142	D27
109	A14	143	D25
110	A15	144	Ground
111	RSVD	145	D23
112	PD0	146	D21
113	PD2	147	D19
114	PD4	148	+5V
115	Ground	149	D17
116	CLK0	150	D15
117	Ground	151	D13
118	F63	152	Ground
119	+5V	153	D11
120	D61	154	D9
121	D59	155	D7
122	D57	156	+5V
123	Ground	157	D5
124	D55	158	D3
125	D53	159	D1
126	D51	160	Ground