3112T R2

12” Thin Line Industrial Flat Panel PC

Printed in the United States of America

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All interface cables must include shielded cables. Braid/foil type shields are recommended. Communication cable connectors must be metal, ideally zinc die-cast backshell types, and provide 360-degree protection about the interface wires. The cable shield braid must be terminated directly to the metal connector shell, ground drain wires alone are not adequate.

Protective measures for power and interface cables as described within this manual must be applied. Do not leave cables connected to unused interfaces or disconnected at one end. Changes or modifications to this device not expressly approved by the manufacturer could void the user's authority to operate the equipment.

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Chapter 1 – Product Information

General Information

The 3112T R2 features a 12.1" TFT LCD touchscreen display and Pentium III or Celeron processor. It comes standard with Compact Flash site, CD-ROM, and a full array of I/O and communications ports, including USB 1.1 and 10/100 BaseT Ethernet. This IBM PC/AT-compatible computer is specially designed for your light-duty industrial application.

Standard Features

The 3112T R2 comes standard with the following features:

- 12.1" flat panel TFT SVGA (800 x 600) LCD
- Analog resistive touch screen
- POS-370R CPU board equipped with:
  - CPU: Celeron (1.2 GHz), or Pentium III (1.26 GHz) Processor
  - BIOS: Award PnP BIOS
  - RAM: Two 168-pin DIMM sockets support SDRAM RAM module, up to 1GB
  - Bus: PCI bus expansion to support PCI bus signal
  - Chipset: SiS630ST, support 66/100/133 MHz CPU/DRAM clock
  - AGP VGA Controller: On chip SiS3003D (share memory up to 64MB RAM)
  - 10/100Mbps Ethernet Controller: auto-sensing interface to 10Mbps, 100Mbps network
  - RJ45 connector for 10BASE-T and 100BASE-TX
  - Three high speed serial ports: two RS-232C, one RS-232C or RS-422/485 Port (NS16C550-compatible UARTs)
  - Bi-directional Parallel Port: One SPP/EPP/ECP Parallel Port
  - Enhanced IDE Interface: Ultra DMA/100
  - Two USB ports (1.1 compliant): Support dual USB ports for future expansion
  - Watch Dog Timer: software-programmable; supports 1-255 seconds system reset
  - PS/2 Mouse/Keyboard Port
- LCD/CRT interface
- Internal 20GB hard disk drive (minimum)
- 1.44 MB floppy disk drive

- Slim line CD-ROM drive
- Accessible Compact Flash
- 100-240 VAC, 50-60 Hz power supply

LCD Display

Table 1–1 identifies the features of the 3112T R2 LCD display.

Table 1-1. 3112T R2 LCD Display Specifications

Display Model	**Tottori Sanyo**
Display Type	12.1" TFT color
Resolution	800 x 600
Maximum colors	262K colors (R/G/B 6 bit each)
Brightness	340 cd/m^2
Backlight Operating Life	50,000 hrs
Supply Voltage	+3.3V

Caution

Leaving your TFT LCD display on constantly can result in temporary image retention (TIR). TIR can be avoided by using a screen saver, enabling the idle/doze timeout feature, or by turning off the display when it is not in use.

Touch Screen Specifications

Table 1–2 identifies important specifications of the 3112T R2 Touch Screen.

Table 1-2. 3112T R2 Touch Screen Specifications

Touch Screen Model	**Description**
Screen Type	Eight wire analog resistive touch screen
Resolution	Continuous
Light Transmission	Typical value 72%
Surface Hardness	4H (Test condition: ASTM D3363-92A)
Support Driver	Supports Windows® 2000 and Windows® XP PROFESSIONAL

Front Panel

This image shows the front panel of the 3112T R2.

Figure 1-1. 3112T R2 Front Panel

Table 1-3. 3112T R2 Front Panel Features

Feature	Description
Front Panel	The front panel has four components: a display; strengthened glass covering the display; a frame in which the display and the glass are mounted; and the polyester overlay attached to both the glass and the frame. The 3112T R2 has a 12.1" TFT LCD flat panel. The strengthened glass covering the display is intended to withstand normal operating conditions. In the event of damage to the glass, the overlay will protect the user from any glass shards.

Back Panel

The image below shows the back panel of the 3112T R2.

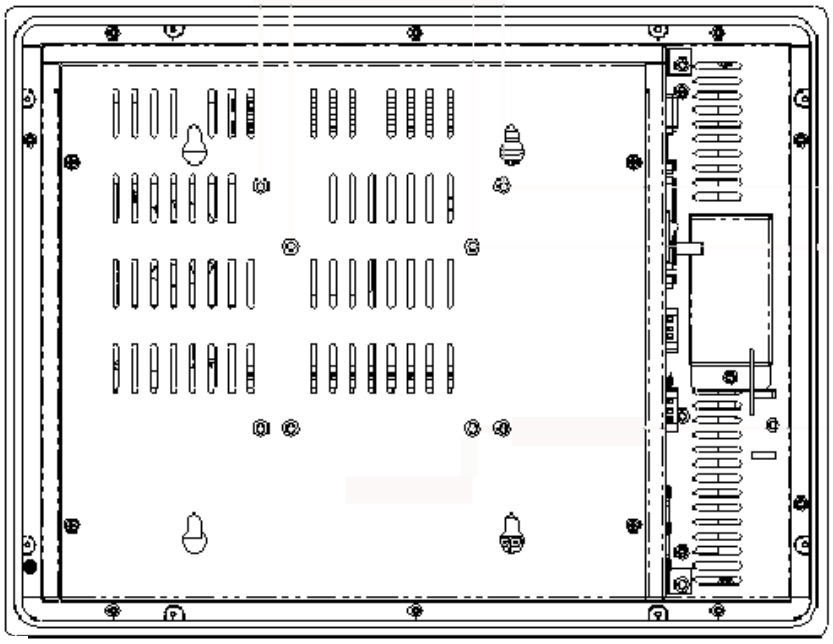


Figure 1-2. System Back Panel

I/O Panel

The figure below shows the I/O panel of the 3112T R2.

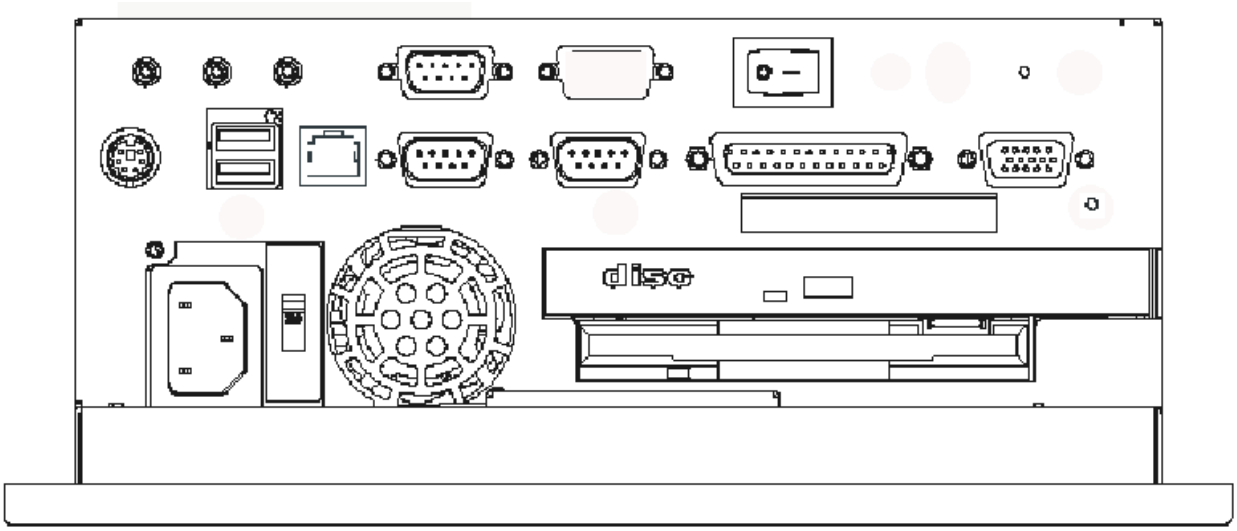


Figure 1-3. I/O Panel

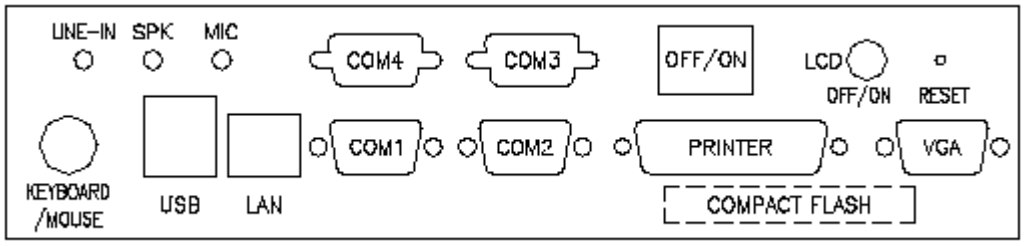


Figure 1-4. Diagram of POS-370R components

COM3 is blocked off on the 3112T R2. The port is used for the touch screen.

Power Supply

Table 1-4 outlines the power supply voltage ratings for the 3112T R2.

Table 1-4. Power Supply Voltage Ratings

Input Voltage 100 to 240 VAC		
Voltage	Minimum Load	Maximum Output
+5V	1.0A	16A
+12V	0.5A	6A
–12V	0.0A	0.3A

150 W maximum continuous load; +5 and +12 total output shall not exceed 145 W

Unpacking the Unit

When you remove the 3112T R2 from its shipping box, verify that you have the parts listed below. Save the box and inner wrapping in case you need to reship the unit.

- 3112T R2 unit
- Documentation kit, which includes
  - 10-32 hex nuts (12)
  - Analog RGB Cable (10 ft.)
  - RS-232C Cable (10 ft.)
  - Two PS/2 cables (10 ft.)
  - USB Cable (3 m)
  - Documentation and Support Library CD-ROM, which contains this manual and all drivers required by this unit

Quick Startup

This section gives you the steps to get the system up and running without explaining the capabilities and options.

Warning

Remove power from the unit and disconnect the power cord before making any adjustments to the inside or outside of the monitor.

To prepare the system for use, perform the following steps.

1. Attach optional keyboard to the keyboard port.
2. Attach optional mouse to the mouse port.
3. Attach other optional equipment following the instructions in Chapter 2.
4. Attach the power cord from the power receptacle to a properly grounded 100-240 VAC, 50-60 Hz. (See *System Power* in Chapter 2 for more information.)
5. Turn on power to the 3112T R2 (via an outlet power switch if applicable). The system will boot up into the operating system.
6. If the unit is equipped with a touch screen, install drivers via the floppy, the CD-ROM, or the network, as applicable.

Chapter 2 — Installation

The 3112T R2 Industrial Flat Panel PC is provided as a complete configured system for your operation. This chapter offers detailed installation instructions and outlines the options for the 3112T R2 Flat Panel PC. It also includes the guidelines for preparing your 3112T R2 unit for installation and use.

Installation Overview

The design of the 3112T R2 allows the unit to be installed in most industrial environments. The system is generally placed in a NEMA 4/4X/12 enclosure to protect against contaminants such as dust, and moisture. Metal enclosures also help minimize the effects of electromagnetic radiation that nearby equipment can generate.

Read the following sections carefully to be sure that you are complying with all the safety requirements.

1. Select a NEMA rated enclosure and place the unit within the enclosure to allow easy access to the system ports (see other sections in this chapter and Appendix A).
   - To assure a NEMA 4 seal, choose an approved enclosure that has a 14-gauge (0.075 in/1.9 mm thick steel or 0.125 in/3.2 mm thick aluminum) front face.
   - Be sure to account for the unit's depth when choosing the depth of the enclosure.
2. Create a cutout in the enclosure (see *Figure 2-3*).
   - Be sure to place the unit at a comfortable working level
   - Make sure the area around the cutout is clean and free from metal burrs
3. Mount the unit in an upright position and properly secure the unit into the panel.
   - Tighten the fourteen #10 nuts to 25 inch-pounds (2.8 Newton-meters / 28Kgf cm).
4. Attach one end of the power cord to the power receptacle on the unit and the other end to a properly grounded 100-240 VAC, 50-60 Hz outlet.
5. Turn on power to the 3112T R2 unit. The system will boot up the installed operating system.
6. Install the application software via a floppy drive, CD-ROM, or the network.

Additional aspects to take into account when mounting your 3112T R2 unit:

- Consider locations of accessories such as AC power outlets and lighting (interior lighting and windows) for installation and maintenance convenience
- Prevent condensation by installing a thermostat-controlled heater or air conditioner
- To allow for maximum cooling, avoid obstructing the airflow
- Place any fans or blowers close to the heat generating devices. If using a fan, make sure that outside air is not brought into the enclosure unless a fabric or other reliable filter is used. This filtration prevents conductive particles and other harmful contaminants from entering the enclosure.
- Do not select a location near equipment that generates excessive electromagnetic interference (EMI) or radio frequency interface (RFI). Examples of these types of equipment are: high power welding machines; induction heating equipment; and large motor starters.
- Place incoming power line devices (such as isolation or constant voltage transformers, local power disconnects, and surge suppressers) away from the system. The proper location of incoming line devices keeps power wire runs as short as possible and minimizes electrical noise transmitted to the unit.
- Make sure the location does not exceed the unit's shock, vibration, and temperature specifications
- Install the unit in the rack or panel in such a way as to ensure that it does not cause a hazard from uneven mechanical loading
- Incorporate a readily-accessible disconnect device in the fixed wiring on permanently connected equipment
- Avoid circuit overloading of the supply circuit

Mechanical Dimensions

Front Panel: 13.39” (340 mm) x 10.24” (260 mm) x 0.354” (9 mm) (WxHxD)

Chassis: 12.2” (310 mm) x 9.06” (230 mm) x 3.89” (99 mm) (WxHxD)

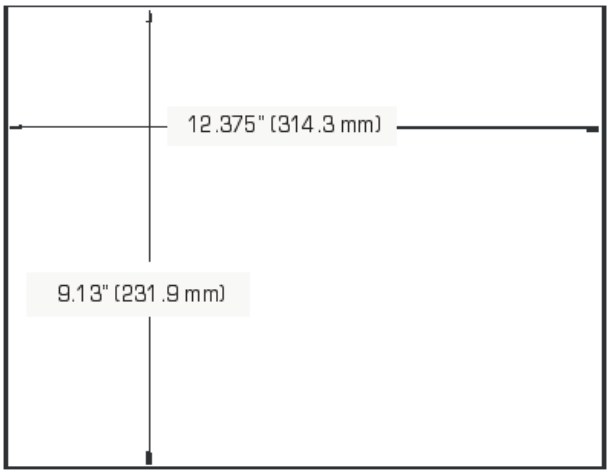
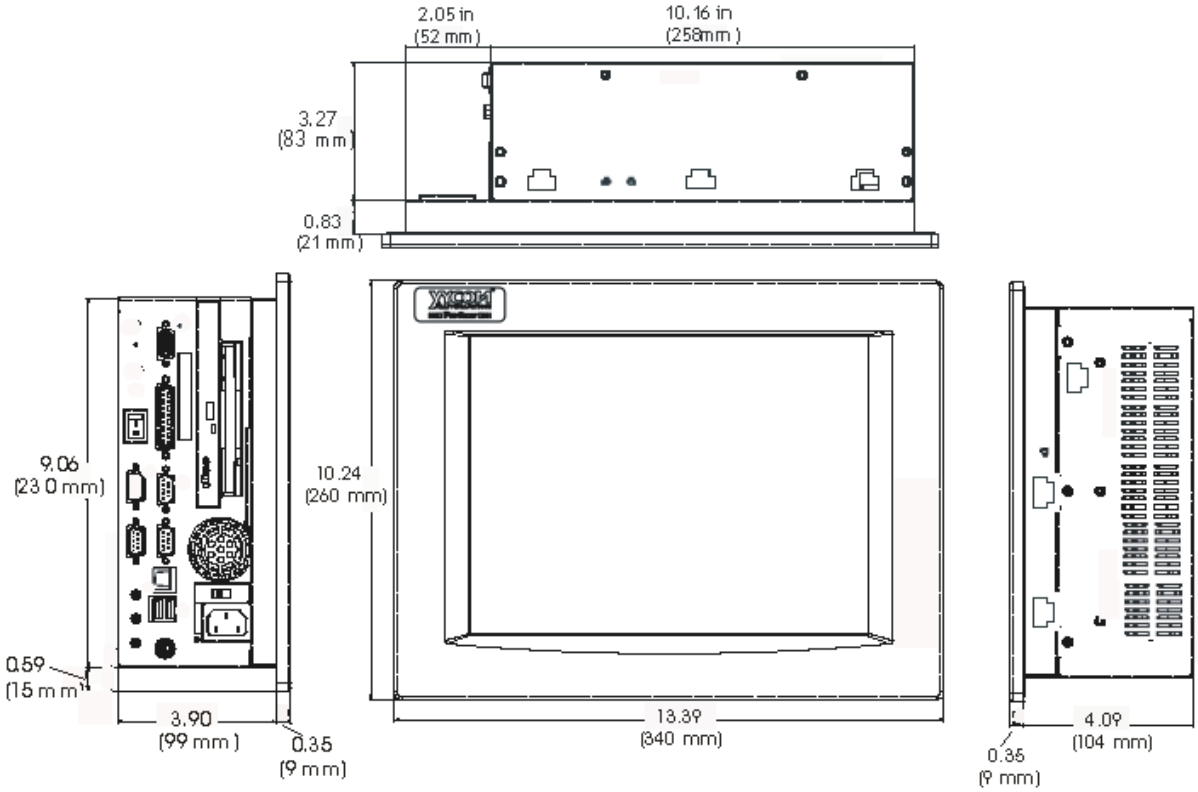


Figure 2-1. Mounting Dimensions



Note: All dimensions in inches (mm)

Figure 2-2. Unit Dimensions

Power Management

The following paragraphs explain the system power, the power supply, and the effects of excessive heat, electrical noise, and line voltage variation of the 3112T R2 unit.

System Power

On the average, the temperature within the 3112T R2 is 7-10°C higher than that outside the enclosure. When the ambient (exterior) temperature reaches 42°C, the system's power supply will begin to deteriorate at a rate of 3.25 watts per increase of 1°C. The 3112T R2 is rated to work at temperatures up to 50°C.

It is always a good idea to use isolation transformers on the incoming AC power line to the 3112T R2. An isolation transformer is especially desirable in cases where heavy equipment is likely to introduce noise onto the AC line. The isolation transformer can also serve as a step-down transformer to reduce the incoming line voltage to a desired level. The transformer should have a sufficient power rating (units of volt-amperes) to supply the load adequately.

Proper grounding is essential to all safe electrical installations. Refer to the relevant Federal, State, Provincial, and local electric codes that provide data such as the size and types of conductors, color codes and connections necessary for safe grounding of electrical components. The code specifies that a grounding path must be permanent (no solder), continuous, and able to safely conduct the ground-fault current in the system with minimal impedance (minimum wire required is 18 AWG, 1 mm).

Observe the following practices:

- Separate ground wires (P.E. or Protective Earth) from power wires at the point of entry to the enclosure. To minimize the ground wire length within the enclosure, locate the ground reference point near the point of entry for the plant power supply.
- All electrical racks or chassis and machine elements should be Earth Grounded in installations where high levels of electrical noise are expected. Ground the chassis with a ground rod or attach to a nearby Earth structure such as a steel support beam. Each different apparatus should be connected to a single Earth Ground point in a "star" configuration with low impedance cable. Scrape away paint and other nonconductive material from the area where a chassis makes contact with the enclosure. In addition to the ground connection made through the mounting bolt or stud, use a one-inch metal braid or size #8 AWG wire to connect between each chassis and the enclosure at the mounting bolt or stud.

Excessive Heat

The 3112T R2 withstands operating temperatures from 0º to 50º C (32º to 122º F). To keep the temperature in range, the cooling air at the base of the system

must not exceed 50°C. Allocate proper spacing between internal components installed in the enclosure.

When the air temperature is higher than 50ºC in the enclosure use a fan or air conditioner.

Electrical Noise

Electrical noise is seldom responsible for damaging components, unless extremely high energy or high voltage levels are present. However, noise can cause temporary malfunctions that can result in hazardous machine operation in certain applications. Noise may be present only at certain times, may appear at widely spread intervals, or in some cases may exist continuously.

Noise commonly enters through input, output, and power supply lines and may also be coupled through the capacitance between these lines and noise signal carrier lines. This usually results from the presence of high voltage or long, close-spaced conductors. When control lines are closely spaced with lines carrying large currents, the coupling of magnetic fields can also occur. Use shielded cables to help minimize noise. Potential noise generators include switching components relays, solenoids, motors, and motor starters.

Refer to the relevant Federal, State, Provincial, and local electric codes that provide data such as the size and types of conductors, color codes and connections necessary for safe grounding of electrical components. It is recommended that the high voltage and low voltage cabling be separated and dressed apart. In particular, the AC cables and switch wiring should not be in the same conduit with all communication cables.

Line Voltage Variation

The unit's power supply is built to operate with output voltage range of 100-240 VAC with an AC power supply, and still allow the system to function within its operating margin. As long as the incoming voltage is adequate, the power supply provides all the logic voltages necessary to support the processor, memory, and I/O.

In cases in which the installation is subject to unusual AC line variations, use a constant voltage transformer to prevent the system from shutting down too often. However, a first step toward the solution of the line variations is to correct any possible feed problem in the distribution system. If this correction does not solve the problem, use a constant voltage transformer.

The constant voltage transformer stabilizes the input voltage to the 3112T R2 by compensating for voltage changes at the primary in order to maintain a steady voltage at the secondary. When using a constant voltage transformer, check that the power rating is sufficient to supply the 3112T R2.

Using a Touch Screen

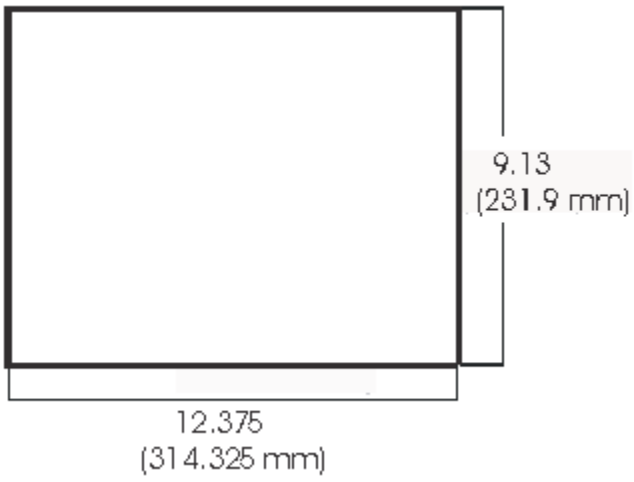
Pro-face/Xycom's touch screen complies with environmental specifications and maintains a NEMA 4 seal when panel mounted. The touch screen controller emulates a Microsoft PS/2 mouse. For more information about your touch screen, see *Touch Screen Specifications*.

Mounting Options

The 3112T R2 can be mounted to a panel, to the wall, or to an arm. The following sections describe each mounting option for the 3112T R2.

Panel Mounting

Cut a hole in the panel with the dimensions shown in Figure 2-3. Then, mount the 3112T R2 to the panel using twelve clips, as shown in the Figure 2-4.



All dimensions are in inches (mm)

Figure 2-3. Panel Cutout Dimensions

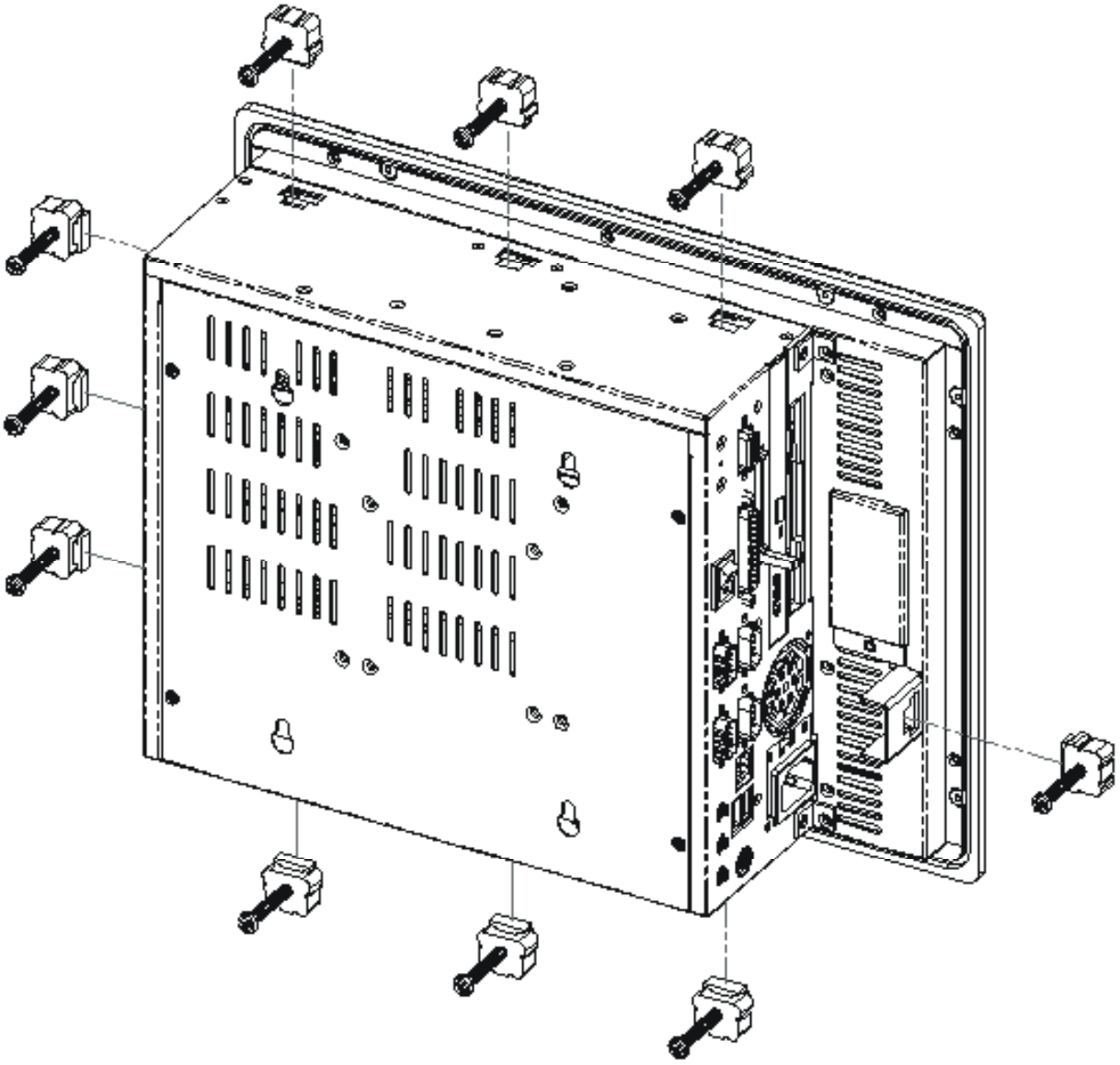


Figure 2-4. Panel Mounting

Wall Mounting

The 3112T R2 is suitable for wall mount using the included brackets and hardware. See Figure 2-5 for wall mounting dimensions. See Figure 2-6 for a wall-mounting diagram.

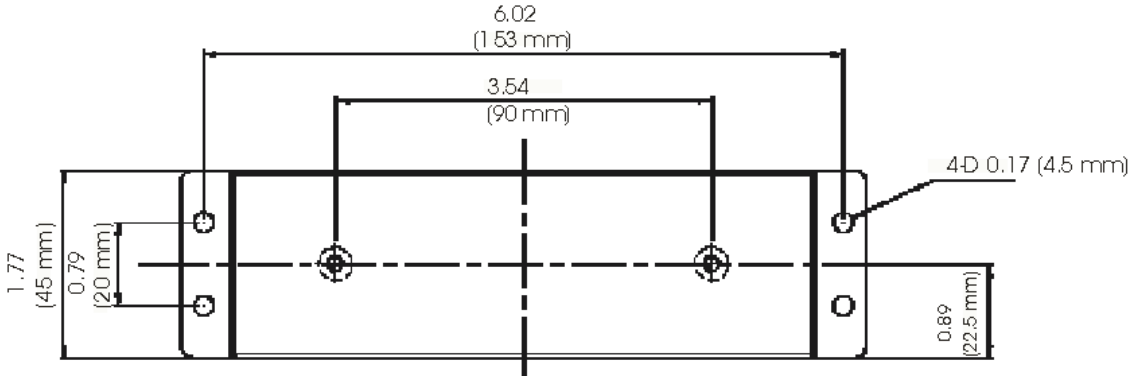


Figure 2-5. Wall mounting dimensions

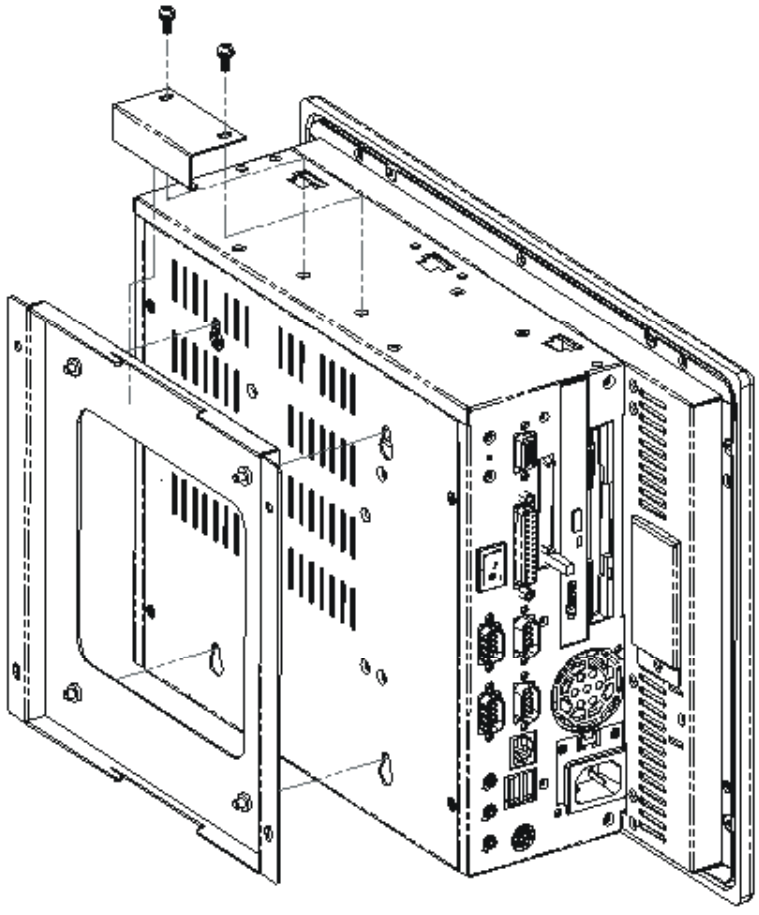
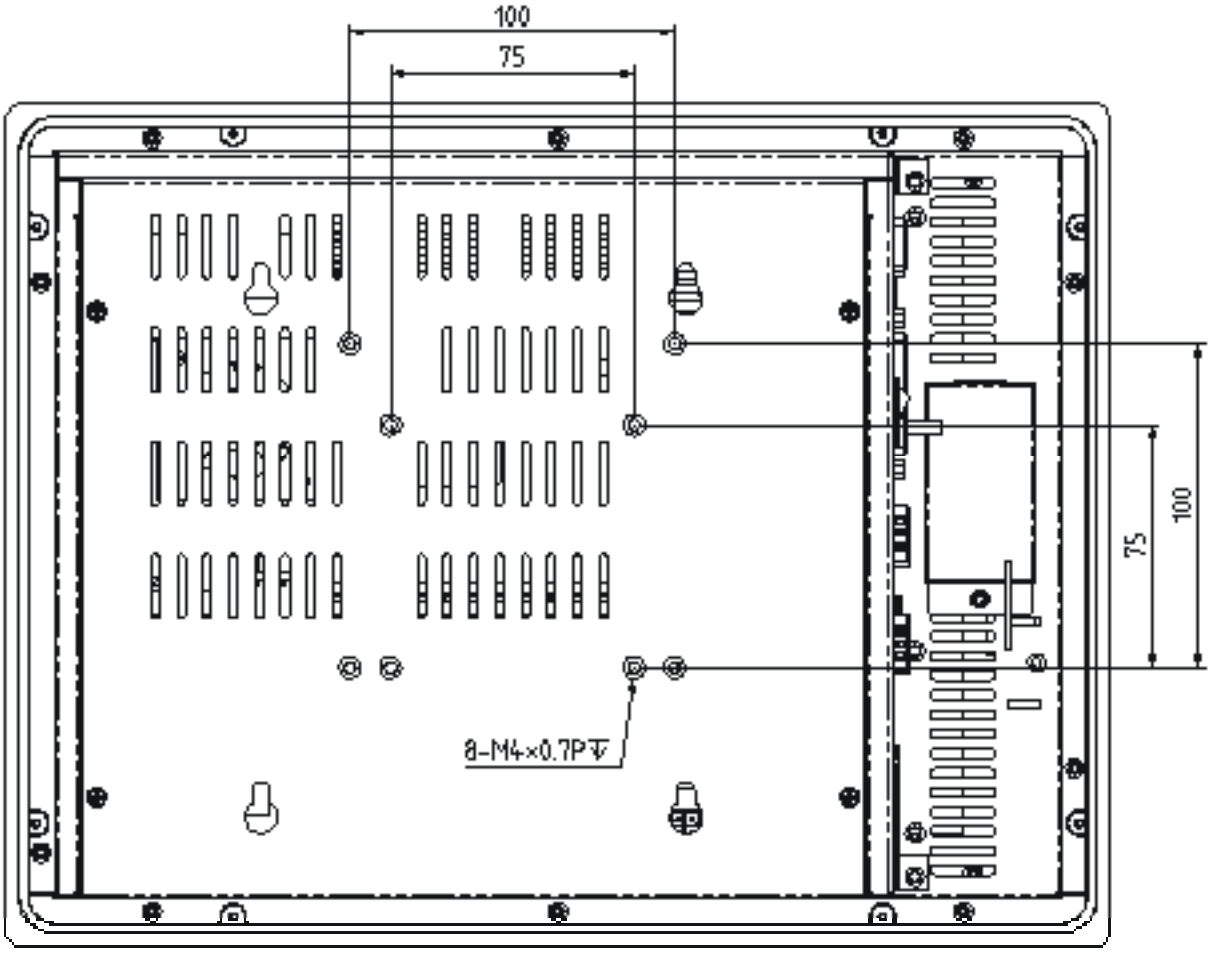


Figure 2-6. Wall Mounting Diagram

Arm Mounting

The 3112T R2 also accommodates 75/100 mm interface pads for VESA arm mounting. Figure 2-7 gives the dimensions for arm mounting.



All dimensions in mm

Figure 2-7. Arm Mounting Dimensions

Notes:

a. 100 mm= 3.94”

b. 75 mm = 2.95”

c. “8 – M4x0.7P” = 8 mounting holes, each threaded for M4 X 0.7P metric screws (where M = mm and P = pitch)

Chapter 3 POS-370R Control Board and Award BIOS Setup

POS-37OR Multimedia POS Control Board

Product Overview

The 3112T R2 is equipped with a POS-370R multimedia control board and 10/100Mbps embedded Ethernet. The board is equipped with either a 1.26 GHz Pentium® III (FC-PGA) processor or a 1.2 GHz Celeron.

The POS-370R has a built-in IDE Interface CompactFlashDisk™ port for embedded applications. The optional Compact Flash is 100% compatible with a hard disk drive, allowing users to run any DOS command without need of extra software utility programs.

The POS-370R board uses two advanced high-performance LPC Super-I/O chips, the ITE (IT8705F) and NS (NS87366). The on-chip UARTs are compatible with the NS16C550. The parallel port and FDD interface are compatible with IBM® PC/AT architecture.

POS-370R uses the advanced SiS, SiS630ST chipset, which is a 100% PCI-compatible chipset with PCI 2.1 standard. In addition, this board provides two 168-pin sockets for its on-board DRAM. The DIMM module is a 3.3V SDRAM and accommodates up to 512MB for each module.

The POS-370R board also includes a VGA chip (on-chip SiS300), which supports dual view function. Dual view function allows you to display simultaneously on two monitors when using Windows® 98/NT/2000.

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POS-370R CPU Board Layout

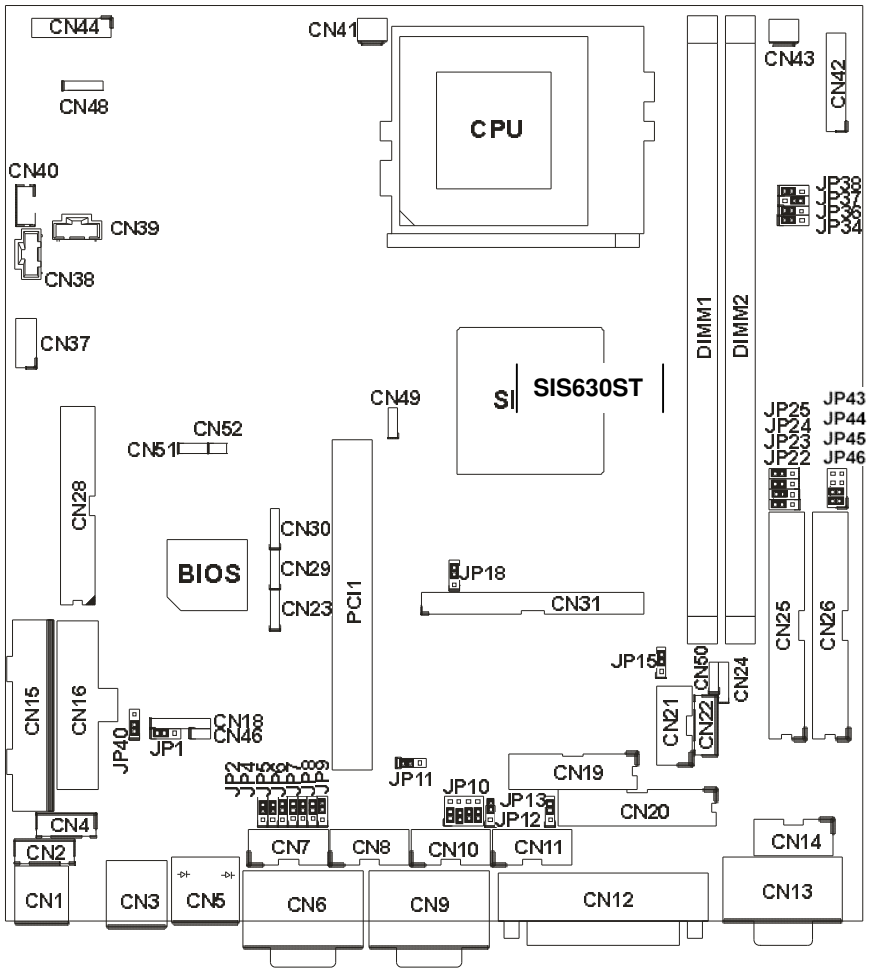


Figure 3-1. POS-370R Board Layout

Caution

Some components on POS-370R are very sensitive to static discharges. To protect it from unintended damage, be sure to follow these precautions:

1. Ground yourself to remove any static charge before touching your POS-370R. You can do it by using a grounded wrist strap at all times or by frequently touching any conducting materials connected to the ground.
2. Handle your POS-370R by its edges. Don't touch IC chips, leads or circuitry if not necessary.
3. Do not plug in any connectors or jumpers while the power is on.
4. Do not put your POS-370R on a flat surface unprotected, as the board has components on both sides.

Award BIOS Setup

This section describes the Award Setup program built into the ROM BIOS. The setup program allows users to modify the basic system configuration. This information is then stored in battery-backed CMOS so that it will be retained when the power is turned off.

Starting Setup

The Award BIOS is immediately activated when you power-on the computer. The BIOS reads the system information contained in the CMOS, and begins the process of checking and configuring the system. When the process is finished, the BIOS will seek an operating system on one of the disks and then launch, turning control over to the operating system.

While the BIOS is in control, the Setup program can be activated in one of two ways:

- 1. By pressing <Del> immediately after switching the system on, or
- 2. By pressing the <Del> key when the following message appears briefly at the bottom of the screen during the POST (Power-On Self-Test).

PRESS DEL TO ENTER SETUP

If the message disappears before you respond and you still wish to enter Setup, restart the system to try again. You can reset the system by either turning the machine OFF, and then ON, or by pressing the "RESET" button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will again be asked to...

PRESS F1 TO CONTINUE, DEL TO ENTER SETUP

Using Setup

To navigate setup, you use the arrow keys to highlight items, press Enter to select an item, use the PgUp and PgDn keys to change entries, press F1 for help, and press Esc to quit. The following table provides more detail about how to navigate in the Setup program using the keyboard.

Table 3-1. Using Setup

Up arrow	Move to previous item
Down arrow	Move to next item
Left arrow	Move to the item in the left hand column
Right arrow	Move to the item in the right hand column
Esc key	From the Main Menu: Quit and not save changes into CMOS From Status Page Setup Menu or the Option Page Setup Menu: Exit current page and return to Main Menu
PgUp key	Increase the numeric value or make changes
PgDn key	Decrease the numeric value or make changes
+ key	Increase the numeric value or make changes
- key	Decrease the numeric value or make changes
F1 key	General help; this function works only in the Status Page Setup Menu and Option Page Setup Menu
F4 key	Reserved
F5 key	Restore the previous CMOS value from CMOS; this fucntion works only in the Option Page Setup Menu
F6 key	Load the default CMOS value from BIOS default table; this function works only in the Option Page Setup Menu
F7 key	Load the optimized default CMOS value
F8 key	Reserved
F9 key	Reserved
F10 key	Save all the CMOS changes, only for Main Menu

Getting Help

Press F1 to open a small pop-up help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window press Esc or the F1 key again.

If, after making and saving system changes with Setup, you discover that your computer no longer is able to boot, the Award BIOS supports an override to the CMOS settings, which resets your system to its defaults.

The best advice is to only alter settings that you thoroughly understand. To this end, Pro-face strongly recommends that you avoid making any

changes to the chipset defaults. These defaults have been carefully chosen by both Award and your system manufacturer to provide the absolute maximum performance and reliability. Even a seemingly small change to the chipset setup has the potential for causing a potential system failure.

Main Menu

Once you enter the AwardBIOS™ CMOS Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from several setup functions and two exit choices. Use the arrow keys to select among the items and press Enter to accept a choice, entering the sub-menu. Figure 3-2 shows the Main Menu screen. The following sections describe the various sub-menus in depth.

Main Menu Features

Standard CMOS Feature Advanced BIOS Feature Advanced Chipset Feature Integrated Peripherals Power Management Setup PnP/PCI Configurations PC Health Status	Frequency/Voltage Control Load Fail-Safe Defaults Load Optimized Defaults Set Password Save & Exit Setup Exit Without Saving
Esc: Quit ↑ ↓ ← →: Select Item F10: Save & Exit Setup	
Time, Date, Hard Disk Type….	

Figure 3-2. Main Menu Features

Note

A brief description of each highlighted selection appears at the bottom of the screen.

Note

The main menu includes the main setup categories listed in *Table 3-2. Main Menu Selections*. Note that some systems may not include all entries.

Standard CMOS Setup

The items in the Standard CMOS Setup Menu are divided into 10 categories. Each category includes no setup item, one setup item, or more than one setup item. Use the arrow keys to highlight the item and then use the PgUp or PgDn keys to select the desired value for each item.

Standard CMOS Features

Date:	Mon, Feb 8 1999		Item Help
Time:	16:19:20		
			Menu Level ➢
➢ IDE Primary Master		2557 MB	
➢ IDE Primary Slave		None	Change the day, month, year and century
➢ IDE Secondary Master		None	
➢ IDE Secondary Slave		None	
Drive A	1.44M, 3.5 in.		
Drive B	None		
LCD&CRT	Both		
Panel Setting	Hardware		
Halt On	All Errors		
Based Memory	640K		
Extended Memory	64512K		
Total Memory	65536K		

↑↓ ← → Move	F1:General Help
Enter: Select	F5: Previous Values
+/-/PU/PD: Value	F6: Fail-safe defaults
ESC: Exit	F7:Optimized Defaults
	F10:Save

Figure 3-3. Standard CMOS Features

Standard CMOS Selections

The following table outlines the main menu selections.

Table 3-2. Main Menu Selections

Item	Options	Description
Date	MM DD YYYY	Set the system date.
Time	HH: MM: SS	Set the system time
IDE Primary Master	Options are in a submenu	Press Enter to access the sub menu of detailed options
IDE Primary Slave	Options are in a submenu	Press Enter to access the sub menu of detailed options
IDE Secondary Master	Options are in a submenu	Press Enter to access the sub menu of detailed options
IDE Secondary Master	Options are in its submenu	Press Enter to access the sub menu of detailed options
Drive A Drive B	None 360K, 5.25 in 1.2M, 5.25 in 720K, 3.5 in 1.44M, 3.5 in 2.88M, 3.5 in	Select the type of floppy disk drive installed in your system
LCD&CRT	Both	Select LCD & CRT Display
Panel	Hardware Setting 800x600 TFT1 800x600 TFT2 800 x 600 18bit TFT1 800 x 600 18bit TFT2 800 x 600 18bit TFT3 800 x 600 18bit TFT4 800 x 600 24bit TFT	Select the Panel Type that corresponds with your Pro-face/Xycom unit. Every type is predefined with a special timing. Note: Not all setting will work with your LCD. Try each setting applicable to your LCD to find the best one.
Halt On	All Errors No Errors All, but Keyboard All, but Diskette All, but Disk/Key	Select the situation in which you want the BIOS to stop the POST process and notify you

Table 3-2. Main Menu Selections

Item	Options	Description
Base Memory	N/A	Displays the amount of conventional memory detected during boot up
Extended Memory	N/A	Displays the amount of extended memory detected during boot up
Total Memory	N/A	Displays the total memory available in the system

IDE Adapters

The IDE adapters control the hard disk drive. Use the legend keys to navigate through this menu and to exit to the main menu. Use Table 3–3 to configure the hard disk.

IDE Primary Master

IDE HDD Auto-Detection	Press Enter	Item Help
IDE Primary Master	Auto	Menu Level ➢➢
Access Mode	Auto	
Capacity	xxx MB	To auto-detect the HDD's size, head... on this channel
Cylinder	xxxx	
Head	xx	
Precomp	x	
Landing Zone	xxxx	
Sector	xx	

↑↓ ← → Move	F1:General Help
Enter: Select	F5:Previous Values
+/-/PU/PD: Value	F6:Fail-safe defaults
ESC: Exit	F7:Optimized Defaults
	F10:Save

Figure 3-4. IDE Adapters Utility

Table 3-3. IDE Adapter Hard Disk Selections

Item	Options	Description
IDE HDD Auto-detection	Press Enter	Press Enter to auto-detect the HDD on this channel. If detection is successful, it fills the remaining fields on this menu.
IDE Primary Master	None Auto Manual	Selecting 'manual' lets you set the remaining fields on the IDE CMOS setup screen. Note: PRECOMP=65535 means NONE!
Capacity	Auto Display your disk drive size	Disk drive capacity (Approximated). Note that this size is usually slightly greater than the size of a formatted disk (as given by a disk checking program).
Access Mode	CHS LBA Large Auto	Choose the access mode for the hard disk
The following options are selectable only if the 'IDE Primary Master' item is set to 'Manual'		
Cylinder	Min = 0 Max = 65535	Set the number of cylinders for this hard disk.
Head	Min = 0 Max = 255	Set the number of read/write heads for this hard disk
Precomp	Min = 0 Max = 65535	**** Warning: Setting a value of 65535 means no hard disk. If you set the valut to 65535, the precomp option wll be disabled (i.e., it will not detect a hard drive).
Landing zone	Min = 0 Max = 65535	**** Warning: Setting a value of 65535 means no hard disk. If you set the valut to 65535, the landing zone option wll be disabled.
Sector	Min = 0 Max = 255	Number of sectors per track

Advanced BIOS Features

This section allows you to configure your system for basic operation. You have the opportunity to select the system's default speed, boot-up sequence, keyboard operation, shadowing and security.

Advanced BIOS Features		
Virus Warning	Enabled	Item Help
CPU Internal Cache	Enabled	
External Cache	Enabled	
CPU L2 Cache ECC Checking	Enabled	
Processor Number Feature	Enabled	Menu Level ➢
Quick Power On Self Test	Disabled	
First Boot device	Floppy	
Second Boot device	HDD-0	
Third Boot device	Floppy	
Boot other device	Disabled	
Swap Floppy Drive	Disabled	
Boot Up Floppy Seek	Disabled	
Boot Up NumLock Status	Off	
Gate A20 Option	Normal	
Typematic Rate Setting	Disabled	
Typematic Rate (Chars/Sec)	6	
Typematic Delay (Msec)	250	
Security Option	Setup	
OS Select For DRAM > 64MB	Non-OS2	
Report NO FDD For Win 95	No	
Video BIOS Shadow	Enabled	
Small Logo (EPA) Show	Disabled	
↑↓ ← → Move F1:General Help Enter: Select F5:Previous Values +/-/PU/PD: Value F6:Fail-safe defaults ESC: Exit F7:Optimized Defaults F10:Save		

Figure 3-5. Advance BIOS Utility

Virus Warning

This allows you to choose the VIRUS Warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempts to write data into this area, the BIOS will show a warning message on screen and the alarm will beep.

Enabled	Activates automatically when the system boots up causing a warning message to appear when anything attempts to access the boot sector or hard disk partition table.
Disabled	No warning message will appear when any device attempts to access the boot sector or hard disk partition table.

CPU Internal Cache/External Cache

These two categories speed up memory access. However, it depends on CPU/chipset design.

Enabled	Enable cache
Disabled	Disable cache

CPU L2 Cache ECC Checking

This item allows you to enable or disable CPU L2 Cache ECC checking.

The choices: Enabled, Disabled.

Processor Number Feature

Some of the new generations of socket-370R processors are installed with a unique processor number. This number may be used for verification in Internet transactions and e-commerce. If you prefer not to use or distribute the unique processor number, use this item to suppress the processor number.

The choices: Enable, Disable.

Quick Power-On Self-Test

The Quick Power-On Self-Test (POST) allows you to set speed of the POST after the computer is powered-up. If Enable is selected, the BIOS will shorten or skip some check items during POST. If Disabled is selected, the BIOS will skip the memory check.

Enabled	Enable quick POST
Disabled	Normal POST

First/Second/Third/Other Boot Device

The BIOS attempts to load the operating system from the devices listed below in the sequence indicated. You may also disable this option.

The choices: Floppy, LS/ZIP, HDD, SCSI, CDROM, Disabled

Note

If "other" boot option is enabled, the unit will boot from the CompactFlash (if the CF card has boot files loaded).

Swap Floppy Drive

If the system has two floppy drives, you can swap the logical drive name assignments.

The choices: Enabled, Disabled.

Boot Up Floppy Seek

During boot-up, the system looks for floppy disk drives. Selecting disable speeds the boot-up.

The choices: Enabled, Disabled.

Boot Up NumLock Status

You can select a power-on state for NumLock.

The choices: Enabled, Disabled.

Gate A20 Option

You can select if the chipset or the keyboard controller should control GateA20.

Normal	A pin in the keyboard controller controls GateA20
Fast	Lets chipset control GateA20

Typematic Rate Setting

Keystrokes repeat at a rate determined by the keyboard controller. When enabled, the typematic rate and typematic delay can be selected.

The choices: Enabled, Disabled.

Typematic Rate (Chars/Sec)

The Typematic rate sets the number of times a second keystroke is repeated per second when the key is held down.

The choices: 6, 8, 10, 12, 15, 20, 24, 30.

Typematic Delay (Msec)

The Typematic delay sets the delay time in milliseconds after the key is held down before it begins to repeat the keystroke.

The choices: 250, 500, 750, 1000.

Security Option

You can select whether the password is required every time the system boots, or only when you enter 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.

Note

To disable security, select PASSWORD SETTING at the Main Menu. You will be asked to enter password. Do not type anything; just press Enter, and it will disable security. Once the security is disabled, the system will boot and you can enter Setup freely.

OS Select For DRAM > 64MB

Select the operating system that is running with greater than 64MB of RAM on the system.

The choices: Non-OS2, OS2.

Report No FDD For Win 95

This option allows you to select whether or not to report FDD for Win 95.

The choices: Yes, No.

Video BIOS Shadow

This item allows the video BIOS to be copied to system memory for faster performance.

The choices: Enable, Disable.

Small Logo (EPA) Show

This item shows the EPA logo on the screen.

Advanced Chipset Features

Advanced Chipset Features		
Advanced DRAM Control 1	Press Enter	Item Help
Advanced DRAM Control 2	Press Enter	
System BIOS Cacheable	Disabled	Menu Level ➢
Video BIOS Cacheable	Disabled	
AGP Aperture Size	64MB	
Graphic Window WR Combin	Enabled	
Concurrent function (MEM)	Enabled	Menu Level ➢
Concurrent function (PCI)	Enabled	
CPU Pipeline Control	Enabled	
PCI Delay Transaction	Enabled	
Power-supply Type	AT	
Memory Parity Check	Enabled	
↑↓ ← → Move		F1:General Help
Enter: Select		F5:Previous Values
+/-/PU/PD: Value		F6:Fail-safe defaults
ESC: Exit		F7:Optimized Defaults
		F10: Save

Figure 3-6. CMOS Setup Utility

This section allows you to configure the system based on the specific features of the installed 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.

Caution

It must be stated that these items should never need to be altered. The default settings have been chosen because they provide the best operating conditions for your system.

Advanced DRAM Control 1/2 Settings

The first chipset settings deal with CPU access to Dynamic Random Access Memory (DRAM). The default timings have been carefully chosen, and should only be altered if data is being lost. Such a scenario might well occur if your system had mixed speed DRAM chips

installed so that greater delays may be required to preserve the integrity of the data held in the slower memory chips.

Table 3-4. Advanced DRAM Control ½ Settings

Setting	Description
Auto Configuration	This item will automatically configure the chipset timing. Select 'Manual' to enter a specific timing value. The choices: Manual, Auto, 100MHZ, 133MHZ.
SDRAM RAS Active Time	This item defines SDRAM ACT to PRE command period. The choices: 6T, 7T, 5T, 4T.
SDRAM RAS Pre-charge Time	This item defines SDRAM PRE to ACT command period. The choices: 3T, 2T, 4T, Reserved.
RAS to CAS Delay	This item defines SDRAM ACT to Read/Write command period. The choices: 3T, 2T, 4T, Reserved.
DRAM Background Command	This item is lead-off time control for the DRAM background command. When 'Delay 1T' is selected, background commands are issued one clock pulse after the memory address (MA) command has been issued. When 'Normal' is selected, background commands and MA are issued at the same time. The choices: Delay 1T, Normal.
LD-Off DRAM RD/WR Cycles	The item is lead-off time control for DRAM Read/Write Cycles. When 'Delay 1T' is selected, the memory read/write command is issued one clock pulse after the memory address (MA) is issued. When 'Normal' is selected, the read/write command and MA are issued at the same time. The choices: Delay 1T, Normal.
Write Recovery Time	This item defines the data-in to PRE command period. The choices: 1T, 2T
VCM REF To ACT/REF Delay	This item defines VCM REF to REF/ACT command period. The choices: 10T, 9T.
VCM ACT To ACT/REF Delay	This item defines VCM ACT to ACT/REF command period. The choices: 10T, 9T, 8T, Reserved.

Table 3-4. Advanced DRAM Control ½ Settings

Setting	Description
Early CKE Delay 1T Cntrl	When this item is enabled, CKE is driven out from flip-flop. This function is used when system operates under low frequency and CKE delay adjustment method defined in the 'Early CKE Delay Adjust' setting, which cannot meet the setup time and hold time requirements. The choices: Normal, Delay 1T.
Early CKE Delay Adjust	This item controls the timing for CKE. Various delay options are provided to ensure that CKE can meet the SDRAM setup time and hold time specification when CKE is driven out. The choices: 1ns, 2ns, 3ns, 4ns, 5ns, 6ns, 7ns, 8ns.
Mem Command Output Time	This item is to control the timing to drive memory command onto memory bus. The choices: Normal, Delay 1T.
SDRAM/VCM CAS Latency	When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing. The choices: 2, 3, SPD
SDRCLK Control	This item controls the phase of SDRCLK that lags behind SDCLK. The choices: Enabled, Disabled.
SDWCLK Control CS#/CKE	This item controls the phase of SDWCLK used for chip set select signals pin that lags behind SDCLK. The choices: Enabled, Disabled.
SDWCLK Control MA/SRAS	This item controls the phase of SDWCLK used for MA/SRAS signals that lags behind SDCLK. The choices: +5.0ns~-2.5ns (Default 0.0ns)
SDWCLK Control DQM/MD	This item controls the phase of SDWCLK used for DQM/MD signals that lags behind SDCLK. The choices: +5.0ns~-2.5ns (Default 0.0ns)
EGMRCLK Control	This item controls the phase of EGMRCLK that lags behind SDCLK. The choices: -1.0ns~+6.5ns (Default 0.0ns)
EGMWCLK Control	This item controls the phase of EGMWCLK that lags behind SDCLK. The choices: +5.0ns~-2.5ns (Default 0.0ns)

System BIOS Cacheable

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

The choices: Enabled, Disabled.

Video RAM Cacheable

Selecting 'Enabled' allows caching of the video RAM, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

The choices: Enabled, Disabled.

AGP Aperture Size

This item allows you to select the size of Accelerated Graphics Port (AGP) aperture. The aperture is a portion of the PCI memory address range dedicated for graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation.

The choices: 4M, 8M, 16M, 32M, 64M, 128M, 256M.

Graphic Window WR Combin

Use this item to enable or disable CPU support for WR Combin.

The choices: Enable, Disable

Concurrent Function (MEM)

This item allows you to set the CPU & PCI Masters Concurrently Access Memory Function. Selecting 'Enabled' allows CPU access memory cycles and PCI masters access memory cycles to be concurrently issued onto host bus and PCI bus, respectively. The memory access cycles will be rearranged by SIS630 to write to memory sequentially.

The choices: Enabled, Disabled

Concurrent Function (PCI)

This item allows you to set the CPU & PCI Masters Concurrently Access PCI Bus Function. Selecting 'Enabled' allows CPU access PCI bus cycle and PCI masters access memory cycles to be concurrently issued onto host bus and PCI bus, respectively.

The choices: Enabled, Disabled.

CPU Pipeline Control

When this item is enabled, only one pending cycle is allowed at a time. When this item is disabled, there might be more than two pending cycles at one time depending on the CPU behavior.

The choices: Enabled, Disabled.

PCI Delay Transaction

If the chipset has an embedded 32-bit write buffer to support delay transaction cycles, you can enable this item to provide compliance with PCI Ver.2.1 specifications. We recommend that you leave this item at the default value.

The choices: Enable, Disable.

Power-Supply Type

This item controls the power supply type as either AT or ATX.

The choices: AT, ATX.

Memory Parity Check

Enable this item to test the boot-up memory.

The choices: Enabled, Disabled.

Integrated Peripherals

Integrated Peripherals

		Item Help
SIS 630 OnChip IDE Device	Press Enter	_____
SIS 630 OnChip PCI Device	Press Enter	_____
Onboard Super I/O Device	Press Enter	Menu Level ➢
USB Controller	Enabled	If your IDE hard drive supports block mode select Enabled for automatic detection of the optimal number of block read/write per sector the drive can support
USB Keyboard Support	Enabled	
IDE HDD Block Mode	Enabled	
Init Display First	PCI Slot	
Fast Write Capability	Enabled	
AGP 4X Capability	Enabled	
AGP Auto Calibration	Enabled	
System Share Memory	8MB	

↑↓←→ Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6:Fail-safe defaults F7:Optimized Defaults

Figure 3-7. CMOS Setup Utility

SiS630 OnChip IDE Device

Internal PCI/IDE

This chipset contains an internal PCI IDE interface with support for two IDE channels.

The choices: Disabled, Primary, Secondary, Both.

IDE Primary Master/Slave PIO

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

The choices: Auto, Mode 0, Mode 1, Mode 2, Mode 3, and Mode 4.

Primary Master/Slave UltraDMA

UDMA (Ultra DMA) is a DMA data transfer protocol that utilizes ATA commands and the ATA bus to allow DMA commands to transfer data at a maximum burst rate of 33 MB/s. When you select Auto in the four IDE UDMA fields (for each of up to four IDE devices that the internal PCI IDE interface supports), the system automatically determines the optimal data transfer rate for each IDE device.

The choices: Auto, Disabled.

IDE Burst Mode

Selecting 'Enabled' reduces latency between each drive read/write cycle, but may cause instability in IDE subsystems that cannot support such fast performance. If you are getting disk drive errors, try setting this value to 'Disabled'. This field does not appear when the Internal PCI/IDE field (see above) is 'Disabled'.

The choices: Enabled, Disabled.

SiS630 OnChip PCI Device

SiS-7018 AC97 AUDIO

Select 'Enabled' to support AC97 Audio.

The choices: Enabled, Disabled.

Onboard Super I/O Device

Onboard FDC Controller

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

The choices: Enabled, Disabled.

Onboard Serial Port 1/ Port 2/Port 3/Port 4

Select an address and corresponding interrupt for the first and second serial ports.

The choices: 3F8/IRQ4, 2E8/IRQ3, 3E8/IRQ4, 2F8/IRQ3, Disabled, Auto.

UART Mode Select

This item allows you to select the UART mode.

The choices: Normal, IrDA, ASKIR, SCR.

UR2 Duplex Mode

This item allows you to select the IR duplex function. The UR2 Duplex Mode is not available when the UART Mode is set to Normal.

The choices: Half, Full.

Onboard Parallel Port 1

This item allows you to determine which I/O address to use to access the onboard parallel port controller.

The choices: 3BC/IRQ7, 378/IRQ7, 278/IRQ5, Disabled.

Parallel Port Mode

Select an operating mode for the onboard parallel (printer) port. Select 'Normal', 'Compatible', or 'SPP' unless you are certain your hardware and software both support one of the other available modes.

The choices: SPP, EPP, ECP, ECP+EPP, normal, compatible.

ECP Mode Use DMA

Select a DMA channel for the parallel port for use during ECP mode.

The choices: 3, 1.

USB Controller

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

Choices are: Enabled, Disabled.

USB Keyboard Support

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

Choices are: Enabled, Disabled.

IDE HDD Block Mode

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

The choices: Enabled, Disabled.

Init Display First

This item allows you to choose which to activate, the PCI Slot bus or the AGP bus.

The choices: PCI Slot, AGP.

System Share Memory Size

This item defines the System Share Memory Size for video.

The choices: 2MB, 4MB, 16MB, 32MB, 64MB, 2+2MB, 4+4MB, 8+8MB,16+16MB,32+32MB.

AGP Auto Calibration

This item allows you to enable or disable the AGP auto calibration function.

The choices: Enabled, disabled.

Power Management Setup

The Power Management Setup screen allows you to configure your system in the most effective way, so as to save energy while operating under normal circumstances.

Power Management Setup

ACPI function	Enabled	Item Help
ACPI Suspend Type	S3 (STR)	_____
Video Off Option	Susp,Stby -> Off	_____ Menu Level ➢
Video Off Method	V/H SYNC_Blank	
Switch Function	Break/Wake	
Hot Key Function As	Power Off	
HDD Off After	Disable	
Power Button Override	Instant Off	
PM Wake Up Events	Press Enter	

↑↓←→Move Enter: Select +/-/PU/PD: Value F10:Save ESC: Exit F1:General Help

F5: Previous Values F6:Fail-safe defaults F7:Optimized Defaults

Figure 3-8. CMOS Setup Utility

ACPI Function

This item allows you to enable or disable the Advanced Configuration and Power Management (ACPI) function.

The choices: Enabled, Disabled.

ACPI Suspend Type

This item allows you to set the ACPI Suspend Type to Power On Suspend (S1).

The choice: S1 (POS).

Video Off Option

When enabled, this feature allows the VGA adapter to operate in a power saving mode.

Always on	Monitor will remain on during power saving modes.
Suspend → Off	Monitor blanked when the systems enters the Suspend mode.
Susp.Stby → Off	Monitor blanked when the system enters either Suspend or Standby modes
All Modes	Monitor blanked when the system enters any power saving mode.

Video Off Method

This determines the manner in which the monitor is blanked.

V/H 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	Select this option if your monitor supports the Display Power Management Signaling (DPMS) standard of the Video Electronics Standards to select video power management values.

Switch Function

You can choose whether or not to permit your system to enter complete Suspend mode. Suspend mode offers greater power savings, with a correspondingly longer awakening period.

The choices: Break/Wake, Disabled.

Hot Key Function As

Select 'Enabled' if your system has a hot key for soft power off.

The choices: Enabled, Disabled.

HDD Off After

By default, this item is disabled, meaning that no matter the mode the rest of the system, the hard drive will remain ready. Otherwise, you have a range of choices from 1 to 15 minutes or 'Suspend'. This means that you can elect to have your hard disk drive be turned off after a selected number of minutes, or when the rest of the system goes into a Suspend mode.

The choices: Disabled, Suspend, X minutes (where X = 1 – 15)

Power Button Over Ride

Pressing the power button for more than four seconds forces the system to enter the Soft-Off state when the system has "hung."

The choices: Soft-Off, Delay 4 Sec.

PM Wake Up Events

IRQ [3-7,9-15], NMI

The following is a list of IRQ's (Interrupt Requests), which can be exempted much as the COM ports and LPT ports above can. When an I/O device wants to gain the attention of the operating system, it signals this by causing an IRQ to occur. When the operating system is ready to respond to the request, it interrupts itself and performs the service.

As above, the choices are On and Off. When set to 'On', activity will neither prevent the system from going into a power management mode nor awaken it.

The choices: IRQ [3-7, 9-15], NMI

IRQ 8 Break Suspend: You can 'Enable' or 'Disable' monitoring of IRQ8 (the Real Time Clock) so it does not awaken the system from Suspend mode.

Ring/PCIPME Power Up Control

When you select 'Enabled', a signal from ring/PCIPME returns the system to Full On state.

The choices: Enabled, Disabled.

PnP/PCI Configuration Setup

This section describes configuring the PCI bus system. PCI, or Personal Computer Interconnect, is a system that allows I/O devices to operate at speeds nearing the speed the CPU itself uses when communicating with its own special components.

Caution

This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.

PnP/PCI Configurations

		Item Help
Reset Configuration Data	Disabled	----------
		Menu Level ➢
Resources Controlled By	Auto (ESCD)	
➢ IRQ Resources	Press Enter	Default is 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 OS cannot boot
PCI/VGA Palette Snoop	Disabled	
↑↓←→Move Enter: Select +/-/PU/PD: Value F10:Save ESC: Exit F1:General Help		
F5: Previous Values F6: Fail-safe defaults F7:Optimized Defaults		

Figure 3-9. CMOS Setup Utility

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.

The choices: Enabled, Disabled.

Resource 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®2000 or XP. If you set this field to "manual" choose specific resources by going into each of the sub menu that follows this field (a sub menu is preceded by a "➢").

The choices: Auto (ESCD), Manual.

IRQ Resources

When resources are controlled manually, assign each system interrupt a type, depending on the type of device using the interrupt.

IRQ3/4/5/7/9/10/11/12/14/15 assigned to

This item allows you to determine the IRQ assigned to the ISA bus and is not available to any PCI slot. Legacy ISA for devices compliant with the original PC AT bus specification, PCI/ISA PnP for devices

compliant with the Plug and Play standard whether designed for PCI or ISA bus architecture.

The choices: Legacy ISA and PCI/ISA PnP.

PCI/VGA Palette Snoop

Leave this field set to 'Disabled'.

Choices are Enabled, Disabled.

PC Health Status

This section helps you to get more information about your system, including CPU temperature, fan speed and voltages. It is recommended that you contact your motherboard supplier to get the proper setting for the CPU temperature.

PC Health Status

V Core	x.x V	Item Help
2.5 V	x.x V	----------
3.3 V	x.x V	Menu Level ➢
+5 V	x.x V	
+12 V	x.x V	
3 USB	x.x V	
Temperature1	- 55°	
Temperature2	40°	
FAN 1 Speed	4153 RPM	
FAN 2 Speed	0 RPM	

↑↓←→ Move Enter: Select +/-/PU/PD: Value F10: Save
ESC: Exit F1:General Help

F5: Previous Values F6: Fail-safe defaults F7:Optimized Defaults

Figure 3-10. CMOS Setup Utility

Voltage 0/1/2/3/4/5/

The chipset reserves 6 inputs for monitoring working voltages from various sources in the system. These voltages may include CPU voltage, power pins of the ATX power (+/-12V, +/-5V, 3.3V...) and others.

Temperature 1/2

The chipset reserves two inputs for monitoring temperatures that are (typically) the CPU and system temperatures.

Fan 1/2 Speed

The chipset reserves two inputs for monitoring fan speeds in the system. Usually, one fan is applied to cool down the CPU and the other one is applied to a different purpose.

Frequency/Voltage Control

Frequency/Voltage Control

Auto Detect DIMM/PCI Clk	Disabled	Item Help
Spread Spectrum	Disabled	----------
CPU HOST/SDRAM/PCI Clock	Default	Menu Level ➢
CPU Clock Ratio	By H/W	

↑↓←→ Move Enter: Select +/-/PU/PD: Value F10:Save ESC: Exit
F1:General Help F5:Previous Values F6:Fail-safe defaults
F7:Optimized Defaults

Figure 3-11. CMOS Setup Utility

Auto Detect DIMM/PCI CLK

This item allows you to enable or disable the auto detect DIMM/PCI Clock feature.

The choices: Enabled, Disabled.

Spread Spectrum

This item allows you to enable or disable the spread spectrum module.

The choices: Enabled, Disabled.

CPU Host/DRAM/PCI Clock

This item allows you to select CPU/PCI frequency.

The choices: Default, 66/66/33MHz, 133/133/33MHz, 100/100/33MHz.

CPU Clock Ratio

This item allows you to select CPU clock ratio.

The choices: By H/W 3, 3.5, 4, 4.5, 5, 5.5, 6, 6.5, 7, 7.5, 8.

Defaults Menu

Selecting "Defaults" from the main menu shows you two options: Load Fail-Safe Defaults, and Load Optimized Defaults. The options are described below.

Load Fail-Safe Defaults

When you press Enter on this item, you get a confirmation dialog box with a message similar to:

Load Fail-Safe Defaults (Y/N) ? N

Pressing 'Y' loads the BIOS default values for the most stable, minimal-performance system operations.

Load Optimized Defaults

When you press Enter on this item, you get a confirmation dialog box with a message similar to:

Load Optimized Defaults (Y/N) ? N

Pressing 'Y' loads the default values that are factory settings for optimal performance system operations.

Supervisor/User Password Setting

You can set either a supervisor or user password, or both. These settings are explained below:

USER PASSWORD: Allows a user to enter and change the options of the setup menus.

SUPERVISOR PASSWORD: User can enter but does not have the right to change the options of the setup menus. When you select this function, you will be prompted to create a password.

ENTER PASSWORD: Type the password, up to eight characters in length, and press Enter. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press Enter. You may also press Esc to abort the selection and not enter a password.

To disable a password, just press Enter when you are prompted to enter the password. A message will confirm the password will be disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

PASSWORD DISABLED: When a password has been enabled, it will be required every time you enter Setup. This prevents an unauthorized person from changing your system configuration.

When a password is enabled, you may require the BIOS to request a password every time your system is rebooted. This would prevent unauthorized use of your computer.

You determine when the password is required within the BIOS Features Setup Menu under Security Option.

Note

If the security option is set to password will be required both at boot and when entering to Setup. If the security option is set to Setup, prompting only occurs when a user is trying to enter Setup.

Exit Selecting

Save & Exit Setup

Pressing Enter on this item asks for confirmation:

Save to CMOS and EXIT (Y/N)? Y

Pressing 'Y' stores the selections made in the menus in CMOS – a special section of memory that stays on after you turn your system off. The next time you boot your computer, the BIOS configures your system according to the Setup selections stored in CMOS. After saving the values, the system is restarted again.

Exit Without Saving

Pressing Enter on this item asks for confirmation:

Quit without saving (Y/N)? Y

This allows you to exit Setup without storing in CMOS any change. The previous selections remain in effect. This exits the Setup utility and restarts your computer.

Chapter 4 – Maintenance

The 3112T R2 is designed to withstand the harsh environment of the factory floor. Routine maintenance can help keep your system in good operating condition. Preventive maintenance consists of several basic procedures that will greatly reduce the chance of system malfunction. Schedule preventive maintenance along with the regular equipment maintenance to minimize down time.

General Preventive Maintenance

Here are some preventive measures you can take:

- Clean the monitor screen using a non-residue cleaner such as a mild window cleaning solution or CRT screen cleaner. Take care not to scratch the screen face.
- *Remove dust and dirt from PC components*. If dust builds up on heat sinks and circuitry, an obstruction of heat dissipation could cause the unit to malfunction. If dust reaches the electronic boards, a short circuit could occur.
- *Check the connections to I/O modules,* especially in environments where vibration could loosen the connections. Check to see that all plugs, sockets, terminal strips, and module connections are solid.
- *Remove unnecessary articles, such as drawings or manuals, from the unit.* They can obstruct airflow and create hot spots, which cause the system to malfunction.
- *Do not place noise-generating equipment near the 3112T R2 unit.*

Fuse Replacement

The 3112T R2 unit has no accessible fuse. Return the unit to the factory for fuse replacement.

Recommended Hard Drive Preventive Maintenance

Pro-face has recognized that hard drive failures may begin to increase an average of four to five years into the life of most computers used in industrial applications. Therefore, it is our recommendation as a preventive maintenance measure that all hard drives used in these types of applications be replaced before the four to five year time period to avoid any down time related to hard drive failure.

Pro-face believes it is important to keep our customers informed, to offer alternative solutions, and to provide all of our customers with the excellent service they deserve.

Any questions regarding this issue may be directed to our support center at *support@profaceamerica.com*.

Note

Pro-face recommends frequent backups of your hard drive, especially before beginning preventive maintenance procedures.

Product Repair Program

Pro-face's Product Repair & Customization Department (PR&C) restores equipment to normal operating condition and implements engineering changes that enhance operating specifications. Pro-face tests products returned to Pro-face with the standard Pro-face/Xycom test diagnostics.

Note

Before sending the unit in for repair, back up the hard drive in case Pro-face needs to restore the hard drive to the factory default O/S load.

Follow the steps below to prepare the unit for shipment:

1. Obtain an RMA number for your unit by calling your nearest Pro-face Repair Department or Xycom Automation, LLC. at 734-429-4971.
2. Please have the following information:
    - Company name, shipping and billing address
    - Type of service desired: product repair or product exchange
    - Product model number, part number, quantity, serial number(s), and warranty status
    - Failure mode and failure systems
    - Purchase order number or repair order number
3. Make sure the front panel assembly is properly attached to the unit.
4. Attach failure information to the unit to speed processing.
5. Place the unit securely in its original packaging or an equivalent heavy-duty box.
6. Mark the RMA number on your purchase order and on the outside of the box.
7. Send the unit to the address given when you receive your RMA number.

Chapter 5 – Troubleshooting

Diagnostic Testing

If you suspect that you are having hardware problems with your 3112T R2, you can use the Pro-face diagnostic utility to check out the PC's various ports and subsystems. The diagnostic utility is on the Documentation and Support Library CD included with your unit.

Create Diagnostic Disk

The first task is to create a diagnostic diskette. The following steps can be done on any computer with a CD-ROM drive and a floppy drive:

1. Create a DOS-bootable diskette.
2. Create a temporary folder on the computer hard drive.
3. There is a self-extracting zip file on the Documentation and Support Library CD located in:

   DRIVERS\utility\xydiag19.zip

   Run that program and extract the files to the temporary folder you just created.
4. Copy the extracted files onto the DOS-bootable diskette. This diskette will be inserted directly into the 3112T R2 unit's floppy drive.

Prepare the System

Before starting the system tests, perform the following steps:

1. Place the CPU board jumpers and switches to the factory set positions. Refer to Chapter 3 for these settings.
2. Plug the female end of the AC power cable into the side of the unit and the male end into a properly grounded outlet.
3. Connect the serial loopback connector(s) and the printer cable to the appropriate connectors, and connect a PC/AT or PS/2 keyboard. Figure 5-1 illustrates the wiring necessary for the loopback connection.
4. Default the CMOS setup to the factory settings.

After completing all of the preceding steps, the 3112T R2 is ready for diagnostic testing. Follow the directions in the

Running the Tests section of this chapter.

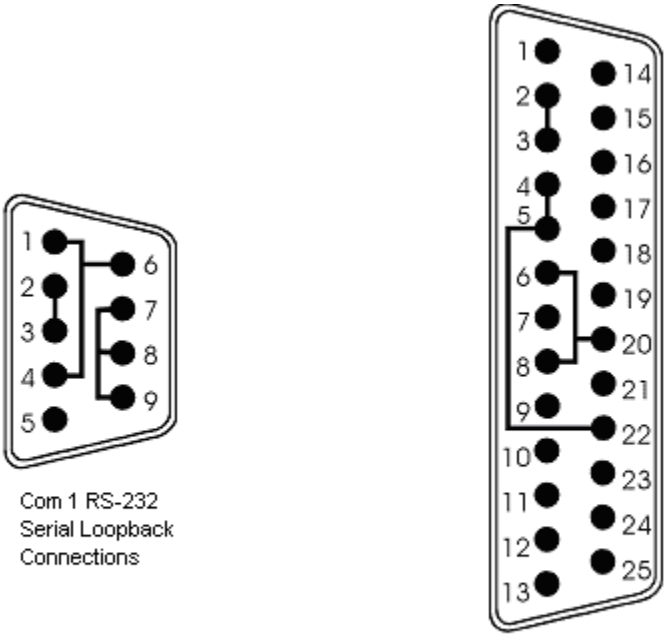


Figure 5-1. Serial Loopback Connections

Running the Tests

To run the test, insert the diagnostics disk into drive A. Turn on the computer (the diagnostics program will boot-up). Figure 5–2 shows the Main Menu.

```
        Copyright xxxx, <Company Name>, Inc. All rights reserved.
            Diagnostic Tests Sequence/Selection Menu (Rel. xx)
1. WILL pause on error              5. Auto-select tests
2. SINGLE PASS test mode            6. Deselect all tests
3. Save setup to file               7. Quit and exit to DOS
4. Extract setup from a file        8. Return to previous screen

A) RAM Test                         K) Video Interface Test
B) Video RAM Test                   L) Speaker Port Test
C) Extended RAM Test                M) LPT1: Printer Port Test
D) Real Time Clock Test             N) LPT2: Printer Port Test
E) COM1 Serial Port Test            O) C: Hard Drive Interface Test
F) COM2 Serial Port Test            P) D: Hard Drive Interface Test
G) COM3 Serial Port Test            Q) A: Floppy Drive Interface Test
H) COM4 Serial Port Test            R) B: Floppy Drive Interface Test
I) Math Coprocessor Test            S) Keyboard, Keypad Tests
J) Video Adjustments Test             ≡ = Test Selected

                    [ENTER]=START TESTING
Use the letters to move the cursor and select/deselect, or use the arrow
keys to move, then use the [SPACE] key to select/deselect a test or
function.
```

Figure 5-2. Main Menu

Note

Please read the DIAG.TXT file on the diagnostics disk for detailed information about the tests.

Note

Avoid repeated running of any hard disk diagnostic utility if you use the Solid State (Flash) drive option. The Flash drive has a limited number of writes to each logical sector. Repeated writes from a diagnostic utility will prematurely shorten the life of the drive.

Reinstalling Operating Systems

The 3112T R2 CPU ships with either Windows® 2000 or Windows® XP Professional installed. If you need to reinstall an operating system, refer to the appropriate section below. If you want to change operating systems, you will need to use the operating system manufacturer's instruction manual.

Windows® 2000 Reinstallation

If you need to reinstall the Windows® 2000 operating system, refer to the *Pro-face/Xycom Workstation Recovery Media Software Installation Instructions for Microsoft Windows 2000* (shipped with systems preinstalled with Windows® 2000). This document is devoted to the reinstallation of your Windows® 2000 operating system and drivers utilizing the Recovery Media provided with your Pro-face/Xycom industrial computer.

Note

This procedure assumes that the computer hard disk drive has been completely corrupted or replaced.

Warning

This procedure will destroy data that may exist on the hard disk drive.

Windows XP® Reinstallation

If you need to reinstall the Windows® XP operating system, refer to the *Pro-face/Xycom Workstation Software Installation Instructions For Microsoft Windows XP* (shipped with systems preinstalled with Windows XP). This document is devoted to the reinstallation of your Windows XP operating system and drivers, utilizing the XP CD provided with your Pro-face/Xycom industrial computer. If you want to install a new operating system or reinstall a current operating system, refer to the Windows XP Professional CD-ROM (shipped with systems preinstalled with Windows XP Professional).

Note

This procedure assumes that the computer hard disk drive has been completely corrupted or replaced.

Warning

This procedure will destroy data that may exist on the hard disk drive.

If you want to install a new operating system or reinstall a current operating system, refer to the operating system's manual for directions.

Installing Drivers

This section describes how to install the drivers associated with the system.

Note

For further assistance, contact Pro-face technical support at 734–944-0482 or via email at support@profaceamerica.com

Video Drivers

Video drivers and the expansion utilities are on the Documentation and Support Library CD included with the documentation kit.

Choose the video driver for your operating system from the Documentation and Support Library CD either through the HTML navigation, or through a browser window.

Note

The video drivers for the 3115T and 3112T R2 are the same. For your 3112T R2 unit, you will access the video driver through the 3115Tr2 folder. The zip file you will use is the 3115Tr2_vga_w2k_xp.zip,

When using a browser window, choose the video driver for your operating system, which can be found in the following directory on the Documentation and Support Library CD:

\DRIVERS\3115Tr2\3115Tr2_vga_w2k_xp.zip

Touch Screen Drivers

If you have a touch screen driver that has been factory installed, you will also receive, pre-loaded and at no extra charge: MS-DOS®, Windows® 98, Windows® 2000, Windows® NT, and Windows® XP Professional touch screen drivers.

Note

If you ordered a system pre-loaded with an operating system, the touch screen driver was pre-installed.

You must install the corresponding touch screen driver software if you change the operating system. The touch screen drivers are also located on the Document and Support Library CD.

Note

The touch screen drivers for the 3115T and 3112T R2 are the same. For your 3112T R2 unit, you will access the video driver through the 3115Tr2 folder.

Choose the touch screen driver for your operating system from the Documentation and Support Library CD either through the HTML navigation, or through a browser window. The touch screen drivers are located under:

\DRIVERS\3115Tr2\touchkit_w2k_xp.zip

Ethernet Drivers

The Ethernet drivers for the 3112T R2 are. . .

Miscellaneous Drivers

Refer to your operating system and peripheral manuals for information on installing drivers related to these items.

Appendix A Technical Specifications

The following tables outline the hardware and environmental specifications for the 3112T R2.

Hardware Specifications

The following table lists the hardware specifications for the 3112T R2.

Table A - 1. Hardware Specifications

Characteristic	Specifications	
Mechanical	Front Panel	Cabinet
Height	10.24” (260 mm)	9.06” (230 mm)
Width	13.39” (340 mm)	12.2” (310 mm)
Depth	0.354” (9 mm)	3.89” (99 mm)
Weight		
Power Supply	150W	
Input Rating	100/240V AC 50-60 Hz, 4A maximum	
Mounting	Wall, shelf or arm	
Agency Approvals	UL 508 (pending) cUL CSA C22.2, No. 142 (pending)	
Regulatory Compliance	FCC 47 CFR, Part 15, Class A CE EMI EN55022, Class A Immunity EN61000-6-2 Safety EN60950 Harmonics EN61000-3-2, Class A Flicker EN61000-3-3	

Environmental Specifications

The following table outlines the environmental and compliance specifications for the 3112T R2.

Table A - 2. Environmental and Compliance Specifications

Temperature	
Operating	0˚C to 50˚C (32˚F to 122˚F)
Non-operating	-20˚C to 60˚C (-4˚F to 140˚F)
Humidity	
Operating	5% to 80% RH, non-condensing
Non-operating	5% to 95% RH, non-condensing
Shock[1]	
Operating	15g peak acceleration, 11 msec duration
Non-operating	30g peak acceleration, 11 msec duration
Vibration (5-2000 Hz)[1]	
Operating	0.006” peak to peak displacement
	1.0g maximum acceleration
Non-operating	0.015” peak to peak displacement
	2.5g maximum acceleration

[1] These values are with solid state hard drives and not rotating media drives.

Appendix B Jumper Settings

This chapter outlines the jumper settings for the POS-370R.

Setting the CPU of POS-370R

JP34, 36, 37, 38: CPU & DRAM FREQUENCY SETTING (H/W)

Table B - 1. Settings for JP 34, 36, 37, and 38

CPU/DRAM	JP34	JP36	JP37	JP38
66/66	2-3	2-3	2-3	1-2
100/100	1-2	1-2	2-3	1-2
133/133	1-2	1-2	1-2	2-3

JP39: CPU MULTIPLIER SETTING (AUTO)

Normally the CPU from Intel has fixed multipliers. In this case, the POS-370R will automatically follow the CPU's fixed multiplier settings, no matter the JP39 jumper setting. The following table lists the various settings for JP39.

Table B - 2. Settings for JP39

Ratio	1-2	3-4	5-6	7-8
3.0 x	ON	OFF	OFF	OFF
3.5 x	ON	OFF	ON	OFF
4.0 x	OFF	ON	OFF	OFF
4.5 x	OFF	ON	ON	OFF
5.0 x	ON	ON	OFF	OFF
5.5x	ON	ON	ON	OFF
6.0x	OFF	OFF	OFF	ON
6.5x	OFF	OFF	ON	ON
7x	ON	OFF	OFF	ON
7.5x	OFF	OFF	ON	ON
8x	OFF	ON	OFF	ON

CompactFlashDisk™ Flash Disk Setting

The CompactFlashDisk™ is 100% compatible with IDE hard disk. It is easy and reliable "plug and play" technology. The CompactFlashDisk™ is available in a variety of sizes.

JP12: CompactFlashDisk™ IDE Master & Slave Setting

Table B - 3. Settings for JP12

Pin No.	Description
Open	Slave
Short	Master

Clear CMOS Setup

If you forget the CMOS password, you can clear or reset it by closing JP18. After closing JP18 (1-2), turn on the power for about 3 seconds then turn it off and open the JP18 (1-2). After you reboot, enter BIOS by pressing DEL, and select "Load Optimized Defaults". Then select "Save and Exit". Now the password has been cleared from your CMOS.

JP18: Clear CMOS Setup

Table B - 4. Settings for JP18

Pin No.	Description
2-3	Normal Operation
1-2	Clear CMOS Setup

LCD Panel Power Setup

JP15: LCD Power Setting

Table B - 5. Settings for JP15

JP15	Description
2-3	+3.3V
1-2*	+5V

* Setting the jumper to +5V is **NOT** standard

COM2 RS-232/422/485 Selection

JP10, JP11: COM2 Mode Selection

Table B - 6. Settings for JP10 and JP11

JP10	JP11	Description
1-2,4-5,7-8,10-11	1-2	RS232
2-3,5-6,8-9,11-12	2-3	RS422
2-3,5-6,8-9,11-12	2-3	RS485

COM Port RI and Voltage Selection

JP2, JP4: Set pin 9 of COM1 as signal RI or voltage source

Table B - 7. Settings for JP2

JP2	Description
2-3	COM1 RI Pin (Use RI)
1-2	COM1 RI Pin (Use Voltage)

Table B - 8. Settings for JP4

JP4	Description
2-3	COM1 RI Pin (Use Voltage +12V)
1-2	COM1 RI Pin (Use Voltage +5V)

* If JP2 Uses (2-3), JP4 is irrelevant

JP7, JP6: Set pin 9 of COM2 as signal RI or voltage source

Table B - 9. Settings for JP7

JP7	Description
2-3	COM2 RI Pin (Use RI)
1-2	COM2 RI Pin (Use Voltage)

Table B - 10. Settings for JP6

JP6	Description
2-3	COM2 RI Pin (Use Voltage +12V)
1-2	COM2 RI Pin (Use Voltage +5V)

* If JP7 Uses (2-3), JP6 is irrelevant

JP13, JP5: Set pin 9 of COM3 as signal RI or voltage source

Table B - 11. Settings for JP13

JP13	Description
2-3	COM3 RI Pin (Use RI)
1-2	COM3RI Pin (Use Voltage)

Table B - 12. Settings for JP5

JP5	Description
2-3	COM3 RI Pin (Use Voltage +12V)
1-2	COM3RI Pin (Use Voltage +5V)

* If JP13 Uses (2-3), JP5 is irrelevant

JP9, JP8: Set pin 9 of COM4 as signal RI or voltage source

Table B - 13. Settings for JP9

JP9	Description
2-3	COM4 RI Pin (Use RI)
1-2	COM4RI Pin (Use Voltage)

Table B - 14. Settings for JP8

JP8	Description
2-3	COM4 RI Pin (Use Voltage +12V)
1-2	COM4RI Pin (Use Voltage +5V)

* If JP9 Uses (2-3), JP8 is irrelevant

USB Power Selection

JP40: Select the operating voltage for USB

Table B - 15. Settings for JP40

JP40	Description
1-2	VCC
2-3	5V Standby

Parallel Port

The parallel port is usually connected to a printer. The POS-370R includes an on-board parallel port, accessed through a 25-pin D-type female connector CN12.

LPT1: Parallel Port Connector (CN12)

Table B - 16. LPT1 Pinout

Pin No.	Description	Pin No.	Description
1	STROBE#	2	DATA 0
3	DATA 1	4	DATA 2
5	DATA 3	6	DATA 4
7	DATA 5	8	DATA 6
9	DATA 7	10	ACKNOWLEDGE
11	BUSY	12	PAPER EMPTY
13	PRINTER SELECT	14	AUTO FORM FEED #
15	ERROR#	16	INITIALIZE
17	PRINTER SELECT LN#	18	GND
19	GND	20	GND
21	GND	22	GND
23	GND	24	GND
25	GND		

Serial Ports

The POS-370R offers four high-speed NS16C550-compatible serial ports with 16 byte receive FIFO (COM1/COM2/COM3/COM4).

COM1: Serial Port 2x5 pin header Connector (CN7)

Table B - 17. COM1 Pinout (CN7)

Pin No.	Description	Pin No.	Description
1	DCD	6	CTX
2	DSR	7	DTR
3	RXD	8	RI
4	RTS	9	GND
5	TXD	10	NC

** **NC** indicates No Connection*

COM1: Serial Port DB-9 Male Connector (CN6)

Table B - 18. COM1 Pinout (CN6)

Pin No.	Description
1	DCD
2	RXD
3	TXD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI

COM2: Serial Port 2x5 pin header Connector (CN10)

Table B - 19. COM2 Pinout (CN10)

Pin No.	RS232 Mode	RS422 Mode	RS485 Mode
1	DCD	TXD-	RTX-
2	DSR	RX-	NC
3	RXD	TXD+	RTX+
4	RTS	RX+	NC
5	TXD	NC	NC
6	CTX	NC	NC
7	DTR	NC	NC
8	RI	Voltage	Voltage
9	GND	NC	NC
10	NC	NC	NC

*COM2 supports three modes: RS232, RS422, or RS485 (For 2x5 pin header connector).

** **NC** indicates No Connection*

COM2: Serial Port DB-9 Male Connector (CN9)

Table B - 20. COM2 Pinout (CN9)

Pin No.	RS232 Mode	RS422 Mode	RS485 Mode
1	DCD	TXD-	RTX-
2	RXD	TXD+	RTX+
3	TXD	NC	NC
4	DTR	NC	NC
5	GND	NC	NC
6	DSR	RX-	NC
7	RTS	RX+	NC
8	CTX	NC	NC
9	RI	Voltage	Voltage

**COM2 supports three modes: RS232, RS422, or RS485 (For DB-9 Connector).*

** **NC** indicates No Connection*

COM3: Serial Port 2x5 pin header Connector (CN11)

Table B - 21. COM3 Pinout (CN11)

Pin No.	Description	Pin No.	Description
1	DCD	6	CTX
2	DSR	7	DTR
3	RXD	8	RI
4	RTS	9	GND
5	TXD	10	NC

** **NC** indicates No Connection*

COM4: Serial Port 2x5 pin header Connector (CN8)

Table B - 22. COM4 Pinout (CN8)

Pin No.	Description	Pin No.	Description
1	DCD	6	CTX
2	DSR	7	DTR
3	RXD	8	RI
4	RTS	9	GND
5	TXD	10	NC

* **NC** indicates No Connection

Keyboard/Mouse Connector

The POS-370R provides one external keyboard/mouse connector. A Y-adapter is required to use both.

CN1: Extended Keyboard & PS/2 Mouse 6-pin Mini Din Connector

Table B - 23. Settings for CN1

Pin No.	Description
1	KB DATA
2	MS DATA
3	GND
4	VCC
5	KB CLOCK
6	MS CLOCK

CN4: 5-pin Header Keyboard Connector

Table B - 24. Settings for CN4

Pin No.	Description
1	KB CLOCK
2	KB DATA
3	N/C
4	GND
5	+5V

** **NC** indicates No Connection*

CN2: PS/2 Mouse 5-pin Header Connector

Table B - 25. Settings for CN2

Pin No.	Description
1	MS DATA
2	NC
3	GND
4	+5V
5	MS CLOCK

** **NC** indicates No Connection*

External Switches and Indicators

There are several external switches and indicators for monitoring and controlling your CPU board. All the functions are in the CN42 connector.

CN42: Multi Panel

Table B - 26. External Switches and Indicators (CN42)

Pin No.	Description	Pin No.	Description
1	SPEAKER	11	POWER-VCC
2	ACPI LED	12	N/C
3	NC	13	GND
4	+5V	14	KEYLOCK
5	RESET SW	15	GND
6	GND	16	GND
7	IDE LED -	17	NC
8	IDE LED+	18	ATX POWER CONTROL
9	ATX POWER BUTTON	19	ATX 5VSB
10	GND	20	ATX 5VSB

** **NC** indicates No Connection*

USB Port Connector

The POS-370R has five built-in USB ports for future I/O bus expansion.

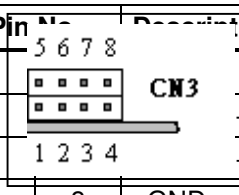
CN23, 29, 30: Pin Header USB Connector

Table B - 27. Settings for CN23, CN29 & CN30

Pin No.	Description
1	VCC
2	USBD0-
3	USBD0+
4	GND

CN3: 2 External USB Connectors

Table B - 28. Settings for CN3

Pin No.		Description
1		
2		-
3		+
4	8	GND

VGA Connector

The built-in 10-pin VGA connector can be connected directly to your monochrome CRT monitor as well as to a high-resolution color CRT monitor.

CN13: 15-pin Female VGA Connector

Table B - 29. VGA Connector Pinout (CN13)

Pin No.	Description	Pin No.	Description
1	RED	9	VCC
2	GREEN	10	GND
3	BLUE	11	NC
4	NC	12	DDC DAT
5	GND	13	HSYNC
6	GND	14	VSYNC
7	GND	15	DDC CLK
8	GND		

** **NC** indicates No Connection*

CN14: 10-pin Connector

Table B - 30. VGA Connector Pinout (CN14)

Pin No.	Description	Pin No.	Description
1	RED	6	GND
2	SMCLK	7	H-SYNC
3	GREEN	8	GND
4	SMDATA	9	V-SYNC
5	BLUE	10	GND

LAN RJ45 Connector

POS-370R is equipped with a Realtek RTL-8100 10/100Mbps Ethernet Controller. You can connect it to your LAN through RJ45 LAN connector. The pin assignments are as follows.

CN5: LAN 1 RJ45 Connector

Table B - 31. LAN RJ45 Connector (CN5)

Pin No.	Description	Pin No.	Description
1	TX+	5	N/C
2	TX-	6	RX-
3	RX+	7	N/C
4	N/C	8	N/C

Fan Connector

The POS-370R provides one CPU cooling fan connector and one system fan connector. These connectors can supply 12V/500mA to the cooling fan.

CN41: CPU Fan Connector

Table B - 32. Settings for CN41

Pin No.	Description
1	Fan Sensor
2	+12V
3	GND

CN43: System Fan Connector

Table B - 33. Settings for CN43

Pin No.	Description
1	Fan Sensor
2	+12V
3	GND

LCD Backlight Connector

CN22: LCD Backlight Connector

Table B - 34. Settings for CN22

Pin No.	Description
1	NC
2	ENABKL
3	GND
4	+12V
5	GND

Home Networking Connector (Optional)

CN49: Home Networking Connector

Table B - 35. Settings for CN49

Pin No.	Description
1	HRXP
2	GND
3	HRXN

Audio Line IN

CN40: Audio CD IN (2.0mm)

Table B - 36. Settings for CN40

Pin No.	Description
1	CD IN_R
2	GND
3	CD IN_L
4	GND

CN38: Audio Video IN (2.54mm)

Table B - 37. Settings for CN38

Pin No.	Description
1	CD IN_R
2	GND
3	GND
4	CD IN_L

CN39: Audio AUX IN (2.54mm)

Table B - 38. Settings for CN39

Pin No.	Description
1	CD IN_R
2	GND
3	GND
4	CD IN_L

Audio Panel

CN44: Audio Panel

Table B - 39. Audio Panel Pinout (CN44)

Pin No.	Description	Pin No.	Description
1	Line Out R	9	Line In R
2	GND	10	Line In L
3	Line Out L	11	GND
4	GND	12	GND
5	Line Out R	13	SPK Out R
6	Line Out L	14	SPK Out L
7	GND	15	MIC In
8	GND	16	GND

Audio SPK Output Connector

CN48: Audio SPK Output Connector

Table B - 40. Settings for CN48

Pin No.	Description
1	SPK-R
2	GND
3	GND
4	SPK-L

Chassis Intrusion Detection Connector

CN51: Chassis Intrusion Detection Input Connector

Table B - 41. Settings for CN51

Pin No.	Description
1	Pull_High
2	CHAS_IN
3	GND

* Need Pin 1 and Pin 2 short → Active

CN52: Chassis Intrusion Detection Output Connector

Table B - 42. Settings for CN52

Pin No.	Description
1	CHAS_OUT
2	5VSB

* Normal → Pin 1 High
* Active → Pin 1 Always Low (If JP41 Pin 2 short to Pin 1)

Appendix C Power-On Self-Test Messages

POST Messages

If the BIOS detects an error during the Power-On Self-Test (POST), it will either sound a beep code or display a message.

If a message is displayed, it will be accompanied by:

PRESS F1 TO CONTINUE, CTRL-ALT-ESC OR DEL TO ENTER SETUP

POST Beep

There are two kinds of beep codes in BIOS:

Single long beep followed by three short beeps—This code indicates that a video error has occurred and the BIOS cannot initialize the video screen to display any additional information.

Repeating long beep—This code indicates that a DRAM error has occurred.

Error Messages

One or more of the following messages may be displayed if the BIOS detects an error during the POST. This list includes messages for both the ISA and the EISA BIOS.

Table C - 1. Error Messages

Error Messages	Cause/Solution
CMOS BATTERY HAS FAILED	CMOS battery is no longer functional. Contact Pro-face Support at www.profaceamerica.com.
CMOS CHECKSUM ERROR	Checksum of CMOS is incorrect. A weak battery may have caused this error; replace if necessary. It may also indicate that CMOS has become corrupt.
DISK BOOT FAILURE, INSERT SYSTEM DISK AND PRESS ENTER	No boot device was found. This could mean that either a boot drive was not detected or the drive does not contain proper system boot files. Insert a system disk (formatted as a boot device) into Drive A: and press Enter. If you assumed the system would boot from the hard drive, make sure the controller is inserted correctly and all cables are properly attached, then reboot the system.
DISKETTE DRIVES OR TYPES MISMATCH ERROR - RUN SETUP	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 motherboard is set to a different setting than indicated in Setup. Determine which setting is correct and then 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 the last powering off the system, the display adapter has been changed. You must configure the system for the new display type.

Table C - 1. Error Messages

Error Messages	**Cause/Solution**
EISA CONFIGURATION CHECKSUM ERROR PLEASE RUN EISA CONFIGURATION UTILITY	The EISA non-volatile RAM checksum is incorrect or cannot correctly read the EISA slot. This can indicate either the EISA non-volatile memory has become corrupt or the slot has been configured incorrectly. Verify the card is installed firmly in the slot. When this error appears, the system will boot in ISA mode allowing you to run the EISA Configuration Utility.
EISA CONFIGURATION IS NOT COMPLETE PLEASE RUN EISA CONFIGURATION UTILITY	The slot configuration information stored in the EISA non-volatile memory is incomplete. When this error appears, the system will boot in ISA mode allowing you to run the EISA Configuration Utility.
ERROR ENCOUNTERED INITIALIZING HARD DRIVE	Check that the adapter is installed correctly and all cables are firmly attached. Verify that the correct hard drive type is selected in Setup.
ERROR INITIALIZING HARD DISK CONTROLLER	See the cord is correctly and firmly installed in the bus. Verify the correct hard drive type is selected in Setup. Check jumper settings on the hard drive.
FLOPPY DISK CNTRLR ERROR OR NO CNTRLR PRESENT	Make sure the controller is installed correctly and firmly. If there are no floppy drives installed, be sure the Diskette Drive selection in Setup is set to NONE.
INVALID EISA CONFIGURATION PLEASE RUN EISA CONFIGURATION UTILITY	The non-volatile memory containing EISA configuration information was programmed incorrectly or has become corrupt. The system will boot in ISA mode allowing you to run the EISA Configuration Utility and correctly program the memory.
KEYBOARD ERROR OR NO KEYBOARD PRESENT	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.
KEYBOARD IS LOCKED OUT - UNLOCK THE KEY	BIOS detected the keyboard is locked. P17 of keyboard controller is pulled low.
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 PARITY ERROR AT ...	Indicates a memory parity 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. In EISA mode use Configuration Utility to reconfigure the memory configuration. In ISA mode 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 you to reboot. Press any key to reboot.
PRESS F1 TO DISABLE NMI, F2 TO REBOOT	When BIOS detects a Non-maskable Interrupt condition during boot, this will allow you to disable the NMI and continue to boot, or you can reboot the system with the NMI enabled.
RAM PARITY ERROR - CHECKING FOR SEGMENT	Indicates a parity error in Random Access Memory.
SHOULD BE EMPTY BUT EISA BOARD FOUND PLEASE RUN EISA CONFIGURATION UTILITY	A valid board ID was found in a slot that was configured as having no board ID. When this error appears, the system will boot in ISA mode allowing you to run the EISA Configuration Utility.
SHOULD HAVE EISA BOARD BUT NOT FOUND PLEASE RUN EISA CONFIGURATION UTILITY	The board installed is not responding to the ID request, or no board ID has been found in the indicated slot. When this error appears, the system will boot in ISA mode allowing you to run the EISA Configuration Utility.

Table C - 1. Error Messages

Error Messages	**Cause/Solution**
SLOT NOT EMPTY	A slot designated as empty by the EISA Configuration Utility actually contains a board. When this error appears, the system will boot in ISA mode allowing you to run the EISA Configuration Utility.
SYSTEM HALTED, (CTRL-ALT-DEL) TO REBOOT ...	The present boot attempt has been aborted and the system must be rebooted. Press and hold down the CTRL and ALT keys and press DEL.
WRONG BOARD IN SLOT PLEASE RUN EISA CONFIGURATION UTILITY	The board ID does not match the ID stored in the EISA non-volatile memory. When this error appears, the system will boot in ISA mode, allowing you to run the EISA Configuration Utility.
FLOPPY DISK(S) FAIL (80)	Unable to reset floppy subsystem
FLOPPY DISK(S) FAIL (40)	Floppy type dismatch
HARD DISK(S) FAIL (80)	HDD reset failed
HARD DISK(S) FAIL (40)	HDD controller diagnostics failed
HARD DISK(S) FAIL (20)	HDD initialization error
HARD DISK(S) FAIL (10)	Unable to recalibrate fixed disk
HARD DISK(S) FAIL (08)	Sector Verify failed
MANUFACTURING POST LOOP.	System will repeat POST procedure infinitely while the P15 of keyboard controller is pulled low. This is also used for M/B burn in test.
BIOS ROM CHECKSUM ERROR - SYSTEM HALTED.	The checksum of ROM address F0000H-FFFFFH is bad.
MEMORY TEST FAIL.	BIOS reports the memory test failed if the onboard memory is tested error.

Appendix D – DMA, IRQ and 1st MB Memory

DMA Channel Assignments

The following table lists the DMA channel assignments.

Table D - 1. DMA Channel Assignments

Channel	Description
0	Available
1	Available
2	Floppy Disk (8-bit transfer)
3	Available
4	Cascade for DMA controller 1
5	Sound
6	Available
7	Available

IRQ Mapping Chart

The following table shows the IRQ mapping chart.

Table D - 2. IRQ Mapping

IRQ0	System Timer	IRQ8	RTC Clock
IRQ1	Keyboard	IRQ9	USB LAN
IRQ2	Cascade to IRQ Controller	IRQ10	Touchscreen (COM3)
IRQ3	(COM2)	IRQ11	(COM4)
IRQ4	(COM1)	IRQ12	PS/2 Mouse
IRQ5	Sound (LPT2)	IRQ13	FPU
IRQ6	FDC	IRQ14	Primary IDE
IRQ7	LPT1	IRQ15	Secondary IDE

Note

All IRQs have been assigned to the listed devices, so if you want to add any additional device interface, you must free the unused IRQ first. For example, if you don't use USB K/B or Mouse, then IRQ10 may be set free.

1st MB Memory Address Map

The following table outlines the 1st MB Memory Address Map.

Table D - 3. 1st MB Memory Address Map

Memory Address	Description
00000-9FFFF	System Board extension for ACPI BIOS
A0000-CBFFF	SIS630
F0000-FFFFF	System Board extension for ACPI BIOS
CC000-CFFFF	Unavailable for use by device

I/O Addresses

The following table lists the I/O Addresses.

Table D - 4. I/O Addresses

I/O Address Range	Description
000-01F	DMA Controller #1
020-021	Interrupt Controller #1, Master
040-05F	8254 Timer
060-06F	8042 (Keyboard Controller)
070-07F	Real Time Clock, NMI Mask
080-09F	DMA Page Register
0A0-0BF	Interrupt Controller #2
0C0-0DF	DMA Controller #2
0F0	Clear Math Coprocessor Busy
0F1	Reset Math Coprocessor
0F8-0FF	Math Coprocessor
408-409	Digital Input/Output
170-177 1F0-1F7	Fixed Disk
270-27F	Printer Port (LPT2)
2E8-2EF	Serial Port 4 (COM4)
2F8-2FF	Serial Port 2 (COM2)
378-37F	Parallel Printer Port 1 (LPT1)
380-38F	SDLC, Bisynchronous 2
3A0-3AF	Bisynchronous 1
3B0-3BB	SIS 630
3C0-3DF	SIS 630
3E8-3EF	Serial Port 3 (COM3)
3F0-3F7	Diskette Controller
3F8-3FF	Serial Port 1 (COM1)
440	Watch-dog timer

Appendix E Watch Dog Timer

The Watch Dog Timer is a device to ensure that stand alone systems can always recover from abnormal conditions that cause the system to crash. These conditions may result from external EMI or a software bug. When the system stops working, hardware on the board will perform hardware reset (cold boot) to bring the system back to a known state.

Three I/O port writes control the operation of Watch-Dog Timer.

440 (hex)	Write	Set Watchdog Time period Enable the refresh the Watch Dog Timer
440 (hex)	Write	Disable the Watch Dog Timer

Prior to enabling the Watch Dog Timer, the user has to set the time-out period. The resolution of the timer is 1 minute and the range of the timer is from 1 min to 255 min. You need to send the time-out value to the I/O port (440H), and then enable it by writing data from the same I/O port – 440H (value is 01h-ffh). This activates the timer that will eventually time out and reset the CPU board. To ensure that this reset condition won't occur, the Watch-Dog Timer must be periodically refreshed by writing to the same I/O port 440H(the same value is 01h-ffh). This must be done within the time-out period. (Refer to the example program.) Finally, we have to disable the Watch Dog Timer by write the I/O port -- 440H (value is 0h). Otherwise, the system could reset unconditionally.

Watch Dog Timer Type Setting By RESET

Write port 440: WDT Enable & Time-out Period

PERIOD	Value
1 – 255 min.	01 – FF

Write port 440: WDT Disable

Function	Value
Disable	00

Example assembly program:

```
WDT_PORT  = 440H

;;INITIAL TIMER COUNTER

MOV DX, WDT_PORT
MOV AL, 1  ;;1 minute
OUT DX, AL ;;start counter

W_LOOP:
MOV DX, WDT_PORT
MOV AL, 0
OUT DX, AL  ;;stop counter
MOV DX, WDT_PORT
MOV AL, 1
OUT DX, AL  ;;restart counter

;;ADD YOUR APPLICATION HERE

CMP EXIT_AP, 0
JNE W_LOOP
MOV DX, WDT_PORT
MOV AL, 0
OUT DX, AL
;;EXIT AP
```

Appendix F How to Upgrade a New BIOS

Please contact the Pro-face Application Engineering Department at 734-944-0482 to obtain the latest BIOS.

BIOS Update Procedure

Notes

A. This procedure will erase any existing data on that floppy, so please proceed accordingly.

B. Typically four files will be transferred, though only COMMAND.COM will be visible when running a simple directory listing.

C. Do not set write protect on the diskette for the balance of this procedure.

1. Make a boot disk. Go to the DOS command prompt in MS-DOS or Windows 9x and, with an available floppy disk in floppy drive (i.e. A:/), and type "format A:/s" That will format the floppy and transfer the needed system files to it.
2. Download the BIOS upgrade file and awdflash.exe utility from an ICP web site to a temporary directory on your hard drive, or directly to the floppy formatted in step 1.
3. Copy both files to the boot floppy disk.
4. Reboot the system to the DOS command prompt using the boot disk made in the previous steps.
5. At the DOS command prompt, type “awdflash filename.xxx”, (where filename.xxx is the file name of the upgraded BIOS file), and press Enter.
6. The first prompted option is to save the old BIOS. It is recommended that this option be selected in case it is later decided not to use the new version once it is installed. To save, enter Y. To not save, enter N.

Caution

DO NOT save the old BIOS with the same file name as the new BIOS. If the same file name is used, the new BIOS will write over the old BIOS with no prompted warning.

Note

If the old BIOS is not saved write down the version number of the old BIOS and store it with your important computer documents. If not saving old BIOS, enter N (for "no") and skip to step 9.

7. Enter a NEW name for the old BIOS file, and press Enter.
8. The second prompted option will be whether you want to flash your BIOS. Enter Y for yes, or N for no.

Warning

Once the Enter key is pressed, DO NOT touch the keyboard, reset button, or power switch while flashing is in progress. A progress bar on the screen will show the progress of the flashing.

9. When the flashing process is complete, you will be asked to reset or power off the system. Remove the floppy disk from the drive and reset or power off the system.
10. Reboot the system and note that the BIOS version on the initial boot-up screen has changed to the new BIOS version. Your BIOS upgrade is now complete.

Recovering Your Old BIOS

1. Boot the system with the floppy disk that contains the new BIOS. If you do not have the floppy disk, repeat steps 1, 2, and 3 of the BIOS Upgrade Procedure above for the version of the BIOS recovering.
2. Reboot the system to the DOS command prompt using the boot disk made in the previous steps.
3. At the DOS command prompt, type “awdflash filename.xxx”, (where filename.xxx is the file name of the upgraded BIOS file), and press Enter.
4. The first prompted option is to save the old BIOS. It is recommended that this option be selected in case it is later decided not to use the new version once it is installed. To not save, enter N.
5. The second prompted option will be whether you want to flash your BIOS. Enter Y for yes, or N for no.
6. When the flashing process is complete, you will be asked to reset or power off the system. Remove the floppy disk from the drive and reset or power off the system.
7. Reboot the system and note that the BIOS version on the initial boot-up screen has changed to the new BIOS version. Your BIOS upgrade is now complete.

Install screen:

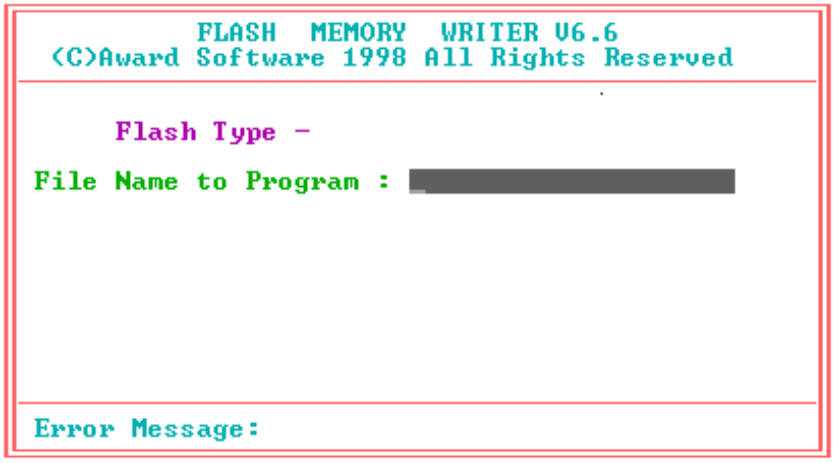


Figure F - 1. BIOS Install Screen

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143527 (C)

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