

# Planar Clean Screen™ II PC User's Manual



Model Number C3215

# **PLANAR CLEAN SCREEN™ II PC**

**Integrated Computer with LCD Color Display**

# **USER'S MANUAL**

Model Number C3215 and Options  
Document Part Number C3DOC-2

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# REGULATORY INFORMATION

## U.S. Federal Communications Commission (FCC) Requirements

The Planar Clean Screen II PC has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

If this equipment does cause harmful interference to radio or television reception, which can be detected by turning the equipment off and on, the user is encouraged to try one or more of the following measures:

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

## Canadian Emissions Requirements

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectroniques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

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# WARRANTY INFORMATION

Planar Display Solutions (Planar) warrants that the goods sold hereunder will be free of defects in materials and workmanship, and such goods will substantially conform to the specifications furnished by Planar, and to any drawings or specifications furnished to Planar by the Buyer if approved by Planar. This warranty shall be effective only if Planar receives notice of such defect or nonconformance during the period of the warranty. Planar's sole and exclusive liability for breach of warranty shall be, at Planar's option, to repair or replace the Planar product(s) with refurbished units or provide a credit to buyer in the amount of the purchase price.

## Commencement of Warranty

The warranty period begins on the date of shipment.

## Duration of Warranty

The goods sold hereunder are warranted for a period of two years from date of shipment unless otherwise agreed to by Buyer and Planar. No extension of the warranty will be given during the time the goods are in Planar's possession.

## Place of Repair or Replacement

In order to obtain service under this warranty, Buyer must notify Planar of the defect before expiration of the warranty period and request a "Return Material Authorization Number." If the configuration has been modified in any manner, the product must be returned to its original configuration before any warranty service will be performed by Planar. No goods are to be returned to Planar without prior authorization. Buyer will be responsible for packaging and shipping the defective goods to the Planar Service Facility located at Beaverton, Oregon, with shipping charges prepaid.

## Limitation of Warranty

The foregoing warranty shall not apply to defects resulting from (a) improper or inadequate maintenance by Buyer; (b) unauthorized modification of the goods; (c) operation of the goods outside of the environmental specifications of the goods; (d) neglect, misuse, or abuse of the goods; or (e) modification or integration with other goods not covered by Planar's warranty when such modification or integration increases the likelihood of damage to the goods.

**THE WARRANTY IS GIVEN BY PLANAR IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED. PLANAR DISCLAIMS ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. PLANAR'S RESPONSIBILITY TO REPAIR OR REPLACE DEFECTIVE PRODUCTS IS THE SOLE AND EXCLUSIVE REMEDY PROVIDED TO THE BUYER FOR BREACH OF THIS WARRANTY. PLANAR WILL NOT BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES IRRESPECTIVE OF WHETHER PLANAR HAS ADVANCE NOTICE OF THE POSSIBILITY OF SUCH DAMAGES.**

## Technical Assistance

The warranty set forth above shall not be enlarged, diminished or affected by, and no obligation or liability shall arise from Planar, any authorized dealer, or any other person's rendering of technical advice, assistance, or services in connection with the buyer's order of the goods furnished hereunder. The Buyer is not relying on Planar's skill or judgment to select or furnish suitable goods.

## Installation

Planar makes no warranty with respect to any installation of Planar's product(s) by Planar, any authorized dealer, or any other person.

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# Table of Contents

<b>Regulatory Information</b> .....	iii
U.S. FCC Requirements .....	iii
Canadian Emissions Requirements .....	iii
<b>Warranty Information</b> .....	iii
Commencement of Warranty .....	iii
Duration of Warranty .....	iv
Place of Repair or Replacement .....	iv
Limitation of Warranty .....	iv
Technical Assistance .....	iv
Installation .....	iv
<b>Installation Guide</b> .....	viii
Before You Begin .....	viii
What's in the box? .....	viii
What's in the <i>IS Manager's Kit</i> ? .....	viii
What's in this manual? .....	viii
What if I'm missing something? .....	viii
Safety Instructions .....	ix
<b>Chapter One: The Installation Express</b> .....	1
<b>Chapter Two: The Clean Screen II PC</b> .....	2
Welcome .....	2
Clean Screen II Facts .....	2
Front Panel .....	3
Connections (Bottom) .....	3
Back Housing .....	4
Inside .....	4
<b>Chapter Three: Hardware Installation and Replacement</b> .....	6
Removing the Back Housing .....	6
Installing Memory .....	7
Memory Map .....	8
Replacing the Hard Disk Drive .....	9
Replacing the Battery .....	10
Replacing the Fuse .....	11
Mounting the Clean Screen II .....	12

---

# Table of Contents

<b>Chapter Four: System Setup</b> .....	13
Connecting the Keyboard .....	13
Connecting Peripherals .....	13
PC Card Port .....	13
Ethernet Connection .....	13
Floppy Drive Connection .....	14
Power Supply .....	14
Power Cord Selection .....	14
USB Connection .....	14
External Speakers .....	14
Powering Up the Clean Screen II PC .....	15
Setup (<F2>) .....	15
Driver Overview .....	15
Brightness Control .....	15
<b>Chapter Five: BIOS Setup</b> .....	16
Entering the BIOS Setup Program .....	16
Setup Screens .....	16
Main Menu .....	17
Primary Master/Slave Sub-Menu .....	19
Boot Options Sub-Menu .....	21
Advanced Menu .....	22
I/O Device Configuration Sub-Menu .....	24
Power Management Menu .....	26
Boot Menu .....	28
Exit Menu .....	29
<b>Chapter Six: Care and Cleaning</b> .....	30
Maintenance Tips .....	30
Cleaning Tips .....	30

---

# Table of Contents

<b>REFERENCE GUIDE</b> .....	31
<b>Appendix A: Product Specifications</b> .....	31
General Specifications .....	31
LCD Support .....	31
VGA/Flat Panel Graphics Controller .....	31
Cardbus Interface .....	31
Ethernet Support .....	31
External Serial Ports .....	32
USB Ports .....	32
Floppy Disk Drive Port .....	32
Optional Resistive Touch Screen Controller .....	32
Hot Keys .....	32
Keyboard Interface .....	32
Environmental Specifications .....	33
Power Supply .....	33
<b>Appendix B: Programming Interface</b> .....	34
Assigned and Available IRQs .....	34
DMAs .....	34
I/O Address List .....	35
<b>Appendix C: Troubleshooting</b> .....	36
Anti-Virus Alert .....	36
Troubleshooting Procedure .....	36
Boot Failures .....	37
Problems At Initial System Startup .....	38
Problems After the System Has Been Running Correctly .....	38
Problems Running New Application Software .....	39
Problems Operating PC Cards .....	39
Problems with Ethernet .....	39
Problems and Suggestions .....	40
Error and Information Messages .....	42
PCI Configuration Status and Error Messages .....	44
Resetting the System .....	45
<b>Appendix D: Touch Screen (optional)</b> .....	46
CMOS Configuration .....	46
<b>Appendix E: Technical Support</b> .....	47
For Service .....	47
For Further Information and Driver Updates .....	47



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# INSTALLATION GUIDE

## Before You Begin

Installing and setting up your Clean Screen II PC is very straightforward. But before you get started, there are some things you should know.

## What's in the box?

Each box will contain a Planar Clean Screen II *head* (that is, the integrated computer and LCD display), three Torx drivers (sizes: T15, T20, T25), the external power supply, and the power cord. Remove the equipment carefully and inspect for damage. Immediately notify the shipping company if damage has occurred. Set aside the packing material for possible future use.

## What's in the *IS Manager's Kit*?

This manual and several 3.5" diskettes with all the display drivers necessary to install your Clean Screen II PC to various Microsoft operating systems. (If you ordered your Clean Screen II PC with a preloaded OS, then the drivers will already be installed on the hard disk.) The *IS Manager's Kit* is sold separately from the Clean Screen II PC. If you need to purchase additional kits, please call (503) 614-4100. Together, the Clean Screen II shipping box and the *IS Manager's Kit* contain everything you need for installation and setup.

## What's in this manual?

This manual is an advanced guide for installation and setup. It is intended for Information Services Department professionals. We are not going to tell you things you already know about PCs. We will cover what is unique about a Planar Clean Screen II and what you need to know to successfully install and set them up. We encourage you to look through the entire manual before you begin. Even if you don't need all the information right now, it is good to know where it is for later reference.

## What if I'm missing something?

If something is missing from the box, please contact us at (503) 614-4100 or (800) 893-8885.

There are, however, several other items you may need. In this manual we will assume you already have the *IS Manager's Kit*, standard Planar mounting equipment for the Clean Screen II, and a Planar 3.5" external floppy drive (for loading any necessary drivers). If you are missing any of these, please check with your department. If necessary, you can contact us for more information or to order these parts.

Clean Screen II Mounts and Accessories	P/N
12" wall mounted swing arm	M3S12
Flush wall mount system (for head and keyboard cabinet)	M3WC0
Flush wall mount system (head only)	M3FHM
Roll stand only	M3POLE
Roll stand with UPS	M3POLE-PS2
<i>IS Manager's Kit</i>	C3DOC-2
<i>IS Manager's Kit, TOUCH</i>	C3DOC-TS
Keyboard cabinet with keyboard and mouse	M3W00
External floppy drive	C3FLOP

## Safety Instructions

Your Planar Clean Screen II PC has been designed, assembled, and inspected to ensure both the highest quality product and greatest level of safety for the user. To maintain both quality and safety, you must follow the instructions in the manual and the following safety guidelines.

1. Read the safety and installation guidelines carefully.
2. Keep the manual handy for future reference.
3. Install and use the Clean Screen II only on a sturdy surface and in stable surroundings.
4. Use the Clean Screen II in dry environments only.
5. Do not block vents or other slots on the Clean Screen II housing.
6. Use only the power supply module included with the Clean Screen II.
7. Use and maintain the safety ground plug set (power cord) included with the unit.
8. After the Clean Screen II has been installed, secure all electrical cords out of the way to prevent the unit from being pulled off the table or other accidental damage.
9. Turn off and unplug the Clean Screen II before removing the back housing to access internal user serviceable parts.
10. Avoid placing the Clean Screen II or any of its cables on or near heat sources.
11. Clean Screen II and its power supply meet the UL2601 standard for cleaning in a hospital environment. Please see **Chapter Six: Care and Cleaning** for details.
12. Before cleaning, or if the unit becomes wet for any reason, it is always best to disconnect the unit from its power source.
13. Practice caution when moving the Clean Screen II to a different location. Use original packaging whenever possible.
14. If the Clean Screen II does not power-up when the power is switched on, refer to the **Troubleshooting** section of this manual in **Appendix C** and follow the directions. If the Clean Screen II still does not work, immediately disconnect it from its power source and contact a qualified service technician.



**If this device is used in a medical facility, any application software used on the Clean Screen II PC must be in the language of the user.**

## Front Panel



Figure 1

## Connections (Bottom)

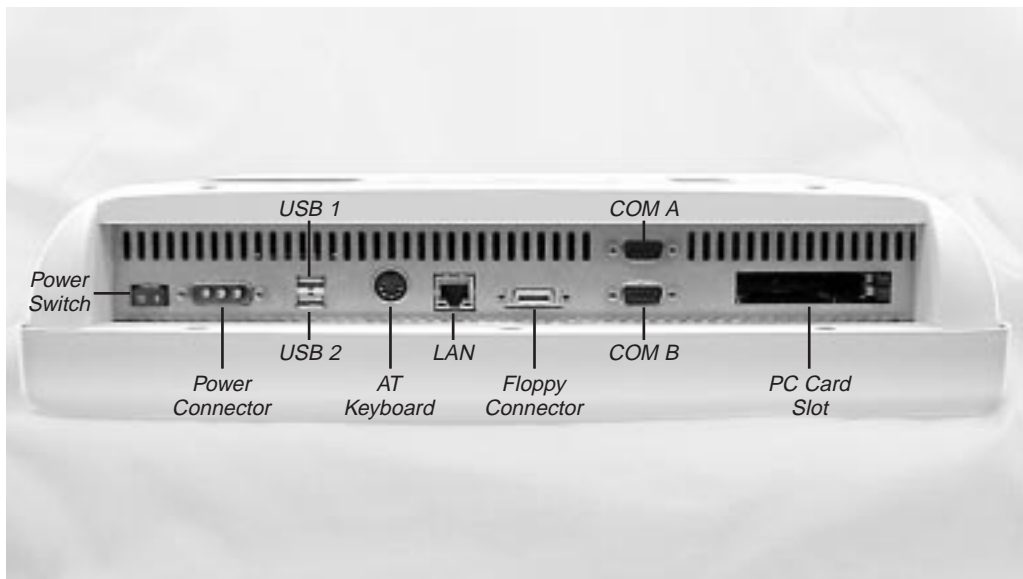


Figure 2

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# Chapter One: The Installation Express

If you are an experienced technician who has installed Clean Screen II PCs, then check out **Chapter One: The Installation Express**. It covers the major steps. If you are the least bit unsure of any step, please resume reading the rest of the manual.

1. Review the *Before You Begin* section of the manual — especially its *Safety Instructions*.
2. Unpack the Clean Screen II PC and save the packing.
3. If you need to add memory or a hard drive, read **Chapter Three: Hardware Installation and Replacement** for details.
4. Connect the keyboard, network, mouse, and any other peripherals. If you need help, refer to **Chapter Four: System Setup**.
5. Before connecting the power, make sure the power switch is in the off (O) position. Connect the power.



**To prevent damage to the Clean Screen II, ensure correct orientation of the power connector before plugging it into the unit. Always secure the connector in place before turning on the Clean Screen II.**

---

6. Turn on the unit.
7. Press <F2> immediately when prompted to enter the *CMOS Setup*. The screens are self-explanatory. If a floppy disk is required for setup, you will need to enable drive “A.”
8. If your system was purchased without an operating system, you will need to use a boot disk to create disk partitions and format the HDD before installing your operating system.
9. Load any drivers necessary for your system from the *IS Manager’s Kit*. Follow the **Readme.doc** and other information on the disks.
10. Load your application software.
11. You may want to read the rest of the manual. There are many helpful details about your new Clean Screen II PC, especially in the **REFERENCE GUIDE** section.



**While the LCD display has a 25,000-hour back light life, the use of power management to turn off the display when not in use is highly recommended.**

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# Chapter Two: The Clean Screen II PC

## Welcome

Thank you for purchasing Planar's Clean Screen II color LCD personal computer, an IBM® compatible PC integrated with a full color LCD VGA display. The Clean Screen II PC combines Intel® Pentium® performance with state-of-the-art display technology to offer the most advanced, rugged, and lightweight PC system commercially available.



Figure 3 — Planar Clean Screen II with keyboard cabinet.

## Clean Screen II Facts

The Clean Screen II is an IBM compatible PC integrated with a color LCD screen. It supports an Intel Pentium 266 MHz microprocessor and memory configurations to 256 MB FPM, EDO DRAM, to 256 MB 66 MHz SyncDRAM. The system supports all EIDE and Ultra DMA/33 hard drives in the 3.5-inch form factor. The system includes a 15-inch AMLCD-TFT display supporting resolutions of 640 x 480, 800 x 600, and 1024 x 768. The entire unit is rated to withstand shocks of up to 50 g, is powered by a single power supply, and is certified to meet the UL2601.1 standard for safety. The system provides two Universal Serial Bus ports, two serial ports, one AT keyboard port, one external floppy drive port, and one PC Card Type III expansion socket. Additionally, the system provides onboard Ethernet connectivity with either 10 or 100Base-T support.

The system BIOS supports the Pentium processor with MMX™ technology. The system BIOS is year 2000 compliant, but it is recommended by the manufacturer to re-boot the system with the century change.

Touch screen support is optional. If your unit has a touch screen, please refer to the manual included on the disk with the touch screen drivers and **Appendix D** of this manual.

The Clean Screen II PC does not include an integrated floppy disk. There is provision for externally accessing a floppy disk drive through a custom connector. This is for diagnostic and service use only.

## Front Panel



Figure 4

## Connections (Bottom)

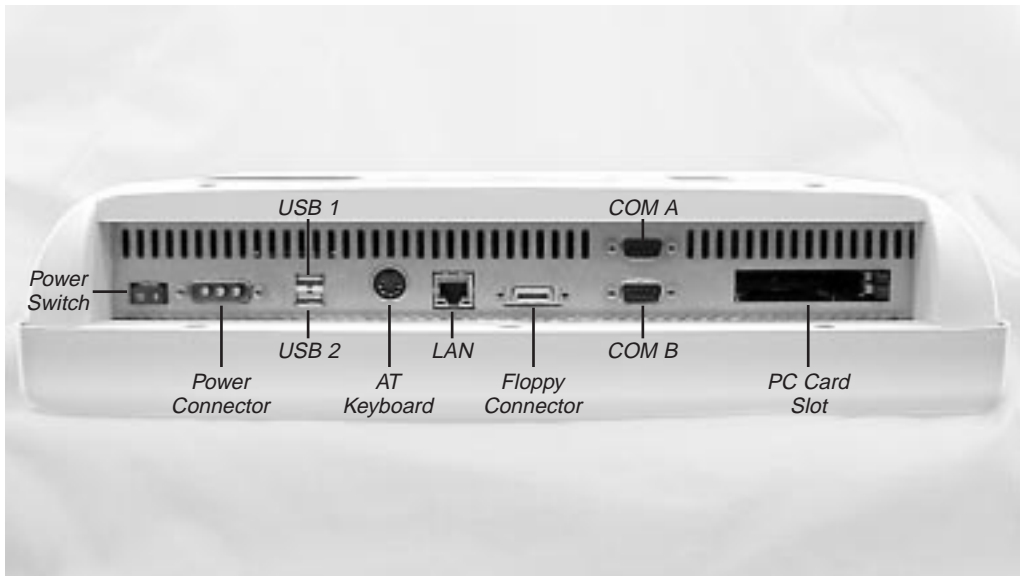


Figure 5

## Back Housing

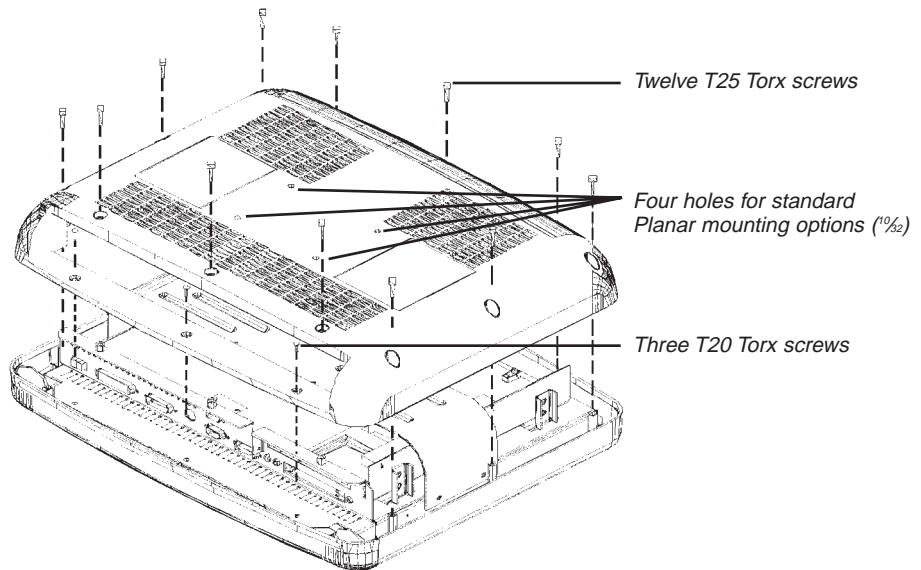


Figure 6 — Remove the back housing to gain access to the unit.

## Inside



Figure 7



**Do not remove the T-Bar or the standoffs.**

**Their removal is not necessary to install or replace the battery, hard disk, memory, or fuse. The display unit contained beneath the motherboard uses high voltages. The display unit is not field serviceable and its connections are easily damaged.**

---



**Static sensitive equipment.**

**Use proper grounding procedures while working inside the Clean Screen II.**

---



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# Chapter Three: Hardware Installation and Replacement

This chapter refers to installing or replacing options within the Clean Screen II itself. Instructions on installing the Clean Screen II onto a standard Planar mounting option will come with the mounting equipment itself.

## Removing the Back Housing

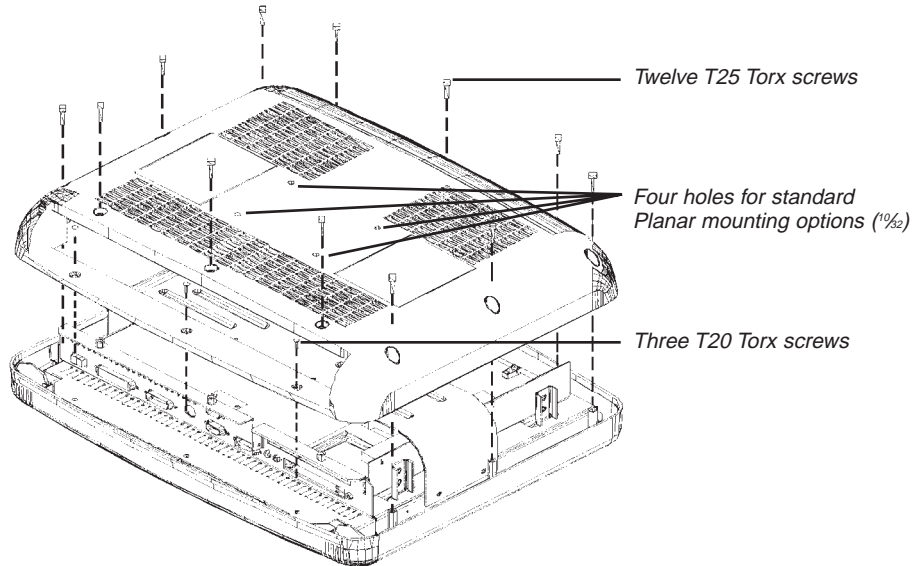


Figure 8



**Power down unit first and disconnect it from the power source.**

---

1. Power down unit first and disconnect it from the power source.
2. Use a static-free workstation.
3. Place Clean Screen II face down on a secure flat surface, using a cloth or other non-abrasive material to protect the display.
4. Remove the twelve attachment screws from the back housing using a T25 torx driver.
5. Remove the three attachment screws from the back housing located near the connector ports using a T20 torx driver.
6. Remove the back panel itself by gently lifting the bottom back edge first.

## Installing Memory

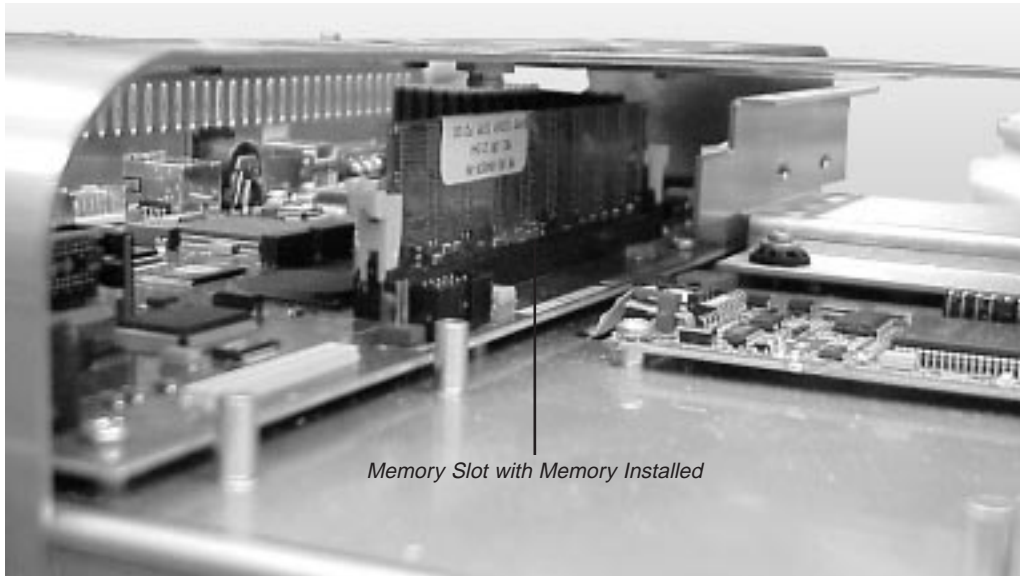


Figure 9



---

**Do not remove the T-Bar or standoffs.**

---

### To remove a memory module

1. Remove back housing as above.
2. Placing your hands on both sides of the T-Bar, gently open both side catches simultaneously (apply pressure to the plastic part of the catch, not the metal spring).
3. The module will pop up.
4. Remove the memory module.

### To install a memory module

1. Remove back panel as above.
2. Placing your hands on both sides of the T-Bar, gently insert the memory module into the empty socket. Ensure correct orientation using the module notch located next to the contacts.
3. Push the module down gently until the side catches snap up into place, coaxing them if necessary.

**Technical Note:** The memory module will only insert one way into the socket; do not force it. If you meet with resistance, check the orientation of the module.

For correct memory configuration, see table on the following page.

## Memory Map

<b>Range</b>	<b>CPU address</b>	<b>Region</b>	<b>Cached</b>
0 to 640K	00000000-0009FFFF	DRAM	yes
640K to 768K	000A0000-000BFFFF	VGA memory	no
768K to 816K	000C0000-000CBFFF	Shadowed VGA BIOS	yes
816K to 896K	000CC000-000DFFFF	ISA bus or UBE	yes
896K to 1M	000E0000-000FFFFFF	Shadowed System ROM BIOS	yes
1M to 16M	00100000-00FFFFFF	DRAM If no DRAM, ISA or PCI memory	yes no
16M to 64M	01000000-0FFFFFFF	DRAM If no DRAM, PCI	yes no
64M to (4.0G-512K)	10000000-FFF7FFFF	PCI	no
Top 512K to Top 16K	FFF80000-FFFFFFFF	FBD	no

## Replacing the Hard Disk Drive

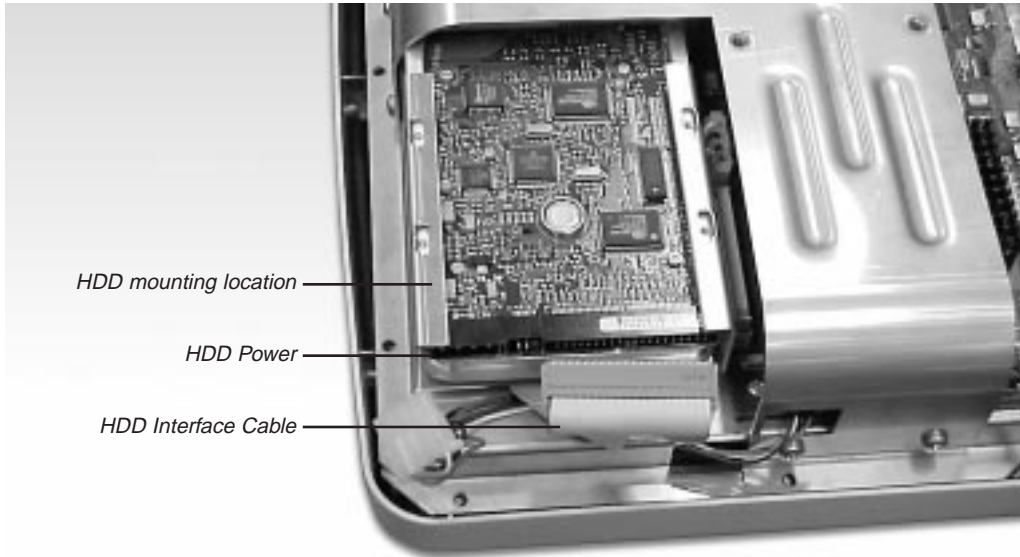


Figure 10

### Removing the existing hard disk

1. Remove the back housing as above.
2. Locate the hard disk.
3. Remove the four screws that secure the hard disk to the hard disk cage.
4. Gently detach the hard disk power and I/O cable from the hard disk.
5. Slide the hard disk out of the cage.

### Installing the new hard disk

1. Slide the hard disk into the cage so its four bottom-mount screws face upward.
2. Using the supplied 8-32 x  $\frac{3}{8}$ " Phillips head screws, attach the hard disk to the hard disk cage.
3. Gently plug the I/O cable into the slotted I/O jack on the hard disk.
4. Gently plug the power cable into the hard disk power jack.
5. Replace the back cover before you power up the unit.



**You will need a Phillips screwdriver with a #2 magnetic tip to complete this process.**

---



**Static sensitive equipment.  
Use proper grounding procedures while working inside the Clean Screen II.**

---



**To prevent damage to the Clean Screen II ensure correct orientation of the I/O cable before plugging it into the I/O jack on the hard disk.**

---

## Replacing the Battery

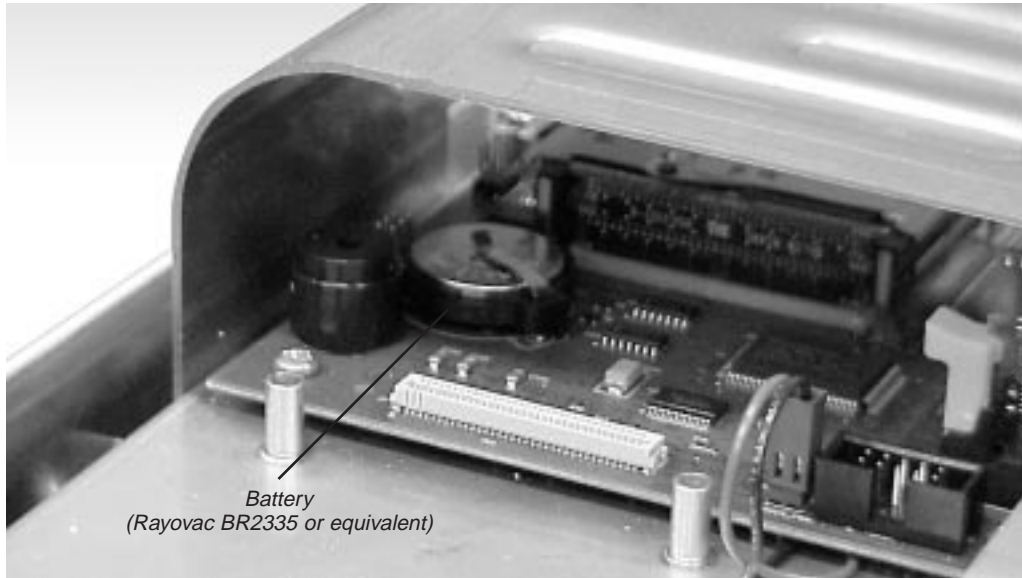


Figure 11

**Battery:** Rayovac BR2335 or equivalent.

1. Remove the back housing as above.
2. Gently pulling up on the battery bracket, remove the old battery.
3. Slide in a new battery. Dispose of the old battery in compliance with local regulations.
4. Upon startup, the system defaults will load. Enter *Setup* and go to the *Exit* menu to restore the CMOS settings saved in your flash memory. See **Chapter Five: BIOS Setup** for details.

**Technical Note:** Before removing the battery you must ensure the CMOS is backed up in flash memory. See **Chapter Five: BIOS Setup**.

## Replacing the Fuse

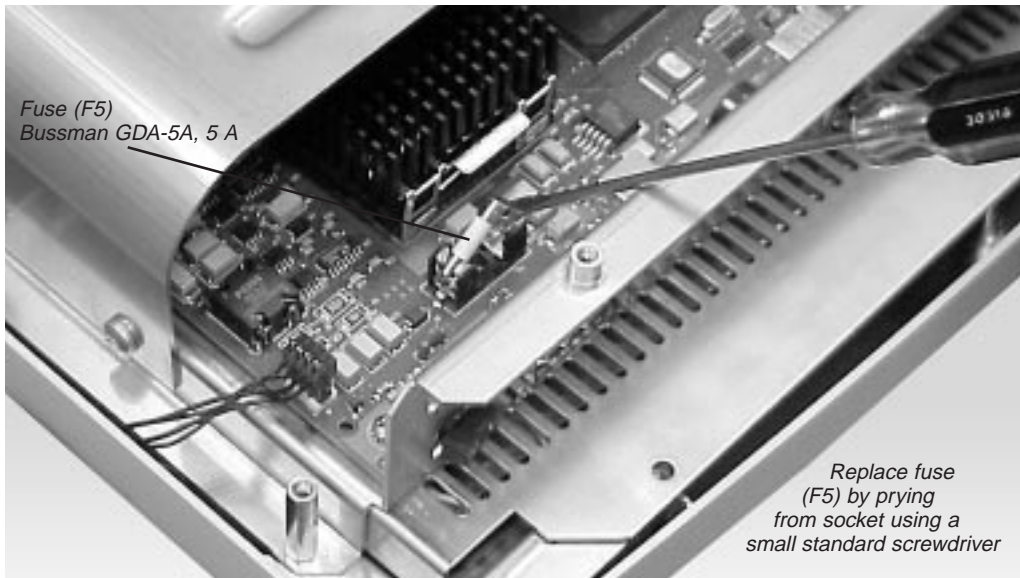


Figure 12



---

**Use only the fuse specified below to prevent damage to the Clean Screen II.**

---

**Fuse:** F5 Bussman GDA-5A, 5 A

1. Remove the back housing as above.
2. Using a small (jeweler-type) flat screwdriver, gently pry up on the fuse.
3. Snap in a new fuse that meets the above specifications.

## Mounting the Clean Screen II

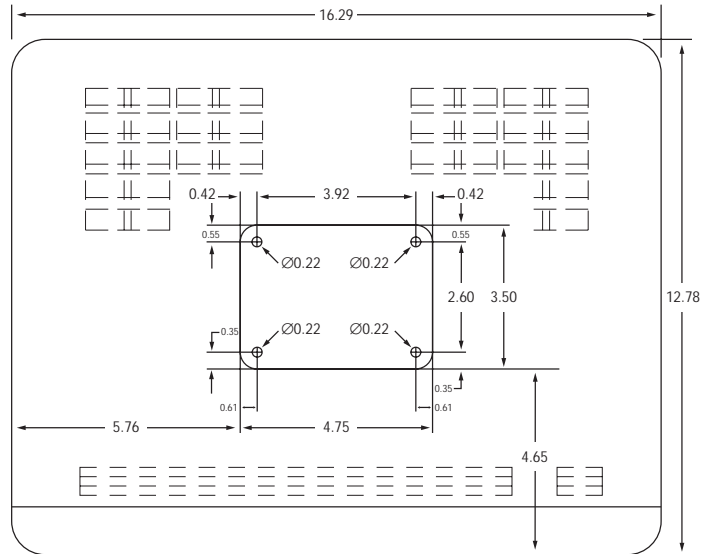


Figure 13 — The back of the Clean Screen II, showing the location of mounting holes.

Planar offers a variety of mounting options. If you are using one of these, please refer to the instructions included with your mounting hardware. If you are providing your own mounting hardware, please follow these simple guidelines:

1. Use the drawing above to create a template for greater accuracy in locating the mounting holes on your hardware.
2. Mount the Clean Screen II in such a way as to NOT block the rear cooling vents. Planar recommends a minimum of 1" rear clearance.
3. Use only mounting hardware that complies with OSHA, NFPA, and local as well as country building codes.
4. Ensure the weight or load limit of the mount is 3 times the weight of the Clean Screen II, or approximately 42 pounds.
5. Follow and comply with the vendor's mounting instructions.
6. Use four (4)  $\frac{1}{32}$  x  $\frac{1}{2}$ " stainless steel screws. If the thickness of the material you are mounting to requires the use of longer screws, simply add that thickness to the  $\frac{1}{2}$ " screw length. Do not use any screw that will protrude more than  $\frac{3}{8}$ " into the back of the Clean Screen II.

---

## Chapter Four: System Setup

Attach the keyboard and all peripherals before you power up the unit. All connections are made at the bottom of the unit. If you have not yet attached the Clean Screen II PC to a standard mounting bracket, then lay the unit face down before you attach the keyboard and peripherals. Be sure to use a non-abrasive cloth or other material to protect the face plate.

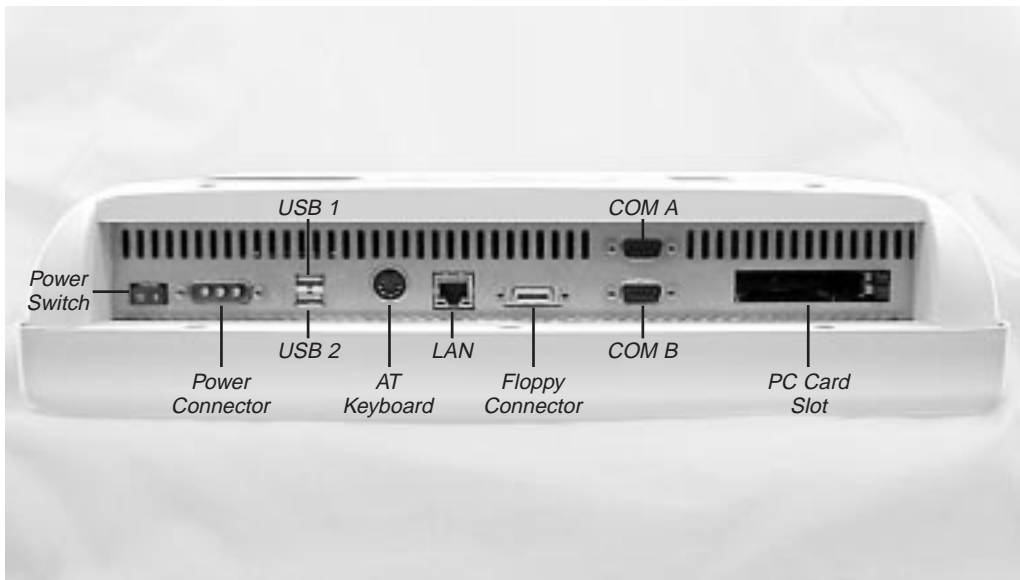


Figure 14

### Connecting the Keyboard

Your Clean Screen II can use any AT style keyboard. USB ports are also provided to support USB keyboards.

### Connecting Peripherals

#### Mouse

The Clean Screen II PC uses a serial type mouse. COM A is the default. A USB mouse can be used with the USB port.

#### Printer

Printer support is provided through USB.

### PC Card Slot

The Clean Screen II allows the connection of one Type III PCMCIA or PC Card or the use of two Type I or Type II PCMCIA or PC Cards.

### Ethernet Connection

The Ethernet connector is a right angle RJ-45.



## Floppy Drive Connection

Please note that this is NOT a standard floppy drive connection. The Clean Screen II is not designed for regular use with an external floppy drive. The connector will only allow use of a Planar 3.5" external floppy drive and is intended only for diagnostic and service use. If you need to load drivers for your operating system or other programs, you will need to obtain the correct drive. See *What if I'm missing something?* in the **Before You Begin** section.



**If this device is used in a medical facility, any operating systems or programs used are required to be in the user's language.**

---

## Power Supply

If you will be using AC power, you will need to use the AC power supply adapter that was packed with your Clean Screen II. If you will be using a Planar mounting stand with batteries, you will use its power connector. To prevent accidental power disconnect, always secure the power plug into the jack using the attached thumb screws.

## Power Cord Selection

The Clean Screen II AC power supply adapter has been provided with a "Hospital Only" or "Hospital Grade" type cord and plug. The plug has NEMA 5-15 approval. In the event it becomes necessary to replace the power cord, it is important to select a "Hospital Only" or "Hospital Grade" type cord and plug.

## USB Connection

The dual stacked USB port connectors are mounted on the I/O shield.

## External Speakers

Speakers are supported through USB.

## Powering Up the Clean Screen II PC



Figure 15

### Power On

Once the keyboard, mouse, power, and all peripherals have been connected, use the power switch located beneath the power-on indicator to power up the unit.

---

**⚠ Always power down the unit before you connect or disconnect any peripheral.**

---

### Setup (<F2>)

When the screen first writes, press <F2> on the keyboard to enter the *CMOS Setup* menu. Refer to the next chapter for details.

### Driver Overview

If you ordered the Clean Screen II PC with an operating system pre-loaded, then the display, network, and touch drivers will already be loaded on the hard disk. Otherwise you will need to check the floppy disks that came with the *IS Manager's Kit* for the appropriate drivers. You will find documentation and instructions in the **Readme** files stored on the disks.

### Brightness Control

Display brightness can be controlled either by a hot key sequence of *control-alt-F1* to increase brightness, or *control-alt-F2* to decrease brightness. Some operating systems may provide additional brightness adjustment.

---

# Chapter Five: BIOS Setup

The *Setup* program customizes the way the Clean Screen II PC uses the hardware features of its BIOS (Basic Input/Output System). The *Setup* data is stored in CMOS and guides the computer every time it is turned on. A special feature of the Clean Screen II PC is its ability to also store the *Setup* information in flash memory, so *Setup* information can be recovered by the system should the CMOS become corrupted. See the *Exit* menu section for details.

## Entering the BIOS Setup Program

When you first boot up the Clean Screen II PC, there is a short-time window during which a message is displayed telling you to *Press F2 to enter Setup*. Press and hold <F2> to enter *Setup*.

## Setup Screens

The *System BIOS Setup* menus are the standard Phoenix NuBIOS 4.06 (with plug-and-play and PCI support) screens with RadiSys extensions. A legend at the bottom of each screen provides information for the user to manipulate setup options.

Use the up and down arrow keys to move the cursor from field to field, and the right and left arrows to move from menu to menu. If the arrow keys are used to leave a menu and then return, the active field is always at the beginning of the menu. Fields with a triangle to the left are sub-menu headings; pressing <enter> when the cursor rests on one of these headings opens that sub-menu. Within the sub-menu, most fields allow the user to flip through available choices by pressing the <+> and <-> keys. Once the desired entry has been selected, use the up or down arrow to move the cursor to the next field.

There are four menus: *Main*, *Advanced*, *Power*, and *Exit*. Note that item specific *Help* is provided whenever an item is selected. In this manual we will only detail the more important sub-menus and choices.

Accessed from the *Main* screen, a *Boot Delay* option is added to the *Boot Options* screen and allows the User to specify the boot delay in seconds. The *Boot Delay* is the only mechanism that prevents a boot failure on slow devices.

The System BIOS also supports advanced features such as 32-bit disk I/O, Block and Fast Programmed I/O, Ultra DMA/33, and the Intel/Microsoft INT13 disk extensions. These features are automatically configured in the IDE setup menus if the System BIOS has determined (through autotyping information) that the installed hard disk is capable of supporting them.

## Main Menu

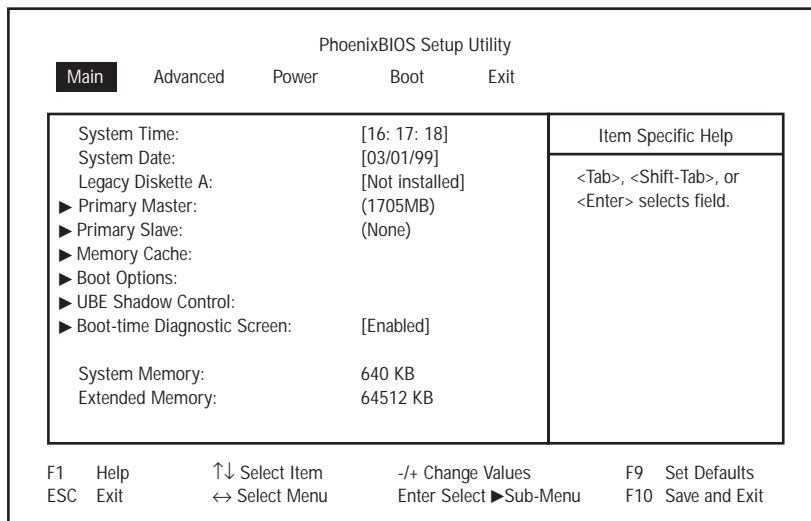


Figure 16 — Main BIOS Setup menu.

The first screen you'll see is the **Main** menu.

### System Time and System Date

These values are changed by moving to each field and typing in the desired entry. The TAB key moves from hours to minutes to seconds, or from months to days to years.

### Legacy Diskette A:

This field specifies the type of floppy disk installed as drive A:. Possible settings are *1.44/1.25 MB*, *3½*; *360 KB*; *1.2 MB*; *720 KB*; and *Disabled*. **The default is 1.44/1.25 MB, 3½.**

### Primary Master and Primary Slave Sub-Menus

These fields are headings for menus that allow entering complete disk drive information. Usually, if your hard disk has not been defined, you will press <enter> at the **IDE Adapter 0 Master** sub-menu. There you can select *Autotype Fixed Disk* to allow the system to detect the drive type automatically. The entry in the **Main** menu shows the drive selected.

### Memory Cache Sub-Menu

The term *memory cache* refers to the technique of caching BIOS images.

### UBE Shadow Control Sub-Menu

The options under this menu enable up to three user BIOS extensions and specify a source, destination shadow address, and size.

## **Boot Options Sub-Menu**

This sub-menu allows changing the boot delay for slow hard drives. The Boot Delay option is used to set the system to delay booting for a time period expressed in seconds from 0 through 255. This allows for long startup times on boot devices that spin up slowly. **The default is 0 seconds.**

## **Boot-Time Diagnostic Screen**

This field specifies whether or not a boot-time diagnostic screen of the BIOS boot progress is displayed during BIOS POST. The options are *Enabled* and *Disabled*. **The default for this field is *Disabled*.**

## **System Memory**

This field is not editable and displays the amount of conventional memory (below 1 MB). No user interaction is required.

## **Extended Memory**

This field is not editable and displays the amount of extended memory (above 1 MB). No user interaction is required.

## Primary Master/Slave Sub-Menus (under Main Menu)

The system supports two IDE devices. The following menu is representative of the menus for each of these devices. The detailed characteristics for each connected drive is available in this sub menu.

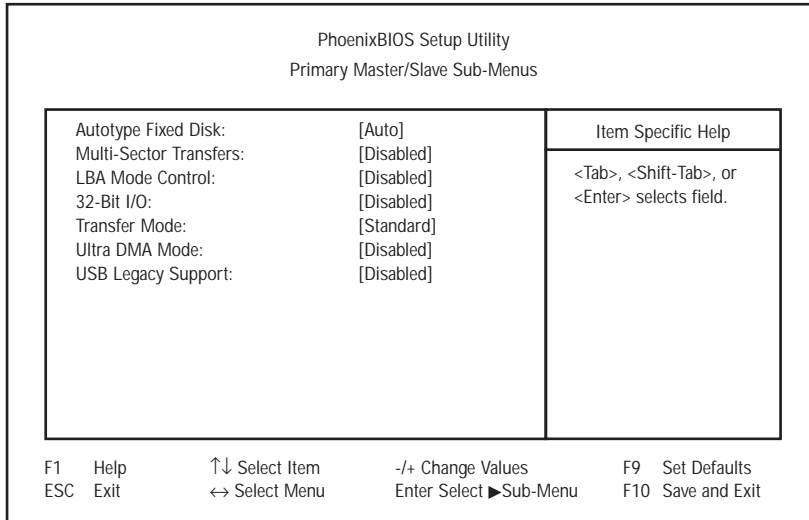


Figure 17 — Primary Master/Slave sub-menu.

### Autotype Fixed Disk

This option is used when setting up new disks. It allows *Setup* to determine the proper settings of the disk for drives that comply with ANSI specifications. The ENTER key is used to invoke this function.

Existing (formatted) disks must be set up using the same parameters that were originally used at the time the disk was formatted. The specific cylinder, head, and sector information as listed on the factory label must be manually entered on this screen using a *User* type described below.

### Type

*None* is selected if there is no IDE hard disk drive for this adapter. In cases where there is an IDE disk but the *Autotype* feature cannot be employed, then the *User* type is selected and the correct drive values for cylinders, heads, sectors/track, and write precompensation are entered. For MultiBoot II the selections for this field are: *Auto*, *ATAPI Removable*, *IDE Removable*, *CD-ROM*, *User*, and *None*. **The default is *Auto*.**

### Multi-Sector Transfers

This option allows the user to configure the System BIOS to read ahead by the specified number of sectors whenever a disk access is performed. This has the effect of reading more data at once and reduces the absolute number of discrete disk reads performed by the operating system, thus increasing system performance. The possible selections are *Disabled*, *2 sectors*, *4 sectors*, *8 sectors*, or *16 sectors*. Note that autotyping may change this value if the hard disk reports that it support block accesses. **The default is *Disabled*.**

## LBA Mode Control

When enabled, this option allows the System BIOS to reference hard disk data as logical blocks instead of using the traditional Cylinders/Heads/Sectors (CHS) method. This option can only be used if both the hard disk being configured and the operating system support Logical Block Addressing (LBA). If disabled, then CHS mode is used. Note that autotyping may change this value if the hard disk reports that it supports LBA. **The default is *Disabled*.**

## 32-Bit I/O

This option allows the System BIOS to access the hard disk controller with 32-bit I/O accesses, increasing system performance. This selection is not affected by autotyping. If the PCI IDE controller in the chipset is being used, then this option should be set to *Enabled* to maximize system performance. If an ISA bus IDE controller is installed in the system, then this option should be set to *Disabled*. **The default is *Disabled*.**

## Transfer Mode

This option selects the mode that the System BIOS uses to access the hard disk. The selections are: *Standard*, *Fast PIO 1*, *Fast PIO 2*, *Fast PIO 3*, and *Fast PIO 4*.

Older hard disks only support *Standard*. Newer hard disks adhering to Fast ATA or Enhanced IDE specifications may support the fast programmed I/O or DMA modes. Note that autotyping may change this value depending on the transfer modes that the hard disk supports. The fast DMA modes take full advantage of the onboard bus master hard disk controller and yields the highest performance when used in conjunction with multitasking operating systems that support it. **The default is *Standard*.**

## Ultra DMA Mode

This option selects the Ultra DMA Mode that the System BIOS uses to access the hard disk. The selections are: *Disabled*, *Mode 0*, *Mode 1*, and *Mode 2*. **The default is *Disabled*.**

## USB Legacy Support

This option allows for USB support of non-USB supported operating systems. Enabling of this option can cause system conflicts with operating systems that support USB. **The default is *Disabled*.**

## Boot Options Sub-Menu (under Main Menu)

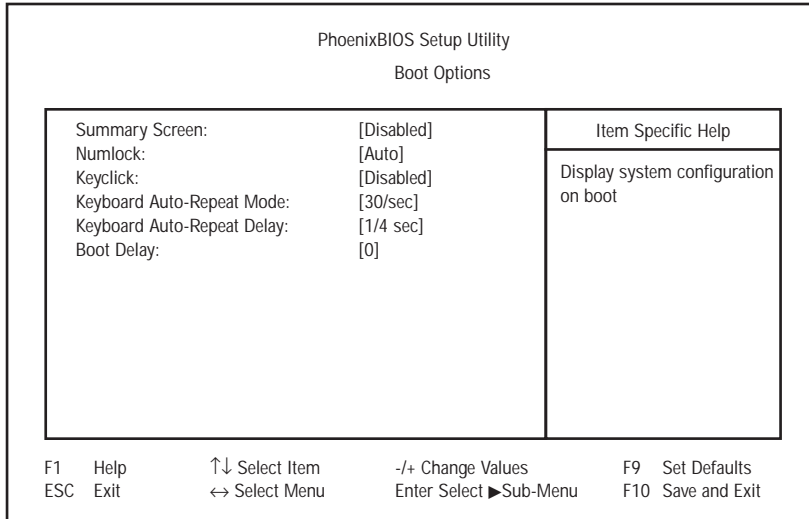


Figure 18 — Boot Options Sub-Menu

### Numlock

This option is used to enable or disable the Numlock feature of the keyboard on booting. This enables the use of the keypad numbers. The Auto setting automatically engages the numlock key at boot time. **The default is Auto.**

### Keyclick

This option is used to enable or disable the keyclick feature on the keyboard. If enable, the system produces an audible click each time a key is pressed. **The default is Disabled.**

### Keyboard Auto-Repeat Rate

This option is used to set the auto-repeat rate if holding a key down on the keyboard. The rates can be set to one: *2/sec*, *6/sec*, *10/sec*, *13.3/sec*, *18.5/sec*, *21.8/sec*, *26.7/sec*, and *30/sec*. **The default is 30/sec.**

### Keyboard Auto-Repeat Delay

This option is used to set the delay between the time a key is pressed and the auto-repeat feature begins. Options are *1/4 sec*, *1/2 sec*, *3/4 sec*, and *1 sec*. **The default is 1/4 sec.**

### Boot Delay

This sub-menu allows changing the boot delay for slow hard drives. The Boot Delay option is used to set the system to delay booting for a time expressed in seconds from 0 through 255. This allows for long startup times on boot devices than spin up slowly. **The default is 0 seconds.**



## Advanced Menu

The Advanced menu contains settings for configuring peripherals, the chipset, PCIbus, User BIOS Extensions, Plug-and-Play control, and large disk access mode.

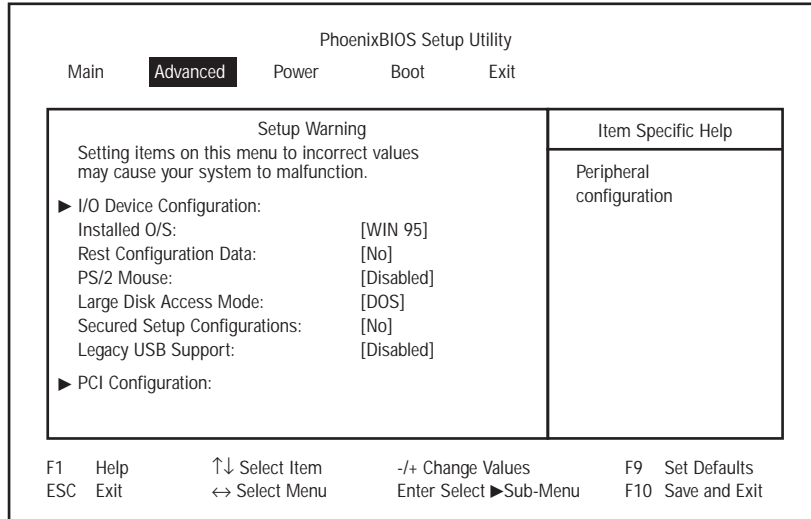


Figure 19 — Advanced menu.

### I/O Device Configuration Sub-Menu

This option is used to configure the I/O addresses, interrupts, and modes of certain configurable I/O devices.

#### Installed OS Win 95

If Win 95, this option informs the System BIOS that the operating system that will be booted supports plug-and-play. This forces the plug-and-play portion of the System BIOS to only configure baseboard devices and those peripherals that are necessary for booting (display, hard disk, etc.), the rest being left to the operating system to configure. **The default is Win 95.**

#### Reset Configuration Data

If enabled, this option clears the Extended System Configuration Data (ESCD) block residing in the FBD. This is necessary the first time a system is turned on or if the ESCD becomes corrupted. **The default is No.** This option is automatically reset to *No* after the ESCD is cleared.

#### Large Disk Access Mode

If you are using a hard disk larger than 528 MB and are running MS-DOS®, then set this selection to *DOS*. If you are using a different operating system, then set it to *Other*. When set to *DOS*, the System BIOS will perform cylinder/head translation, if the drive is configured in *Setup* to have more than 1024 cylinders. This allows access to hard disks up to 8 GB (1024C x 255H x 63S) in size without special drivers or LBA. **The default is DOS.**

## **PCI Configuration Sub-Menu**

This option is used to select the PCI configuration sub-menu in order to configure the PCI devices.

## **PS2 Mouse**

You need to enable PS2 mouse to use USB mouse under Win 95 or NT 4.0.

## **Legacy USB Support**

Again, you need to enable to use USB mouse under Win 95 or NT 4.0.

## I/O Device Configuration Sub-Menu (under Advanced Menu)

The options in this sub-menu configure the onboard serial and disk controllers.

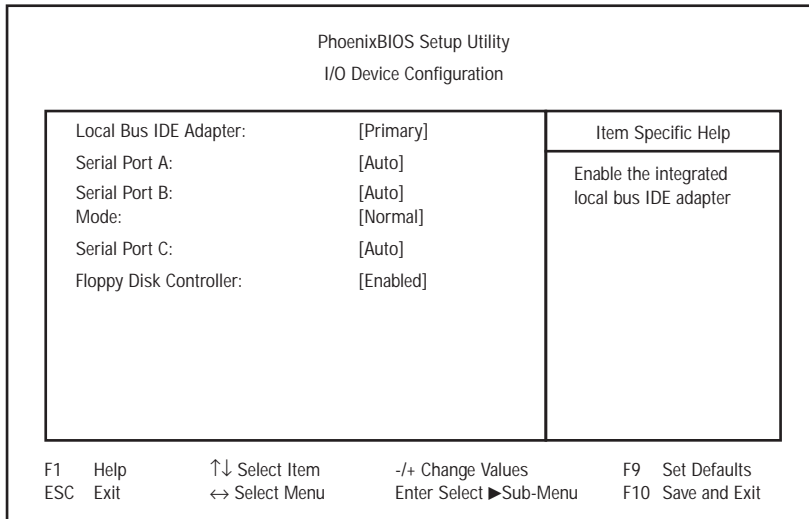


Figure 20 — Integrated Peripherals sub-menu.

### Local Bus IDE Adapter

This option enables either *Both*, *Primary*, or *Secondary* IDE controllers. **The default is *Primary*.**

### Serial Port A

This option configures Serial Port A. The choices for this option are: *Auto*, *OS Controlled*, *Enabled*, or *Disabled*. When the *Auto* option is selected, the BIOS or the OS configures the device. When the *OS Controlled* option is selected, the OS configures the device. When the *Enabled* option is selected the User configures the device. **The default is *Auto*.**

### Serial Port B

This option configures Serial Port A. The choices for this option are: *Auto*, *OS Controlled*, *Enabled*, or *Disabled*. When the *Auto* option is selected, the BIOS or the OS configures the device. When the *OS Controlled* option is selected, the OS configures the device. When the *Enabled* option is selected the User configures the device. **The default is *Auto*.**

### Mode

Sets the mode for Serial Port B. **The default is *Normal*.**

### Serial Port C

This option configures Serial Port C. The choices for this option are: *Auto*, *OS Controlled*, *Enabled*, or *Disabled*. When the *Auto* option is selected, the BIOS or the OS configures the device. When the *OS Controlled* option is selected, the OS configures the device. When the *Enabled* option is selected the User configures the device. This port must be selected *Auto*, *OS Controlled*, or *Enabled* if the Touch Screen option is installed on the Clean Screen II. **The default is *Auto*.**

## Floppy Disk Controller

This option enables or disables the onboard floppy disk controller. The choices for this option are: *Auto*, *OS Controlled*, *Enabled*, or *Disabled*. When the *Auto* option is selected, the BIOS or the OS configures the device. When the *OS Controlled* option is selected, the OS configures the device. When the *Enabled* option is selected the User configures the device. **The default is *Enabled*.**

## Power Management Menu

The options in this menu provide control over the power management facilities. Only about half of the **Power** menu screen entries are actually visible at any one time; however, for illustrative purposes, all of the **Power** menu entries are listed and annotated below.

System BIOS Power Management supported states are: *Maximum Performance*, *Maximum Battery Life*, *Customized*, and *Disabled*. Wake-up event setup items are TBD.

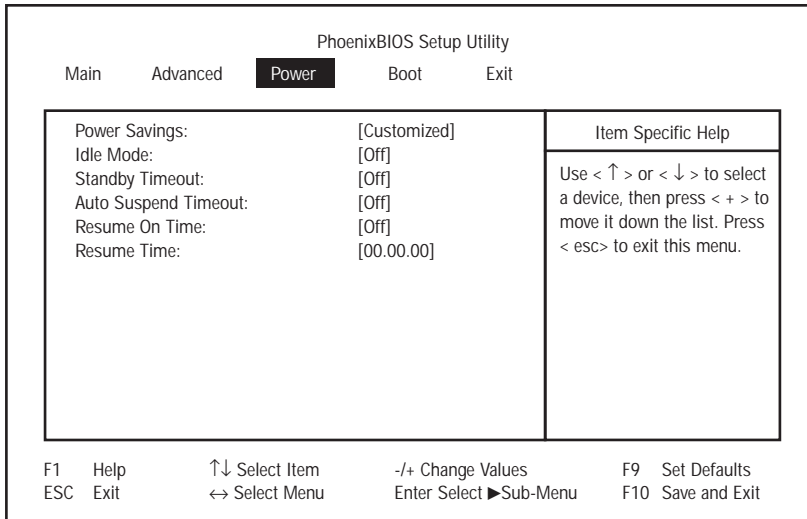


Figure 21 — Power Management menu.

### Power Savings

This option enables and selects the kind of power management, or it can be used to disable power management. The options are: *Maximum Performance*, *Maximum Battery Life*, *Customized*, and *Disabled*. **The default is *Customized*.**

### Idle Mode

This option enables power saving during Idle Mode. Idle Mode slows down the CPU during brief periods when the system is not busy. **The default is *Off*.**

### Standby Timeout

This option enables and sets the duration of inactivity required before the system is placed in Standby mode, or it disables Standby Timeout. The options are: *Off*, *1 min*, *2 min*, *4 min*, *6 min*, *8 min*, *12 min*, and *16 min*. **The default is *Off*.**

### Suspend Timeout

This option enables and sets the inactivity duration required to elapse before the system is placed in Suspend mode from Standby mode, or it disables Suspend Timeout. The options are: *Off*, *5 min*, *10 min*, *20 min*, *30 min*, *40 min*, and *60 min*. **The default is *Off*.**

## **Resume On Time**

This options are Off and On. The default is Off.

## **Resume Time**

The default is 00:00:00.

## **IDE Monitoring**

IDE monitoring is enabled. This means access to the IDE drive will not allow the system to enter a power management state. Access to the IDE will cause wake-up.

Note: These options take effect only under DOS. Win95 and Win98 control power management through APM 1.2. NT 4.0 will also disable these settings via APM 1.2.

# Boot Menu

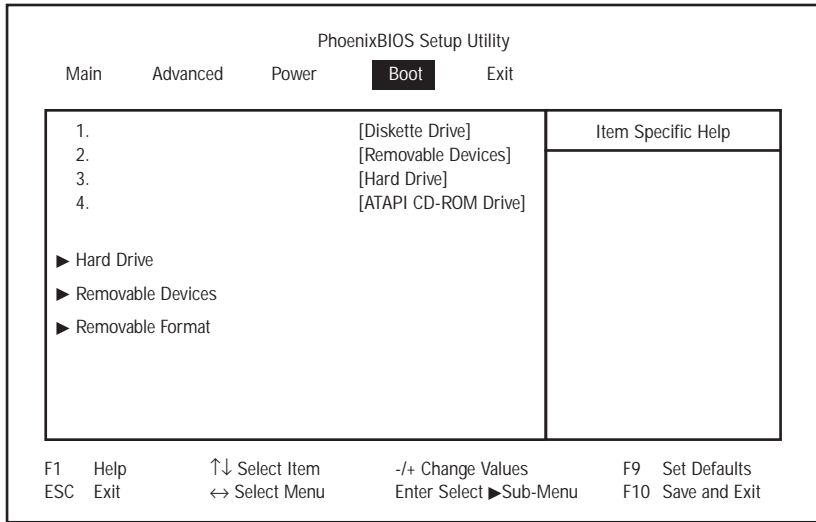


Figure 22 — Boot menu.

## 1. Hard Drive

The system attempts to boot to the operating system from the first hard drive in this list. If no operating system is found, the system tries the next drive listed until the operating system is found.

## 2. Removable Devices

The operating system assigns drive letters to these removable devices (Ex. LS-120, Zip drive, etc.) in the order displayed. Change the sequence and the drive lettering of a device by selecting it with <↑> or <↓> and moving it with the <+> or <-> key.

## 3. Removable Format

Select the format used by the removable media.

## Exit Menu

The options in this menu allow the user to save CMOS settings and exiting, or abandon changes and exit the system.

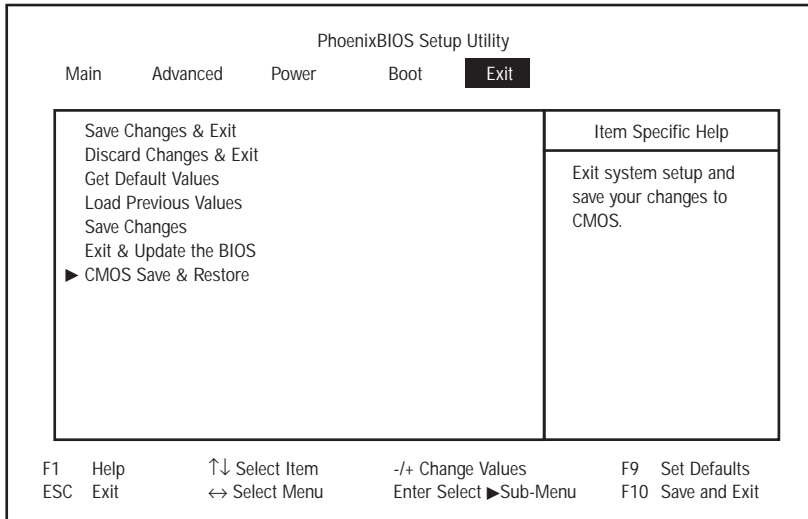


Figure 23 — Exit menu.

### Save Changes and Exit

This option saves the values that have been entered into CMOS and reboots the system.

### Discard Changes and Exit

This option discards the changes just made and reverts to the state when *Setup* was entered. The system reboots with the old values.

### Get Default Values

This option resets the *Setup* values to the original default values set at the factory, before any suppliers or end users made changes.

### Load Previous Values

This option loads the previous values that were in effect before the editing session started.

### Save Changes

This option saves to CMOS the edits made during a session.

### Exit and Update BIOS

This option initiates a System BIOS update.

### CMOS Save and Restore Sub-Menu

This option selects a sub-menu to allow saving, restoring, or erasing an image of CMOS memory from the FBD. The CMOS CSR restore condition is also selectable.



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# Chapter Six: Care and Cleaning

## Maintenance Tips

The Clean Screen II PC is a well designed unit that does not require any routine maintenance. There are, however, a few tips we would like to pass along.

When installing and using the unit, make sure that nothing is blocking the vents. All circuitry generates heat in normal operation and keeping the vents unblocked is essential for trouble-free operation.

A combination of screen savers and power-saving routines will preserve the quality of the LCD screen. Set a screen saver to come on after a few minutes of inactivity. Then use the hardware **BIOS Setup** program (see **Chapter Five**) to turn off the display after a few more minutes. You will save power and protect the display.

## Cleaning Tips

The Clean Screen II PC was designed to take rough treatment in busy hospitals. In addition to taking 50 g shocks, it also meets the tough UL2601 standard for safe operation. It can continue to operate even while being cleaned in a normal fashion for a hospital environment, such as with a saturated sponge or dampened, soft cloth. The UL2601 standard includes protection from standard cleaning chemicals and protection from liquids consistent with these cleaning procedures. It has an IPX-1 rating per IEC529.

### Approved cleaning solutions include:

Commercial or industrial grade general purpose cleaners (non-abrasive)

- Isopropanol (70% isopropyl alcohol)

- 5% bleach solution (5% aqueous sodium hypochlorite)

- 1.6% aqueous ammonia

- 0.5% phenolic compounds

- 0.5% chlorhexidine in 70% isopropyl alcohol

Commercial or industrial grade glass cleaners



**DO NOT USE acetone or acetone-based cleaners.**

---

Although such cleaning should be perfectly safe, we nevertheless recommend cutting power to the unit whenever possible before cleaning. Although the Clean Screen II and its power supply meet UL2601 standards, your peripherals or wall socket may not.

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# REFERENCE GUIDE

## Appendix A: Product Specifications

### General Specifications

The Clean Screen II is an IBM compatible PC integrated with a color LCD screen. It supports an Intel Socket 9 Pentium 266 MHz microprocessor and memory configurations to 256 MB FPM, EDO DRAM, to 256 MB 66 MHz SyncDRAM. The system supports all EIDE and Ultra DMA/33 hard drives in the 3.5-inch form factor. The system includes a 15-inch AMLCD-TFT display supporting resolutions of 640 x 480, 800 x 600, and 1024 x 768. The entire unit is rated to withstand shocks of up to 50 g, is powered by a single power supply, and is certified to meet the UL2601.1 standard for safety. The system provides two Universal Serial Bus ports, two serial ports, one AT keyboard port, one external floppy drive port, and one PC Card Type III expansion socket. Additionally, the system provides onboard Ethernet connectivity with either 10 or 100Base-T support. The unit can be safely wiped down without interrupting operation.

In short, the Clean Screen II PC provides compact, rugged, and efficient PC support to medical, industrial, and clean room applications.

### LCD Support

The standard Clean Screen II display is a 15-inch, 1024 x 768, 36-bit TFT-AM LCD panel.

### VGA/Flat Panel Graphics Controller

A Chips and Technologies video-accelerated 69000 controller with 2 MB embedded SDRAM memory and 64-bit GUI is used to implement a high performance flat panel video interface.

### Cardbus Interface

A Texas Instruments PCI1250A PCI-to-Cardbus Host Adapter chip supplies a Cardbus and PC Card interfaces. The PCI120A is PCI 2.1, PC Card standard, and ACPI 1.0 compliant. The PCI1250A Cardbus controller is also connected to IRQ3, IRQ4, IRQ5, IRQ7, IRQ11, IRQ12, IRQ14, and IRQ15 for ISA legacy support.

### Ethernet Support

An Intel 82558 Ethernet controller is used to implement a high performance PCI-based 10/100Base-T Ethernet interface. The controller is a highly integrated Ethernet solution which provides a complete Ethernet node in a single IC. The controller is a bus master device which allows high data throughput with low CPU and system bus utilization.

## External Serial Ports

A National Semiconductor PC87309VLJ Super I/O controller is used to implement the two standard PC COM ports. These COM ports are compatible with the standard 16450 and 16550 architectures. They are labeled COM A and COM B and may be configured for any of the following ports:

- COM1 (I/O address = 3F8-3FF, IRQ4) (COM A default)
- COM2 (I/O address = 2F8-2FF, IRQ3) (COM B default)
- COM3 (I/O address = 3E8-3EF, IRQ4)

The serial ports cannot share the interrupts with other devices.

## USB Ports

A Universal Serial Bus (USB) controller is a host/hub controller and moves data between the main system memory and devices on the serial bus. The USB controller also includes the first level hub. This permits connection of two USB peripheral devices directly to the CPU chip set without an external hub. The port signals are accessible on two stacked USB connectors. If more external USB devices are required, an external hub can be connected to any one of these ports.

## Floppy Disk Drive Port

The National Semiconductor PC87309VLJ super I/O controller provides a PC floppy disk port that supports one floppy disk drive. The floppy interface is a MiniD 20. The port includes +12 V and +5 V to power the disk drive, which will be current limited by Raychem Polyfuses to 1 A max. The connector for this port is unique to the Clean Screen II, so a Planar-supplied drive with custom cables should be used. Only pre-formatted diskettes should be used.

## Optional Resistive Touch Screen Controller

Optional touch screen support is provided by an ELO TouchSystems E271-2210™ controller. If your Clean Screen has a touch screen, please refer to the Read Me file included on the touch screen driver disk. The E271-2210 controller board is mounted inside the display enclosure. Power is sourced inside the display. See Appendix D for additional touch screen information.

## Hot Keys

*control – alt – F1* = brightness up.

*control – alt – F2* = brightness down.

## Keyboard Interface

An external 87C42 keyboard controller will provide on AT-style keyboard port and support hot keys for adjusting the back-light inverter. The unit may be operated without a keyboard when appropriate pointing devices are installed.

## Environmental Specifications

Operating Temperature	+10° C to +40° C
Operating Humidity	20 to 80% RH non-condensing
Operating Shock	50 g
EMI Standards Conducted Limits	FCC CFR 47, Part 15, Class A; CISPR 22, Class A; EN55011 Class A; EN50082-1; Canadian Emissions Class A
UL and C-UL Safety Certification	
United States Standards	UL2601-1
Canadian Standards	C22.2 No. 601.1 (power supply only)
Connectors	Commonly used external connections to be drip proof

## Power Supply

The Clean Screen II is rated to work from 90 to 250 VAC at 47 – 63 Hz.

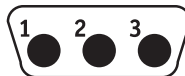
Line Voltage	90 – 250 VAC RMS
Line Frequency	47 – 63 Hz
Power Output	72 W max
Line Current	2 A max
Safety	UL1950, CSA22.2 no. 125 and no. 220, EN69950
EMI	FCC CFR 47, Part 15, Subpart B, Class B; IEC 901-2, -3, and -4; EN55022 Class B Emissions for CE

An alternate low leakage UL2601 supply is rated to work from 90 to 120 VAC at 57 – 63 Hz. Both power supplies have a standard IEC male power inlet adapter. An approved low leakage power cord must be used with the UL2601 listed power supply.

Line Voltage	90 – 120 VAC RMS
Line Frequency	57 – 63 Hz
Power Output	72 W max
Line Current	2 A max
Safety	UL2601, CSA22.2 no. 125 and no. 220, EN60601-1
EMI	FCC CFR 47, Part 15, Subpart B, Class A; IEC 901-2, -3, and -4; EN55022 Class A Emissions for CE

Power connector pinout:

Description	Pin
NC	1
GND	2
+12 VDC	3



# Appendix B: Programming Interface

## Assigned and Available IRQs

	Timer	Keyboard Controller	Cascade Interrupt	Com2 or Com4	Com1 or Com3	Memory Parity	Touch Screen	SNN	Floppy Disk	Real Time Clock	Numeric Coprocessor	IDE Hard Disk	PCI	Cardbus Control
IRQ0	D													
IRQ1		D												
IRQ2			D											
IRQ3				D	X		X						X	X
IRQ4				X	D		X						X	X
IRQ5				X	X		X						X	X
IRQ6									D				X	
IRQ7				X	X		X						X	X
IRQ8										D				
IRQ9													X	X
IRQ10													X	X
IRQ11													X	X
IRQ12				X	X		X						X	X
IRQ13											D			
IRQ14												D	X	X
IRQ15													X	X
NMI						X								
SMI								X						X

D indicates factory default, X indicates optional or available IRQs

**Note:** PCI interrupts such as Ethernet, Cardbus, and Video will be mapped to unused ISA interrupts during PCI enumeration (i.e. power-up).

## DMAs

PCS PC-compatible DMA channels:

DMA2	8-bit	Floppy Disk Controller
DMA4		DMA0–DMA3 cascade
DMA5	16-bit	unassigned
DMA6	16-bit	unassigned
DMA7	16-bit	unassigned

## I/O Address List



**Never attempt to access an I/O address for which no device exists.**

<b>I/O Address</b>	<b>Device</b>
0000 to 000F	DMA controller 1
0020 to 0021	Interrupt controller 1
002E	Super I/O #2
002F	Configuration
0040 to 0043	System timer
0060 to 0064	Keyboard controller, NMI status and control is at 0061
0070 to 0071	Real-time clock, NMI mask
0080 to 0087	DMA controller 1
0088 to 008F	DMA controller 2
00A0 to 00A1	Interrupt controller 2
00B2 to 00B3	Power management
00C0 to 00DE	DMA controller 2
00F0 to 00FF	Coprocessor
015C	Super I/O #1
015D	Configuration
01F0 to 01F7	Primary IDE
02E8 to 02EF	Serial port COM4
02F8 to 02FF	Serial port COM2
03B4 to 03DA	VGA controller
03E8 to 03EF	Serial port COM3
03F0 to 03F3	Floppy disk controller
03F4 to 03F6	Primary IDE
03F7	Floppy disk controller
03F8 to 03FF	Serial port COM1
04D0 to 04D1	Interrupt controller
0CF8 to 0CFE	PCI configuration

**Note:** Other I/O resources such as USB, Bus Master IDE, Ethernet, Cardbus, PM registers, and SM registers are dynamically configured at power on reset (POST).

# Appendix C: Troubleshooting

## Anti-Virus Alert

Please note that you should run an anti-virus program whenever your system exhibits problems. Although the cause of the problem may not be a virus, you could save considerable time and effort if your system does turn out to be infected. Many virus programs display intermittent symptoms that seem to be restricted to the hardware, the software, or the operating system. A virus may also exhibit different symptoms at different times.

## Troubleshooting Procedure

This section provides a step-by-step troubleshooting procedure to identify a problem and locate its source.



---

**Turn off the system and any peripheral devices before you disconnect peripheral cables from the system. Otherwise you can permanently damage the system or the peripheral devices.**

---

1. Disconnect all external peripherals from the system, except for the keyboard.
2. Make sure the system is plugged into a properly grounded power outlet.
3. Make sure the keyboard is correctly connected to the system.
4. If the operating system normally loads from the hard disk drive, make sure there is no diskette in the floppy drive. If the operating system normally loads from a floppy diskette, insert the operating system diskette into the drive.
5. Turn on the system. If the power indicator does not light, but the system seems to be operating normally, the indicator is probably defective.
6. Monitor the power-on self test (POST) execution on the display. Each time you turn on the system, the POST checks the Clean Screen II, memory, keyboard, and certain peripheral devices.

Check the following during the POST:

- a. If the POST does not detect any errors, the system beeps once and boots up.
- b. Errors that do not prevent the boot process (*non-fatal* errors) display a message that looks similar to the following:

```
Error Message Line 1
Error Message Line 2
Press <F1> to continue,
Press <F2> for Setup,
<Esc> to Boot
```

You can note the error and press <esc> to resume the boot-up process or <F2> to enter *Setup*.

- c. Errors that prevent the boot process from continuing (*fatal* errors) are communicated by a series of audible beeps. If this type of error occurs, refer to the error codes and messages listed at the end of this chapter.
7. Confirm that the operating system has loaded.

## Boot Failures

The System BIOS attempts to display an error message on the display and halts when it encounters the following error conditions.

1. Fixed disk error

**Causes:**

- No drive connected
- Configured for 0 cylinders
- Controller reset failed
- Drive not ready
- Track 0 seek timed out
- Drive initialization failed
- Drive recalibration failed
- Last track seek failed

2. CMOS checksum failed

**Causes:**

- CMOS checksum failed

3. Timer error

**Causes:**

- System timer (0) failed

4. I/O error

**Causes:**

- I/O conflicts exist for serial and parallel ports, hard disk (any or all)

5. Other error

**Causes:**

- Peripheral components IRQ conflicts

The System BIOS *prints* an error message *but does not halt* when it encounters the following error conditions.

1. RTC error

**Causes:**

- RTC lost power

2. CMOS error

**Causes:**

- RTC battery failed

3. Configuration error

**Causes:**

- User BIOS Extension Region X will exceed DFFFFH



## Problems At Initial System Startup

Problems that occur at initial startup are usually caused by incorrect installation or configuration. Hardware failure is a less frequent cause.

- \_\_\_\_\_ Are all cables correctly connected and secured?
- \_\_\_\_\_ Are the configuration settings correct in *Setup*?
- \_\_\_\_\_ Are all drivers properly installed?
- \_\_\_\_\_ Are you using the supplied power supply?
- \_\_\_\_\_ Are add-in boards and the disk drive installed correctly?
- \_\_\_\_\_ Is there a keyboard attached?
- \_\_\_\_\_ Is a bootable diskette installed in drive A?
- \_\_\_\_\_ If the system has a hard disk, is it properly formatted or defined?
- \_\_\_\_\_ Is the memory module installed correctly? Try reseating the memory module.
- \_\_\_\_\_ Is the operating system properly loaded? See the operating system documentation.

## Problems After the System Has Been Running Correctly

After the system hardware and software have been running correctly, new problems often indicate equipment failure. Go through the checklist below to see if the situation is one that may be easily corrected. If the problem recurs after you have checked and corrected all of these items, refer to the troubleshooting procedures (see *Troubleshooting Procedure* in this chapter).

- \_\_\_\_\_ If you are running the software from a diskette, try a new copy.
- \_\_\_\_\_ If you are running the software from a hard disk, try running it from a diskette. If the software runs correctly, there may be a problem with the copy on the hard disk. Reinstall the software on the hard disk and try again. Make sure all the necessary files are installed.
- \_\_\_\_\_ Try clearing CMOS RAM and running *Setup*.
- \_\_\_\_\_ If the problems are intermittent, there may be a loose cable, dirt in the keyboard (if keyboard input is incorrect), a marginal power supply, or other random component failures.
- \_\_\_\_\_ A transient voltage spike, power outage, or brownout may have occurred. Symptoms of voltage spikes include a flickering video display, unexpected system reboots, and lack of system response to user commands. Reload the software and try again.
- \_\_\_\_\_ Voltage spikes can occasionally cause the heads of the disk drive to contact the disk. This can corrupt or destroy data files. If you are experiencing voltage spikes on the power line, install a surge suppressor between the power outlet and the system power cord.
- \_\_\_\_\_ Try reseating the memory module.

## Problems Running New Application Software

Problems that occur when you install or run new application software are usually related to the software. Faulty equipment is much less likely, especially if other software runs correctly. In some instances newly installed software may affect a previously installed software package. Go through the checklist below to see if the situation is one that may be easily corrected. If the problem persists after you have checked and corrected all of these items, contact the software vendor's customer service representative.

- Does the system meet the minimum hardware requirements for the software? Refer to the software documentation.
- Is the software an authorized copy? Unauthorized copies often do not work. Obtain an authorized copy of the software.
- If you are running the software from a diskette, is it a good copy?
- If you are running the software from a hard disk, is the software correctly installed? Were all necessary procedures followed and files installed?
- Are the correct device drivers installed?
- Are the correct video drivers installed?
- Is the software correctly configured for the system?
- Are you using the software correctly?

## Problems Operating PC Cards

Problems related to PC cards are usually related to improper card installation or interrupt and address conflicts. Go through the checklist below to see if you can correct the problem. If the problem persists after you have checked and corrected all of these items, contact the card vendor's customer service representative.

- Did you install the PC card according to the manufacturer's instructions? Check the documentation that came with the card.
- Is there PC card service software loaded on the unit?
- Is the PC card recognized? Is it supported by your card service software?
- Has the PC driver been enabled?
- Check IRQ configuration.
- Check memory address range.

## Problems with Ethernet

Problems related to Ethernet are usually due to incorrect configuration or bad cables. Go through the checklist below to see if you can correct the problem.

- Did you install the correct Ethernet adapter? If installing the on-board LAN, the correct adapter is an Intel 825x-based PCI Ethernet Adapter (10/100).
- Check network configuration. Is the adapter working properly? Is the correct protocol loaded? Has the correct IP address been specified?
- Check the cable and Ethernet jack at the wall. Does the unit work at another physical location?

## Problems and Suggestions

Contact your service representative if the suggested actions do not solve the problem.

### **What happens**

### **What to do**

---

Application software problems

Make sure all cables are installed correctly. Verify that your system hardware configuration is set correctly. In *Setup*, check the values against the system settings you recorded previously. If an error is evident (for example, the wrong type of drive is specified), make the change in *Setup* and reboot the system. Record your change.

Make sure the software is properly configured for the system. Refer to the software documentation for information.

Try a different copy of the software to see if the problem is with the copy you are using.

If other software runs correctly on the system, contact the vendor of the software that fails.

If you check all of the above with no success, try clearing CMOS RAM and reconfiguring the system. Make sure you have your list of system settings available to re-enter, as clearing CMOS RAM sets the options to their default values.

---

Characters on the screen are distorted or incorrect

Make sure the brightness and contrast controls are properly adjusted.

Make sure the correct display drivers have been loaded.

Make sure the display resolution is set correctly to the product you've purchased.

---

Characters do not appear on screen

Reboot the system. Cycle the power.

---

CMOS RAM settings are wrong

If system settings stored in CMOS RAM change for no apparent reason (for example, the time of day develops an error), the backup battery may no longer have enough power to maintain the settings. Replace the battery.

---

Diskette drive light does not go on when drive is in use or is tested by POST

Make sure the power and signal cables for the drive are properly installed.

Check that the drive is properly configured and enabled in *Setup*.

---

Hard drive light does not go on when drive is in use or is tested by POST

Check that the drive is properly configured and enabled in *Setup*.

---

<b>What happens</b>	<b>What to do</b>
System does not power-up	<p>Check AC power receptacle.</p> <p>Check plug into power adapter.</p> <p>Check plug into Clean Screen II head.</p> <p>Check fuse.</p>
Power-on light does not go on	If the system is operating normally, the light may be defective.
Prompt doesn't appear after system boots	See <i>Problems at Initial System Start-up</i> .
System halts before completing POST	This indicates a fatal system error that requires immediate service attention. Note the screen display and write down any beep code emitted. Provide this information to your service representative.

## Error and Information Messages

The rest of this chapter describes beep codes and error messages that you might see or hear when you start up the system.

**Note:** In all cases, if the problem persists, call your service representative.

<b>Error Message / Beeps</b>	<b>Explanation</b>
Short beep (1 → 2 → 2 → 3 times)	Hardware error. Unplug the Clean Screen II and contact your Planar Customer Service Center.
Short beep (1 → 3 → 1 → 1 times)	
Short beep (1 → 3 → 1 → 3 times)	
Short beep (1 → 3 → 4 → 1 times)	
Short beep (1 → 3 → 4 → 3 times)	
Short beep (2 → 1 → 2 → 3 times)	
Short beep (2 → 2 → 3 → 1 times)	
Address Line Short	Error in the address decoding circuitry on the board.
Cache Memory Failure, Do Not Enable Cache	Cache memory is defective.
CMOS Battery Failed	CMOS RAM is powered by a battery. The battery power is low. Replace the battery.
CMOS Checksum Invalid	After CMOS RAM values are saved, a checksum value is generated for error checking. The previous value is different from the current value. Run <i>Setup</i> .
CMOS System Options Not Set	The values stored in CMOS RAM are either corrupt or nonexistent. Run <i>Setup</i> .
CMOS Time and Date Not Set	Run <i>Setup</i> to set the date and time in CMOS RAM.
Diskette Boot Failure	The boot disk in floppy drive A is corrupt. It cannot be used to boot the system. Use another boot disk and follow the screen instructions.
DMA Controller Error	Error in the DMA Controller.
Drive Not Ready Error	The BIOS cannot access the floppy drive. Check all the appropriate connections after the system is powered down.
Floppy Disk Controller Failure	The BIOS cannot communicate with the floppy disk drive controller. Check all appropriate connections after the system is powered down.
Floppy Drive A: Failure	The BIOS cannot access drive A. Check all the appropriate connections after the system is powered down.
Floppy Drive B: Failure	The BIOS cannot access drive B. Check all the appropriate connections after the system is powered down.

<b>Error Message</b>	<b>Explanation</b>
Gate A20 Error	Gate A20 on the keyboard controller is not working. Call for service.
Invalid Boot Diskette	The BIOS can read the disk in floppy drive A, but cannot boot the system. Use another boot disk.
Keyboard Controller Error	The keyboard controller has failed during POST.
Keyboard is Locked ... Please Unlock It	Some systems have an electronic key that enables the user to lock the keyboard.
Keyboard Stuck Key Detected	There is a key pressed down.
Master DMA Controller Error	Error in the master DMA channel.
Master Interrupt Controller Error	Master Interrupt Controller failed during POST.
Memory Size Decreased	The amount of memory on the Clean Screen II is less than the amount in CMOS RAM. Run <i>Setup</i> .
Off Board Parity Error	Parity error in memory installed in an expansion slot. The format is: OFF BOARD PARITY ERROR ADDR (HEX) = (XXXX) XXXX is the hex address where the error occurred.
Slave DMA Controller Error	Error in the slave DMA channel.
Slave Interrupt Controller	Slave Interrupt Controller failed during POST.
System Memory Size Mismatch	The amount of memory on the Clean Screen II is different than the amount in CMOS RAM. Run <i>Setup</i> .
Timer Channel 2 Error	Most systems include two timers. There is an error in timer 2.

## PCI Configuration Status and Error Messages

The following PCI messages are displayed as a group with bus, device, and function information.

<b>Message</b>	<b>Explanation</b>
Floppy Disk Controller Resource Conflict	The floppy disk controller has requested a resource that is already in use.
NVRAM Checksum Error, NVRAM Cleared	The ESCD data was reinitialized because of an NVRAM checksum error. Rerun the ICU.
NVRAM Cleared By Jumper	The <i>Clear CMOS</i> DIP switch has been moved to the ON position and CMOS RAM has been cleared.
NVRAM Data Invalid, NVRAM Cleared	Invalid entry in the ESCD.
Parallel Port Resource Conflict	The parallel port has requested a resource that is already in use.
PCI Error Log is Full	This message is displayed when more than 15 PCI conflict errors are detected. No additional PCI errors can be logged.
PCI I/O Port Conflict	Two devices requested the same resource, resulting in a conflict.
PCI IRQ Conflict	Two devices requested the same resource, resulting in a conflict.
PCI Memory Conflict	Two devices requested the same resource, resulting in a conflict.
Primary Boot Device Not Found	The designated primary boot device (hard disk drive, diskette drive, or CD-ROM drive) could not be found.
Primary IDE Controller Resource Conflict	The primary IDE controller has requested a resource that is already in use.
Primary Input Device Not Found	The designated primary input device (keyboard, mouse, or other, if input is redirected) could not be found.
Secondary IDE Controller Resource Conflict	The secondary IDE controller has requested a resource that is already in use.
Serial Port 1 Resource Conflict	Serial port 1 has requested a resource that is already in use.
Serial Port 2 Resource Conflict	Serial port 1 has requested a resource that is already in use.
Static Device Resource Conflict	A non-plug-and-play device has requested a resource that is already in use.
Device Resource Conflict	A non-plug-and-play device has requested a resource that is already in use.

## Resetting the System

To reset the system from the keyboard, press the key sequence:

<Ctrl + Alt + Del>

You can also reset the system by shutting the system power off and then powering back up. To do this:

1. Turn the power off.
2. Wait at least 20 seconds.
3. Turn the power on.
4. The system powers up and immediately begins the power-on self test (POST).



# Appendix D: Touch Screen (optional)

## CMOS Configuration

If your Clean Screen II has the optional touch screen installed you will need to enter into **CMOS Setup** (press <F2>) and configure COM3. The touch screen is physically attached to COM3.

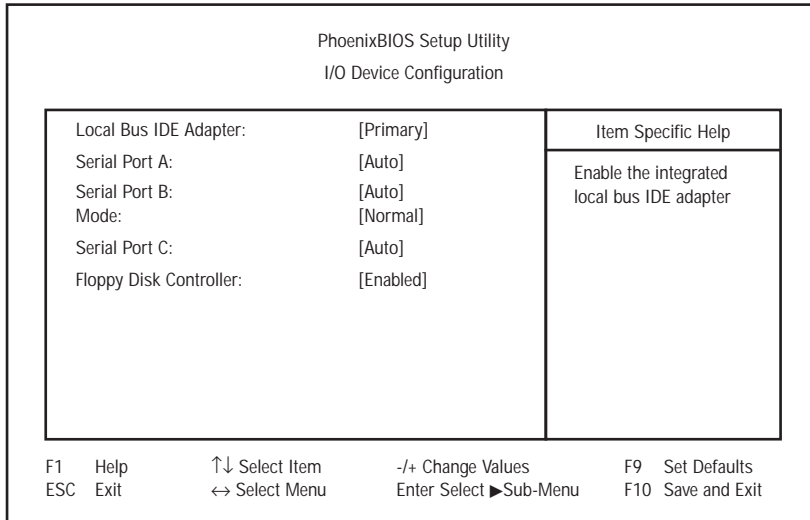


Figure D.1 — Integrated Peripherals sub-menu.

1. Select the **Advanced** menu.
2. Select the **Integrated Peripherals** sub-menu and press <enter> to move into the sub-menu.
3. Once in the sub-menu you can configure the COM3 base address and IRQ. Select *Auto*. If *enable* is selected, you will need to set the base address and IRQ. In most cases 3E8H and IRQ7 are available. Write these down as you may need to reference them later as you run the ELO install program. Do not select OS controlled, your touch screen will not work.
4. Exit by pressing the <escape> key.
5. Exit the **CMOS Setup**, remember to save your settings on exit.
6. After you have installed your operating system run the ELO install program following the ELO touch screen documentation. This can be found in the **!read.me!** file stored on the touch screen setup disk.

**Technical Note:** If you are unsuccessful installing the ELO drivers or if the touch screen has other problems, please contact ELO's technical support line at (423) 220-4299 or <http://www.elotouch.com>.

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# Appendix E: Technical Support

## For Service

If your Clean Screen II PC needs service, call Planar Display Solutions Customer Service at **(503) 614-4126** between 8:00 AM and 5:00 PM Pacific Time, Monday through Friday. Or send e-mail to [pdstech\\_support@planar.com](mailto:pdstech_support@planar.com).

You will need the unit's serial number and a brief description of the problem to receive a RMA number.

If a repair is required, please return the product for service using the original shipping container (if possible) with the RMA number clearly marked on the outside of the box.

Returns will not be accepted without an assigned RMA number. Include a description of the configuration at the time of malfunction, including network configuration, PCMCIA card, mouse type and drivers, cabling (if other than that supplied), software program in use, and a description of the symptoms.

In-transit damage is not covered by the warranty. We suggest you always insure your shipment. Planar will only pay for the return shipment by surface transportation. It is the responsibility of the sender to prepay transportation charges.

## For Further Information and Driver Updates

Contact the individual manufacturers either directly or on the Web. Some useful URLs are:

Planar Display Solutions	<a href="http://www.pds.planar.com">http://www.pds.planar.com</a>
Chips and Technologies, Inc.	<a href="http://www.chips.com">http://www.chips.com</a>
ELO TouchSystems, Inc.	<a href="http://www.elotouch.com">http://www.elotouch.com</a>
Phoenix Technologies, Ltd.	<a href="http://www.phoenix.com">http://www.phoenix.com</a>
Intel Corporation	<a href="http://www.intel.com">http://www.intel.com</a>



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[www.pds.planar.com](http://www.pds.planar.com)

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