

MaxPro™ 1500 Tower System

User's Guide



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CSS MaxPro 1500 Features

- 15 Disk Drive Bays: 12 standard disk drive bays or up to 11 front loading, removable drive trays; and 3 internal 3.5" drive bays.
- Enhanced 101-key keyboard (optional).
- Dual 300 watt removable hot swappable power supplies.
- 13 internal fans: 2 mounted in side panel, 2 mounted on front panel, 3 mounted in top. 6-fan pack mounted on disk drive assembly, for a total of 13 fans. Each power supply provides its own fan.

FCC STANDARDS

The FCC (Federal Communications Commission) restricts the amount of radiation and radio frequency emissions coming from computing equipment.

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

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

CSS Labs is not responsible for any radio or television interference caused by unauthorized modifications to this equipment. Operation with non-certified peripherals is likely to result in interference to radio and TV reception.

To ensure compliance to FCC non-interference regulations, peripherals attached to this device require shielded I/O cables.

NOTICE: The use of a non-shielded I/O cable with this device is in violation of U.S. Federal law and will not allow the device to meet the maximum emission limits.

CAUTION: Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

NOTICE

The information within this manual is subject to change without notice.

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P/n CHAS-MAXPRO-1500-DOC

Revision 2 August, 1997

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Section 1 - Introduction

Overview

Congratulations on the purchase of your new CSS MaxPro! The system provides 15 drive bays: 12 half-height disk drive bays with optional removable disk drive trays, 3 internal 3.5" drive bays and dual 300 watt hot swappable, redundant load sharing power supplies for added fault tolerance.

About This Manual

This manual shows you how to install and configure your CSS MaxPro system. By following the steps in this manual, you can install and operate the system with no additional help.

The System Case

The MaxPro 1500 measures 28.75 inches high x 9.5 inches wide x 25.5 inches deep. It can be optionally configured with up to 11 removable, front loading disk drives and one floppy; up to 12 standard external half-height drives (floppy, hard disk, CD-ROM, tape, optical, etc.); or a combination of front loading and standard drives, and 3 internal 3.5 inch drives.

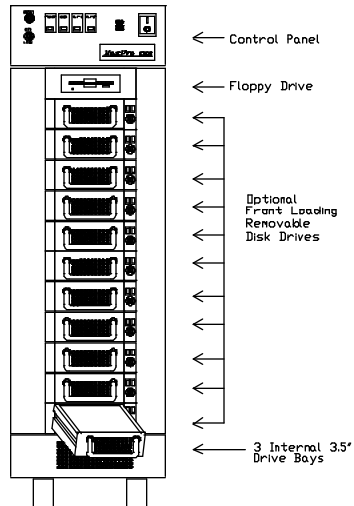


Figure 1-1: Front View

The Control Panel

Four LEDs display important information about the MaxPro 1500:

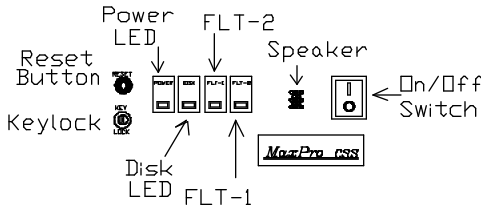


Figure 1-2: The Control Panel

Power LED The power LED lights while the system is turned on and receiving power. This LED is also used by the Error Detection Module to communicate error messages.

Disk Drive LED The disk drive LED lights whenever the hard disk drive is accessed.

FLT-1 This Fault Detection LED, along with FLT-2, is used by the Error Detection Module to communicate error messages.

FLT-2 This Fault Detection LED, along with FLT-1, is used by the Error Detection Module to communicate error messages.

Also located on the control panel are the ON/OFF switch, the keylock, the system reset button and the speaker.

ON/OFF Switch This switch controls the main power to the MaxPro system. The power supply(s) also have an external ON/OFF switch.

Keylock The keylock feature allows you to lock out the

MaxPro's keyboard, prohibiting any input.

Reset button The reset button allows you to perform a warm boot on the MaxPro.

Speaker The speaker connects to the speaker feature provided on the CSS motherboard.

Systems using a multisegment passive backplane provide four additional sets of LEDs, power switches and reset buttons on the Control Panel. Each set is connected to a segment on the backplane.

Segment 1 — { Power On LED
On/Off Switch
Reset Button

Segment 2 — { Power On LED
On/Off Switch
Reset Button

Segment 3 — { Power On LED
On/Off Switch
Reset Button

Segment 4 — { Power On LED
On/Off Switch
Reset Button

The MaxPro is available in passive backplane models with up to four segments. Each segment can be powered down or reset separately. Power on for each segment is reported separately.

The Rear Panel

The rear panel allows access to several system features:

- Power cord connector
- Keyboard connector
- Power supply access
- Port options
- Expansion slots

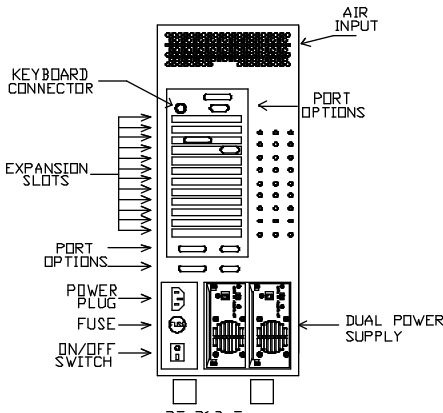


Figure 1-3: Rear View

Side Panel

The expansion slots on the system board are accessible through the side panel. CSS also provides you with access panels for port options.

The side panel locks in place, preventing unauthorized access.

Disk Drives

The MaxPro has twelve half-height disk drive bays, allowing you to configure with up to eleven removable drives and one permanent drive (see figure 1-1). Floppy, tape backups and

optical drives can also be installed. The system also provide three internal 3.5 inch drive bays.

Removable Drive Trays

Drive trays come with the hard disk pre-installed. Swapping the trays is quick and easy. Unlock and pull the old drive tray from the case, check LUN settings, and plug in the new tray.

Floppy Drives

A floppy drive is needed to boot the system before the operating system is installed.

The Keyboard

The MaxPro System uses a 101-key enhanced keyboard. The keyboard has a separate cursor control keypad. The keyboard also features a separate set of twelve function keys along with a numeric keypad for fast number entry.

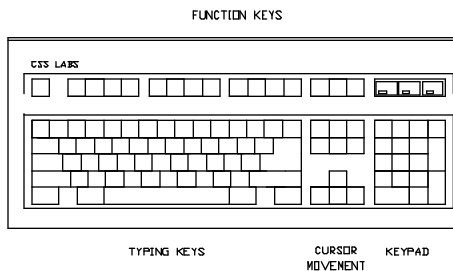


Figure 1-4: The Keyboard

Power Supply and Cooling

Power and cooling are important considerations in any computer system. The standard CSS MaxPro 1500 Tower comes equipped with dual hot swappable 300 watt parallel power supplies.

Thirteen cooling fans are installed throughout the case. Three fans are installed in the roof of the case, two fans are installed in the side panel and two are installed in the front panel. These fans cool the motherboard and peripheral boards options.

A pack of six fans is installed parallel to the drive bay cage. These fans draw cool air across the disk drives.

Each power supply provides an additional fan.

Section 2 - Setting Up The Computer

Overview

This section shows you how to assemble the MaxPro. In most cases, the operating system has already been installed and configured for you at the factory. Once everything is connected, you will be ready to power up and use the system.

You will connect the monitor cable, keyboard cable and LAN cables to the system via connectors on the rear panel of the case. You will also connect the power cord to the power connector on the rear panel.

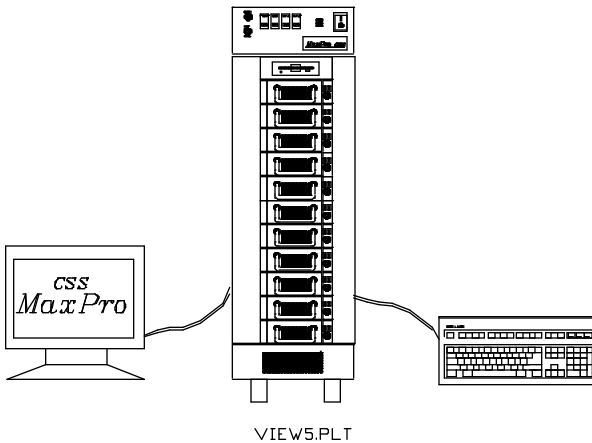


Figure 2-1: The CSS MaxPro

Unpacking the System

Please take a moment to compare this packing list with the contents of the shipping container.

The system unit (the tower case itself). It will contain the following items:

- The system unit (case)
- Power cord
- Keyboard (optional)
- Mouse (optional)
- Printer cable (optional)
- Two keylock keys
- Disk drive keys for removable drive trays (optional)
- CSS documentation. MaxPro Guide to Operations, Installation and Setup, Technical Reference Guide (optional), and System Utilities Guide (optional).

If any of these items are damaged or missing, contact your CSS Dealer immediately.

Setting Up the System

Assembling your CSS MaxPro System is easy. Start by removing the system and materials from their container:

- Place the tower case on a flat surface. The system is mounted on rollers and should be placed in an upright position.
- Remove the protective cardboard insert (if any) from the floppy drive.
- Remove any packing material remaining in the case.

Examine the rear of the case. All of the MaxPro's external connections are made here.

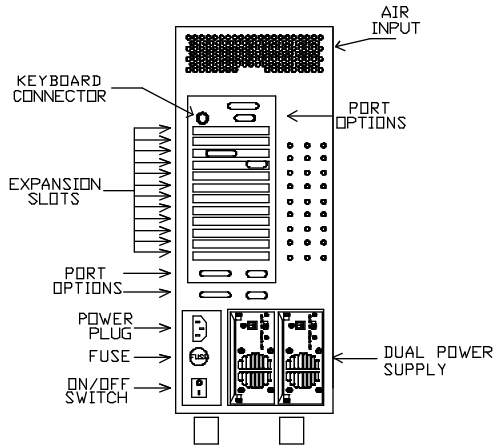


Figure 2-2: Rear View of the MaxPro

The Monitor (optional)

Two cables are attached to the rear of your monitor. The grounded, three-pronged cable plugs into a grounded power source. The other cable carries data to the monitor, and plugs into your system's video adapter card.

- 1) Locate the video adapter's connector on the rearpanel. Refer to figure 2-2.
- 2) Position the data cable plug attached to your monitor next to the system's video connector.
- 3) Press the plug into the video connector.
- 4) Plug the power cord into a grounded, three-pronged outlet.

The Keyboard

- 1) Locate the round, five pin keyboard connector on the rear of the case. Notice that the pin receptacles form a semi-circle.
- 2) Take the keyboard cable attached to the keyboard.
- 3) Position the keyboard cable plug so that the pins match the connector on the rear of the case.
- 4) Firmly press the keyboard's plug into the system keyboard connector.

The Power Cord

The MaxPro comes with an insulated, grounded, three-pronged power cord. One end of the cord is a female connector, the other end has a three-pinned male connector.

- 1) Locate the grounded, three-pronged power connector on the rear of the case.
- 2) Position the power cord's female connector next to the power connector on the rear of the case and press the plug firmly into place.
- 3) Plug the male end of the power cord into a grounded outlet.

The Mouse (optional)

The MaxPro can be configured with optional serial port and parallel port connectors accessible on the rear of the case either through the motherboard, or the single board computer, whichever is installed (figure 2-2). For software installation, refer to documentation provided with your mouse.

- 1) Locate the nine-pin serial port connector on the rear of the case. The connector has one row of five pins and one row of four pins.
- 2) Take the nine-pin mouse cord plug. The plug has space for the nine pins to insert.
- 3) Position the mouse plug next to the serial port on the rear of the case and press the plug firmly into place.

The Printer (optional)

- 1) Locate 25-pin parallel port connector on the rear panel.
- 2) Take the printer's 25-pin data cord plug.
- 3) Press the printer's data plug firmly into the parallel port connector on the rear panel.

Plug the power connectors for all your devices into a grounded, three-pin power supply. CSS recommends that you use a power surge protector with your system and peripheral equipment.

Turning the System On

Before You Power Up

If the operating system was not pre-installed, refer to the User's Guide provided for that software. The documentation provides instructions to "boot" the first time.

Starting Up

- 1) Power up all peripherals first, i.e. printer and monitor.
- 2) Turn the system's ON/OFF toggle to the ON position.
- 3) Your system will boot, and load its operating system.

Your system's BIOS is configured at the factory with default settings. You can reconfigure your BIOS at any time. Refer to the **Technical Reference** documentation for information on configuring system utilities.

Section 3 - Using the Computer

Overview

Use this section to become familiar with the features of your system. Among the topics covered, are:

- The Keyboard
- Rebooting the Computer
- Installing Drives
- Power Supplies
- Using the Error Detection Module
- Using the Control Panel for Segmented Passive Backplanes
- Maintaining the System

The Keyboard

The keyboard is divided into four sections:

- Function Keys
- Typing Keys
- Numeric Keypad
- Cursor Control Keys

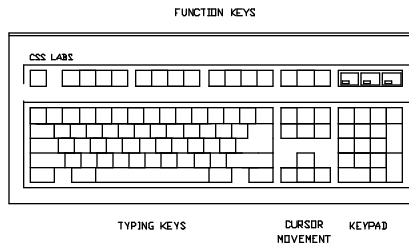


Figure 3-1: The Keyboard

A row of three green LED indicators that light up when Caps Lock, Num Lock and Scroll Lock are activated.

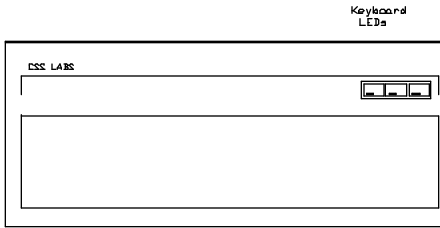


Figure 3-3: The Keyboard LEDs

The Floppy Diskette Drive

The system can be configured with a 3.5 diskette drive. 3.5 diskettes are encased in a hard plastic case, and measure 3.5 inches per side.

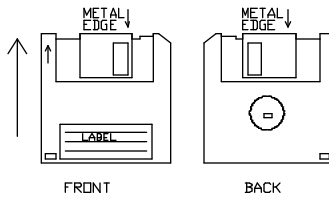


Figure 3-4: 3.5 Inch Diskette

The diskette is inserted into the drive metal-edge first, with the label side facing up.

Rebooting the Computer

There are two methods for restarting the system:

- 1) Cold or Hard Boot - Power to the system is turned off and then turned back on. The system starts up, runs the memory test and boots from the system disk. A cold boot resets the entire system.
- 2) Warm or Soft Boot - Use the command:

<Ctrl> <Alt>

Or press the red reset button. A warm boot is faster than a cold boot. Instead of restarting from power-down, the system performs a software controlled reset. Some peripherals and memory content may not clear with a soft boot.

Installing Drives

The MaxPro can facilitate both standard and frontloading drives. Before proceeding, disconnect the power supply.

Standard Drives

Installing a drive is simple and easy. Follow these steps:

- 1) Remove the system side panel.
- 2) Remove the front bezel from the front of the system.
Remove the nut located inside and below the control panel.
Pull the bezel forward and lift it out of its finger hook.
- 3) Select a position for the drive and remove the drive bay's cover plate or dummy plate.

A half-height drive fits into one of these spaces without modification. However, a full-height drive requires two of the bays. You must remove the coverplate directly below (or above) the one you are installing. Remember to install drives from top to bottom.

- 4) Remove the retaining screws holding the plate in place.
- 5) Remove the drive holder assembly from the case.
- 6) The drive holder assembly consists of three pieces. Remove the four screws that attach the left and right plates to the dummy face plate.
- 7) Attach the left and right mounting plates to the hard drive being installed.

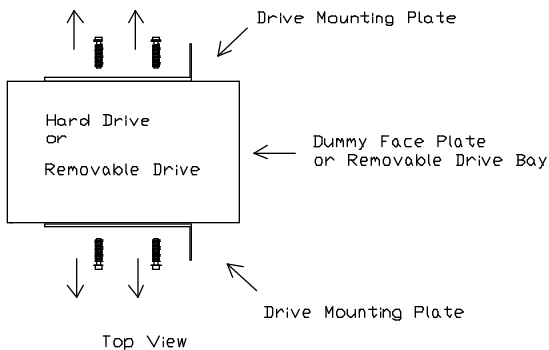


Figure 3-7: Attaching the Drive Mounting Plates

- 8) Slide the drive (with the drive mounting plates attached) into the system case.
- 9) Replace the retaining screws in the holder plates. (Reverse step 4. Use the original screws included with the hard disk drive. Longer screws may damage the drive.

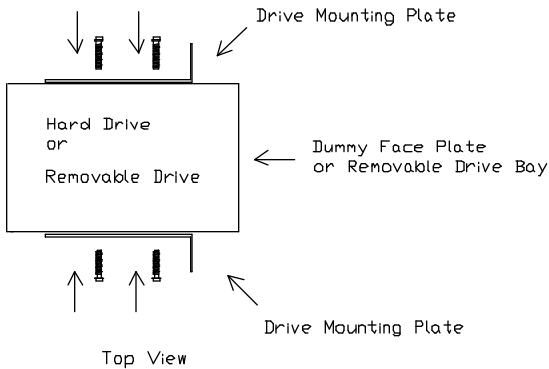


Figure 3-6: Separating Mounting Plates From Dummy Face Plates

- 10) Replace the front bezel. Replace the nut to secure the bezel.
- 11) Connect one of the disk drive power plugs to the drive. The plug and socket are notched. Make sure they match correctly.
- 12) Connect the cables required for the drive, and controller. Refer to documentation provided by the drive and controller manufacturers.
- 13) Reconfigure the system utilities and format the new drive, as needed. Refer to Guide to System Utilities.
- 14) Re-install and attach the system cover.

Front Loading Drives

Optionally, front loading drives are provided by CSS with hard drives already installed and configured for use. In most drive array implementations, you will need to power down the MaxPro before proceeding:

- 1) Unlock the old drive with the key provided.
- 2) Pull the drive from the drive bay in the MaxPro chassis.
- 3) Check the new drive tray to be sure its LUN is set properly.
- 4) Insert the new tray into the empty drive bay and relock the drive.

Power Supply

The MaxPro is available with a dual power supply. Each unit is capable of being “hot swapped”, while the server is operational.

Each unit comes with a number of power connections, external ON/OFF switch, automatic short circuit shutdown and can be configured to operate with 110 VAC or 220 VAC.

Setting 110 or 220 VAC

The power supply may be configured to operate with either 110 VAC or 220 VAC. Simply locate the red selector switch on the back of the system case.

The switch is clearly marked and displays the setting you have selected.

Swapping Power Supplies

Be sure to put the ON/OFF switch in “OFF” position on the power supply before you remove it from the system.

The new supplies’ ON/OFF switch should also be in the “OFF” position while you install it.

Warning: To reduce the risk of electric shock, remove the main power cord from the system before swapping power supplies.

To swap supplies,

- 1) Put the ON/OFF switch in the “OFF” position.
- 2) Slide the release tabs toward the center of the unit.
- 3) While holding the tabs, grasp the supplies’ handle and firmly pull it from the system.

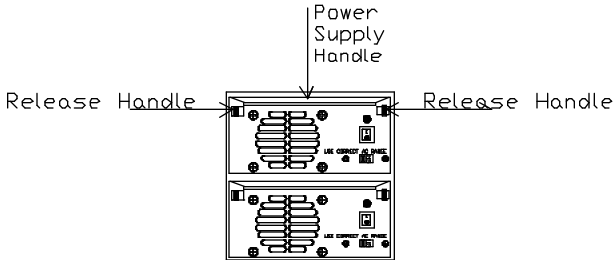


Figure 3-8: Swapping Power Supplies

- 4) Slide the new power supply firmly into place and turn it on.

Using the Error Detection Module

The system's speaker emits an error alarm. The front panel communicates the error through a sequence of flashing LEDs.

Follow this procedure below to resolve reported hardware:

- 1) **Speaker alarm** alerts you to a hardware error.
- 2) **Determine the error** by referring to the Error Code table listed in the next section.
- 3) **Reset the alarm**, silencing the speaker with directions in the Speaker Reset section.
- 4) **Take action** to resolve or bypass the hardware error.
- 5) **Enable the speaker** using instructions in the SpeakerEnable section.

Error Codes

The system's front panel uses three LEDs to report errors.
Power LED The system's regular "power on" indicator.

FLT-1 LED Fault LED 1.

FLT-2 LED Fault LED 2.

Errors are reported through a sequence of LED flashes:

- ON
- OFF
- Regular flash
- Slow flash
- Fast flash

This table lists errors, LED codes and reset count values.

Power LED	FLT-1 LED	FLT-2 LED	Error	Reset Count
ON	OFF	SLOW	Fan 1	4
ON	OFF	SLOW	Fan 2	4
ON	OFF	FAST	Fan 1 & 2	5
ON	FLASH	ON	Disk error	5
ON	FLASH	FLASH	Parity error	5
FLASH	OFF	OFF	Power supply failure	4 4
ON	ON	FAST	Heat sensor 1	4
ON	ON	FAST	Heat sensor 2	4
ON	FAST	FAST	Both heat sensor 1 & 2	4

Speaker Reset

- 1) Determine the error code using the Error Codes table, and note the code's Reset Count value.
- 2) Place the keylock in the "locked" position.
- 3) Press and hold the reset button for the number of LED flashes noted from Reset Count in the Error Codes table.
- 4) Return the keylock to the unlocked position.

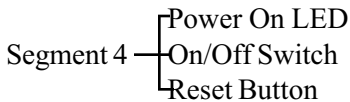
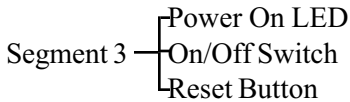
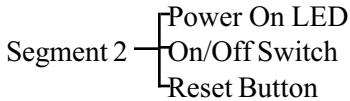
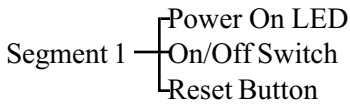
Speaker Enable

- 1) Place the keylock in the "locked" position.
- 2) Press and hold the reset button for 20 flashes.
- 3) Return the Keylock to the unlocked position.

Using the Control Panel for Multisegmented Passive Backplanes

The MaxPro can be configured with a multisegment passive backplane. Up to four segments with four separate computers can be controlled through the front control panel.

Each segment has its own Power On LED, On/Off Switch and Reset Button, as diagramed below.



Each segment can be powered down or reset independently of the other segments.

Standard Maintenance

These simple steps will help you enjoy your system for a long time:

- Place your system on a very stable surface, where it will not be moved or struck.
- Do not place your system near any heat source that may damage it. These sources include heaters, sunlight, etc.
- Do not eat, drink or smoke near the computer.
- Use a surge protector with your system and any peripheral devices. Surges of power can destroy delicate computer components. Surges can also destroy data on an entire hard disk.
- Do not allow any magnetic sources to come near the machine, such as magnets or electric motors. These will damage data on your disks.
- Allow a space of about eight inches around your system for proper ventilation.
- Do not let the computer share an electrical circuit with a noisy electric motor, such as a blender or a vacuum cleaner.
- Ground yourself before touching any hardware or software, by touching the system case. This discharges static electricity in your body. Static electricity damages delicate components.