HyperX^2 HD/SD Graphics System

HARDWARE REFERENCE GUIDE

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Related Publications

Title	Publication No.	Rev
HyperX^2 HD/SD Graphics System Quick Start Guide	2A02278	0
Lyric Handbook	2A02111	--
Lyric Handbook Supplement for Version 3.12	2A02163	--

NOTICE

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WARNING— These instructions are for the standard configuration as provided by Chyron Corporation. If the customer alters this configuration, without approval from Chyron Corporation, the customer assumes responsibility for safety issues, installation, operation and all other items pertinent to conformance to standards.

IMPORTANT

The OEM (Original Equipment Manufacturer) instruction manuals and other pertinent documents and software that are included with the Unit are supplied by the manufacturers of particular components used in the System. Chyron Corporation is not responsible for replacing these items.

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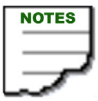
NOTES:

CHAPTER 1 INTRODUCTION

PURPOSE of THIS GUIDE

This manual provides hardware reference information for the HyperX^2 HD/SD System.



- The equipment you received may or may not look exactly like the equipment shown in this manual.
- In this manual, the HyperX^2 System may be referred to as the System or Unit.

SAFETY

Important safety instructions are provided in this manual. See “CHAPTER 2 SAFETY” on page 6.

WARNING

Read the Safety Chapter before installing or operating this equipment, or before performing any troubleshooting procedures.

CUSTOMER SUPPORT

For customer support, call *1-888-4-CHYRON (1-888-424-9766)*.

Visit the Chyron Website at **www.chyron.com**, for immediate access to our forums and knowledge base, and an array of documentation downloads and other information to assist you.

NOTES:

CHAPTER 2 SAFETY

IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions.

2. Keep these instructions.

3. Heed all warnings.

4. Follow all instructions.

5. Do not use this apparatus near water.

6. Clean only with dry cloth.

7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.

8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.

11. Only use attachments/accessories specified by the manufacturer.

12. Unplug this apparatus during storms or when unused for long periods of time.

13. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

SAFETY INFORMATION and the MANUAL

Throughout this manual, you will see the words WARNING and CAUTION indicating potentially dangerous or hazardous situations which, if not avoided, could result in death, serious or minor injury, or damage to the equipment. Specifically:

WARNING—indicates a potentially dangerous situation that can result in serious injury or death

CAUTION—indicates a potentially hazardous situation that can result in minor or moderate injury or damage to the equipment

The specific nature of the warning or caution is provided, and a symbol is used, where applicable, to alert the user to the warning or caution being given.

GENERAL SAFETY CONSIDERATIONS

If any of the following conditions exist, or are even suspected, do not use the Unit until safe operation can be verified by trained service personnel:

- Visible damage
- Severe transport stress
- Prolonged storage under adverse conditions

ADDITIONAL SAFETY MEASURES

Ensure that the following safety measures and instructions are followed:

- WARNING—Follow all safety instructions given in this manual. Follow all relevant safety instructions given in OEM documentation provided with this equipment.
- WARNING—The chassis is grounded through the ground conductor of the AC line cord. To prevent an electric shock hazard, plug the line cord(s) into properly grounded AC wall receptacle(s) as verified by a qualified technician.
- WARNING—If you are handling the computer monitor and it has a cathode ray tube (CRT), be careful as the risk of implosion exists. Always wear safety gear, particularly eye wear, since the phosphor coating is toxic. If phosphor makes contact with the eyes, rinse the eyes out with water and contact a physician immediately.
- CAUTION—Only use the AC line cords that were supplied with the Unit or a factory approved substitute. Do **NOT** use extension cords.
- CAUTION—Equipment may only be operated at the specified line voltage and frequency. See “SPECIFICATIONS” on page 8.

CHAPTER 3 SYSTEM DESCRIPTION

INTRODUCTION

The HyperX^2 HD/SD (Figure 1) supports one or two independent HD/SD-switchable channels, each with optional integrated eFX Clips, DVE, and second video input. HyperX^2 also supports simultaneous HD animations on two channels.

Figure 1 HyperX^2 HD/SD

SYSTEM SPECIFICATIONS and CONFIGURATION

SPECIFICATIONS

Dimensions	**Chassis**: 4RU **Height:** 17.8 cm (7") **Width:** 48.3 cm (19") **Depth:** 63.5 cm (25") **Weight:** 27.3 kg (60 lbs)
Power Supply (input characteristics)	**Input Range:** 100~240 VAC, Full Range Input **Frequency:** 50-60 Hz **Input Current:** 12A (RMS) @110VAC, 6A (RMS) @220VAC **Inrush Current:** 60A Max for 110VAC, 80A Max for 220VAC
Environmental	**Operating Temperature:** 0° C to 40° C

DIGITAL VIDEO INPUTS/OUTPUTS (per channel)

INPUT		1 SDI Video In (can also serve as digital Gen/Lock input); optional Second Video Input provides 1 additional SDI Video In
OUTPUTS		1 SDI Video, 1 SDI Key
TYPE		All BNC for input and output
IMPEDANCE		75 ohms
DATA FORMATS	SD	10-bit, 270 Mb/s ITU-R Bt.656 SMPTE 259M-C
	HD	10-bit, 1.485 Gb/s ITU-R Bt.709 SMPTE 292M

ANALOG INPUT - GEN/LOCK (per channel)

GEN/LOCK	1 analog black burst; can also accept tri-level analog sync
TYPE	BNC
IMPEDANCE	75 ohms
FORMAT	1 volt p-p composite video, 525/625

ANALOG OUTPUT - MONITORING (per channel)

MONITORING	1 SD analog composite out down converted from Program Out
TYPE	BNC
IMPEDANCE	75 ohms
FORMAT	NTSC/PAL

AUDIO

INPUT	2 AES3id for 4 mono tracks
OUTPUT	4 AES3id for 8 mono tracks
TYPE	BNC

GPI/O CONNECTIONS (Requires GPI/O option)

CONNECTIONS	24
TYPE	DB37
IMPEDANCE	50 ohms
FORMAT	TTL level only

BASE SYSTEM CONFIGURATION

The base System configuration is given below.

Important

The System configuration is subject to change without notice. Your System may be different from the configuration described below.

- Intel Workstation Board S5000XVN
- 3.2 GHz or greater dual Intel Xeon processors
- 4 GB, DDR2-RAM
- SATA drive
- Microsoft Windows XP Professional operating system
- eFX video processing board
- eFX breakout panel (supplied with each eFX board)
- PCI-e video graphics card
- Triple-redundant power supply
- DVD±RW drive
- PS2 keyboard and mouse
- 5-position hot-swappable media drive bay

BASE CHANNEL CONFIGURATION

The base configuration of the HyperX^2 is one SDI HD/SD-switchable channel. The System can contain up to two HD/SD channels, each of which can be upgraded with integrated eFX Clips, DVE, second video input and/or audio mixer.

OPTIONS and UPGRADES

- HD upgrade
- HyperX^2 can be configured with up to two channels
- Optional Clip Player per channel
- Lyric PRO
- Pie FX
- Additional eFX Channel
- HD/SD-switchable clips
- HD/SD-switchable 3D DVE
- Second Video input

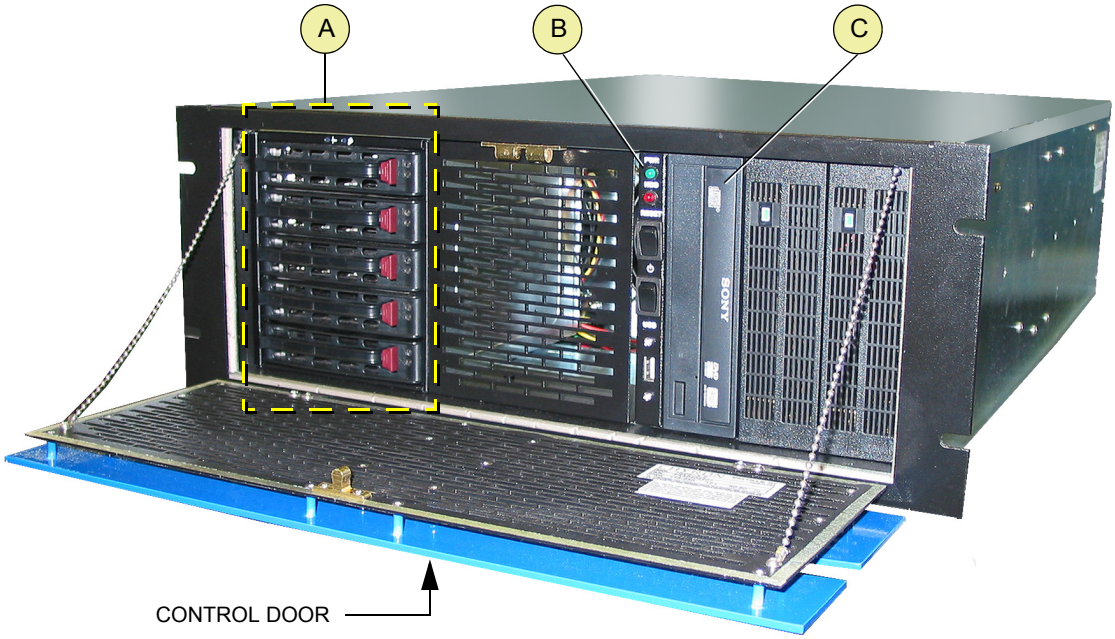
- HD/SD second video input
- Video bypass
- Audio mixer
- Chyron-style keyboards (English and International)
- Up to four media drives may be added
- KVM extender kit
- RGB tools graphics editing plug-in
- Harvester Pro WEB harvesting plug-in
- Quarterback asset browsing plug-in
- BizGraph animated graphing plug-in
- Liberty Twister Paint/Rotoscoping plug-in

Contact Chyron Customer Service for details.

LOCATION and DESCRIPTION of COMPONENTS

FRONT PANEL

The front panel's controls, indicators, and removable-media drives are identified in Figure 2.



A 5-position media drive bay — contains System drive

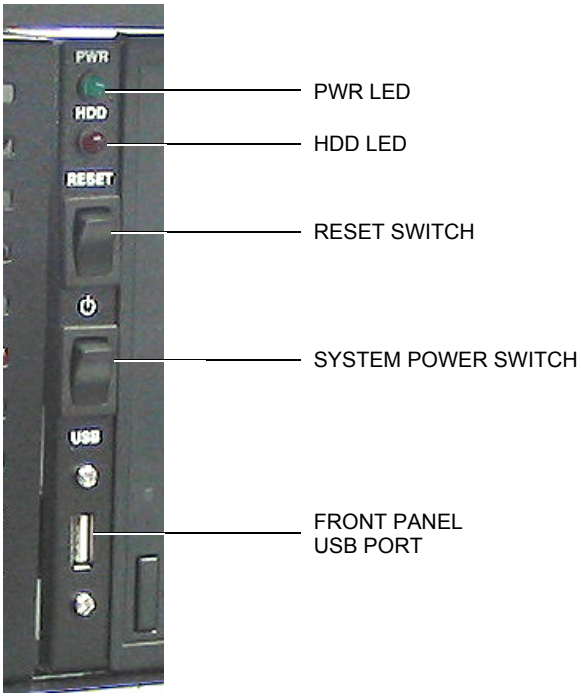
B Controls and indicators. See "Controls and Indicators" on page 13.

C DVD±RW drive

Figure 2 Front Panel Features

Controls and Indicators

The front panel controls and indicators are identified in Figure 3.

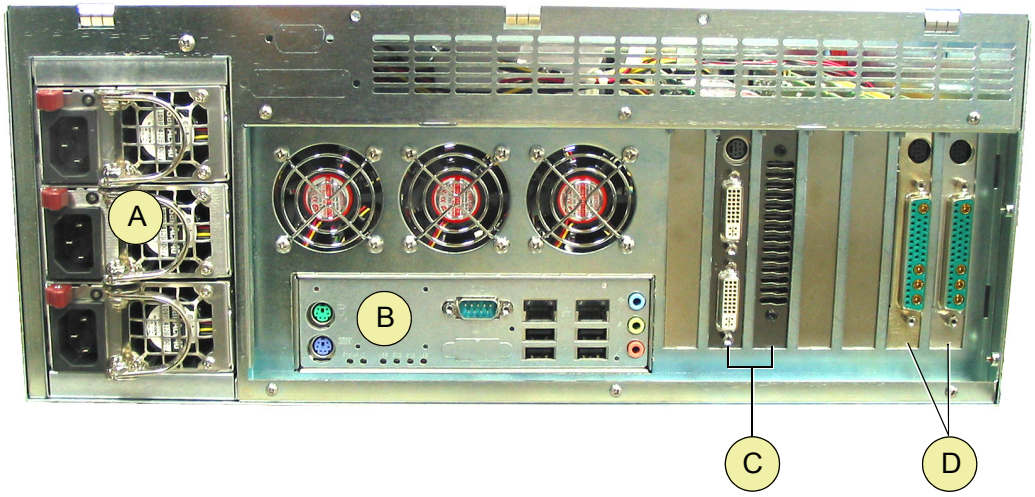


ITEM	DESCRIPTION
PWR LED	Indicates that power is on. Routine power-down should be performed through Windows.
HDD LED	Lights to indicate that the System hard drive is active.
Front Panel USB Port	Front panel Universal Serial Bus 2.0 port (4-pin female)
Reset Switch	Press this spring-loaded rocker switch to give the System a hard re-boot. This switch should only be used in case of System lock-up.
System Power Switch	Spring-loaded momentary switch. Applies power to the Unit when pressed. This switch will turn the Unit OFF if it is held for 4-5 seconds.

Figure 3 Controls and Indicators

REAR PANEL

Rear panel components are identified in Figure 4.



A	Power supply modules	C	PCI-e video graphics card (requires two slots)
B	PC I/O connectors	D	eFX board

Figure 4 Rear Panel

eFX BOARD

The System comes equipped with either one or two identical eFX boards. Figure 5 identifies the board's connectors.

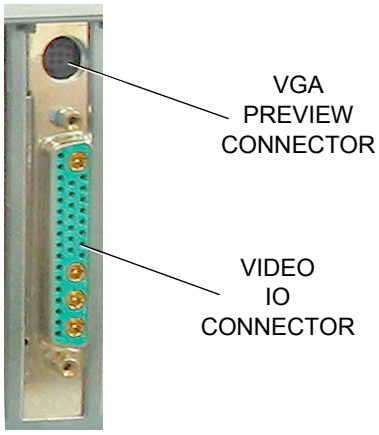
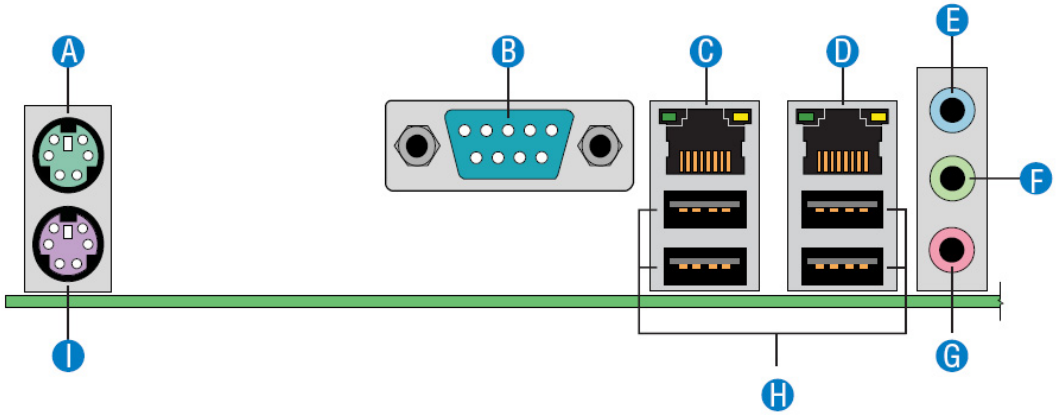


Figure 5 eFX Board Connectors

PC I/O CONNECTORS and COMPONENTS

The rear panel I/O connectors and components are shown and identified in Figure 6. Refer to your workstation board user manual for detailed information. joking



A	PS/2 MOPUSE	**F**	AUDIO OUT
B	SERIAL A PORT	**G**	MICROPHONE
C	NIC 1 (1 GB)	**H**	ID LED
D	NIC 2	**I**	KEYBOARD PORT
E	AUDIO IN		

Figure 6 PC I/O CONNECTORS and COMPONENTS

POWER SUPPLY

The Unit is equipped with a triple-redundant module power supply (Figure 7). The power supply consists of three identical 300 Watt modules, each with its own fan and AC line cord connector (power cords are supplied).

Figure 7 Power Supply

Operation

In normal operation, all three modules supply power to the System. Each module's LED will be lit green. If a module fails,

- Its LED is not lit
- The warning buzzer sounds a continuous tone
- The module is switched out of the System automatically, and the remaining modules continue to supply power to the System.

To maintain System integrity, replace a defective module as soon as practical. See "REPLACING a DEFECTIVE POWER SUPPLY MODULE (HOT-SWAP PROCEDURE)" on page 32.

It is advisable to have spare power supply modules on hand for quick replacement. Power supply modules can be purchased by contacting Chyron Customer Service. Have the serial number (located on the module) available, when calling.

USB HARDWARE KEY

A USB hardware key (also referred to as a security device or dongle) with the proper enable codes is installed inside the unit chassis on the workstation board at USB connector J3J1. See Figure 8.

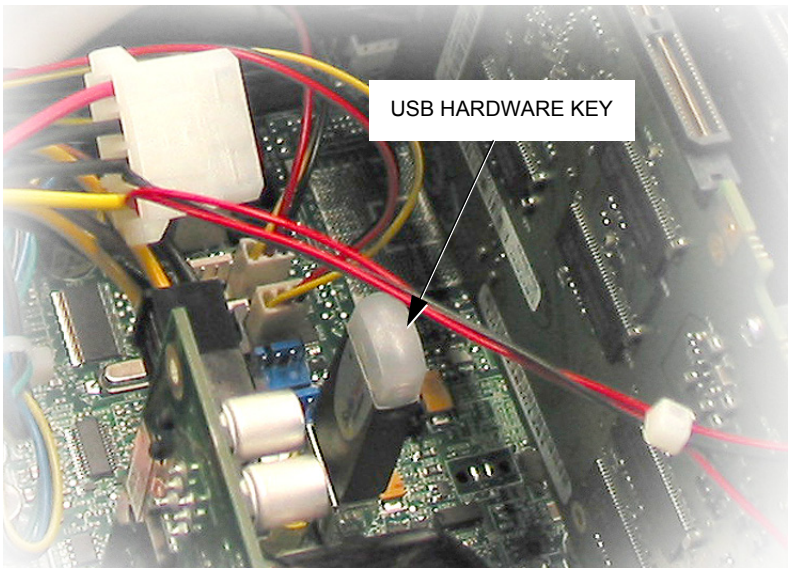


Figure 8 USB Hardware Key

Reprogramming the Hardware Key

To access additional services or features you have purchased, the hardware key must be reprogrammed.

To learn how to reprogram the hardware key, do the following:

1. Locate and open the **Lyric** folder on your system drive.
2. Locate and open the **SafeNet** folder.
3. Double-click on **FieldActUtil**. The **Field Activation Utility** dialog is displayed.
4. Click on Help for detailed instructions on reprogramming the hardware key

SOFTWARE APPLICATIONS

LYRIC

Lyric is a character generator/graphics application software product that runs on the LEX^2/MicroX HD/SD platforms for production and playout applications.

VERIFYING LYRIC OPTIONS

To verify the Lyric options enabled on your System, do the following:

1. Locate and open the **Lyric** folder on your system drive.
2. Locate and open the **SafeNet** folder.
3. Double-click on **LyricOptions**. The **Chyron Lyric Options** dialog is displayed, displaying the Lyric options enabled on your System.

The System also supports CAL (Chyron Abstraction Layer) applications created with CAL SDK software.

CHAPTER 4 INSTALLATION and SETUP

INTRODUCTION

This section provides information and procedures to receive, unpack, check, and install the Unit in a suitable, user selected rack.

CAUTION

The chassis weighs 35-40 pounds, depending on options purchased. To avoid personal injury, care should be exercised when lifting the Unit.

RECEIPT and UNPACKING

The System is shipped in a single carton that contains all the equipment, hardware, documentation and software that is required to install, set up, and operate the equipment.

Important

Be sure to secure all of the documentation and any software discs that accompany the Unit, especially the image disc used for restoring your System's hard drive in the event of a problem. Keep them in a safe place. Documentation for third-party components is not replaceable by Chyron.

It is recommended that the shipping carton and packing material be saved for possIble future use.

To unpack the equipment, proceed as follows:

1. Carefully open the carton and remove all packing material.
2. Remove the contents of the carton; set the carton aside.
3. Check every item against the list in Table 1; examine each item to make sure nothing was damaged in shipment.
4. If anything is missing, or if any item was damaged in shipment, contact Chyron customer service as soon as possible at 1-888-4-CHYRON.

If directed to do so, repack the equipment in the original carton with the original packing material. Ship the carton to Chyron as directed.

EQUIPMENT SUPPLIED

The following table lists the equipment supplied with the Unit.

Table 1: Equipment Supplied

Rack-mountable, 4 RU Chassis
Slides for Rack Mounting
Power Line Cords
Hard Drive Image DVD
DVI-SVGA Adapters
Keyboard and Mouse **NOTE**: If a Chyron keyboard was ordered, it will be shipped separately.
OEM software and documentation for various components installed in your System. **NOTE**: Store these items in a safe place—Chyron Corporation is not responsible for replacing these items.

RACK MOUNTING

The Unit may be rack mounted in a standard 19" EIA rack.

To mount the Unit:

1. Locate the rack position where the System will be installed. The Unit pulls cool air into the front of the chassis and vents through openings in the rear panel. Make sure there is adequate space for ventilation.

The Unit must be operated with the chassis top cover installed, to ensure proper cooling.

2. Unpack slides and associated hardware from the rack slide kit.

3. Install slides to rack and to the Unit chassis. See instructions provided with the slides.

4. Carefully position the Unit in place and engage the intermediate slide sections with the rack and chassis slide sections.

5. Attach front panel flange to the rack using the supplied hardware.

CAUTION

Observe caution when pulling the Unit out on its rack slides, as there may be a tipping hazard.

Chyron recommends that the rear brackets be installed to secure the rack slides to the rear of the equipment rack. These brackets are included in the rack slide kit. Refer to the instructions packaged with the kit.

SOFTWARE INSTALLATION

All necessary software is already loaded on the System before shipment.

INITIAL CONNECTIONS

POWER SUPPLY

1. Connect an AC power cord (supplied) to each of the power supply modules. The AC power cords connect to the AC line cord connectors on the power supply modules located at the back of the Unit.

WARNING

The Unit Must Be Connected To A Suitable, Grounded AC Power Source Using The Power Cord Provided With The Unit. Failure To Comply With This Requirement Can Result In Damage To The Equipment And May Present A Safety Hazard To The Operator.

2. Connect the other ends of the power cords to a grounded electrical power source.

VIDEO CARD CONNECTIONS

The PCI Express (PCI-e) video card supplied with the Unit has the following connectors:

- **DVI-I OUT CONNECTORS** - Two identical DVI-I connectors for digital/analog PC monitors
- **S-VIDEO OUT CONNECTOR** - Connector for analog monitors

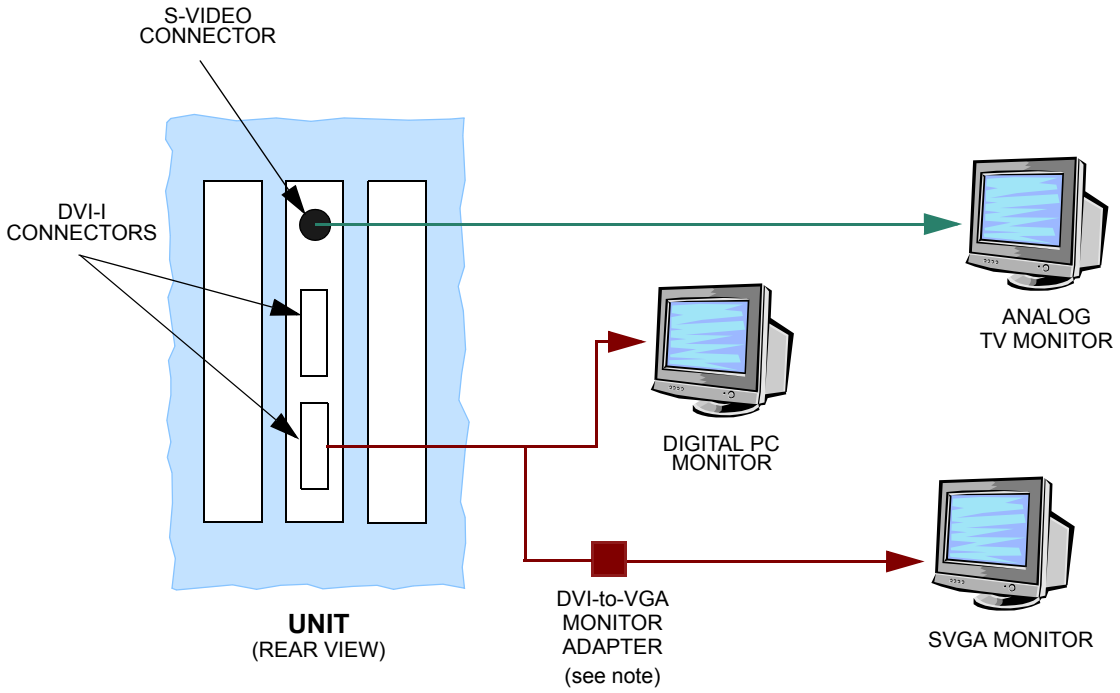
Important

All cables must be connected before the Unit is powered on.

The video card may be connected as shown in Figure 9. Actual connections will depend on your application.

NOTE

The video card provides two identical DVI-I connectors. Therefore, only connections to one DVI-I connector are shown as typical in Figure 9.



NOTE: two DVI-to-VGA monitor adapters are provided--one for each DVI-I connector.

Figure 9 Video Card Connections

PS/2 KEYBOARD and USB MOUSE

Chyron provides a standard PC keyboard and optical mouse with each System. The computer monitor is a customer supplied item. The Chyron Dedicated Custom Keyboard is available as an option. See “APPENDIX: CHYRON DEDICATED KEYBOARD” on page 44.

The following assumes that the keyboard, mouse, and monitor are all located within ten feet of the System. For installations where the keyboard, mouse, and monitor are all located over ten feet from the System, a KVM Station Extender must be used. Contact Chyron Customer Service for additional information.

To install the peripheral equipment that is required for operation of the System, proceed as follows:

1. Install the keyboard connector to the appropriate mating connector at the rear of the chassis. If the optional Chyron keyboard is being installed, refer to “KEYBOARD INSTALLATION” on page 45 of this manual.
2. Connect the mouse to the appropriate connector at the rear of the chassis.
3. Connect monitor(s) to the video card. See “VIDEO CARD CONNECTIONS” on page 21.

INSTALLING/CONNECTING the BREAKOUT Panels)

To install/connect the breakout panel(s) refer to Figure 10 and perform the following steps:

1. Install the breakout panel(s) in the rack.

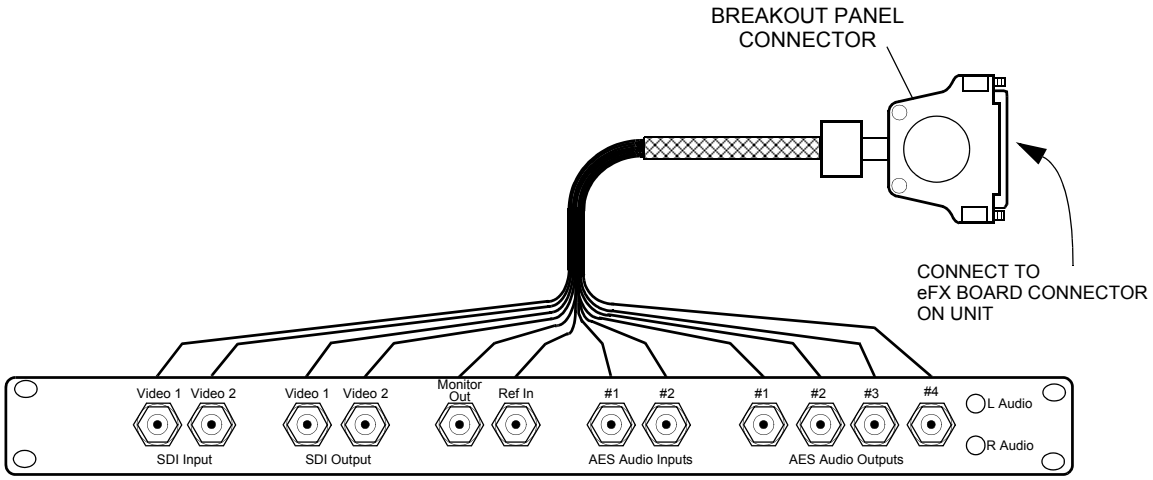


Figure 10 Breakout Panel

CAUTION

Shut off power to the Unit.

2. Be sure to shut off power to the Unit. Remove the power cords from the power supply.

NOTE

When installing two breakout panel connectors in dual channel Systems, do not tighten connector screws until both connectors are installed.

Important

Do not apply excessive force when tightening connector screws.

3. Insert the breakout panel connector(s) into the mating eFX board connector(s) located on the rear panel of the Unit.
4. Gently tighten screws on breakout cable connector(s).

When using the breakout panel(s), note that connector VIDEO 2 (SDI OUTPUT) is the KEY signal.

NOTE

If the Unit is going to be removed from the rack for shipment, the breakout cable and attaching breakout panel should be removed prior to shipment and stored separately in the shipping box.

TURNING ON the UNIT

To turn on System power:

1. Ensure that each power supply module is plugged in.

2. Ensure that the System's monitor is connected to the Unit and that the monitor is receiving power.

3. Open the control door (Figure 11). Press the **System Power** switch. The **PWR** LED should light, and the Power On Self-Test (POST) should begin.

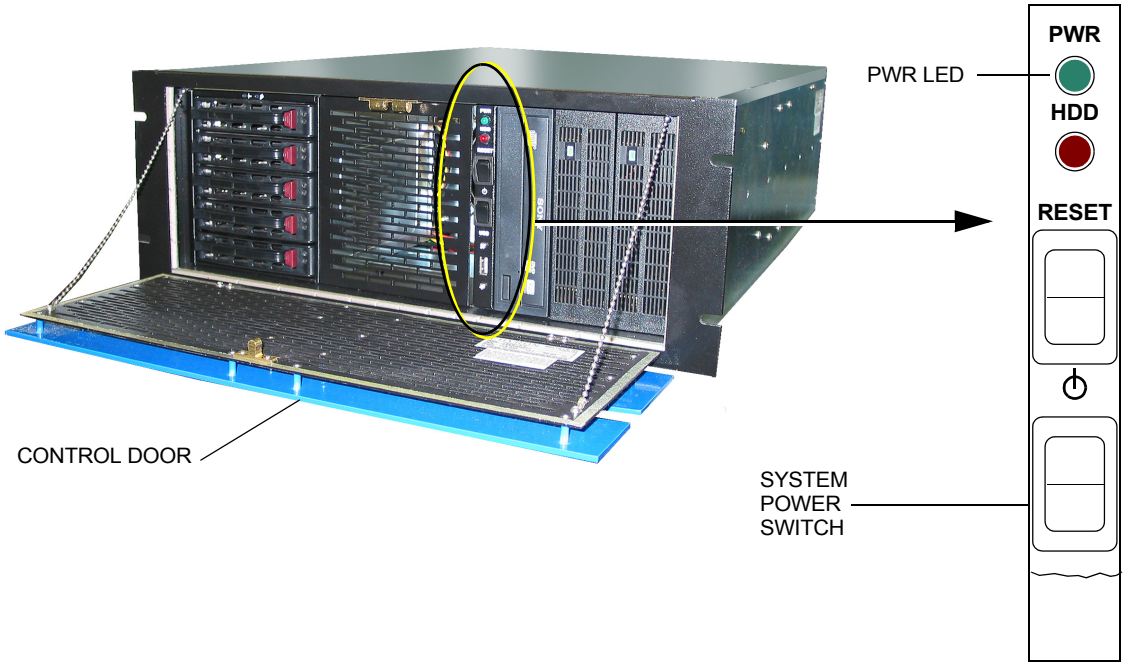


Figure 11 Turning on the Unit

It could take up to 45 seconds before the operating system responds. During this time no video signal is present and your monitor screen will remain blank.

Important

If the System fails to start, or if the startup script indicates that no disk was found, or that there is no operating system, contact Chyron Customer Service immediately.

4. After POST, the Windows desktop appears.

COMPUTER SECURITY

INTRODUCTION

Your System incorporate Windows PC technology, but is not intended to function as a personal computer.

Important

To maximize the stability of the System for use in mission-critical situations, no unnecessary software should be installed. Refer to http://www.chyron.com/support/docs/wpapers/security_policy.htm, for further information on System security.

The Unit, like any Windows-based system, is vulnerable to viruses, worms and other destructive software. The following measures are recommended to protect the integrity of your System.

FIREWALLS

Chyron strongly encourages the use of an external firewall in production/broadcast environments, where Windows-based systems are connected to a computer network. Due to the adverse performance impact of “personal firewalls”, these products are not recommended for use in live or real-time television production.

WINDOWS UPDATES

Not all Microsoft Windows updates are recommended by Chyron for installation in your System. Before installing Windows service packs or patches, check the Chyron website at **http://www.chyron.com/support/** for the latest update of our *Statement Regarding Chyron Systems and Computer Security*. Many of the updates offered by Microsoft *are* recommended for use with your System. However, your machine should NOT be configured for automatic download and installation. All such modifications to your operating system should be performed during scheduled down times and manually overseen. If you are in doubt about installing any software update, contact Chyron Customer Service.

ANTI-VIRUS SOFTWARE

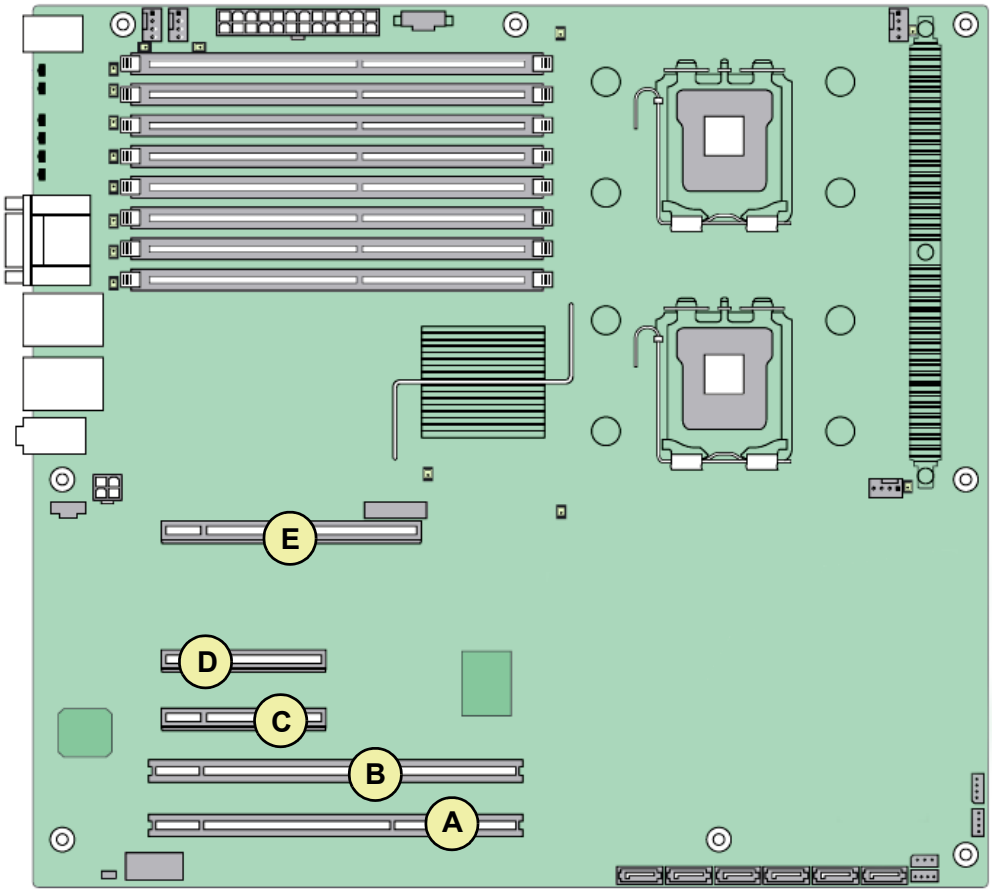
Chyron provides a 90 day evaluation copy of Norton AntiVirus™ pre-installed on your System. You will be prompted to purchase this software during the 90 day evaluation period.

HOSTILE PHYSICAL ENVIRONMENTS

Production trucks and other mobile installations may present extraordinary hazards to the Unit’s mechanical integrity. Dust, vibration, temperature and humidity can affect the System’s operation or reliability.

PCI SLOT ASSIGNMENTS

The order in which boards are installed determines the identity of the board as seen by the Lyric (or CAL) software. Figure 12 depicts the location of the PCI slots on the workstation board and describes the function of each PCI slot.



NOT ALL COMPONENTS SHOWN

	SLOT DESIGNATION	FUNCTION
A	Slot 1: PCI-X (64 MHz -100 MHz)	Channel 1
B	Slot 2: PCI-X (64 MHz -100/133 MHz)	Channel 2
C	Slot 3: PCI-e (x4)	Option
D	Slot 4: PCI-e (x4)	GPI
E	Slot 6: PCI-e (x16)	Video Graphics

Figure 12 PCI SLOT DESIGNATIONS

NOTES:

CHAPTER 5 TROUBLESHOOTING

INTRODUCTION

This chapter provides maintenance and troubleshooting instructions to enable maintenance personnel to troubleshoot, service, repair, and upgrade the System. If the problem cannot be corrected in the field by maintenance personnel, contact Chyron customer service.

SYSTEM TROUBLESHOOTING

Table 2 provides a troubleshooting chart for the Unit that is based on a Symptom, Probable Cause, and Corrective Action concept. The **Symptom** column lists expected failure modes that could occur during operation. The **Probable Cause** column lists one or more possible causes for the symptom. The instructions in the **Corrective Action** column are limited to removal/ replacement of faulty peripherals (e.g., disk drive), removal/replacement of boards, software problems, and adjustments, if any.

If the problem cannot be corrected in the field by maintenance personnel, contact Chyron customer service.

Important

If corrective action requires the removal/replacement or inspection of components within the chassis, refer to "CHAPTER 2 SAFETY" on page 6 and follow all applicable safety instructions provided there when performing any troubleshooting procedures within the chassis.

WARNING

TO PREVENT AN ELECTRIC SHOCK HAZARD AND/OR DAMAGE TO THE SYSTEM, SHUT THE UNIT OFF AND REMOVE THE POWER CORD(S), BEFORE REMOVING THE TOP COVER.

CAUTION

Some components within the chassis may be susceptible to electrostatic charge. Wear a wrist strap connected to ground, if you will be touching components.

Table 2: Troubleshooting

Symptom	Probable Cause	Corrective Action
System does not power-up	1. No AC power present	1. Ensure that the supplied line cords are properly connected to the power supply modules and that the other ends are plugged into active wall plugs or outlet boxes. When properly connected, a green LED will be lit on the CPU board.
	2. Front panel power switch is inoperative	2. Inspect power PWRSW header located on the CPU board. See “CHECKING FRONT PANEL POWER SWITCH CONNECTIONS” on page 34.
	3. Power supply is disconnected from CPU board	3. Check if 20/24-pin ATX power connector has been disconnected from the CPU board.
	4. Defective power supply or CPU board	4. See “REPLACING a DEFECTIVE POWER SUPPLY MODULE (HOT-SWAP PROCEDURE)” on page 32. If Unit does not power-up after checking/ replacing module(s), contact Chyron Customer Service for service instructions.
System powers-up, but System monitor displays no video.	1. Monitor is not properly connected	1. Ensure that monitor is plugged in and turned on. Video cable must be connected to connector on the graphics card, not the CPU board. See “VIDEO CARD CONNECTIONS” on page 21.
	2. Graphics card is not properly installed	2. Ensure that the graphics card is fully seated in the slot and any auxiliary power cables are connected.

Table 2: Troubleshooting

Symptom	Probable Cause	Corrective Action
System powers-up, but operating system fails to start. **NOTE**: It could take up to 45 seconds before the operating system responds. During this time no video signal is present and your monitor screen will remain blank.	1. System drive is inoperative	1. The SATA drive data cable must connect to SATA header '0' on workstation board. **NOTE:** the System drive is located in the top drive bay. If a SCSI drive was installed, ensure that power and data cables are properly attached.
	2. System drive is being preempted	2. Check to make sure there is no floppy disc in the floppy disc drive (if so equipped). If necessary, check the BIOS to ensure that the System drive is in the boot sequence and is detected.
	3. Operating system has been corrupted	3. Install Windows system CD into CD drive and reboot. When prompted, have it "repair" the operating system.
	4. Hard disc corrupted	4. Run system recovery process. See instructions packaged with the DVD recovery disc.
	5. Hard drive or workstation board failure	5. For workstation board failure, contact Chyron Customer Service. For hard drive failure, contact Chyron Customer Service to obtain a new drive. Install new drive. See"REPLACING a DEFECTIVE HARD DRIVE" on page 35.
DVD-RW drive is inoperative	1. Cables are disconnected	1. Check that 4-pin power cable is connected. Check that data cable is connected to both the drive and the CPU board connector.
	2. Defective drive or CPU board	2. Contact Chyron Customer Service.
Lyric not operating as expected	1. Customer installed boards or software may be interfering with operation	1. Remove customer installed hardware and/or software.
	2. Multiple Lyric installations may have corrupted registry	2. Run Lyric unregister.exe program.
	3. Lyric may be corrupted	3. Uninstall, then reinstall Lyric.

Table 2: Troubleshooting

Symptom	Probable Cause	Corrective Action
Video processor board (frame buffer) not available in Lyric	1. Customer installed hardware may have altered System	1. Uninstall any user installed hardware or software.
	2. Board may have worked loose from slot connector	2. Check that board is still installed and secured to rear panel I/O fence.
	3. Defective slot on CPU board	3. If possible, move board to a different PCI slot, restart System and reinstall drivers.
	4. Defective video processor board	4. Contact Chyron Customer Service if corrective actions 1-3 above do not resolve the problem.
No video output from frame buffer	1. Cable miswired	1. Verify that all external cable connections are correct.
	2. Defective cable	2. Replace the cable used for video out, or swap video and key output cables.
	3. Looking at wrong frame buffer output	3. In multiple frame buffer systems, transfer output to all frame buffers and verify that they are correctly numbered and connected.
	4. Defective frame buffer	4. Contact Chyron Customer Service.

CHAPTER 6 MAINTENANCE

INTRODUCTION

This section provides both corrective and preventive maintenance procedures. Corrective maintenance procedures are provided first.

CORRECTIVE MAINTENANCE

Corrective maintenance is performed when a problem occurs in the System. There are four corrective maintenance procedures:

- Replacing a defective power supply module. See “REPLACING a DEFECTIVE POWER SUPPLY MODULE (HOT-SWAP PROCEDURE)” below.
- Checking front panel power switch connections. See “CHECKING FRONT PANEL POWER SWITCH CONNECTIONS” on page 34.
- Replacing a defective hard drive. See “REPLACING a DEFECTIVE HARD DRIVE” on page 35.
- Checking installation of security device. See“CHECKING INSTALLATION of SECURITY DEVICE” on page 36.

REPLACING a DEFECTIVE POWER SUPPLY MODULE (HOT-SWAP PROCEDURE)

The power supply modules are hot-swappable. They may be removed and replaced, one at a time, while the System is running.

To remove a defective module (Figure 13)**:**

1. Unplug the power cord (not shown) from the AC line cord connector (3) of the power module (4) being replaced.

CAUTION

The module gets hot during normal operation. Wait until the module cools or use protective gloves when removing it.

2. Grab hold of the D-ring (2) and, at the same time, push the lever (1) to the right and pull the module (4) straight out of the power supply chassis.

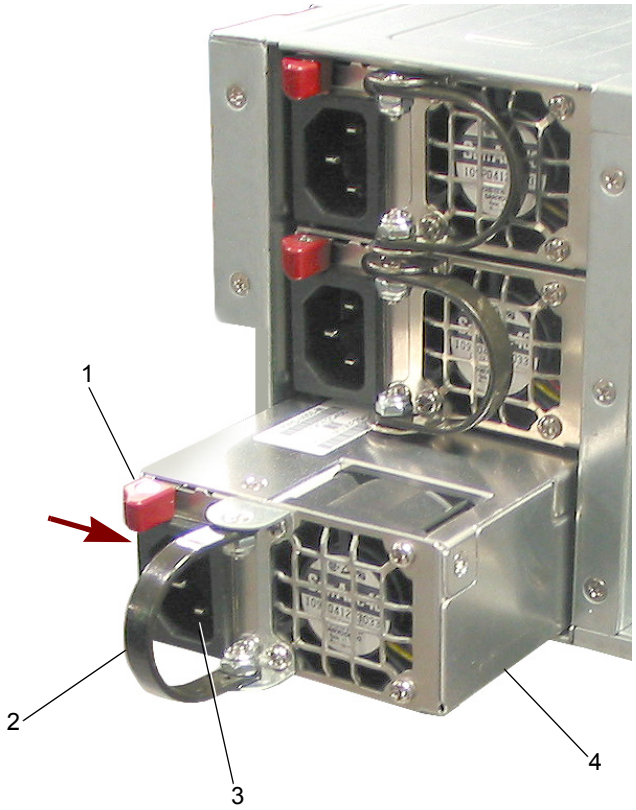


Figure 13 Power Supply—Hot Swap Procedure

CAUTION

Place the module aside, so that others do not come in contact with its hot surface.

To install a new module (Figure 13):

1. Install the module (4) by sliding it into the System chassis until it locks in place.
2. Connect the power cord (not shown) to the AC line cord connector (3).

CHECKING FRONT PANEL POWER SWITCH CONNECTIONS

To check front panel power switch connections:

CAUTION

Some components within the chassis may be susceptible to electrostatic charge. Wear a wrist strap connected to ground, if you will be touching components.

1. Remove the top cover from the Unit. Save screws.

2. Inspect the front panel power button header located on the workstation board (Figure 14). Make sure it is firmly seated to mating connector J1E4.

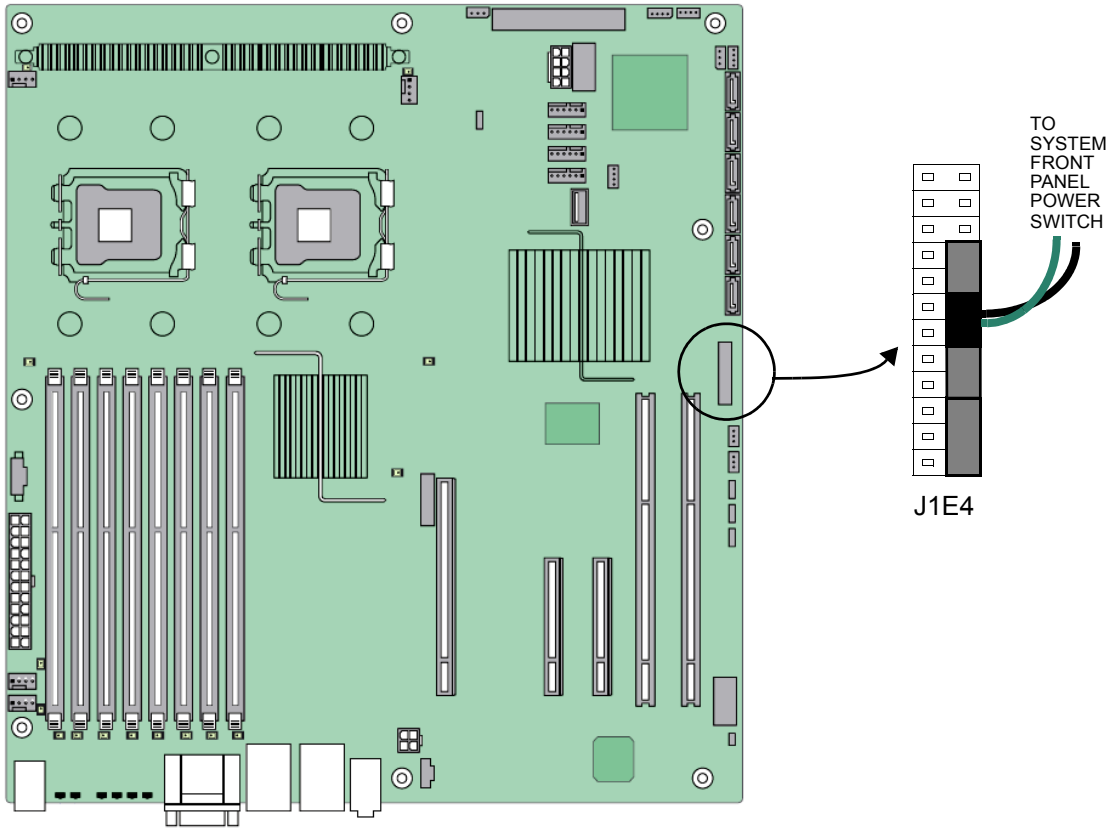


Figure 14 Front Panel Power Switch Connections

CAUTION

The unit must be operated with the chassis top cover installed, to ensure proper cooling.

3. Position the top cover on the chassis and slide it into position.

4. Press the System Power Switch. See “TURNING ON the UNIT” on page 24. The Power On Self-Test (POST) should begin. If the System fails to start, contact Chyron Customer Service.

REPLACING a DEFECTIVE HARD DRIVE

To replace a defective hard drive and perform the following steps:

1. Push drive tray latch toward right to open lever.
2. Slide tray out of the chassis.
3. Remove screws that secure drive to tray; remove defective drive.
4. Mount the new hard drive onto the tray. Secure with four screws.
5. Slide the tray into the case. Push lever into the tray until latch clicks shut.
6. Run system recovery process. See instructions packaged with the DVD recovery disc.

CHECKING INSTALLATION of SECURITY DEVICE

To check installation of security device:

CAUTION

Some components within the chassis may be susceptible to electrostatic charge. Wear a wrist strap connected to ground, if you will be touching components.

1. Remove the top cover from the Unit. Save screws.

2. Locate the security device (also referred to as the hardware key or dongle) installed on the workstation board at USB connector J3J1. See Figure 15.

3. Ensure that the security device is securely connected to USB connector J3J1.

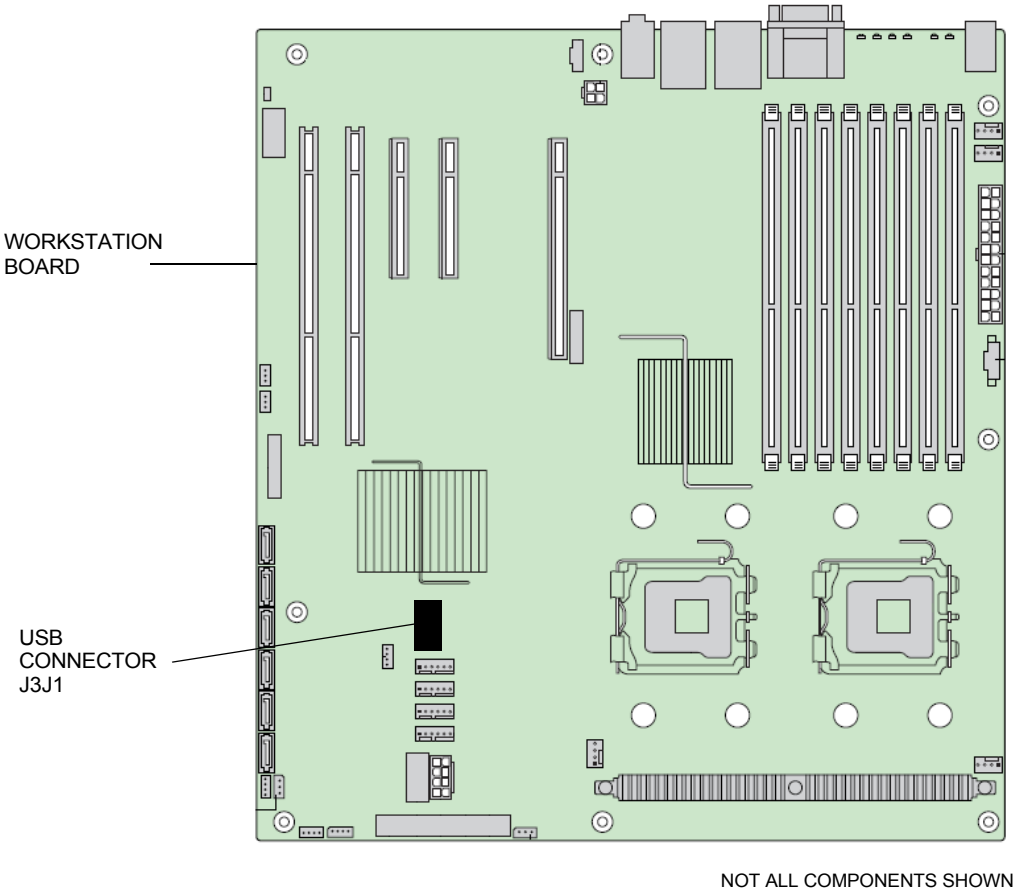


Figure 15 Checking Installation of Security Device

4. Secure top cover to Unit using screws previously removed.

PREVENTIVE MAINTENANCE

INTRODUCTION

Preventive maintenance is done at scheduled intervals to maximize the System's up time. Chyron recommends performing the following procedures and checks.

- Every six months, perform the following procedures:

WARNING

TO PREVENT AN ELECTRIC SHOCK HAZARD AND/OR DAMAGE TO THE SYSTEM, SHUT THE UNIT OFF AND REMOVE THE POWER CORDS, BEFORE REMOVING THE TOP COVER.

CAUTION

Some components within the chassis may be susceptible to electrostatic charge. Wear a wrist strap connected to ground if you will be touching components. When handling a circuit card, hold it by its edges, and avoid touching its circuitry.

1. Remove the top cover from the Unit. Save screws.
2. Blow out any accumulated dust, using compressed or canned air.

CAUTION

Wear protective eye gear when using compressed or canned air.

3. Examine the circuit boards to make sure that they are seated securely in their slots.

CAUTION

The unit must be operated with the chassis top cover installed, to ensure proper cooling.

4. Position the top cover on the chassis and slide it into position.

CHAPTER 7 REMOVAL/REPLACEMENT PROCEDURES

INTRODUCTION

This chapter provides step-by-step procedures to remove/install the Unit chassis in the rack, and to remove/replace the eFX board(s) and video graphics board.

WARNING

READ THE SAFETY CHAPTER BEFORE PERFORMING THE FOLLOWING PROCEDURES.

REMOVAL/REPLACEMENT of RACK-MOUNTED CHASSIS

To remove the chassis from the rack, proceed as follows:

WARNING

THE CHASSIS WEIGHS 35-40 POUNDS, DEPENDING ON OPTIONS PURCHASED. TO AVOID PERSONAL INJURY, CARE SHOULD BE EXERCISED WHEN LIFTING.

1. Remove hardware securing Unit front panel flange to rack.
2. Fully extend the chassis in the rack.
3. Make sure that power switch is set to the OFF position.
4. Remove AC power cords from power supply.
5. Remove any cables connected to the Unit.
6. Press the “Quick” disconnect button at each side of the chassis and pull the chassis forward.
7. Carefully remove the Unit from the rack and place on suitable work bench.

To replace the chassis in the rack, do the following:

1. Carefully align the chassis slides with the intermediate slides. Make sure that both sides are aligned to allow proper engagement.
2. Press both “Quick” disconnect buttons and push the chassis in towards the rack until the front panel flange is properly seated on the rack.
3. Connect AC power cord to power supply.
4. Connect any cables to the Unit previously removed.
5. Secure the chassis front panel flange to rack using the hardware previously removed.

REMOVING/REPLACING the eFX BOARD

WARNING

SERVICING MUST ONLY BE PERFORMED BY A QUALIFIED SERVICE TECHNICIAN. REMOVAL OF THE TOP COVER MAY EXPOSE AN INDIVIDUAL TO HAZARDOUS VOLTAGES. THE LINE CORD MUST BE DISCONNECTED FROM THE POWER SUPPLY, BEFORE ANY SERVICING IS PERFORMED.

CAUTION

Printed circuit boards installed in the Unit are ESD sensitive. Proper ESD handling procedures must be observed at all times.

To remove the eFX board, refer to Figure 16 and proceed as follows:

1. If a breakout panel connector is attached to the board, remove it.
2. Remove the Unit from the rack. Refer to “REMOVAL/REPLACEMENT of RACK-MOUNTED CHASSIS” on page 38.
3. Remove the top cover from the Unit. Save screws.
4. Remove the screws that secure the rail (1) to the chassis. Remove the rail.
5. Remove the circuit card bracket screw (4) that secures the board (2) to the chassis.
6. Remove screws securing PC board hold-down bracket (5) to the chassis. Remove the bracket.
7. Carefully remove the board (2) from its connector.

To replace the eFX board, refer to Figure 16 and proceed as follows:

1. Insert the board (2) into its connector.
2. Secure the rail (1) to the chassis using the screws previously removed.
3. Secure the PC board hold-down bracket (5) to the chassis, using the screws removed previously.
4. Secure the board (2) to the chassis using the circuit card bracket screw (4) removed previously.
5. Install the top cover on the Unit. Secure top cover using screws previously removed.
6. Install the chassis in the rack. See “REMOVAL/REPLACEMENT of RACK-MOUNTED CHASSIS” on page 38.
7. Reconnect the breakout panel connector, if applicable.

REMOVAL/REPLACEMENT of the PCI-e VIDEO GRAPHICS BOARD

WARNING

SERVICING MUST ONLY BE PERFORMED BY A QUALIFIED SERVICE TECHNICIAN. REMOVAL OF THE TOP COVER MAY EXPOSE AN INDIVIDUAL TO HAZARDOUS VOLTAGES. THE LINE CORD MUST BE DISCONNECTED FROM THE POWER SUPPLY, BEFORE ANY SERVICING IS PERFORMED.

CAUTION

Printed circuit boards installed in the Unit are ESD sensitive.
Proper ESD handling procedures must be observed at all times.

To remove the PCI-e graphics board, refer to Figure 16 and proceed as follows:

1. Remove all external connections to the Unit.
2. Remove the Unit from the rack. Refer to “REMOVAL/REPLACEMENT of RACK-MOUNTED CHASSIS” on page 38.
3. Remove the top cover from the Unit. Save screws.
4. Remove and save the two screws that secure the rail (1) to the chassis. Remove the rail.
5. Remove and save the circuit card bracket screws (6) that secure the board (3) to the chassis.
6. Carefully remove the board (3) from its connector.

To replace the PCI-e graphics board, refer to Figure 16 and proceed as follows:

1. Insert the board (3) into its connector.
2. Secure the board (3) to the chassis using the circuit card bracket screws (6) removed previously.
3. Reconnect any connectors to the board (3). Remove tags.
4. Secure the rail (1) to the chassis using the screws previously removed.

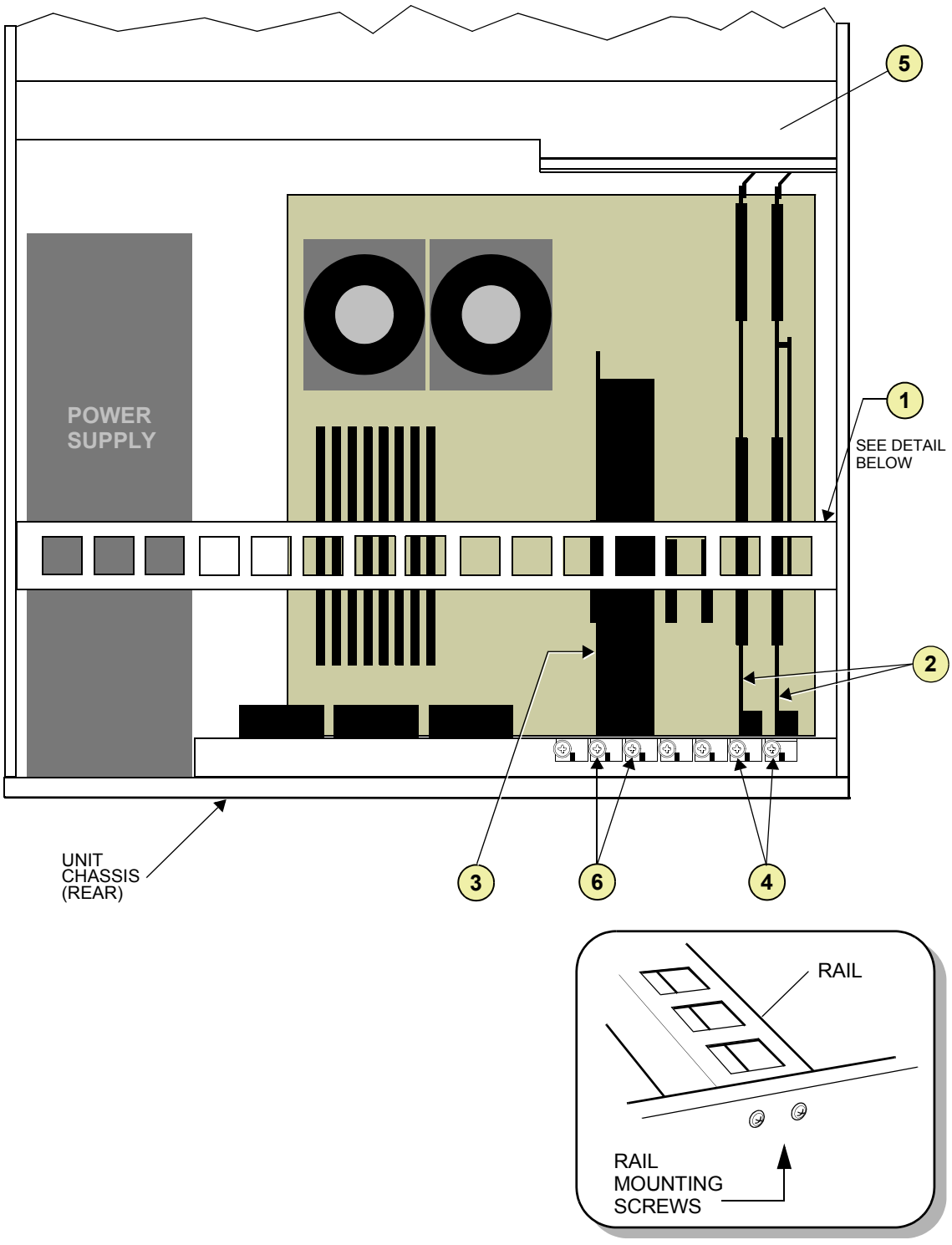


Figure 16 Removal/Replacement of Circuit Boards

5. Install the top cover on the Unit. Secure top cover using screws previously removed.
6. Install the chassis in the rack. See “REMOVAL/REPLACEMENT of RACK-MOUNTED CHASSIS” on page 38.
7. Reconnect all external connections to the Unit, if applicable.

REMOVAL/REPLACEMENT of the WORKSTATION BOARD

Removal and replacement of the workstation board is not a field operation. If it is suspected that there is a problem with the workstation board, Chyron customer service should be contacted.

RAM REPLACEMENT

Follow the instructions provided in the workstation board documentation that accompanied your System

NOTES:

APPENDIX: CHYRON DEDICATED KEYBOARD

INTRODUCTION

The Chyron Dedicated Keyboard is a custom keyboard device for use with the HyperX^2 in conjunction with the Lyric software. Use this keyboard to simplify common operations, compose functions, and reduce the need to use a mouse pointing device. The Chyron Dedicated Keyboard option includes an adapter cable kit to allow the keyboard to be installed in a standard PC PS/2 keyboard port and a *Keyboard Reference Card* (Publication No. 2A02122).

KEYBOARD LAYOUT

The layout of the Chyron Dedicated Keyboard (Figure 17) is very similar to the established locations and functions of an iNFiNiT! keyboard.

Some of the “hotkey” positions replace commonly used Windows keys, and create the availability of standard functions. These keys have their standard function printed on the front of the key and are color coded. For example, keys that generate the same scan code have their standard function printed in BLUE on the front of the key. Keys that generate different scan codes have their standard function printed in RED on the front of the key.

To use the standard PC function of these keys, hold down the red **Fn** key, and then press the desired key.

For a detailed description of the key functions of each key, refer to the *Keyboard Reference Card* (Publication No. 2A02122).

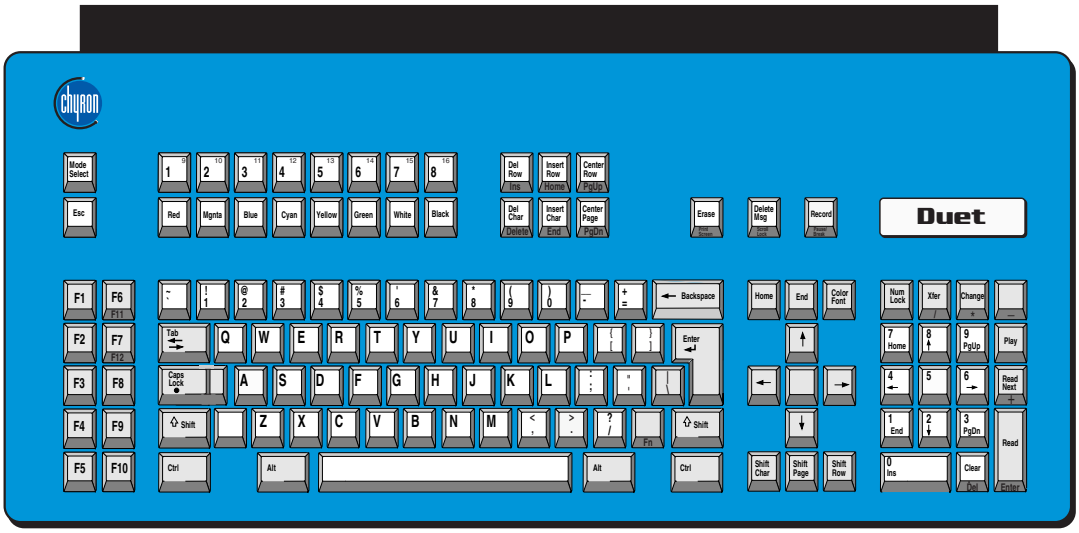


Figure 17 Chyron Dedicated Keyboard.

KEYBOARD INSTALLATION

Installation of the Chyron dedicated keyboard requires the use of the adapter cable kit supplied with the keyboard.

To install the keyboard, refer to Figure 18 and proceed as follows:

1. Connect the 5-pin adapter cable connector to the connector on the rear of the Chyron dedicated keyboard.
2. Connect the 6-pin adapter cable connector to the PS/2 keyboard port (purple) on the rear panel of the chassis.

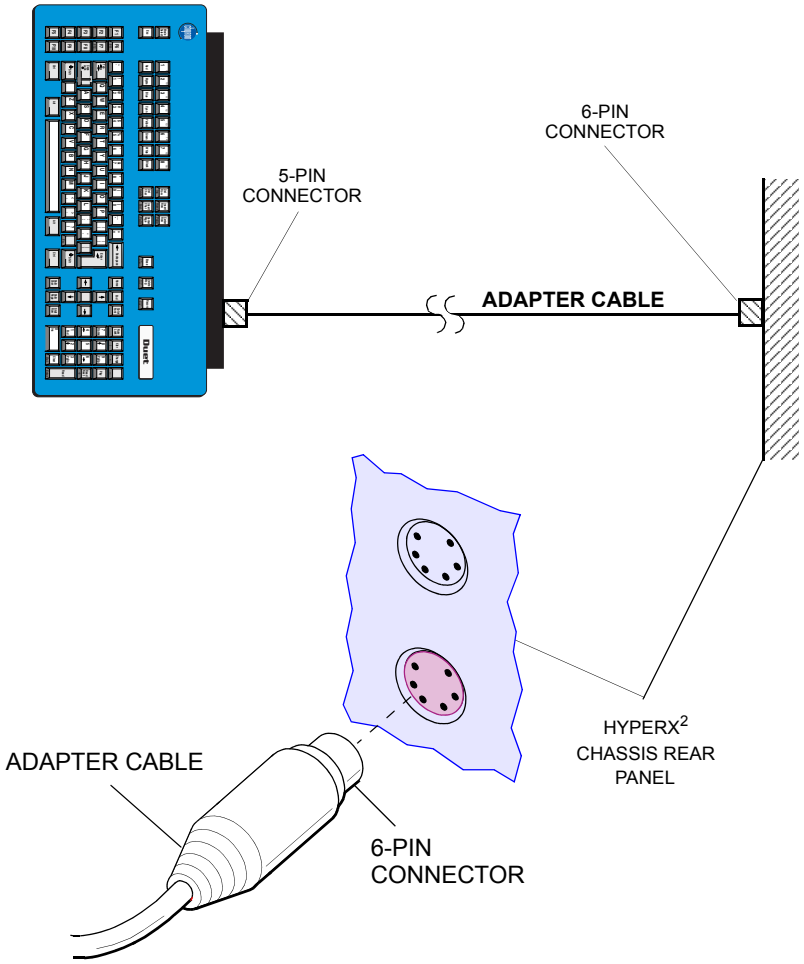


Figure 18 Chyron Dedicated Keyboard Installation