grass valley

Profile XP

PVS SERIES MEDIA PLATFORMS

Service Manual

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JULY 2004

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Revision Status

Rev Date	Description
November 8, 1999	Initial release of Profile XP Service Manual with NetCentral, 071-0625-00.
December 3, 1999	Formal release of Profile XP Service Manual with NetCentral, 071-0625-01.
September 8, 2000	Updated to include High Definition PVS2000 parts information. 071-8049-00.
November 17, 2000	Added procedures for rebuilding system disk drives; added information about WinTail and Log Capture tools. 071-8049-01
February 27, 2001	Updated to include new system processor board. 071-8049-02
July 20, 2001	Updated to include 2- and 4-channel PVS1000 playout models, add NetCentral information, and include PVS1100 Series. 071-8114-00
June 17, 2002	Updated to include additional RAID systems. 071-8114-01.
September 20, 2002	Updated motherboard replacement, NetCentral information. 071-8193-00.
July 21, 2003	Updated to support Profile software version 5.2 071-8247-00.
February 23, 2004	Updated to support Profile software version 5.4, PVS3000 and PVS3500. 071-8291-00.
23 July 2004	Removed NetCentral monitoring of DupliDisk, added DupliDisk III.

Grass Valley Product Support

To get technical assistance, check on the status of problems, or report new problems, contact Grass Valley Product Support via e-mail, the Web, or by phone or fax.

Web Technical Support

To access support information on the Web, visit the product support Web page on the Grass Valley Web site. You can download software or find solutions to problems by searching our Frequently Asked Questions (FAQ) database.

World Wide Web: http://www.thomsongrassvalley.com/support/
Technical Support E-mail Address: gvgtechsupport@thomson.net.

Phone Support

Use the following information to contact product support by phone during business hours. Afterhours phone support is available for warranty and contract customers.

United States	(800) 547-8949 (Toll Free)	France	+33 (1) 34 20 77 77
Latin America	(800) 547-8949 (Toll Free)	Germany	+49 6155 870 606
Eastern Europe	+49 6155 870 606	Greece	+33 (1) 34 20 77 77
Southern Europe	+33 (1) 34 20 77 77	Hong Kong	+852 2531 3058
Middle East	+33 (1) 34 20 77 77	Italy	+39 06 8720351
Australia	+61 3 9721 3737	Netherlands	+31 35 6238421
Belgium	+32 2 3349031	Poland	+49 6155 870 606
Brazil	+55 11 5509 3440	Russia	+49 6155 870 606
Canada	(800) 547-8949 (Toll Free)	Singapore	+656379 1390
China	+86 106615 9450	Spain	+ 34 91 512 03 50
Denmark	+45 45968800	Sweden	+46 87680705
Dubai	+ 971 4 299 64 40	Switzerland	+41 (1) 487 80 02
Finland	+35 9 68284600	UK	+44 870 903 2022

Authorized Support Representative

A local authorized support representative may be available in your country. To locate the support representative for your country, visit the product support Web page on the Grass Valley Web site.

Profile Users Group

You can connect with other Profile XP Media Platform users to ask questions or share advice, tips, and hints. Send e-mail to profile-users@thomson.net to join the community and benefit from the experience of others.

Safety Summaries

General Safety Summary

Review the following safety precautions to avoid injury and prevent damage to this product or any products connected to it.

Only qualified personnel should perform service procedures.

While using this product, you may need to access other parts of the system. Read the *General Safety summary* in other system manuals for warnings and cautions related to operating the system.

Injury Precautions

Use Proper Power Cord

To avoid fire hazard, use only the power cord specified for this product.

Ground the Product

This product is grounded through the grounding conductor of the power cord. To avoid electric shock, the grounding conductor must be connected to earth ground. Before making connections to the input or output terminals of the product, ensure that the product is properly grounded.

Do Not Operate Without Covers

To avoid electric shock or fire hazard, do not operate this product with covers or panels removed.

Do Not operate in Wet/Damp Conditions

To avoid electric shock, do not operate this product in wet or damp conditions.

Do Not Operate in an Explosive Atmosphere

To avoid injury or fire hazard, do not operate this product in an explosive atmosphere.

Avoid Exposed Circuitry

To avoid injury, remove jewelry such as rings, watches, and other metallic objects. Do not touch exposed connections and components when power is present.

Product Damage Precautions

Use Proper Power Source

Do not operate this product from a power source that applies more than the voltage specified.

Provide Proper Ventilation

To prevent product overheating, provide proper ventilation.

Do Not Operate With Suspected Failures

If you suspect there is damage to this product, have it inspected by qualified service personnel.

Battery Replacement

To avoid damage, replace only with the same or equivalent type recommended by the circuit board manufacturer. Dispose of used battery according to the circuit board manufacturer's instructions.

Safety Terms and Symbols

Terms in This Manual

These terms may appear in this manual:

⚠ ***WARNING:*** Warning statements identify conditions or practices that can result in personal injury or loss of life.

⚠ ***CAUTION:*** Caution statements identify conditions or practices that can result in damage to the equipment or other property.

Terms on the Product

These terms may appear on the product:

DANGER indicates a personal injury hazard immediately accessible as one reads the marking.

WARNING indicates a personal injury hazard not immediately accessible as you read the marking.

CAUTION indicates a hazard to property including the product.

Symbols on the Product

The following symbols may appear on the product:

 DANGER high voltage

 Protective ground (earth) terminal

⚠ ATTENTION – refer to manual

Service Safety Summary

Do Not Service Alone

Do not perform internal service or adjustment of this product unless another person capable of rendering first aid and resuscitation is present.

Disconnect Power

To avoid electric shock, disconnect the main power by means of the power cord or, if provided, the power switch.

Use Care When Servicing With Power On

Dangerous voltages or currents may exist in this product. Disconnect power and remove battery (if applicable) before removing protective panels, soldering, or replacing components.

To avoid electric shock, do not touch exposed connections

Certifications and Compliances

Canadian Certified Power Cords

Canadian approval includes the products and power cords appropriate for use in the North America power network. All other power cords supplied are approved for the country of use.

FCC Emission Control

This equipment 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. Changes or modifications not expressly approved by Tektronix can affect emission compliance and could void the user's authority to operate this equipment.

Canadian EMC Notice of Compliance

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 radioélectriques dépassant les limites applicables aux appareils numériques de la classe A préscrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

Canadian Certified AC Adapter

Canadian approval includes the AC adapters appropriate for use in the North America power network. All other AC adapters supplied are approved for the country of use.

EN55022 Class A Warning

For products that comply with Class A. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Laser Compliance

Laser Safety Requirements

The device used in this product is a Class 1 certified laser product. Operating this product outside specifications or altering its original design may result in hazardous radiation exposure, and may be considered an act of modifying or new manufacturing of a laser product under U.S. regulations contained in 21CFR Chapter 1, subchapter J or CENELEC regulations in HD 482 S1. People performing such an act are required by law to recertify and reidentify this product in accordance with provisions of 21CFR subchapter J for distribution within the U.S.A., and in accordance with CENELEC HD 482 S1 for distribution within countries using the IEC 825 standard.

Laser Safety

Laser safety in the United States is regulated by the Center for Devices and Radiological Health (CDRH). The laser safety regulations are published in the "Laser Product Performance Standard," Code of Federal Regulation (CFR), Title 21, Subchapter J.

The International Electrotechnical Commission (IEC) Standard 825, "Radiation of Laser Products, Equipment Classification, Requirements and User's Guide," governs laser products outside the United States. Europe and member nations of the European Free Trade Association fall under the jurisdiction of the Comité Européen de Normalization Electrotechnique (CENELEC).

FCC Emission Limits

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesirable operation.

Certification

Category	Standard
Safety	*Designed/tested for compliance with:*
	UL1950 - Safety of Information Technology Equipment, including Electrical Business Equipment (Third Edition, 1995)
	IEC 950 - Safety of Information Technology Equipment, including Electrical Business Equipment (Second edition, 1991)
	CAN/CSA C22.2, No. 950-95 - Safety of Information Technology Equipment, including Electrical Business Equipment
	EN60950 - Safety of Information Technology Equipment, including Electrical Business Equipment

Contents

Preface

About this manual

This service manual provides procedures for servicing the Profile XP Media Platform to the field-replaceable unit level. Use this manual to isolate problems to a board or module, such as the Power Supply, and to make repairs through module exchange.

Organization of the manual

The Service Manual is divided into the following chapters and appendixes:

Chapter 1 - Characterizing the problem

A troubleshooting-guide starting point. Asks basic questions that:

1. enable you to determine the nature of the problem
2. guide you to the chapter that deals with that problem for further tests, analysis, and corrective action

This chapter also briefly discusses the various diagnostic aids available, and describes the obvious hardware faults that require no further analysis.

Chapter 2 - Troubleshooting Windows NT boot problems

Guides you through the Windows NT boot sequence and problems associated with booting.

Chapter 3 - Troubleshooting video problems

Lists the NetCentral messages for the video subsystem, and provides corrective action for video problems that occur whether the media platform is controlled locally or remotely with automation tools.

Chapter 4 - Troubleshooting audio problems

Lists the NetCentral messages for the audio subsystem, and provides corrective action for audio problems that might occur as a result of incorrect settings, connections, etc.

Chapter 5 - Troubleshooting timecode problems

Lists the NetCentral messages for timecode problems, and provides corrective action for timecode problems that might occur as a result of incorrect settings, connections, etc.

Chapter 6 - Troubleshooting storage system problems

Lists the NetCentral messages for the storage system, and suggests preventive or corrective action for common media storage problems.

Chapter 7 - Troubleshooting video network problems

Lists NetCentral messages and provides corrective action for both Fibre Channel and Ethernet video networking problems. Includes procedures for testing either video network.

Chapter 8 - Troubleshooting miscellaneous system problems

Lists NetCentral messages and provides corrective action for a variety of subsystems in the Profile XP media platform including the Applications subsystem, the Real Time Processor board, the power supplies, the fans, and the thermal monitoring.

Chapter 9 - Troubleshooting channel control problems

Provides corrective action for some common control problems.

Chapter 10 - Routine maintenance

Provides procedures for filter cleaning and other routine maintenance tasks.

Chapter 11 - Parts removal and replacement

Provides illustrated procedures for disassembly and a list of field-replaceable parts.

Appendix A - Diagnostic Tools

Serves as a reference for use of the various diagnostic tools available on Profile XP media platform, including instructions for using the NetCentral system, Profile XP diagnostics, Windows NT diagnostics, and POST (power-on self-test).

Appendix B - Theory of operation

High level system overview, and high level discussions of each of the boards in the system.

Related documentation

Profile XP User Guide

PVS1000 Installation Guide

PVS1100 Installation Guide

PVS2000 Installation Guide

PVS3000 & PV3500 Installation Guide

Profile XP System Guide

PFC500/E Instruction Manual

PFR500/E Instruction Manual

PFR600/E Instruction Manual

PFR700/E Instruction Manual

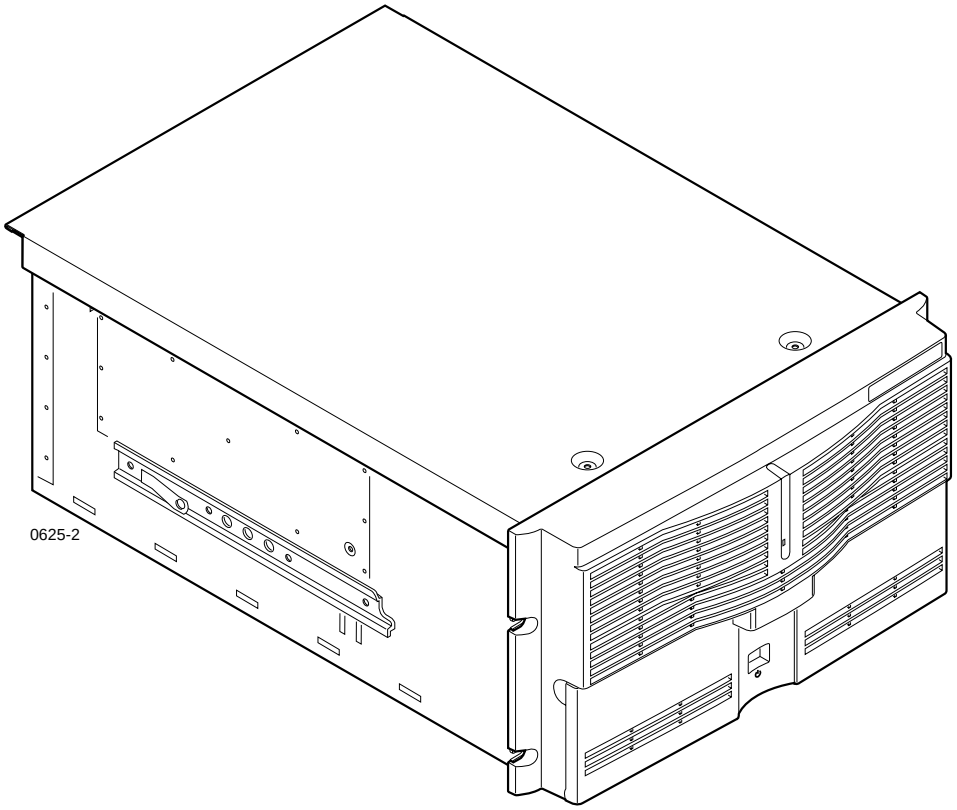
Profile System Software Release Notes

Open SAN Instruction Manual

Open SAN Release Notes

Product description

The Grass Valley Profile XP Media Platform provides a high bandwidth platform for the storage and manipulation of video and audio in professional applications including spot insertion, program delay, store and forward, and multi-channel replay.



The Profile XP Media Platform

Standard accessories

The Profile XP Media Platform is shipped with the following standard accessories:

- Manuals Include:
  - *Installation Guide*
  - *Profile XP System Guide*
  - *Profile XP User Guide*
  - *Profile XP Service Manual*
  - *Profile XP Release Notes*
- Software package which includes the Profile XP Software CD-ROM.
- Windows NT software package
- Keyboard and mouse
- I/O Panel and cables (provides LTC, RS-422 & GPI interfaces)
- Power cable
- Rack mounting slides
- Ethernet cable
- System rebuild CD-ROM

Profile XP Media Platform features

Features common to all media platforms

- 16 (8 AES Pairs)/ 32 (16 AES pairs) channel audio - AES/EBU, embedded or analog uncompressed audio, Dolby E and AC-3 compressed audio
- 600Mb/s System Bandwidth
- Redundant power supply, NT disk, cooling fans for reliability
- External Fibre Channel RAID storage (dual controllers optional)
- Storage capability supported includes distributed storage for hundreds of channels as well as centralized storage for up to 32 channels
- NetCentral™ provides remote error reporting and monitoring via SNMP
- High speed Fibre Channel networking up to 250Mb/s
- 100BaseT Ethernet networking up to 30Mb/s
- Remote control including:
  - Remote Applications over Ethernet
  - RS-422 control protocol including VDCP, Odetics, BVW, or Profile protocols.
  - GPI Trigger (8 I/O)

PVS1000 features

- Up to 8 standard definition (SD) channels of broadcast-quality video

PVS1000 Series channel configurations by model

Model Number	Number of MPEG Encoder Boards[a]	Number of MPEG Decoder Boards	Channel Configuration
PVS1022	1	1	2 in/2 out
PVS1024	1	2	2 in/ 4 out
PVS1026	1	3	2 in/6 out
PVS1042	2	1	4 in/2 out
PVS1044	2	2	4 in/4 out
PVS1062	3	1	6 in/2 out
PVS1002	0	1	0 in/2 out
PVS1004	0	2	0 in/4 out
PVS1006	0	3	0 in/6 out
PVS1008	0	4	0 in/8 out

[a.] MPEG Encoder and Decoder boards in PVS1000 series are Standard Definition.

- MPEG-2 4:2:2 @ Main Level from 4-50Mbs, long GOP
- SMPTE 259M, 270MHz Serial Digital I/O (Optional analog monitor with timecode burn-in and text overlay)
- 525/60 or 625/50 operation: accepts NTSC, PAL

PVS1100 features

- Up to 8 standard definition (SD) channels of broadcast-quality video

PVS1100 Series channel configurations by model

Model Number	Number of video codecs		Channel Configuration
PVS1102	2		2 play/record
PVS1104	4		4 play/record
PVS1106	6		6 play/record
PVS1148	8		4 play/record plus 4 play
PVS1108	8		8 play/record

- DVCPRO 25 video compression
- DVCPRO 50 video compression (requires 50Mb/s option)
- MPEG-2 4:2:2 @ Main Level from 4 to 25Mb/s or 50Mb/s (requires 50Mb/s option)
- MPEG-D10: I-frame to 50Mb/s CBG (requires 50Mb/s option)
- SDTI (optional): two channels, each can be configured as input or output. DVCPRO 25 input at 1x, 2x, 4x; output at 1x, 4x. DVCPRO 50 input at 1x, 2x; output at 1x.
- SMPTE 259M, 270MHz Serial Digital I/O (Optional analog monitor with timecode burn-in and text overlay)
- 525/60 or 625/50 operation: accepts NTSC, PAL

PVS2000 features

- Up to 4 high definition (HD) channels of broadcast-quality video

PVS2000 Series channel configurations by model

Model Number	Number of MPEG Encoder Boards[a]	Number of MPEG Decoder Boards	Channel Configuration
PVS2012	1	1	1 in/2 out
PVS2013	1	2	1 in/ 3 out
PVS2004	0	2	0 in/4 out
PVS2022	2	2	2 in/2 out
PVS2212	1 HD, 1 SD	1 HD, 1 SD	2 in/2 out (SD) 1 in/2 out (HD)

[a] MPEG Encoder and Decoder boards in PVS2000 series are High Definition.

- MPEG-2 4:2:0 @ Main Level from 24-80Mbs, long GOP (for HD)
- SMPTE 292M, 1.485 Gbs Serial Digital I/O (includes downconverted SD SDI and composite analog monitor with text overlay and timecode burn-in)
- 1080i and 720p line rates for HD, 50 and 59.94, accepts house black and tri-level sync reference

PVS3000 features

- Up to 7 channels of broadcast-quality video
- Standard and high definition channels can record and play concurrently

PVS 3000 Series channel configurations by model

Model Number	Number of HD MPEG Encoder Boards	Number of HD MPEG Decoder Boards	Number of SD Video Processor Boards	Channel Configuration
PVS3004	0	1	1	2 SD out 2 HD out
PVS3014	1	1	1	2 SD out 1 HD in 2 HD out
PVS3024	0	1	1 (4 Ch.)	2 SD in 2 SD out 2 HD out
PVS3034	1	1	1 (4 Ch.)	2 SD in 2 SD out 1 HD in 2 HD out

- MPEG-2 4:2:0 @ Main Level from 24-80Mbs, long GOP (for HD)
- MPEG-2 4:2:2 @ Main Level from 4 to 25Mb/s or 50Mb/s (requires 50Mb/s option)
- SMPTE 292M, 1.485 Gbs Serial Digital I/O (includes downconverted SD SDI and composite analog monitor with text overlay and timecode burn-in)
- SMPTE 259M, 270MHz Serial Digital I/O (Optional analog monitor with timecode burn-in and text overlay)
- 1080i and 720p line rates for HD, 50 and 59.94, accepts house black and tri-level sync reference
- DVCPRO 25 video compression
- DVCPRO 50 video compression (requires 50Mb/s option)
- MPEG-D10: I-frame at 30, 40, or 50Mb/s CBG (requires 50Mb/s option)
- 525/60 or 625/50 operation: accepts NTSC, PAL
-

PVS3500 features

- Up to 7 channels of broadcast-quality video.
- HD decoders can play MPEG-2 4:2:0 SD and HD clips through either an SD or an HD SDI output, down- or up-converted as required.

PVS 3500 Series channel configurations by model

Model Number	Number of HD MPEG Encoder Boards	Number of HD MPEG Decoder Boards	Number of SD Video Processor Boards	Channel Configuration
PVS3502	0	1	0	2 HD/SD out
PVS3504	0	2	0	4 HD/SD out
PVS3512	1	1	0	1 HD in 2 HD/SD out
PVS3514	1	2	0	1 HD in 4HD/SD out
PVS3522	0	1	1	2 SD in 2 HD/SD out
PVS3524	0	2	1	2 SD in 4 HD/SD out
PVS3532	1	1	1	2 SD in 1 HD in 2 HD/SD out
PVS3534	1	2	1	2 SD in 1 HD in 4 HD/SD out

- MPEG-2 4:2:0 @ Main Level from 24-80Mbs, long GOP (for HD)
- MPEG-2 4:2:2 @ Main Level from 4 to 25Mb/s or 50Mb/s (requires 50Mb/s option)
- SMPTE 292M, 1.485 Gbs Serial Digital I/O (includes downconverted SD SDI and composite analog monitor with text overlay and timecode burn-in)
- SMPTE 259M, 270MHz Serial Digital I/O (Optional analog monitor with timecode burn-in and text overlay)
- 1080i and 720p line rates for HD, 50 and 59.94, accepts house black and tri-level sync reference
- DVCPRO 25 video compression
- DVCPRO 50 video compression (requires 50Mb/s option)
- MPEG-D10: I-frame at 30, 40, or 50Mb/s CBG (requires 50Mb/s option)
- 525/60 or 625/50 operation: accepts NTSC, PAL

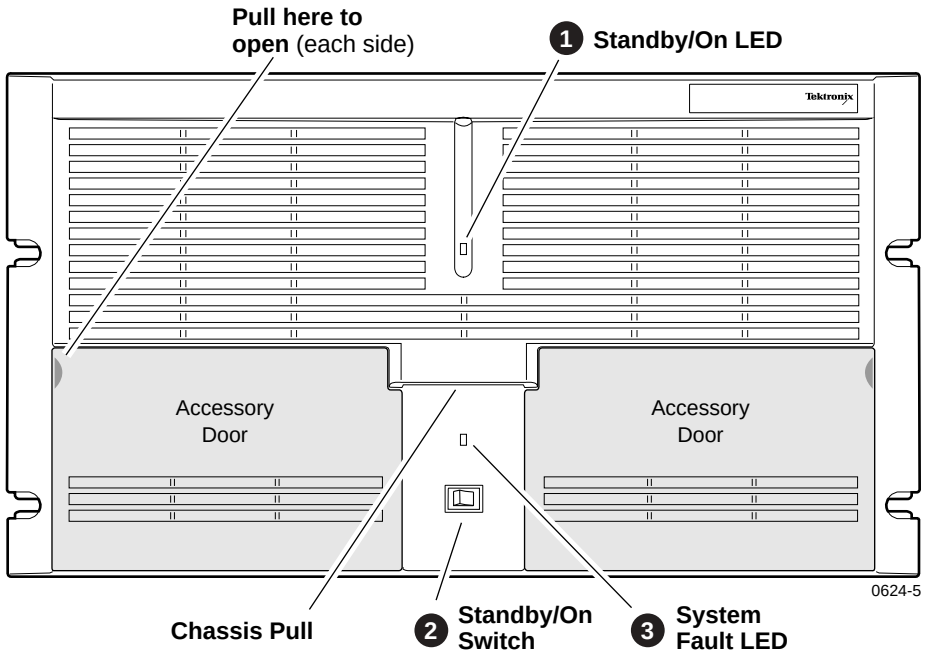
Front panel controls and indicators

The Profile XP Media Platform front panel shown here includes the following controls and indicators:

❶ **Standby/On LED** - indicates the standby switch is in the on position and that secondary voltages are present in the chassis.

❷ **Standby/On Switch** - provides system On/Off control.

❸ **System Fault LED** - indicates a system fault somewhere in the Profile XP system. This LED is under control of the NetCentral system and goes off when NetCentral receives notice from the system that the cause of the fault is cleared.



Profile XP Media Platform front panel

The Profile XP front panel features two accessory doors that provide access to several application subsystem storage devices. A system with standard equipment is shown on page 24, while a system equipped with the redundant storage option is shown on page 25.

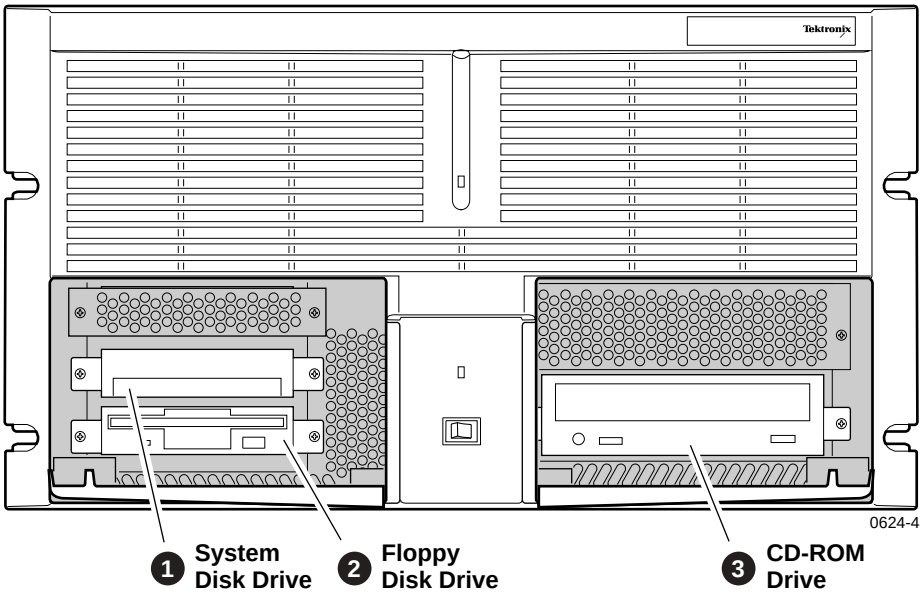
The storage devices in the standard system include:

❶ **System Drive** - contains Windows NT operating system and Profile XP software and applications.

❸ **1.44MB Floppy Disk Drive** - for installing operating system and Profile XP system software upgrades.

❹ **CD-ROM Drive** - for installing operating system and Profile XP system software upgrades.

NOTE: The snap-in hinges in the front panel accessory doors allow you to easily pop the door back into place should it be accidentally knocked from its hinges.



Profile XP Media Platform with accessory doors open

The storage devices in the system with the redundant system disk option include:

❶ **Primary System Drive** - contains Windows NT operating system and Profile XP software and applications.

❷ **Mirror System Disk** - mirrors primary system disk and provides automatic fail-over in the event primary system disk fails.

❸ **Drive Mirroring Controller and Indicator Panel** - The Primary and Mirror LEDs monitor the status of the channels as follows:

- **Green** - Drive installed on the current channel
- **Red** - Drive not installed or channel marked as bad
- **Orange** - Drive activity

The Status LED indicates the operating mode of the mirroring system:

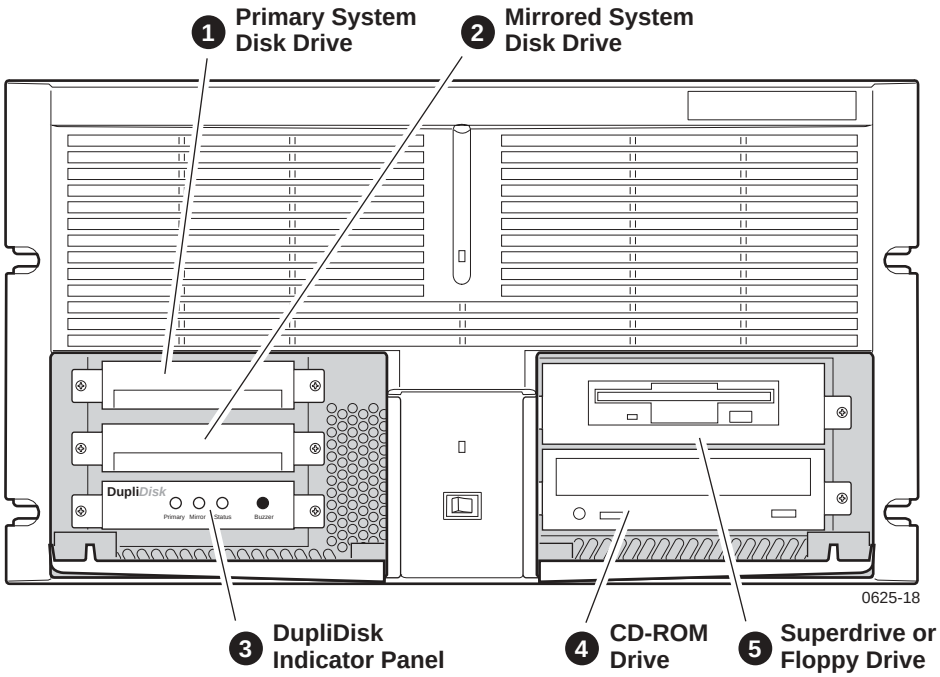
- **Green** - Drives are in Mirror mode
- **Red** - Drives in Single mode

The Buzzer Off switch can be used to silence the buzzer, which sounds under the following conditions:

- Short beep during power on indicates successful boot-up
- Second beep indicates the mirroring system is running in single mode
- Continuous or intermittent beep indicates a drive failure

❹ **CD-ROM Drive** - for installing operating system and Profile XP system software upgrades.

❺ **120MB Superdrive** or **1.44MB Floppy Drive** - the Super-Drive accepts 1.44MB floppy disks and 120MB disks.

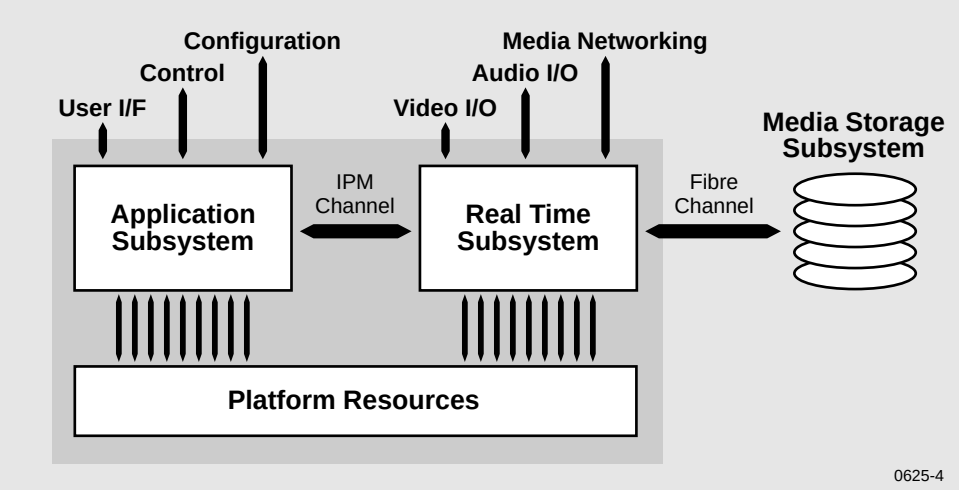


Profile XP with redundant system disk option

Profile XP system overview

The Profile XP Media Platform system is an extension to a standard PCI bus based Windows NT Computer. This standard computer base is enhanced to add functionality and performance necessary to deliver an industrial grade, broadcast quality, disk-based media platform. This section discusses the major architectural blocks, what they do, and how they interconnect. A more detailed overview of the system is available in Appendix B, *Theory of operation*.

The Profile XP Media Platform consists of two major subsystems, the Application Subsystem and the Real Time Subsystem, and the platform resources needed for them to function. These are shown in the darker tinted area of the high-level block diagram. A third major subsystem, the Media Storage Subsystem, is external to the media platform.



High-level Block Diagram

Platform resources

The platform resources provide the infrastructure necessary to operate, interconnect, and integrate all the components of the Application and Real Time Subsystems. The platform resources include the multi-slot PCI bus, the video & audio crosspoint fabric, the power supply, and system cooling.

Applications subsystem

The Applications Subsystem is a Windows NT computer subsystem in a standard NLX single board computer form factor. The Applications Subsystem provides a platform for running Windows based applications that configure and control the Real Time Subsystem both locally and remotely.

Real Time subsystem

The Real Time Subsystem contains a real time processor and peripheral devices and runs the VXWorks operating system.The Real Time Subsystem manages all the hardware involved in controlling the flow of video, audio, and timecode in and out of the system. This includes video I/O boards, audio I/O boards, video compression boards, and networking and storage. The Real Time Subsystem is controlled by applications running on the Applications Subsystem using Inter-Processor Messaging channels (IPM). It is responsible for the execution of events on the play time line.

Media storage subsystem

NOTE: If your Profile XP Media Platform is part of an Open SAN, refer to the *Open SAN Installation Guide* ***for information about media storage.***

The Storage Subsystem is where the video, audio, timecode and other media related data is stored. This storage system is made up of one or more external RAID level 3 storage chassis containing Fibre Channel disks. The Profile XP Real Time Subsystem controls read/write disk operations by sending SCSI protocol commands over one or more Fibre Channel links.

Chapter 1

Characterizing the problem

This is your first step in diagnosing the problem you are having with your Profile XP Media Platform. The information presented here and the questions asked will enable you to:

- Determine the nature of the problem
- Direct you to the area of the manual that deals more specifically with the problem you are experiencing

You will also find brief discussions of the diagnostic aids available on the media platform. In cases where the error message carries with it the remedy to the cause, you will not need to go beyond this chapter.

Localizing the problem

In determining the nature of the problem, there are four questions that will in most cases help you localize the problem to one of the three major subsystems.

What was the media platform doing when the problem occurred?

Another way to ask this would be, “What were you doing with the media platform when the problem occurred?” or “How were you using the media platform when the problem occurred?” This can include “When did the problem occur?”

- Does the problem occur at start-up?

Any failure before the desktop appears is most likely a Windows NT boot problem. If you are experiencing boot problems, refer to Chapter 2, *Troubleshooting Windows NT boot problems*, which covers the potential problems you can encounter during the WindowsNT boot sequence.

- Can you record and play video, audio, and timecode?

Record and play problems can have a number of causes. The most frequent problems result from a change in configuration, or cables being accidentally disconnected or misconnected. Refer to Chapter 3, *Troubleshooting video problems*, Chapter 4, *Troubleshooting audio problems*, or Chapter 5, *Troubleshooting timecode problems* for help determining those problems.

If an automatic controller is used to operate the media platform, refer to Chapter 9, *Troubleshooting channel control problems* for dealing with possible problems caused by controller interface problems.

- Is there a problem with the video network?

If you are having network problems such as an inability to access other Profile systems on the network see Chapter 7, *Troubleshooting video network problems*, which deals with possible problems in the fibre channel or ethernet video network systems.

What has changed?

If the media platform has been working, but has suddenly developed a problem, think of what has changed in the system.

- Have you changed resources for any of the channels?
- Have you installed any software?
- Have you installed or removed a board?

If reversing the changes restores the system, perhaps there is a problem with the software or hardware that was installed or removed.

What error indications were reported by the NetCentral system?

The NetCentral system monitors the operational status of the media platform, keeping track of a number of operating parameters and the health of the circuit boards. Many of the messages displayed by the NetCentral system contain the remedy for a problem along with the notification. NetCentral also generates log files that you can use to help determine where and when faults have occurred. Refer to “Viewing logs” on page 134.

What attempts have you made to remedy the problem?

Keep track of efforts you make to remedy your problem. In the event that you need to contact Grass Valley Support, this information can greatly assist the person working with you to isolate and correct the problem.

Readily diagnosed problems

Many problems are easily diagnosed because they are primarily hardware faults that are indicated by messages at boot time or because they generate a NetCentral Alarm or an Attention message.

- Power-supply failure
- Fan failure
- Temperature (fans/filter/overload)
- Applications processor boot failure

Any of the plug-in circuit boards in the media platform will generate a NetCentral Alarm message if the board fails. This message states the name of the board and its slot location in the Profile XP media platform, and recommends that you replace the board.

Diagnostic tools

Several diagnostic tools are available to you for determining the nature and source of a problem. They are listed here with brief explanations of their uses, and they are discussed in more detail in Appendix A, *Diagnostic Tools*.

NetCentral — Monitors the state of the Profile XP media platform, and alerts you to component failures and maintenance needs. This system uses SNMP managers and agents to monitor one Profile XP media platform locally or, if you are using optional full-featured NetCentral, many Profile XP systems from a remote location. The system constantly monitors the status of the Profile XP media platform and generates Attention (warning) messages when hardware failures are imminent or when operating conditions are degrading, and generates Alarm (critical) messages when hardware failures occur or when the operating environment exceeds safe parameters.

Profile XP Diagnostics — A diagnostic suite that checks the functionality of the boards in the Profile XP Media Platform.

Windows NT diagnostic tools — Provided by Microsoft for use in troubleshooting problems with Windows NT.

POST — Power-On Self-Test. Basic tests to assess the initial health of the system as it boots.

Chapter 2

Troubleshooting Windows NT boot problems

This chapter deals with problems that occur between setting the switch to “on” and the appearance of the desktop on the monitor screen. During this period, the power-on self-test runs and Windows NT boots.

Pre-boot problems

The pre-boot sequence of events occurs when you first turn on the computer before Windows NT loads and begins to run. The problems that occur during pre-boot are primarily hardware problems. These problems are typically in the Applications Processor board or in one of the peripherals attached to it: the display, the keyboard, the mouse, the system drive, or the diskette drive. When these events are complete, the computer is ready to begin loading Windows NT.

The following table lists some possible problem symptoms that you might see as error messages that appear during the Power-On Self-Test (POST).

Symptom	Possible Cause	Solution
Error message indicating failure in a hard disk drive.	Hard disk drive failure	Try replacing the hard disk drive.
	Connecting cable failure	Check the connecting cable, replace if necessary.
Error message indicating failure in diskette drive	Diskette drive failure	Try replacing the diskette drive.
	Connecting cable failure	Check the connecting cable, replace if necessary.
Error message indicating keyboard problem.	Keyboard unplugged	Plug in keyboard
	Keyboard or connecting cable defective	Replace keyboard
Error message indicating inability to find boot device or operating system.	Hard disk drive failure	Try replacing the hard disk drive.
	Connecting cable failure	Check the connecting cable, replace if necessary.
Error message indicating CMOS battery low or dead.	Battery low or dead	Replace Applications Processor board.
Error message indicating memory problem.	Defective memory.	Replace Applications Processor board.
Error message indicating timer or clock problems.	Component failure in Applications Processor board	Replace Applications Processor board.
No display	Component failure in Applications Processor board	Replace Applications Processor board.
	Monitor or cable failure	

These are messages you might see reported by NetCentral at a remote monitoring station that relate to system startup for a Profile XP system. No entry in the Possible Cause column means that the cause is implicit in the problem statement, that knowing the cause is unimportant to the solution, or in the case of status messages, there is no cause.

Problem	Possible Cause	Corrective Action
Flash ROM image download and execution error detected on the *boardtype* board in slot J*n*. The Profile XP system might operate incorrectly.		• Restart the Profile XP system. • Reload the system software. • Contact Support.
Power-On-Self-Test failure detected for the *boardtype* board in slot J*n*. The Profile XP system might operate incorrectly.	Hardware failure on the board.	Do one or more of the following: • Restart the Profile XP system. • Reload the system software. • Replace the board. • Contact Support.
Mismatching software version detected on the *boardtype* board in slot J*n*. The Profile XP system might operate incorrectly.	Incorrect or incomplete installation of Profile XP System Software.	Reload the system software if the Profile XP system operates incorrectly.

Booting Windows NT

This is the sequence that the computer follows when loading Windows NT.

1. Load *NTLDR* into memory and run it.
2. *NTLDR* reads contents of *Boot.ini*. On the screen it displays the boot loader menu, a menu that allows the user to select which operating system to load.
3. *NTLDR* loads Windows NT, or Windows NT VGA-mode if selected by the user.
4. *NTLDR* executes *NTDETECT.COM*.

   On the screen, *NTDETECT* displays “NTDETECT V1.0 Checking Hardware…”
5. Ready to load and initialize Windows NT.
   Display: OS Loader V4.0
   Press spacebar now to invoke Hardware Profile/Last Known Good menu.
6. Initialize Windows NT.
   The screen turns blue with white lettering.
7. Begin loading Windows NT. The boot process is complete when the desktop appears following a user log on or autologon.

Invoking *LastKnownGood*

As its name implies, *LastKnownGood* is a copy of the configuration from the last successful system boot-up. Invoking *LastKnownGood* allows you to overcome configuration related boot problems. It is used to undo any configuration changes that did not have the intended effect, such as those caused by adding a new driver to the system, or those caused by user-modified registry values. However, *LastKnownGood* does not repair corrupted or missing drivers or files.

LastKnownGood is loaded in when the user presses the space bar at the prompt before Windows NT begins to load.

It is important to remember that when you invoke *LastKnownGood*, any system configuration changes made since the last successful start up are discarded. And once you successfully log on, the configuration used becomes *LastKnownGood*

Windows NT boot problems

Possible problems that occur during the Windows NT boot sequence are listed in the following table. These problems can be repaired using the emergency repair process described later in this chapter.

Problem	Probable cause
Windows boots without displaying Boot Loader Menu or Problem in Windows NT Path	This will occur if *Boot.ini* is missing. If *Boot.ini* is missing *NTLDR* will boot from the *\winnt* directory by default. If this is the correct directory, Windows NT boots automatically. If not, the following message appears: Windows NT could not start because the following file is missing or corrupt: \winnt root\system32\ntoskrnl.exe Please reinstall a copy of the above file.
New boot loader operating system menu item appears	If the path for the default operating system in the boot loader section of the *boot.ini* file does not match any paths in the operating system portion of the file a new entry, “NT (default)” will be added to the operating system portion of the file. This new entry will be highlighted and used to boot NT if user does not make a selection.
The following message is displayed: OS Loader V4.0 Windows NT could not start because of a computer disk hardware configuration. Could not read from the selected boot disk. Check boot path and disk hardware. Please check the Windows NT (TM) documentation about hardware disk configuration and your hardware reference manuals for additional information.	Invalid device (Name, for instance) in Windows NT path in *boot.ini*.
The following error message is displayed: Boot: Couldn’t find *NTLDR* Please insert another disk	NTLDR file is corrupt or missing
The following error message is displayed: NTDETECT V1.0 Checking Hardware… NTDETECT failed	*Ntdetect.com* file is corrupt or missing
The following error message is displayed: Windows NT could not start because the following file is missing or corrupt: \winnt root\system32\ntoskrnl.exe Please re-install a copy of the above file.	*Ntoskrnl.exe* file is corrupt or missing
The following error message is displayed: I/O Error accessing boot sector file multi (0) disk (0) rdisk (0) partition (1):\bootsect.dos	*Bootsect.dos* file is corrupt or missing

Using the emergency repair process

The emergency repair data located in **c:\winnt\repair** and on the Emergency Repair Disk (ERD) is used to restore a Windows NT workstation back to the state of the last repair update. It is used to search for missing or corrupt Windows NT files and to restore the registry files, including SAM database, security information, disk configuration, software registry entries, and other information.

Use of the Emergency Repair Disk (ERD) is called for when Windows NT Fails to function correctly and invoking the LastKnownGood configuration does not solve the problem. Some points to remember when using the ERD:

- The ERD is computer specific. An ERD created on one computer will not work on another unless the computers are identical and the software is installed in the same locations.
- If you replace the SAM database, you must remember the Administrator password used when the ERD was updated.
- Using the ERD returns the system to the state it was in at the time of the last update to the Emergency Repair directory or disk.

Follow this procedure to use the ERD:

1. Locate the Windows NT installation CD-ROM. You need the installation CD-ROM in case any system files are bad or missing. Also locate the installation media for any Service Packs or Y2K fix installed on the computer.

NOTE: If you repair System files, the emergency repair process DELETES all Service Packs and the Y2K fix; you must re-install them at the end of the process.

2. Insert the Windows NT Setup disk 1 and restart the computer. The repair process is a part of Windows NT Setup.
3. Insert Disk 2 when prompted, and type "**R**" to select repair from the Setup Menu that appears (do not select new or update). The following menu appears:

   [X] Inspect registry files
   [X] Inspect start-up environment
   [X] Verify Windows NT system files.
   [X] Inspect boot sector.
   Continue (perform selected tasks)

4. Leave all choices selected, choose Continue, and press **Enter**.
5. When prompted, insert Windows NT Workstation Setup Disk #3 and press **Enter**.
6. When prompted to scan for mass storage devices press "**S**" to skip.
7. In the next screen press "**S**" again, this time to specify the CD ROM Drive.
8. Select "Other" and press **Enter**.
9. Insert the CDROM Driver floppy disk when prompted, then press **Enter**.
10. Select "FIT" and press **Enter** to continue.
11. When prompted, again insert Windows NT Workstation Setup Disk #3 and press **Enter** to continue.

12. Insert the ERD when prompted. If you do not have an ERD, the repair process uses the repair data it finds under *c:\winnt\system32\repair*.

13. Confirm that you want your hard disk(s) examined for corruption by pressing **Enter**.

14. The registry repair choices appear if you left “inspect registry files” selected.

    [X] SYSTEM (System Configuration)
    [X] SOFTWARE (Software Information)
    [ ] DEFAULT (Default User Profile)
    [ ] NTUSER.DAT (New User Profile)
    [ ] SECURITY (Security Policy and SAM (User Accounts Database)
    Continue (perform selected tasks)

    Select the keys you want to restore by entering X between brackets, then highlight Continue and press **Enter**. *SYSTEM* and *SOFTWARE* are the recommended choices because in most cases they will correct problems that require emergency repair.

15. Press **Enter** to restart the computer.

16. Re-install the Windows NT service pack(s) and Y2K fix that were in use before you performed the emergency repair process.

Rebuilding the system drive

On occasion, the system drive might become corrupted in such a way that installation with the ERD is impossible, or the system drive might fail and the replacement drive has nothing on it. In such a case, you can rebuild the system drive using the process described in “Installing a new system disk or restoring a corrupt system disk” on page 91.

Re-installing and configuring drivers

In the event that the display, Ethernet, or RS-422 drivers are corrupted or the settings lost, here is the information you need for re-installing the drivers and making settings that return the Profile XP media platform to its factory default conditions. Drivers for the Ethernet adapter, the VGA adapter, and the RS-422 board are located in *c:\profile\Drivers*. When a dialog box requests a location for a file normally found on the CD-ROM, start the path name with *c:\profile\Drivers\…*

In the table below, note that there are two sets of display drivers and ethernet adapters, each set associated with a system processor board rear panel. Select the drivers associated with the rear panel that matches the system processor in your media platform. Note also that the one RS-422 driver is used with either system processor board.

	Hardware	Driver	Location	Factory settings
	VGA adapter for use with this system processor.	ATI Rage PRO	*c:\profile\Drivers\ATI_RAGE*	Desktop Area: 1024 X 768 Refresh Rate: 70 Hz Color Palate: 24 bit, 16,777,216 Colors
	Ethernet adapter for use with this system processor.	Intel EtherExpress PRO Adapter 82558	*c:\profile\Drivers\Intel_PRO*	Memory Address: 0xFC000000 I/O Address: 0x1000 Interrupt: 9
	RS-422 board for use with all system processors.	Comtrol RocketPort	*c:\profile\Drivers\rocket*	Com Port Range: Starting COM Port: COM3 Scan Rate (ms): 1
	VGA adapter for use with this system processor.	Intel 810 Graphics Controller Hub	*c:\profile\Drivers\Intel_810*	Desktop Area: 1024 X 768 Refresh Rate: 70 Hz Color Palate: 24 bit, 16,777,216 Colors
	Ethernet adapter for use with this system processor.	Intel (R) GD82559ER Fast Ethernet Adapter	*c:\profile\Drivers\Intel_GD82559ER*	Speed and Duplex set to Auto Select.

Chapter 3

Troubleshooting video problems

If your video problem is a result of equipment failure, your first indication might be a message in the NetCentral system. The tables of NetCentral messages list the Warning and Alarm messages you might see, with some possible causes and solutions.

When you are troubleshooting video problems and you have determined that the problem is hardware related, remember that you are trying isolate the fault to a field-replaceable unit. There are several field-replaceable units that could cause video problems:

- An SDI or HD SDI board, a Video Monitor board, or the SDTI board
- the Motherboard
- the MPEG-2 Encoder or Decoder board (PVS1000 or 2000), or the Video Processor board (PVS1100)

In general, you can verify or rule out hardware problems by using the Profile XP diagnostics described in Appendix A, *Diagnostic Tools*. If the diagnostics indicate that a board is defective, replace that board.

In many cases an improper configuration setting or other change in the system setup can result in video problems. Search through the problems listed in “Correcting common setup problems” and “Correcting common video problems” later in this chapter.

The *System Guide* referred to in the tables in this chapter is the Profile XP *System Guide*.

Checking NetCentral messages

These are Warning and Alarm messages you might see from the NetCentral system. The tables present the messages that appear as a result of some fault condition in the SDI board, MPEG-2 Decoder and Encoder boards, or Video Processor board.

SDI problems

Problem	Possible Causes	Corrective Action
Video is not present at SDI input *N*.	Cable disconnected or damaged.	Reconnect cable, after repairs if necessary.
	Signal source interrupted.	Check that signal is available from source.
SDI digital signal processor *N* has failed.	Defective board.	Do one or more of the following: • Run Profile XP diagnostics to verify that the board has failed. • Replace the board. • If the problem persists, contact Support.

SDTI problems

Problem	Possible Causes	Corrective Action
The SDTI board in slot J-*N* failed to initialize.	This could be due to a communication failure between the SDTI board realtime and I/O processors, or a hardware fault.	Restart the Profile XP system, and run Profile diagnostics.
The SDTI channel using connector *N* has failed. The record or playback operation on this channel will abort. Other SDTI channels will continue to operate.	This could be due to a communication failure between the SDTI board realtime and I/O processors, or a hardware fault.	Restart the Profile XP system, and run Profile diagnostics.
Unable to detect an SDTI input signal on connector *N*. No video will be recorded.		Check the signal source, cable connection, and input signal frame rate.
The SDTI input signal on connector *N* is the wrong data format. Recording will abort on the channel associated with this input.		Check that the record channel configuration matches the input signal data format.
A valid SDTI input signal is detected on connector *N*. Recording will continue on the channel associated with this input.		
One or more ECC checksum errors were detected while recording the input signal on connector *N*. Media recording will continue.		Confirm the quality of the recorded media, then re-record if necessary.

Video playback (decode) problems

Problem	Possible Causes	Corrective Action
Decoder# *X* failed to initialize on slot J-*N*.	Defective board, or problem with internal software. Check system status.	Do one or more of the following: • Restart the Profile XP system. • Replace the board. • Contact Support.
The decoder driver on slot J-*N* is not able to establish inter-processor communications at startup.		
Could not allocate resources for the task on the Real Time System.		
The decoder on slot J-*N* failed to initialize because it was deprived of a system wide resource (such as a DMA channel). Playback tasks associated with this board will fail.		
The decoder on slot J-*N* encountered an error while accessing the storage system. Playback tasks will fail, produce frozen or black video.		
The decoder on slot J-*N* can now access the storage system.		
The decoder on slot J-*N* is unable to decode due to insufficient memory. Playback tasks may fail, produce frozen, stuttered, or black video.		
The decoder in slot J-*N* is now able to decode.		

Video record (encoder) problems

Problem	Possible Causes	Corrective Action
Encoder# %d failed to initialize on slot J-*N*.	Defective board, or problem with internal software. Check system status.	Do one or more of the following: • Restart the Profile XP system. • Replace the board. • Contact Support.
Encoder# %d failed to initialize on slot J-*N*.		
The video system is unable to establish inter-processor communications for the encoder on slot J-*N*. Media recording tasks may fail.		
The encoder on slot J-*N* failed to initialize because it was deprived of a system wide resource (such as a DMA channel).		
Interprocessor communication error between the encoder's media driver on the Real-Time-System board and the driver on Encoder board. Recording tasks may fail.		
The storage system is responding too slowly to the encoder media driver. Video may be dropped shortly. Verify that the storage system is not exceeding bandwidth limits.		
The storage system is responding too slowly to the encoder media driver. Video may be dropped shortly. Verify that the storage system is not exceeding bandwidth limits.		
The storage system has responded too slowly to the encoder media driver. Video has been dropped and black frame(s) have been recorded.		
The storage system has responded too slowly to the encoder media driver. Video has been dropped and black frame(s) have been recorded.		
The Profile has detected frequent CRC errors (more than 10 times an hour) on SDI input on slot J-*N*. This could result in bad recording.		Check the SDI video input(s) for bad signal sources or bad cabling

Correcting common setup problems

This troubleshooting aid provides corrective action for some common record/play problems. Search the table for the problem you are experiencing, then try the corrective action. Some problems have more than one corrective action.

Problem	Possible Causes	Corrective Action
Application fails to select a channel or channels when it is started.	Resource conflict because a resource needed by the channel is already in use.	Check for resources that may be assigned to more than one channel and correct the problem Refer to "Using the Warning symbol to find shared resources" in the *Profile XP System Guide*. Also, make sure the Channel Configuration dialog box is closed before running the application or selecting channels.
The recorded clip contains colorbar.	The colorbar generator is selected as the channel input.	Select the desired video input as the channel source. Refer to "Selecting video quality and crosspoints" in the *Profile XP System Guide*.
The recorded clip contains black or freeze frame.	Loss of input signal.	Verify that you have a valid input signal. Refer to "Viewing video input status" in the *Profile XP System Guide*.
The channel output is black in E to E, but playback is fine.	Loss of input signal.	Verify that you have a valid input signal. Refer to "Viewing video input status" in the *Profile XP System Guide*.
Channel output is always black.	The output you're monitoring is not assigned to the channel.	Determine the video output assigned to the channel by referring to "Selecting video quality and crosspoints" in the *Profile XP System Guide*, then verify cable connections.
Freeze frames or black frames during playback.	The number of record and play channels operating simultaneously exceeds the system storage bandwidth.	Reduce the number of channels operating at the same time, or select a lower video quality preset for the record. Refer to "Guidelines for selecting Video Quality Presets" in the *Profile XP System Guide*.

Correcting common video problems

This troubleshooting aid provides corrective action for some common video problems. Search the table for the problem you are experiencing, then try the corrective action. Some problems have more than one corrective action.

Problem	Possible Causes	Corrective Action
Video output distortion in playback and E to E.	Wrong video standard.	Verify system video standard is configured correctly. Refer to "Changing the system video standard" in the *Profile XP System Guide*.
Continuous horizontal picture shift in Record mode (or E to E). Sometimes intermittent depending on the input signal selected.	Input frame sync set to "pass" when incoming signal is asynchronous.	Set frame sync to "Auto-time". Refer to "Options for timing asynchronous feeds" in the *Profile XP System Guide*.
Playout timing is 16 lines delayed	Playout timing set to E to E timed output.	Change playout timing to "Zero-Timed" output. Refer to "Adjusting playout timing to match zero time" in the *Profile XP System Guide*.
Vertical shift when switching between video input and playout.	Playout timing set to Zero-Timed output.	Change playout timing to "E to E-Timed" output. Refer to "Adjusting playout timing to match E to E timing" in the *Profile XP System Guide*.
Compression artifacts are present in the output.	Video quality setting is too low for your program material.	Select higher video quality preset (refer to "Guidelines for selecting Video Quality Presets" in the *Profile XP System Guide*, or define your own video quality preset. Refer to "Defining and selecting a custom video quality preset" in the *Profile XP System Guide*.

Chapter 4

Troubleshooting audio problems

If your audio problem is a result of equipment failure, your first indication might be a message in the NetCentral system. The tables of NetCentral messages list the Warning and Alarm messages you might see, with some possible causes and solutions.

When you are troubleshooting audio problems and you have determined that the problem is hardware related, remember that you are trying isolate the fault to a field-replaceable unit. There are four field-replaceable units that could cause video problems:

- An SDI board (if you are working with embedded audio)
- the Motherboard
- An Audio board
- An audio interface (a PAC216 Audio Chassis or BNC/XLR216 breakout box)

In general, you can verify or rule out hardware problems by using the Profile XP diagnostics described in Appendix A, *Diagnostic Tools*. If the diagnostics indicate that a board is defective, replace that board.

In many cases an improper configuration setting or other change in the system setup can result in audio problems. Search through the problems listed in "Correcting common audio problems" later in this chapter.

The *System Guide* referred to in the tables in this chapter is the Profile XP *System Guide*.

Checking NetCentral messages

These are Warning and Alarm messages you might see from the NetCentral system.

Audio problems related to SDI board

Problem	Possible Causes	Corrective Action
The Profile has detected frequent audio sync errors (more than 10 times an hour) while extracting embedded audio from its SDI input on slot N. This could result in recording where the audio and video are out of sync.	Bad signal from source.	• Check the SDI video input(s) for bad signal sources or cabling. • Try another source or a known good source. • Replace the board. • Contact Support.
The Profile has detected frequent errors (more than 10 times an hour) while extracting embedded audio from an SDI input on slot J-*N*.		

Audio problems related to Audio board

Problem	Possible Causes	Corrective Action
Internal memory problems in the Digital Signal Processor during play.	The DSP's internal memory buffers have overflowed during play mode.	Do one or more of the following: • Restart the Profile XP system. • Replace the board. • If the problem persists contact Support.
The audio system was unable to extract embedded during an EE or record mode. This indicates a loss in audio and a possible loss in video.		Do one or more of the following: • Check for loss of input signal. • Replace the board • Restart the Profile XP system. • If the problem persists, contact Support.
Audio is lost due to a loss in connectivity between Receive-Port *N* on the Audio board and the crosspoint fabric.		Check for configuration problems. See the table under “Correcting common audio problems” on page 48..
The recording and playing of audio will be disrupted due to a bad audio-clock average sample count.	Disrupted audio clock. Audio sample clock reference incorrectly selected.	Use system reference as audio clock reference for synchronous video signals.
The Digital Signal Processor is producing poor audio.	The DSP hardware has failed to wait for a new mode because its command queue is full and is not producing good audio.	Do one or more of the following: • Restart the Profile XP system. • Replace the board. • If the problem persists contact Support.
Bad recording, or bad E-E audio (fifo overflow).	SDI input error.	
Disrupted play/record of audio with AES I/O.	Loss of input signal due to no signal or poor signal from source.	Check presence and quality of input signal from source.
	Loss of input signal due to cable disconnect.	Check all cabling into breakout box and between breakout box and Audio board.

Problem	Possible Causes	Corrective Action
The Profile is unable to connect to the PAC216 serial I/O interrupt through the Audio board in slot J-*N*. Communications with the audio option will fail.		If the audio subsystem cannot recover from this error condition, try these solutions: • Check the external audio option and the cable connecting it to the audio board. • Check that PAC has power. • Check for a flashing LED on rear of PAC. • Replace the external audio option and interconnect cables. • Restart the external audio option and the Profile system. • Contact Support if the problem persists.
The Profile was unable to create a serial port for the PAC216 connected to slot J-*N*. Communications with the audio option will fail.		
The Profile was unable to open the serial port for the PAC216 connected to slot J-*N*. Communications with the audio option will fail.		
The Profile audio system received an invalid inter-processor communication message during startup or configuration. The audio system may not operate as expected.		
The audio system software encountered an inter-processor messaging write error during startup or configuration.		
The PAC216 connected to the Audio board in slot J-*N* failed to reset. Audio may be lost, or analog audio could be at the wrong level.		
There was a temporary loss of contact between the Profile and the PAC216, XLR216, or BNC216 connected to slot J-*N*. The Profile has reset to the last known good audio state. This may result in an audio glitch.		
The Profile has lost contact with the external audio interface (PAC216, XLR216, or BNC216) connected to in slot J-*N*. Audio will be lost on all the channels using audio resources on this slot.		
The Profile has established contact with the external audio interface (PAC216, XLR216, or BNC216) connected to the Audio board in slot J-*N*.		

Correcting common audio problems

This troubleshooting aid provides corrective action for some common audio problems. Search the table for the problem you are experiencing, then try the corrective action. Some problems have more than one corrective action.

Problem	Possible Causes	Corrective Action
AES/EBU or analog audio: No audio I/O or the audio does not match the video.	You are using audio I/O connectors for audio channels not assigned to the video channel you are using.	Verify the audio channel pair(s) assigned to the channel you're using. Refer to "Selecting audio channels for an audio track" in the *Profile XP System Guide*.
AES/EBU or analog audio: No audio I/O.	The incorrect audio input format is selected for the audio channels you are using.	Determine the audio channels assigned the channel by referring to "Selecting audio channels for an audio track" in the *Profile XP System Guide*, then verify that the correct audio input format is selected. Refer to "Changing the audio I/O format" in the *Profile XP System Guide*.
Analog audio: Audio is present on audio level meters in applications, but there is no audio output signal.	Analog audio out is muted.	Un-mute the audio output. Refer to "Muting analog audio outputs" in the *Profile XP System Guide*.
Analog audio: Both E to E and playback audio output are distorted.	Audio input signal clipping caused by excessive audio input level or wrong input impedance setting. PAC216 input impedance is set to Hi-Z by default.	Check for input audio clipping, and reduce the input audio level using the input gain adjustment. Refer to "Adjusting analog audio input level" in the *Profile XP System Guide*. Change input impedance to 600 ohms if required in your system.
Analog audio: Audio level is too low.	Analog input and output level can be adjusted in the Profile XP system user interface.	Adjust the input or output audio level as required. Refer to "Adjusting analog audio input level" in the *Profile XP System Guide* or "Adjusting analog audio output level" in the *Profile XP System Guide*
Embedded audio: No audio input.	Wrong video source selected.	Select the correct video input. Refer to "Select audio input format" in the *Profile XP System Guide*.
Embedded audio: No audio input.	Wrong audio group or channel pair selected.	Determine which audio group is being used in the video input signal by using "Viewing video input status" in the *Profile XP System Guide*, then refer to "Select audio input format" in the *Profile XP System Guide*.

Problem	Possible Causes	Corrective Action
Embedded audio: No audio output.	Wrong video output selected.	Select the correct video output. Refer to “Select audio output format” in the *Profile XP System Guide.*
Embedded audio: No audio output.	Incorrect audio group or channel pair selected for your system.	Verify which embedded audio group and channel pair are used in your system, then refer to “Select audio output format” in the *Profile XP System Guide.*
Audio level meters do not display the correct reference level used in my system.	Incorrect reference level	Refer to “Selecting audio reference level” in the *Profile XP System Guide*.
Distorted audio or no audio	Wrong incoming digital audio coding format selected.	Verify the input audio format is set correctly, refer to “Selecting incoming digital audio coding format” in the *Profile XP System Guide.*

Chapter 5

Troubleshooting timecode problems

If your timecode problem is a result of equipment failure, your first indication might be a message in the NetCentral system. The tables of NetCentral messages list the Warning and Alarm messages you might see, with some possible causes and solutions.

When you are troubleshooting timecode problems and you have determined that the problem is hardware related, remember that you are trying isolate the fault to a field-replaceable unit. There are several field-replaceable units that could cause video problems depending on whether the problem is with VITC, LTC, or with timecode burn-in on the monitor output. If the problem is with VITC, the faulty field-replaceable unit could be one of these:

- An SDI board
- the Motherboard
- the MPEG-2 Encoder or Decoder board (PVS1000 or 2000), or Video Processor board (PVS1100)

If the problem is with LTC, the RTS board could be at fault as well as the Motherboard. If the problem is with timecode burn-in, the Monitor board might be faulty.

In general, you can verify or rule out hardware problems by using the Profile XP diagnostics described in Appendix A, *Diagnostic Tools*. If the diagnostics indicate that a board is defective, replace that board.

In many cases an improper configuration setting or other change in the system setup can result in video problems. Search through the symptoms in “Common setup problems,” “Problems with video,” and “Problems with Configuration Manager.”

Checking NetCentral messages

This table of NetCentral messages lists the message issued by the NetCentral system in response to timecode problems.

Problem	Possible Causes	Corrective Action
The Profile has detected frequent VITC read errors (more than 10 times an hour) on its SDI input on slot *N*.	Bad signal on video input.	• Check the SDI video input(s) for bad signal sources or cabling. • Replace the SDI board. • Call support.

Correcting common timecode problems

This troubleshooting aid provides corrective action for some common timecode problems. Search the table for the problem you are experiencing, then try the corrective action. Some problems have more than one corrective action.VITC Record

The *System Guide* referred to in the tables in this chapter is the Profile XP *System Guide*.

Problem	Possible Causes	Corrective Action
VITC: Incorrect recorded timecode.	VITC reader is set to automatic and there are two sets of VITC in the VBI.	Use manual VITC detection and specify lines where VITC should be read. Refer to “Recording VITC” in the *Profile XP System Guide*.
VITC: Incorrect or no recorded timecode.	The VITC reader is set to manual and there are two sets of VITC in the VBI and the wrong VITC lines may be specified.	Verify location of VITC signals and set up manual VITC detection accordingly. Refer to “Recording VITC” in the *Profile XP System Guide*.
VITC: Can’t read or record VITC.	VITC detection is set to manual and the wrong VITC lines are specified	Set VITC detect to Automatic or verify location of VITC signals and set up manual VITC detection accordingly. Refer to “Recording VITC” in the *Profile XP System Guide*.
VITC: The VITC output I want to use is not listed in the Timecode Output list.	You have not assigned the corresponding video output to the channel.	Assign the video output you want to use to the channel. Refer to “Changing the video I/Os used by a channel” in the *Profile XP System Guide*

Problem	Possible Causes	Corrective Action
VITC: Incorrect VITC timecode on the video output.	There may be two sets of VITC on the video output and the external reader is reading the wrong timecode signal. Two VITC signals can occur when there is VITC on the video input or playback signal and at the same time, the video output is generating VITC.	Erase the VITC signal on the video output (refer to "Erasing video input VBI information" in the *Profile XP System Guide*) or turn off the VITC generator on the output (refer to "Setting up the VITC generator on a video output" in the *Profile XP System Guide* and choose "Do not generate VITC").
VITC: Two sets of VITC signals are present on the output.	There may be two sets of VITC because there is VITC on the video input or playback signal and also the video output is generating VITC.	Erase the VITC signal on the video output (refer to "Deleting unwanted VITC signals" in the *Profile XP System Guide*) or turn off the VITC generator on the output (refer to "Setting up the VITC generator on a video output" in the *Profile XP System Guide* and choose "Do not generate VITC").
Recorded timecode reads xx.xx.xx.xx.	No timecode source for the channel.	Select a timecode source. Refer to "Selecting timecode I/O for each timecode track" in the *Profile XP System Guide*. This is normal in Profile Applications when there is no clip cued.
LTC: No time code or incorrect time code.	The incorrect LTC input is assigned to the channel you're using.	Determine the LTC input assigned to the channel by referring to "Recording or generating LTC" in the *Profile XP System Guide*, then modify if needed.
LTC: No time code or incorrect time code.	The LTC output you're monitoring is not assigned to the channel.	Determine the LTC output assigned to the channel by referring to "Recording or generating LTC" in the *Profile XP System Guide*, then verify cable connections.
Timecode Burn-in Video Monitor timecode burn-in doesn't change.	The Video Monitor output is not selected as the timecode output for the channel.	Make sure the video monitor you are connected to is selected as a timecode output for the channel. Refer to "Select a timecode source for timecode burn-in" in the *Profile XP System Guide*.

Chapter 6

Troubleshooting storage system problems

The storage system troubleshooting described in this chapter covers local storage systems in which the RAID systems are connected directly to the media platform. If the media platform is part of an Open SAN, look for additional troubleshooting information in the *Open SAN Instruction Manual*.

If your video storage problem is a result of equipment failure, your first indication might be a message in the NetCentral system. Look through "Checking NetCentral messages" for the Warning or Alarm message you might see, and the suggested corrective action.

When you are troubleshooting storage system problems and you have determined that the problem is hardware related, remember that you are trying isolate the fault to a field-replaceable unit. Most storage system problems will be confined to:

- the Fibre Channel Disk Interface board
- the Fibre Channel cables
- the RAID storage system

In general, you can verify or rule out hardware problems by using the Profile XP diagnostics described in Appendix A, *Diagnostic Tools*. If the diagnostics indicate that a board is defective, replace that board.

In many cases an improper configuration setting or other change in the system setup can result in storage system problems. Search through the symptoms in "Correcting common storage system problems", then try the corrective action.

Checking NetCentral messages – PFC 500

These are NetCentral Warning and Alarm messages for PFC 500 Series Fibre Channel RAID Chassis. For PFR Series related monitoring, refer to “Monitoring PFR 500/600 Series storage with NetCentral” on page 62. and “Monitoring PFR 700 Series storage with NetCentral” on page 64..

In the table below, no entry in the Possible Cause column means that the cause is implicit in the problem statement, that knowing the cause is unimportant to the solution, or in the case of status messages, there is no cause.

NOTE: Instructions for changing drives and other components in the RAID system are available in the Instruction Manual for your RAID storage system.

RAID storage messages	Possible cause	Corrective action
Internal chassis temperature of N degrees C exceeds the recommended operating thermal range.	1. One or more fans in the fan pack have stopped running. 2. Blocked cooling air intakes or exhaust on RAID chassis. 3. Ambient room temperature too high.	Check for faulty boards, power supplies, cooling fans, or blocked vents.
Internal chassis temperature of N degrees C has exceeded the maximum recommended operating temperature.	1. One or more fans in the fan pack have stopped running. 2. Blocked cooling air intakes or exhaust on RAID chassis. 3. Ambient room temperature too high.	Check for faulty boards, power supplies, cooling fans, or blocked vents.
Internal chassis temperature has leveled off at X degrees C.		
RAID controller X cannot access drive N in chassis Y. The drive may have failed or is removed.		Replace the drive module.
RAID controller X has rebuilt N % of the data on drive N in chassis Y.		Status information only, no action required.
RAID controller X has completed rebuilding data on drive N in chassis Y.		Status information only, no action required.
RAID controller X has aborted rebuilding data on drive N in chassis Y. The drive may be unusable until a subsequent rebuild.		Reseat the replacement drive and try again, otherwise contact Support.
The storage system is nearing full capacity and will be unable to store additional media.		Delete any unused media files.

RAID storage messages	Possible cause	Corrective action
The storage system is at maximum capacity and is unable to store additional media.		Delete any unused media files.
The system has reported sufficient storage capacity and is able to store additional media.		
RAID controller X cannot access drive N in chassis Y. The drive may have failed or is removed.		Replace the drive module.
RAID controller X detected a replacement for drive N in RAID chassis Y, but the drive does not have adequate capacity for the controller to start rebuilding data.		Replace the drive module.
RAID controller X does not support drive N in chassis Y. The drive is unusable.		Replace the drive module.
RAID controller X does not support the firmware on drive N in chassis Y.		Replace the drive module.
RAID controller X does not support drive N in chassis Y. The drive is unusable.		Replace the drive module.
RAID controller X has cleared media defects reported by drive N in chassis Y.		Replace the drive module.
RAID controller X has scheduled a disk block for reallocation after drive N in chassis Y reported a media error.		Replace the drive module.
RAID chassis Y associated with controller X has resumed normal operation.		
Fan module on RAID chassis Y associated with controller X was disabled. The controller(s) will power down the drives and go into standby mode if the fans are not operational within 2 minutes.		Check whether the fan module is inserted correctly into the chassis or replace the Fan module.

RAID storage messages	Possible cause	Corrective action
Fan module on RAID chassis Y associated with controller X was removed or has shutdown. The controller(s) will power down the drives and go into standby if the fans are not operational within 2 minutes.		Check whether the fan module is inserted correctly into the chassis or replace the Fan module.
Fan module in RAID chassis Y associated with controller X resumed operation.		
RAID controller X is attempting a corrective action after it detected excess temperature within chassis Y.		Check for incorrectly installed fan module, faulty controllers, power-supplies, or blocked air vents.
RAID controller X is shutting down all drives in chassis Y after it was unable to correct the excess temperature within the chassis.	1. One or more fans in the fan pack have stopped running. 2. Blocked cooling air intakes or exhaust on RAID chassis. 3. Ambient room temperature too high.	Check for incorrectly installed fan module, faulty controllers, power-supplies, or blocked air vents.
The redundant power supply unit in RAID chassis Y associated with controller X has been removed or has failed.		Check the AC line voltage, or whether the power switch on the unit is turned off, or replace the power supply unit.
The redundant power supply unit in RAID chassis Y associated with controller X has been removed or has failed.		Check the AC line voltage, or whether the power switch on the unit is turned off, or replace the power supply unit.
RAID controller X has failed, lost its Fibre Channel connection, or has been removed.		Reboot the RAID system, then the Profile. In Open SANs, consult reboot procedures in the *Open SAN Instruction Manual*, or contact product support. Replace the RAID controller if needed.
RAID controller X has resumed normal operation.		
The RAID controller X is rebooting after it encountered a situation from which there was no reliable execution.		Reboot the RAID system, then the Profile. In Open SANs, consult reboot procedures in the *Open SAN Instruction Manual*, or contact product support. Replace the RAID controller if needed.

RAID storage messages	Possible cause	Corrective action
RAID controller X that was operating in non-mirrored caching mode has detected a non-recoverable memory fault in the cache memory area.		Reboot the RAID system, then the Profile. In Open SANs, consult reboot procedures in the *Open SAN Instruction Manual*, or contact product support. Replace the RAID controller if needed.
A hardware failure occurred on RAID controller X which caused cache to be disabled. System bandwidth will be degraded.		Reboot the RAID system, then the Profile. In Open SANs, consult reboot procedures in the *Open SAN Instruction Manual*, or contact product support. Replace the RAID controller if needed.
The non-volatile memory on RAID controller X was found to be uninitialized. The controller has initialized it to a default state, and it will be functional after a reboot.		Reboot the RAID system, then the Profile. In Open SANs, consult reboot procedures in the *Open SAN Instruction Manual*, or contact product support. Replace the RAID controller if needed.
RAID controller X is unable to determine the correct logical configuration of all units in the system. Some units may become unusable.		Reboot the RAID system, then the Profile. In Open SANs, consult reboot procedures in the *Open SAN Instruction Manual*, or contact product support. Replace the RAID controller if needed.
The redundant controller is no longer responding to queries from RAID controller X. The system may be operation, but Fibre Channel redundancy is lost.		Reboot the RAID system, then the Profile. In Open SANs, consult reboot procedures in the *Open SAN Instruction Manual*, or contact product support. Replace the RAID controller if needed.
Fibre Channel port# 1 on the Fibre Channel Disk board has failed.		Restart the Profile, recheck for messages, then run Profile system diagnostics if needed.
Fibre Channel port# 2 on the Fibre Channel Disk board has failed.		Restart the Profile, recheck for messages, then run Profile system diagnostics if needed.
Both Fibre Channel ports on the Fibre Channel Disk board have failed.		Restart the Profile, recheck for messages, then run Profile system diagnostics if needed.

RAID storage messages	Possible cause	Corrective action
Compression bitrate is set to a higher rate than the RAID system is able to process causing a storage bandwidth overflow. Media capture tasks may have failed. First, check Profile video compression settings and try again.		Restart the Profile, recheck for messages, then run Profile system diagnostics if needed.
RAID controller X has reported a hard SCSI bus error on drive N in chassis Y.		Replace the drive module.
The Profile has detected an error on the active Fibre Channel storage loop and switched over to the backup loop.		
The Profile has regained communication with the external storage.		
The Profile is unable to access the external video storage. All playback and record tasks will be affected.		Check for faulty fibre-channel cabling, or RAID controllers.
The system has detected conflicting RAID controller loop IDs. The RAID equipment is incorrectly setup.		Refer to the Profile XP documentation for instructions on setting unique controller IDs.
Duplicate RAID controller serial numbers detected. This may cause Fibre Channel communication conflicts and cause storage to be inaccessible.		Contact support.
The system has detected a RAID chassis ID that conflicts with the ID on another chassis associated with controller X. Storage associated with the controller will be in an unpredictable state.		Refer to the Profile XP documentation for instructions on setting unique chassis IDs.
The storage system is responding normally to the encoder media driver, after a period when it responded too slowly.		
RAID controller X has shut down drive N in chassis Y.		Replace the drive module.

RAID storage messages	Possible cause	Corrective action
The link control module in chassis Y associated with RAID controller X has failed.		Restart the RAID system and the Profile if using local storage. In Open SANs, consult the *Open SAN Instruction Manual*, or contact Support.

Locating a drive or a chassis

When trying to locate a drive or a chassis named in a NetCentral message, refer to your *Installation Guide* and *Profile XP System Guide* for cabling and configuration information. The key to locating any RAID component is to remember that the RAID controller board in the RAID chassis has the unique number.

Monitoring PFR 500/600 Series storage with NetCentral

This section includes the following:

- "How to set up PFR 500/600 Series NetCentral monitoring"
- "Using the PFR 500/600 Series device provider interface"

How to set up PFR 500/600 Series NetCentral monitoring

For PFR 500/600 Series RAID devices, the SNMP agent required for NetCentral monitoring runs on the RAID Controller module. Communication with the NetCentral monitor takes place over the RAID Controller Ethernet port. This means that to monitor the RAID chassis, you must follow the cabling instructions and the network configuration instructions for the PFR Series 500/600 RAID storage located in the *Installation Guide* for your Profile XP model.

Once you've configured your PFR 500/600 Series RAID storage as directed, you can add it to the list of monitored devices in the NetCentral device tree. If the redundant RAID Controller option is installed, both can be added to NetCentral and used independently to monitor the RAID storage.

Using the PFR 500/600 Series device provider interface

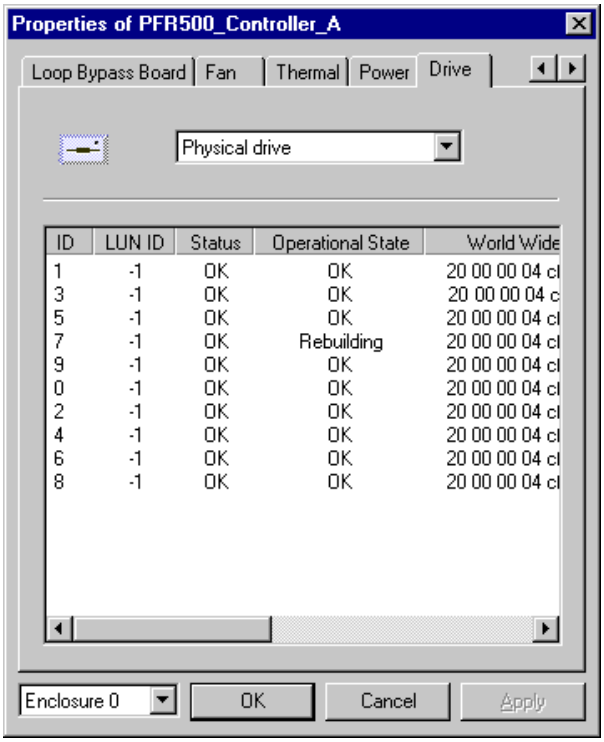
As with other devices in NetCentral, you'll be able to check status of all PFR Series sub-systems and receive any alarm or warning messages that occur.

NOTE: Refer to the** Installation Guide **for your Profile XP model to set up the RAID chassis for NetCentral monitoring and for adding it to the NetCentral device list.

To monitor the PFR 500/600 Series RAID storage:

1. In the NetCentral left panel, select the RAID Controller from the list of monitored devices.

2. Select a subsystem for the RAID Controller to open the device provider interface and check sub-system status.



3. You can browse each RAID chassis subsystem in the same way. Alarm and Warning messages are also displayed in the NetCentral interface.

For more information about using the NetCentral interface, refer to the appropriate documentation for your NetCentral product. If you are using NetCentral Lite, refer to “Using NetCentral Lite” on page 122. If you are using NetCentral, refer to the *NetCentral User Guide*.

⚠ ***CAUTION: Do not use the PFR Series device configuration application (Web Manager on PFR500 and PFR600 for example). This utility is not supported. Use the GVG Disk Utility as described in the*** Profile XP *System Guide* ***to make all RAID configuration changes***.

Monitoring PFR 700 Series storage with NetCentral

For PFR 700 Series RAID devices, the SNMP agent required for NetCentral monitoring runs on the LAN card. The LAN card is a component in the PFR 700 RAID chassis. Communication with the NetCentral monitor takes place over the LAN card Ethernet port. This means that to monitor the RAID chassis, you must follow the cabling instructions and the network configuration instructions for the PFR 700 Series RAID storage located in the *Installation Guide* for your Profile XP model.

Once you've configured your PFR 700 Series RAID storage as directed, you can add it to the list of monitored devices in the NetCentral device tree. Since the network and SNMP settings are set and stored on the LAN card, the RAID chassis, including its one or two RAID controllers, is added to NetCentral as a single device. This means that if you have redundant RAID controllers, both controllers report as one to NetCentral, and you monitor the RAID storage as a single device.

CAUTION: Do not use the PFR 700 Series device configuration application (MSMGR). This utility is not supported. Use the GVG Disk Utility as described in the Profile XP *System Guide* ***to make all RAID configuration changes***.

Correcting common storage system problems

This troubleshooting aid provides corrective action for some common storage system problems. Search the table for the problem you are experiencing, then try the corrective action. Some problems have more than one corrective action.

Problem	Possible Causes	Corrective Action
No file system found message displayed at first time power-up of the Profile XP system.	No video file system.	If this is a first time start-up for the system, you must create a video file system. Create a video file system on the storage disks. Refer to "Working with Profile XP storage systems" in the *Profile XP System Guide*.
No file system found message after a video file system has been created in the past.	All RAID storage chassis are not powered on and initialized before the Profile XP system is powered on.	One or more of the RAID chassis or expansion chassis is not powered on and fully initialized. Refer to the *Profile XP Installation Guide* for your system. If this does not help, you may have a hardware problem. Refer to your RAID storage *Instruction Manual*. Do not create a new file system until you have identified the problem. Making a new file system destroys all existing media.
Cannot "see" the disk system in disk utility.	Interface problem.	Check all cabling and that all systems are fully initialized. Refer to your RAID storage *Instruction Manual.*

Chapter 7

Troubleshooting video network problems

If your video network problem is a result of equipment failure, your first indication might be a message in the NetCentral system. Look through the table in “Checking NetCentral messages” for the Warning or Alarm message you might see, and the suggested corrective action.

When you are troubleshooting video network problems and you have determined that the problem is hardware related, remember that you are trying isolate the fault to a field-replaceable unit. Most video network problems will be confined to:

- the Fibre Channel Video Network board
- the Ethernet Video Network board

In general, you can verify or rule out hardware problems by using the Profile XP diagnostics described in Appendix A, *Diagnostic Tools*. If the diagnostics indicate that a board is defective, replace that board.

In many cases an improper configuration setting or other change in the system setup can result in video network problems. Search through the symptoms in “Correcting common Fibre Channel video network problems” or “Correcting common Ethernet video network problems” then try the corrective action.

Checking NetCentral messages

These are Warning and Alarm messages you might see from the NetCentral system that relate to the video network. No entry in the Possible Cause column means that the cause is implicit in the problem statement or that knowing the cause is unimportant to the solution or that, in the case of status messages, there is no cause.

Problem	Possible Causes	Corrective Action
The Fibre Channel video network adapter is not responding.		Do one or more of the following: • Check the connections Restart the Profile XP system. • Replace the board. • Contact Support.
The Ethernet video network adapter is not responding.		

Correcting common Fibre Channel video network problems

This troubleshooting aid provides corrective action for some common Fibre Channel video network problems. Search the table for the problem you are experiencing, then try the corrective action. Some problems have more than one corrective action.

The *System Guide* referred to in the tables in this chapter is the *Profile XP System Guide*.

Problem	Possible Causes	Corrective Action
The Profile has lost connectivity with the Fibre Channel network. Video transfers will fail.		Check for faulty Fibre Channel cabling, or check whether the device at the other end of the cable has lost communication with this Profile.
The Profile has regained connectivity with the Fibre Channel network.		
Can't transfer files in Media Manager.	There may be an incorrect Fibre Channel name entry in the HOSTS file on the Profile XP system.	Verify all Ethernet and Fibre Channel entries in the HOSTS all systems. Make sure Fibre Channel names use _fc0, that is, zero and not the letter O. Refer to "Manually Edit the hosts file on each Profile XP" in the *Profile XP System Guide*.
Can't transfer files in Media Manager.	No Fibre Channel connectivity.	Refer to "Testing the Fibre Channel Video network" on page 69..
In Media Manager, files transfer only one direction.	There may be an incorrect entry in the HOSTS file on the Profile XP systems.	Verify all Ethernet and Fibre Channel entries in the HOSTS file on both systems, refer to "Manually Edit the hosts file on each Profile XP" in the *Profile XP System Guide*.
Media Manager can't find a Profile XP when you try to add it to the network hosts list.	PortServer is not running on the remote Profile XP system.	Start PortServer on the remote system, refer to "Running PortServer to enable remote operation" in the *Profile XP System Guide*.
Media Manager can't find the Profile XP when you try to add it to the network hosts list.	Unable to resolve Ethernet name. There may be an incorrect Ethernet name entry in the HOSTS file.	Verify all Ethernet and Fibre Channel entries in the HOSTS file on both systems, refer to "Manually Edit the hosts file on each Profile XP" in the *Profile XP System Guide*.
Media Manager can't find a Profile XP when you try to add it to the network hosts list.	No Ethernet connectivity.	Refer to "Testing the Ethernet Video network" on page 73..

Testing the Fibre Channel Video network

Use this procedure to test your Fibre Channel video network setup.

Testing the Ethernet name resolution and connectivity

The Fibre Channel video network relies on Ethernet connectivity and name resolution.This procedure uses the *ping* command which requests a response from the named Profile XP system. If the remote system does not respond, you'll try *ping* using the IP address of the remote system. If the system responds, you have a name resolution problem. If there is no response, there may be problems with the Ethernet adapter or cabling.

To test the Ethernet network:

1. Open the Windows NT command prompt by selecting **Start | Programs | Command Prompt**.
2. Type *ping*, then the Ethernet name of one of the Profile XP systems on the network, then press **Enter**. For Example:

   ping Profile1

   If this command returns:

   Pinging Profile1 with 32 bytes of data:
   Reply from 192.168.99.100: bytes=32 time<10ms TTL=128
   Reply from 192.168.99.100: bytes=32 time<10ms TTL=128
   Reply from 192.168.99.100: bytes=32 time<10ms TTL=128
   Reply from 192.168.99.100: bytes=32 time<10ms TTL=128

   You have successfully resolved the name **Profile1** and you have Ethernet network connectivity.

   If, however, the *ping* command returns:

   Pinging Profile1 with 32 bytes of data:
   Request timed out.
   Request timed out.
   Request timed out.
   Request timed out.

   There is a connectivity problem or the Ethernet IP address could not resolve properly. Continue with step 3.
3. Type *ping*, then, this time, use the IP address of one of the Profile XP systems on the network, then press **Enter**. For Example:

   ping 192.168.99.100

   If this command returns:

   Pinging 192.168.99.100 with 32 bytes of data:
   Reply from 192.168.99.100: bytes=32 time<10ms TTL=128
   Reply from 192.168.99.100: bytes=32 time<10ms TTL=128
   Reply from 192.168.99.100: bytes=32 time<10ms TTL=128
   Reply from 192.168.99.100: bytes=32 time<10ms TTL=128

   You have connectivity to the network, so there must be a name resolution problem for the IP address. You need to re-check your *HOSTS* file for accuracy. Refer to *Manually Edit the hosts file on each Profile XP* in the *Profile XP System Guide*.

NOTE: You may want to re-boot to ensure that any changes have taken effect.

If, however, the *ping* command returns:

Pinging 192.168.99.100 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
Request timed out.

One or both of the Profile XP systems appears to have a network connectivity problem. Re-check the cabling and try again. If this does not solve the problem, check for NetCentral messages.

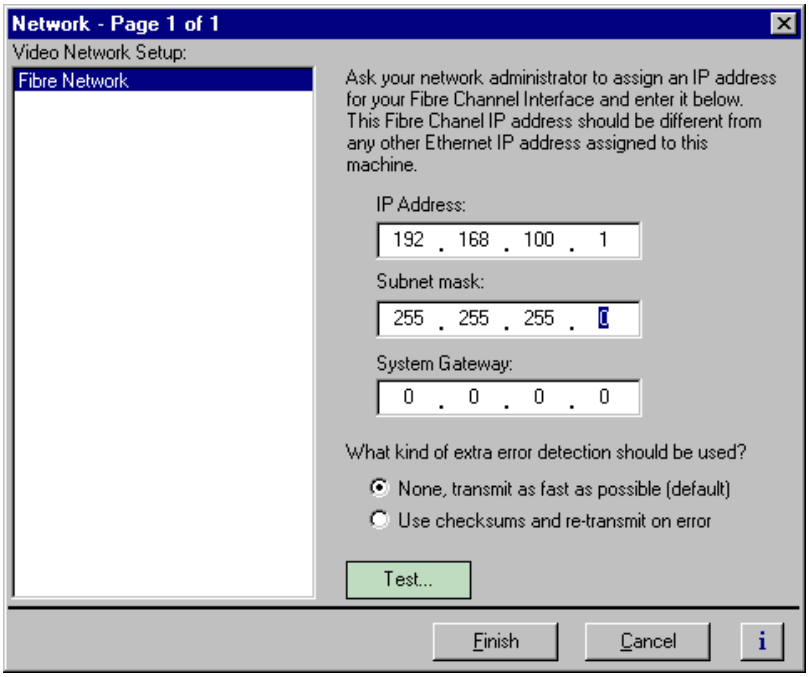
4. Repeat step 2 on all Profile XP systems on the network, then proceed with "Testing Fibre Channel name resolution and connectivity" on page 70..

Testing Fibre Channel name resolution and connectivity

Use this procedure to test for Fibre Channel network connectivity and proper name resolution. This procedure uses the **Test** button in the Configuration Manager Network dialog box.

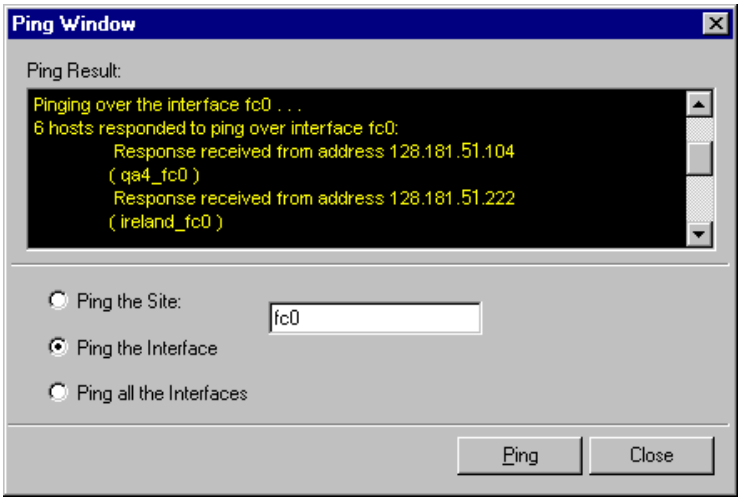
To verify name resolution and Fibre Channel connectivity:

1. Open Configuration Manager, then click **Network**.



2. Click the **Test**.

3. In the Ping Window, select the **Ping the Interface** option.



4. Type *fc0* in the text box, then click **Ping**. Make sure to enter a zero not an O. All Profile systems connected to Fibre Channel are asked to respond.
5. Wait for ping results.
6. Check the Ping Results window, then do one of the following:
   a. If only the local system responded, there is a problem with the Fibre Channel network connectivity. Verify the Fibre Channel connections for all systems, then review all configuration steps under *Setting up a simple video network: Fibre Channel* in the *Profile XP System Guide.*
   b. If all systems responded, but a Profile system name is missing or incorrect, there is an error in the HOSTS file. Refer to *Manually Edit the hosts file on each Profile XP* in the *Profile XP System Guide*.

NOTE: You can use the "Ping the Site" option to ping a specific Profile system using it's IP address or name, for example Profile1_fc0. Pinging by name requires the HOSTS file to be correct. Pinging by IP address does not require the HOSTS file.

Correcting common Ethernet video network problems

This troubleshooting aid provides corrective action for some common Ethernet video network problems. Search the table for the problem you are experiencing, then try the corrective action. Some problems have more than one corrective action.

Problem	Possible Causes	Corrective Action
Can't transfer files in Media Manager.	There may be an incorrect network name entry in the HOSTS file on the Profile XP system.	Verify all Windows NT Ethernet and video Ethernet entries in the HOSTS all systems. Make sure video Ethernet names use Ø, that is, zero and not the letter O. Refer to "Manually Edit the hosts file on each Profile XP" in the *Profile XP System Guide*.
Can't transfer files in Media Manager.	No video Ethernet connectivity.	Refer to "Testing the Ethernet Video network" on page 73..
In Media Manager, files transfer only one direction.	There may be an incorrect entry in the HOSTS file on the Profile XP systems.	Verify all Windows NT Ethernet and video Ethernet entries in the HOSTS file on both systems, refer to "Manually Edit the hosts file on each Profile XP" in the *Profile XP System Guide*.
Media Manager can't find a Profile XP when you try to add it to the network hosts list.	PortServer is not running on the remote Profile XP system.	Start PortServer on the remote system, refer to "Running PortServer to enable remote operation" in the *Profile XP System Guide*.
Media Manager can't find the Profile XP when you try to add it to the network hosts list.	Unable to resolve Windows NT Ethernet name. There may be an incorrect Windows NT Ethernet name entry in the HOSTS file.	Verify all Windows NT Ethernet and video Ethernet entries in the HOSTS file on both systems, refer to "Manually Edit the hosts file on each Profile XP" in the *Profile XP System Guide*
Media Manager can't find a Profile XP when you try to add it to the network hosts list.	No Windows NT Ethernet connectivity.	Refer to "Testing the Ethernet Video network" on page 73..

Testing the Ethernet Video network

Use this procedure to test your Ethernet video network setup.

Testing the Windows NT Ethernet name resolution and connectivity

The video Ethernet video network relies on Windows NT Ethernet connectivity and name resolution.This procedure uses the *ping* command which requests a response from the named Profile XP system. If the remote system does not respond, you'll try *ping* using the IP address of the remote system. If the system responds, you have a name resolution problem. If there is no response, refer to "Correcting common Ethernet network problems" on page 78. for help with solving problems with the Windows NT Ethernet adapter or cabling.

To test the Windows NT Ethernet network:

1. Open the Windows NT command prompt by selecting **Start | Programs | Command Prompt**.
2. Type *ping*, then the Windows NT Ethernet name of one of the Profile XP systems on the network, then press **Enter**. For Example:

   ping Profile1

   If this command returns:

   Pinging Profile1 with 32 bytes of data:
   Reply from 192.168.99.100: bytes=32 time<10ms TTL=128
   Reply from 192.168.99.100: bytes=32 time<10ms TTL=128
   Reply from 192.168.99.100: bytes=32 time<10ms TTL=128
   Reply from 192.168.99.100: bytes=32 time<10ms TTL=128

   You have successfully resolved the name **Profile1** and you have Windows NT Ethernet network connectivity.

   If, however, the *ping* command returns:

   Pinging Profile1 with 32 bytes of data:
   Request timed out.
   Request timed out.
   Request timed out.
   Request timed out.

   There is a connectivity problem or the Windows NT Ethernet IP address could not resolve properly. Continue with step 3.
3. Type *ping*, then, this time, use the IP address of one of the Profile XP systems on the network, then press **Enter**. For Example:

   ping 192.168.99.100

   If this command returns:

   Pinging 192.168.99.100 with 32 bytes of data:
   Reply from 192.168.99.100: bytes=32 time<10ms TTL=128
   Reply from 192.168.99.100: bytes=32 time<10ms TTL=128
   Reply from 192.168.99.100: bytes=32 time<10ms TTL=128
   Reply from 192.168.99.100: bytes=32 time<10ms TTL=128

   You have connectivity to the network, so there must be a name resolution problem for the IP address. You need to re-check your *HOSTS* file for accuracy. Refer to *Manually Edit the hosts file on each* Profile XP in the *Profile XP System Guide*.

If, however, the *ping* command returns:

Pinging 192.168.99.100 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
Request timed out.

One or both of the Profile XP systems appears to have a network connectivity problem. Re-check the cabling and try again.

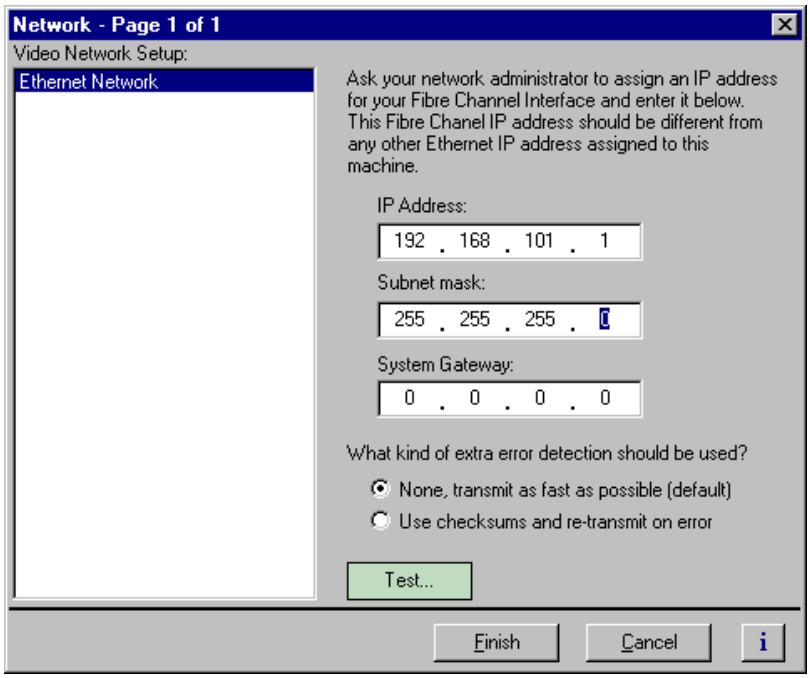
4. Repeat step 2 for all Profile XP systems on the network, then proceed with "Testing video Ethernet name resolution and connectivity" on page 74..

Testing video Ethernet name resolution and connectivity

Use this procedure to test for video Ethernet network connectivity and proper name resolution. This procedure uses the **Test** button in the Configuration Manager Network dialog box.

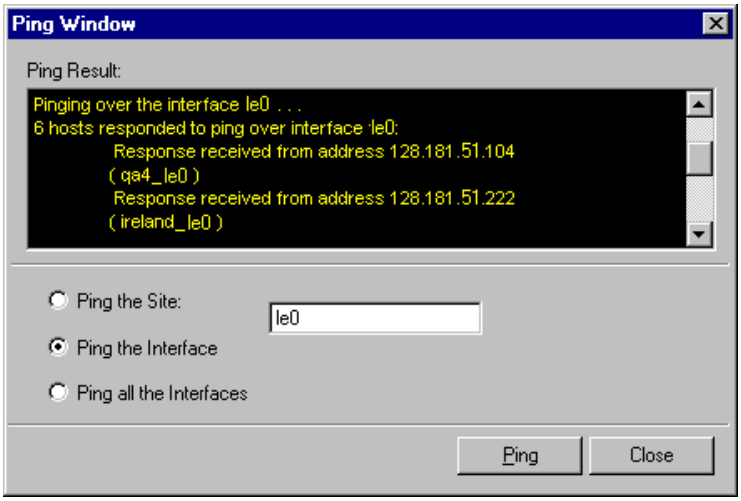
To verify name resolution and video Ethernet network connectivity:

1. Open Configuration Manager, then click **Network**.



2. Click the **Test**.

3. In the Ping Window, select the **Ping the Interface** option.



4. Type *le0* in the text box, then click **Ping**. Make sure to enter a zero not an O. All Profile systems are asked to respond.
5. Wait for ping results.
6. Check the Ping Results window, then do one of the following:
   a. If only the local system responded, there is a problem with the video Ethernet network connectivity. Verify the video Ethernet connections for all systems, then review all configuration steps under *Setting up a simple video network: Ethernet* in the *Profile XP System Guide*.
   b. If all systems responded, but a Profile system name is missing or incorrect, there is an error in the HOSTS file. Refer to *Manually Edit the hosts file on each Profile XP* in the *Profile XP System Guide*.

NOTE: You can use the "Ping the Site" option to ping a specific Profile system using it's IP address or name, for example Profile_le0. Pinging by name requires the HOSTS file to be correct. Pinging by IP address does not require the HOSTS file.

Chapter 8

Troubleshooting miscellaneous system problems

This chapter covers problems and NetCentral messages from a variety of subsystems in the Profile XP media platform including:

- Problems related to the Applications Subsystem I/O, including tables for Ethernet problems and common problems associated with using Configuration Manager
- NetCentral messages for the Real Time Processor, including RefGen and GPI
- NetCentral messages for power supply and thermal subsystem problems

Search the tables for the problem you are experiencing, then try the corrective action. Some problems have more than one corrective action.

Applications subsystem problems

No entry in the Possible Causes column means that the cause is implicit in the problem statement, that knowing the cause is unimportant to the solution, or in the case of status messages, there is no cause.

Correcting common Applications Subsystem I/O problems

This troubleshooting aid lists some of the more common problems encountered and suggests corrective action for those problems.

Symptom	Possible Causes	Solution
Error message indicating failure in a hard disk drive.	Hard disk drive failure	Try replacing the hard disk drive.
	Connecting cable failure	Check the connecting cable, replace if necessary.
	Defective controller for mirrored system drive (if installed).	Replace the controller.
Error message indicating failure in diskette drive	Diskette drive failure	Try replacing the diskette drive.
	Connecting cable failure	Check the connecting cable, replace if necessary.
Error message indicating keyboard problem.	Keyboard unplugged	Plug in keyboard
	Keyboard or connecting cable defective	Replace keyboard
Erratic cursor movement when mouse is moved.	Dirty ball or rollers in mouse.	Inspect and clean the ball and internal rollers.
No cursor movement with mouse or response to mouse clicks.	Mouse unplugged.	Plug in mouse.
	Defective cable or mouse.	Replace mouse.

Symptom	Possible Causes	Solution
No display	Component failure in Applications Processor board	Replace Applications Processor board.
	Monitor or cable failure	Replace cable or monitor as necessary.

Correcting common Ethernet network problems

This troubleshooting aid provides corrective action for some common Ethernet network problems.

Problem	Possible Causes	Corrective Action
Windows NT reports there is an IP address conflict.	Two or more Profile XP systems have the same Ethernet IP address.	Refer to the procedure *Set machine name and IP address on each* Profile XP *system* in the *Profile XP System Guide.*
Only the local Profile XP system is listed in Network Neighborhood.	Missing network connection.	Check that the link indicator LED is lit on the hub you're using. If not, make sure the network cable is properly connected.
No Profile XP systems are listed in the network neighborhood.	Some component of Windows NT Networking improperly installed.	Refer to the Windows NT documentation that came with your Profile XP Media Platform.
Profile XP systems do not immediately appear in Network Neighborhood, but are eventually displayed.	This is the normal operation of Network Neighborhood.They same applies when systems are switched off. It may be several minutes before refreshing the display removes the system from the list.	None

Correcting common problems using Configuration Manager

This troubleshooting aid provides corrective action for some common problems when using Configuration Manager. Search the table for the problem you are experiencing, then try the corrective action. Some problems have more than one corrective action.

Problem	Possible Causes	Corrective Action
Configuration Manager does not display the effect of your crosspoint selections as you make them.	Another application is using the channel or a channel which uses one or more of the same resources.	Terminate the use of the channel by the application.
After using import or export the two Profile XP systems do not have the same configuration.	There may be hardware differences between the Profile XP systems which include circuit board locations in the motherboard.	Compare the hardware configurations of the two systems. Refer to “Viewing board location information” in the *Profile XP System Guide.*
When attempting to connect to a remote system, the remote Profile XP system does not appear in the “Remote Host List”.	No network connection.	Refer to “Common Ethernet network problems” in the *Profile XP System Guide.*
Cannot connect to a remote machine after selecting it in the “Remote Host List”.	PortServer not running on the remote machine.	Start PortServer on remote Profile XP system. Refer to “Running PortServer to enable remote operation” in the *Profile XP System Guide.*
A message appears that states that Configuration Manager is already running.	Configuration Manager already running or some one is running Configuration Manager remotely.	Use the Configuration Manager already running or resolve the conflict with the remote user.
Can’t start Configuration Manager locally.	Configuration Manager is already running or someone is connected remotely.	Use the session already running or terminate the remote session.

Checking Real Time Processor board NetCentral messages

These are the NetCentral Warning and Alarm messages you might see:

Symptom	Possible Causes	Solution
The Profile is not in sync with the external reference signal. You will be unable to adjust video output timing. If audio clock reference is set to system reference, and not the incoming video, recorded audio may pop, crack, or be out of sync.	• Signal not present from source • Input cable disconnected. • Defective board.	Do one or more of the following: • Check input cable and signal. • Check that reference black signal is present and clean. • Try restarting Profile XP system if cables and signals OK. • Replace the Real Time Processor board. • Contact Support.
The reference timing system failed to initialize correctly.		
The Profile has locked to the external reference timing signal.		

Checking power supply, fan, and thermal NetCentral messages

These are the NetCentral Warning and Alarm messages you might see if problems occur in a power supply or fan unit, or if the chassis temperature rises too high.

Symptom	Possible Causes	Solution
The upper system power-supply unit has failed or has been removed.		Check AC line voltage or replace power supply unit. Replace the power supply as soon as possible.
The upper system power-supply unit resumed operation.		
The lower system power-supply unit has failed or has been removed.		Check AC line voltage or replace power supply unit. Replace the power supply as soon as possible.
The lower system power-supply unit resumed operation.		
One or more system cooling-fans have failed or the fan assembly has been removed.		Replace the fan unit as soon as possible.
The system cooling-fans resumed normal operation.		
Internal temperature of *X degrees* C. exceeds recommended operating range. *NOTE: This message appears for both Warning and Alarm conditions.*	Check for: • faulty boards • overheating power supplies • faulty fans • blocked vents	Do one or more of the following: • Take appropriate steps to cool the system. • Replace faulty components.

Chapter 9

Troubleshooting channel control problems

Correcting common channel control problems

This troubleshooting aid provides corrective action for some common control problems. Search the table for the problem you are experiencing, then try the corrective action. Some problems can have more than one corrective action.

The *System Guide* referred to in this table is the Profile XP *System Guide*.

Problem	Possible Causes	Corrective Action
VdrPanel RS-422 Control: The Profile XP system fails to respond.	Incorrect protocol selected.	Refer to "Setting up RS-422 remote control in VdrPanel" in the *Profile XP System Guide*.
	Controller connected to the wrong RS-422 Port.	Verify the RS-422 cable is connected to the correct physical port (P1-P8).
Prolink: Cannot open channel.	Channel names do not match those expected by the controller.	Define new channels or rename existing ones. Refer to "Adding and configuring a new channel" or "Entering channel name and description" *Profile XP System Guide*.
	Controller connected to the wrong RS-422 port.	Check the title bar of the Prolink window and verify the RS-422 cable is connected to the correct physical port (P1-P8).
Ethernet: Cannot connect to a remote machine.	PortServer is not running on remote machine.	Start PortServer on remote machine. Refer to "Running PortServer to enable remote operation" in the *Profile XP System Guide.*
Ethernet: When running an application remotely, you cannot find the Profile XP system listed in the Remote Host List.	The Profile XP system has a problem with the Ethernet connection.	Refer to "Correcting common Ethernet network problems" on page 78.

Chapter **10**

Routine maintenance

Routine maintenance in the Media Platform consists primarily of cleaning the air filters on a scheduled basis, and removing accumulated dust and dirt from the equipment on an as-needed basis. In addition to the cleaning, the Emergency Repair Disk should be updated routinely as part of any hardware or software installation.

Cleaning or replacing air filters

In order to operate in all environmental conditions, the Profile XP and PAC216 require clean, unrestricted internal air flow. For both units, internal fans pull air into the chassis through filters in the front panel. The air then flows across the boards and power supply and exhausts from the chassis through the rear panel and right side panel in the case of the PAC216.

The Profile XP uses one large filter and two small filters, and the PAC216 uses a single filter. Check these air filters frequently for dust and grime buildup. Much of the buildup of dust and lint can be removed through the front panel with a portable vacuum cleaner. However, frequent cleaning ensures adequate, clean cooling air to the equipment.

Cleaning the filters

The air filters supplied with this Profile XP and PAC216 can easily be cleaned and used again. Wash them in warm water and mild detergent. Make sure the filters are dry before reinstalling them and powering up the Profile XP or PAC216.

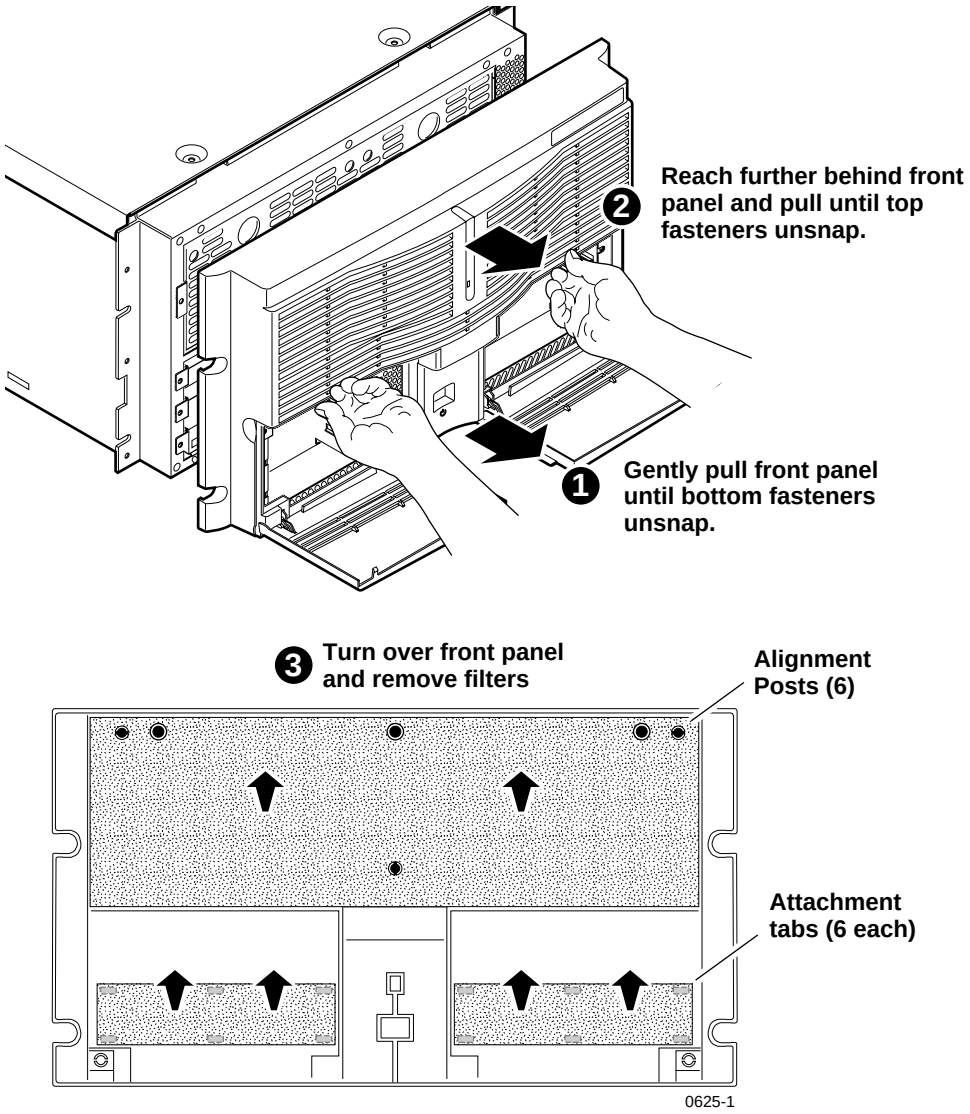
Additional air filters

Additional air filters can be ordered directly from Grass Valley. See the Replaceable Parts Lists in Chapter 11 for the part numbers.

Removing and replacing the Profile XP filters

Removal of the air filters for cleaning or replacement requires removal of the front panel, but does not require shutting down the Profile XP. To remove the Profile XP air filters:

1. Grasp the front panel at both sides and snap loose from the chassis as shown on page 84.
2. Remove the large filter from the mounting posts on the inside of the panel cover; detach the small filters from the two access doors. The small filters are each held in place by six hook and loop fasteners.
3. Install the cleaned or replacement filters.
4. Position the front panel cover at the chassis so that the cover alignment posts engage the holes in the chassis; snap the front panel cover onto the chassis.

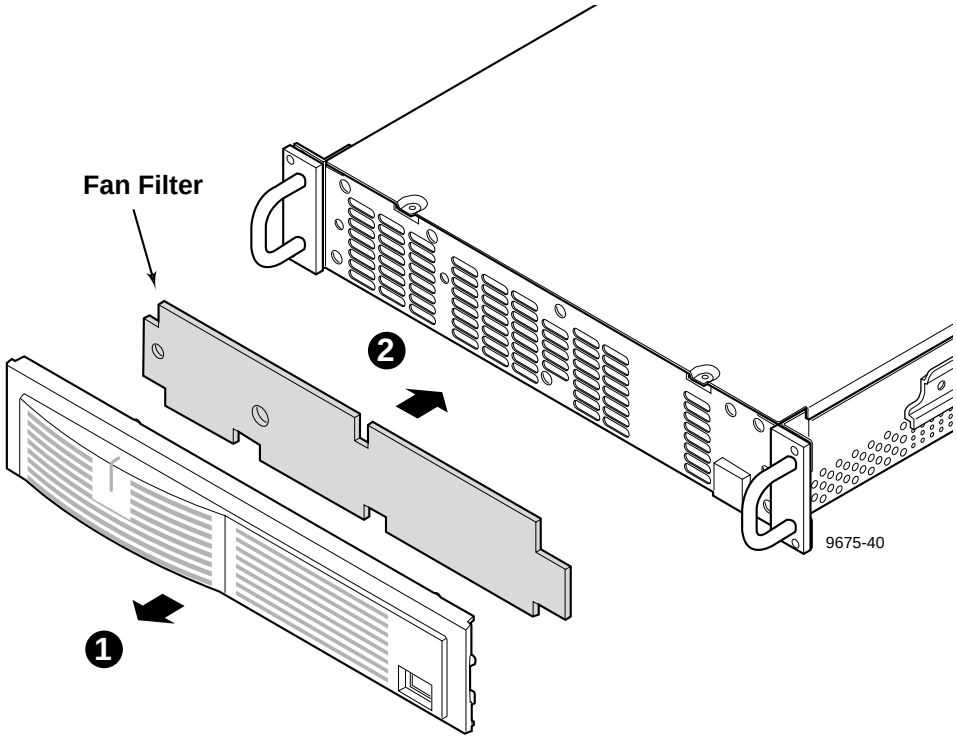


Removing the Profile XP Media Platform Front Panel and Air Filters

Removing and replacing the PAC216 filter

Removal of the air filter for cleaning or replacement does not require removal of the PAC216 from the rack or the use of any tools. To remove the PAC216 air filter:

1. Grasp the front panel cover at both sides and snap loose from the chassis as shown here.
2. Place face down and remove the filter from the mounting posts on the inside of the panel cover.



PAC216 Filter Removal

3. Attach the cleaned or replacement filter to the mounting posts on the inside.
4. Position the front panel cover at the chassis so that the cover mounting posts align with the holes in the chassis; snap the front panel cover onto the chassis.

Cleaning and inspecting the chassis

Any schedule established for cleaning and visually inspecting the equipment should be based on the environment in which it is operated and the amount it is used. Under average conditions, cleaning and visual inspection should be scheduled every 2000 hours of operation.

Cleaning

The equipment should be cleaned often enough to prevent dust or dirt from accumulating. Dirt acts as a thermal insulating blanket that prevents effective heat dissipation, and can provide high-resistance electrical leakage paths between conductors or components in a humid environment.

Exterior

Clean the dust from the outside by wiping with a soft cloth or small brush. A brush is especially useful to remove dust from around the connectors. Hardened dirt may be removed with a cloth dampened in water that contains 50% Isopropyl alcohol. Abrasive cleaners should not be used.

Interior

Clean the interior by loosening the accumulated dust with a dry, soft brush. Once the dirt is loosened, remove it with low-pressure air (high-velocity air can damage some parts). Hardened dirt or grease may be removed with a cotton-tipped applicator dampened with a solution of 50% Isopropyl alcohol and water. Abrasive cleaners should not be used. If the circuit board assemblies must be removed for cleaning, follow the removal/replacement instructions.

After cleaning, allow the interior to thoroughly dry before applying power to the unit.

⚠ ***CAUTION: Do not allow water to get inside any enclosed assembly or component. Do not clean any plastic materials with organic cleaning solvents, such as benzene, toluene, xylene, acetone, or similar compounds, because they may damage the plastic.***

Visual Inspection

After cleaning, carefully check the equipment for defective connections, damaged parts, and improperly seated connectors and plug in components. If heat-damaged parts are discovered, to prevent additional damage, determine the cause of overheating before replacing the damaged part.

Updating the emergency repair data

The emergency repair data located in *c:\winnt\repair* and on the Emergency Repair Disk (ERD) is used to restore a Windows NT workstation back to the state of the last repair update. It is used to search for missing or corrupt Windows NT files and to restore the registry files, including SAM database, security information, disk configuration, software registry entries, and other information.

To keep repair data up-to-date, the administrator should create and update repair data in the repair directory and on the repair disk any time hardware is added to the system, or software is added or updated.

To update the emergency repair data:

1. Click on **Start | Run**.
2. Type **rdisk**, and then click **OK**.
3. Click **Update Repair Info**. The Repair Disk Utility dialog box will ask if you really want to update the repair data.
4. Click **Yes**. After the repair data has been updated the Repair Disk Utility dialog box will appear and ask if you would like to make an Emergency Repair Disk.
5. Click **Yes** to create an Emergency Repair Disk.
6. When prompted, insert the Emergency Repair Disk that was created during installation, and then click **OK**.
7. When the update is finished, click **Exit**.

The following table lists the files in the repair directory and on the repair disk:

File	Description
SETUP.LOG	An information file used for verifying the files system files installed on the system drive. This is a read-only, hidden, system file.
SYSTEM._[a]	A copy of the system hive from the registry.
SAM._	A copy of the Security Accounts Manager (SAM) from the registry.
SECURITY._	A copy of the Security hive from the Registry.
SOFTWARE._	A copy of the registry's Software hive.
DEFAULT._	A copy of the registry's default hive.
CONFIG.NT	The windows NT version of the CONFIG.SYS file used when running a Virtual DOS Machine (VDM).
AUTOEXEC.NT	The Windows NT version of the AUTOEXEC.BAT file used when running a VDM.

a. Files with the ._ extension are compressed files. These can be decompressed in the same manner as the Windows N files on the source disks, using the *expand* command.

Chapter **11**

Parts removal and replacement

The pictures in this chapter show how to disassemble the Profile XP Media Platform. Re-assembly is the reverse. A list of field-replaceable parts is found at the end of the chapter.

NOTE: Do not discard any hardware unless specifically instructed to do so.

⚠ ***WARNING: To avoid serious injury from high currents, ensure that the power cord is disconnected prior to removing or replacing any internal parts.***

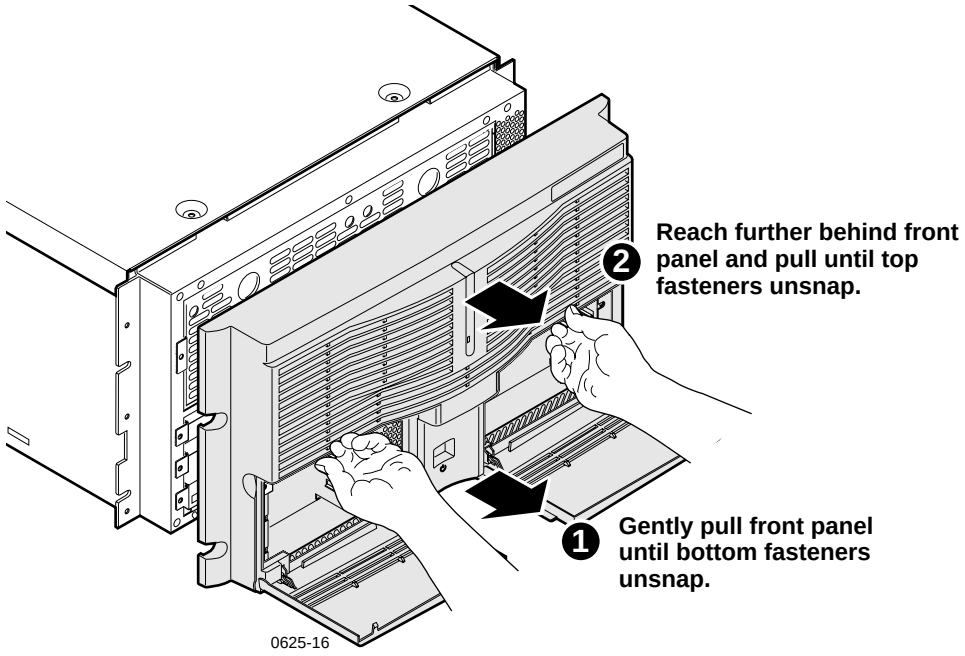
Procedures

The disassembly procedures are divided into two categories: external parts removal, and internal parts removal. You need only a Torx tool with T15 magnetic tip to remove and replace parts in the Profile XP Media Platform.

External Parts Removal

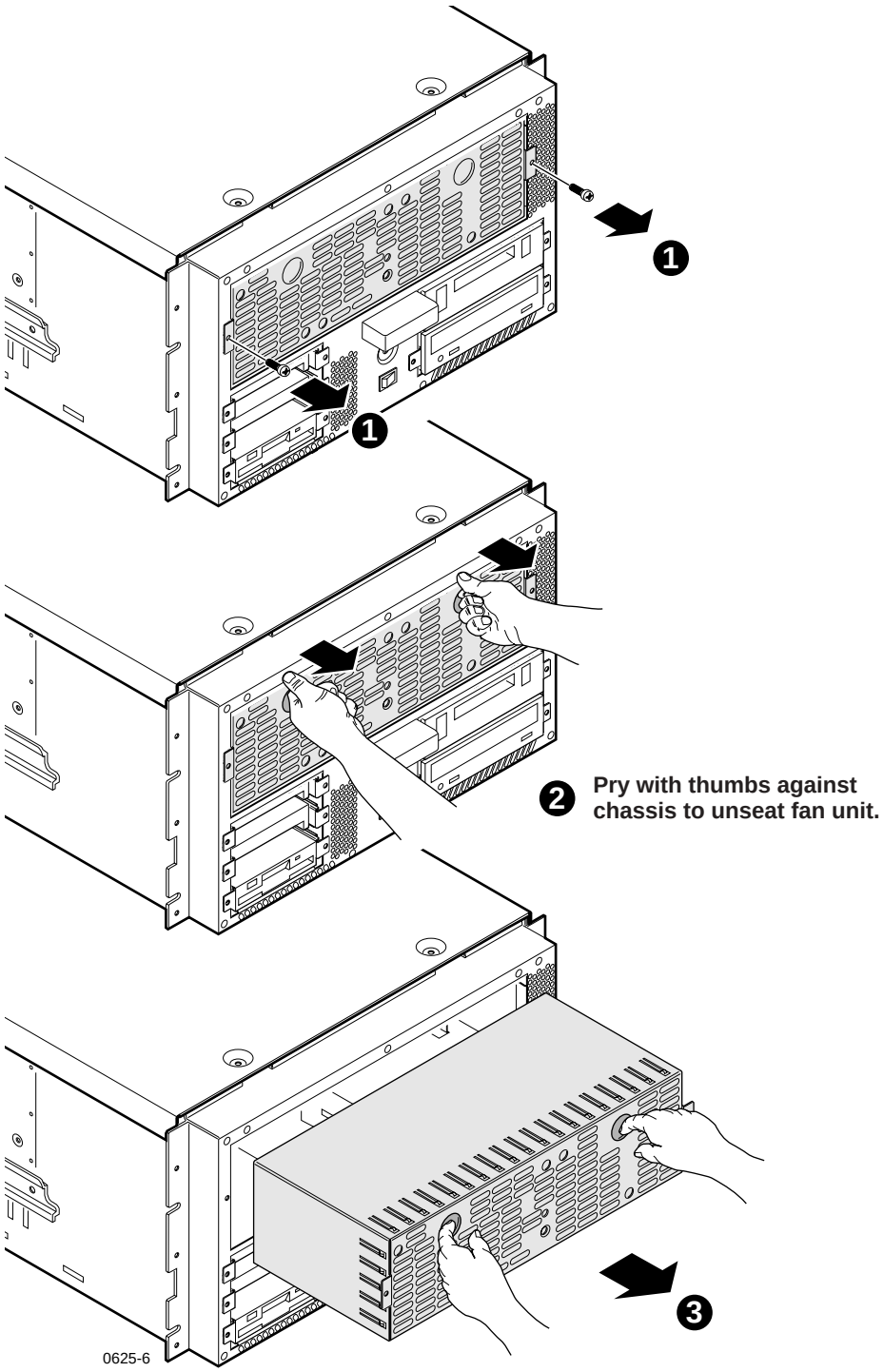
All the parts in this category can be removed and replaced without opening the Profile XP cabinet, and except for the power supplies, are accessible from the front of the cabinet.

Removing the front panel

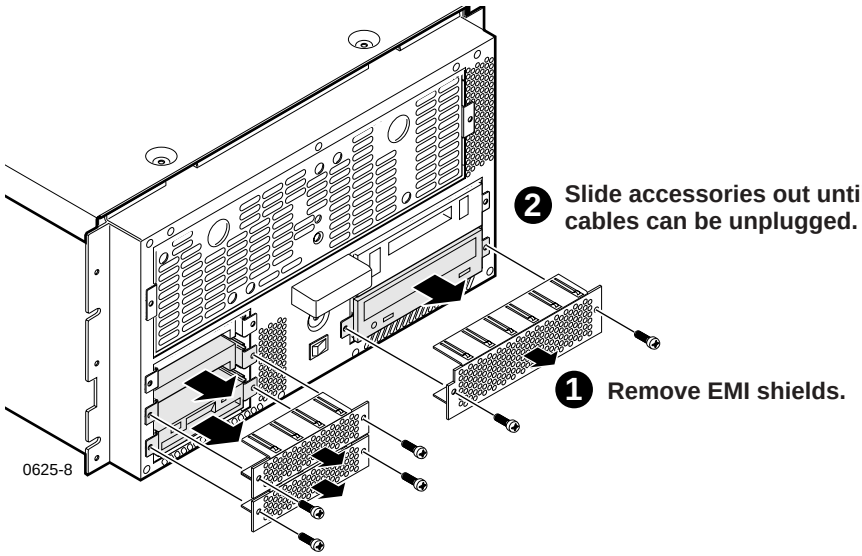


Removing the fan unit

When removing the fan unit, hook forefingers in the holes on the fan unit and pull while pressing the thumbs against the edge of the chassis.



Removing the system disk, floppy disk, or CD-ROM drive



⚠ ***CAUTION: There are no field procedures that require opening or adjustment of the CD-ROM drive. Attempts to open or adjust the CD-ROM drive could result in hazardous radiation.***

Installing a new system disk or restoring a corrupt system disk

NOTE: This procedure applies only to systems with single system drives. If you are replacing a failed drive in a media platform with a redundant system drive, follow the instructions found in "Replacing a redundant system disk drive: DupliDisk II Controller " on page 110.

If you are installing a new system disk in the media platform, you must perform the following procedure to return the system to operation after all the cables are attached, the screws tightened, and the covers snapped back in place. The replacement system disk is blank, so you will need to use the *Profile XP System Drive Rebuild* CD-ROM that you received with your Profile XP system or from Grass Valley Support.

If you are restoring a corrupt system disk on which the information is unusable, you must perform the following procedure to restore the system to operation.

CAUTION: This procedure destroys all data stored on the system drive. Perform this procedure only if there is no other way to restore the system drive to operation.

Before you begin (and if it is possible to do so), copy the configuration file, *C:\profile\config.cfg*, and the hosts table, *C:\WINNT\system32\drivers\etc\HOSTS*, onto a floppy disk or to a network drive if available.

1. Power-up the Profile XP system and press **F2** to enter Setup.
2. Use the arrow keys to move the screen highlight to `Boot` (highlight is normally on Boot by default).

3. Adjust the order of the boot devices as necessary so that they appear as follows:

   `Removable Devices` (floppy drive)
   `CD-ROM`
   `Hard Drive`

4. Place the *Profile XP System Drive Rebuild* CD-ROM in the CD-ROM drive.
5. Press **F10** to save and exit Setup. The Profile XP system will reboot from the CD-ROM, starting a version of DOS.
6. When the licensing agreement comes up for the installation software, press any key (as prompted) to read though the several pages of the agreement.

CAUTION: This procedure destroys all data stored on the system drive. Perform this procedure only if there is no other way to restore the system drive to operation.

7. At the Easy Restore window click on **Continue** and **Yes** after you read the warning about everything on the drive being destroyed. The progress bars in the Easy Restore window indicate how near the process is to completion.
8. When the process is complete and the Reboot dialog box appears, remove the CD-ROM from the drive.
9. Click the **reboot** button and allow the Profile XP system to fully reboot.
10. Log on as *administrator* (password *triton*).
11. Reload the *HOSTS* file table to the *C:\WINNT\system32\drivers\etc* directory.
12. Load the serial number for the Profile XP system.
    a. Choose **Start | Programs | Command Prompt**.
    b. At the `C:\ prompt type` `serutil GVxxxxxx` and **Enter**, where GVxxxxxx is the serial number of the Profile XP system.
    c. When prompted type **Y** and press **Enter**, then type `Exit` and press **Enter**.
13. Change all of the network settings, and the computer name.
    a. Choose **Start | Settings | Control Panel**.
    b. Select and open **Network**.
    c. In the Network window, change the computer name and network addresses as needed. Check with your system administrator for the correct information to enter. For more information about setting up the network, refer to the *Profile XP System Guide*.
14. Close all open windows and restart the Profile XP system to activate the changes.
15. Log on as *administrator* (password *triton*) when the system has rebooted.
16. Use Windows NT Explorer (or My Computer) to verify the presence of *C:\pdrmovie_db*.
17. Load the system software. You can use the current production version of Profile Software located in *C:\Software*, or if you prefer, you can use a version from your own CD-ROM or from a network drive.

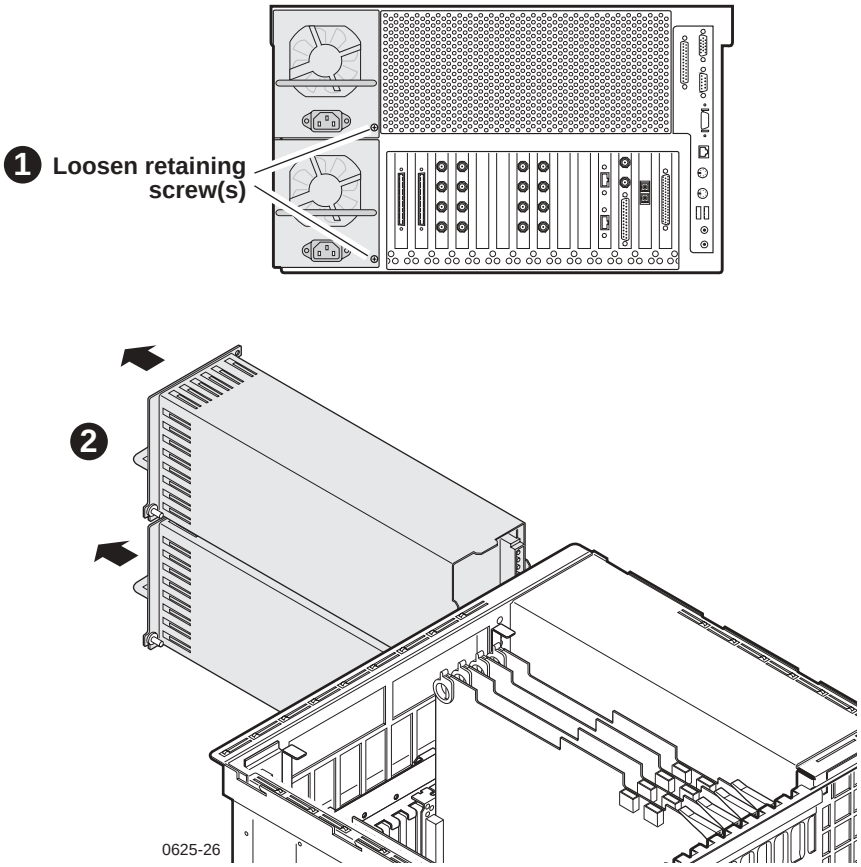
a. Use Windows NT Explorer to run *Disk 1\Setup.exe*.

b. Follow the directions, being sure to select "Yes, I want to restart…" in the Setup Complete window.

18. Log on as administrator.
19. Start the Configuration Manager.
20. If you have a saved configuration file, open it using **File | Open**.
21. Configure the Profile XP system for Video, Audio, and Fibre Channel to accommodate your needs. Refer to the *Profile XP System Guide* for information about using Configuration Manager.
22. When the configuration is complete, use **File | Save a Copy** to store the configuration in the *C:\profile\config* directory and to floppy disk or a network drive for backup.
23. Reload your application software such as TimeDelay, NetCentral, Toolbox Editor, etc.
24. Reconfigure NetCentral settings including the SNMP Traps.

Removing the power supplies

When removing a power supply, unplug its ac power cable before removing the power supply from the cabinet.



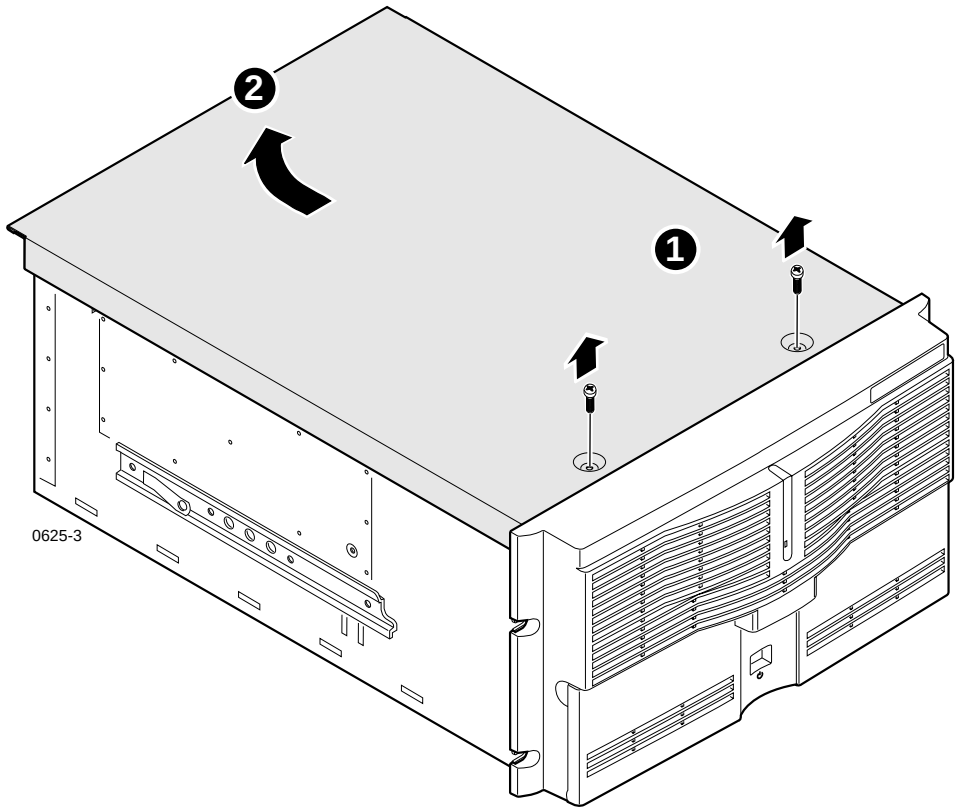
Internal parts removal

The illustrations that follow show how to remove all the internal parts of the Profile XP Media Platform beginning with removing the top cover and finishing with removing the motherboard from the bottom of the cabinet. The last illustration shows the cable connections on the front of the Motherboard to aid in reassembly.

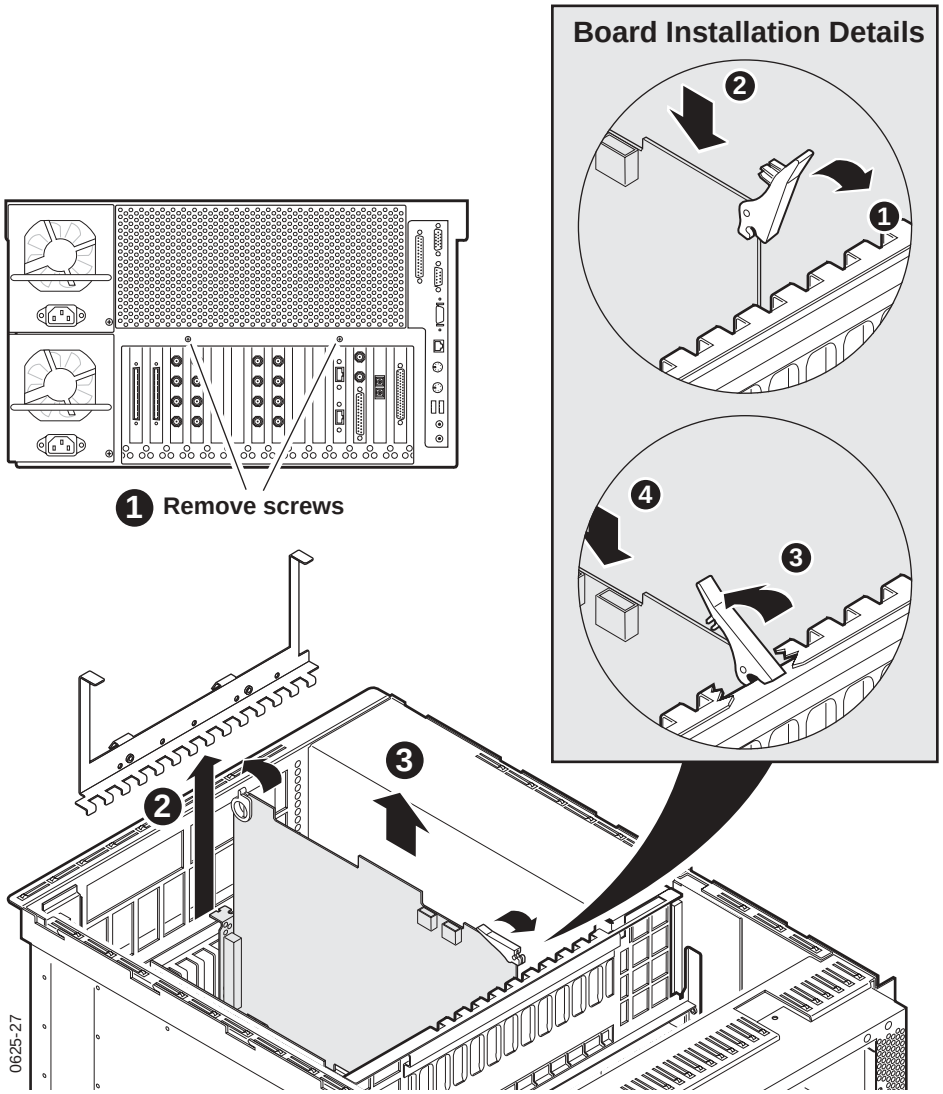
⚠ ***CAUTION: To avoid possible damage to circuit boards and other sensitive parts, turn off the media platform and disconnect ac power before opening the top cover or removing any internal parts or circuit boards.***

⚠ ***WARNING: The media platform can have more than one power supply cord, and the power supply cords are the only means of disconnecting mains power. Disconnect all power supply cords before servicing to avoid electrical shock.***

Removing the top cover



Removing and installing plug-in circuit boards



NOTE: Holding the lever up while pushing down on the board can jam it against the bulkhead, making board extraction extremely difficult.

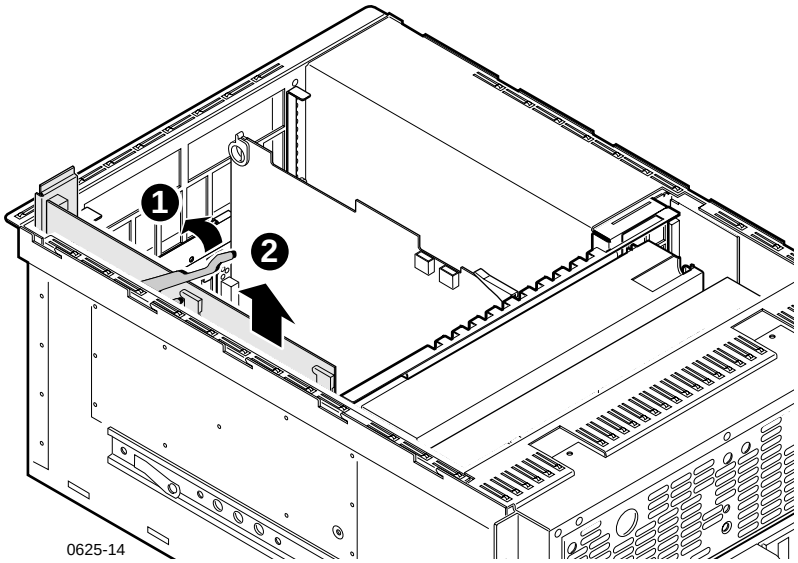
To install a board, follow these steps (refer to the installation detail in the illustration):

1. Lift the release lever to the up position.
2. Lower the board in the slot.
3. When the lever contacts the bulkhead, swing the lever down to seat the board in the front socket and latch the board in place.
4. Push down on the rear of the board to seat the board in the rear socket.

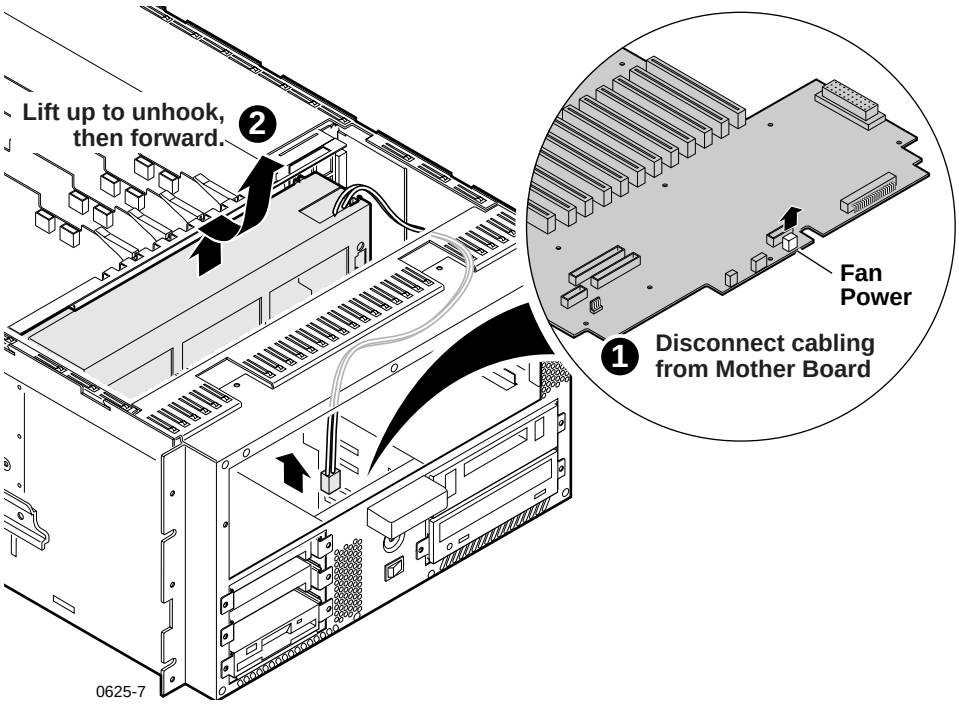
Removing the processor board

⚠ ***CAUTION: To avoid damage when replacing the battery, replace only with the same or equivalent type recommended by the circuit board manufacturer. Dispose of the used battery according to the circuit board manufacturer's instructions.***

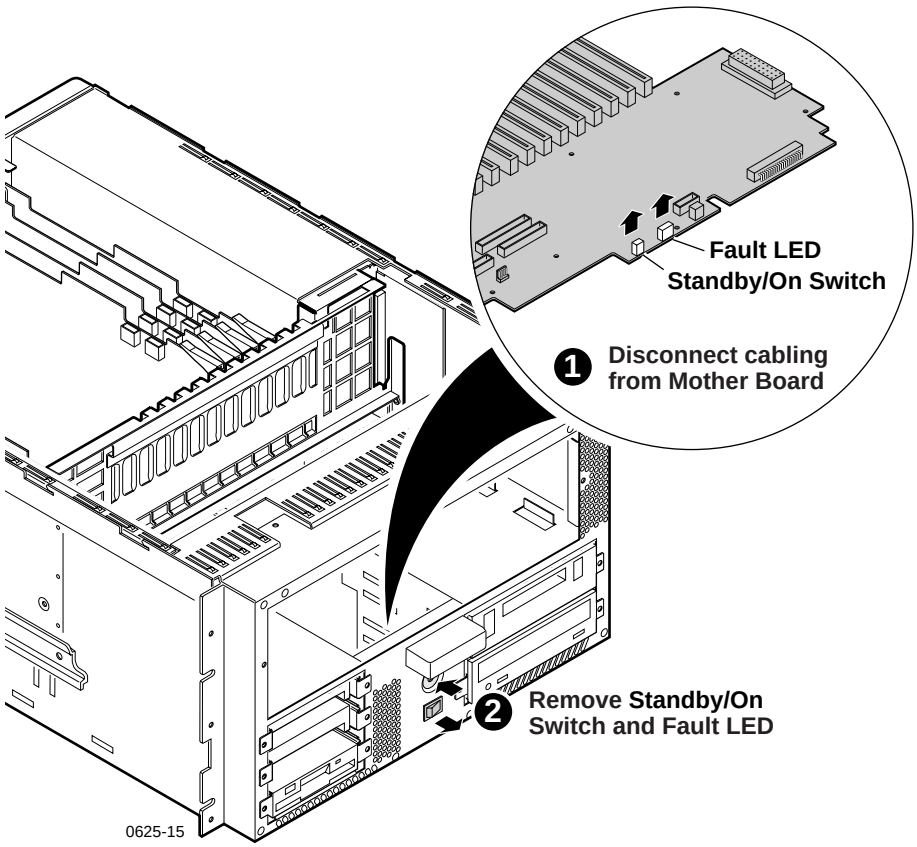
NOTE: If you need to replace the processor board, check the part number on the board and order a replacement board with that part number. Refer to "Field-replaceable parts" on page 119. for the Grass Valley part numbers.



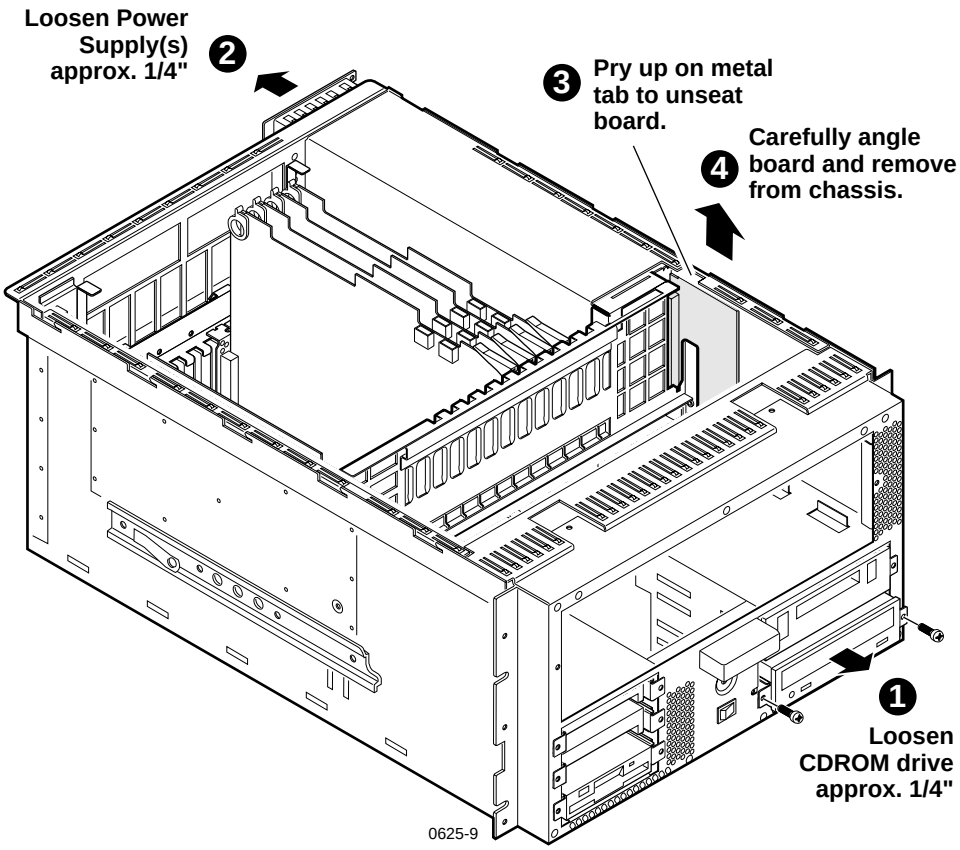
Removing the air chamber



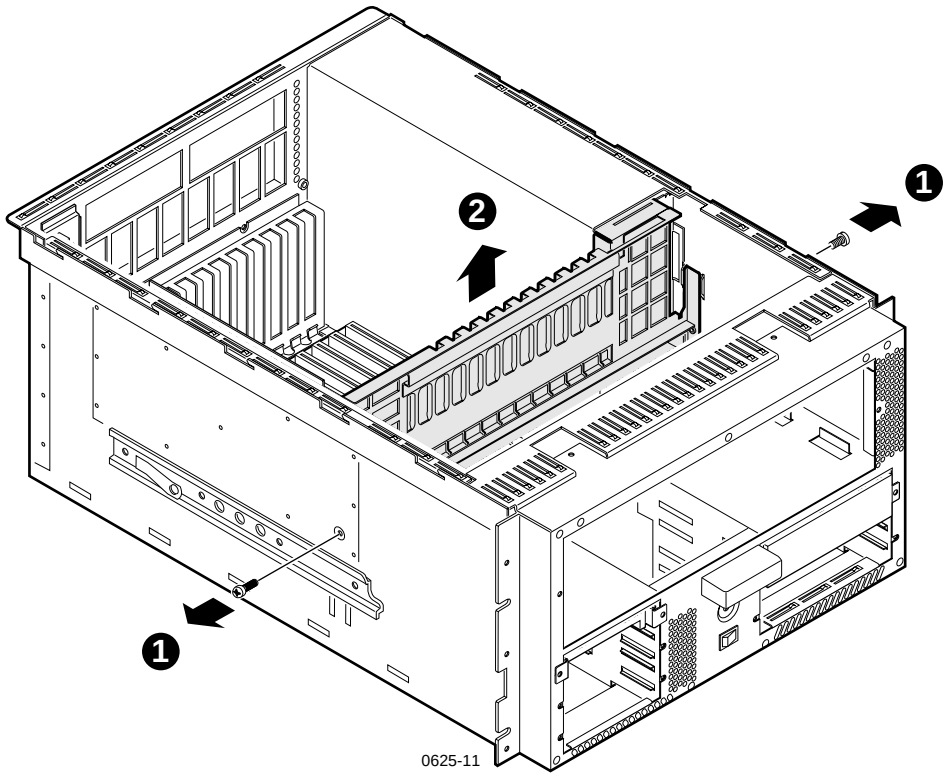
Removing the standby/on switch and fault LED



Removing the power distribution board



Removing the bulkhead



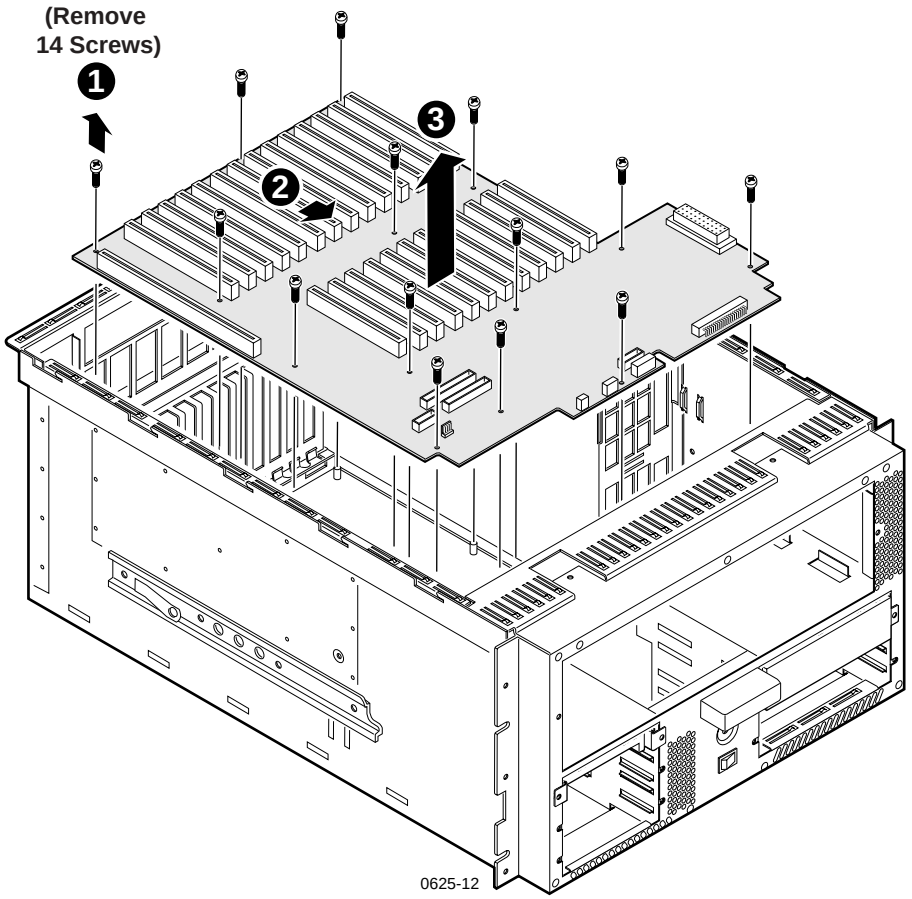
Replacing the motherboard

To replace the motherboard, you must first remove all connected components such as circuit boards and cables. When installing the replacement board, you must install Profile System Software on the new board prior to installing the other circuit boards in the system. Failure to do so may prevent the system from starting.

Removing the motherboard

To replace the motherboard:

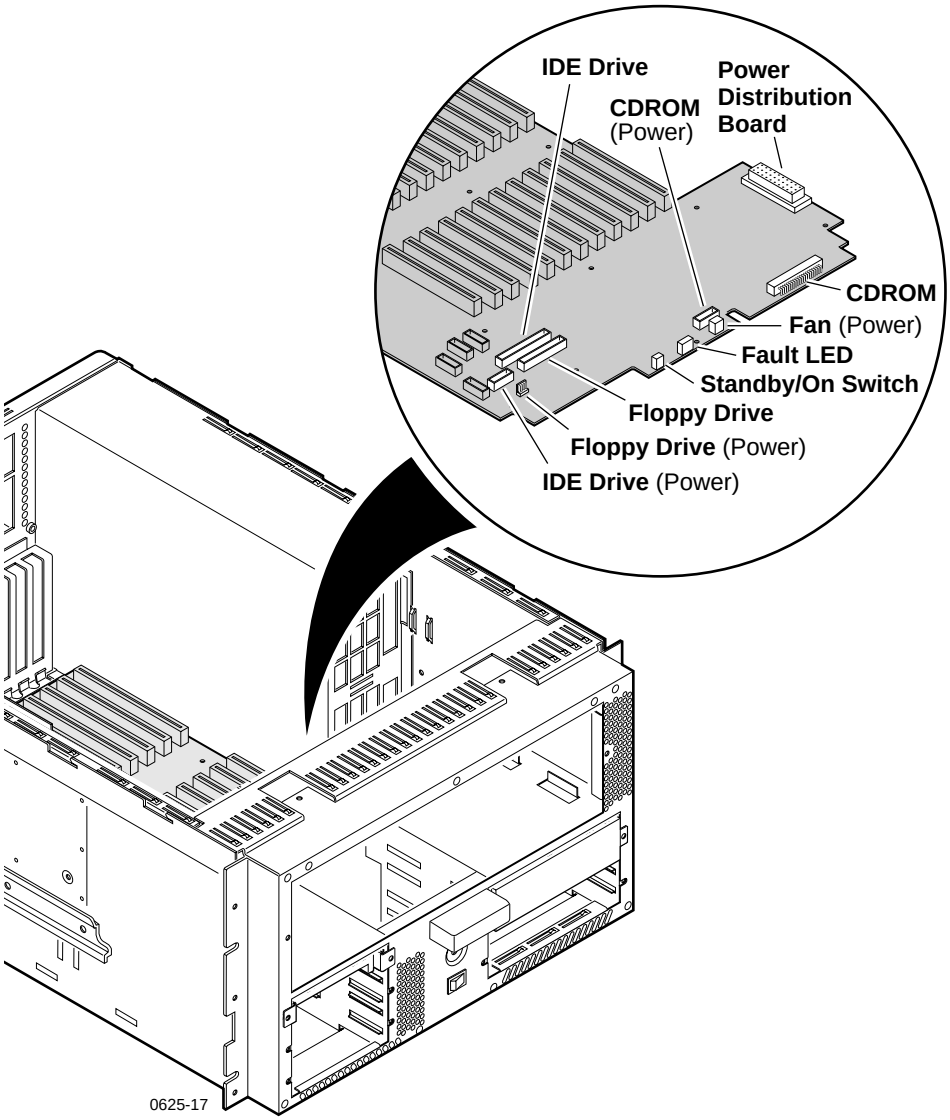
1. Shut down the system and disconnect power from all installed power supplies.
2. Disconnect all external cables.
3. Remove the cover, the internal boards, the processor board, the air chamber, the power distribution board, the bulkhead, and all the attached internal cables as described in “Internal parts removal” on page 95..
4. .Remove the screws, and carefully remove the motherboard.



Installing the motherboard

To install the motherboard:

1. Carefully lower the motherboard into position and fasten it to the chassis with the removed screws.
2. Attach all disconnected cables as shown in the following illustration.



3. Install the bulkhead, the power distribution board, the air chamber, and the processor board.

NOTE: You can skip to step 7 if you are certain that the replacement motherboard is programmed with the same version of Profile System Software as the other boards in the system.

4. Connect the keyboard, monitor, mouse, and system power.

5. Power on the system, log on as administrator, and install the desired version of Profile System Software.

NOTE: Ignore messages about Services that did not start and other messages caused by the absence of circuit boards.

6. Shut down the system and disconnect the power.
7. Install all the remaining circuit boards as described in “Removing and installing plug-in circuit boards” on page 96..
8. Replace the cover and connect the power.
9. Power on, log on as administrator, and re-install Profile System Software.

Replacing parts in a system with the redundancy option

When removing or installing the DupliDisk controller, the primary or mirror system disk drives, or the Superdrive 3.5" diskette drive, refer to the illustrations that follow as you perform the steps in the procedure.

This section includes the following:

Interpreting the DupliDisk III control panel LEDs

The following describes how to interpret the control panel LEDs. The Primary and Mirror LEDs display the status of the disk hardware on the Primary and Mirror channels. The status LEDs for the Master and Slave display the RAID status on the Master and Slave disk channels.

NOTE: In the Profile XP, the Slave Status LED is always lit and the Slave Primary and Mirror LEDs are never lit because no slave drives are installed.

The following table explains the state of the LEDs for each drive (Primary and Mirror

LED color	Status
GREEN	Drives installed on the channel
ORANGE (flashing)	Scanning the channel for drives
RED	Drive not installed
RED (Flashing)	Error, the channel is marked as bad
ORANGE	Channel activity (Read/Write)

The next table explains the state of the Status LEDs for the Master and Slave channels.

Master LED	Status
GREEN	Drives are in Mirror Mode and are Identical
GREEN (Flashing)	Drives detected are in Mirror Mode, but may NOT be Identical
RED	Drives detected are NOT in Mirror Mode
RED (Flashing)	Copy or compare operation is in progress
Orange (Flashing)	Copy or compare operation is in progress

Operation of the DupliDisk III control panel buzzer

The following describes how to interpret the operation of the control panel buzzer.

Buzzer operation[a]	Status
Short beep during power up	Indicates successful DupliDisk II self test
Second beep	DupliDisk II is running in single mode
Continuous or intermittent beep	Drive failure

a. Buzzer Off switch can be depressed to stop the beeping.

Replacing a redundant system disk drive: DupliDisk III Controller

If one of the system disk drives fails, the buzzer in the DupliDisk controller sounds, indicating the drive has failed. The failed drive LED flashes RED, and the Master LED turns RED. (Refer to “Interpreting the DupliDisk III control panel LEDs” on page 105..) The NetCentral system also generates a Warning message. The buzzer continues to sound until the system is turned off or the buzzer switch on the DupliDisk controller is depressed. When a failure is detected, the remaining drive automatically takes over and allows you to safely save the data and shut down the system to replace the failed drive.

To replace the bad drive:

1. Close any open application and shut down the Profile XP system.
2. Power-up the Profile XP system and press **F2** to enter Setup.
3. Use the arrow keys to move the screen highlight to Boot (highlight is normally on Boot by default).
4. Adjust the order of the boot devices as necessary so that they appear as follows. Make the Super Drive (Removable Devices) or the Floppy Drive, depending on you system configuration, the first boot device:

   `Removable Devices` (or Floppy Drive)
   `CD-ROM`
   `Hard Drive`

5. Insert your bootable DupliDisk Utilities diskette into disk drive. To create this diskettes, refer to “Creating a bootable DupliDisk Utilities diskette” on page 108.
6. Press **F10** to save and exit Setup.
7. The Profile XP system boots from the bootable DupliDisk Utilities diskette. The discovery of the mirrored system drives may take several minutes.
8. From the on-screen menu, choose menu item 2, Dupli.exe for DupliDisk2 and DupliDisk3.
9. The Dupli Mirroring Utility will identify the failed drive. Confirm that the drive identified by the utility is the same as the drive indicated by the flashing red LED on the DupliDisk II controller. The following figure indicates a bad Primary drive.

```
DupliDisk II Adapter Setup Utility (Bay)

                    Initialization Status

  Primary Channel
  Master: not present
  Slave: not present

  Mirror Channel
  Master: Fujitsu MPE3102AT hd(16) cyl(19856) spt(0) cap(63Mb)
  Slave: not present

  Initialization Information
 Primary Master: ..................... MARKED AS BAD
 Mirror Master: Fujitsu MPE3102AT......Initialized
 Master Drives are NOT in MIRROR mode.

  Checksum-9337 Bios Rev-1.25.1.05 Serial Number 000000000000


Press any key. . .
```

10. Press any key, then exit the program.
11. Power-down the Profile XP system and remove the front panel, fan unit, top cover, and air chamber from the Profile XP chassis to allow access to the cable connectors on the motherboard and the back of the drives installed in the bays.
12. Unplug the IDE ribbon cable and power cable from the rear of the failed drive.
13. Remove the bay cover and slide out the failed drive.

NOTE: The replacement drive must be of equal or greater storage capacity than the remaining working drive. Also, verify the replacement drive jumper settings are set for Master mode.

14. Slide in the replacement drive and connect the IDE ribbon and power cables. Replace the bay cover.
15. Replace all parts removed in step 10.
16. Power-up the Profile XP system. The Profile XP system boots from the bootable DupliDisk Utilities diskette. All DupliDisk controller LEDs flash orange for a few moments.
17. From the on-screen menu, choose menu item 2, Dupli.exe for DupliDisk2 and DupliDisk3. The Initialization Status Screen appears displaying the replacement drive status as “MARKED AS BAD” and the other drive as “Initialized”. Master drives are NOT in mirror mode. The LED for the replacement drive flashes red, and the Master LED is red.
18. Press any key to continue.

19. When the Master Drive Configuration box appears, perform one of the following steps:
    - If the PRIMARY drive was replaced, highlight `Rebuild drive on Primary Channel`, then press **Enter**.
    - If the MIRROR drive was replaced, highlight `Rebuild drive on the Mirror Channel`, then press **Enter**.

    The Copy Drive dialog box appears displaying drive copy status and estimated completion time. Primary and Mirror drive LEDs appear orange while the Master LED flashes red.
20. When the status message appears indicating the drives are identical, remove the bootable DupliDisk Utilities diskette.
21. Exit the *DupliDisk DUPLI Mirroring Utility* and reboot as follows:
    a. Use the arrow keys to select the Exit, then press **Enter**.
    b. In the confirmation dialog box that appears type **Y** (to select Yes), then press **Enter**.
    c. Press **Enter** again to continue, which reboots the system from the Primary system drive to start Windows NT.

Creating a bootable DupliDisk Utilities diskette

You must create your own DupliDisk Utilities diskette that allows you to replace failed drives on your Profile XP system. To create the diskette:

1. Insert the *DupliDisk3 DupliCD* into the CD-ROM drive and start **Menu** if autostart is not enabled on your system.
2. Insert a blank diskette into the floppy disk drive.
3. From the DupliDisk main menu, choose **DOS Boot Disk Creator**. (If the button does not open the DOS Boot Disk Creator, start the application from *\DOS\DOS_Boot _Disk_Maker _for_Windows\BOOTUTIL1_2.exe*.on the CD-ROM.)
4. Follow the on-screen prompts to create the bootable floppy diskette, over-writing all existing data on the diskette.

You can now use this bootable diskette when replacing a defective system drive.

Interpreting the DupliDisk II control panel LEDs

The following describes how to interpret the control panel LEDs. The Primary and Mirror LEDs display the status of the disk hardware on the Primary and Mirror channels. The Master and Slave LEDs display the RAID status on the Master and Slave disk channels.

NOTE: In the Profile XP, the Slave channel LED is always lit because no slave drives are installed.

Primary LED	Mirror LED	Status
ORANGE	ORANGE	Channel activity (Read/Write)
ORANGE (flashing)	ORANGE (Flashing)	Scanning the channel for drives
GREEN	GREEN	Drives installed on the channel
RED (Flashing)	GREEN	Error on Primary Channel, the channel is marked as bad
GREEN	RED (Flashing)	Error on Mirror Channel, the channel is marked as bad
RED	GREEN	Drive not installed on Primary channel
GREEN	RED	Drive not installed on Mirror channel

Master LED	Status
RED	Drives detected are NOT in Mirror Mode
GREEN (Flashing)	Drives detected are in Mirror Mode, but may NOT be Identical
GREEN	Drives are in Mirror Mode and are Identical
RED (Flashing)	Copy or compare operation is in progress
Orange (Flashing)	Scanning for drives

Operation of the DupliDisk II control panel buzzer

The following describes how to interpret the operation of the control panel buzzer.

Buzzer operation[a]	Status
Short beep during power up	Indicates successful DupliDisk II self test
Second beep	DupliDisk II is running in single mode
Continuous or intermittent beep	Drive failure

a. Buzzer Off switch can be depressed to stop the beeping.

Replacing a redundant system disk drive: DupliDisk II Controller

If one of the system disk drives fail, the buzzer in the DupliDisk II controller sounds, indicating the drive has failed. The failed drive LED flashes RED, and the Master LED turns RED. (Refer to “Interpreting the DupliDisk II control panel LEDs” on page 109..) The NetCentral system also generates a Warning message. The buzzer continues to sound until the system is turned off or the buzzer switch on the DupliDisk II controller is depressed. When a failure is detected, the remaining drive automatically takes over and allows you to safely save the data and shut down the system to replace the failed drive.

To replace the bad drive:

1. Close any open application and shut down the Profile XP system.
2. Power-up the Profile XP system and press **F2** to enter Setup.
3. Use the arrow keys to move the screen highlight to Boot (highlight is normally on Boot by default).
4. Adjust the order of the boot devices as necessary so that they appear as follows. Make the Super Drive (Removable Devices) or the Floppy Drive, depending on you system configuration, the first boot device:

   `Removable Devices` (or Floppy Drive)
   `CD-ROM`
   `Hard Drive`

5. Insert the *DupliDisk2 DUPLI Mirroring Utility* diskette into disk drive.
6. Press **F10** to save and exit Setup.
7. The Profile XP system boots from the *DupliDisk2 DUPLI Mirroring Utility* diskette. Press **Enter** twice to accept the date and time.
8. At the `A:` prompt, type `dupli`, then press **Enter**. The Dupli Mirroring Utility will identify the failed drive. Confirm that the drive identified by the utility is the same as the drive indicated by the flashing red LED on the DupliDisk II controller. The following figure indicates a bad Primary drive.

```
DupliDisk II Adapter Setup Utility (Bay)

                    Initialization Status

  Primary Channel
  Master: not present
  Slave: not present

  Mirror Channel
  Master: Fujitsu MPE3102AT hd(16) cyl(19856) spt(0) cap(63Mb)
  Slave: not present

  Initialization Information
 Primary Master: ..................... MARKED AS BAD
 Mirror Master: Fujitsu MPE3102AT......Initialized
 Master Drives are NOT in MIRROR mode.

  Checksum-9337 Bios Rev-1.25.1.05 Serial Number 000000000000


Press any key. . .
```

9. Press any key, then exit the program.
10. Power-down the Profile XP system and remove the front panel, fan unit, top cover, and air chamber from the Profile XP chassis to allow access to the cable connectors on the motherboard and the back of the drives installed in the bays.
11. Unplug the IDE ribbon cable and power cable from the rear of the failed drive.
12. Remove the bay cover and slide out the failed drive.

NOTE: The replacement drive must be of equal or greater storage capacity than the remaining working drive. Also, verify the replacement drive jumper settings are set for Master mode.

13. Slide in the replacement drive and connect the IDE ribbon and power cables. Replace the bay cover.
14. Replace all parts removed in step 10.
15. Power-up the Profile XP system. The Profile XP system boots from the *DupliDisk2 DUPLI Mirroring Utility* diskette. All DupliDisk II controller LEDs flash orange for a few moments.
16. Press **Enter** twice to accept the date and time.
17. At the `A:` prompt type `dupli` and press **Enter**. The Initialization Status Screen appears displaying the replacement drive status as “MARKED AS BAD” and the other drive as “Initialized”. Master drives are NOT in mirror mode. The LED for the replacement drive flashes red, and the Master LED is red.
18. Press any key to continue.

19. When the Master Drive Configuration box appears, perform one of the following steps:

    - If the PRIMARY drive was replaced, highlight `Rebuild drive on Primary Channel`, then press **Enter**.
    - If the MIRROR drive was replaced, highlight `Rebuild drive on the Mirror Channel`, then press **Enter**.

    The Copy Drive dialog box appears displaying drive copy status and estimated completion time. Primary and Mirror drive LEDs appear orange while the Master LED flashes red.

20. When the status message appears indicating the drives are identical, remove the *DupliDisk2 DUPLI Mirroring Utility* diskette.

21. Exit the *DupliDisk2 DUPLI Mirroring Utility* and reboot as follows:

    a. Use the arrow keys to select the Exit, then press **Enter**.

    b. In the confirmation dialog box that appears type **Y** (to select Yes), then press **Enter**.

    c. Press **Enter** again to continue, which reboots the system from the Primary system drive to start Windows NT.

Replacing a redundant system disk drive: DupliDisk Controller

If one of the system disk drives fails, the buzzer in the DupliDisk controller sounds once indicating the drive has failed; both the drive and status LEDs turn red, and the NetCentral system generates a Warning message. When a failure is detected, the remaining drive automatically takes over and allows you to safely save the data and shut down the system to replace the failed drive.

To replace the bad drive:

1. Close any open application and shut down the Profile XP system.
2. Power-up the Profile XP system and press **F2** to enter Setup.
3. Use the arrow keys to move the screen highlight to Boot (highlight is normally on Boot by default).
4. Adjust the order of the boot devices as necessary so that they appear as follows. Make the Super Drive (Removable Devices) or the Floppy Drive, depending on you system configuration, the first boot device:

   `Removable Devices` (or Floppy Drive)
   `CD-ROM`
   `Hard Drive`

5. Insert the *DupliDisk ACP Mirroring Utility* diskette into the disk drive.
6. Press **F10** to save and exit Setup.
7. The Profile XP system boots from the *DupliDisk ACP Mirroring Utility* diskette. Press Enter twice to accept the date and time.
8. At the `A:` prompt type `ACP` and press **Enter**. The ACP Program will identify the failed drive. Confirm that the drive identified by the program is the same as the drive indicated by the red LED on the DupliDisk controller.
9. Shut down the Profile XP system and remove the front panel, fan unit, top cover, and air chamber from the Profile XP chassis to allow access to the cable connectors on the motherboard and the back of the drives installed in the bays.
10. Unplug the IDE ribbon cable and power cable from the rear of the failed drive.
11. Remove the bay cover and slide out the failed drive.
12. Slide in the replacement drive and connect the IDE ribbon and power cables. Replace the bay cover.
13. Power-up the Profile XP system. The Profile XP system boots from the *DupliDisk ACP Mirroring Utility* diskette. Press Enter twice to accept the date and time.
14. At the A: prompt type `ACP` and press **Enter**. The Initialization Status Screen appears.
15. Press any key as instructed at the bottom of the screen.
16. In the Master Drive Configuration dialog box, highlight “Rebuild drive on [*primary or mirror*] channel”, depending on which drive is replaced, then press **Enter**.

    The Copy Drive dialog box appears. When the copy operation begins, the Primary and Mirror LEDs on the DupliDisk II controller panel appear Orange, and the

Status LED is Red. On the screen, percentage complete display is periodically updated, and a rotating bar character indicates that the operation is progressing.

17. When the following message appears in the Status dialog box, remove the *DupliDisk ACP Mirroring Utility* diskette from the disk drive, then press **Enter**.

    "`Drives are identical!!!!!`
    `Press [Enter] to continue.`"

18. Exit the mirroring program, and reboot the Profile XP system. The system boots from the Primary system drive to start Windows NT. All LEDs are green indicating mirror mode.

Restoring a corrupt system drive

Use the *Profile XP System Drive Rebuild CD-ROM* you received with your PVS 1000 and the following procedure to restore a system disk drive where the information on the primary disk is unusable, which results in the mirror drive being unusable as well.

Before you begin (and if it is possible to do so), copy the configuration file, *C:\profile\config.cfg*, and the hosts table, *C:\WINNT\system32\drivers\etc\HOSTS*, onto a floppy disk or to a network drive if available.

1. Power-up the Profile XP system and press **F2** to enter Setup.
2. Use the arrow keys to move the screen highlight to Boot (highlight is normally on Boot by default).
3. Adjust the order of the boot devices as necessary so that they appear as follows:

   Removable Devices
   CD-ROM
   Hard Drive
4. Place the *Profile XP System Drive Rebuild CD-ROM* in the CD-ROM drive.
5. Press **F10** to save and exit Setup. The Profile XP system will reboot from the CD-ROM, starting a version of DOS. The Master LED on the DupliDisk II Controller will still be green.
6. When the licensing agreement comes up for the installation software, press any key (as prompted) to read though the several pages of the agreement.

CAUTION: This procedure destroys all data stored on the system drive. Perform this procedure only if there is no other way to restore the system drive to operation.

7. At the Easy Restore window click on **Continue** and **Yes** after you read the warning about everything on the drive being destroyed. The progress bars in the Easy Restore window indicate how near the process is to completion.
8. When the process is complete and the Reboot dialog box appears, remove the CD from the CD-ROM drive.
9. Click the reboot button and allow the Profile XP system to fully reboot.
10. Log on as administrator (password *triton*).
11. Reload the HOSTS file to the *C:\WINNT\system32\drivers\etc* directory.
12. Load the serial number for the Profile XP system.
    a. Choose **Start | Programs | Command Prompt**.
    b. At the *C:* prompt type `serutil GV000xxx` and **Enter**, where GV000xxx is the serial number of the Profile XP system.
    c. When prompted type **Y** and **Enter**, then type `Exit` and **Enter**.
13. Change all of the network settings, and the computer name.
    a. Choose **Start | Settings | Control Panel**.
    b. Select and open Network.

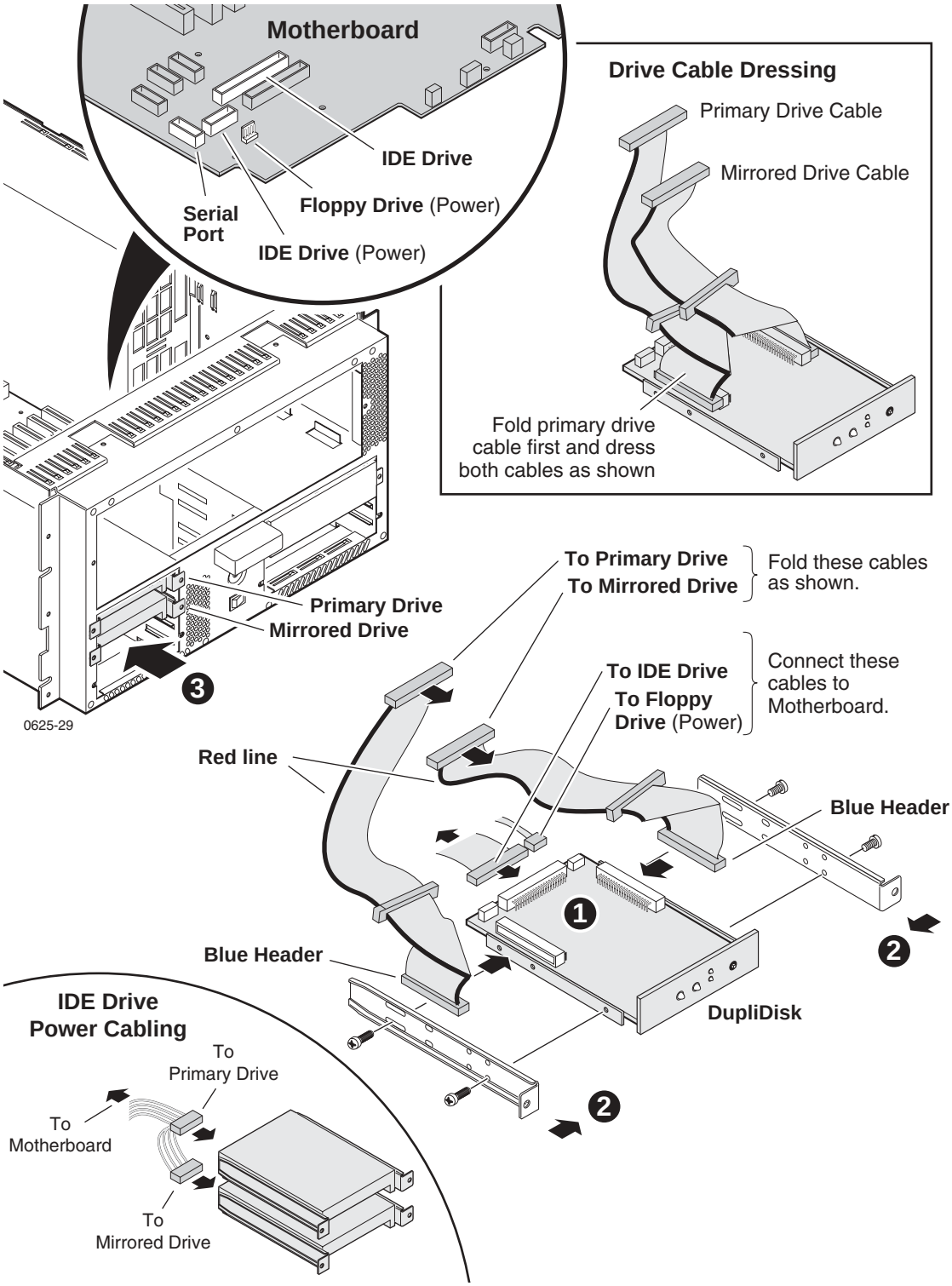
c. In the Network window, change the computer name and network addresses as needed. Check with your system administrator for the correct information to enter. For more information about setting up the network, refer to the *Profile XP System Guide*.

14. Close all open windows and restart the Profile XP system to activate the changes.
15. Log on as administrator (password *triton*) when the system has rebooted.
16. Use Windows NT Explorer (or My Computer) to verify the presence of *C:\pdrmovie_db*.
17. Load the system software. You can use the current production version of Profile Software located in *C:\Software*, or if you prefer, you can use a version from your own CD ROM or from a network drive.

    a. Use Windows NT Explorer to run *Disk 1\Setup.exe*.

    b. Follow the directions, being sure to select "Yes, I want to restart…" in the Setup Complete window.

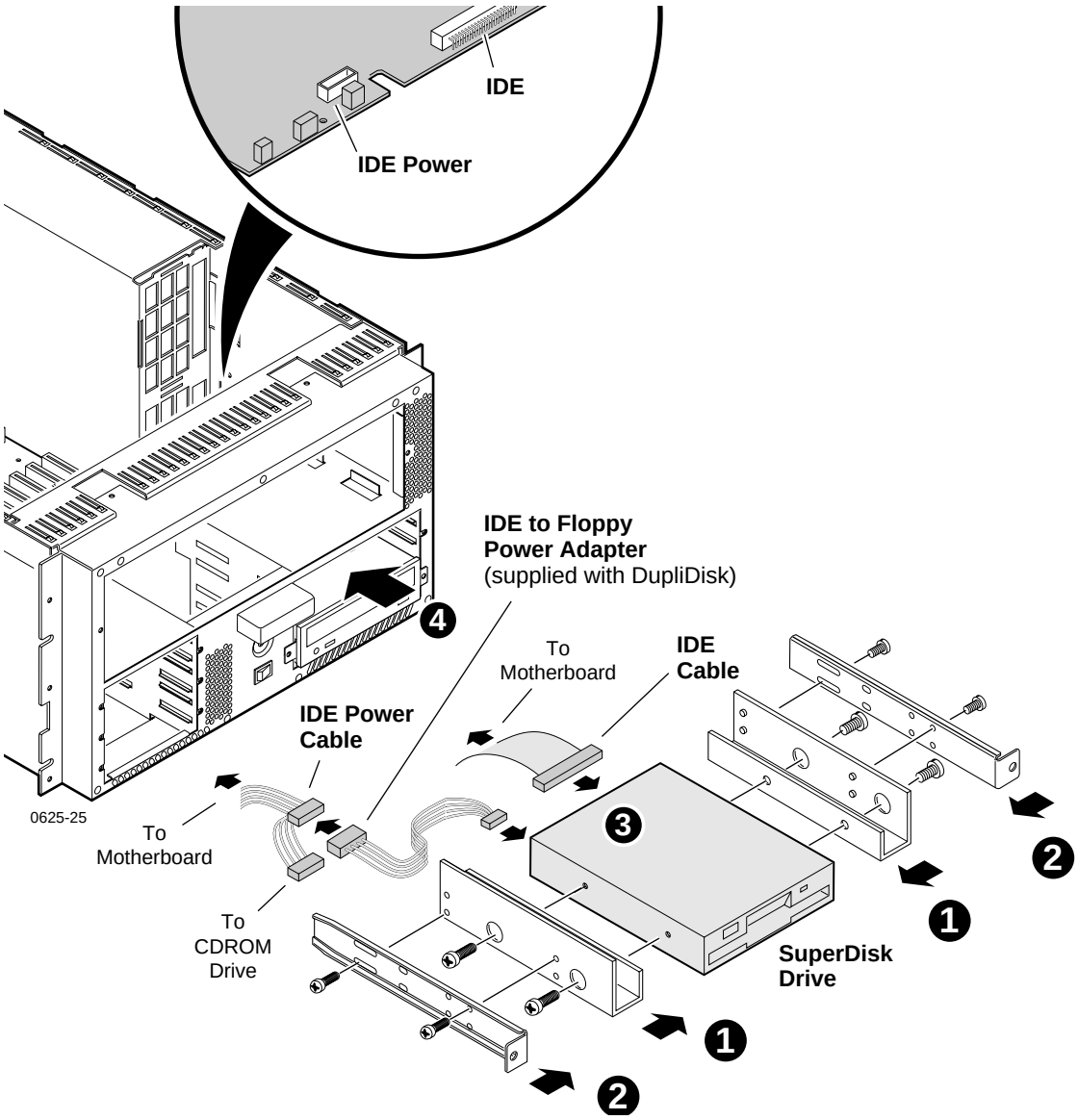
18. Log on as administrator.
19. Start the Configuration Manager.
20. If you have a saved configuration file, open it using **File | Open**.
21. Configure the Profile XP system for Video, Audio, and Fibre Channel to accommodate your needs. Refer to the *Profile XP System Guide* for information about using Configuration Manager.
22. When the configuration is complete, use **File | Save a Copy** to store the configuration in the *C:\profile\config* directory and to floppy disk or a network drive for backup.
23. Reload your application software such as TimeDelay, NetCentral Lite, Toolbox Editor, etc.
24. Reconfigure NetCentral settings including the SNMP Traps. See the *System Software Release Notes*.


Motherboard
IDE Drive
Floppy Drive (Power)
Serial Port
IDE Drive (Power)
Drive Cable Dressing
Primary Drive Cable
Mirrored Drive Cable
Fold primary drive cable first and dress both cables as shown
To Primary Drive
To Mirrored Drive
Fold these cables as shown.
Primary Drive
Mirrored Drive
3
0625-29
To IDE Drive
To Floppy Drive (Power)
Connect these cables to Motherboard.
Red line
Blue Header
1
2
Blue Header
DupliDisk
IDE Drive Power Cabling
To Primary Drive
To Motherboard
To Mirrored Drive
2

Replacing the Superdrive

To replace the Superdrive in the Profile XP chassis:

1. Shut down the Profile XP system and remove the front panel, fan unit, top cover, and air chamber from the Profile XP chassis to allow access to the cable connectors on the motherboard and the back of the drives installed in the bays.
2. Disconnect the IDE ribbon cable and power cable from the drive.
3. Install the 5.25" adapter brackets to the sides of the replacement Superdrive.
4. Slide the Superdrive into the upper 5.25" bay until it seats.
5. Connect the IDE ribbon cable and power cable to the plugs on the rear of the Superdrive.
6. Reinstall the air chamber, the fan unit, the top cover, and the front panel.



Field-replaceable parts

The parts listed in this table are the parts that you can order from Grass Valley and replace on-site.

Description	Part Number
Applications Processor Module (NLX)[a]	039-0081-XX or 115-0002-XX
Ethernet board	039-0087-XX
RS422 board	116-0331-XX
Fibre Channel Network board	116-0836-XX
Power Supply	119-5787-XX
1.44MB Floppy Disk Drive	119-6204-XX
32X CD-ROM Drive	119-6205-XX
IDE Hard Disk Drive, 8.4GB	119-6206-XX
DupliDisk II™ controller board	119-6322-XX
Super drive™ floppy disk drive	119-6323-XX
I/O Panel (RS422, GPI, LTC)	650-4116-XX
Audio board	671-4299-XX
Motherboard	671-4322-XX
SDI 2In/2Out board	671-4537-XX
Video Monitor board	671-4564-XX
MPEG-2 Encoder board	671-4565-XX
MPEG-2 Decoder board	671-4630-XX
Fibre Channel Disk board	671-4668-XX
Fibre Channel Disk II board	671-6426-XX
Video Processor, 2 Channel	671-6410-20
Video Processor, 4 Channel	671-6410-00
Real Time System board (RTP, Ref. In, LTC, GPI)	671-4914-XX[b]
Real Time System II board (RTP, Ref. In, LTC, GPI)	671-6340-XX
SDI 4Out board	671-4958-XX
Dual Power Supply Merge board	671-4782-XX
HD SDI board	671-4975-XX
HD MPEG-2 Encoder board	671-4900-XX
HD MPEG-2 Decoder board	671-4899-XX
Cable Assy, Motherboard - Fan & Power Indicator	174-4023-XX
Cable Assy, Power, Motherboard - IDE Drive	174-4032-XX
Cable Assy, Power Indicator LED	174-4030-XX
Cable Assy, Fault Indicator	174-4031-XX
Cable Assy, 2X20 IDE Drive	174-4039-XX
Cable Assy, Floppy Disk Drive	174-4040-XX
Cable Assy, Power, Motherboard - Floppy	174-4041-XX

Description	Part Number
Cable Assy., Standby/Power Switch	174-4042-XX
Cable, RS422 to I/O Panel	174-4343-XX
Cable, Real Time System board to I/O Panel	174-4344-XX
Top Cover	200-4523-XX
Front Bezel	333-4327-XX
Air Filter, Door	378-0474-XX
Air Filter, Bezel	378-0475-XX
Front Panel Assy.	426-2602-XX
Fan Assy. (Fan tray, three fans, power distribution board)	386-7139-XX
Mouse	119-4330-XX
Keyboard	119-5662-XX
Cable Assy., Fibre Channel Network	
Cable Assy., Fibre Channel, FC Disk to RAID	
Cable Assy., Ethernet	
Cable Assy., Audio board to Audio interface (PAC/XLR/BNC 216)	

[a.] When replacing the system processor board, check the part number on the board and request a replacement board with that number.
[b.] PVS2000 Series requires the -02 or later version of the Real Time System board.

Appendix **A**

Diagnostic Tools

Diagnostic tools available to you for help in localizing and diagnosing problems in the Profile XP Media Platform are:

- NetCentral— NetCentral products monitor a Profile XP Media Platform and provide a diagnostic aid that includes suggestions for resolving or repairing problems. There are three types of NetCentral products that can be used to monitor a Profile XP Media Platform, as follows:
  - NetCentral Lite only monitors the Profile XP Media Platform locally. Refer to the next section, “Using NetCentral Lite” and to the NetCentral Lite Help menu for complete documentation.
  - NetCentral II and III allow monitoring of several types of network-connected equipment—including multiple Profile XP systems—from a remote monitoring station. Refer to the next section, “Using NetCentral Lite”, for documentation on features that are specific to monitoring Profile XP Media Platforms, as these features are similar in NetCentral Lite, NetCentral II, and NetCentral III. Refer to the *NetCentral User Guide* for documentation on generic NetCentral features.
  - NetCentral IV allows monitoring of several types of network-connected equipment—including multiple Profile XP systems—from a NetCentral server PC and its network or Internet connected NetCentral client PCs. Refer to the NetCentral IV Help menu for Device Providers to find documentation on features that are specific to monitoring Profile XP Media Platforms. Refer to the *NetCentral User Guide* for documentation on generic NetCentral features.
- Profile Log Tools—WinTail is a log viewer that allows you to view Profile system logs. Log Capture is a tool that captures the contents of the *c:\profile\logs* directory into a .zip file for transmission to Grass Valley Support.
- Profile XP Diagnostics— A diagnostic suite that checks the functionality of the boards in the Profile XP Media Platform.
- Windows NT diagnostic tools— Provided by Microsoft for use in troubleshooting problems with Windows NT.
- POST— Power-On Self-Test Basic. Tests to assess the initial health of the system as it boots. These are hardware diagnostics found in the CPU boot ROM. Results are displayed on the monitor. If the keyboard LED’s flash, at least the CPU kernel is functional and able to execute code from the BIOS chip.

Using NetCentral Lite

This section documents version 2 of the NetCentral Lite product. Other versions of NetCentral Lite are similar. To view the specific documentation for your version of NetCentral, on the NetCentral main window click **Help | Help Topics**.

NetCentral Lite is the version of NetCentral supplied with every Profile XP media platform. Like full-featured NetCentral, NetCentral Lite alerts you to component failures and maintenance needs, but it monitors only the media platform on which it is running and any directly connected RAID storage.

These are the main NetCentral Lite functions:

- Provide status information for all major subsystems in a Profile XP media platform.
- Alert the user when a subsystem is operating at reduced capacity or is no longer functioning.
- Suggest corrective action for fault conditions.

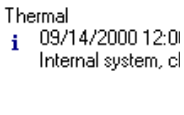
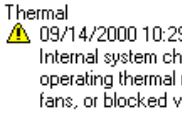
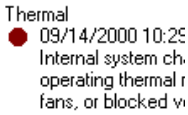
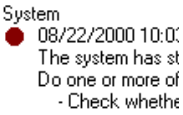
Fault conditions are indicated by Warning or Alarm messages. Warning messages are generated when the Profile XP media platform is no longer operating at optimum level, but it is still able to provide the functionality for which it was configured. Alarms are generated when the Profile XP media platform is no longer functional, either due to a loss of resource or other environmental changes. Both Warning and Alarm messages are accompanied by actions such as sounding a beeper, triggering a GPI port, etc. NetCentral allows you to configure the actions that it takes in response to fault conditions.

Interpreting status indicators

NetCentral Lite categorizes any information it receives from the media platform as one the following status levels. These status levels and the icons that represent them are as follows:

Normal	No icon	The media platform is operational as designed. No faults or status changes have been detected.
Normal Informational		The media platform has returned to normal or has experienced a change in status within normal operating parameters.
Warning		The media platform has a reduced ability to function and may fail soon, but at the current moment it is still operating within specifications as designed.
Alarm		The media platform has ceased to operate or is currently operating with severely hampered functionality. The media platform is not operating within specifications as designed.

NetCentral Lite indicates these status levels throughout the interface, using the following icons, colors, animations, and actions:

	Normal	Warning	Alarm	Dead or Off-line
System tray icon	 Green color block	 Red color block	 Red color block	 Red color block
Main window device view				
Main window subsystem view				*Not Applicable*
Main window message view				
Default Actions (Read “Configuring actions and notifications” on page 138 for more actions)	*No action*	The main window appears and a warning beep sounds	The main window appears and an alarm beep sounds.	The main window appears and an alarm beep sounds.

The following sections contain more detailed information about status indicators.

Viewing the system tray icon

As long as NetCentral Lite is running, you will see an icon in the system tray of your Windows task bar. The moving color in the icon provides visual confirmation that the system is operational, using these colors to indicate device status level:

Green = Normal

Red = Warning

Red = Alarm/Dead or Off-line

Starting and stopping NetCentral Lite

To start the NetCentral Lite software, double-click the NetCentral icon on your Windows NT desktop or select **Start | Programs | NetCentral**.

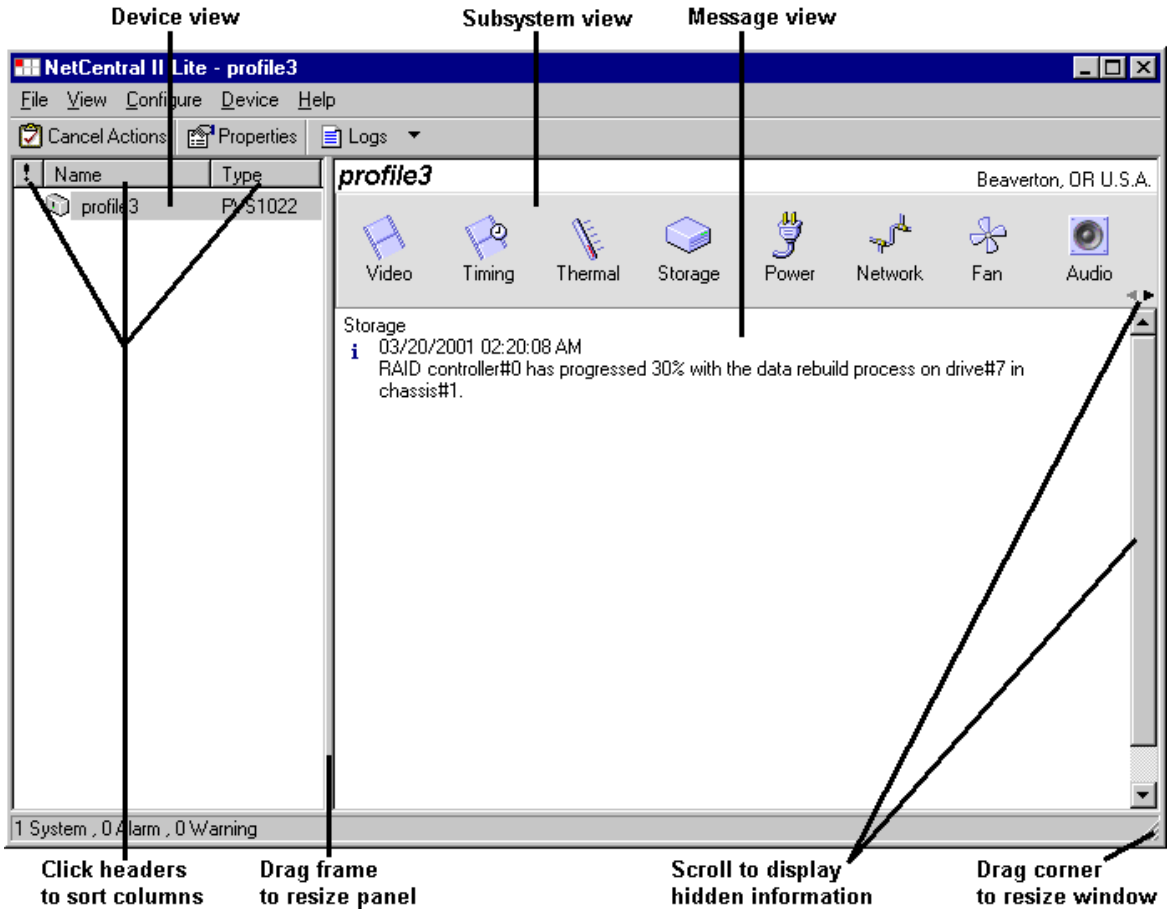
To stop NetCentral Lite from the NetCentral Lite window, click **File | Exit**.

To stop NetCentral Lite from the system tray icon, right-click the icon and choose **Exit**.

Viewing the NetCentral Lite main window

This section documents NetCentral II Lite. For NetCentral III Lite click **Help | Help Topics** to view similar documentation.

Similar to Windows Explorer, the information in the window is organized into different views which can be manipulated as shown here:



Profile XP status is indicated within the different views as follows:

Device View This panel lists the Profile XP Media Platform being monitored by NetCentral Lite. A status indicator appears beside the icon for the device if the status is not normal. Alarms and warnings are sorted to the top automatically. A right-click in the device view opens the Device menu.

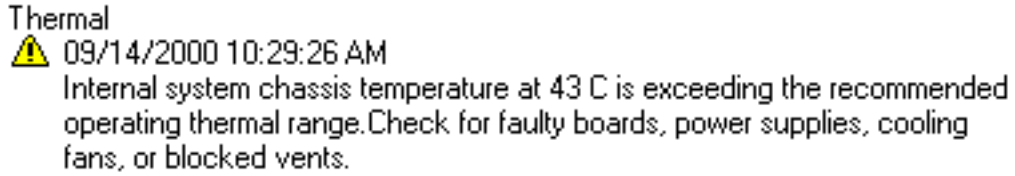
Subsystem view This icon bar displays an icon for each subsystem of the media platform. A status indicator appears on an icon if the status is not normal. Subsystems indicating alarms or warnings are sorted to the left automatically.

Message view This area displays text information about the Profile XP Media Platform. The text explains the most recent status change and gives suggestions for corrective action, if corrective action is necessary. A status indicator icon appears beside the message. Alarms and warnings are sorted to the top automatically.

Responding to messages

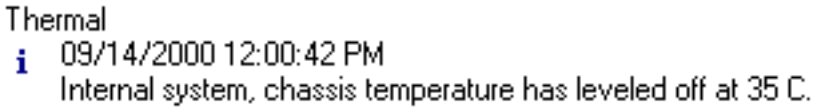
NetCentral Lite notifies you immediately if your media platform reaches a status-level of alarm or warning by popping up the main window and sounding an audible beep. Other actions can be triggered as well, such as sending an e-mail message. For information on triggering other actions, see “Configuring actions and notifications” on page 138

The message displayed in the NetCentral Lite window offers suggestions as to what you might do to resolve the condition that triggered the warning or alarm, as in the following example:



In most cases you will want to act immediately to resolve warning or alarm conditions. Refer to the appropriate section in this manual.

Once the condition is resolved, NetCentral Lite will send an informational message to notify you that the device has returned to normal status, as in the following example:



To clear alarms

To turn off beeps, click the **Cancel Actions** button or choose **File | Cancel Actions**. This turns off the audible alarm while you take steps to correct the problem.

Once the action has been cancelled or is finished, the only indication that the warning or alarm condition still exists will be the color of the system tray icon and the message and status icons on the NetCentral Lite window. NetCentral Lite itself will not send messages or trigger actions again to remind you of a current warning or alarm condition. However, with the “Resend Messages” feature on the Profile XP Media Platform, that you can configure to have the Profile XP system send a message again for an unresolved condition.

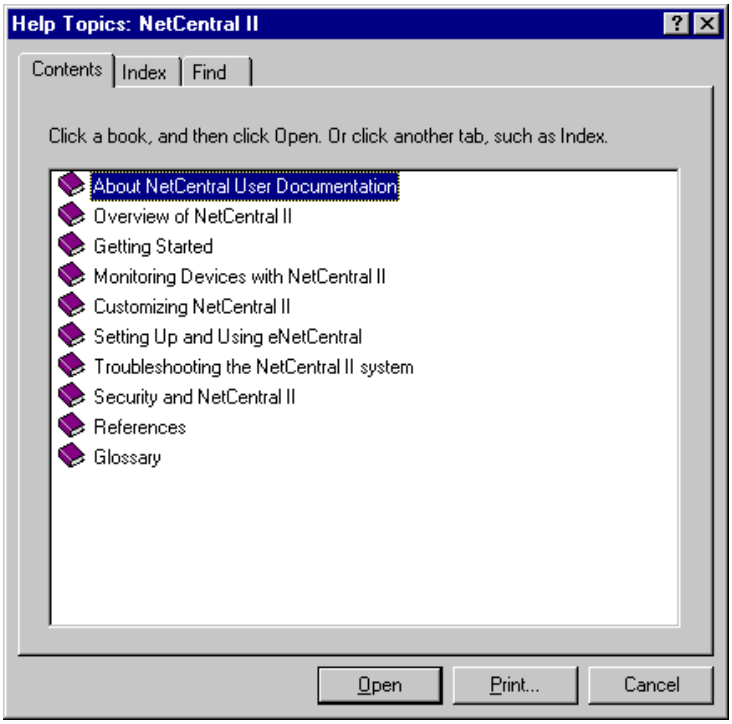
If some messages become troublesome because they are too frequent or unimportant, you can set the NetCentral II system to always ignore certain messages. For more information, see “Ignoring messages” on page 137.

To clear informational messages

Since normal informational messages persist in the NetCentral II system window as long as the status condition remains normal, you may accumulate obsolete messages from problems resolved long ago. If want to clear informational messages, click **Device | Clear Information Messages**. This will remove all informational messages from the window for the device currently selected. However, messages cleared in this way are *not* removed from the NetCentral log.

Getting help with NetCentral Lite

To use the Help system, select **Help | Help Topics**. Although developed for the full-featured NetCentral, the Help system can provide answers to most questions about using and configuring NetCentral Lite.



Launching the Profile XP Configuration Manager

To launch the Profile XP Configuration Manager application while using the NetCentral Lite main window, select **Device | Launch Configuration Application.** Refer to the *Profile XP System Guide* for information about using the Configuration Manager application.

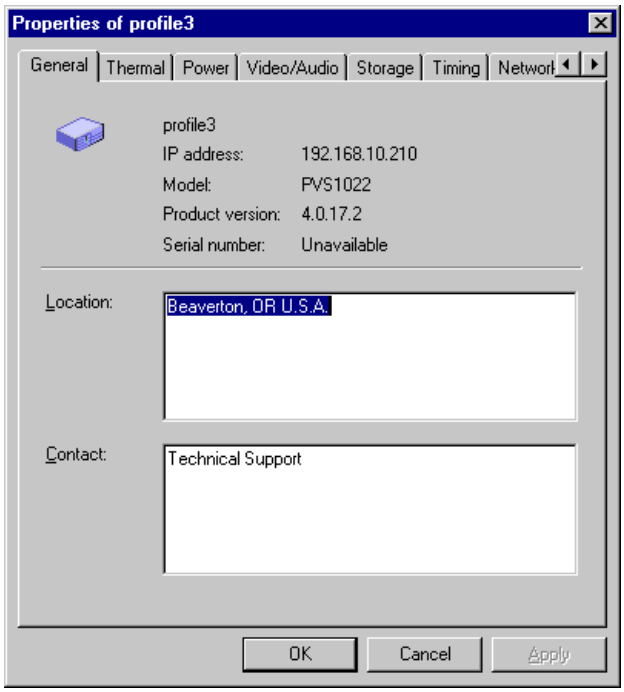
Viewing subsystem properties

To display the properties for a subsystem, click on the icon displayed in the subsystem view.

You can also display subsystem properties by clicking on the **Properties** button in the tool bar or by choosing **Device | Properties**. Then click on the tab for the subsystem properties panel you want to view.

To view general properties, address, and location

1. Click the **Properties** button in the tool bar or choose **Device | Properties**. The Properties dialog box appears.
2. Choose the **General** tab.
   The General properties panel displays information about the media platform, such as the model number, serial number, IP address, physical location, and product version number.

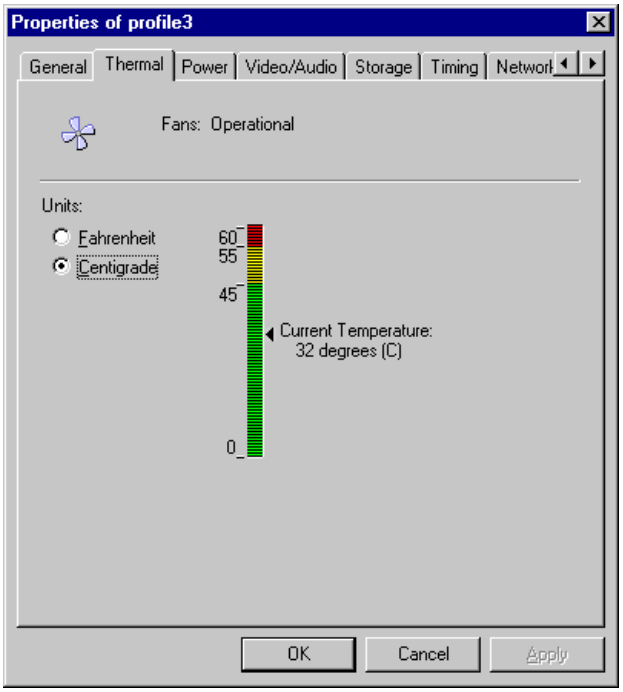


3. In the Location and Contact boxes, you may fill in the information appropriate for the media platform.

To view Thermal properties

1. Select the **Thermal** tab in the Properties window.
2. Select Fahrenheit or Centigrade units for temperature reporting.

The Thermal properties panel shows you the current operating temperature of the media platform. The green area on the thermometer shows the safe range of operating temperatures, the yellow area shows the temperature range in which NetCentral Lite sends a Warning message, and the red area shows the temperature range that generates an Alarm message.

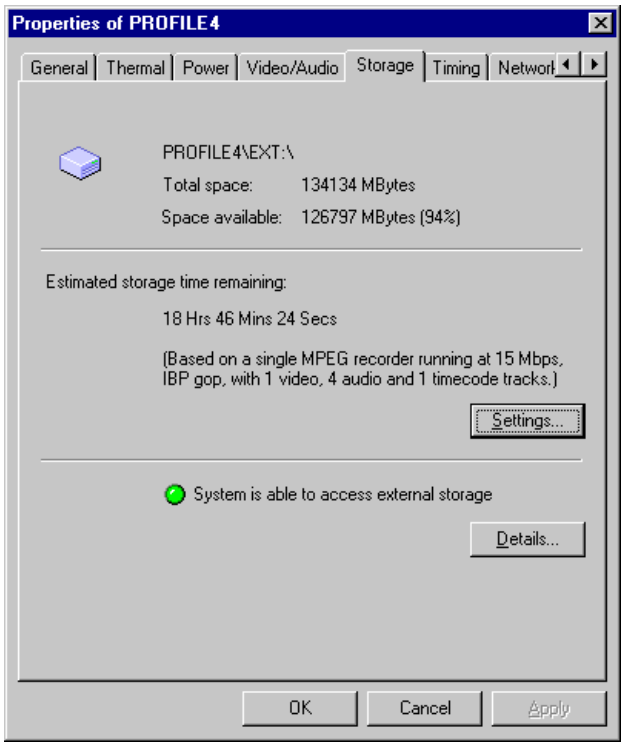


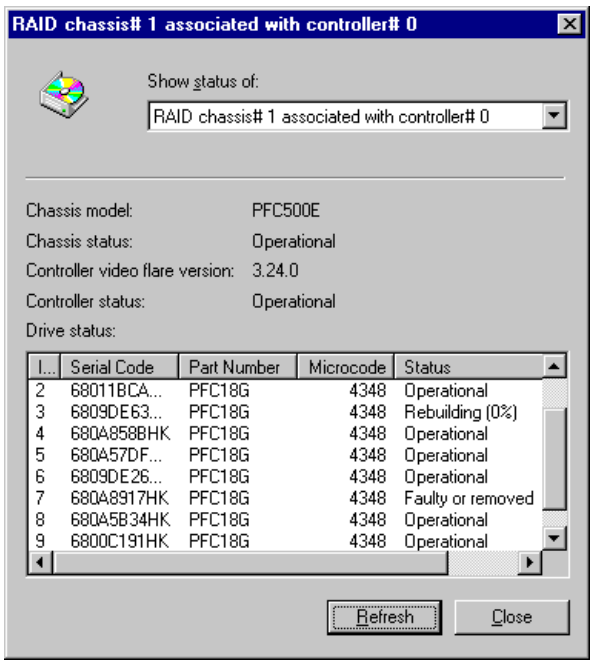
To view Storage properties

1. Select the **Storage** tab in the Properties window.
2. Click **Details**.

NOTE: To learn how to view PFR Series storage details, refer to "Monitoring PFR 500/600 Series storage with NetCentral" on page 62 and "Monitoring PFR 700 Series storage with NetCentral" on page 64. PFR Series storage details are not available through the Profile XP device provider interface.

3. In the **Show Status** entry box, enter the number of the Fibre Channel RAID Chassis or select a number from the pull down menu.

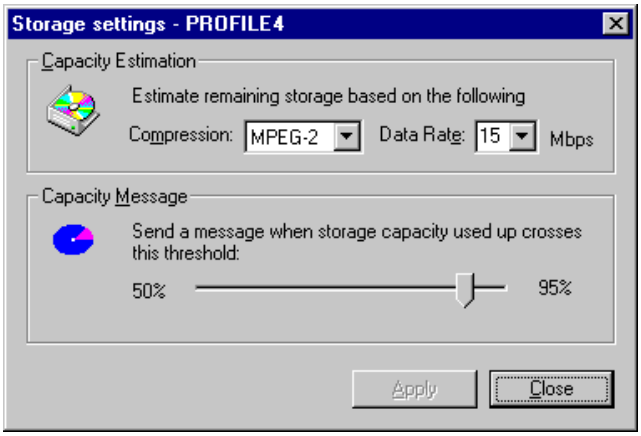

Properties of PROFILE4
General
Thermal
Power
Video/Audio
Storage
Timing
Networl
PROFILE4\EXT:\
Total space: 134134 MBytes
Space available: 126797 MBytes (94%)
Estimated storage time remaining:
18 Hrs 46 Mins 24 Secs
(Based on a single MPEG recorder running at 15 Mbps, IBP gop, with 1 video, 4 audio and 1 timecode tracks.)
Settings...
System is able to access external storage
Details...
OK
Cancel
Apply


RAID chassis# 1 associated with controller# 0
Show status of:
RAID chassis# 1 associated with controller# 0
Chassis model: PFC500E
Chassis status: Operational
Controller video flare version: 3.24.0
Controller status: Operational
Drive status:
I... Serial Code Part Number Microcode Status
2 68011BCA... PFC18G 4348 Operational
3 6809DE63... PFC18G 4348 Rebuilding (0%)
4 680A858BHK PFC18G 4348 Operational
5 680A57DF... PFC18G 4348 Operational
6 6809DE26... PFC18G 4348 Operational
7 680A8917HK PFC18G 4348 Faulty or removed
8 680A5B34HK PFC18G 4348 Operational
9 6800C191HK PFC18G 4348 Operational
Refresh
Close

To set storage time remaining estimate perimeters:

1. Select the **Storage** tab in the Properties window.
2. Click **Settings**.
3. The storage time remaining estimate is based on the values that you enter in the Disk Capacity setting as shown below.

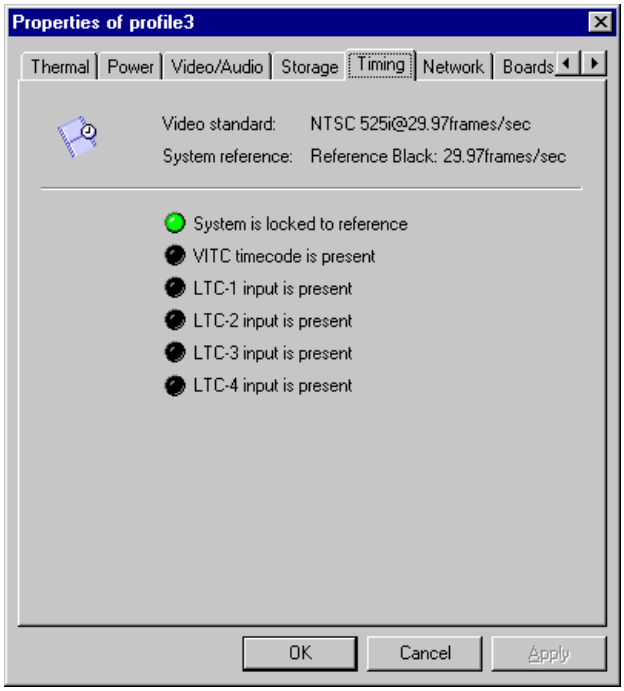
   Select the compression method and data rate being used by the media platform to allow NetCentral to accurately estimate the remaining storage capacity in the RAID storage subsystem.
4. Use the slider to set the “storage capacity used” threshold used to trigger a disk capacity warning message, then click **Apply**.



To view Timing properties

- Select the **Timing** tab in the Properties window.

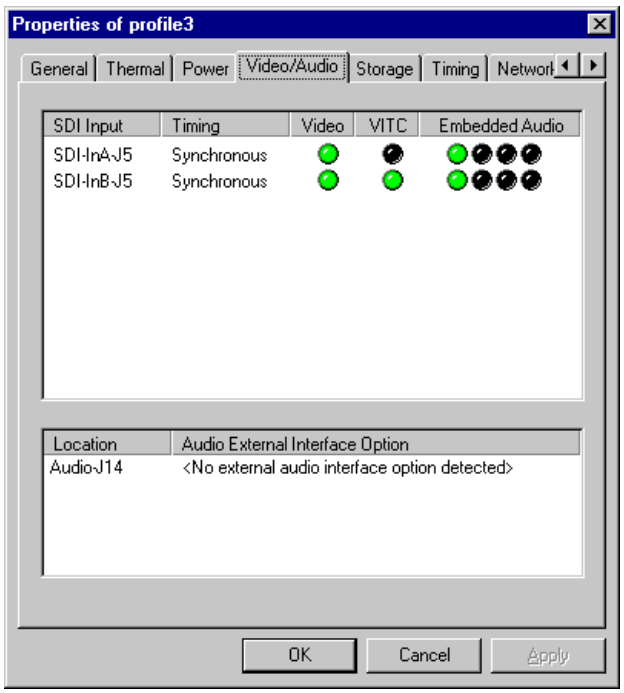
This panel reports the video standard in use (NTSC or PAL), and indicates with green "lights" when the system is locked to the reference, and when VITC and LTC timecodes are present.



To view Video and Audio properties

- Select the **Video/Audio** tab in the Properties window

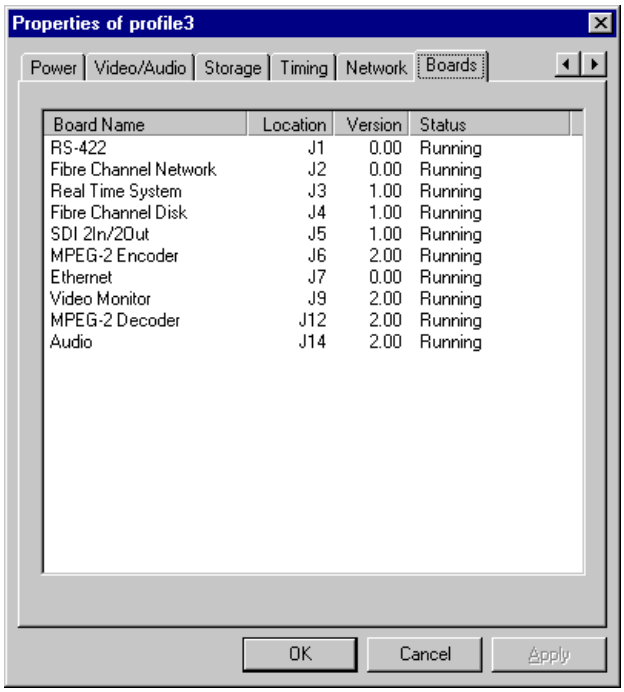
Video properties are displayed in the upper portion of the panel, and Audio properties in the lower portion. The green lights indicate which signals are present.



To view Board Status

- Select the **Board Status** tab in the Properties window.

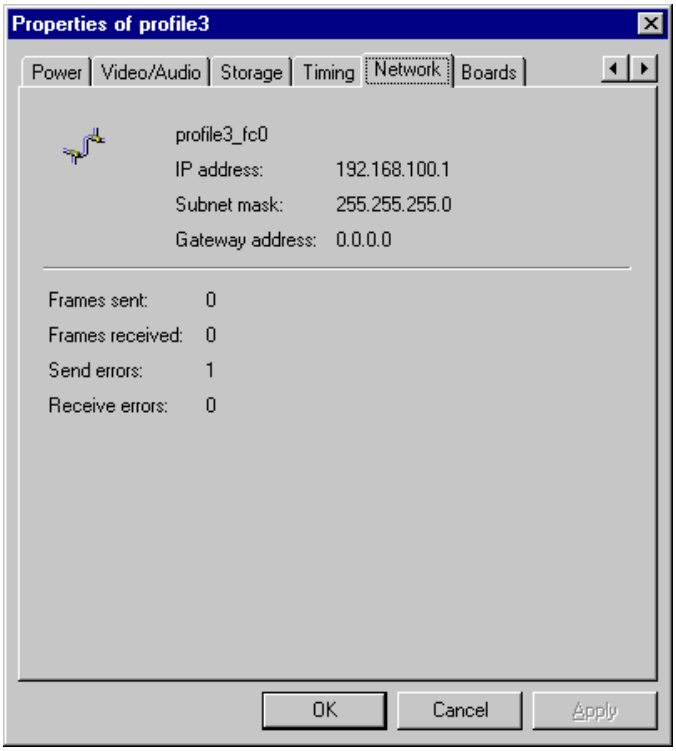
This panel lists the boards that are installed in the Profile XP media platform, the slot in which each is installed, version of the board installed, and its current status.



To view network properties

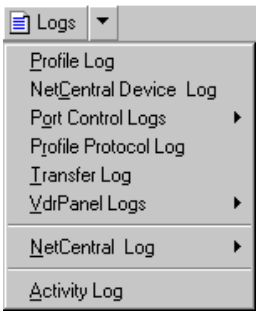
- Select the **Network** tab in the Properties window.

This panel lists the fibre channel network properties for the Profile XP Media Platform. Use the Configuration Manager program to set or change these properties. Information for doing this can be found in the *Profile XP System Guide*.



Viewing logs

To view logs with NetCentral Lite, click the **Logs** button in the tool bar or click **View** and choose the log you want.



Configuring messages

Monitoring station initiated messages are controlled from within the NetCentral software. An example of this type of message is when the Profile XP system responds to the NetCentral software's heartbeat polling. You can configure heartbeat polling as explained in the next section.

Device initiated messages are controlled on each device. This type of message is sent when a threshold condition occurs on a device and the status of the device changes. You configure the sending of these messages by setting the parameters for the threshold conditions.

Setting heartbeat polling

To make sure that devices are still "alive" and capable of communicating their status, the NetCentral manager software periodically broadcasts "ping" type messages which request a response from the agent. In this way NetCentral Lite is doing a poll to check the "heartbeat" of the media platform. If NetCentral Lite receives a response, it does not display any messages or trigger any actions. However, if it does *not* receive a response, this indicates a potential problem, so it checks again. If further checks still do not get a response from the agent software, the media platform is declared dead or off-line and NetCentral Lite triggers alarm-level actions to notify you of the condition.

You can configure heartbeat polling by adjusting the following settings:

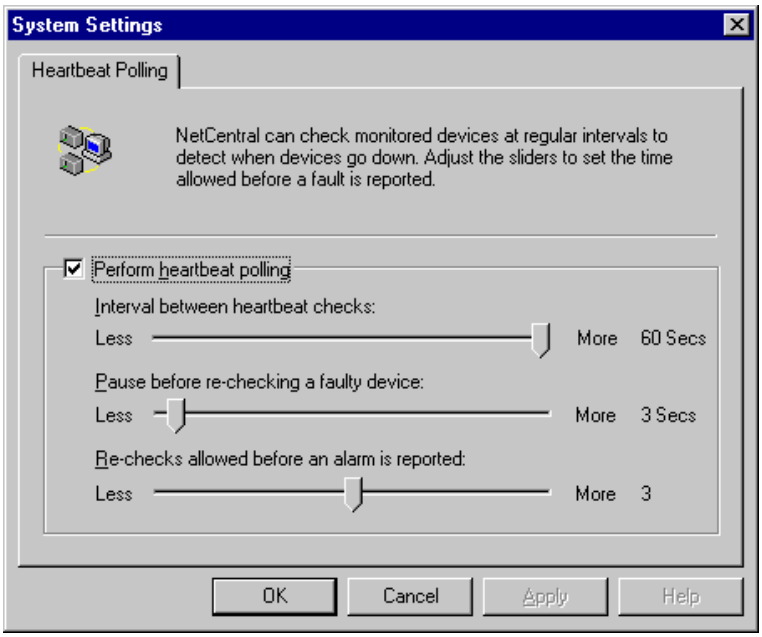
- Interval between heartbeat checks the period of time that NetCentral Lite waits between the routine checks for the heartbeat of the media platform.
- Pause before re-checking a faulty device the period of time that NetCentral Lite waits before it re-checks after the media platform does not respond.
- Re-checks allowed before an alarm is reported the number of times that NetCentral Lite software re-checks an unresponsive media platform before displaying the "Dead or off-line" message and triggering alarm-level actions.

When you adjust these settings, you are adjusting the time allowed for a momentary loss of contact before triggering an alarm. For example, if your network commonly experiences minor drop-outs that do not necessarily threaten the health of your devices or systems, you will not want a false alarm every time there is a slight glitch. In this case you would move the sliders to the right to allow more time for a brief lapse in contact to be restored, meaning an alarm would go off only when there is no response from a device for a significant length of time. On the other hand, if your system is highly critical and you need to know immediately of the slightest indication of a problem, you would move the sliders to the left to allow less time, meaning that even a very brief loss of contact would trigger an alarm.

NOTE: These settings could effect the performance of your network. Settings that cause the polling dialog between the monitoring station and each device to occur more frequently will increases the amount of network traffic.

To set parameters for heartbeat polling

1. Choose **Configure | System Settings**. The System Settings dialog box appears.



2. As indicated by the interface text, adjust the sliders to set the time allowance NetCentral Lite exercises before it declares a system off-line. Set the “Interval between heartbeat checks” slider so that NetCentral Lite checks often enough to give you adequate notification of a problem, but not so often that it unnecessarily increases the traffic on your network. Use similar considerations as you set the other sliders.
3. If you want to temporarily disable NetCentral Lite’s heartbeat polling, uncheck the Perform heartbeat polling check-box. Do not disable heartbeat polling in this way if you are actively depending on NetCentral Lite for critical device monitoring.
4. When you are satisfied with your settings, click the **Apply** button to put the settings into effect and leave the dialog box open, or click the **OK** button to save the settings and close the dialog box.
5. Stop and restart the NetCentral software to put your changes into effect.

Ignoring messages

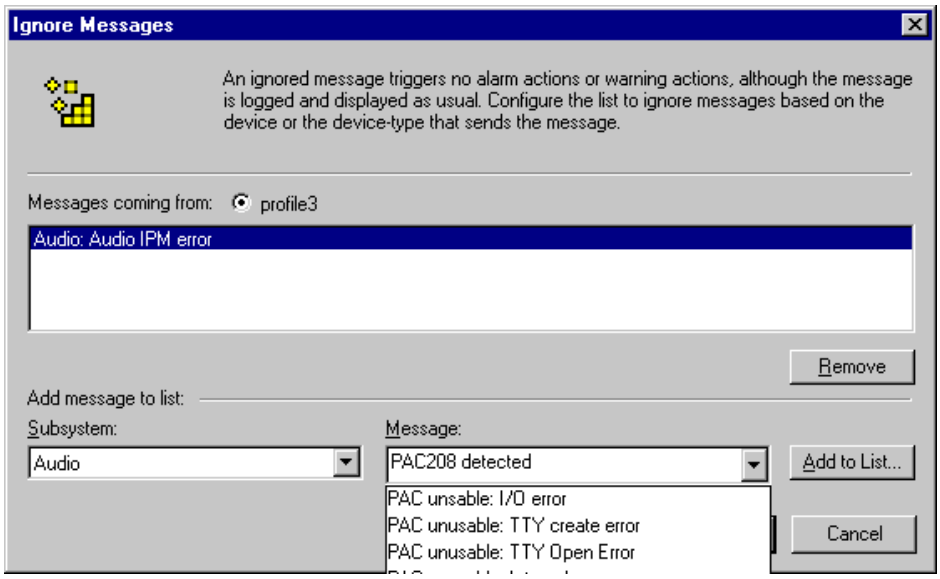
This section documents NetCentral II Lite. For NetCentral III Lite click **Help | Help Topics** to view similar documentation.

If you find that some messages are not necessary, you can have NetCentral Lite selectively ignore messages. For example, if a project requires frequent changes in the timing parameters on your Profile XP Media Platform, you might want to have NetCentral Lite ignore the “System timing out of sync” messages, yet continue to monitor for other messages.

When NetCentral Lite ignores a message, it does not trigger any actions for that message. However, NetCentral Lite still displays the message and any status indicators in the NetCentral Lite window, as well as logging the message to the NetCentral log.

To ignore a message

1. Choose **Device | Ignore messages**. The Ignore Messages dialog box opens.



2. Select the **Message coming from** option to ignore messages coming from the media platform.
3. In the Subsystem list, select the subsystem that sends the message you want ignored.
4. In the Message list, select the message that you want ignored. Only alarm-level and warning-level messages are listed here.
5. Click the **Add to List** button. The message appears in the list.
6. Compile a list of the messages that you want ignored, using the Add to List button and the Remove button. As you add messages, the dialog box will disable on the drop-down list the messages already added to help you avoid conflicts in the rules you are configuring.

7. When you are satisfied with your settings, click the **OK** button to put the settings into effect and close the dialog box.

Configuring actions and notifications

You can configure NetCentral Lite to trigger one or more actions whenever it receives an alarm or warning message. For each action that is triggered, you can also set unique properties. In this way you can trigger the same type of action multiple times, but set the properties differently for each action. This is useful for multiple notifications, such as sending e-mail to several different addresses. By configuring actions and properties in this way you can create a customized set of notifications for alarms and another customized set for warnings.

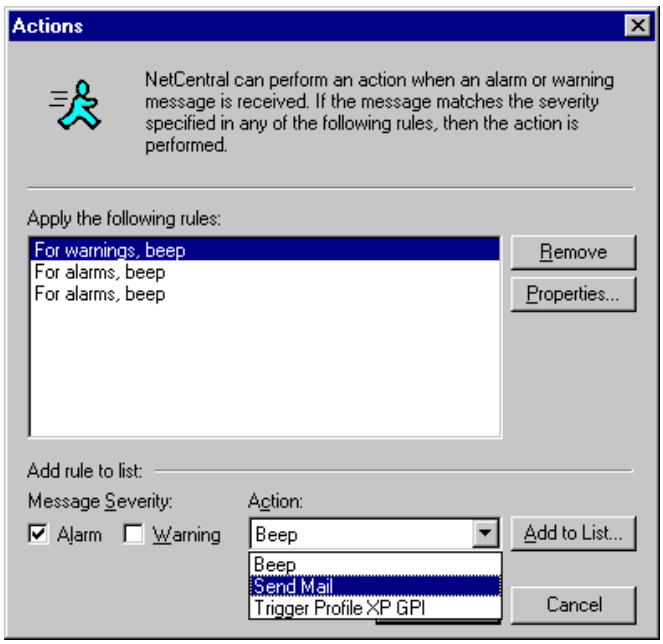
Adding and modifying actions

This section documents NetCentral II Lite. For NetCentral III Lite click **Help | Help Topics** to view similar documentation.

All actions and properties are configured from the Actions dialog box or the Actions Wizard. Since the properties are different for each type of action, they may require some special preparations, such as procuring a sound file or a program. Read the explanation for each type of action to determine if you need to do some preparations before you can add a particular action.

To add an action

1. Choose **Configure | Actions** or **Actions | Set Actions.** The Actions dialog box or the Actions Wizard opens. Follow the on-screen instructions to add an action, as follows for the Actions dialog box.



2. As indicated by the interface text, create a rule for this action by selecting Alarm, Warning, or both. Then, in the Action list, select the type of action that you want performed.

3. Click the **Add to List** button. The properties dialog box appears for the type of action you have selected. Configure the properties and test as desired. Read the explanation later in this section for information about configuring properties and testing for the type of action you have selected.
4. When you are satisfied with your settings, click the **OK** button to close the properties dialog box and add the action to the list in the Actions dialog box.
5. Continue to add actions as desired. When you are done adding actions, click the **OK** button to save the actions and close the Actions dialog box.

To modify or remove an action

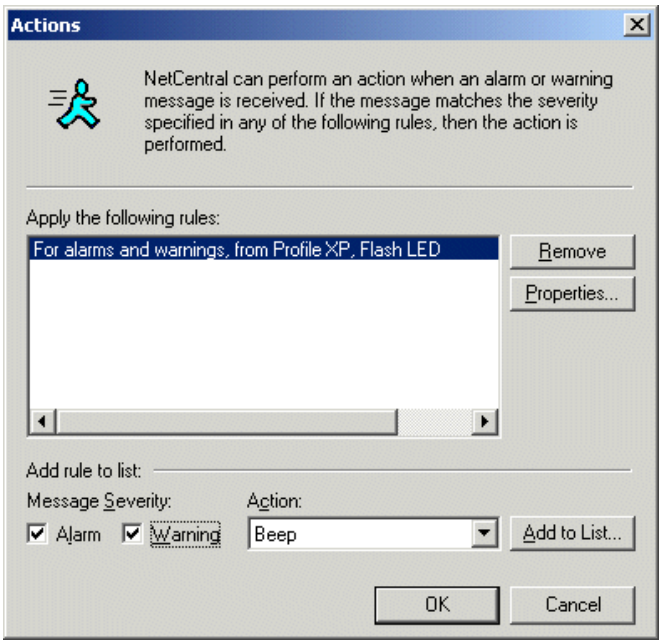
1. Choose **Configure | Actions**. The Actions dialog box appears.
2. In the list, select the action that you want to modify or remove.
3. Click the **Properties** button to open the action's properties dialog box for modification or click the **Remove** button to delete the action from the list.
4. Click the **OK** button to save your changes and close the Actions dialog box.

Controlling the front panel LED

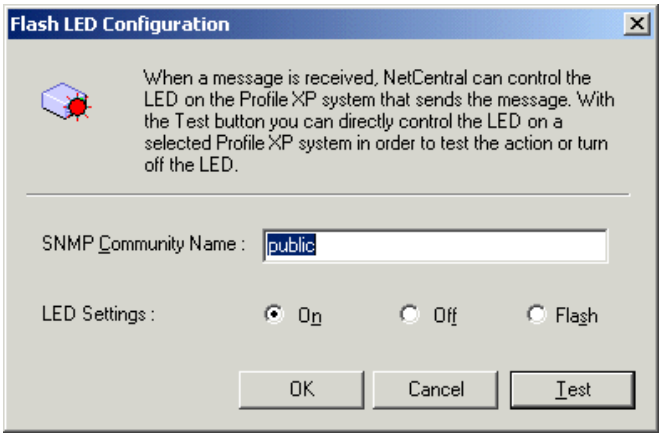
You can configure the LED on the front panel of the Profile XP Media Platform to flash whenever an alarm or warning condition occurs, as explained in this section.

Configuring the Flash LED action

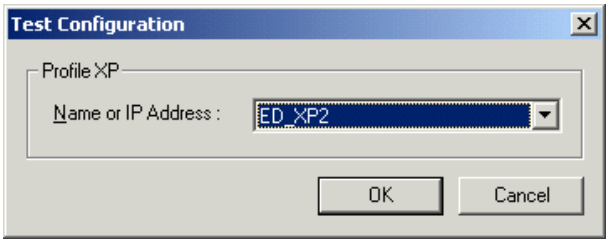
1. In the NetCentral main window, click **Configure | Actions** or **Actions | Set Actions**. The Actions dialog box or the Actions Wizard opens. Follow the on-screen instructions to add the action, as follows for the Actions dialog box.



2. As indicated by the interface text, create a new rule for this action by selecting Alarm or Warning. Then, in the Action list, select **Flash LED**.
3. Click the **Add to List** button. The Flash LED Configuration dialog box opens.
4. Select the rule and click **Properties**. The Flash LED Configuration dialog box opens.



5. If your environment uses unique SNMP community names, enter the appropriate SNMP community name. Otherwise, accept "public" as the default name.
6. Select the option that controls the LED as desired. In most cases you will select "On" or "Flash" to activate the LED for alarms or warnings.
7. Click **Test**. The Test Configuration dialog box opens.



8. Select the name of your Profile XP Media Platform and click **OK** on the dialog box and on the "…triggered successfully…" message that appears. The Firing Action dialog box appears.

9. After you have verified that the LED is behaving correctly as configured, click **Stop** on the Firing Action dialog box. You can also turn off the LED by clicking **Cancel Actions** on the NetCentral Lite main window.

Sending e-mail and pager notifications

This section documents NetCentral II Lite. For NetCentral III Lite click **Help | Help Topics** to view similar documentation.

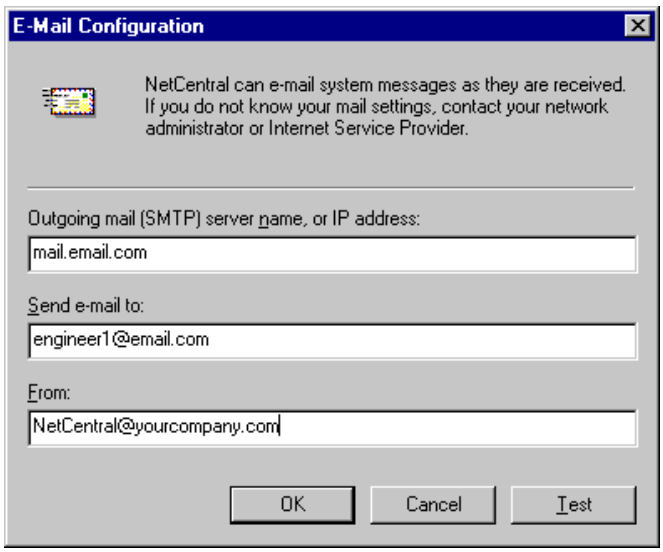
The **Send Mail** action is the only e-mail action available in NetCentral Lite. This action sends the full text of the alarm or warning message as e-mail to the address that you specify. In order to configure properties and add this action, prepare the following information:

- The Simple Mail Transfer Protocol (SMTP) server name or IP address for the server that will send e-mail *from* the media platform. Do not confuse this with IP addresses used for Simple Network Management Protocol (SNMP) configuration elsewhere to send SNMP messages *to* the manager software.
- The e-mail address to which you want to send the message.
- The e-mail address that you want to appear on the "From" line of the e-mail sent from NetCentral Lite.

You can also use this action to notify a pager or cell phone if the pager or cell phone service is able to accept e-mail messages. One example of an address to which you might send an e-mail is (501)234-5678@mobil.telco.net. Remember that many pager systems limit the number of characters allowed in a message, so not all of the alarm message would be transmitted if it exceeds that number.

To configure properties for sending e-mail

1. Choose **Configure | Actions** or **Actions | Set Actions**, create a rule for the Send Mail Action, and click the **Add to List** button as explained in "To add an action" on page 138. The E-mail Configuration dialog box appears.



2. As indicated by the interface text, enter the e-mail and server address information.
3. Click the **Test** button to send a test message to the recipient. A message box will be displayed to report the results of the e-mail test.
4. When you are satisfied with your settings, click the **OK** button to close the dialog box and save your settings.

Playing a beep

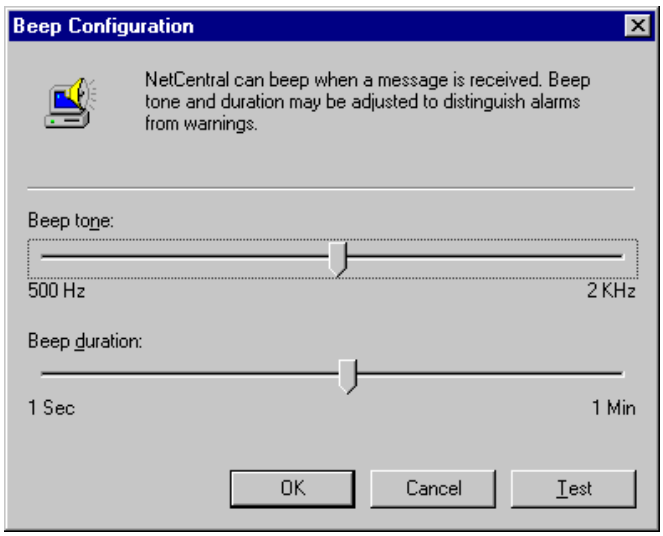
This section documents NetCentral II Lite. For NetCentral III Lite click **Help | Help Topics** to view similar documentation.

When you add the Beep action, NetCentral Lite automatically plays a beep on the monitoring station PC. By setting the tone and duration of the beep you can create audible alerts that are distinguishable as either an alarm or a warning.

In order to configure properties and add this action, you do not need to make any special preparations, since NetCentral Lite uses the monitoring station PCs built-in beep sound.

To configure properties for playing a beep

1. Choose **Configure | Actions** or **Actions | Set Actions**, create a rule for the Beep action, and click the **Add to List** button as explained in "To add an action" on page 138. The Beep Configuration dialog box appears.



2. Adjust the sliders for tone and duration to create an identifiable sound.
3. Click the **Test** button to hear a test of the sound that you have created.
4. When you are satisfied with your settings, click the **OK** button to close the dialog box and save your settings.

Running a program

This section documents NetCentral II Lite. For NetCentral III Lite click **Help | Help Topics** to view similar documentation.

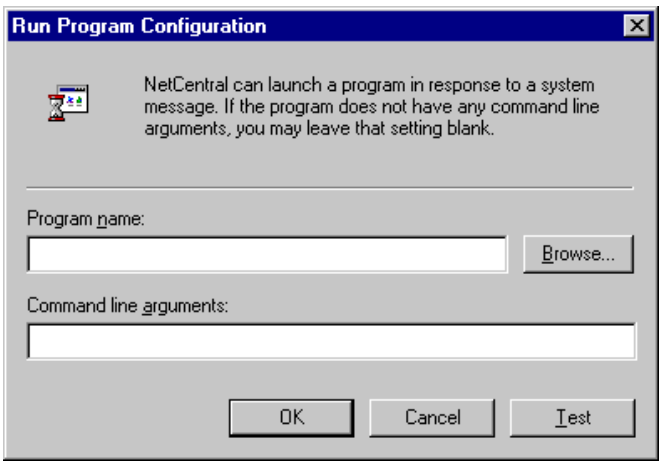
When you add the Run Program action, NetCentral Lite automatically executes a program of your choice.

In order to configure properties and add this action, you will need make the following preparations:

- Procure or create your program. The program must be Win32 executable.
- Make note of command line arguments (if any) that you want NetCentral Lite to pass to your program.
- Place your program on the hard drive of the monitoring station PC or on a mapped network drive with a consistent, reliable connection.
- Make note of the location and name of your program.

To configure properties for running a program

1. Choose **Configure | Actions** or **Actions | Set Actions**, create a rule for the Run Program action, and click the **Add to List** button as explained in "To add an action" on page 138. The Run Program Configuration dialog box appears.



2. As indicated by the interface text, enter the full path and name of your program, or click **Browse** and navigate to your program using the Open dialog box.
3. In the Command line arguments box enter any arguments that you want NetCentral Lite to pass to your program.
4. Click the **Test** button to do a test execution of your program.
5. When you are satisfied with your settings, click the **OK** button to close the dialog box and save your settings.

Triggering Profile XP GPI outputs

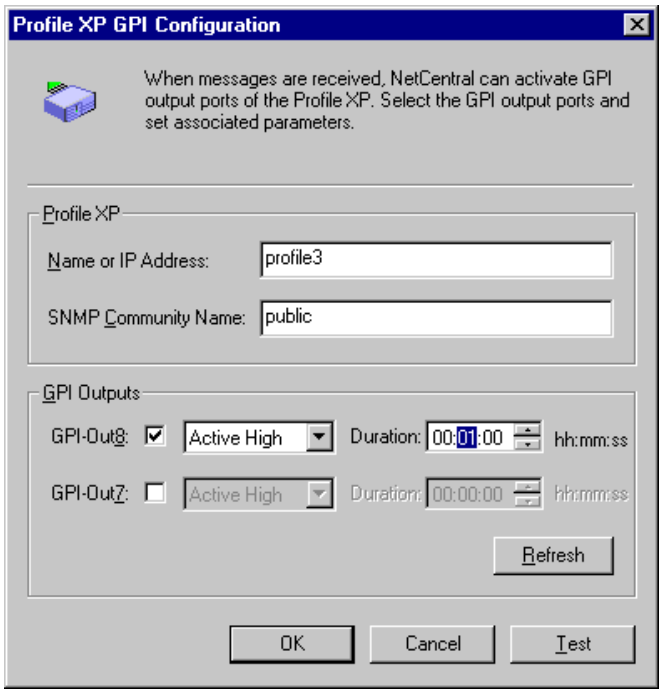
Two outputs, GPI-OUT 7 and GPI-OUT 8, are available for use by NetCentral Lite. If you use only one GPI output, use GPI-OUT 8. By triggering a GPI output, you can activate an external alarm or indicating device when an Alarm or Warning condition occurs.

In order to configure properties and add this action, you will need make the following preparations:

- Have the Profile XP machine name or IP address, and the SNMP community name available.
- Know the input requirements, active-high or active-low, for the device you are connecting to the GPI output.
- Determine in advance the length of time the GPI output needs to remain active.

To configure properties for triggering GPI outputs

1. Choose **Configure | Actions** or **Actions | Set Actions**, create a rule for the Trigger Profile XP GPI Action, and click the **Add to List** button as explained in "To add an action" on page 138. The Profile XP GPI Configuration dialog box appears.



2. Verify that the Profile XP and SNMP community names are correct. Change them if necessary.
3. Click the check box for one or both of the GPI ports you plan to use.
4. Set each output to be Active High or Active Low depending on the requirements of the device attached to the output.
5. Set the Duration for the period of time that you want the output to remain active.
6. Click **Test** to check the operation of the output and the device attached to it.

7. Click **OK** when you are finished configuring the GPI outputs.
8. Restart the system.

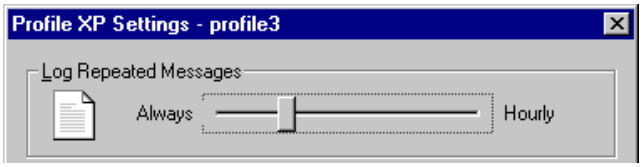
You can test the GPI outputs by using the **Test** button.

If you re-install Profile System Software, you must reconfigure the GPI outputs. If you allocate GPI outputs 7 and 8 for use by some other application, you must restart the Profile System.

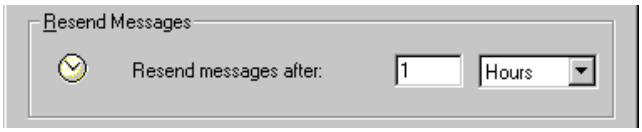
Making settings for a Profile XP system

Select **Device| Device Options** to make the following settings that determine how NetCentral Lite monitors the media platform. Click the **Apply** button to put the settings into effect.

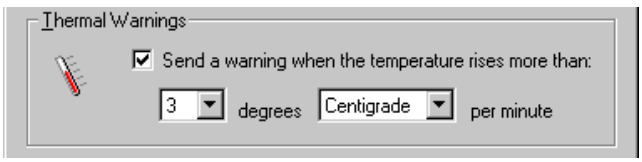
Log Repeated Messages — Adjust the slider to set how frequently NetCentral will send a repeated message to a log file. Use this feature to prevent log files from filling up with routine messages.



Resend Messages — Specify the amount of time for correcting a problem before an Alarm message is re-sent for that problem.



Thermal Warnings — Enable by clicking in the check-box, then specify the rate of temperature increase at which NetCentral sends a Warning message.



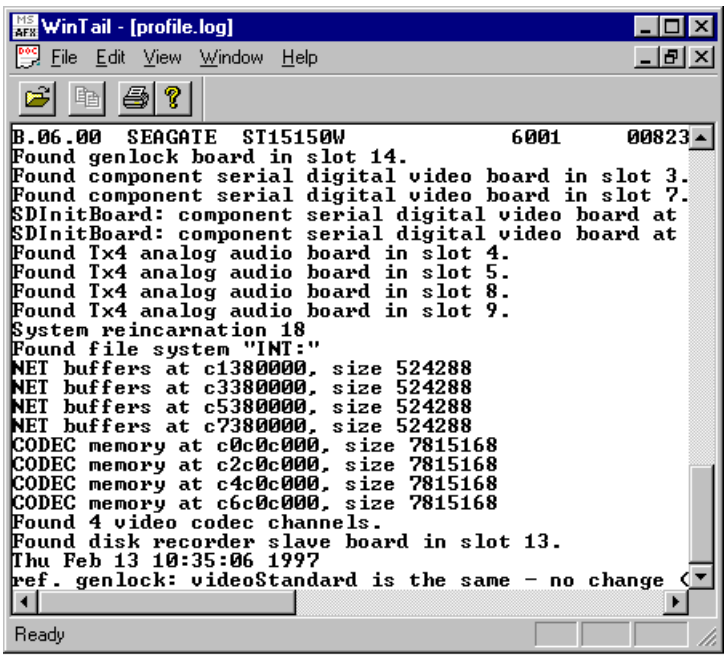
Profile log tools

This section shows you how to view Profile logs with WinTail and capture Profile logs with the log capture tool.

Viewing Profile logs with WinTail

You can view Profile system logs with the graphical log viewer WinTail. (WinTail is the log-viewing tool used by NetCentral to view logs.) This log viewer allows you to see the end of a log file. The Profile system logs that you can view with WinTail are located in the *c:\profile\logs* directory and have the *.000* file extension. To view any of the Profile system log files:

1. Double-click on the Profile Log shortcut icon on the Windows NT desktop or choose **Start | PDR Applications | Profile Log**. By default, the WinTail application views *profile.log*. WinTail automatically checks log files for updates every two seconds.



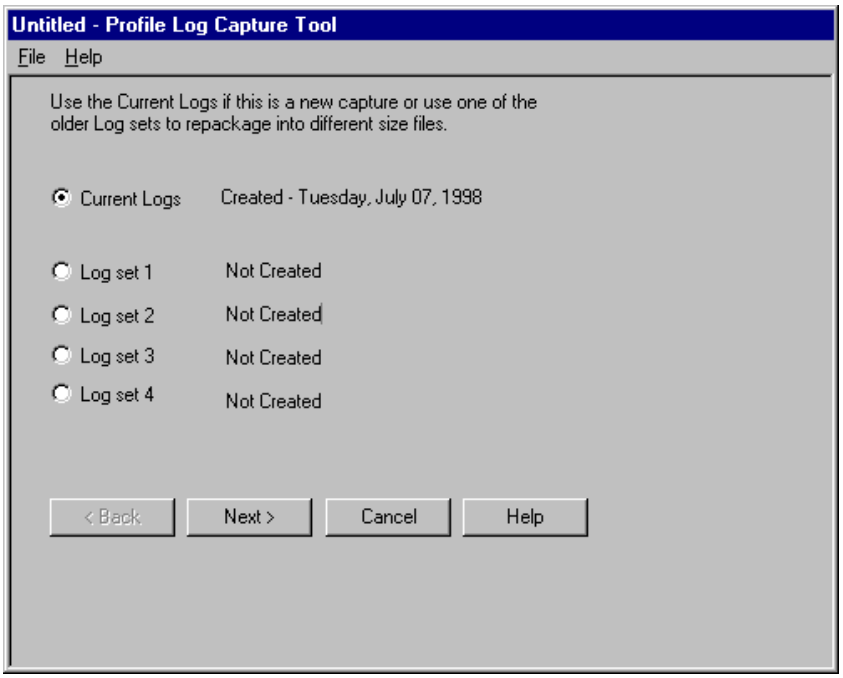
2. To view other logs, choose **File | Open** or click on the open file button.
3. In the Open window select the *logs* directory, then select the log file that you wish to view.

Log Capture Tool

The Profile Log Capture Tool is used to capture the contents of the *c:\profile\logs* directory and package them in .zip format to be sent to Grass Valley Support. To start the Log Capture tool, double-click the Log Capture icon on the Windows NT desktop, choose **Start | Run** and enter C:\profile\logstool.exe in the text entry field, or enter **start logstool** on a command line.

When you start the log capture tool, it compresses the current set of Profile logs and launches the log set selection screen. You can choose the current set of logs or one of the last four log sets captured.

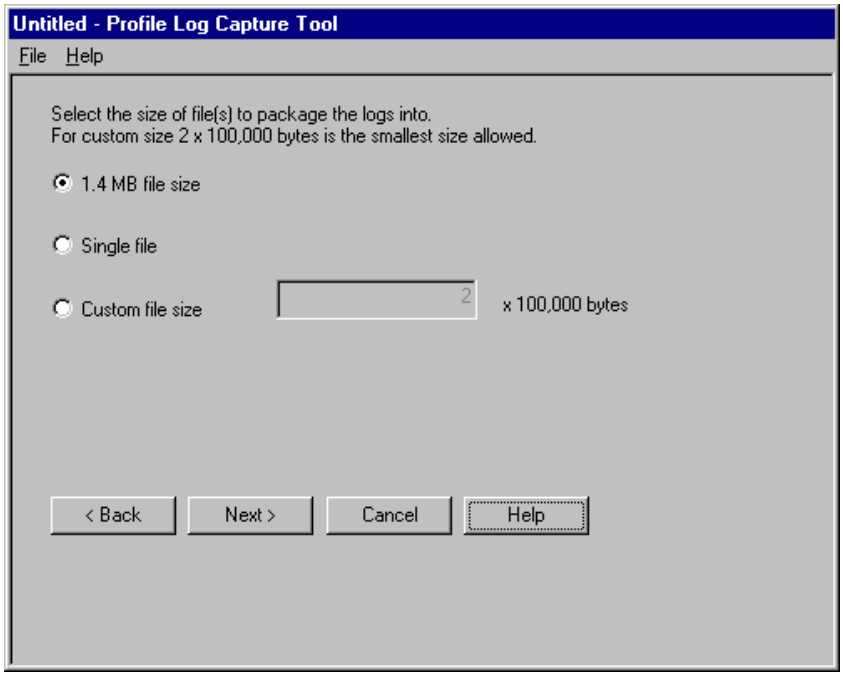
Clicking the **Cancel** button cleans up any temporary files and exits the program. If you click **Cancel** while copying and compressing when the program is first started, the Current Logs selection will not be available.



After choosing a log set, click the **Next** button to advance to the size selection screen. Choose one of these three sizes:

- **1.4 MB file size** Select this file size if you are using floppy diskettes to send the information to Grass Valley Support.
- **Single file**
- **Custom file size** Enter a number in the field to specify the number of 100,000-byte blocks (minimum 2).

The single file and custom file size selections allow you to choose the file size that is most convenient for you to ftp or e-mail to Grass Valley Support.

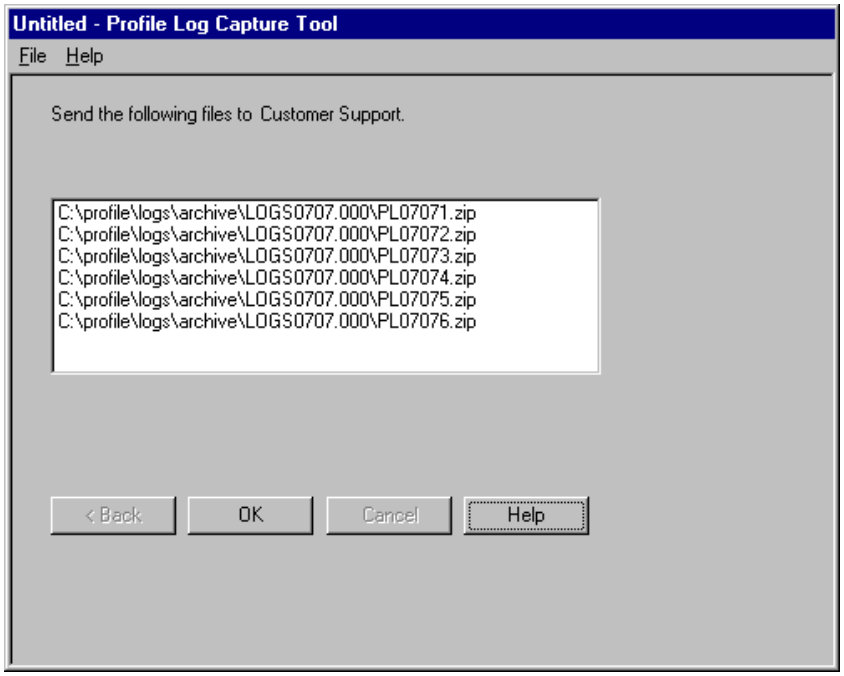


Clicking the **Back** button returns to the log set selection screen if you want to change your log set selection.

The **Next** button completes the log capture and file sizing process, and advances you to the Log Tool Complete screen.

The Log Tool Complete screen displays the location of the ZIP files that were created from the log set that you selected. Carefully note the location of the files created, then click **OK** to exit the program.

NOTE: Clicking OK does not send any files to Grass Valley Support, it merely ends the program. To send the files, you must copy them to floppy disk, or transmit them using ftp or e-mail.


Untitled - Profile Log Capture Tool
File Help
Send the following files to Customer Support.
C:\profile\logs\archive\LOGS0707.000\PL07071.zip
C:\profile\logs\archive\LOGS0707.000\PL07072.zip
C:\profile\logs\archive\LOGS0707.000\PL07073.zip
C:\profile\logs\archive\LOGS0707.000\PL07074.zip
C:\profile\logs\archive\LOGS0707.000\PL07075.zip
C:\profile\logs\archive\LOGS0707.000\PL07076.zip
< Back
OK
Cancel
Help

Profile XP diagnostics

Profile XP diagnostics provide a means of testing the circuit boards installed in the Profile XP unit either individually or as a group.

Before you start Profile XP diagnostics, you must disconnect all video and reference signal cables (Fibre Channel and external disk connections should remain connected).

Starting Profile XP diagnostics

When you start diagnostics, the Profile XP system automatically shuts down and reboots in Diagnostic mode before running the diagnostic program. Once in Diagnostics mode, other Profile XP applications (i.e. VdrPanel, Configuration Manager, etc.) can not run. To restore the Profile XP Media Platform to Production mode, you must reboot the system.

To open the Profile XP diagnostics window and connect to the local host:

1. Select **Start | Programs | Profile Debug Tools | Diagnostics**.
2. Confirm, as prompted, to reboot the Profile XP Media Platform in *diagnostics mode*. On reboot, Windows NT performs auto-logon and Profile XP diagnostics is started.
3. When the diagnostic window opens, click the **Connect** button,  .

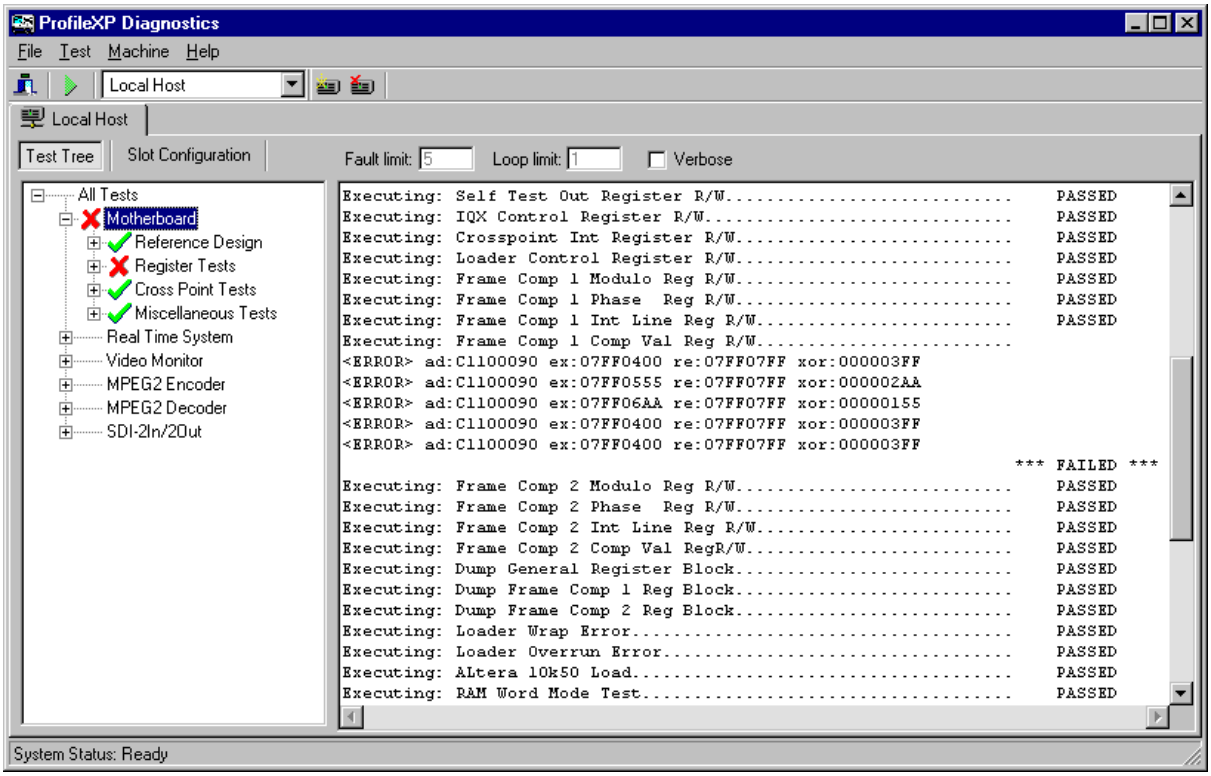
   The Profile XP system is initialized to run diagnostics. To proceed with tests, refer to following section, “Launching the tests”.

NOTE: To return the Profile XP Media Platform to Production mode after running diagnostics, you must reboot the system.

Launching the tests

The tests are arranged in a hierarchical tree structure, which is displayed in the left panel of the window.

Double-click the **All tests** selection in the test tree or double-click a particular board to run tests on that board alone. When the tests run, a green check mark appears by the boards that test OK and a red X appears next to the names of boards that fail.


ProfileXP Diagnostics
File Test Machine Help
Local Host
Local Host
Test Tree
Slot Configuration
Fault limit: 5
Loop limit: 1
Verbose
All Tests
Motherboard
Reference Design
Register Tests
Cross Point Tests
Miscellaneous Tests
Real Time System
Video Monitor
MPEG2 Encoder
MPEG2 Decoder
SDI-2In/2Out
Executing: Self Test Out Register R/W..... PASSED
Executing: IQX Control Register R/W..... PASSED
Executing: Crosspoint Int Register R/W..... PASSED
Executing: Loader Control Register R/W..... PASSED
Executing: Frame Comp 1 Modulo Reg R/W..... PASSED
Executing: Frame Comp 1 Phase Reg R/W..... PASSED
Executing: Frame Comp 1 Int Line Reg R/W..... PASSED
Executing: Frame Comp 1 Comp Val Reg R/W.....
<ERROR> ad:C1100090 ex:07FF0400 re:07FF07FF xor:000003FF
<ERROR> ad:C1100090 ex:07FF0555 re:07FF07FF xor:000002AA
<ERROR> ad:C1100090 ex:07FF06AA re:07FF07FF xor:00000155
<ERROR> ad:C1100090 ex:07FF0400 re:07FF07FF xor:000003FF
<ERROR> ad:C1100090 ex:07FF0400 re:07FF07FF xor:000003FF
*** FAILED ***
Executing: Frame Comp 2 Modulo Reg R/W..... PASSED
Executing: Frame Comp 2 Phase Reg R/W..... PASSED
Executing: Frame Comp 2 Int Line Reg R/W..... PASSED
Executing: Frame Comp 2 Comp Val RegR/W..... PASSED
Executing: Dump General Register Block..... PASSED
Executing: Dump Frame Comp 1 Reg Block..... PASSED
Executing: Dump Frame Comp 2 Reg Block..... PASSED
Executing: Loader Wrap Error..... PASSED
Executing: Loader Overrun Error..... PASSED
Executing: ALtera 10k50 Load..... PASSED
Executing: RAM Word Mode Test..... PASSED
System Status: Ready

Windows NT diagnostic tools

The Windows NT diagnostics and event viewer are found by clicking **Start | Programs | Administrative Tools**. The registry editor must be accessed from the **File | Run** menu in the Windows NT diagnostics.

Windows NT diagnostics

This utility provides administrators with information on the operating system version, application-server hardware, memory, drivers, services, IRQs, network, and disk drives, as well as access to Event Viewer, Registry Editor, and Disk Administrator (with the **File | Run** menu). You can even print out some of this info as reports.

Here is a brief description of each of the tabs in the Windows NT diagnostics window:

Version shows operating system and hardware information, such as the number and type of processors.

System displays more details about the computer, including the type of processor BIOS, and Hardware Abstraction Layer (HAL).

Resources shows information about system resources such as IRQs, I/O ports, DMA channels and memory addresses.

Environment displays system and user environment settings

Drives displays information about the disks connected to the computer, the partitions on hard drives, and network share.

Memory shows information about physical memory and the page file.

Display describes the video display and its driver.

Services shows the status of all services and devices. The same information is displayed in the Control Panel, Services & Devices programs, but more detail is shown here.

Network displays information about the network, including network statistics.

Event viewer

Event viewer is used to record and view Windows NT events. An event is any significant occurrence in the system or in an application that warrants notification of the user. For critical events, Windows NT can notify users with an alert on the screen. For non-critical events that do not require immediate attention, Windows NT can add information to an event log file. Event logs can be viewed in real time or can be saved for later analysis. Event viewer is the single facility for logging events by system and Windows-based applications.

Refer to the on-line Help system for detailed information about the Event viewer.

The event logs

Event viewer provides access to three log files under the **Log** menu.

The *System Log* records all events relating to the operating system, device drivers, and services. For example, if a driver or system component fails to load on booting, this generates an event in the log.

The *Security Log* records events relating to system security, such as failed logons.

The *Application Log* records events generated by applications, such as “log file too large.”

Logs can be saved for analysis, and with proper access rights, logs on remote computers and be viewed over the network.

Event types

There are five different “types” of events, each with its own icon:

 **Information —** Significant but successful events that occur infrequently. For example, “New cartridge has been inserted. From device: \Device\Tape0.”

 **Warning —** Warnings of possible future problems. For example, “The F: disk is at or near capacity. You may need to delete some files.”

 **Error —** Existing problems. For example, “Failed to set the user’s home directory d:\USERS\helend.”

 **Success Audit —** A successful attempt at a security-audit procedure. For example, “Successful Logon: User Name: timk.”

 **Failure Audit —** An unsuccessful attempt at a security-audit procedure. For example, “Logon Failure: Reason: Unknown user name or bad password. User Name: rosea.”

The events display does not refresh automatically; you must press F5 for manual refresh to see the latest events. In the **View** menu you can choose to view all events or only events filtered by type and date, to list either the newest events first or the oldest first, to search for events, and to display details about an event.

Diagnostic tip — Analyze events closest to the last System Boot. Often errors that occur later have failed because of dependency on events before them.

Registry editor

The registry editor lets you view and modify information in the registry files that make up the configuration database. The registry structure is hierarchical, with the HKey at the root level. The following table lists and describes the five HKeys:

Root Key Name	Description
HKEY_LOCAL_MACHINE	Contains information about local computer system including hardware, operating system, memory, device drivers, and start-up control data. This data effects all users.
HKEY_CURRENT_USER	Contains the user profile for the user currently logged on, including environment variables, personal program groups, desktop settings, network connections, printers, and applications preferences. This data effects only current user.

Root Key Name	Description
HKEY_USERS	Contains all actively loaded user profiles, including HKEY_CURRENT_USER, which always refers to a child of HKEY_USERS, and the default profile.
HKEY_CLASSES_ROOT	Contains file association data and object linking and embedding data. (equivalent to the Registry in Windows for MS-DOS.

NOTE: The "H" in HKey stands for "handle". It indicates to software developers that this is a handle that a program can use. A handle is a value that uniquely identifies a resource so that a program can access it.

Role of the registry during boot

During boot, the registry's role is to provide the information that determines what drivers and services to load and when to load them. All the data needed to control bootup is contained in registry subkeys called control sets found in HKEY_LOCAL_MACHINE\SYSTEM. To ensure that the system can always be started, a backup version of system configuration is kept by the registry. Invoking LastKnownGood allows you to undo any configuration changes that did not have the intended effect.

Appendix **B**

Theory of operation

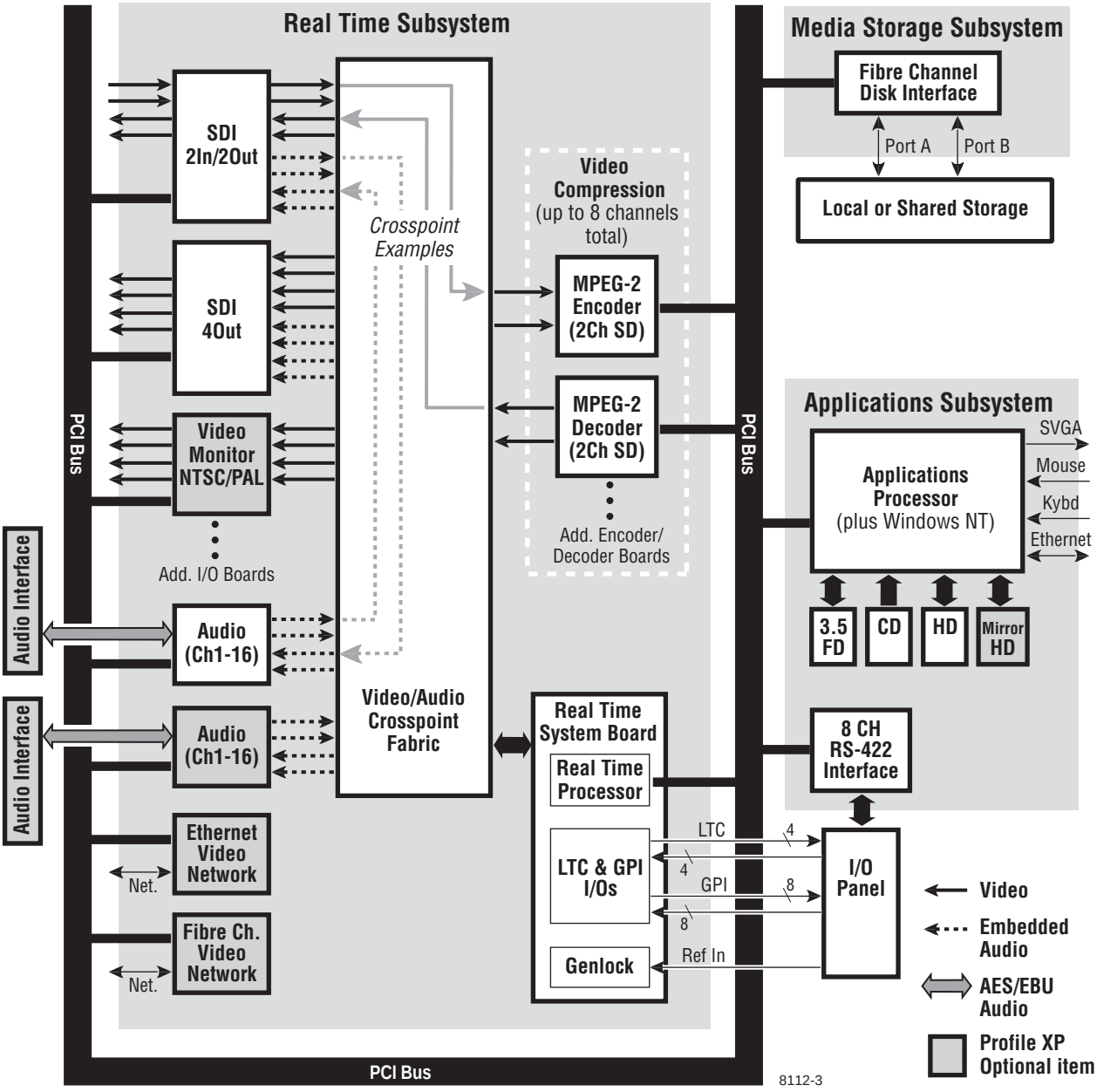
This appendix is a high-level overview of the Profile XP media platform that provides a basic understanding of system operation to support module-level servicing.

Architecture overview

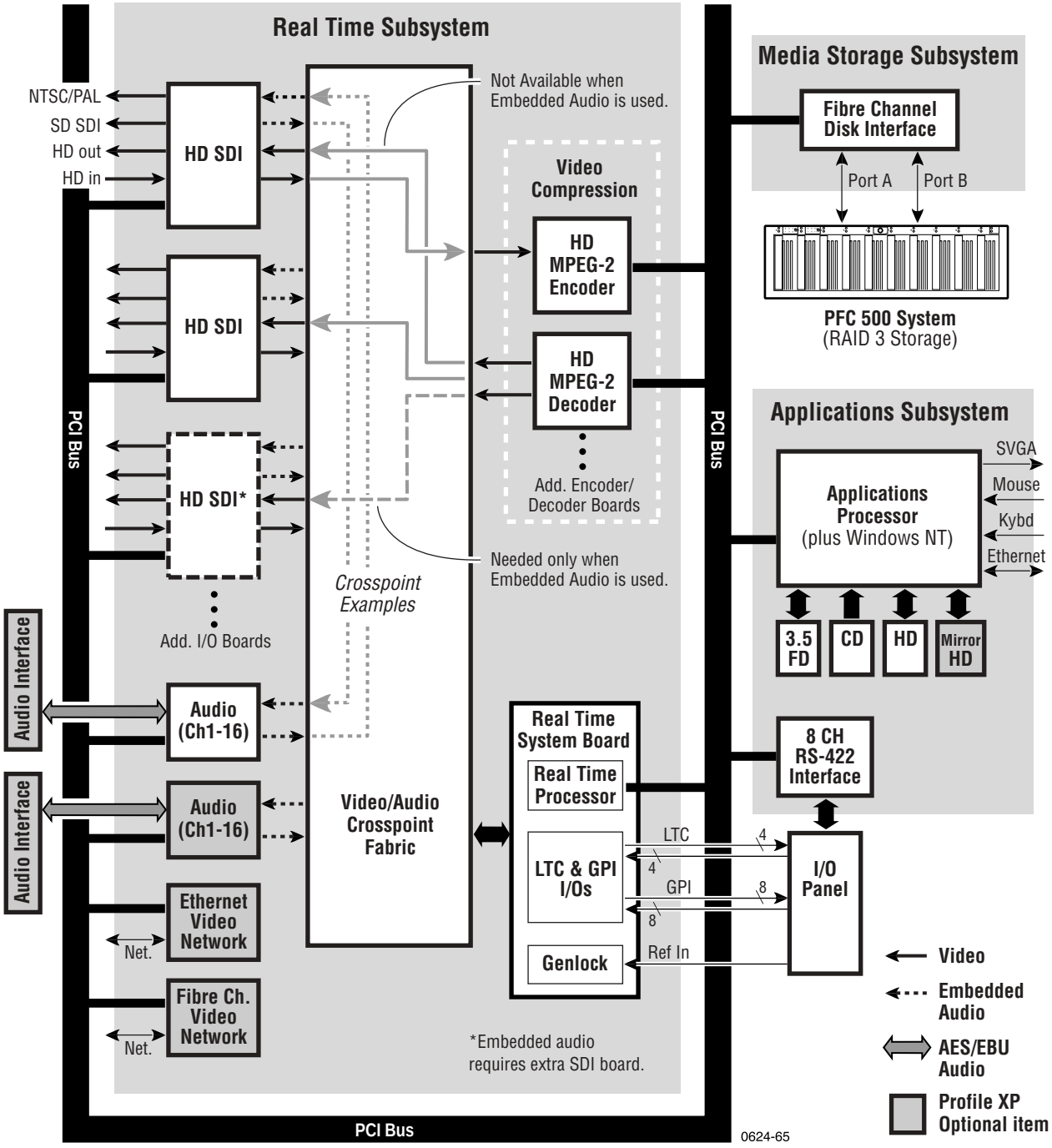
The Profile XP architecture is an extension to a standard PCI bus-based computer that uses the Window NT operating system. This standard computer base is enhanced to deliver an industrial strength, broadcast quality, disk based video server. This section describes the major architectural blocks, what they do, and how they interconnect.

The Profile XP system can be viewed as three main components or subsystems: the application subsystem, the real time subsystem, and the media storage subsystem, along with the platform resources required for operation. The real time subsystem, the application subsystem, and the platform resources are contained within the Profile XP media platform. The media storage subsystem consists of one or more separate RAID chassis.

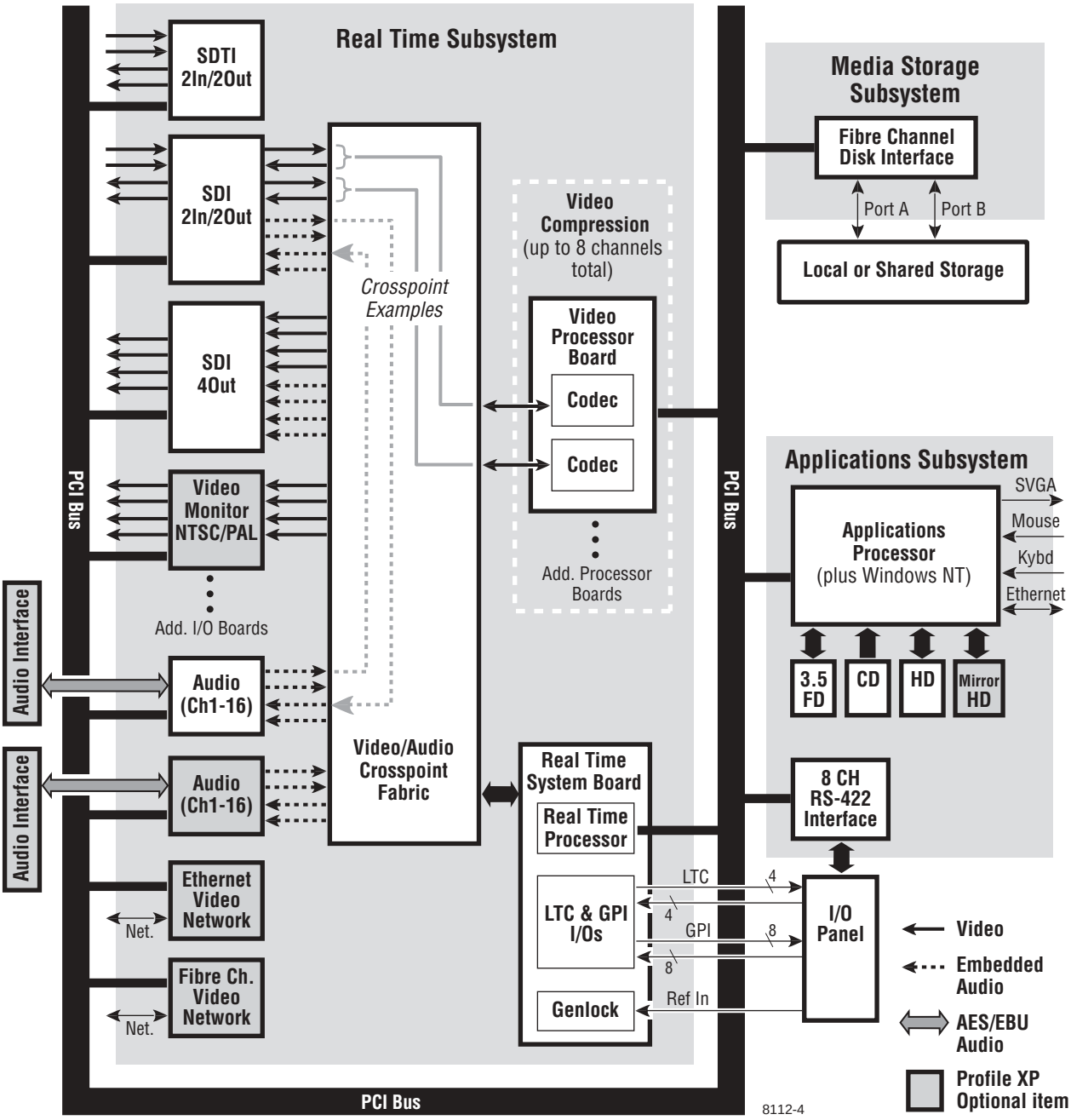
The block diagrams that follow show the subsystems of the standard definition and high definition Profile XP media platforms.



Block diagram for the Profile XP standard definition system



Block diagram for the Profile XP high definition system



Block diagram for the PVS1100 standard definition system

Applications subsystem (Windows NT system)

The applications subsystem executes and controls the standard user interface (GUI), system control I/O, system configuration, and the various applications that control the system from a functional level. The application subsystem consists of the applications processor, the user input and display devices, various applications system disk storage devices, and an 8-channel RS-422 interface.

Applications processor

The applications processor executes the application and system configuration software, and consists of a plug-in Windows NT computer subsystem in a standard NLX form factor. It is a complete PC system in and of itself. The applications processor communicates with the Real Time Processor (RTP) using Inter-processor Messaging (IPM), a shared memory-based communications channel, which gives the applications processor the ability to interrupt, and to accept interrupts from, the RTP.

Windows NT I/O devices

These include a standard SVGA display, keyboard, and mouse.

Ethernet Interface

The Applications Processor board includes a built-in 10/100BaseT Ethernet interface for network communications.

Applications system disk storage

The applications system storage devices include:

- a standard system IDE hard drive with provision for a second IDE hard drive that mirrors the primary through an optional RAID-1 drive-mirroring controller
- an IDE CD-ROM drive
- a floppy-disk drive or a high-capacity super-drive

All of these drives are connected to the NLX board through IDE connectors and passive circuits on the system motherboard.

RS-422 interface

The RS-422 interface is the serial control interface used by most of the common external automation and control devices. This interface is implemented by means of various protocols over an RS-422 physical interface. The applications processor controls and communicates with the RS-422 Interface over the PCI bus.

Real time subsystem

The real time subsystem is responsible for the following functions in the Profile XP system:

- manages the data flow to and from, and the real time control of, the encoders and decoders, the video, audio, and time code I/O, and the media storage subsystem.
- executes the low-level device drivers
- manages the Media File System
- executes events on a play time line

Real Time System board

The Real Time System board contains circuitry for three separate functions:

- Real Time Processor
- LTC and GPI I/Os
- Genlock

A second generation of this board is required in the PVS 1100 Series, and can be used for all Profile XP models provided they are running Profile System Software v. 5.0.

Real Time Processor (RTP)

The RTP executes all the real time core software. The RTP controls all of the I/O and processing modules included in the Real Time Subsystem via communication over the PCI bus. The RTP communicates with the applications processor over a shared memory-based inter-processor communications channel which includes the ability to interrupt and to accept interrupts from the applications processor.

LTC & GPI I/Os

Four linear time code (LTC) inputs and outputs are provided. Vertical interval time code (VITC) is input from the video reference signal.

The general purpose interface (GPI) port has 8 inputs and 8 outputs, and is intended for signaling events in a studio environment.

This part of the board also generates the Black and Colorbar signals used for loss of input or output video conditions (SD only).

Genlock

The Genlock section provides these functions:

- Generation of system clocks for SD (27MHz) and HD (either 37.0879 or 37.125 Mhz)
- Generation of frame reference pulses
- Ability to lock system clocks and frame reference pulses to tri-level sync or to NTSC/PAL bi-level sync (reference video input).

MPEG-2 Encoder and Decoder boards (PVS1000 Series)

The MPEG-2 Encoder board receives an uncompressed video stream of CCIR 601 video data from the video/audio crosspoint fabric and compresses (encodes) it into MPEG-2 format. The MPEG-2 video is then sent over the PCI bus to the media storage subsystem.

The MPEG-2 Encoder board features the following functions:

- Two (2) channels of MPEG-2 encoding at a maximum bit rate of 50 Mb/s, and at a minimum bit rate of 4 Mb/s
- Simultaneous extraction of VBI data from both video channels on lines 10 through 22 NTSC and 6 through 23 PAL
- Extraction of 720 bytes of luminance and 720 bytes of chrominance data

The MPEG-2 Decoder reads compressed MPEG-2 video data from a local memory buffer, decompresses (decodes) the video data, and outputs a CCIR 601 video data stream to the video routing fabric.

The MPEG-2 Encoder and Decoder boards are controlled by the RTP via the PCI Bus.

HD MPEG-2 Encoder and Decoder Boards (PVS2000, 3000, and 3500 Series)

The HD MPEG-2 Encoder provides one channel of video processing; the HD MPEG-2 Decoder provides two channels. The maximum decoding rate is 80 Mb/s, while the minimum usable rate is around 30 Mb/s. Video routing for HD in record and play modes is the same as for SD.

Video Processor board (PVS1100, 3000, and 3500 Series)

The Video Processor board provides either two or four channels of video processing. Up to eight channels can be installed in a Profile XP system.

In their default configuration, the codecs on the Video Processor board are set for DVCPRO 25 operation. A codec can be reconfigured to be either an MPEG codec, an MPEG encoder, or an MPEG decoder, with bit rates selectable from 4-25 Mb/s. With the 50 Mb/s software option installed, each codec can be configured for DVCPRO 50 operation, MPEG D10 operation, or MPEG operation up to 50 Mb/s. When a codec is reconfigured, the media platform must be rebooted to put the change into effect.

For record mode, video is routed from the Video I/O boards, over the video transport fabric to the Video Processor board. Compressed data is moved over the PCI bus to the Media Storage Subsystem. For play mode, compressed data is routed from the Media Storage Subsystem, over PCI bus, to the Video Processor board where the data is processed. Full bandwidth video is routed from the Video Processor board over the video transport fabric to the Video I/O boards.

Serial Digital Interface (SDI) boards

The SDI boards used in the Profile XP media platform provide either two input and two output ports, or four output ports.

The SDI inputs receive serial component video conforming to SMPTE 259M. The input decoder synchronizes the incoming video to the Profile XP internal video timing and converts the serial stream into 10-bit component 4:2:2 video that is sent to the video/audio crosspoint fabric.

The SDI outputs accept 10-bit component 4:2:2 video from the video/audio crosspoint fabric. Circuitry on the board performs blanking, HANC data insertion, VITC data insertion, and variable delay. The resulting video output is a SMPTE 259M compatible bit stream.

High Definition Serial Digital Interface Board

The HD SDI board, through four BNC connectors, provides one SMPTE292M serial digital video input, one SMPTE292M serial digital video output, a standard SDI (SMPTE 259M) output, and a composite analog NTSC or PAL monitor output.

Functionality on the board includes embedded audio insertion or extraction, time code insertion and extraction (as horizontal ancillary data), input and output timing, and closed caption insertion to and extraction from vertical interval ancillary data.

The HD-SDI board can function as both input and output if AES/EBU audio is in use, but when embedded audio is used, the board functions either as input or output but not both. The output on the standard SDI port and monitor port is down-converted from the high definition output signal. The composite analog monitor output includes Text Overlay and Timecode burn-in.

Serial Data Transfer Interface (SDTI) Board (optional)

This board provides two SDTI channels, each with an input and an output BNC connector. From the compressed video at the input, this board extracts video and audio data and sends it to the media storage subsystem. At its output, this board provides formatted video and audio data retrieved from the media storage subsystem.

Video network adapter (optional)

The Video Network Adapter is a 1Gb/s Fibre Channel board or 100BaseT Ethernet board for video network connections. Both provide faster than real-time transfers of video data.

The purpose of the video network is to provide high-speed transfer of media files between different media storage systems such as other Profile XP systems or a large computer file server. The video networking I/O also provides the resource to move data to and from buffers in the real time subsystem's PCI memory space. The video networking I/O is controlled by the RTP via the PCI bus.

Audio interface

The audio interface receives external analog or AES/EBU digital audio signals and converts them into the internal form used by the Audio board. The audio interface also receives data from the audio processor and converts it to the appropriate external audio signal.

Audio

The Audio board receives PCM audio from either an audio interface or from the SDI boards after routing through the video/audio crosspoint fabric. The Audio board is responsible for the physical I/O, algorithmic processing, and distribution of sixteen channels of uncompressed PCM audio. In its simplest form it does simple processing of the audio and level monitoring or level adjust. It may also be used to do more complex functions such as EQ, channel mixing, or scrub audio processing.

Time code I/O

Provides the physical interface to time code I/O signals. It extracts and decodes this signal on inputs and generates and inserts this signal on outputs. The time code I/O functionality is generally combined with video I/O or RefGen modules. The time code data is read or written by the RTP via the PCI bus.

Media storage subsystem

The media storage subsystem is where the video, audio, time code, and other media related data is stored. This storage system consists of one or more RAID units that are connected to the Profile XP platform by one or more Fibre Channel links.

Fibre Channel disk interface

The fibre channel disk interface consists of a dual port Fibre Channel Disk board for connecting the Profile XP system to the external Fibre Channel RAID storage system in either a local or centralized storage configuration. In local storage configurations, the Fibre Channel RAID storage system is connected directly to the Fibre Channel Disk board. In centralized storage configurations, this board is connected to a Fibre Channel switch fabric to provide access to a centralized pool of Fibre Channel RAID storage systems.

When the RAID storage systems are configured with an optional second controller board, Port B of the Fibre Channel Disk board can be connected to provide a redundant path to the disks.The dual connection to the Fibre Channel RAID chassis allows instant and seamless failover in the event of a failure of one of the interfaces on the board, or of one of the RAID Controller boards in the RAID chassis.

On older Fibre Channel Disk boards, both ports use a copper Gigabit Link Module (GLM) for copper Fibre Channel cables, which support up to 1Gb/s transfer speeds.

Current Fibre Channel Disk II boards use removable Small Form-factor Pluggable interfaces (SFPs),. Optical SFPs support up to 2Gb/s transfers when connected to compatible devices. Copper SFPs limit transfers to 1Gb/s.

Platform resources

The platform resources provide the infrastructure necessary to operate, interconnect, and integrate all the application subsystem and real time subsystem components. The elements that make up the platform resources are found mostly (but not exclusively) on the Motherboard and include the following:

- Multi-slot, bridged PCI Bus
- Support for NLX form factor single board computer.
- Mechanical card cage compatible with industry standard PCI boards
- Uncompressed video and audio routing fabric
- Compressed video and audio routing on the PCI bus
- Programmable PCI interrupt routing
- System power supply
- System cooling

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