

**RACAL Instruments™
1263HPf
High-Power, Front-Maintainable
VXI 4.0 Mainframe
(P/N 408177-001)
User Manual**

Publication No. 980916-1263HPf Rev. A



Astronics Test Systems Inc.

4 Goodyear, Irvine, CA 92618

Tel: (800) 722-2528, (949) 859-8999; Fax: (949) 859-7139

atsinfo@astronics.com atssales@astronics.com
atshelpdesk@astronics.com <http://www.astronictestsystems.com>

**THANK YOU FOR PURCHASING THIS
ASTRONICS TEST SYSTEMS PRODUCT**

For this product, or any other Astronics Test Systems product that incorporates software drivers, you may access our web site to verify and/or download the latest driver versions. The web address for driver downloads is:

<http://www.astronicstestsystems.com/support/downloads>

If you have any questions about software driver downloads or our privacy policy, please contact us at:

atsinfo@astronics.com

WARRANTY STATEMENT

All Astronics Test Systems products are designed to exacting standards and manufactured in full compliance to our AS9100 Quality Management System processes.

This warranty does not apply to defects resulting from any modification(s) of any product or part without Astronics Test Systems express written consent, or misuse of any product or part. The warranty also does not apply to fuses, software, non-rechargeable batteries, damage from battery leakage, or problems arising from normal wear, such as mechanical relay life, or failure to follow instructions.

This warranty is in lieu of all other warranties, expressed or implied, including any implied warranty of merchantability or fitness for a particular use. The remedies provided herein are buyer's sole and exclusive remedies.

For the specific terms of your standard warranty, contact Customer Support. Please have the following information available to facilitate service.

1. Product serial number
2. Product model number
3. Your company and contact information

You may contact Customer Support by:

E-Mail:	atshelpdesk@astronics.com	
Telephone:	+1 800 722 3262	(USA)
Fax:	+1 949 859 7139	(USA)

RETURN OF PRODUCT

Authorization is required from Astronics Test Systems before you send us your product or sub-assembly for service or calibration. Call or contact Customer Support at 1-800-722-3262 or 1-949-859-8999 or via fax at 1-949-859-7139. We can also be reached at: atshelpdesk@astronics.com.

If the original packing material is unavailable, ship the product or sub-assembly in an ESD shielding bag and use appropriate packing materials to surround and protect the product.

PROPRIETARY NOTICE

This document and the technical data herein disclosed, are proprietary to Astronics Test Systems, and shall not, without express written permission of Astronics Test Systems, be used in whole or in part to solicit quotations from a competitive source or used for manufacture by anyone other than Astronics Test Systems. The information herein has been developed at private expense, and may only be used for operation and maintenance reference purposes or for purposes of engineering evaluation and incorporation into technical specifications and other documents which specify procurement of products from Astronics Test Systems.

TRADEMARKS AND SERVICE MARKS

All trademarks and service marks used in this document are the property of their respective owners.

- Racal Instruments, Talon Instruments, Trig-Tek, ActivATE, Adapt-A-Switch, N-GEN, and PAWS are trademarks of Astronics Test Systems in the United States.

DISCLAIMER

Buyer acknowledges and agrees that it is responsible for the operation of the goods purchased and should ensure that they are used properly and in accordance with this document and any other instructions provided by Seller. Astronics Test Systems products are not specifically designed, manufactured or intended to be used as parts, assemblies or components in planning, construction, maintenance or operation of a nuclear facility, or in life support or safety critical applications in which the failure of the Astronics Test Systems product could create a situation where personal injury or death could occur. Should Buyer purchase Astronics Test Systems product for such unintended application, Buyer shall indemnify and hold Astronics Test Systems, its officers, employees, subsidiaries, affiliates and distributors harmless against all claims arising out of a claim for personal injury or death associated with such unintended use.

FOR YOUR SAFETY

Before undertaking any troubleshooting, maintenance or exploratory procedure, read carefully the **WARNINGS** and **CAUTION** notices.



CAUTION
RISK OF ELECTRICAL SHOCK
DO NOT OPEN



This equipment contains voltage hazardous to human life and safety, and is capable of inflicting personal injury.



If this instrument is to be powered from the AC line (mains) through an autotransformer, ensure the common connector is connected to the neutral (earth pole) of the power supply.



Before operating the unit, ensure the conductor (green wire) is connected to the ground (earth) conductor of the power outlet. Do not use a two-conductor extension cord or a three-prong/two-prong adapter. This will defeat the protective feature of the third conductor in the power cord.



Maintenance and calibration procedures sometimes call for operation of the unit with power applied and protective covers removed. Read the procedures and heed warnings to avoid “live” circuit points.

Before operating this instrument:

1. Ensure the proper fuse is in place for the power source to operate.
2. Ensure all other devices connected to or in proximity to this instrument are properly grounded or connected to the protective third-wire earth ground.

If the instrument:

- fails to operate satisfactorily
- shows visible damage
- has been stored under unfavorable conditions
- has sustained stress

Do not operate until performance is checked by qualified personnel.

Table of Contents

Chapter 1	1-1
Getting Started	1-1
Product Description	1-1
Key Features	1-2
Items Shipped with 1263HPf.....	1-2
Accessory Ordering Information.....	1-3
 Chapter 2	 2-1
Configuring the 1263HPf	2-1
Using This Chapter.....	2-1
AC Mains Power	2-1
Site Considerations	2-2
Installing VXI Modules.....	2-2
Installation and Removal of Card Guide Covers (Airflow Directors).....	2-2
Installing Blanking Panels	2-4
 Chapter 3	 3-1
OPERATING THE 1263HPf	3-1
Using This Chapter.....	3-1
Powering on the 1263HPf	3-2
Monitoring Basics and System Performance Check.....	3-2
Backplane Connectors	3-9
 Chapter 4	 4-1
UNDERSTANDING the 1263HPf	4-1
Overview.....	4-1
Power Supply.....	4-1
Power Supply Interconnection.....	4-1
Power Supply Protections	4-3
Backplane.....	4-3
Cooling System	4-3

Cooling the Power System	4-3
Chapter 5.....	5-1
MAINTENANCE	5-1
What's in This Chapter	5-1
Service Strategy	5-1
Service Interval	5-1
Preparation	5-1
Inspection and Cleaning.....	5-2
Interior Cleaning	5-2
Exterior Cleaning	5-2
Modular Component Removal and Replacement.....	5-3
Tools Required	5-3
Removal and Replacement of the Fan Assembly.....	5-3
Removal and Replacement of the Power Drawer Assembly.....	5-5
Removing and Replacing the Card Guides	5-6
Troubleshooting the 1263HPf	5-7
Chapter 6.....	6-1
Functional Checks	6-1
Basic Functional Check.....	6-1
Main Monitoring Panel.....	6-3
Fan Speed Monitoring.....	6-4
Supply Voltage Monitoring	6-6
Temperature Monitoring	6-7
Appendix A	A-1
Specifications.....	A-1
Specifications	A-1
Appendix B	B-1
IP Address Configuration	B-1
IP Address Configuration	B-1
Default Configuration.....	B-1
Selecting a Static IP Address.....	B-2
Selecting a Dynamic IP Address.....	B-5

Appendix CC-1

Software InterfaceC-1

 Overview C-1

 Ethernet Command Interface C-1

 Command Format C-1

 Supported Commands C-2

 Get Data Dump Command..... C-3

 Byte(s) C-3

 Get Action Data Command C-7

 Put Temperature Fault Command C-7

 Calibrate Temperature Sensor Command..... C-8

 Put Fan Speed Command..... C-8

 Reset Command C-8

 Select Voltage Threshold Command C-9

 Put Voltage Threshold MSB and Put Voltage Threshold LSB Commands C-9

 Get Firmware Revision C-10

 Get Temperature Fault C-10

 Get Fan Speed C-10

 Store Configuration C-10

 VXI*plug&play* Style Driver C-11

 Graphical User Interface C-13

This page was left intentionally blank.

List of Figures

Figure 1-1, 1263HPf VXIbus Mainframe.....	1-1
Figure 2-1, Installation/Removal of the Airflow Directors	2-3
Figure 2-2, Blanking Panels.....	2-4
Figure 3-1, Front View	3-1
Figure 4-1, 1263HPf Chassis Functional Block Diagram	4-2
Figure 5-1, Module Fan Assembly Detail.....	5-4
Figure 5-2, Power Supply Drawer Assembly Detail.....	5-5
Figure 5-3, Card Guide Removal and Replacement	5-6
Figure 6-1, Main Monitoring Panel.....	6-3
Figure 6-2, Fan Speed Monitoring (Fans 1 through 8).....	6-4
Figure 6-3, Fan Speed Monitoring (Fans 9 through 15).....	6-5
Figure 6-4, Per VXI Rail Voltage Monitoring.....	6-6
Figure 6-5, Per Slot Temperature Monitoring.....	6-7

This page was left intentionally blank.

List of Tables

Table 1-1, Items Shipped with 1263HPf	1-2
Table 1-2, Available Accessories	1-3
Table 2-1, Power Cable Pinout.....	2-1
Table 3-1, Monitoring Basics	3-2
Table 3-2, P1 Backplane Connector Pinouts for Slots 0-12.....	3-9
Table 3-3, P2 Backplane Connector Pinouts for Slots 1-12.....	3-10
Table 3-4, P2 Backplane Connector Pinouts for VXIbus Slot 0	3-11
Table 5-1, Troubleshooting.....	5-8
Table 6-1, Monitoring Basics	6-2
Table 6-2, Pass/Fail Table.....	6-3
Table A-1, AC Input Specifications.....	A-1
Table A-2, DC Output Power	A-2
Table A-3, Cooling	A-3
Table A-4, Environmental (Typical)	A-3
Table A-5, Backplane.....	A-4
Table A-6, Mechanical	A-4
Table C-1, Supported Commands.....	C-2

Document Change History

Revision	Date	Description of Change
A	2/26/2013	Document Control release

Chapter 1

GETTING STARTED

Product Description

The 1263HPf is a High-Powered VXibus mainframe. The power supplies are located in a front removable 1U tall drawer (P/N 408049-003). The chassis also incorporates a front removable fan tray (P/N 408348).

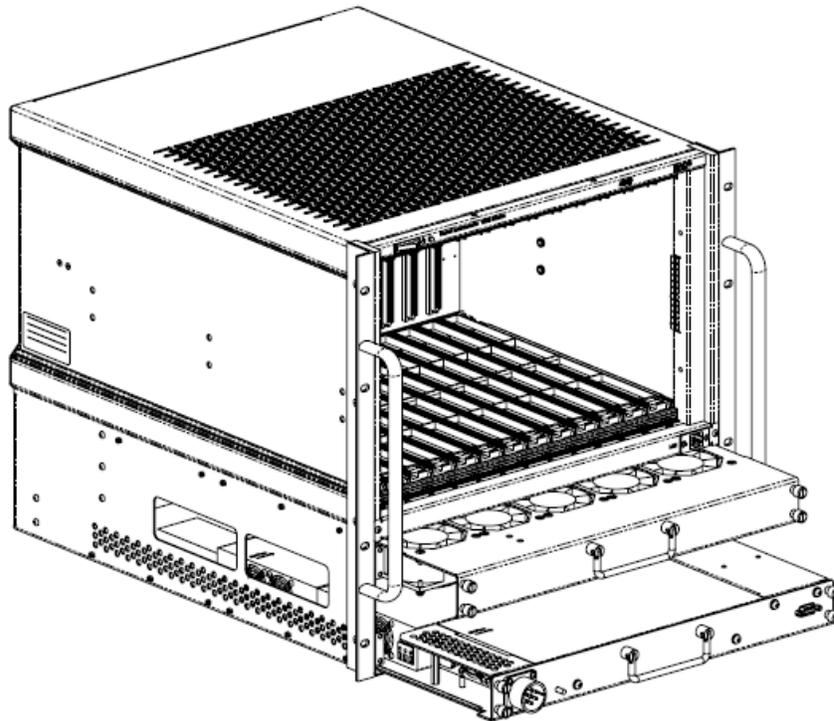


Figure 1-1, 1263HPf VXibus Mainframe

Key Features

- **High Power Chassis.** The 1263HPf is capable of delivering up to 4150 watts of useable power to the VXI backplane.
- **Front Removable Power Supply Drawer.** The 1263HPf incorporates a front removable power supply drawer for ease of maintenance. Removal and replacement of the complete power supply system can easily be accomplished in 5 minutes or less.
- **Front Removable Fan Tray.** Like the power supply drawer, the VXI module cooling fans are easily replaced in 5 minutes or less.
- **Fast Setup.** The 1263HPf backplane uses active-automatic VME interrupt acknowledge and bus grant daisy chaining. Manual configuration of backplane switch settings or jumpers has been eliminated. The 1263HPf backplane supports VXI4.0 with 5-row P1 and P2 connectors providing more power and speed while maintaining compatibility with pre-existing VXI applications.
- **System Health Status Indication.** The 1263HPf system monitor gives you key system health status (Voltage, Temperature, cooling fan). The status bytes are accessible via J401 on the front panel. Monitored parameters include temperature rise on each slot, air intake temperature, and power supply voltages.
- **Fan Speed Control.** The 1263HPf delivers the cooling air that your application requires. Fan speed control reduces acoustic noise levels of the 1263HPf high performance cooling system.

Items Shipped with 1263HPf

Table 1-1, Items Shipped with 1263HPf

Qty	Item	Part Number
1	Chassis Assembly	408357-001
1	User Manual	980916-1263HPf
9	Cover, Card Guide, Molded	456271

Accessory Ordering Information

Table 1-2, Available Accessories

Item	Description	Part Number
Power Cable	Power Cable with straight connector	408048
Power Cable	Power Cable with right angle connector	408048-001
Power Cable	Power Cable, 3-phase, US	408048-002
Power Cable	Power Cable, 3-phase, Europe	408048-003
Power Connector	Connector Circular RCP007 straight	602458-207
Power Connector	Connector Circular RCP007 right-angled	602458-007
Blanking Panels	Empty Slot Blanking Panels (Plates)	404836
Fan Tray	Spare Fan Tray	408348
Power Supply Drawer	Spare Power Supply Drawer	408049-003

This page was left intentionally blank.

Chapter 2

CONFIGURING THE 1263HPF

Using This Chapter

This section includes procedures to install and configure the 1263HPf mainframe. Use this chapter to:

- Review installation site considerations.
- Install VXI modules, card guide covers, or optional blanking panels (plates).

AC Mains Power

Power for 1263HPf power supplies located on the removable power supply drawer is supplied via cable P/N 408048 (straight) or 408048-001 (right angle) and is connected through J400. Power cables must be ordered separately and input power must be configured as follows:

(Use Amphenol connector P/N 97-3102A-20-15S, 12AWG Wire)

Table 2-1, Power Cable Pinout

Pin #	Signal
1	PS1 L1
2	PS1 L2
3	PS2 L1
4	PS2 L2
5	PS3 L1
6	PS3 L2
7	CHASSIS GND

Line Voltage Requirements (Measured L1 – L2 on each supply):

85V – 264 VAC, 47 – 500 Hz, or 100 – 300 VDC.

Note: Chassis power rating is de-rated when line voltage is below 200 VAC or 200 VDC.

Site Considerations

The 1263HPf Mainframe is designed to operate in an instrument rack. **Allow 1.75 inches of clearance above the unit to permit the free flow of air through the exhaust vents in the top cover.**

Installing VXI Modules

Install C-size modules directly into the mainframe by first placing the module's card edges into the front module guides (top and bottom). Slide the module to the rear of the mainframe until the module connectors mate solidly with the backplane connectors. Secure the module's front panel to the mainframe using the module's front panel mounting screws.

The easiest way to install B-size modules is with a "B to C-size adapter" allowing a B-size module to be installed just like a C-size.

Installation and Removal of Card Guide Covers (Airflow Directors)

In order to improve cooling of used slots in the VXI mainframe, a limited number of airflow directors, P/N 456271, may be installed at empty slot locations to redirect otherwise wasted airflow. Refer to **Figure 2-1**.

CAUTION

To maintain a balanced airflow throughout the system when using airflow directors, do not cover more than four empty slots at any time. If module density is low, space airflow directors evenly across the mainframe.

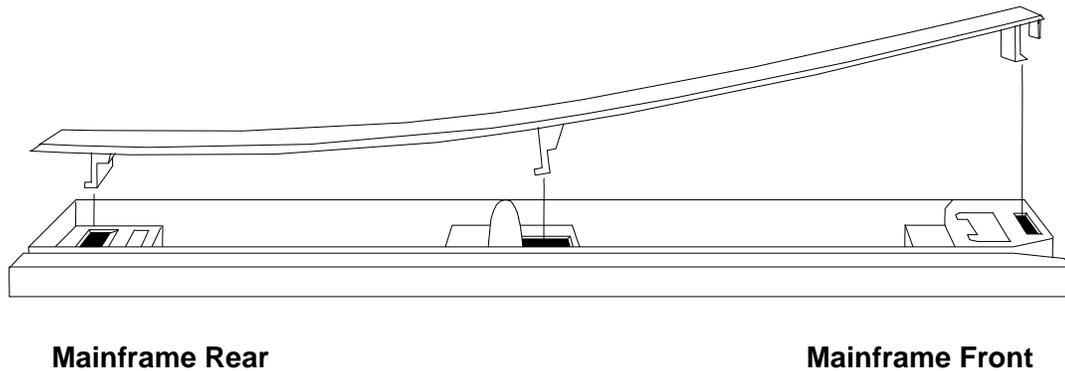


Figure 2-1, Installation/Removal of the Airflow Directors

1. Facing the front of the VXI mainframe, with one hand hold the airflow director by the front end where the “Racal” logo appears.
2. Select the slot to be covered by the director, and place the hook at the rear of the director into the rectangular hole at the rear of the card guide. Slight downward pressure on top of the director (with the other hand) at the rear may be required to engage the hook into the card guide.
3. Slightly flex the director upwards at the front, maintaining pressure at the rear, and lower the center hook of the director into the center rectangular hole in the card guide.
4. Press down and back to allow both center and rear hook to engage fully into the card guide.
5. Lower the front of the director and allow the snap-in hook to rest on the card guide.
6. With a slotted screwdriver or similar flat-bladed tool, depress the spring hook at a slight downward angle, applying light pressure to the logo area. This will cause the snap-hook to firmly seat the director into place.
7. To remove the airflow director, depress the snap-in hook from the front with a flat-bladed tool. This will unlatch the hook and allow removal from the card guide at the front end.
8. Pull forward to release the fixed hooks at the center and rear.

Installing Blanking Panels

In order to optimize module cooling performance, install optional blanking panels (P/N 404836) into unused or empty slots. Secure with two captive mounting screws. Refer to **Figure 2-2**.

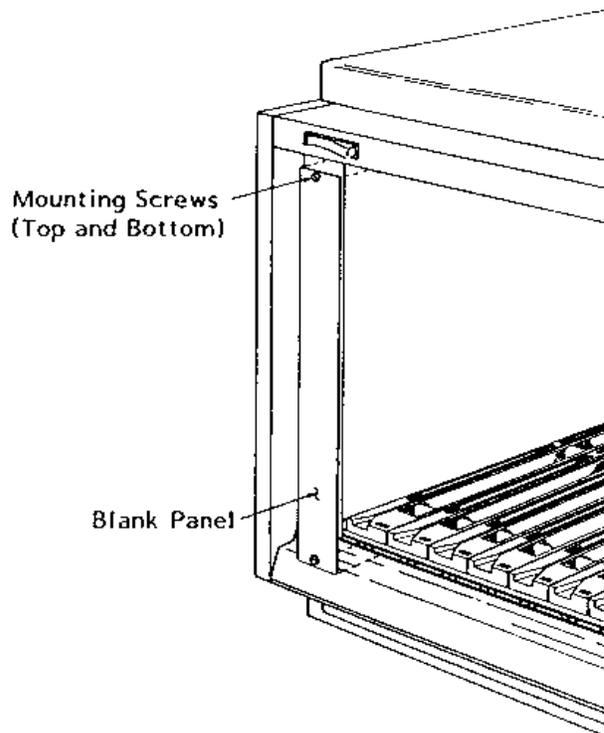


Figure 2-2, Blanking Panels

(Note: Figure shows a standard chassis)

Chapter 3

OPERATING THE 1263HPF

Using This Chapter

Use this chapter to:

- Review front panel controls and indicators
- Power the mainframe on/off
- Review Monitoring Basics of the front panel status bytes
- Perform basic functional check of the mainframe VXI voltages

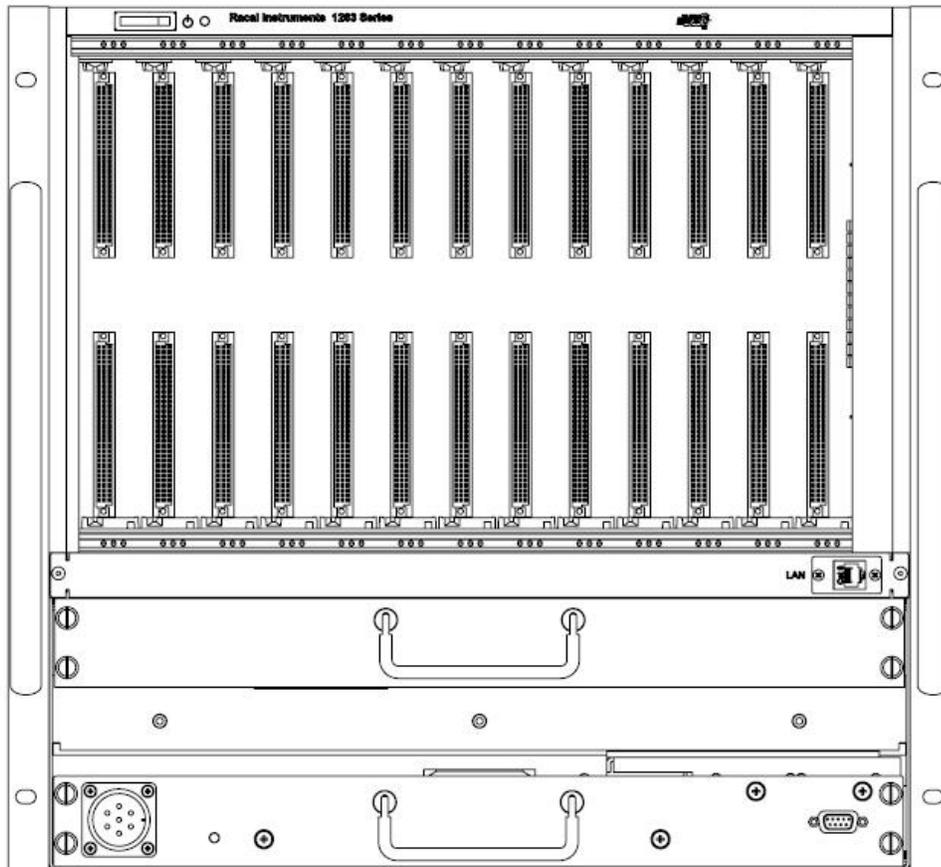


Figure 3-1, Front View

Powering on the 1263HPf

Refer to **Figure 3-1** and the instructions below to power on the 1263HPf.

1. Connect input power cable 408048 or 408048-001 to J400.
2. Connect remote on/off pins (pin 5 & 9) on J401.
3. Turn on system by setting front panel Power Switch to “ON” position.

Monitoring Basics and System Performance Check

Refer to **Table 3-1** to interpret the system monitor information through Connector J401 located in the rear of the chassis. Basic monitoring is provided for system temperature status, power supply status, and system cooling fan status.

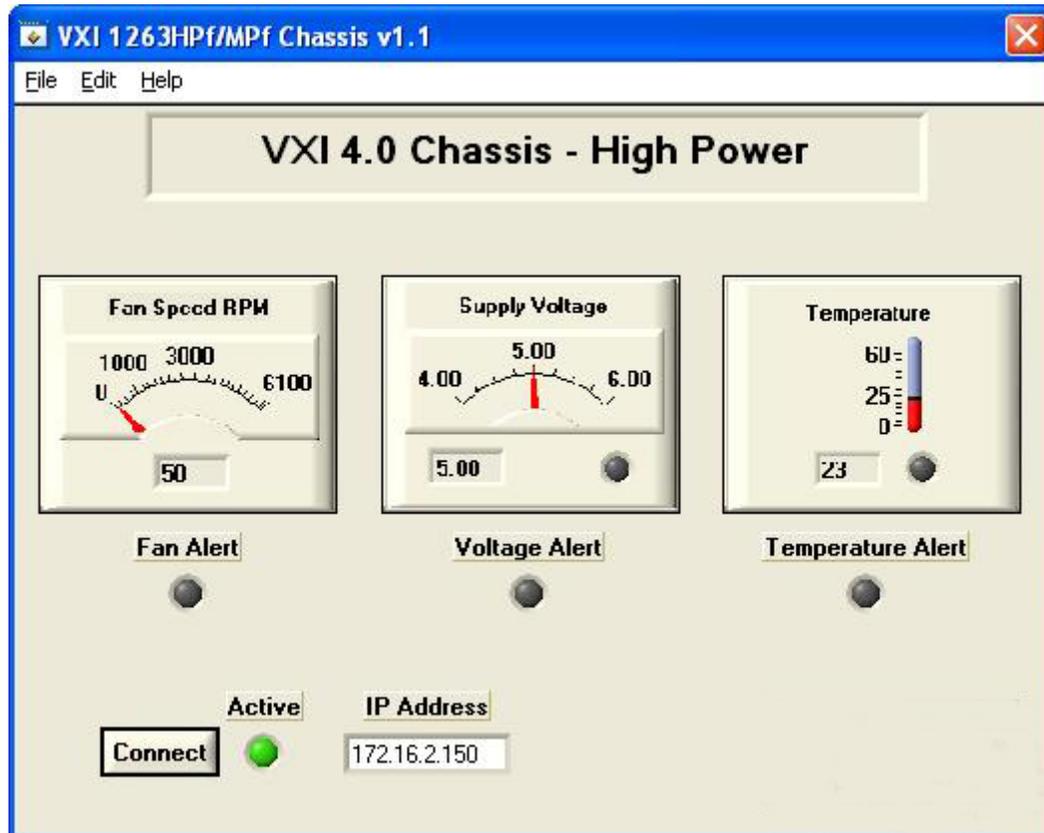
Table 3-1, Monitoring Basics

WHERE TO MEASURE (J401)	WHAT IT MEANS
<p>PINS 4 & 8</p> <p>SHORT (Less than 5 Ohms)</p>	<p>TEMPERATURE STATUS</p> <ul style="list-style-type: none"> • Intake Temp < 45°C • Exhaust Temp < 65°C
<p>PINS 2 & 6</p> <p>SHORT (Less than 5 Ohms)</p>	<p>POWER SUPPLY STATUS</p> <p>+4.56 V < +5 V Rail < +5.50 V +10.95 V < +12 V Rail < +13.20 V +21.90 V < +24 V Rail < +26.40 V -2.20 V < -2 V Rail < -1.83 V -5.72 V < -5.2 V Rail < -4.75 V -13.20 V < -12 V Rail < -10.95 V -26.40 V < -24 V Rail < -21.90 V +2.9 7V < +3.3 V Rail < +3.63 V</p>
<p>Pin 3 & 7</p> <p>SHORT (Less than 5 Ohms)</p>	<p>Fan status ok</p>

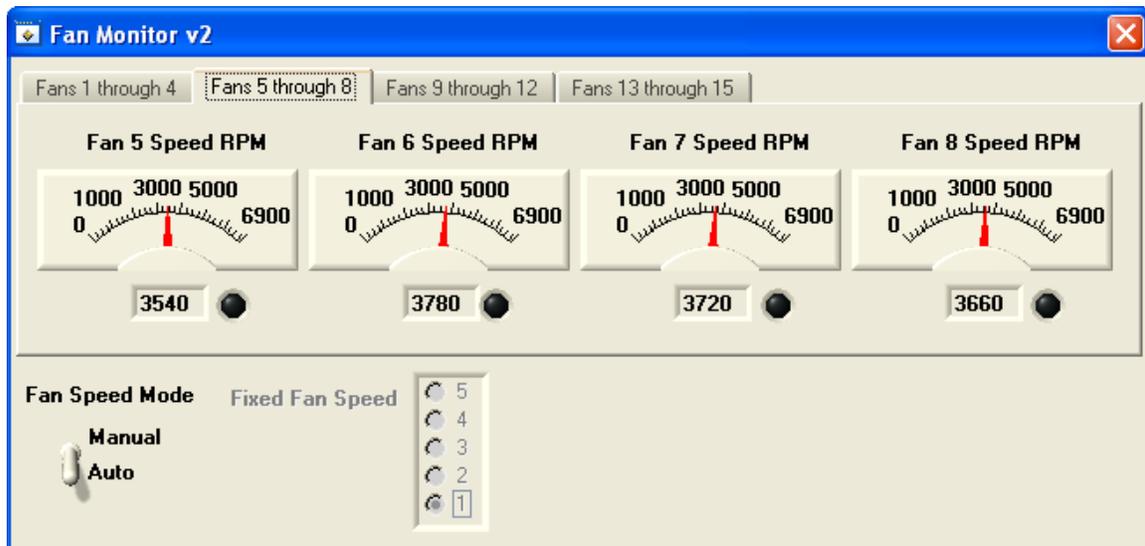
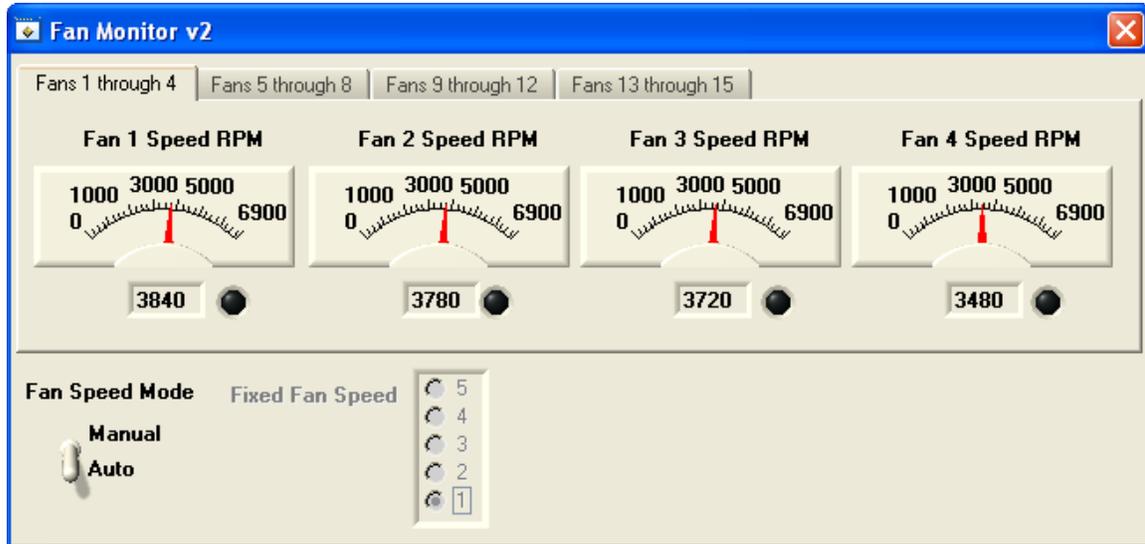
System performance checks can be accomplished through the RJ45 Ethernet port located in the rear of the chassis. Refer to “Appendix B, IP Address Configuration” for setting up the RJ45 Ethernet communication for your application. The Soft Front Panel (SFP)/Graphical User Interface can then be utilized to check the system performance as indicated below.

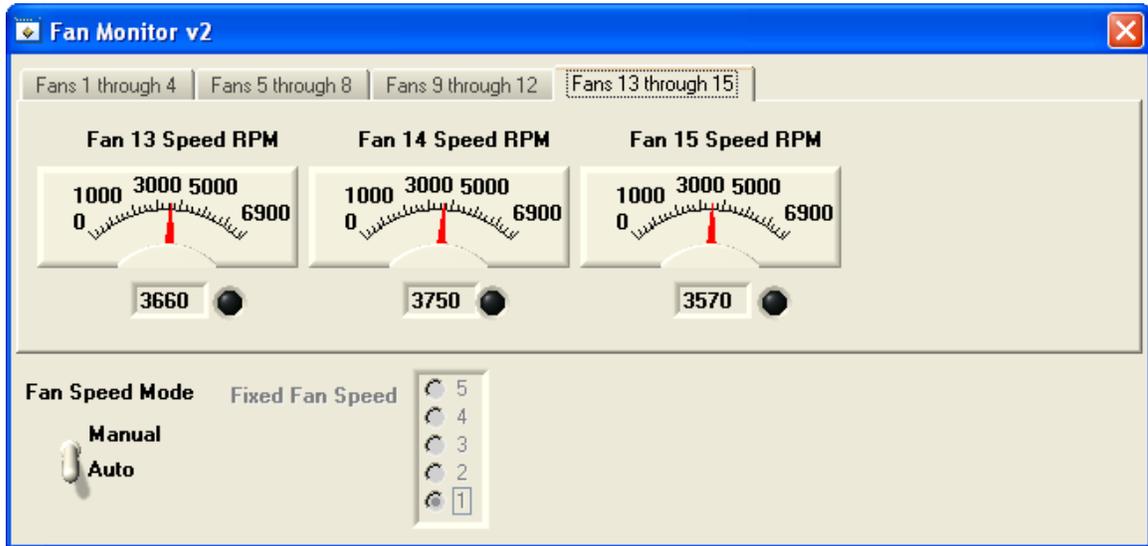
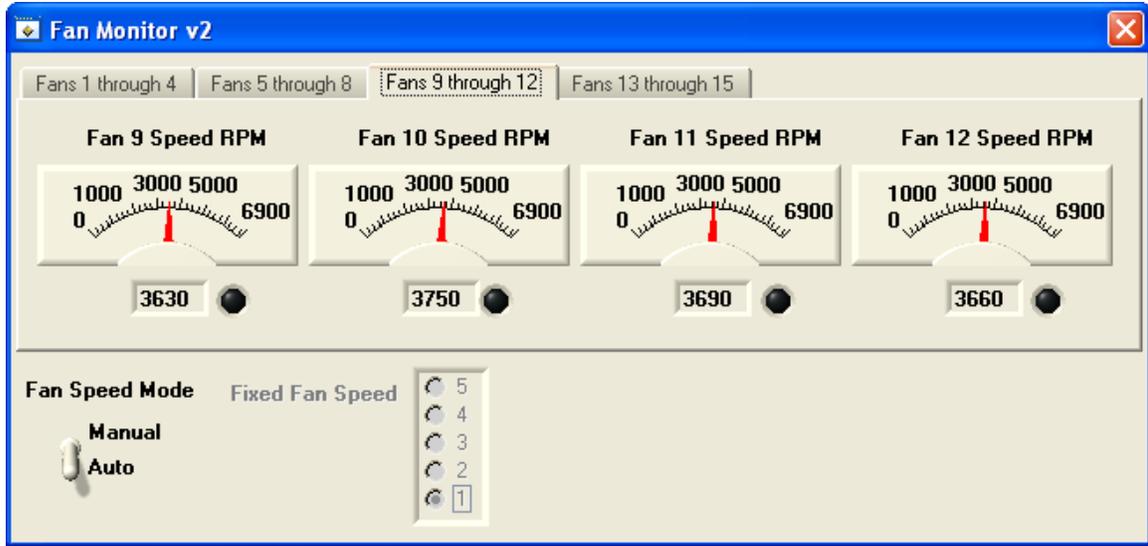
Start the SFP and connect to an Ethernet port by entering the correct IP address and pressing the “Connect” button.

System Level Fan Alert, Voltage Alert, and Temperature Alert can be monitored directly on the following screen.

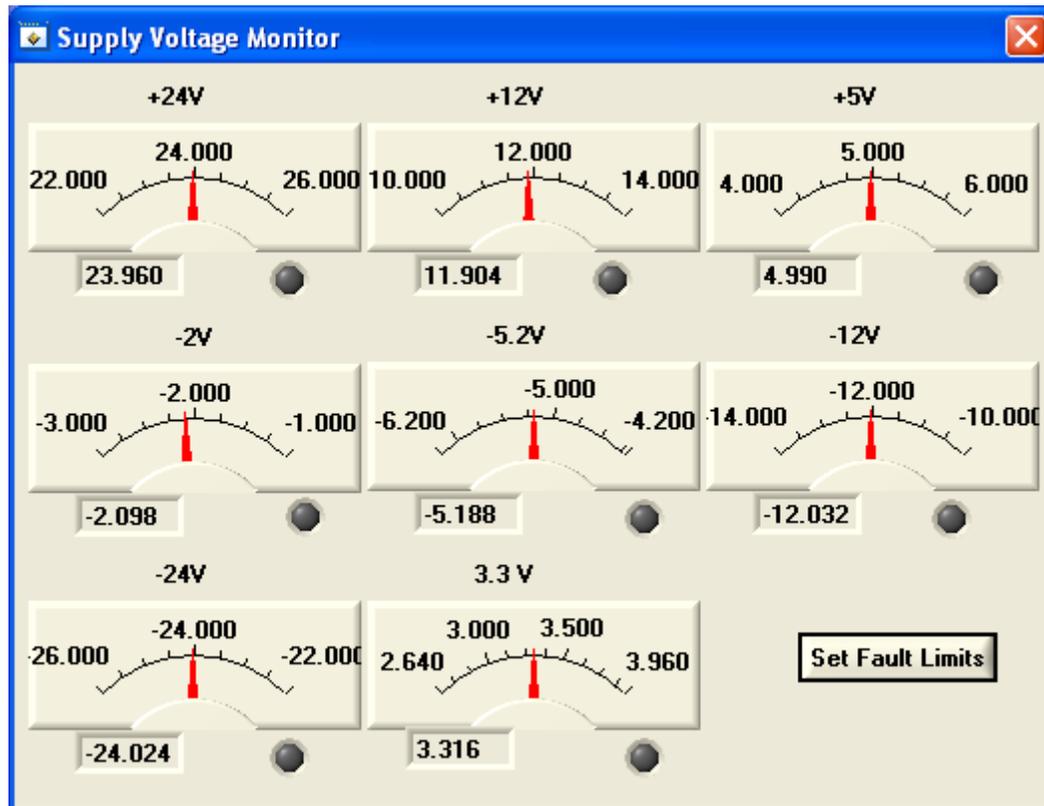


Performance of each cooling fan can be monitored under the “Fan Monitor” sub-menu. An “Alert” light will illuminate if any failure is detected. There are a total of 15 fans in the HPf chassis and their performance can be monitored on four separate sub-menus.

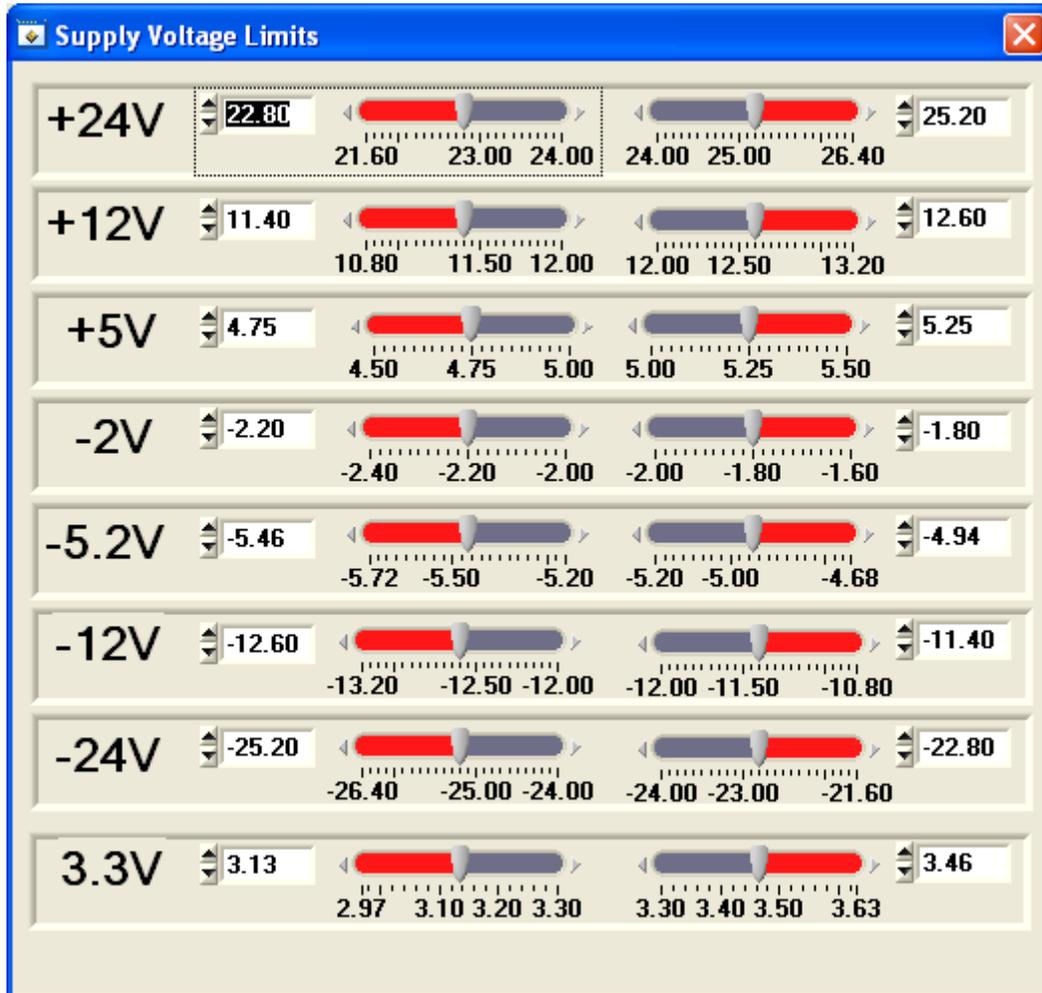




Performance of chassis power supplies can be monitored under the “Supply Voltage monitor” sub-menu. An “Alert” light will illuminate if any failure is detected based on the default “Set Fault Limits.”

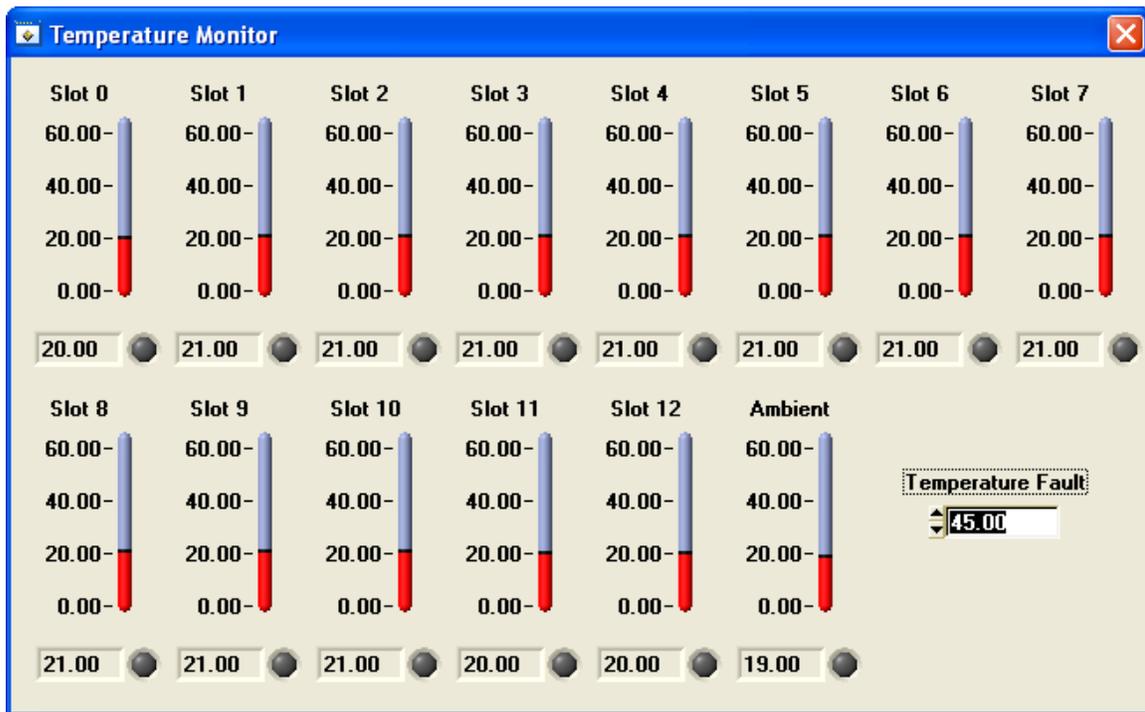


Set Fault limits can be changed as the application requires. Updated or changed settings can be saved on the top SFP under File -> Save Setting as Default.



Chassis air inlet and exhaust temperature can be monitored under the “Temperature Monitor” sub-menu. An “Alert” light will illuminate if any failure is detected based on the default “Temperature Fault” setting.

The “Temperature Fault” setting can be changed as application requires. Updated or changed setting can be saved on the top SFP under File -> Save Setting as Default.



Backplane Connectors

Table 3-2 shows the P1 connector pinouts for all slots 0-12.

Table 3-3 shows the P2 connector pinouts for slots 1-12.

Table 3-4 shows the P2 connector pinouts for slot 0.

Table 3-2, P1 Backplane Connector Pinouts for Slots 0-12

PIN NUMBER	ROW 'z' SIGNAL MNEMONIC	ROW 'a' SIGNAL MNEMONIC	ROW 'b' SIGNAL MNEMONIC	ROW 'c' SIGNAL MNEMONIC	ROW 'd' SIGNAL MNEMONIC
1	MPR	D00	BBSY*	D08	VPC (1)
2	GND	D01	BCLR*	D09	GND (1)
3	MCLK	D02	ACFAIL*	D10	+V1
4	GND	D03	BG0IN*	D11	+V2
5	MSD	D04	BG0OUT*	D12	RsvU
6	GND	D05	BG1IN*	D13	-V1
7	MMD	D06	BG1OUT*	D14	-V2
8	GND	D07	BG2IN*	D15	RsvU
9	MCTL	GND	BG2OUT*	GND	GAP*
10	GND	SYSCLK	BG3IN*	SYSFAIL*	GA0*
11	RESP*	GND	BG3OUT*	BERR*	GA1*
12	GND	DS1*	BR0*	SYSRESET*	+3.3V
13	RsrvBus	DS0*	BR1*	LWORD*	GA2*
14	GND	WRITE*	BR2*	AM5	+3.3V
15	RsrvBus	GND	BR3*	A23	GA3*
16	GND	DTACK*	AM0	A22	+3.3V
17	RsrvBus	GND	AM1	A21	GA4*
18	GND	AS*	AM2	A20	+3.3V
19	RsrvBus	GND	AM3	A19	RsrvBus
20	GND	IACK*	GND	A18	+3.3V
21	RsrvBus	IACKIN*	SERA	A17	RsrvBus
22	GND	IACKOUT*	SERB	A16	+3.3V
23	RsrvBus	AM4	GND	A15	RsrvBus
24	GND	A07	IRQ7*	A14	+3.3V
25	RsrvBus	A06	IRQ6*	A13	RsrvBus
26	GND	A05	IRQ5*	A12	+3.3V
27	RsrvBus	A04	IRQ4*	A11	LI/I*
28	GND	A03	IRQ3*	A10	+3.3V
29	RsrvBus	A02	IRQ2*	A09	LI/O*
30	GND	A01	IRQ1*	A08	+3.3V
31	RsrvBus	-12V	+5V STDBY	+12V	GND (1)
32	GND	+5V	+5V	+5V	VPC (1)

Table 3-3, P2 Backplane Connector Pinouts for Slots 1-12

PIN NUMBER	ROW 'z' SIGNAL MNEMONIC	ROW 'a' SIGNAL MNEMONIC	ROW 'b' SIGNAL MNEMONIC	ROW 'c' SIGNAL MNEMONIC	ROW 'd' SIGNAL MNEMONIC
1	+V3	ECLTRG0	+5V	CLK10+	GND(1)
2	GND	-2V	GND	CLK10-	GND(1)
3	-V3	ECLTRG1	RSV1	GND	LCLK100+
4	GND	GND	A24	-5.2V	LCLK100-
5	+V4	LBUSA00	A25	LBUSC00	GND
6	GND	LBUSA01	A26	LBUSC01	LSYNC100+
7	-V4	-5.2V	A27	GND	LSYNC100-
8	GND	LBUSA02	A28	LBUSC02	GND
9	LBUSA12	LBUSA03	A29	LBUSC03	GND
10	GND	GND	A30	GND	LBUSC12
11	LBUSA13	LBUSA04	A31	LBUSC04	LBUSC13
12	GND	LBUSA05	GND	LBUSC05	+5V
13	LBUSA14	-5.2V	+5V	-2V	LBUSC14
14	GND	LBUSA06	D16	LBUSC06	LBUSC15
15	LBUSA15	LBUSA07	D17	LBUSC07	GND
16	GND	GND	D18	GND	LBUSC16
17	LBUSA16	LBUSA08	D19	LBUSC08	LBUSC17
18	GND	LBUSA09	D20	LBUSC09	+5V
19	LBUSA17	-5.2V	D21	-5.2V	LBUSC18
20	GND	LBUSA10	D22	LBUSC10	LBUSC19
21	LBUSA18	LBUSA11	D23	LBUSC11	GND
22	GND	GND	GND	GND	GND
23	LBUSA19	TTLTRG0*	D24	TTLTRG1*	STRGOUT+
24	GND	TTLTRG2*	D25	TTLTRG3*	STRGOUT-
25	+12V	+5V	D26	GND	STRGIN0+
26	GND	TTLTRG4*	D27	TTLTRG5*	STRGIN0-
27	-12V	TTLTRG6*	D28	TTLTRG7*	STRGIN1+
28	GND	GND	D29	GND	STRGIN1-
29	+24V	RSV2	D30	RSV3	STRGIN2+
30	GND	MODID	D31	GND	STRGIN2-
31	-24V	GND	GND	+24V	GND (1)
32	GND	SUMBUS	+5V	-24V	VPC (1)

Table 3-4, P2 Backplane Connector Pinouts for VXibus Slot 0

PIN NUMBER	ROW 'z' SIGNAL MNEMONIC	ROW 'a' SIGNAL MNEMONIC	ROW 'b' SIGNAL MNEMONIC	ROW 'c' SIGNAL MNEMONIC	ROW 'd' SIGNAL MNEMONIC
1	+V3	ECLTRG0	+5V	CLK10+	GND (1)
2	GND	-2V	GND	CLK10-	GND (1)
3	-V3	ECLTRG1	RSV1	GND	LCLK100+
4	GND	GND	A24	-5.2V	LCLK100-
5	+V4	MODID12	A25	LBUSC00	GND
6	GND	MODID11	A26	LBUSC01	LSYNC100+
7	-V4	-5.2V	A27	GND	LSYNC100-
8	GND	MODID10	A28	LBUSC02	GND
9	SDA0	MODID09	A29	LBUSC03	STRGIN12+
10	GND	GND	A30	GND	STRGIN12-
11	SCL0	MODID08	A31	LBUSC04	STRGIN11+
12	GND	MODID07	GND	LBUSC05	STRGIN11-
13	SDA1	-5.2V	+5V	-2V	STRGIN10+
14	GND	MODID06	D16	LBUSC06	STRGIN10-
15	SCL1	MODID05	D17	LBUSC07	STRGIN09+
16	GND	GND	D18	GND	STRGIN09-
17	STRGIN04+	MODID04	D19	LBUSC08	STRGIN08+
18	GND	MODID03	D20	LBUSC09	STRGIN08-
19	STRGIN04-	-5.2V	D21	-5.2V	STRGIN07+
20	GND	MODID02	D22	LBUSC10	STRGIN07-
21	STRGIN03+	MODID01	D23	LBUSC11	STRGIN06+
22	GND	GND	GND	GND	STRGIN06-
23	STRGIN03-	TTLTRG0*	D24	TTLTRG1*	STRGIN05+
24	GND	TTLTRG2*	D25	TTLTRG3*	STRGIN05-
25	STRGIN02+	+5V	D26	GND	STRGOUT0+
26	GND	TTLTRG4*	D27	TTLTRG5*	STRGOUT0-
27	STRGIN02-	TTLTRG6*	D28	TTLTRG7*	STRGOUT1+
28	GND	GND	D29	GND	STRGOUT1-
29	STRGIN01+	RSV2	D30	RSV3	STRGOUT2+
30	GND	MODID00	D31	GND	STRGOUT2-
31	STRGIN01-	GND	GND	+24V	GND (1)
32	GND	SUMBUS	+5V	-24V	VPC (1)

This page was left intentionally blank.

Chapter 4

UNDERSTANDING THE 1263HPF

Overview

The 1263HPf Mainframe consists of the following major functional blocks.

- Power Supply
- Backplane
- Cooling System
- Monitoring System

Figure 4-1 shows the functional block diagram of the 1263HPf Mainframe.

Power Supply

The removable power supply drawer accepts power from the AC mains and converts it to DC to power the following:

- VXI modules installed into the backplane
- Backplane terminations and daisy chaining logic
- Module Cooling Fans
- System Monitoring
- Front Panel Power Indicator LED

Power Supply Interconnection

Power is supplied to the backplane through the Power Drawer blind-mate connector interface J200. Power is further routed to the backplane through the System Monitor and Mezzanine cards located behind the backplane.

408177-001
 1263HPf CHASSIS, W/O SS, VXI 4.0

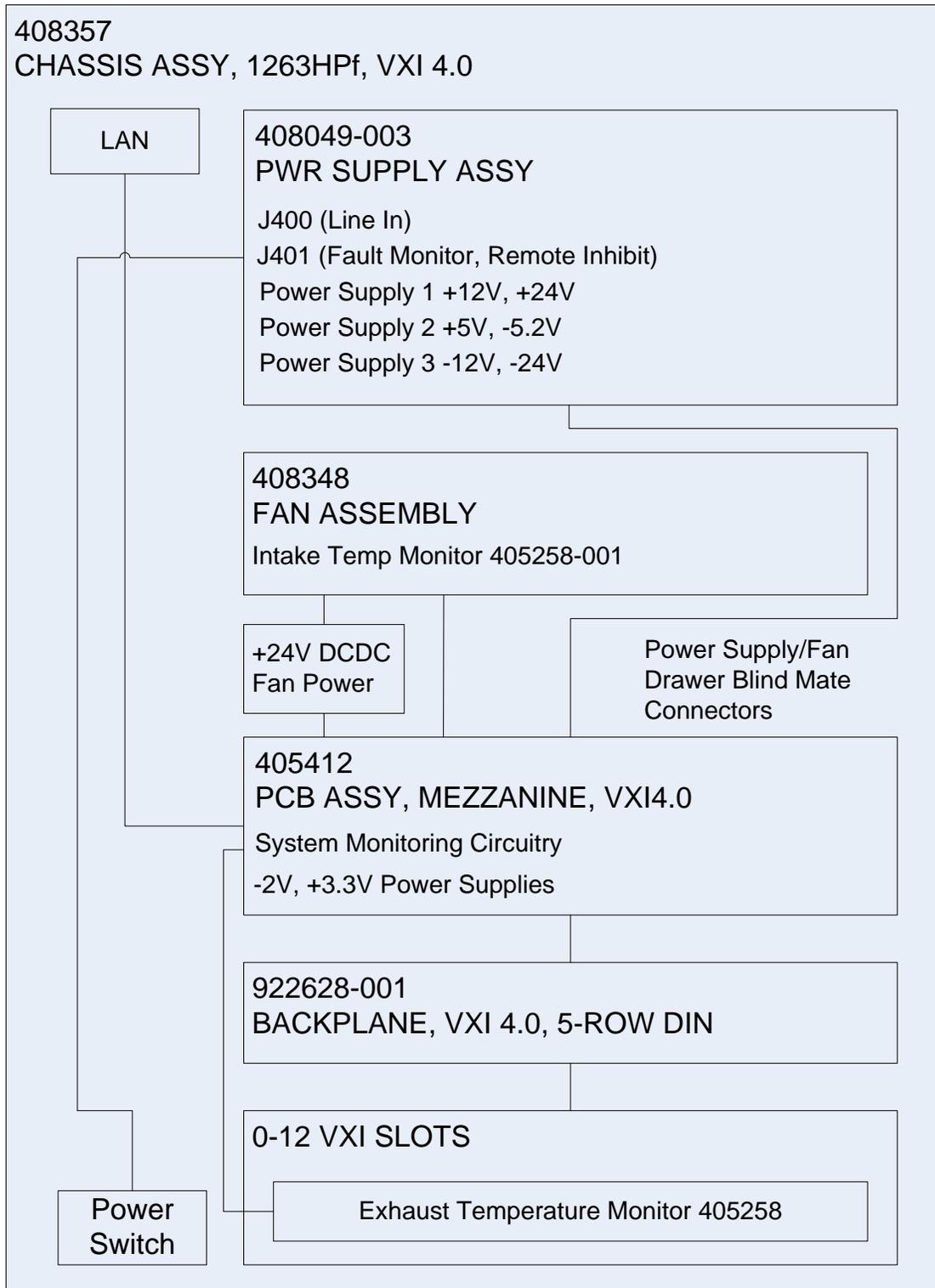


Figure 4-1, 1263HPf Chassis Functional Block Diagram

Power Supply Protections

The seven VXIbus power supply outputs are protected for:

- Short Circuit
- Over-Load

Backplane

The Backplane serves several functions:

- Rigid mechanical interface which accommodates a lifetime of insertions of VXI modules and the plug-in power supply
- Supplies DC voltages and currents to modules
- Connects the VME communications interface across P1 and P2 from slot 0 to slot 12
- Connects the VXI extensions across P2 rows a and c from slot 0 to slot 12

Cooling System

The front removable fan assembly housing fifteen cooling fans. The fan speed is controlled to reduce ambient noise from the chassis. Fan speed is set to low when the exhaust temperature of all 13 VXI slots is below 30° C.

Cooling air enters from the rear of the chassis and is exhausted out the top.

Cooling the Power System

Both power supplies located in the power supply drawer are cooled by the fans located in the power supply modules themselves. These fans run at full speed whenever power is connected to the system and are not controlled by the system monitor.

This page was left intentionally blank.

Chapter 5

MAINTENANCE

What's in This Chapter

This chapter provides procedures for inspecting and cleaning the 1263HPf, removing and replacing mainframe components, and isolating problems to the module level. Refer to **Chapter 4 Understanding the 1263HPf** for theory of operation information.

Service Strategy

The service procedures in this manual provide removal and replacement procedures to repair the 1263HPf to the module level. Module level repairs are accomplished by exchanging faulty modules with known good modules or parts. No component-level repair is provided in this manual.

Service Interval

Clean dust from the mainframe exterior (and interior) as needed, based on the operating environment. Periodic cleaning reduces instrument breakdown and increases reliability.

Preparation

The information in this section is designed for use by qualified service personnel. Read the **For Your Safety** at the front of this manual and **Service Strategy** before attempting any procedures in this chapter. Refer to **Chapter 3 Operating the 1263HPf** for information on the location of controls, indicators, and connectors used with the mainframe.

CAUTION

Many components within the mainframe are susceptible to static discharge damage. Service the mainframe only in a static-free environment. Observe standard handling precautions for static-sensitive devices while servicing the mainframe. Always wear a grounded wrist strap, or equivalent, while servicing the mainframe.

Inspection and Cleaning

The mainframe is inspected mechanically and electrically before shipment. It should be free of marks or scratches and should meet or exceed all electrical specifications. To confirm this, inspect the mainframe for physical damage incurred during transit. Retain the mainframe packaging if reshipment is necessary.

Cleaning procedures consist of exterior and interior cleaning of the mainframe. Refer to your module user documentation for information on cleaning the individual VXIbus modules.

CAUTION

Always power off the mainframe and disconnect the power cord before cleaning or servicing the mainframe.

Interior Cleaning

Use a dry, low-velocity stream of air to clean the interior of the mainframe. Use a soft-bristle brush for cleaning around components. If you must use a liquid for minor interior cleaning, use a 75% isopropyl alcohol solution and rinse with de-ionized water.

Exterior Cleaning

Clean the exterior surfaces of the mainframe with a dry lint-free cloth or a soft-bristle brush. If any dirt remains, wipe with a cloth moistened in a mild soap solution. Remove any soap residue by wiping with a cloth moistened with clear water. Do not use abrasive compounds on any part of the mainframe.

CAUTION

Avoid getting moisture inside the mainframe during exterior cleaning - use just enough moisture to dampen the cloth.

Do not wash the front or rear panel connectors or switches. Cover these components while cleaning the mainframe.

Do not use chemical cleaning agents; they may damage the mainframe. Avoid chemicals that contain benzene, toluene, xylene, acetone, or similar solvents.

Modular Component Removal and Replacement

The following procedures describe how to remove and replace module-level components of the 1263HPf Mainframe. Perform these procedures only as necessary as part of installation, mainframe service, or repair. Refer to the **Assembly Drawings** in this chapter for an overview of the assembly and disassembly of the mainframe. See **Troubleshooting** for assistance in fault isolation.

CAUTION

Always power off the mainframe and disconnect the power cord before cleaning or servicing the mainframe.

Tools Required

The only tool required to disassemble the 1263HPf chassis to the module level is a medium flat blade screwdriver.

Removal and Replacement of the Fan Assembly

The front plug-in fan assembly may be removed and replaced as described in the following steps. Refer to **Figure 5-1**.

1. Loosen the all captive thumbscrews which secure the module fan drawer assembly to the mainframe.
2. Firmly pull the fan assembly out from the front of the chassis.
3. Replace the fan assembly by repeating the above steps (in reverse order).

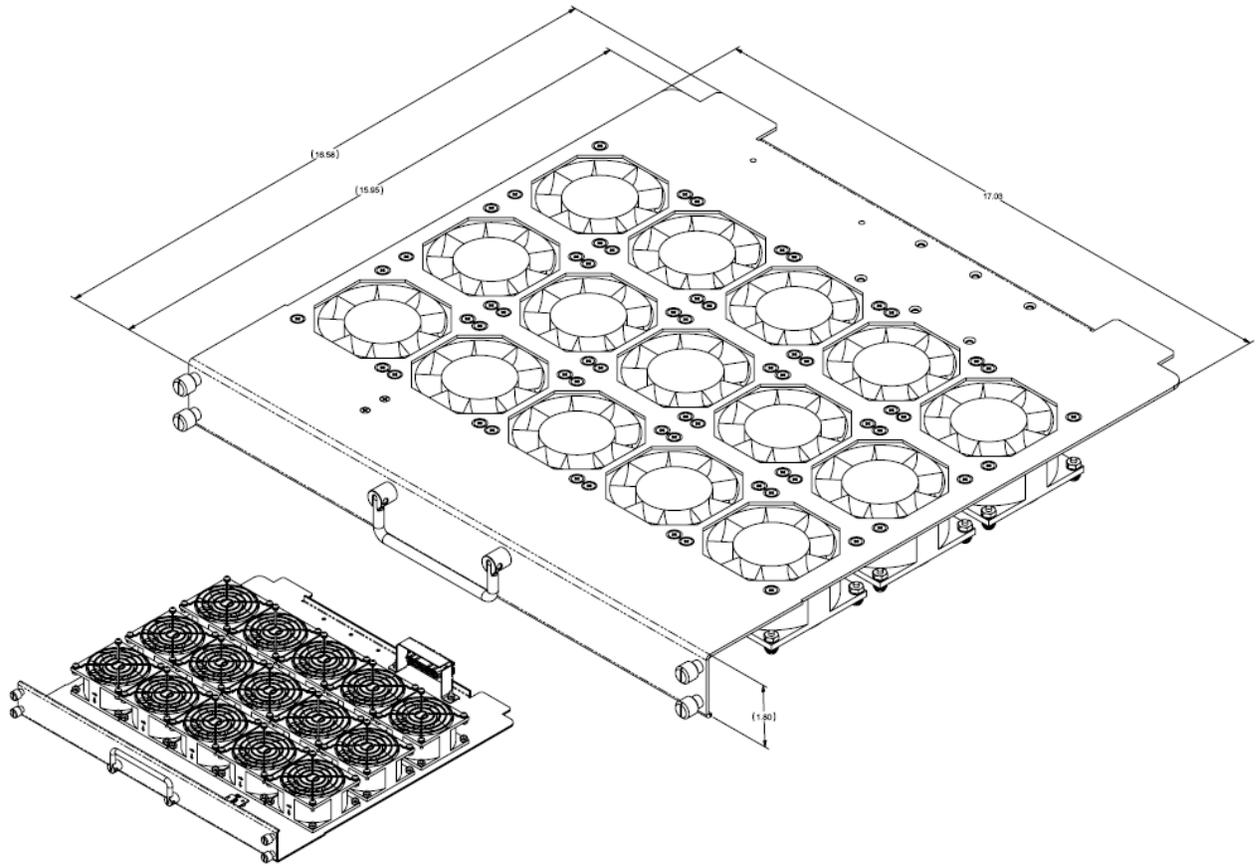


Figure 5-1, Module Fan Assembly Detail

Removal and Replacement of the Power Drawer Assembly

The front plug-in power supply assembly may be removed and replaced as described in the following steps. Refer to **Figure 5-2**.

CAUTION

Always power off the mainframe and disconnect the power cord before cleaning or servicing the mainframe.

1. Loosen the four captive thumbscrews which secure the module power supply drawer assembly to the mainframe.
2. Firmly pull the power supply assembly out from the front of the chassis.
3. Replace the supply by repeating the above steps (in reverse order).

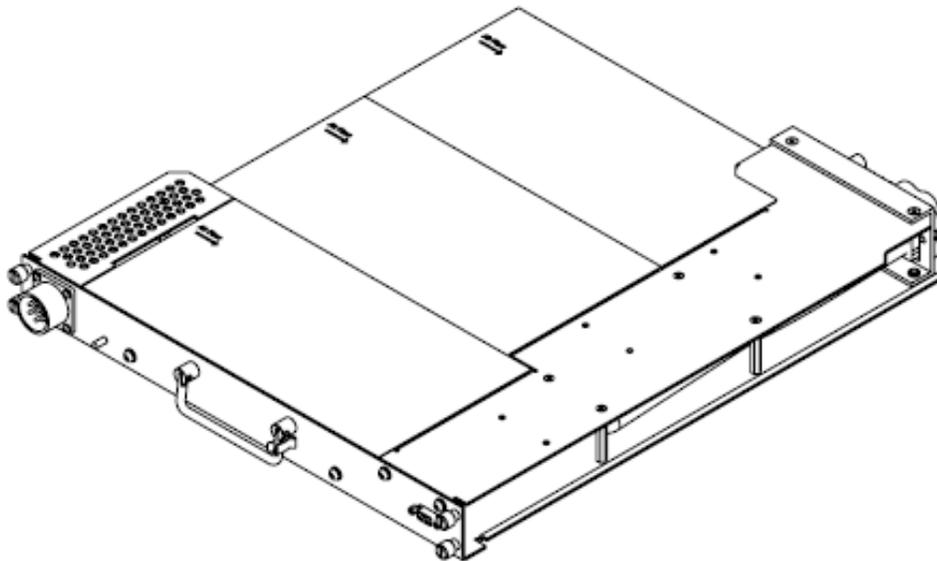


Figure 5-2, Power Supply Drawer Assembly Detail

Removing and Replacing the Card Guides

Complete the following steps while referring to **Figure 5-3** to remove and replace the card guides. The procedure applies to top and bottom card guides.

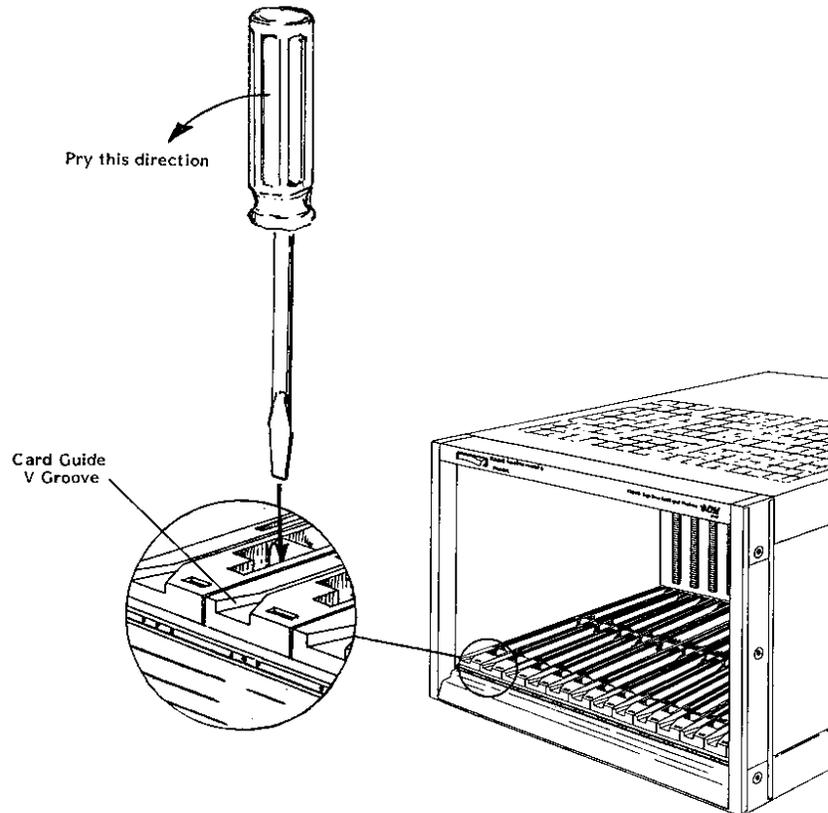


Figure 5-3, Card Guide Removal and Replacement

Note: Figure is of a standard chassis

1. Insert a flat blade screwdriver into the slot in front of the retaining hook.
2. Gently pry the tab of the retaining hook to the rear, and lift the card guide, releasing it at the front.
3. Gently pull the card guide forward releasing it from the center and rear retaining hooks. Bowing the card guide is required to clear the front rail.
4. To replace, align the card guide with the mainframe front ensuring that the “V” groove is at the front.
5. Gently push down and to the rear to engage the hooks at the rear and middle of the card guide. Bowing the card guide is required to clear the front rail.
6. Allow the front retaining hook to rest on the front rail.
7. Insert a flat blade screwdriver into the slot in front of the retaining hook.
8. Gently pry the tab of the retaining hook to the rear, and press down the front of the card guide to snap into position.

Troubleshooting the 1263HPf

To troubleshoot the 1263HPf VXIbus mainframe to its component module level use **Table 5-1** and **Understanding the 1263HPf** in Chapter 4.

“Alarm conditions” referenced in the **PROBLEM** column of **Table 5-1** occur when the monitored system health status function (Voltage or Temperature) is outside of its specified tolerance.

Table 5-1, Troubleshooting

PROBLEM	POSSIBLE CAUSES	WHAT TO DO
"Power" LED does not come on.	<ul style="list-style-type: none"> • Power supply not properly connected. • 1263HPf mainframe or power supply not connected to power source. • Power/On/Standby switch not switched on. Remote On/ off pins not connected • Power supply protections are active causing the supply to be "shutdown". 	<ul style="list-style-type: none"> • Verify that the power supply assembly is fully cabled to the 1263HPf mainframe. • Make sure that the 1263HPf is connected to a live electrical outlet. Try operating another piece of equipment from this outlet. • Set the front Power On/Standby switch to the ON position, connect remote on/off pins. (See "Powering on the 1263HPf" in Chapter 3). • Cycle power to clear fault. If fault persists remove installed VXI modules (cycle power) until fault is cleared.
Voltage alarm condition.	<ul style="list-style-type: none"> • Faulty VXI module installed or voltage fault occurred. • VXI supply is out of tolerance. 	<ul style="list-style-type: none"> • Cycle power. • If fault persists remove installed VXI modules until fault indication is cleared. • Perform Basic Functional Check procedure from Chapter 3. • If the problem persists, remove and replace the power supply drawer. See "Removal and Replacement of the Power Drawer Assembly" in this chapter.
Temperature alarm condition.	<ul style="list-style-type: none"> • Module temperature rise or max ambient limit exceeded. <li style="text-align: center;">or • Insufficient module cooling air. 	<ul style="list-style-type: none"> • Check for restrictions to airflow at mainframe intake and exhaust. • Remove suspected defective VXI modules. Recycle power.

Chapter 6

FUNCTIONAL CHECKS

Basic Functional Check

The basic functional check consists of

1. Checking the 1263HPf chassis temperature status, power supply voltages to VXIbus limits, and cooling fan status through the DB9 J401 connector.
2. Checking the 1263HPf chassis intake/ exhaust air temperature readings, power supply voltage levels, and cooling fan operations, utilizing the 1263HPf Soft Front Panel through the RJ45 Ethernet port connection.

Refer to **Table 6-1**. J401 is located in the front of the chassis. Connect Ohmmeter tests leads to measure the resistance between the pins specified.

Table 6-1, Monitoring Basics

WHERE TO MEASURE (J401)	WHAT IT MEANS	Pass/ Fail
PINS 4 & 8 SHORT (Less than 5 Ohms)	TEMPERATURE STATUS <ul style="list-style-type: none"> • Intake Temp < 45° C • Exhaust Temp < 65° C 	
PINS 2 & 6 SHORT (Less than 5 Ohms)	POWER SUPPLY STATUS +4.56 V < +5V Rail < +5.50 V +10.95 V < +12V Rail < +13.20 V +21.90 V < +24V Rail < +26.40 V -2.20 V < -2V Rail < -1.83 V -5.72 V < -5.2V Rail < -4.75 V -13.20 V < -12V Rail < -10.95 V -26.40 V < -24V Rail < -21.90 V +2.97 V < +3.3V Rail < +3.63V	
PIN 3 & 7 SHORT (less than 5 Ohm)	Fan Status OK	

An additional basic functional check is accomplished through the RJ45 Ethernet port located in the rear of the chassis. Refer to “Appendix B, IP Address Configuration” for setting up the RJ45 Ethernet communication. The Soft Front Panel (SFP)/Graphical User Interface can then be utilized to perform the test.

To run the SFP tests, start the SFP and connect to an Ethernet port by entering the correct IP address and pressing the “Connect” button.

Verify that the Fan, Voltage, temperature Alert Red LED indicators on the panel are not illuminated. Use **Table 6-2** to record data on failed fan speed, voltage rails, and slot temperature.

Main Monitoring Panel

The Main Monitoring Panel is used for checking the aggregate indicators for any failures. If any indicators are lit, click on the readout gauge for more information on specific failure locations.

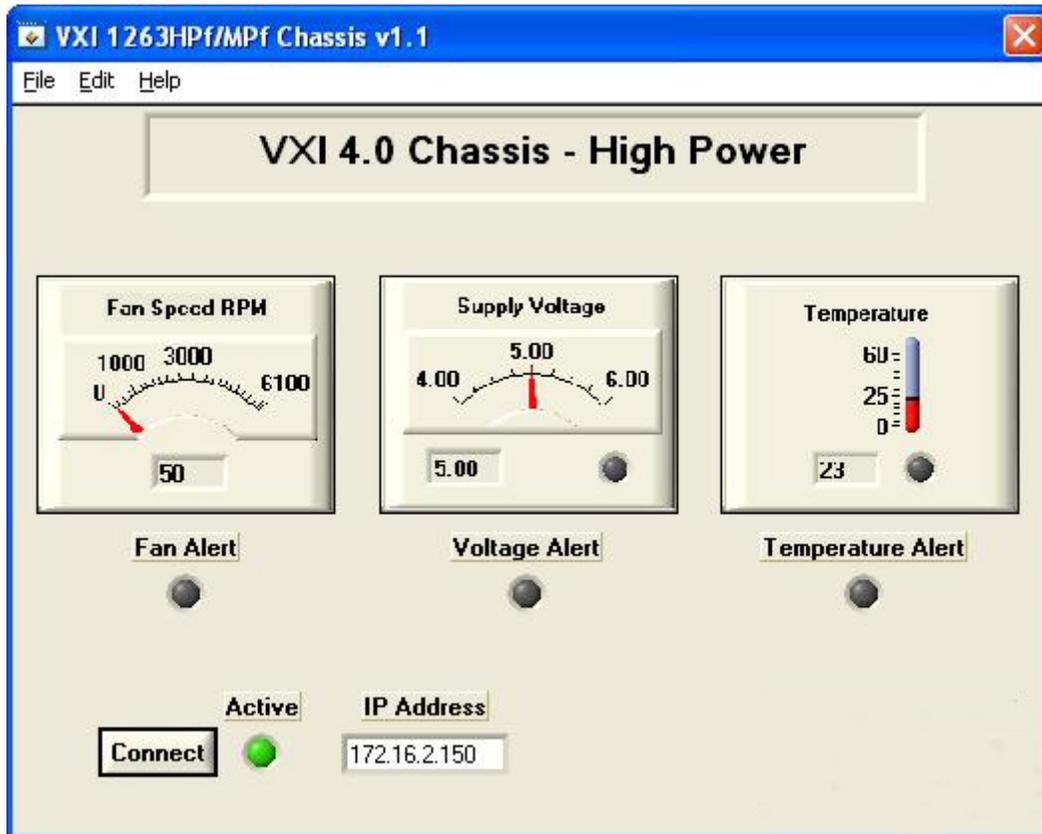


Figure 6-1, Main Monitoring Panel

Table 6-2, Pass/Fail Table

Indicator	Pass/Fail
Fan Alert	Enter Pass or if Alert Lit, Enter Fan Number and RPM_____
Voltage Alert	Enter Pass or if Alert Lit, Enter Failed Channel readings_____
Temperature Alert	Verify that all temperature readings at ambient match the ambient temperature for a pass. Fail if any of the slot readings don't match the loading conditions of a given slot._____

Fan Speed Monitoring

Use these panels to determine if any of the fans are not turning at the expected speed within the expected error limits (as indicated by the 4 fail LEDs). Refer to **Figures 6-2 and 6-3**.

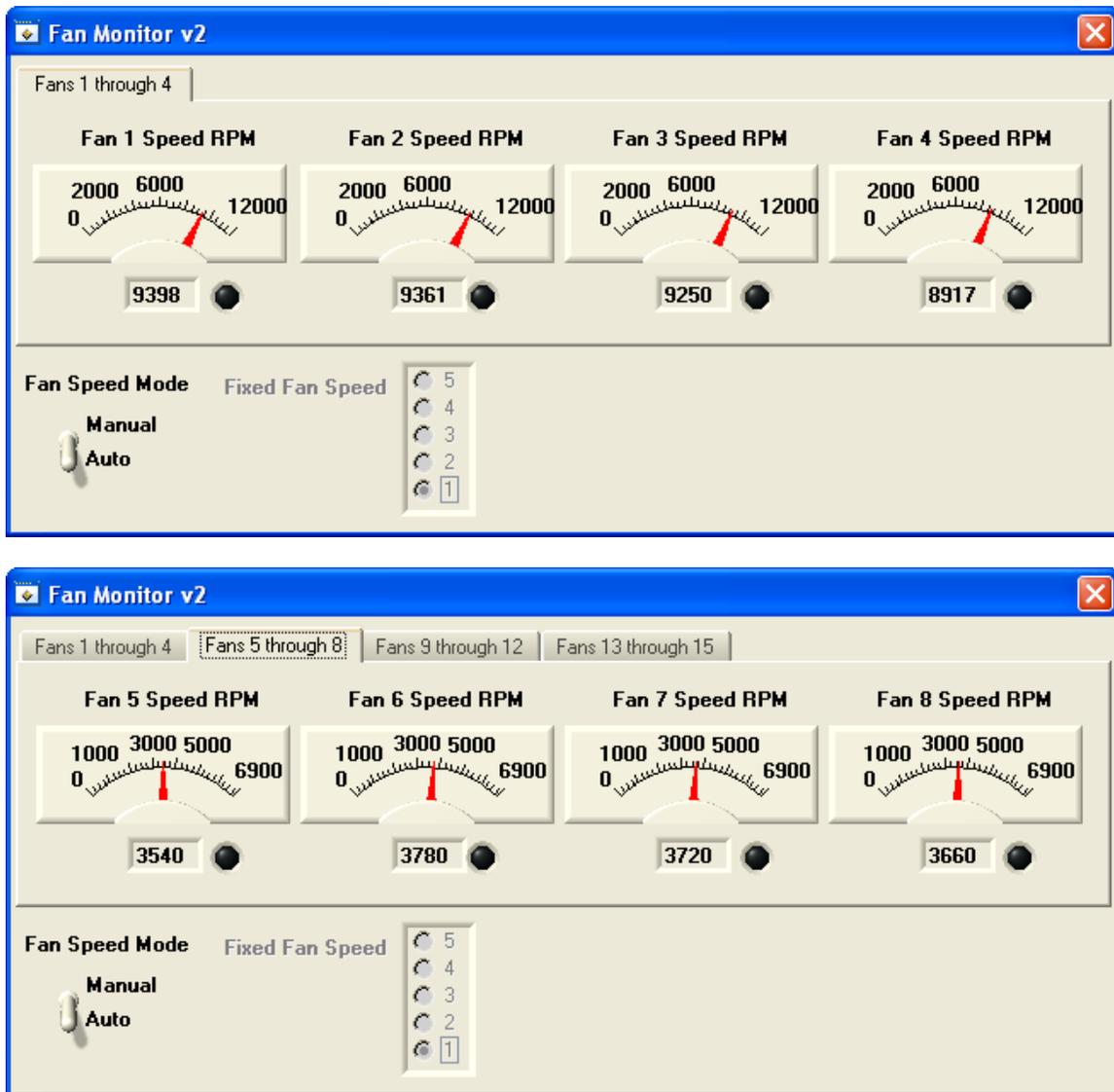


Figure 6-2, Fan Speed Monitoring (Fans 1 through 8)

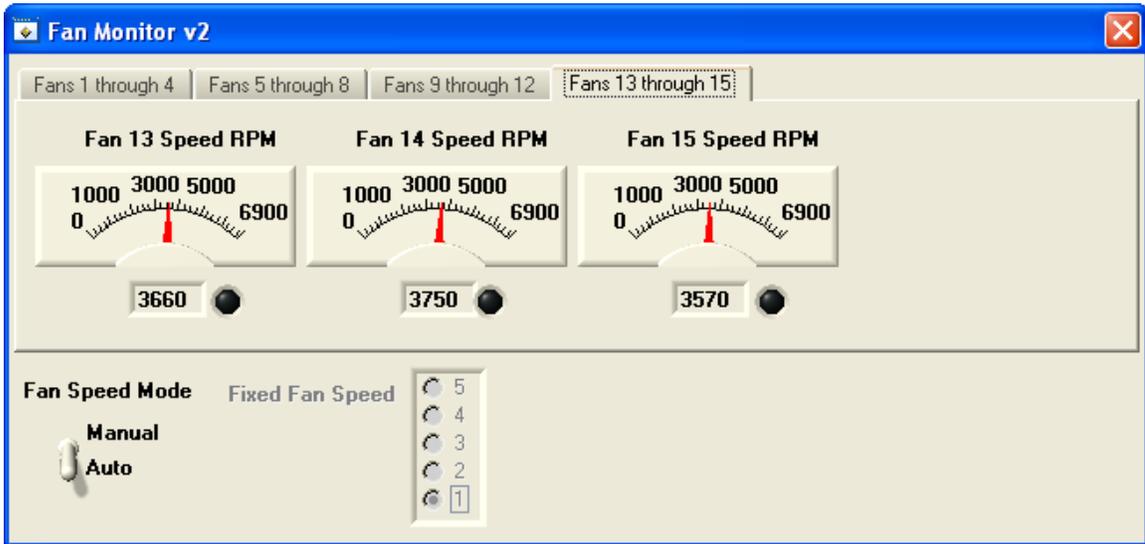
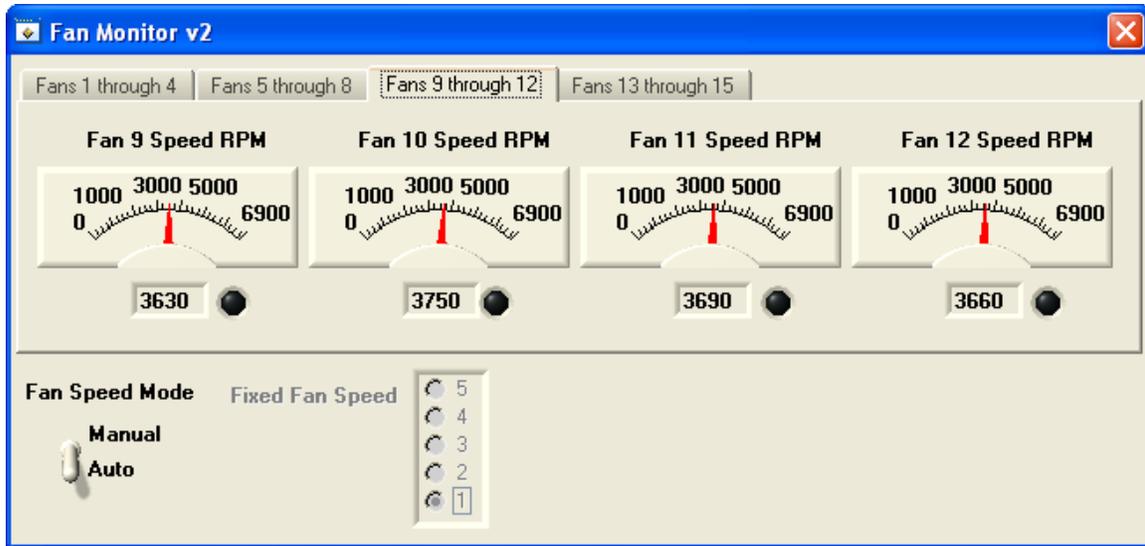


Figure 6-3, Fan Speed Monitoring (Fans 9 through 15)

Supply Voltage Monitoring

Use this panel to determine which power rails, if any, exceed the VXI set error limits (as indicated by the fail red indicators). See **Figure 6-4**.

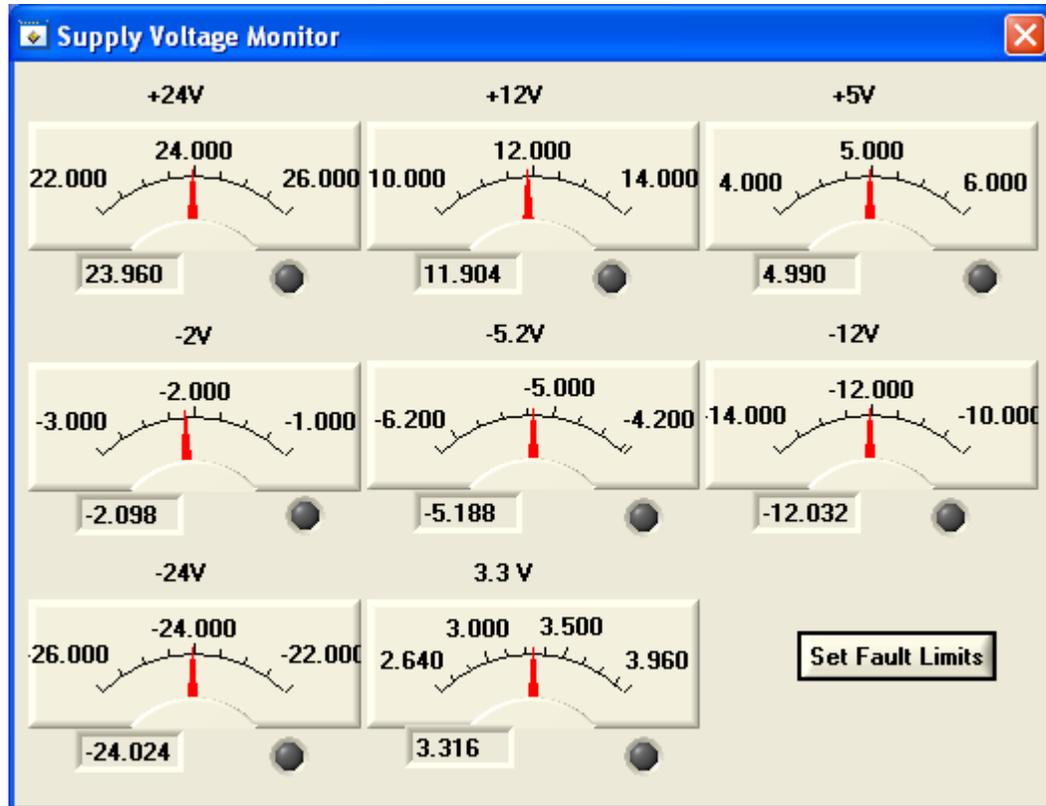


Figure 6-4, Per VXI Rail Voltage Monitoring

Temperature Monitoring

Use this to compare slot loading to temperature readings for a basic performance check. (Failures are indicated by the fail red indicators). See **Figure 6-5**.

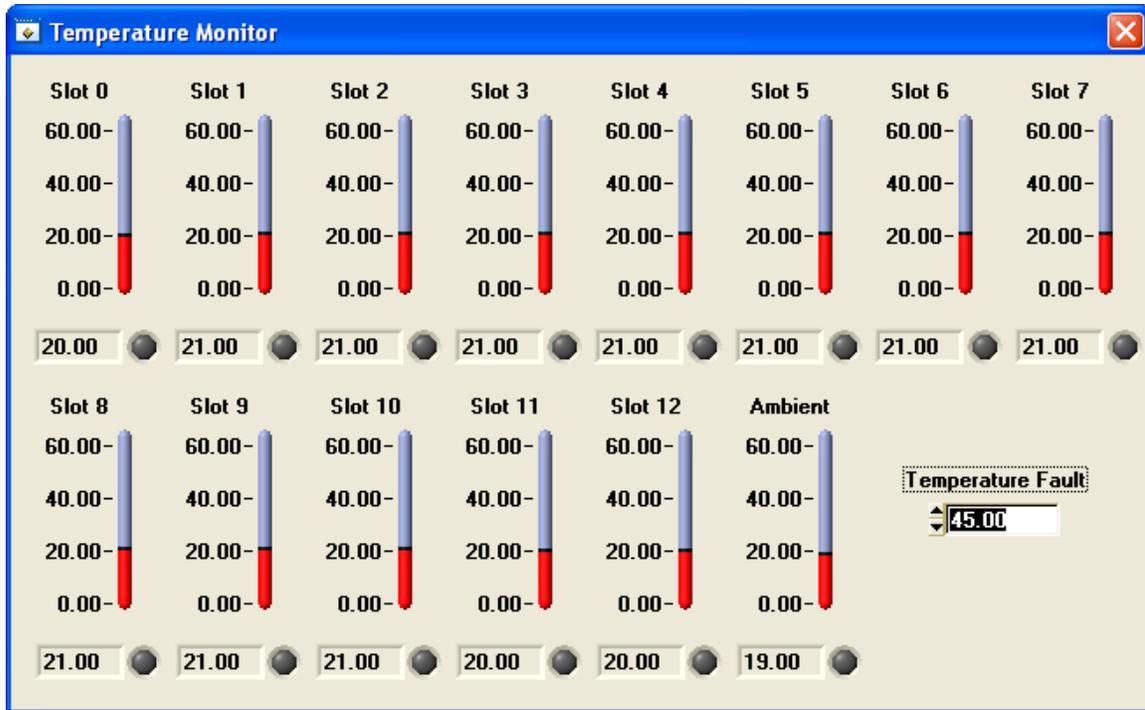


Figure 6-5, Per Slot Temperature Monitoring

This page was left intentionally blank.

Appendix A

SPECIFICATIONS

Specifications

This chapter contains the complete specifications for the 1263HPf mainframe.

Table A-1, AC Input Specifications

Characteristic	Description
Input Voltage Range	85 – 264 VAC or 100 – 380 VDC
Input Frequency Range	47 Hz to 500 Hz
Power Disconnect	Power cord provides main power disconnect at J400

Table A-2, DC Output Power

Characteristic	Description	
DC Current Capacity (I_{MP})	Voltage	I_{MP} (Steady-State Current)
	+24 V	40 A
	+12 V	40 A
	+5 V	160 A
	-2 V	3 A
	+3.3 V	20 A
	-5.2 V	69 A
	-12 V	40 A
	-24 V	40 A
DC Voltage Regulation	Voltage	Tolerance, V
	+24 V	+1.2 V, -720 mV
	+12 V	+600 mV, -360 mV
	+5 V	+250 mV, -125 mV
	+3.3 V	+250 mV, -125 mV
	-2 V	-100 mV, +100 mV
	-5.2 V	-260 mV, +156 mV
	-12 V	-600 mV, +360 mV
	-24 V	-1.2 V, +720 mV
V+/V-	± 1.2 V, ± 720 mV	
Load Ripple/Noise	Voltage	Ripple/Noise (X1 Probe, 10 mHz BW)
	+24 V	150 mV _{pp}
	+12 V	50 mV _{pp}
	+5 V	50 mV _{pp}
	+3.3 V	50 mV _{pp}
	-2 V	50 mV _{pp}
	-5.2 V	50 mV _{pp}
	-12 V	50 mV _{pp}
	-24 V	150 mV _{pp}
V+/V-	150 mV _{pp}	
Protections	Short Circuit	
	Overload	

Table A-3, Cooling

Characteristic	Description
Per Slot Cooling Capacity	Typically over 200 W per slot.
Cooling System	Forced air circulation (positive pressurization)
Fan Speed Control (Controlled by system monitor)	Variable-speed fan control Automatically/ manually control set via Ethernet
Slot Airflow Direction	P2 to P1, bottom of module to the top of module
Mainframe Intake	Bottom rear of mainframe (below fan assembly drawer)
Mainframe Exhaust	Top of mainframe.
Filter Access	N/A

Table A-4, Environmental (Typical)

Characteristic	Description
Temperature Operating Non-operating	0° C to 50° C -40° C to 71° C
Altitude Operating Non-operating	15,000 ft. 15,000 ft.
Sine Vibration Operating Non-operating	15 g, 11 ms, ½ sine wave
Functional Shock Operating	0.13 in (p-p), 5 to 55 Hz

Table A-5, Backplane

Characteristic	Description
Bus Grant/Interrupt Acknowledge	Solid state, auto-configuring (jumper less)
VXIbus CLK10 Distribution	Full differential

Table A-6, Mechanical

Characteristic	Description
Overall Dimensions	Mainframe
Height	17.5 in
Width	19 in
Depth	23.8 in
Weight	
Mainframe	69.1 lbs

Appendix B

IP ADDRESS CONFIGURATION

IP Address Configuration

This chapter describes how to modify the IP address assigned to the chassis for Ethernet communication

Default Configuration

Each chassis is configured at the factory to use DHCP addressing. This means that your network must have a DHCP server to assign IP addresses.

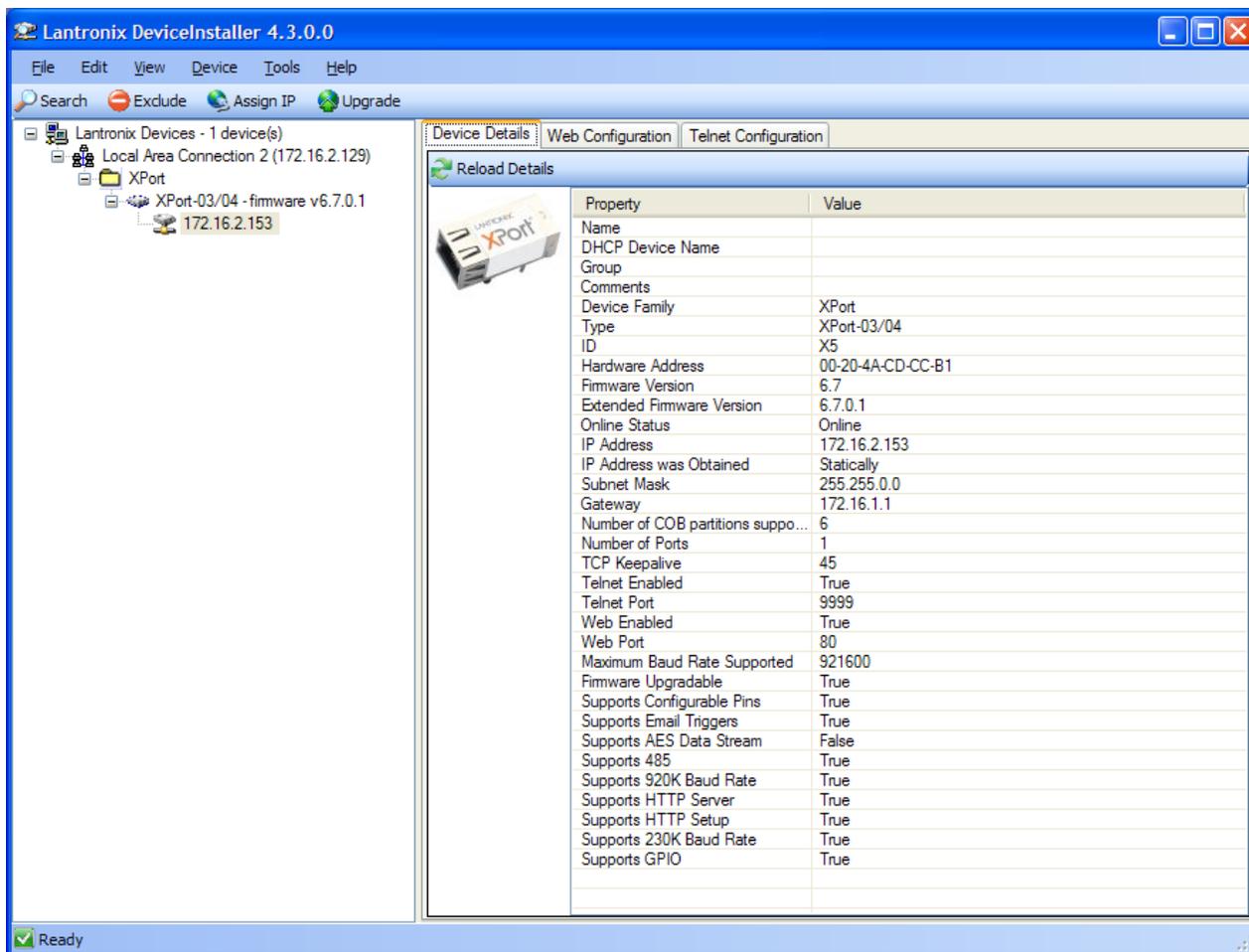
One means to identify the IP address assigned by the DHCP server to the chassis is to run the Lantronix DeviceInstaller utility program.

The “DeviceInstaller” utility program may be downloaded from the Lantronix website:

<http://www.lantronix.com/support/downloads/?p=XPORT>

Once you download and install the DeviceInstaller utility, you can find the address of the chassis as follows:

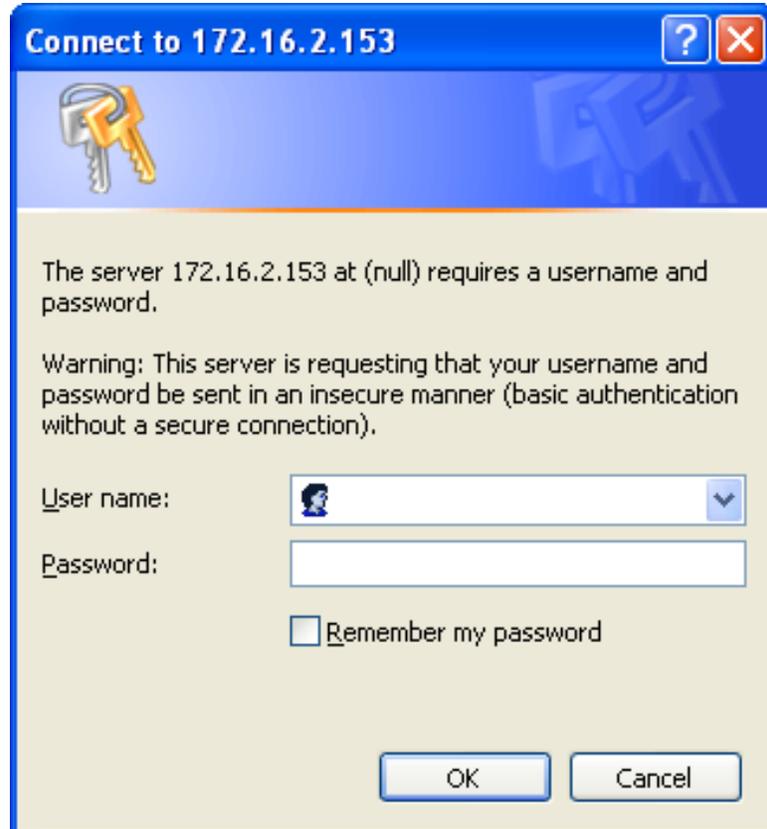
1. Find the chassis by selecting the menu item “Device->Search” (Or press the F5 key).
2. The DeviceInstaller utility should locate the chassis.
3. Click on the “XPort” node to expand the node.
4. The IP address of the chassis is displayed (The address 172.16.2.153 in the following example):



Selecting a Static IP Address

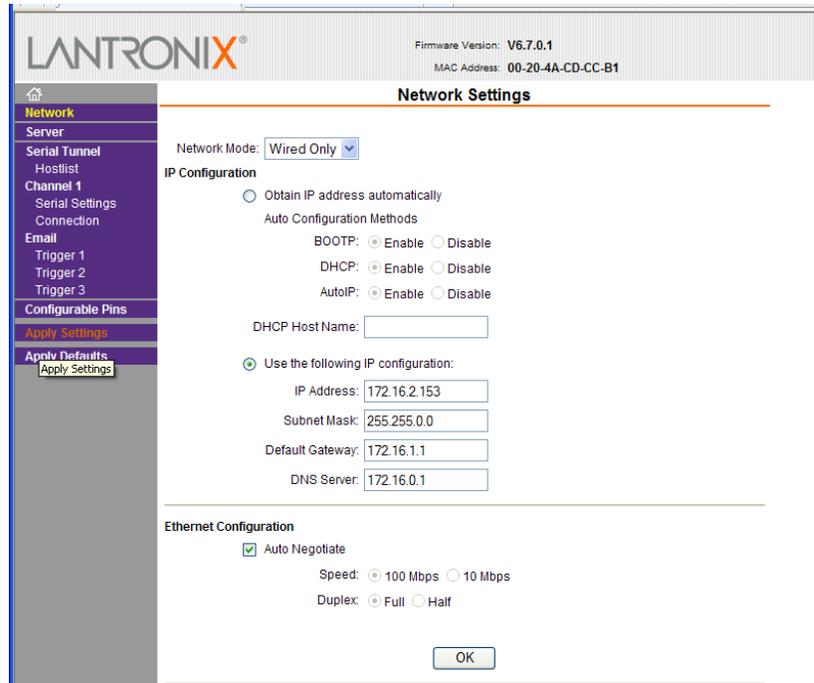
The IP address and/or subnet mask may be configured to use static IP addressing. To access the configuration web page, enter the current IP address into the web browser (e.g. <http://192.162.1.10>).

The web page may ask for a user name and password. If it does, leave the fields blank and press the “OK” button. A sample dialog window is shown following (for IP address 172.16.2.153).

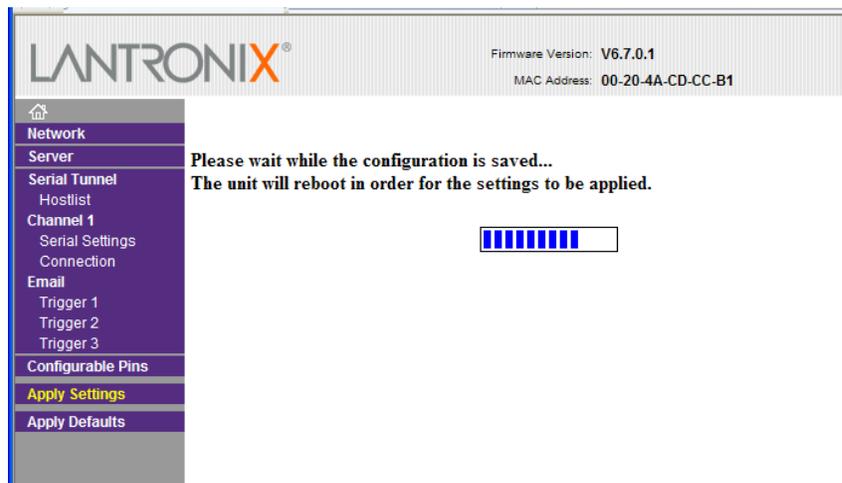


Follow these steps to assign a new static IP address. You should consult with your network administrator to determine the appropriate values to use for your network configuration.

1. Select the “Network” tab on the web page.
2. Select the “Use the following IP configuration” radio button.
3. Enter the desired IP address in the “IP Address” box (e.g. 192.168.1.15).
4. Enter the desired Subnet Mask in the Subnet Mask box (e.g. 255.255.0.0).
5. Enter the desired default gateway into the “Default Gateway” box (e.g. 192.168.1.1).
6. Enter the desired DNS server into the “DNS Server” text box (e.g. 192.168.0.1).
7. Click the “OK” button on the bottom of the page. You should see the message “Done!” appear next to the OK button.
8. Click “Apply Settings” button on the left hand side of the web page.



9. After a few seconds, the web page will indicate that the configuration is being saved and the unit will reboot.

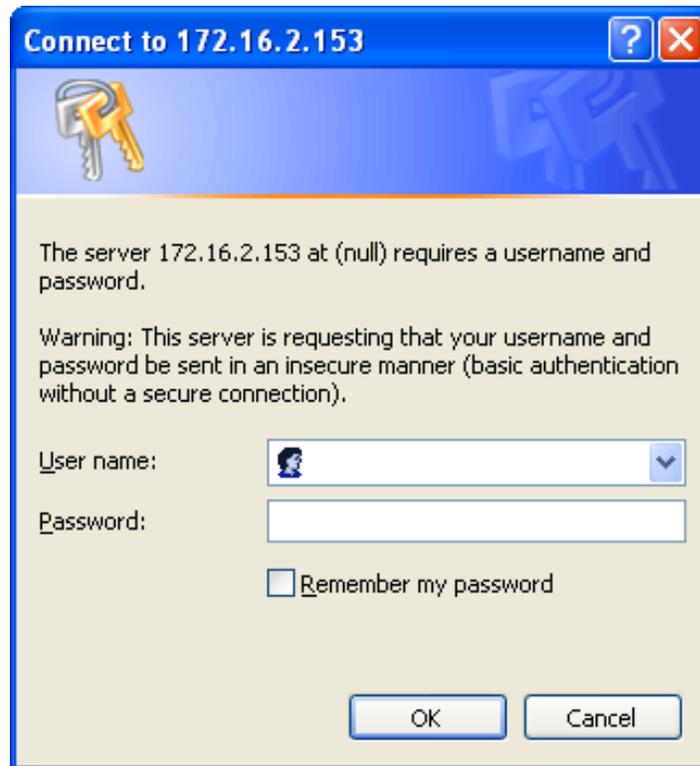


10. In order to access the configuration web page again, you will have to use the new IP address that you just assigned.

Selecting a Dynamic IP Address

You may also configure the unit to request an IP address from a DHCP server on your network. To access the configuration web page, enter the current IP address into the web browser (e.g. <http://192.162.1.10>).

The web page may ask for a user name and password. If it does, leave the fields blank and press the “OK” button. A sample dialog window is shown below (for IP address 172.16.2.153).



Follow these steps to assign a new static IP address. You should consult with your network administrator to determine the appropriate values to use for your network configuration.

1. Select the “Network” tab on the web page.
2. Ensure the “DHCP” radio button is set to “Enable.”
3. Enter the desired “DHCP Host Name” or leave this box blank.

LANTRONIX® Firmware Version: V6.7.0.1
MAC Address: 00-20-4A-CD-CC-B1

Network Settings

Network Mode:

IP Configuration

Obtain IP address automatically

Auto Configuration Methods

BOOTP: Enable Disable
DHCP: Enable Disable
AutoIP: Enable Disable

DHCP Host Name:

Use the following IP configuration:

IP Address:
Subnet Mask:
Default Gateway:
DNS Server:

Ethernet Configuration

Auto Negotiate

Speed: 100 Mbps 10 Mbps
Duplex: Full Half

4. Click the “OK” button on the bottom of the page. You should see the message “Done!” appear next to the OK button.
5. Click “Apply Settings” button on the left hand side of the web page.
6. After a few seconds, the web page will indicate that the configuration is being saved and the unit will reboot.

Appendix C

SOFTWARE INTERFACE

Overview

This chapter describes software interface including the command set and format and the Graphical User Interface program.

Ethernet Command Interface

All commands and replies are sent to the chassis and received from the chassis via the Ethernet. The commands are communicated via TCP/IP protocol to port 10001. The VISA resource descriptor for a chassis is "TCPIP0::<IP address>::10001::SOCKET". Thus, a chassis with an IP address of 192.168.1.10 will have a VISA resource descriptor of "TCPIP0::192.168.1.10::10001::SOCKET". This resource descriptor can be used with the VISA I/O library available from vendors such as National Instruments and Agilent to communicate with the chassis.

Command Format

Every command sent to the chassis uses a common format. Every command consists of 5 8-bit bytes:

- Start Byte (Hex F2)
- First Command Byte
- Second Command Byte (or Hex 14 if the command is only 1 byte)
- Extra Qualifier Byte (Hex BE)
- Checksum. The Checksum is a byte that is formed by exclusive OR-ing the first 4 bytes of the command.

The first command byte consists of two 4-bit fields. The most significant 4 bits contain a command code. The least significant 4 bits contain a chassis address (this convention is from the legacy RS-485 interface). For the Ethernet interface, the low order 4 bits are always hexadecimal "C" (decimal 12, binary 1100).

Supported Commands

The commands supported by the controller are shown in Table C-1.

Table C-1, Supported Commands

Command	1 st Command Byte	2 nd Command Byte
Reserved Command Code	0000 1100	
Get Data Dump (GDD)	0001 1100	0001 0100
Get Action Data (GAD)	0010 1100	0001 0100
Get ID (GID)	0011 1100	0001 0100
Put Temperature Fault (PTF)	0100 1100	Temp Fault
Calibrate Temperature Sensor (CTS)	0101 1100	Offset
Put Fan Speed (PFS)	0110 1100	Speed
Reset	0111 1100	0001 0100
Select Voltage Threshold (SVT)	1000 1100	Threshold
Put Threshold MSB (PTM)	1001 1100	MSB Data
Put Threshold LSB (PTL)	1010 1100	LSB Data
Get Threshold (GTH)	1011 1100	Threshold
Get Firmware Revision (GFR)	1100 1100	0001 0100
Get Temperature Fault (GTF)	1101 1100	Temp Fault
Get Fan Speed (GFS)	1110 1100	0001 0100
Reserved Command Code	1111 1100	
Store Configuration (STO)	0011 1101	0001 0100

Get Data Dump Command

The Get Data Dump command returns 36 bytes of data as shown below.

Byte(s)	Meaning
1-5	Action Data
6	Status Byte
7	Average Fan Speed
8	Slot 0 Exhaust Temperature
9-19	Slot 1 through slot 11 Exhaust Temperatures
20	Slot 12 Exhaust Temperature
21	Inlet (Ambient) Air Temperature
22	Not used
23-24	+24 V
25-26	+12 V
27-28	+5 V
29-30	-2 V
31-32	-5.2 V
33-34	-12 V
35-36	-24 V
37-38	+3.3 V
39	Checksum

The “Action Data” in bytes 1 – 5 returned from the Get Data Dump command formatted as shown in the following table.

Byte	Bit(s)	Mnemonic	Function
1	0	+24VFLT	+24 V Voltage Fault 0 => AOK 1 => Threshold fault
1	1	+12VFLT	+12 V Voltage Fault 0 => AOK 1 => Threshold fault
1	2	+5VFLT	+5 V Voltage Fault 0 => AOK 1 => Threshold fault

Byte	Bit(s)	Mnemonic	Function
1	3	-2VFLT	-2 V Voltage Fault 0 => AOK 1 => Threshold fault
1	4	-52VFLT	-5.2 V Voltage Fault 0 => AOK 1 => Threshold fault
1	5	-12VFLT	-12 V Voltage Fault 0 => AOK 1 => Threshold fault
1	6	-24VFLT	-24 V Voltage Fault 0 => AOK 1 => Threshold fault
1	7	+33VFLT	+3.3 V Voltage Fault 0 => AOK 1 => Threshold fault
2	0	AFS1	Air Flow Sensor 1 0 => AOK 1 => Alarm
2	1	AFS2	Air Flow Sensor 2 0 => AOK 1 => Alarm
2	2	AFS3	Air Flow Sensor 3 0 => AOK 1 => Alarm
2	3	AFS4	Air Flow Sensor 4 0 => AOK 1 => Alarm
2	4	AFS5	Air Flow Sensor 5 0 => AOK 1 => Alarm
2	5	AFS6	Air Flow Sensor 6 0 => AOK 1 => Alarm
2	6	AFS7	Air Flow Sensor 7 0 => AOK 1 => Alarm

Byte	Bit(s)	Mnemonic	Function
2	7	AFS8	Air Flow Sensor 8 0 => AOK 1 => Alarm
3	0	AFS9	Air Flow Sensor 9 0 => AOK 1 => Alarm
3	1	AFS10	Air Flow Sensor 10 0 => AOK 1 => Alarm
3	2	AFS11	Air Flow Sensor 11 0 => AOK 1 => Alarm
3	4	AFS12	Air Flow Sensor 12 0 => AOK 1 => Alarm
3	5	AFS13	Air Flow Sensor 13 0 => AOK 1 => Alarm
3	6	AFS14	Air Flow Sensor 14 0 => AOK 1 => Alarm
3	6	AFS15	Air Flow Sensor 15 0 => AOK 1 => Alarm
3	7	RSVD	Reserved
4	0	TEMP0	Slot 0 Temp Sensor 0 => AOK 1 => Temp Fault Alarm
4	1	TEMP1	Slot 1 Temp Sensor 0 => AOK 1 => Temp Fault Alarm
4	2	TEMP2	Slot 2 Temp Sensor 0 => AOK 1 => Temp Fault Alarm
4	3	TEMP3	Slot 3 Temp Sensor 0 => AOK 1 => Temp Fault Alarm

Byte	Bit(s)	Mnemonic	Function
4	4	TEMP4	Slot 4 Temp Sensor 0 => AOK 1 => Temp Fault Alarm
4	5	TEMP5	Slot 5 Temp Sensor 0 => AOK 1 => Temp Fault Alarm
4	6	TEMP6	Slot 6 Temp Sensor 0 => AOK 1 => Temp Fault Alarm
4	7	TEMP7	Slot 7 Temp Sensor 0 => AOK 1 => Temp Fault Alarm
5	0	TEMP8	Slot 8 Temp Sensor 0 => AOK 1 => Temp Fault Alarm
5	1	TEMP9	Slot 9 Temp Sensor 0 => AOK 1 => Temp Fault Alarm
5	2	TEMP10	Slot 10 Temp Sensor 0 => AOK 1 => Temp Fault Alarm
5	3	TEMP11	Slot 11 Temp Sensor 0 => AOK 1 => Temp Fault Alarm
5	4	TEMP12	Slot 12 Temp Sensor 0 => AOK 1 => Temp Fault Alarm
5	5	TEMP13	Inlet Temp Sensor 0 => AOK 1 => Temp Fault Alarm
5	6,7	NU	Not used

The Status Byte returned by the Get Data Dump command has the following format.

Bit(s)	Mnemonic	Function
7 (MSB)		EE Test 0 => Fail 1 => Pass
6		Reserved, returns 0
5	STF	Self-Test Flag 0 => Fail 1 => Pass
3,4		Reserved, returns 0
2	Fan Alarm	Fan Fault Flag 0 => F_Fault open 1 => F_Fault closed
1	Temperature Alarm	Temp Fault Flag 0 => T_Fault open 1 => T_Fault closed
0 (LSB)	Voltage Alarm	Voltage Fault Flag 0 => V_Fault open 1 => V_Fault closed

Get Action Data Command

The Get Action Data command returns 6 bytes. The first 5 bytes are the Action Data as described in the Get Data Dump command description above. The 6th byte is the checksum.

Put Temperature Fault Command

The Put Temperature Fault Command (command 4C) sets the temperature fault limit for the chassis. The temperature fault limit is the 2nd byte of the command and is an unsigned, 8-bit value in the range 35 to 105 (decimal).

Calibrate Temperature Sensor Command

The Calibrate Temperature Sensor command (command 5C) provides calibration offset information to the selected temperature sensor. The second byte of the command is encoded as shown below.

When calibrating a temperature sensor, you should set the calibration offset to 0 before the calibration process.

Bits	Meaning
7-4	Temperature sensor address 0-12 => VXI slot 0-12 exhaust 13 => ambient (inlet)
3	Sign 0 => positive 1 => negative
0-2	Offset 0-7 => 0 to 3.5° C

Put Fan Speed Command

The commanded fan speed provided with the PFS command shall be an 8-bit signed value encoded into a single byte. Acceptable values for the commanded fan speed are 0 (Lowest Speed), 2, 3, 4, and 5 (Highest Speed). After receipt of a PFS command, the MCB shall maintain the fan speed at the commanded value until the MCB is reset or the fan speed is set to -1.

Reset Command

The Reset Command (command 7C) resets the chassis programmable parameters to the power-up, default values.

Select Voltage Threshold Command

The Select Voltage Threshold Command (command 8C) selects which of the backplane voltages will be the target of the subsequent Put Voltage Threshold MSB and Put Voltage Threshold LSB commands.

The second byte of the command selects the voltage as follows

Bits	Meaning
7-4	Not used
0-3	0 = -24 V low threshold 1 = -24 V high threshold 2 = -12 V low threshold 3 = -12 V high threshold 4 = -5.2 V low threshold 5 = -5.2 V high threshold 6 = -2 V low threshold 7 = -2 V high threshold 8 = +5 V low threshold 9 = +5 V high threshold 10 = +12 V low threshold 11 = +12 V high threshold 12 = +24 V low threshold 13 = +24 V high threshold 14 = +3.3 V low threshold 15 = +3.3 V high threshold

Put Voltage Threshold MSB and Put Voltage Threshold LSB Commands

The Put Voltage Threshold MSB Command (command 9C) programs the most significant 8-bits of the voltage threshold. The Put Voltage Threshold LSB Command (command AC) programs the least significant 8-bits of the voltage threshold. The voltage threshold set by these two commands act on the voltage last selected by the Select Voltage Threshold command.

Both commands contain 8 bits of unsigned data as the payload in the 2nd command byte.

When the Put Voltage Threshold LSB command is received, the chassis combines the value received from the Put Voltage Threshold MSB command with the Put Voltage LSB command. This forms a 16-bit unsigned value with a resolution of 1 mV. The sign of the threshold depends on the presently selected voltage threshold. If the presently selected threshold is positive, the threshold is interpreted as positive. If the presently selected voltage is negative,

the threshold is interpreted as a negative voltage value.

Get Firmware Revision

The Get Firmware Revision (GFR) command shall return the revision byte twice, once as data and once as the checksum. The firmware revision is returned in hexadecimal, e.g., 0x10 shall designate revision 1.0 of the firmware

Get Temperature Fault

The Get Temperature Fault (GTF) command shall return the fault byte twice, once as data and once as the checksum.

Get Fan Speed

The Get Fan Speed (GFS) command shall return the fan speed twice, once as data and once as the checksum.

Store Configuration

The Store Command (STO) shall store in the EEPROM the following configuration settings:

1. Temperature Fault Level
2. Temperature Sensor Calibration
3. Fan Speed
4. Voltage Fault Thresholds
5. Power Supply Settings.

VXI*plug&play* Style Driver

The chassis ships with a VXI*plug&play* style instrument driver that uses the VISA I/O library to communicate with the chassis. This driver contains 'C' source code that can be used as an example of how to communicate with the chassis. In addition, a Windows 32-bit DLL can be used in a variety of Application Development Environments, such as C#/.Net, LabWindows/CVI, and LabVIEW to communicate with the chassis.

Function	Description
vx14_init	This function is used to establish a communication link with the 1263HPf chassis. It returns a unique session pointer that is used with every other driver function to identify a specific chassis. After a valid communication link is established the user can additionally perform the following options: <ol style="list-style-type: none"> 1. Perform an identification query. 2. Reset to power on values.
vx14_close	This function terminates the software connection to the 1263HPf and deallocates system resources associated with the session.
vx14_getActionData	This function sends the get action data command and reads the data in to the specified flag. A checksum is performed to verify the returned data.
vx14_getDataDump	This function sends the get data dump command and reads the data in to the specified buffer. A checksum is performed to verify the returned data. This buffer can then be passed to the data dump query functions to convert the dump data in to the appropriate values.
vx14_extractActionData	This function extracts the action data from a previously queried data dump buffer. Use the "ris1263v_getDataDump" to query the chassis monitor before calling this function.
vx14_extractStatusByte	This function extracts the status byte data from a previously queried data dump buffer. Use the "ris1263v_getDataDump" to query the chassis monitor before calling this function.
vx14_extractTemperature	This function extracts the temperature data from a previously queried data dump buffer. Use the "ris1263v_getDataDump" to query the chassis monitor before calling this function.

Function	Description
vx14_extractVoltage	This function extracts the voltage data from a previously queried data dump buffer. Use the "ris1263v_getDataDump" to query the chassis monitor before calling this function.
vx14_setVoltageThreshold	This function sends the put threshold msb and lsb commands to program the specified voltage threshold limit.
vx14_getVoltageThreshold	This function sends the get threshold command to query the specified voltage threshold limit.
vx14_setTemperatureFault	This function sends the put temperature fault command to set the threshold that will cause a temperature fault condition.
vx14_getTemperatureFault	This function sends the get temperature fault command to query the threshold that will cause a temperature fault condition.
vx14_setFanSpeed	This function sends the put fan speed command to set the fan speed mode/speed.
vx14_getFanSpeed	This function sends the get fan speed command to query the fan speed setting.
vx14_getFanRate	This function returns the speed of movement of the fan for the chassis.
vx14_setPowerSupply	This function sends the put power supply command to program the specified power supply value.
vx14_getPowerSupply	This function sends the store configuration command.
vx14_storeConfiguration	This function sends the get power supply command to query the specified power supply value.
vx14_reset	This function places the 1263V monitor into a power-up reset state. The reset function will perform the following actions. Read the EEPROM for valid configuration data and program, otherwise use the following defaults: <ol style="list-style-type: none"> 1. Voltage fault thresholds at +/-5%. 2. Temperature fault threshold to 45 Celsius. 3. Sets the fan speed mode to auto low. The reset function takes less than a second to complete.
vx14_revision_query	This function returns the instrument driver and firmware revision of the instrument being used.
vx14_type_query	This function returns the type of chassis that is connected. <ol style="list-style-type: none"> 1 is a High Type Chassis 0 is a Medium Type Chassis
vx14_error_query	This function returns an error message for error codes specific to this instrument driver. If the status code does not match one of the instrument specific errors than the text message will be set to "Unknown Status Error" and VI_WARN_UNKNOWN_STATUS will be returned.

Graphical User Interface

The chassis also ships with a Graphical User Interface that allows the user to monitor the status of the various temperature, voltage, and fan speed sensors. In addition, the voltage and temperature thresholds can be set with the Graphical User Interface as well as the fan speed.

This page was left intentionally blank.