



CPC7301

Intelligent Shelf Manager

Quick Start Guide

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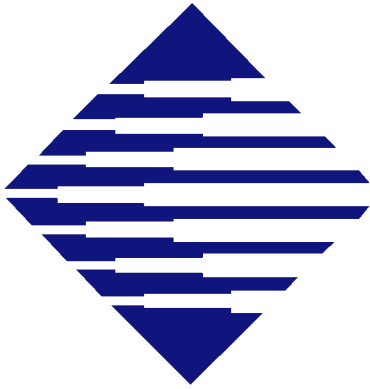
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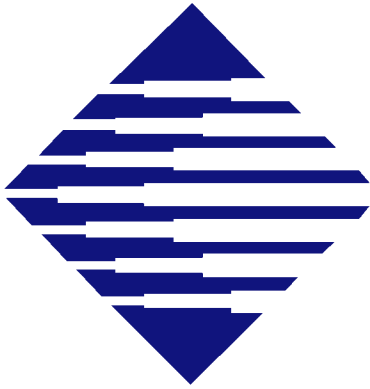
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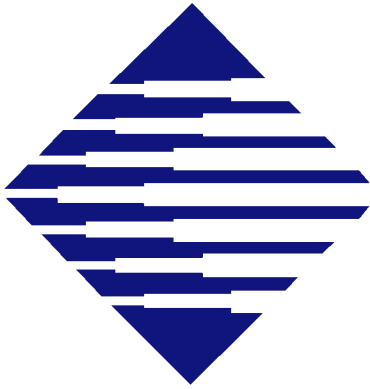
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Basic Platform Configuration

Overview

This document was created to help organize and simplify the initial set up one or two Intelligent Shelf Managers (ISMs). Shelf management ensures maximum service availability in a computing platform by monitoring sensors and predicting failures. The CPC7301 Intelligent Shelf Manager offers a comprehensive management architecture that delivers high availability protection with reliable, redundant and IPMI (Intelligent Platform Management Interface) standards-based management to all the major components in the shelf.

The CPC7301 is a 3U, single-slot, Intelligent Shelf Manager (ISM) card for all IPnexus platforms. It provides centralized management and alarming for system power supplies, fan trays, fabric slots and node slots; including IPnexus single board computers and I/O cards. The ISM may be paired with a redundant standby ISM for use in high availability applications. A dedicated ISM-to-ISM link allows redundant ISMs to synchronize management data and polling for failover.

These instructions will cover the basic steps to configure the hardware and software as well as communicate between the components from the ISM.

This document does not intend to take the place of the user manuals for any component in your system. Please refer to the following hardware manuals for all safety information related to connecting and using this equipment, as well as detailed information for the configuration, programming, or usage of the specific elements of your AMP platform.

- *AMP5091 4U General Purpose Packet-Switched Platform Hardware Manual*
- *AMP5095 7U PICMG 2.16 Advanced Managed Platform Hardware Manual*
- *AMP5085 12U General Purpose Packet-Switched Platform Hardware Manual*
- *AMP5086 12U General Purpose Packet-Switched Platform Hardware Manual*
- *AMP5088 12U General Purpose Packet-Switched Platform Hardware Manual*

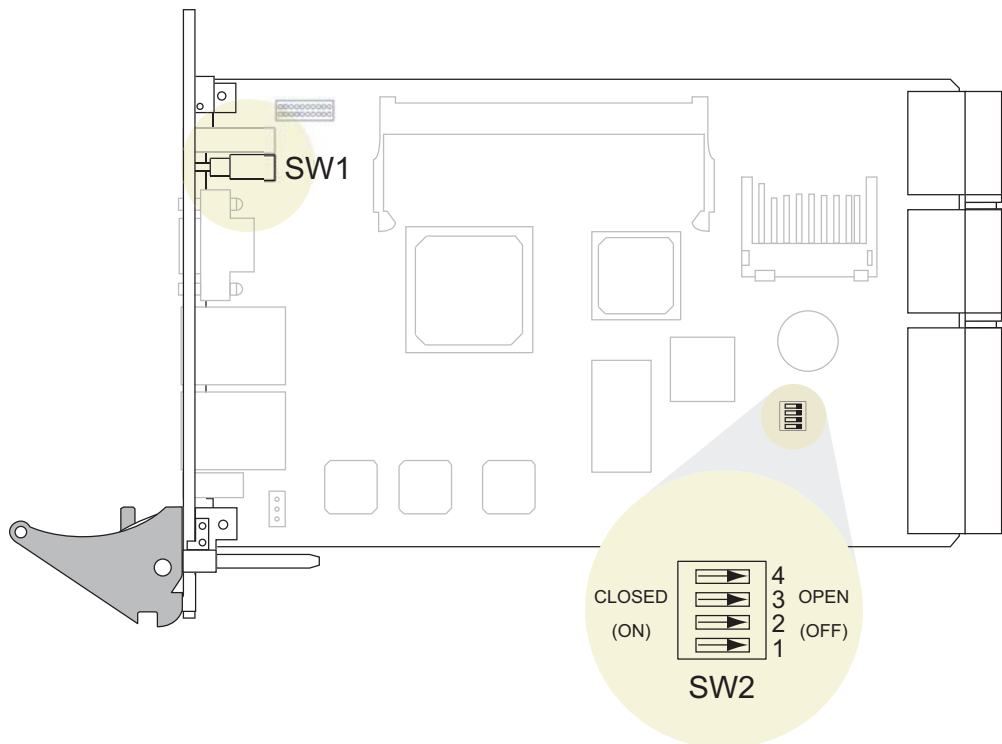
ISM Hardware Configuration

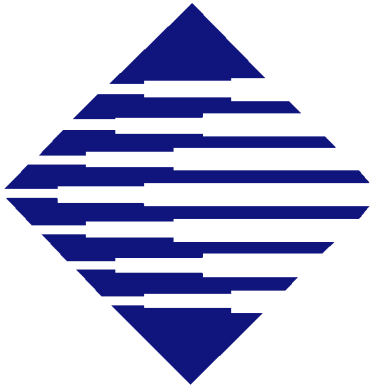
Please locate and refer to the *CPC7301 Intelligent Shelf Manager Hardware Manual* to assist with the following steps.

Configure the ISM Hardware

1. Set **SW2-1** to the desired position (See [Figure 1-1, "CPC7301 ISM with Switch Location,"](#) below):
 - Open **SW2-1** to allow software to direct **eth0** signals to the front panel or rear panel connector (The ISM comes out of reset with **eth0** routed to the front panel, but software can be configured to automatically route **eth0** to the rear panel.)
 - Close **SW2-1** to force **eth0** signals to the front panel connector. Factory default is Open.
2. Install the ISM back into the chassis in the appropriate slot.
3. Install the RTM, if included, into the appropriate slot in the rear of the chassis.

Figure 1-1: CPC7301 ISM with Switch Location





Configuring the Software

Overview

This chapter describes how to set up the software on the ISM.

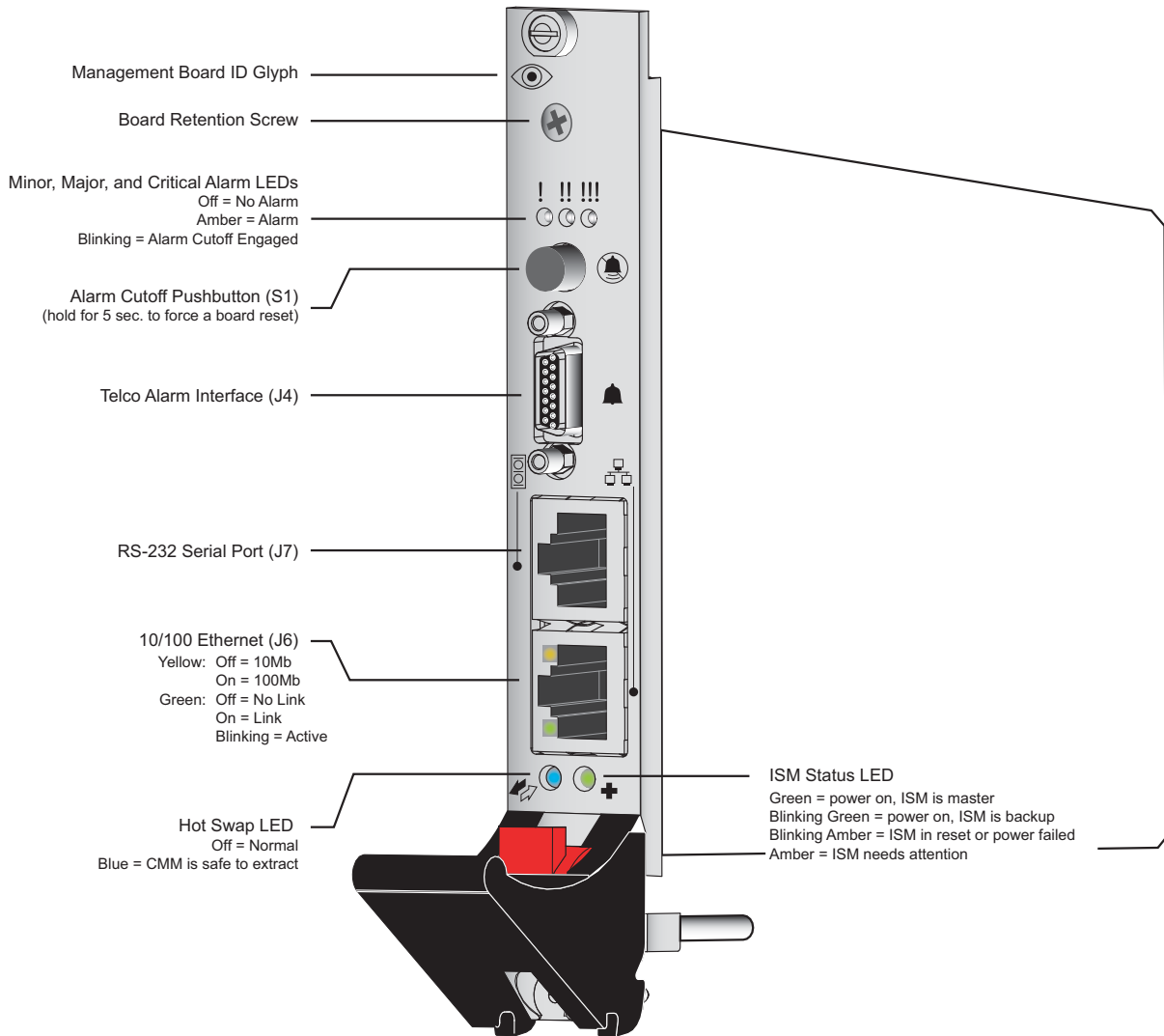
ISM Set-up

There are two ways to communicate with the ISM, via the console port, or via a telnet session through one of its Ethernet ports (see [Figure 2-1, “ISM Front Panel,” on page 10](#)). The ISM Ethernet ports come configured with default IP addresses. This allows the user to telnet into the ISM via an IP address that is predefined and documented in the *CPC 7301 Intelligent Shelf Manager Software Manual*.

There are three available physical Ethernet interfaces for the ISM:

- **eth0** (LAN0) - available via RJ45 connectors on the front panel, or the Rear Transition Module (RTM). By default, this is configured out the front panel, and with an IP address of 192.168.0.1.
- **eth1** (LAN1) - connected to the PICMG 2.16 fabric through the midplane, allowing communication via the cPCI Ethernet Switch blades. By default, this interface is not enabled.
- **eth2** (LAN2) - Used as a synchronization channel between two ISM's via the RTM, or as a second connection to the PCIMG 2.16 fabric, or not connected at all. By default, this interface is configured as the synchronization channel.

Figure 2-1: ISM Front Panel



Configuring the ISM on a Local Network

For the purposes of this document, we will have the user place the ISM on a local network making the ISM interface available to any user on the network or, if the local networked is accessible out of the building, any user located remotely. We will do this using **eth1** over the 2.16 network on the midplane.

Configure One ISM on a Local Network

1. Connect to a terminal or workstation running terminal-emulation software to the console port of the ISM. You will need:
 - a. A serial cable with proper pin connections for the ISM console port as described in the current *CPC7301 Intelligent Shelf Manager Hardware Manual*.
 - b. Set your terminal emulation software to connect at 9600, N, 8, 1.

-OR-

- a. Connect to the ISM via a telnet session and the **eth0** front panel RJ45 connector interface. The default IP address is **192.168.0.1**.
2. Log in to the system by typing the following:

```
Login: root
Password: (none by default, just press ENTER)
```

3. At the # prompt, configure the ISM by typing the following commands (substitute the IP addresses and subnetmasks that apply to your local network):

```
bootvars set rc_ifconfig y
bootvars set rear_eth_connector=n
bootvars set ethprime i82559#1
bootvars set ipdevice eth1
bootvars set ipaddr 10.178.46.81
bootvars set netmask 255.255.255.0
bootvars set active_device eth1:1
bootvars set active_ipaddr 10.178.46.83
bootvars set active_netmask 255.255.255.0
bootvars set gateway 10.178.46.1
bootvars set network_reset y
reboot
```

Note: IP configurations changes will not take effect until the system is rebooted. If you performed the configuration changes over a telnet session, you need to start a new telnet session with the new Active IP address; otherwise, you can just log in again at a serial console window.

4. Once the ISM has rebooted, check the changes you made, log in again as `root`, press ENTER for the password.
5. At the # prompt, type the following command to double-check the settings you just entered.

```
bootvars print
```
6. Next, type: `ifconfig`. This will display all the IP settings for the Ethernet ports. You should see that **eth1:1** will be set with your IP address and the mask you entered.
7. Next, type `route`. The default Gateway should be the gateway you entered.

Configure Two ISMs on a Local Network

1. Connect to a terminal or workstation running terminal-emulation software to the console port of the ISM on the lower *left* of the chassis. We will refer to this ISM as ISM A. You will need:

- a. A serial cable with proper pin connections for the ISM console port as described in the current *CPC7301 Intelligent Shelf Manager Hardware Manual*.

- b. Set your terminal emulation software to connect at 9600, N, 8, 1.

-OR-

- a. Connect to the ISM via a telnet session and the **eth0** front panel RJ45 connector interface. The default IP address is **192.168.0.1**.

2. Log in to the system by typing the following:

```
Login: root
```

```
Password: (none by default, just press ENTER)
```

3. At the # prompt, configure the ISM by typing the following commands (substitute the IP addresses and subnetmasks that apply to your local network):

```
bootvars set rc_ifconfig y
bootvars set rear_eth_connector=n
bootvars set ethprime i82559#1
bootvars set ipdevice eth1
bootvars set ipaddr 10.178.46.81
bootvars set netmask 255.255.255.0
bootvars set active_device eth1:1
bootvars set active_ipaddr 10.178.46.83
bootvars set active_netmask 255.255.255.0
bootvars set gateway 10.178.46.1
bootvars set sync_device eth2
bootvars set sync_ipaddr 10.178.47.100
bootvars set sync_netmask 255.255.255.0
bootvars set network_reset y
```

CAUTION: DO NOT REBOOT AT THIS TIME!

4. After modifying the boot variables on the first ISM, let's move to the second ISM.
5. Connect to a terminal or workstation running terminal-emulation software to the console port of the ISM on the lower *right* of the chassis in the same manner as the first ISM.

6. Log in to the system by typing the following:

```
Login: root
```

```
Password: (none by default, just press ENTER)
```

7. At the # prompt, configure the ISM by typing the following commands (substitute the IP addresses and subnetmasks that apply to your local network):

```
bootvars set rc_ifconfig y
bootvars set rear_eth_connector=n
bootvars set ethprime i82559#1
bootvars set ipdevice eth1
bootvars set ipaddr 10.178.46.82
bootvars set netmask 255.255.255.0
```

```
bootvars set active_device eth1:1
bootvars set active_ipaddr 10.178.46.83
bootvars set active_netmask 255.255.255.0
bootvars set gateway 10.178.46.1
bootvars set sync_device eth2
bootvars set sync_ipaddr 10.178.47.101
bootvars set sync_netmask 255.255.255.0
bootvars set network_reset y
```

8. Now that both ISMs have had their boot variables set accordingly, they need to be rebooted. Because we modified the “active_ipaddr” and the “sync_ipaddr” variables from the defaults, the reboot needs to be performed simultaneously, or within roughly 30 seconds of each other. This is done to prevent the ISMs from resetting these variables by synchronizing the data with one another. To do this, simply type `reboot` at the Linux prompt on each ISM and hit ENTER on each ISM within 30 seconds of each other.

Note: *IP configurations changes will not take effect until the system is rebooted. If you performed the configuration changes over a telnet session, you need to start a new telnet session with the new Active IP address; otherwise, you can just log in again at a serial console window.*

9. Once the ISMs have rebooted, check the changes you made on each ISM. Log in again as `root` on each board, press ENTER for the password.
10. At the `#` prompt, type: `ifconfig`. This will display all the IP settings for the Ethernet ports. You should see that **eth1:1** will be set with your IP address and the mask you typed.
11. Next, type `route`. The `default` gateway should be the gateway you typed.

In the above example, we configured both ISMs with **eth1** as the local interface, **eth1:1** as the active interface, and **eth2** as the synchronization interface. The local interface is local to each ISM (note the different IP addresses) and can be used to configure and communicate with the ISM, whether it is in active or standby mode.

The active interface is the more commonly used interface for remotely querying and configuring the ISM. It is also the interface used for IP failover (note the identical IP addresses). The ISM GUI also uses this interface. For more information on setting up and using the ISM GUI, see the sections “[Setting up the ISM Graphical User Interface \(GUI\)](#),” on page 14 and “[Working with the ISM](#),” on page 17.

The boot variables; “sync_device,” “sync_ipaddr,” and “sync_netmask,” configure the synchronization interface. This interface is used for redundancy communication between the two ISMs over a dedicated link on the midplane.

Note that in the example above, it is important that the local adapter be assigned to the physical interface **eth1**, while the active port is assigned to the virtual interface **eth1:1**. This is because the physical interface must be configured before the virtual interface, and the ISM software configures the active interface last. For more details on this and other configuration considerations, refer to the *CPC7301 Intelligent Shelf Manager Software Manual*.

Setting up the ISM Graphical User Interface (GUI)

You can now use the ISM GUI to monitor and control your system. The ISM GUI is a simple interface to use that gives you a “picture” of your entire system. Before you attempt to log onto the GUI however, be certain that you have Java Virtual Machine version 1.4.2 or better loaded onto the machine from which you would like to view the GUI. JVM 1.4.2 is a free download at www.java.com.

Set up the GUI

1. Using any web browser on any machine on the LAN, type

```
http://xxx.xxx.xxx.xxx
```

Where xxx.xxx.xxx.xxx is the active IP address of your ISM.

2. If the browser displays a security warning, say YES.
3. After 20 seconds or so, you should see the ISM GUI applet begin and prompt you with a “Connect” dialog box with the following fields:

```
Host: xxx.xxx.xxx.xxx <- your active IP address for the ISM (as above)
```

```
User: ismgui
```

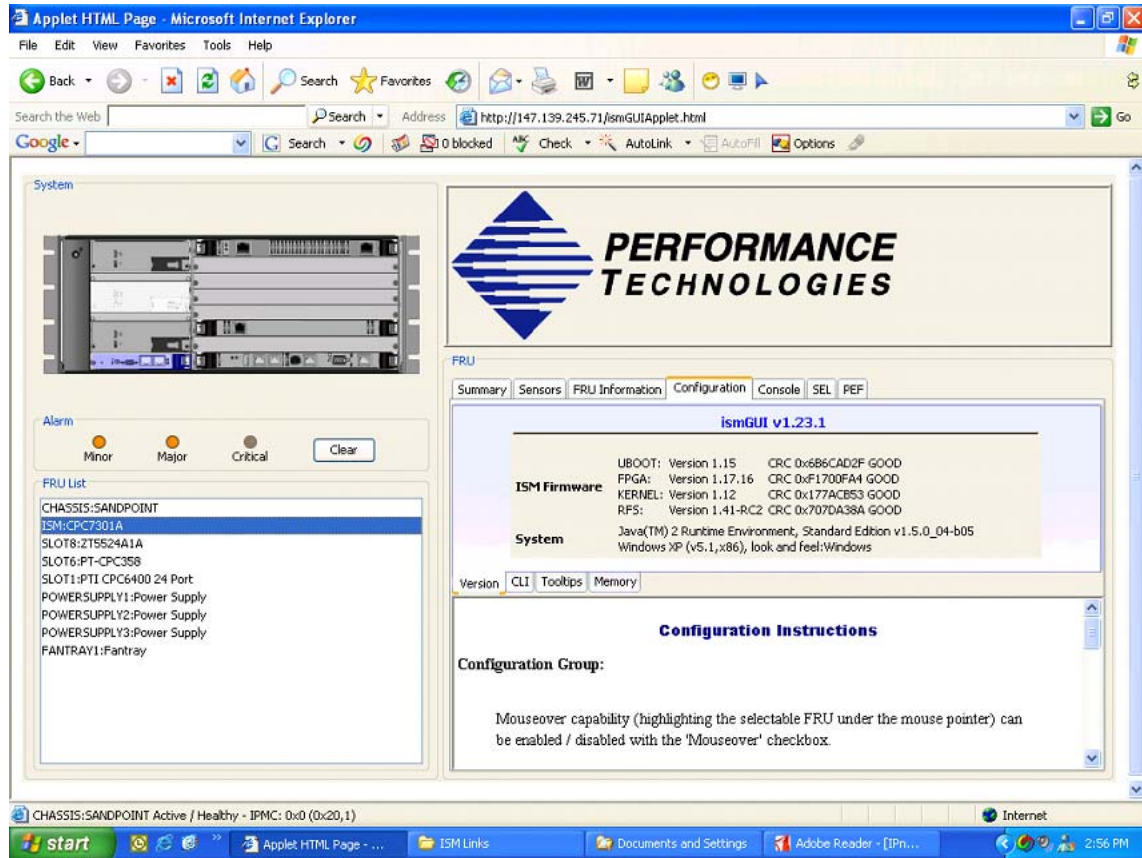
```
Password: ismgui
```

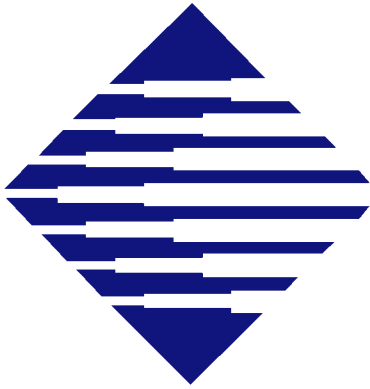
```
Click on Connect
```

Note: If not, go back to the section “ISM Set-up,” on page 9 to check ISM IP configuration. Check the Ethernet cable and look for a link light on the front of the ISM.

4. The ISM GUI should come on the screen displaying the system and the boards that are loaded, as shown in [Figure 2-2, “ISM GUI Display Screen,”](#) on page 15. There are more details on the ISM GUI in [Chapter 3, “Communicating Between Components,”](#) on page 17.

Figure 2-2: ISM GUI Display Screen





Communicating Between Components

Overview

The chapter describes useful commands for communicating between the ISM and the other components in the chassis, including obtaining useful analytical information from the Advanced Managed Platform slot components (SBC's, Ethernet Switches, etc.).

Working with the ISM

When working with the ISM, you can use the following:

- ISM CLI commands
- ISM GUI
- Boot environment variables

Using ISM CLI Commands - Operational Information

CLI commands are useful for retrieving information from the system including FRU, sensor, and SEL data. CLI commands are also used for setting operational parameters.

CLI commands can be entered through the serial console or telnet. At the Linux # prompt, the user can type `cli <cli command name>` and press ENTER. Or, the user can switch to the CLI prompt by typing `cli` at the # prompt and pressing ENTER.

Note: Most CLI commands are not resilient and the actions caused by the execution of a CLI command may be nullified upon a reboot of the system/ISM. If you want to have such commands be “resilient,” it is necessary to use them in a script that is executed upon boot-up.

Some Useful CLI Commands for the ISM

<code>GetTsInfo</code>	A script that collects debug information for analysis. You can redirect to a file, then E-mail to Technical Support if necessary for assistance in troubleshooting a problem.
<code>Bootvars print</code>	Prints current boot variables
<code>Ifconfig</code>	Shows runtime network configuration.
<code>clia help</code>	Provides a list of CLI commands.

Using the ISM GUI

Once you are logged into the GUI (see [“Using ISM CLI Commands - Operational Information,” on page 17](#)) you can see a graphic display of the system. The display actively models the chassis and the components within the chassis. If the system changes by adding or removing a board, the graphic display will change as well. This graphic is also functional. With the mouse, you can:

Highlight a board and click to display details. There is good information and functionality available here. For example the user can:

- Look at Summary information to get details about the board. The **Summary** tab also has Actions which may include Activate, Deactivate, or Reset the board.
- Display all current data from the sensors on the board using the **Sensors** tab. (*Note: If polling is turned off, sensor data will not be current.*)
- Obtain FRU information via the **FRU** tab.
- Check the *Release Notes*.
- The **Configuration** tab provides a means of changing the polling rates for detecting sensors, FRUs, sensing alarms, and the rate at which the System Event Log (SEL) is checked. It is NOT recommended that you alter any of these settings.
- The **Console** tab provides a quick means of entering CLI commands. However, this is NOT the preferred way to interface with the ISM if you wish to make changes using CLI. The preferred method is via the serial console or telnet. The reason is that polling must be turned off to stop the screen scrolling. The danger is not remembering to turn polling back on once the changes have been made.

If a board is NOT recognized by the GUI it will have a question mark over the space to signify that detailed information is unavailable. This does not indicate that the board will not function in the system—it just means either of the following:

- The board does not implement IPMI, therefore, the ISM GUI cannot determine the make/model (no FRU information).
- OR-
- This board does not have a specific configuration for the ISM GUI (graphic and summary page). The board will function properly but the graphical representation of the board and the summary information will be limited.

Using Boot Environment Variables - Configuring the ISM

Boot environment variables are options that can be used to customize the boot behavior of the ISM to match the needs of an application.

A few examples of boot variables are:

- Setting an ISM password. By default, there is no password. Setting a password obviously adds security to the system.
- Directing **Ethernet 0** to the front panel (default) or the Rear Transition Module.
- Reset the flash file system to defaults.
- Set IP addresses for the Ethernet ports

The `bootvars` command at the Linux # prompt is used to set boot environment variables. It is important to note that the boot environment variables are saved upon a reboot. Be aware, however, that changes to the boot variables `active_ipaddr`, `active_netmask`, and `gateway` require you to enter the following command before rebooting the ISM:

```
bootvars set network_reset y
```

Boot environment variables are described further in *Chapter 2, "Location of Configuration Data,"* of the *CPC7301 Intelligent Shelf Manager Software Manual*.

