

To upgrade a controller from earlier revisions to Rev 1.6 or to install a new system a step-by-step procedure is given below. It involves connecting up the hardware, downloading utility programs, writing new contents to the PCI and timing board EEPROMs, obtaining DSP software to download to the controller, and starting up voodoo. This procedure is detailed for the Solaris operating system with all files copied from the Web site "astro-cam.com". The procedure will vary in some details for other operating systems.

## **(1) HARDWARE SETUP**

Now connect up the hardware.

Install the PCI interface board in the computer, and connect the fiber optics cable between it and the two fiber optic couplers on the back of the controller housing.

Connect the power supply cable (it has large circular connectors on each end) between the power supply (the heavy aluminum grey box) and the controller box.

Turn on the power supply. Viewing the back of the controller box through the little window, you should see two green LEDs shining brightly and a third one dimly lit. If the fiber optic cable is installed correctly you should see the green LED snuggled in between the two fiber optics parts on the timing board shining brightly. If its not ON try reversing the two fiber optic cables. Similarly, the green LED on the PCI interface board next to the little white push button switch should be ON.

## **(2) HOST COMPUTER SOFTWARE DOWNLOAD**

Download host computer software from the "astro-cam.com" SOFTWARE site.

You need a username and password obtainable from Bob Leach to access this are of the Web site. Download the following files -

- a. PciRomBurn.tar.gz - to write the DSP program onto the EEPROM of the PCI interface board.
- b. TimRomBurn.tar.gz - to write the DSP program onto the EEPROM of the timing board of the controller.
- c. astropci\_solaris.tar.gz - the Solaris device driver for the PCI interface board.
- d. voodoo.tar.gz - the image acquisition program for the controller, written in Java.
- e. READ\_ME - installation instructions for these, especially the device driver.
- f. There are be other files needed to support the Java environment that are described in 'READ\_ME'

These programs should be uncompressed and un-tarred. The hardest part is installing the device driver. Starting up voodoo will show in a brief title picture followed by the main Voodoo window with the Expose button in the middle. If you get this far it means that the device driver has been correctly loaded and recognized and the

Java environment is correct.

### (3) DSP CODE DOWNLOAD

Create a new directory on you computer that will contain all the DSP software for the controller and its associated PCI interface board. Download controller DSP and PCI interface board files from the ftp site as follows - ??????

### (4) PCI INTERFACE EEPROM UPDATE

Update the PCI interface board EEPROM.

PciRomBurn

```
Proceed (Y/N): Y
Enter DSP PCI filename (pci.lod): pci.lod
Permanently Write PCI ROM File (Y/N): Y
Enter PCI ROM filename (pci.rom): pci.rom
ROM Burn Finished!
```

This should take about a minute to execute. If it takes only a few seconds or gives an error message then it has not executed properly. Try cycling power on the computer, and try looking at the green LED on the corner of the board. It should flash on for a little less than a second when power to the computer is first applied. If the LED stays ON the PCI board is faulty. Then cycle the host computer power off and on so the software just written to the EEPROM will get loaded to the DSP memorys. -

```
su          enter password: xxxx (enter your root password here)
init 0
Power off, then on
log in to the directory you created for the controller upgrade
```

### (5) TIMING BOARD EEPROM UPDATE

Update the controller timing board EEPROM (this is the fiber optic board)

Make sure the WE jumper is installed next to the EEPROM (JP3, pins 2 to 3)

```
TimRomBurn
Proceed (Y/N): Y
Permanently Write TIM ROM File (Y/N): Y
Enter TIM ROM filename (*.rom): tim.rom
```

This should take about a minute, with  
addr = 0x000xxx data = 0xyyyyyy  
messages changing about once a second.

ROM Burn Finished!

Cycle the controller power off, then on

## (6) VOODOO STARTUP

Start up voodoo image acquisition program as follows -

voodoo            In the voodoo header bar press Setup

Load the \*.setup file that you copied into your directory In general you should NOT be downloading DSP code to the PCI interface board since it correctly loads all the software it needs on power up. The downloading capability is included in the Setup window to help in developing new PCI DSP code. Correct the path names for the Timing Board and Utility boards. Press Apply. Messages in main window should all say OK. If errors are reported try repeating the Apply.

In the main voodoo window press Expose.

The shutter should operate if the Open Shutter selection in the Exposure Options is selected, and an image file should be created in the specified directory.