

SYSTEM NOTES: INSTALLATION and SETUP

This document describes connecting up hardware, loading software, and starting up the image acquisition program for a typical controller or camera system. It is assumed that the "voodoo" or "owl" image acquisition program is used. Step-by-step procedures are as follows:

- (1) **Install the hardware and connect the cables:** 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 housing. Connect an AC power cord to the power supply and turn on the power supply rocker switch next to the AC cord.
- (2) **Check the LEDs:** Viewing the back of the controller housing through the little window, you should see two green LEDs shining brightly and (possibly) a third one dimly lit. Looking at the timing board installed in the controller housing, notice two LEDs, one green and one red. The green LED being ON means that the board has booted itself from EEPROM and is working normally. The red LED being OFF indicates that the board is receiving an adequate optical signal from the PCI interface board. If the red LED is ON try reversing the two fiber optic cables. Similarly, the red LED on the PCI interface board next to the little white push button switch should be OFF.
- (3) **Find the host computer software:** Get this from the "astro-cam.com" SOFTWARE site appropriate to your choice of operating system. You will need a username and password obtainable from Bob Leach to access this area of the Web site. You will need "astropci" device drivers for the PCI interface board and code for either the "voodoo" or the "owl" image acquisition program. "Owl" is a newer program that is recommended for new users or experienced users desiring a change from "voodoo"
- (4) **Install the device driver and image acquisition program:** The installation instructions are all located in a "READ_ME" file that needs to be carefully followed, especially where it involves changes to the operating system to accommodate the large image buffer. There are other files needed to support the Java environment that are described in the "READ_ME" file. These programs should be uncompressed and un-tarred. The hardest part is installing the device driver, but once voodoo or owl starts up it's a good sign that the device driver and Java operating environment are operating properly.
- (5) **Find the DSP code:** Create a new directory on your computer that will contain all the DSP software for the controller and the PCI interface board. This software may be obtained from Bob Leach or (possibly) downloaded from the Web site. At a minimum it will consist of source code and download files for the timing board, with names such as "tim.asm", "timboot.asm" and "tim.lod", the latter being the file that will be downloaded to the timing board. Similar files are needed for the utility board, if there is one in your system. The PCI board EEPROM already has the program needed to operate the board, so downloading an application program to it is

not required unless a different program is needed. Note that the device driver and image acquisition program are completely independent of the model numbers or revisions of the PCI board or controller boards, but the DSP code to be downloaded to the PCI or controller boards is very much dependent on the model number and intended use of each board. There should also be a "*.setup" file that will help with the setup process described below.

- (6) **Start up the "voodoo" or "owl" image acquisition program:** In the header bar press Setup. Correct the path names for the Timing Board and Utility boards as needed. Press Apply. Messages in the main window should all say "Done", with error messages coming out in RED. 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. An image file should be created in the specified directory once the Expose button is pressed in the main window and the exposure and readout are completed. For a controller running supplied timing board software and with no inputs connected to a CCD video processor board, the images should contain a low level of random, uniform noise of a few counts amplitude. The inputs to IR video processor boards will need to be connected to ground or to a suitable DC voltage to get the same result.