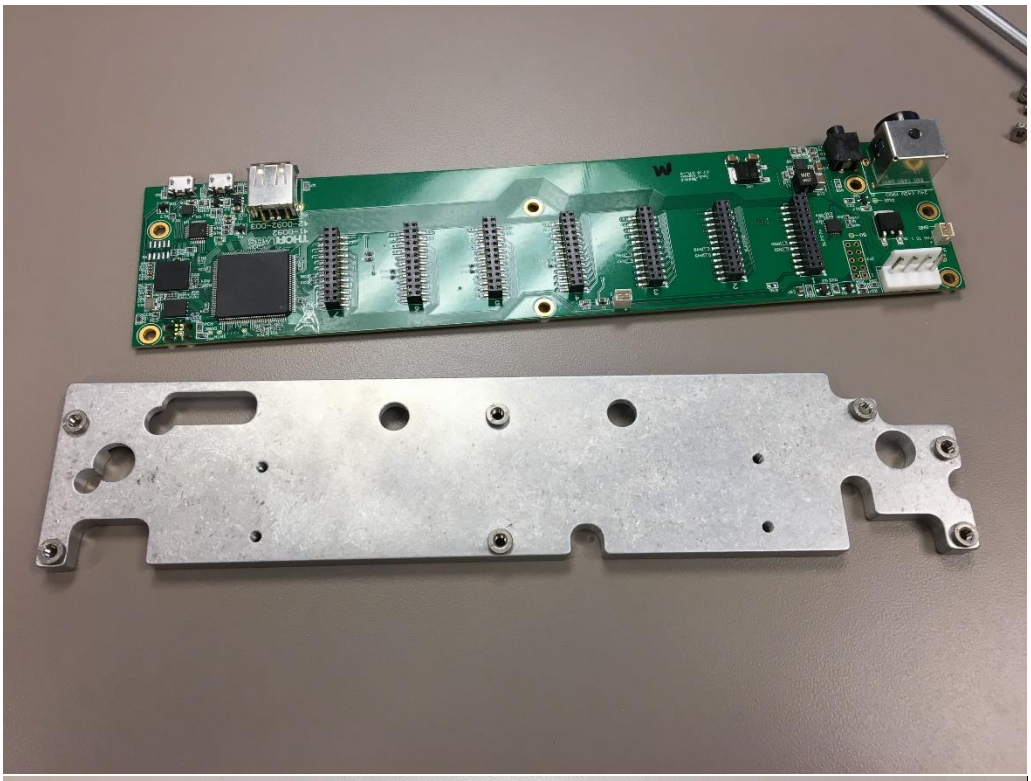
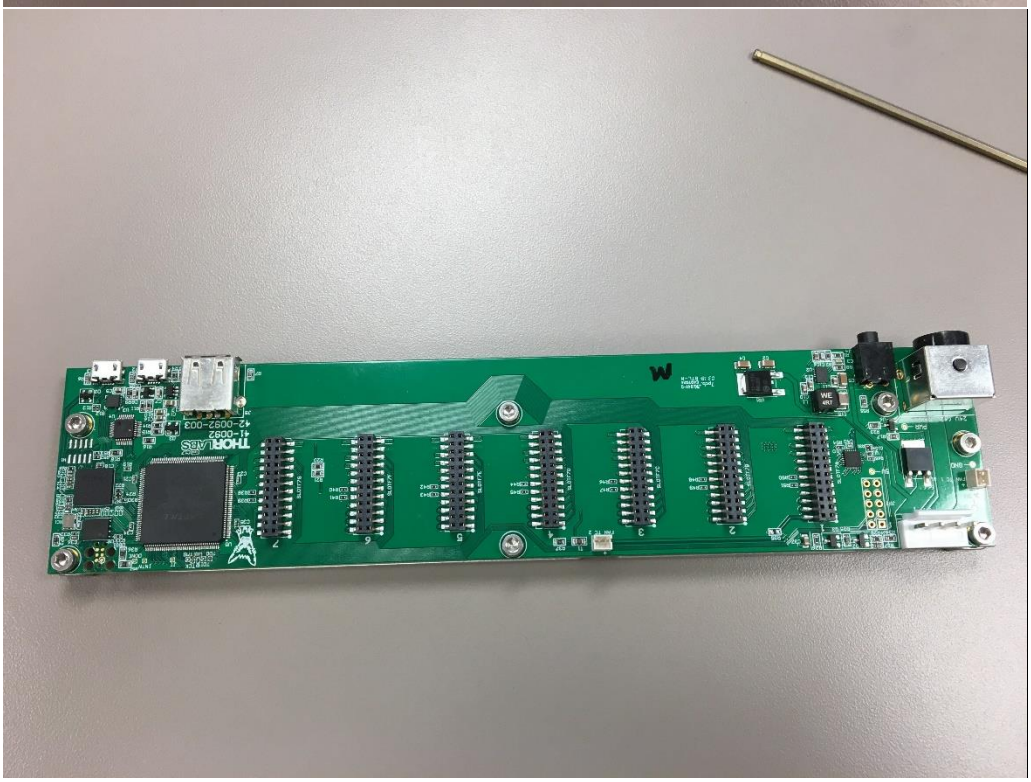
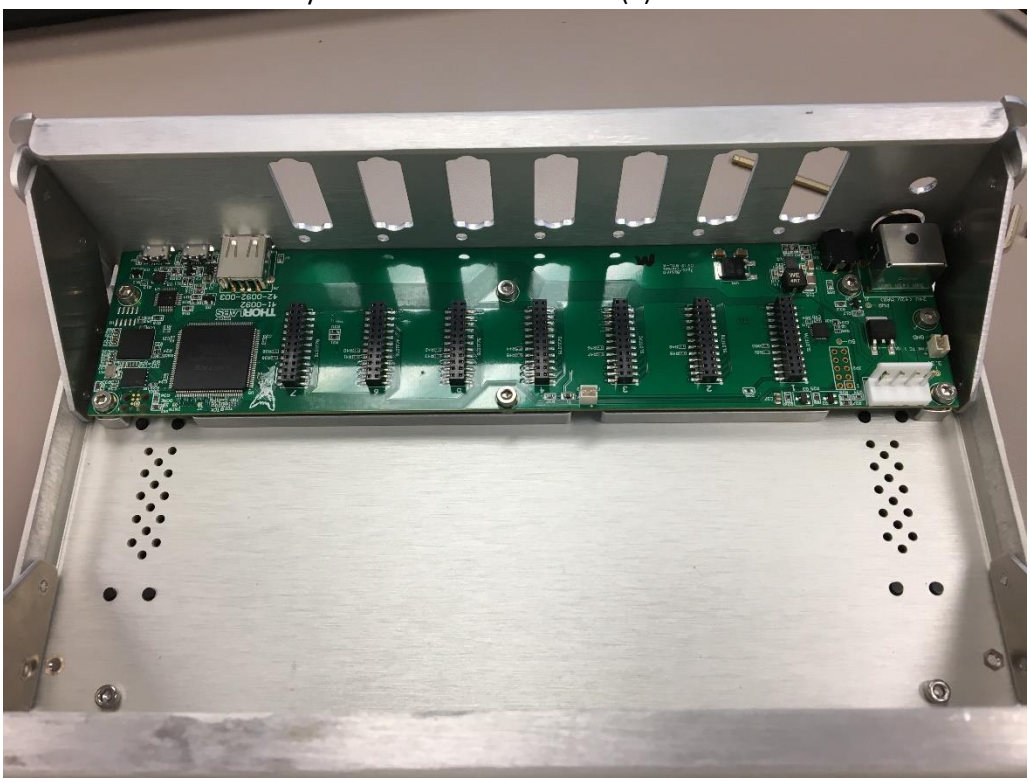
Mesoscope Assembly:

1. Mount PCB to chassis with (7) M3x5 screws.

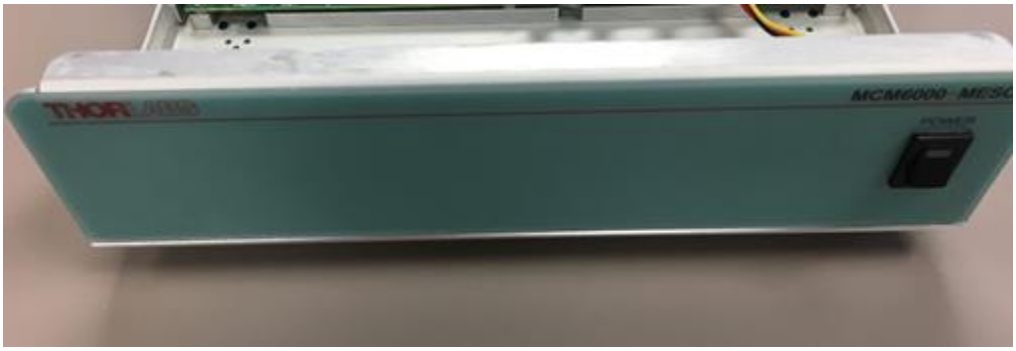




2. Install the above assembly into the enclosure. With (4) flat screw M3x6



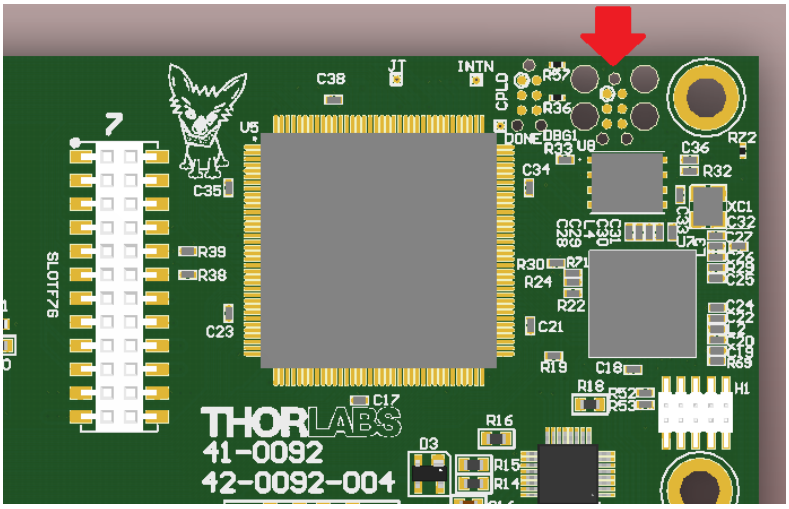
3. Make sure all the screws on the enclosure are tight because sometimes we have seen them loose from the manufacture.
4. Install the front graphic overlay.



5. Slide the power switch through the front panel with the LED on top and connect the power switch to the PCB connector JP1.

6. Connect power and USB cable to the PC port on the rear.
7. Plug in a safety interlock pin into the rear safety interlock jack.

8.
9. Connect the programming cable to the programming connector at the top right corner of the board next to the mounting screw.



10. Program the microcontroller bootloader “70-0048-X.X-bootloader.hex” using Atmel Studio.
11. Power cycle the unit.

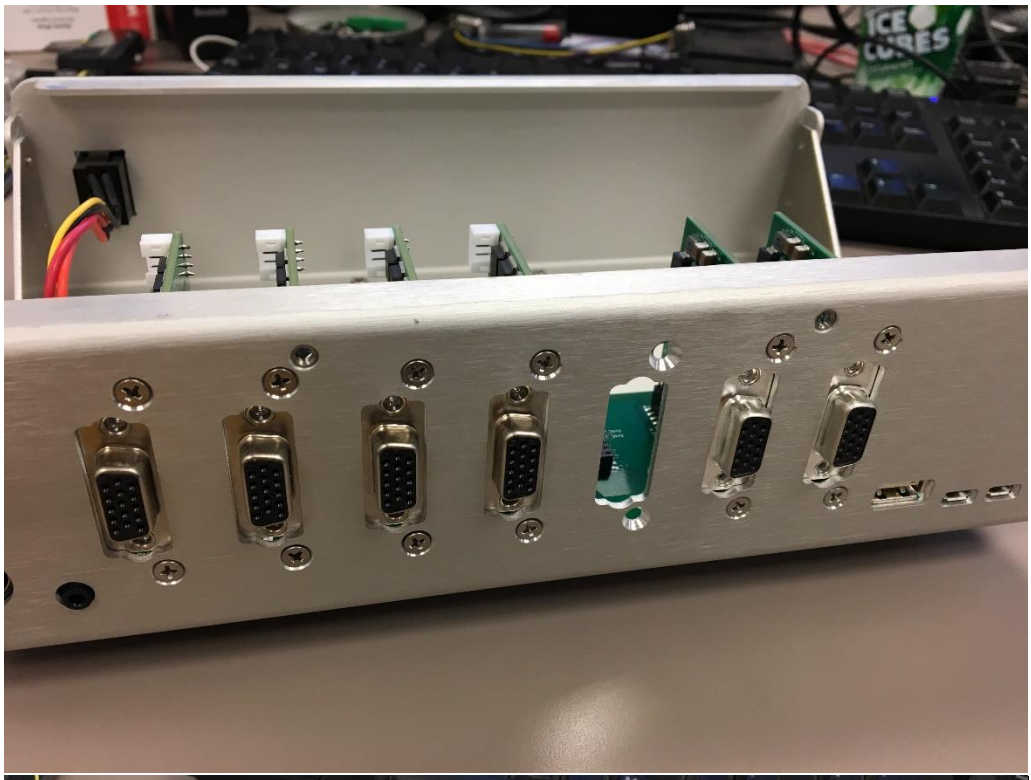
12. Program microcontroller firmware “70-0059-X.X MCM6000 FreeRTOS.hex” through USB using the 70-0086-X.X Thorlabs MCM6000 Updater.exe.
13. Program the CPLD making sure none on the cards are installed when it’s the first time programming with the file 70-0087-X.X MCM6000 CPLD firmware.jed using the 70-0052-X.X MCM6000 CPLD Updater.exe.

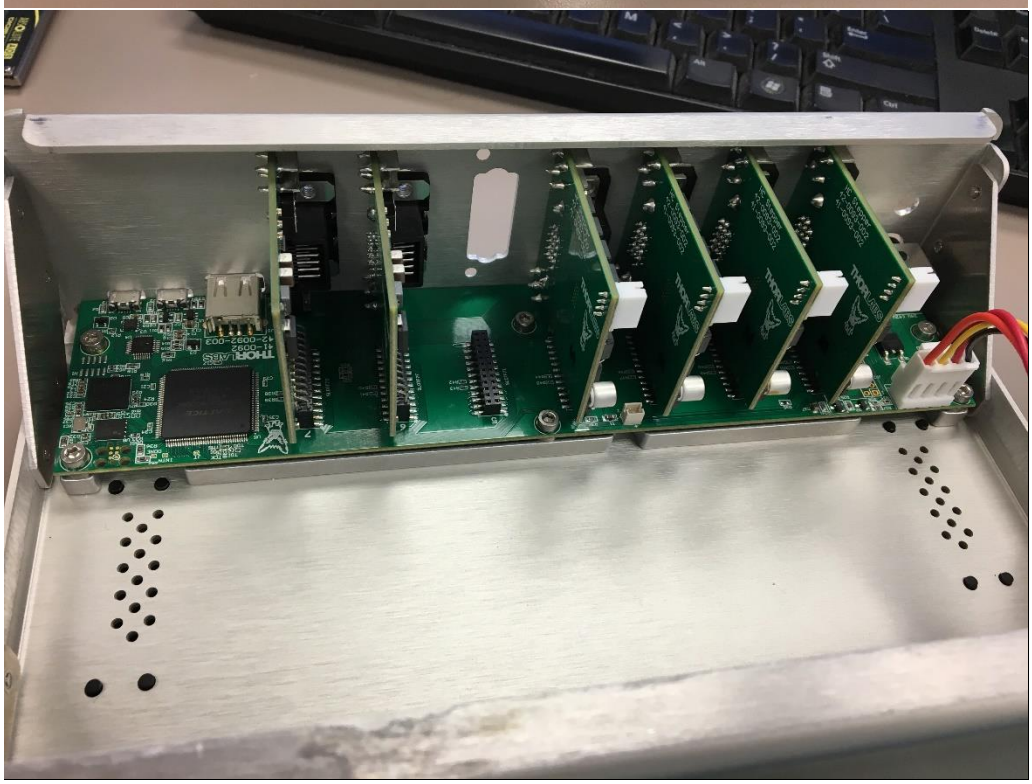
14. With power off and power cable disconnected, install (4) stepper cards 41-0093-002 in slots 1-4 using (2) 4-40x ¼” flat screws as shown in picture below.

Warning: Make sure the correct type of card is installed in each slot.

15. With power off, install (2) Servo cards 41-0098-001 in slots 6&7 using (2) 4-40x ¼” flat screws as shown in picture below.

Warning: Make sure the correct type of card is installed in each slot.

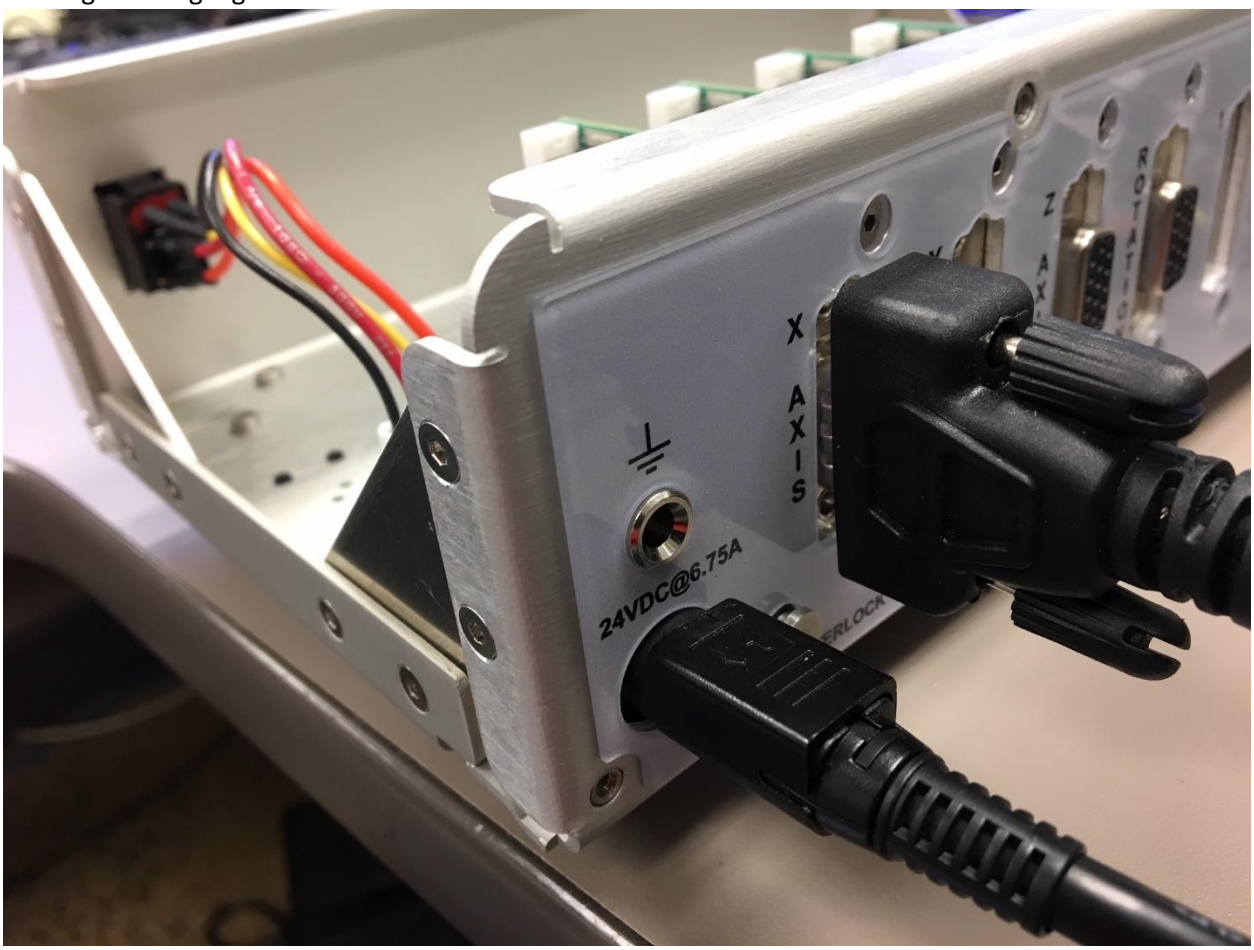


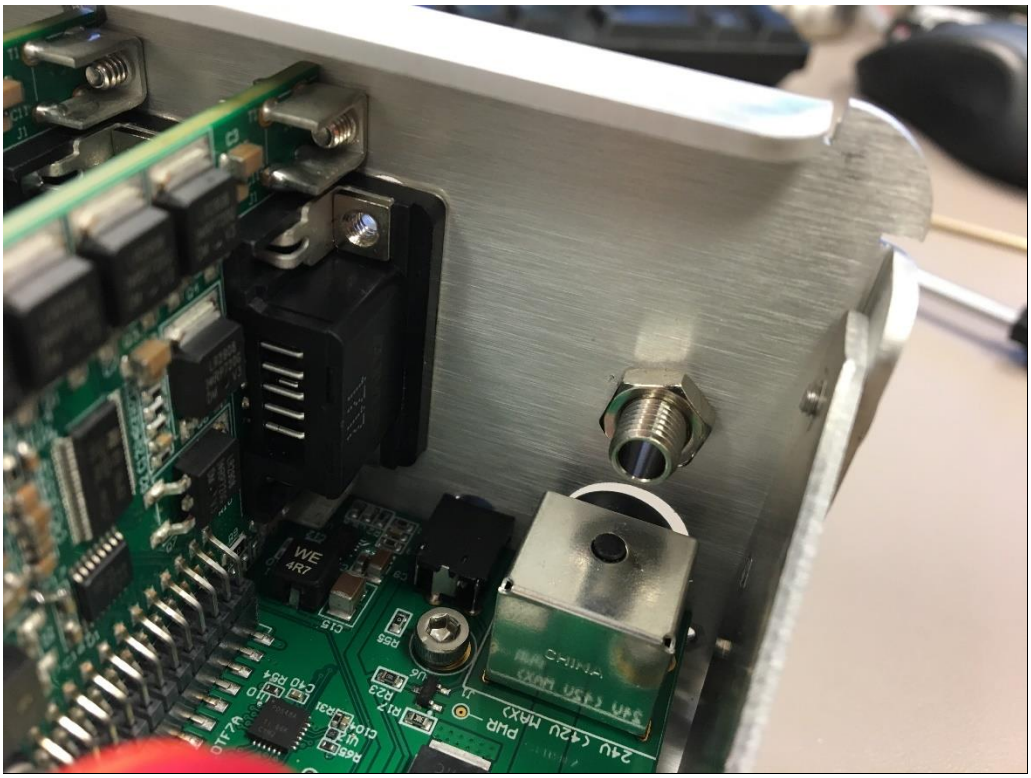


16. Install a slot blank on slot 5 using (2) 4-40x ¼” flat screws.

17. Install the rear graphic overlay.

18. Install grounding lug.

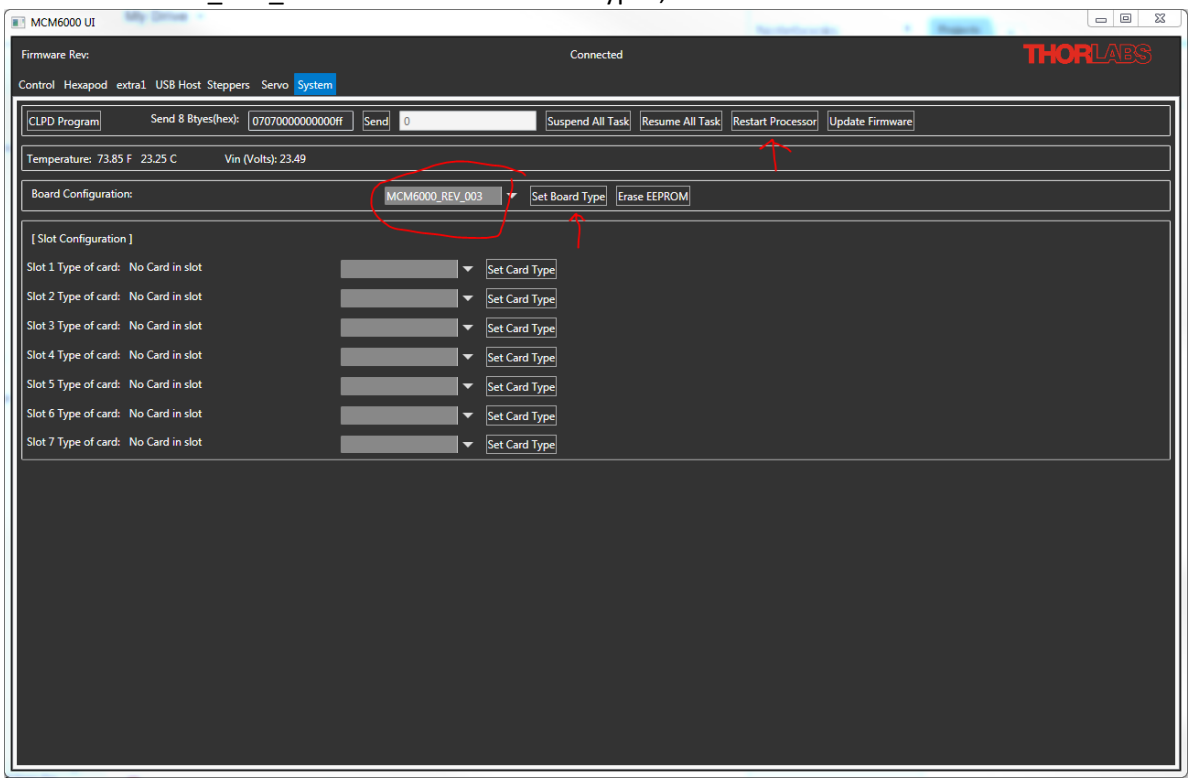




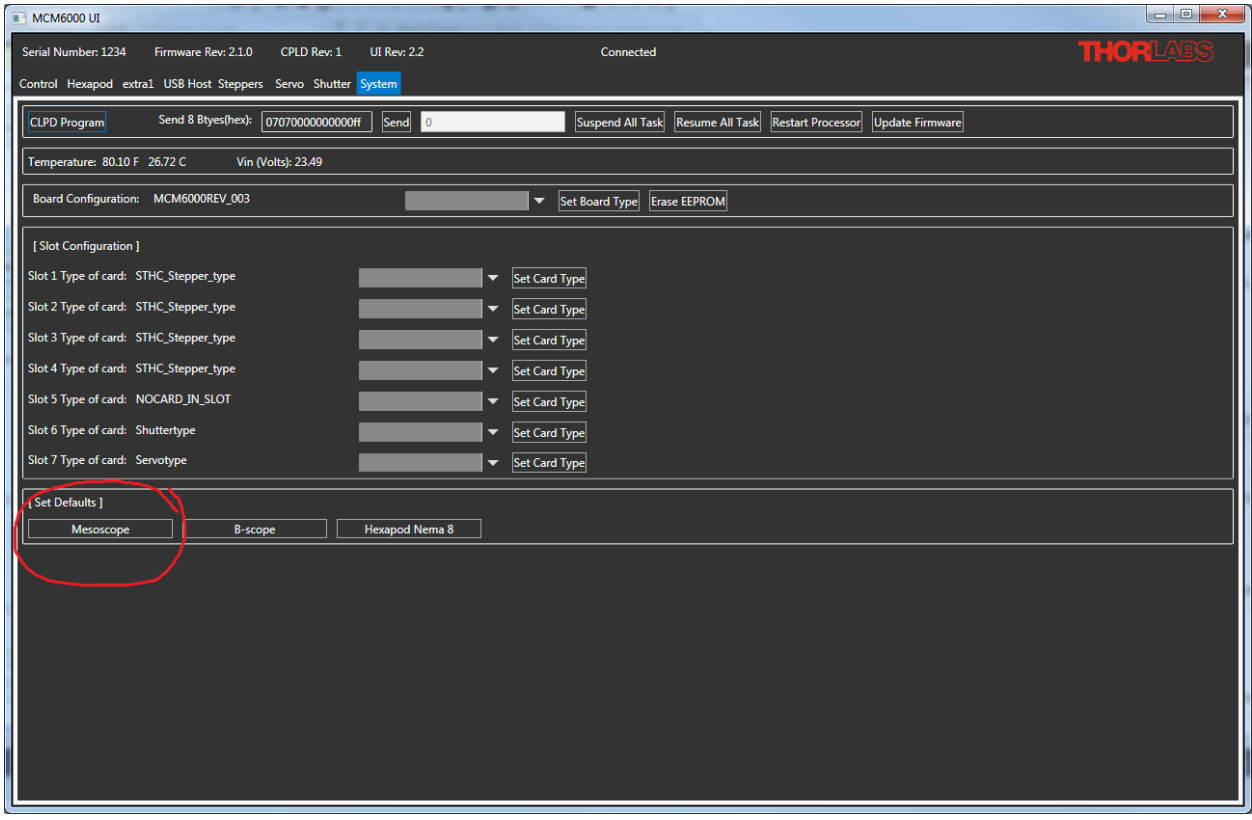
19. Connect power and USB cable on the rear and switch power on.

20. Start the 70-0046-X.X MCM6000 UI.exe utility on the PC. Using the utility program the board type.
    a. In the utility, click on the “System” tab.

b. Select MCM6000_REV_003 then click “Set Board Type”, then click “Restart Processor”.



21. Next, clcik on Mesoscope to configure the system.

a. 

22. Install the UI to the tablet by running the installer 70-0079-X.X.
23. Test

Update firmware:

1. Plug in power
2. Plug in USB cable into the USB PC port on the rear and other end to the PC.
3. Switch the power on.
4. Start the 70-0086-X.X Thorlabs MCM6000 Updater.exe.
5. Click on Enter bootloader.
6. Click Update Firmware, then Yes on the popup window.
7. Click Update in the new window, then in the file browser go to the firmware folder and select the file 70-0059-X.X MCM6000 FreeRTOS.hex to open. This will update the microcontroller firmware.

Update CPLD:

1. Start 70-0052-X.X MCM6000 CPLD Updater.exe.
2. Click Update in the new window, then in the file browser search for the file 70-0087-1.0 MCM6000 CPLD firmware.jed to open. This will update the CPLD firmware.