CERN FEMB Testing Procedures

Hunkdaq “security”:
Encryption password is written on post-it note taped to laptop (bottom line)
Password for all accounts are the same and also written on the post-it note (top line)
Please use this information for good and not evil. :)

Setting up networking on hunkdaq:
Log in to a user account with su access (etw definitely works).
sudo -s
ifconfig enp0s25 up
(sometimes you need to do “down” before “up”)
From the operator account you can run a simple script to do this: ~/reset_network.sh

Note that hunkdaq’s wifi connection does work for “outside world” connections (via CERN wifi) but we have had very little success with this in the barracks room. May have to haul hunkdaq back to 892 for software updates. Also suggest using a personal laptop for google doc logging, checking previous test results, etc.

Setting up femb_python on hunkdaq:
Tagging a release:
git tag -am “notes on new release” 1.0.70
git push --tags

If you need to pick up a new release,
Log in as installation
./hunkdaq_inst.sh x.xx.xx (current version 1.0.69)

Log in as operator
source /opt/sw/releases/femb_python_x/sourceme
export FEMB_CONFIG=”wib_sbnd_v109_femb_protodune_v308”

For full test (to certify board for installation):
Receive CE box with cables attached and traveler signed off as “inspected and prepared”
Use wrist strap connected to ground of power supply
Place CE box on anti-static bag on table
No need to attach grounding strap on board to anything.
Remove the shorting cap and connect cold data cable (thick blue cable) to WIB adapter board (we usually use slot 1). “Samtech” writing on connector should be facing up.
Remove the shorting cap and connect LV/config cable to WIB adapter board (slot must be same as data slot). Keyed so only goes on one way.
Connect toy TPCs to PSL adapter on outside of CE box: Toy TPC #5 goes on top, Toy TPC #2 goes on bottom (when in doubt match the empty 8 pins to the middles of the connectors)

Turn on LV power supply output. Current draw should be ~1A before you start taking data.
You may remove wrist strap now as you should no longer be touching the board.
Make sure ethernet connection between WIB and hunkdaq is plugged in
femb_read_reg 5 - any output fine, just a check to make sure you have network connection. If not, down/up the network connection. If not, ~/reset_network.sh.
femb_prod_gui: fill in your name, check the WIB slot you are using, room temperature, and fill in all the information requested for the slot you are using. You will find all the information (except the toy TPC numbers given above) on the travelers that come with the board. For the ASICs, you must enter 8 numbers separated by spaces. Please do not comma separate!
The GUI is big - you have to drag it to the very top of the desktop to see the “Start Tests” button.
Press “Start Tests” now.
Current draw will go up to ~1.7A when board is powered.
Running under sumatra, test takes about 1 hour to complete (can vary)
Output will be written to /tmp/data/oper/femb/wib_sbnd_v109_femb_protodume_v308/TIMESTAMP - keep an eye on the output as it is being written.
Compare the results to the BNL data, available here: http://www.phy.bnl.gov/coldelec/summary/ (password may be required - CHECK THIS).
Do not expect identical noise measurements given different lab conditions. Do expect all channels working.
Enter successful runs in the Google Doc logbook
Sign off “Passed Warm Test” on traveler
Turn off LV power supply output and put wrist strap back on.
Remove toy TPCs and uncable.
Replace the shorting caps on cold data and lv cables before storing

For installation test (to check in-situ during installation):
Use wrist strap connected to ground of power supply
Install CE box on detector
Remove the shorting cap and connect cold data cable (thick blue cable) to WIB adapter board (we usually use slot 1). “Samtech” writing on connector should be facing up.
Remove the shorting cap and connect LV/config cable to WIB adapter board (slot must be same as data slot). Keyed so only goes on one way.
Turn on LV power supply output. Current draw should be ~1A before you start taking data.
Make sure ethernet connection between WIB and hunkdaq is plugged in
femb_read_reg 5 - any output fine, just a check to make sure you have network connection. If not, ~/reset_network.sh.
femb_mobile_test: fill in the requested info (Or na if not sure or doing a checkout test when not on the APA. Don’t use n/a as this will confuse the software)
Test should run quickly (<10 min)
Current draw will go up to ~1.7A when board is powered.
For bad connections, expect noise levels lower than measured in the full test with toy TPC (noise below 1000 ENC is suspicious).

Sign off “Passed Warm Test” on traveler
Turn off LV power supply output.
Remove toy TPCs and uncable.
Replace shorting caps on cold data and lv cables when done.

To Do:
*Set up a way to copy data over to hothstor2 for backup/webpage. Right now there is plenty of disk space on hunkdaq and the test data is not very large, so possibly just a thumb drive will do.
*Figure out why the wifi doesn’t work in EHN1 barracks - this is not necessary for testing, but very annoying