INTT weekly

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INTT HV&LV system

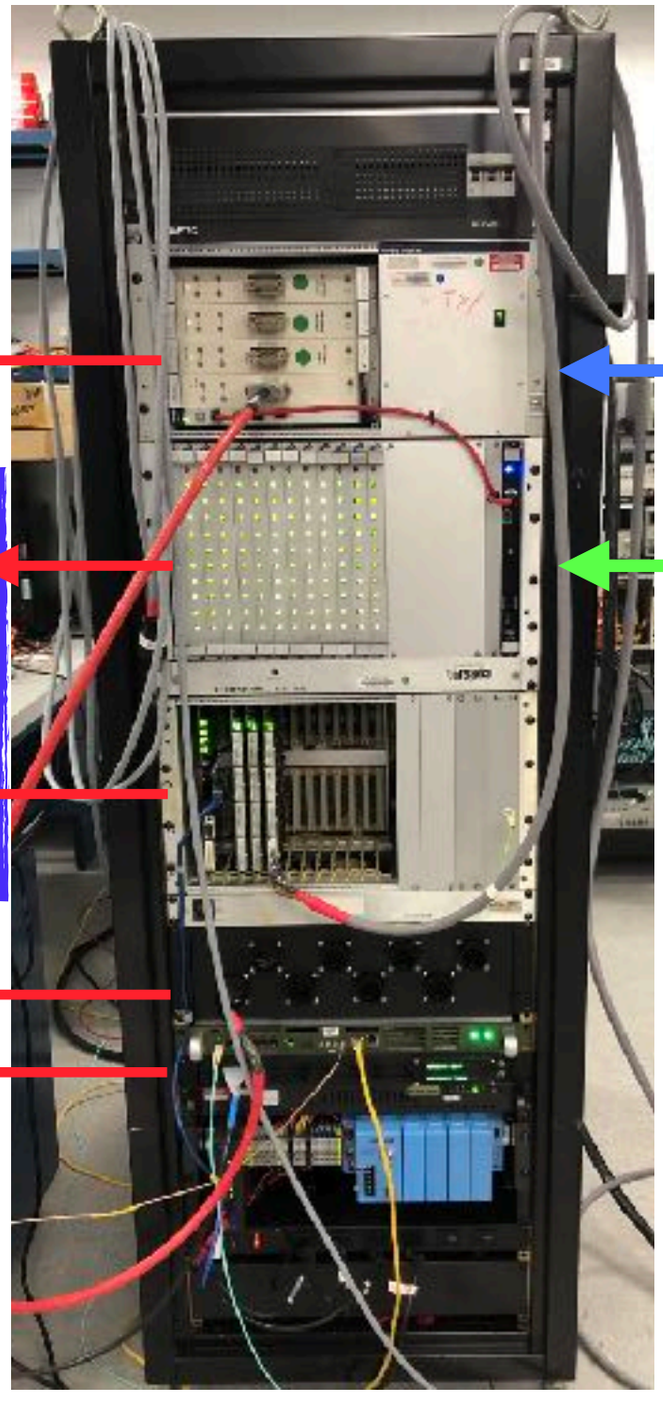
Bias voltage (HV)

LV power supply
(Including ROC and chip dist)

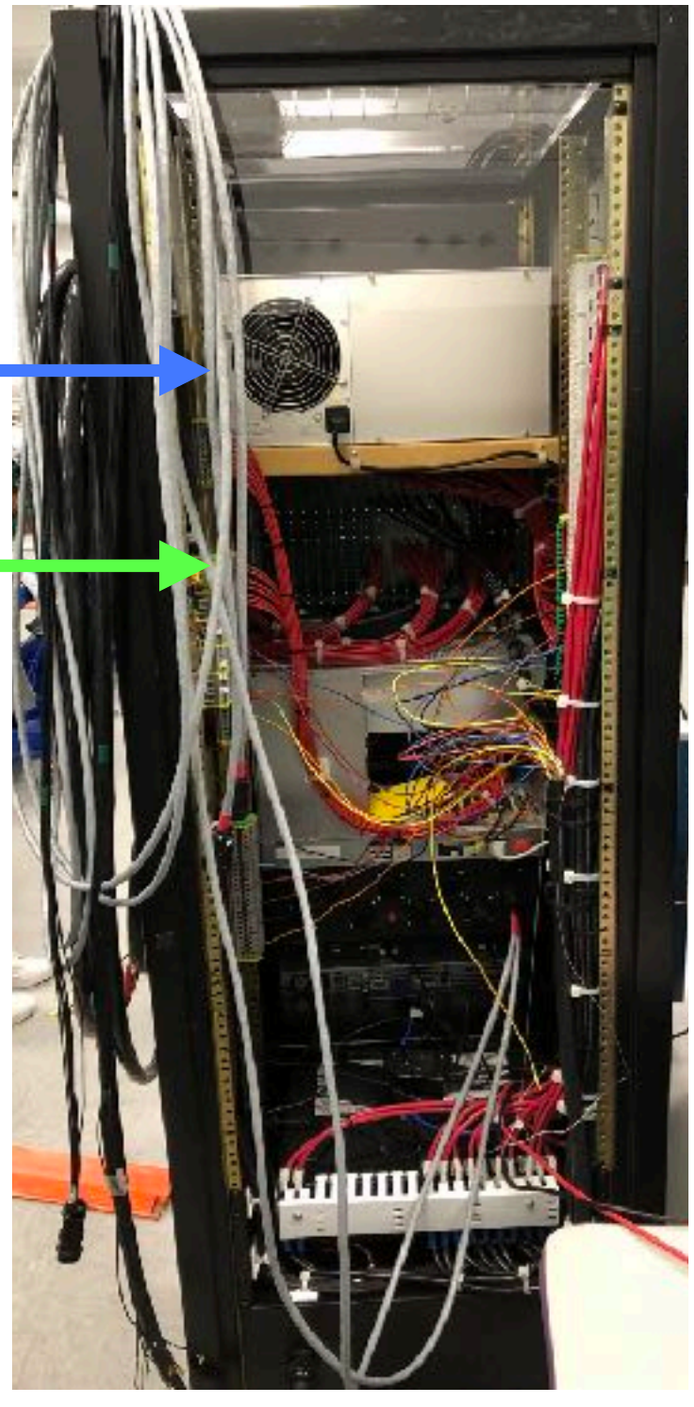
LV distribution
(power up chips)

HV filter

Thermal monitor



Frontside



Backside

LV power supply

- LV power supply
  - Communicating with power supply modules by using the telnet command
    - telnet 10.20.34.120 9760

```
intt@inttpower:~/power$ telnet 10.20.34.120 9760
Trying 10.20.34.120...
Connected to 10.20.34.120.
Escape character is '^]'.
```

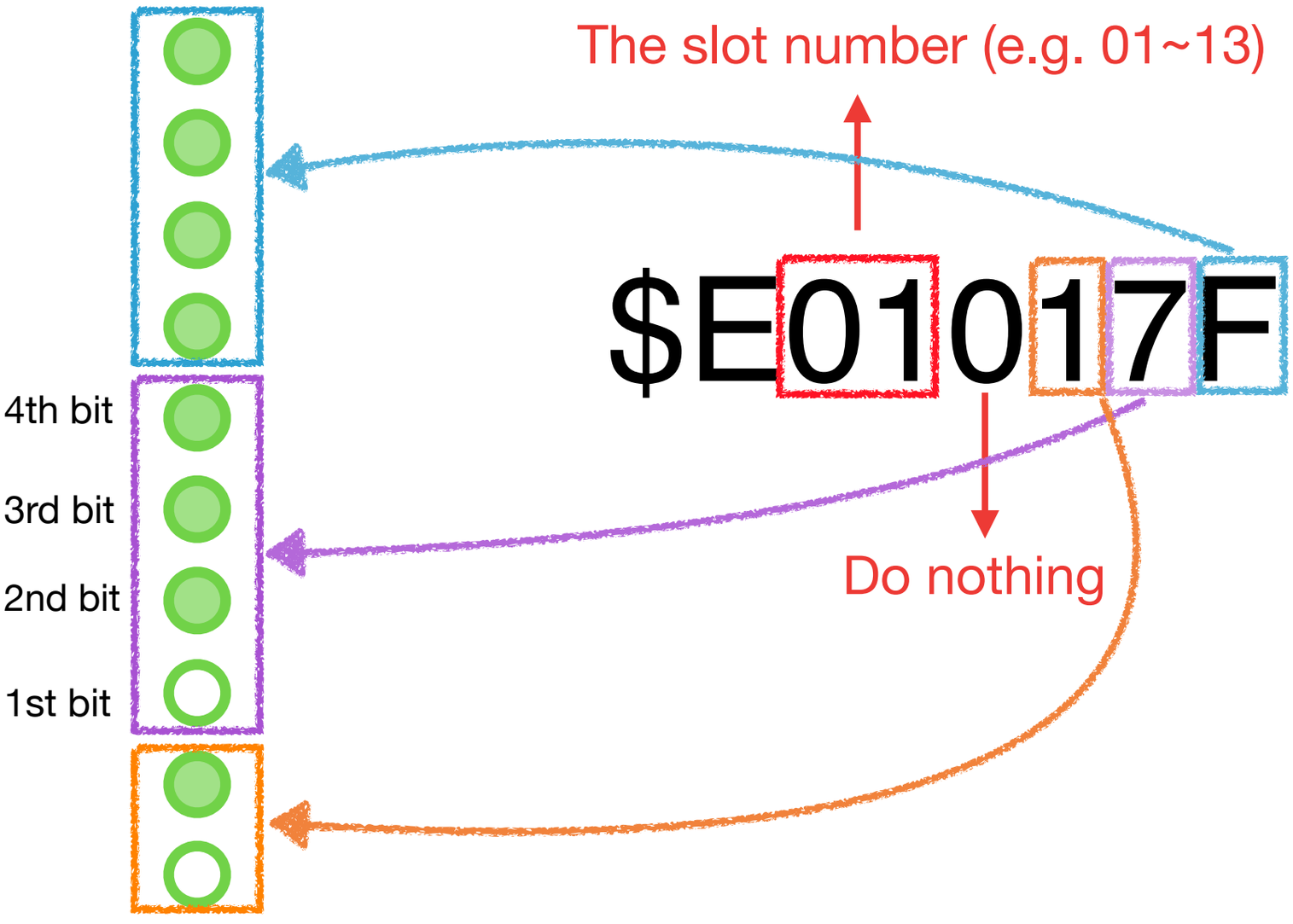
    - $H

```
Version 6-14-22 Unipolar Mode
* LV Dist Controller Help *
Each command is followed by <CR> and may be upper or lower case.
Press <ESC> to close the connection

$A: Sends all crate data
$Esscc: Set channel enables
$H: Help screen
$Iss: Read Slot Currents
$O: Read the crate Occupancy bits
$R: Reset all slots in a Bipolar crate
$Vss: Read Slot Voltages
$Xpppp: Initialize FRAM
$Zss: Read slot VERSION in a Bipolar crate
```

LV telnet command

- LV power supply
  - To turn the specific channel, we can use $E command



The channels are using binary.

Binary	Hex
1111	F
0111	7

1st → 4th

LV system status

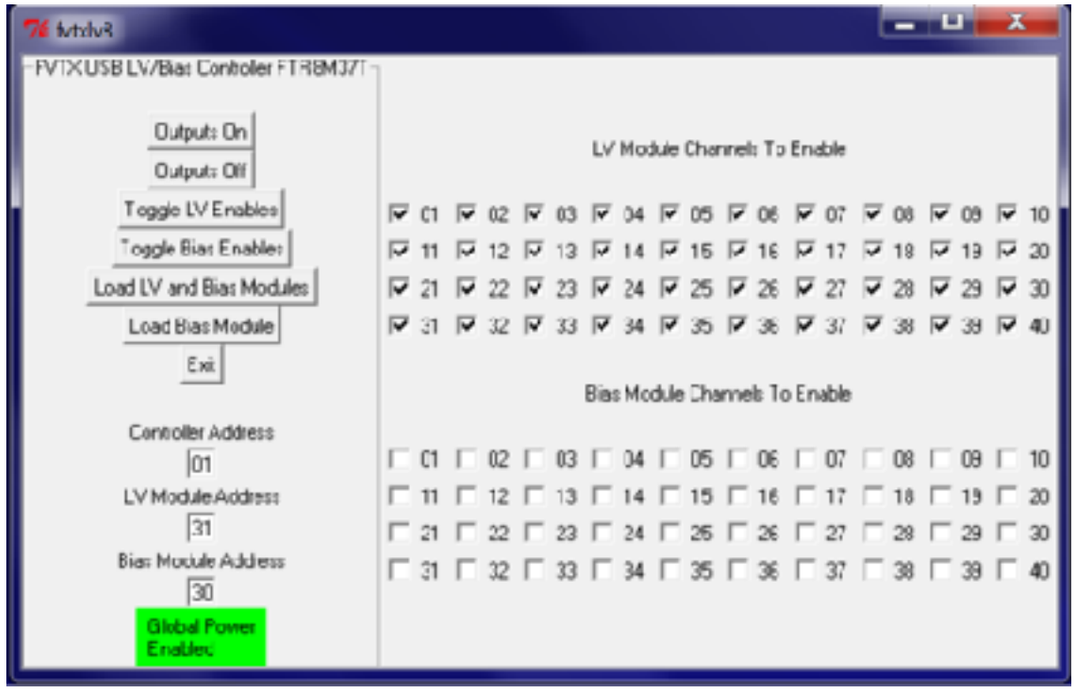
- LV power supply
  - We have a simple shell script to turn on all the channels at once

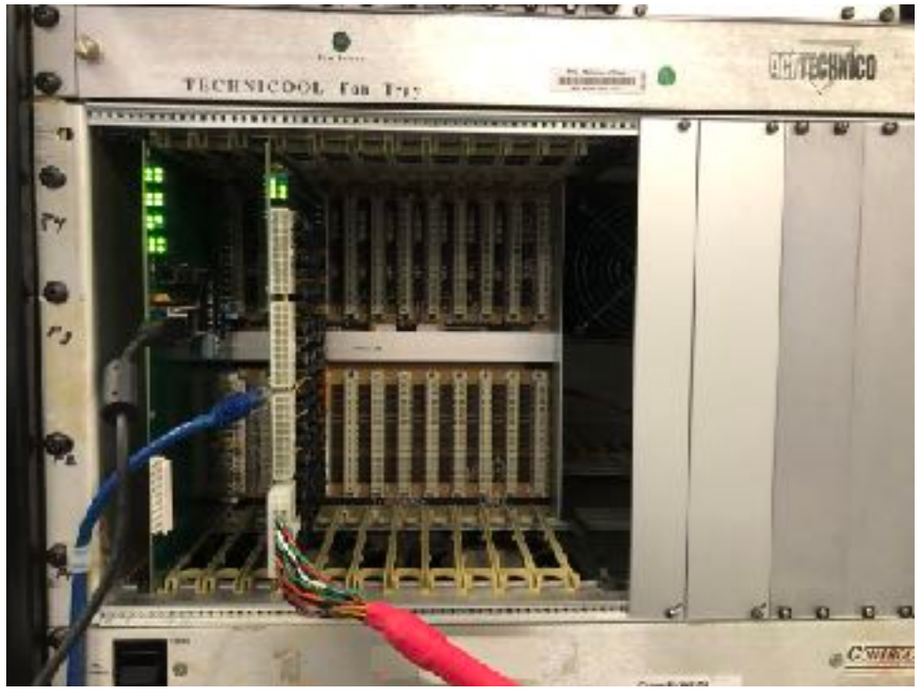
```
intt@inttpower:~$ all_on.sh
```

- LV distribution
  - We have types of LV distribution controller board:
    - USB, ethernet
  - USB
    - We have GUI for the USB controller board and works good
  - Ethernet
    - We found some tcl script from phenix wiki page but it doesn’t work for the controller board.
    - With some help, we found that the tcl isn’t the one that fvtx used before. They were use a perl script to run the LV & HV system.
    - Finally we got the perl script and I did some modification (since the script we found still has some missing parts)

LV USB controller board

- We have two types of distribution controller board
  - USB
    - We have GUI in the pc already. It is the one used in 2019 testbench.
    - It can only control one distribution board on specific crate slot.





LV ethernet controller board

- After some modification and testing. We now can have the power from the distribution board
  - The command to use code is:

    Perl ~/power/FVTX_Dist_weiche_stable.pl on/off/enable/disable north

    These are two parameters need to deliver to script

```
intt@inttpower:~$ perl ./power/FVTX_Dist_weiche.pl on north
Turning on crate
192.168.60.227
192.168.60.227
 Command Complete: Power is OFF, bytes copied = 18, last addr = 224, data = 128
 Command Complete: Power is ON, bytes copied = 45, last addr = 192, data = 128
intt@inttpower:~/power$ perl FVTX_Dist_weiche.pl enable north
Enabling channels
192.168.60.227
192.168.60.227
 Command Complete: Power is OFF, bytes copied = 18, last addr = 224, data = 128
 Command Error: Response error, address word 190
```

Procedure: on -> enable -> disable -> off

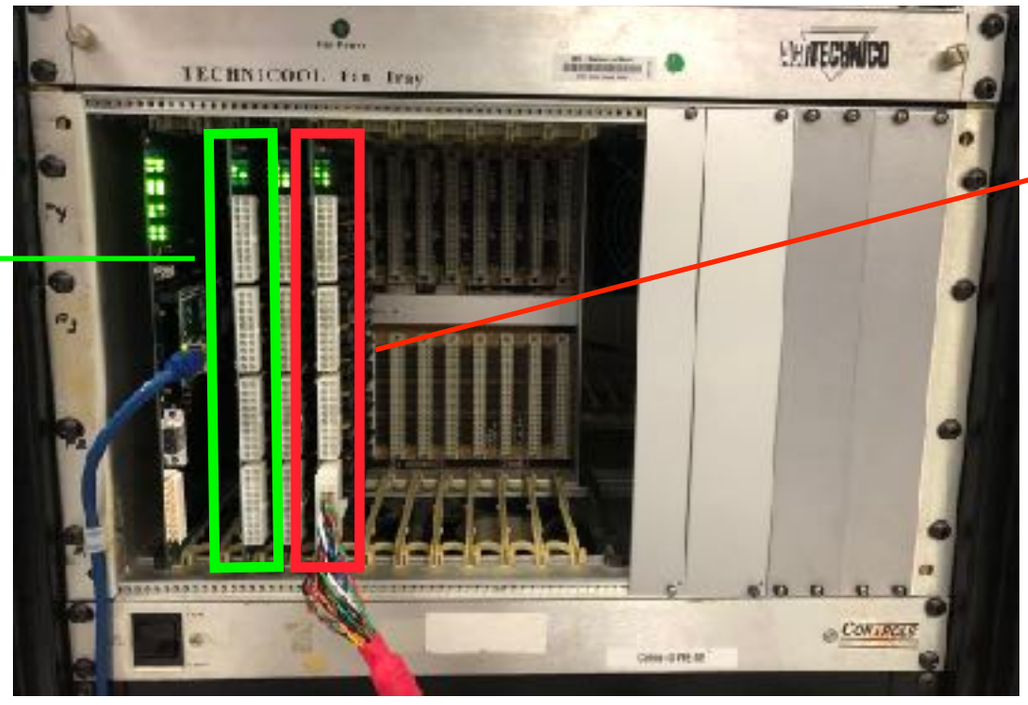
LV distribution system

- LV controlling procedure:
  - Turn on the LV power supplies
  - Turn on the power of distribution board
  - Enables the channels on distribution board
  - Disables the channels on distribution board
  - Turn off the power of distribution board
  - Turn off the LV power supplies

LV distribution system

- Some issue still exist
  - I do not know the correct address of the distribution board on the crate
  - There is no clear message on the wiki or in the code
  - I need to test one by one to figure out the address

Some channels do not output the voltage



This board works totally functionally