2021/09/21 INTT 日本語ミーティング

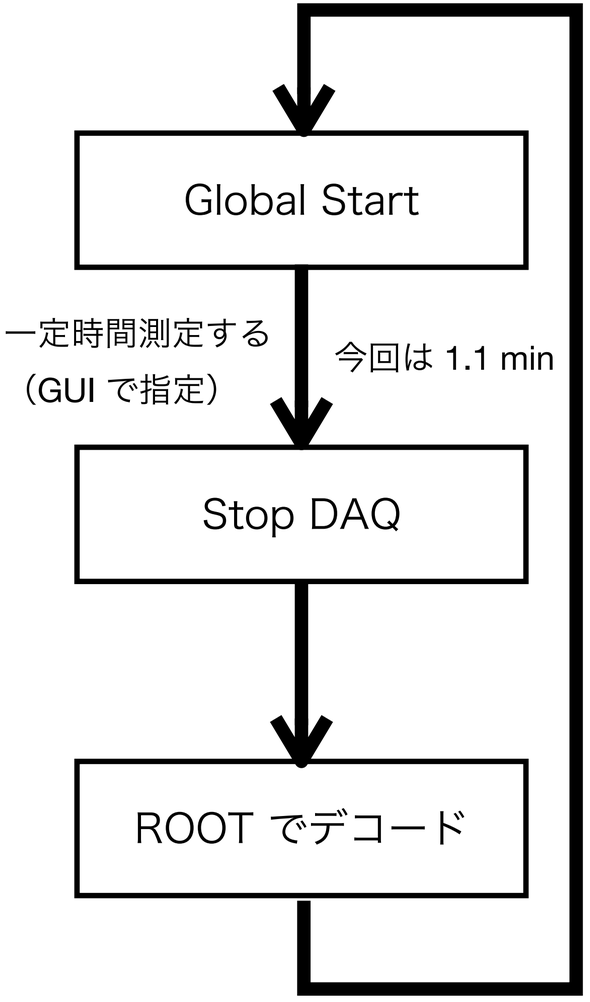
ここ１週間の理研テストベンチでのアクティビティ

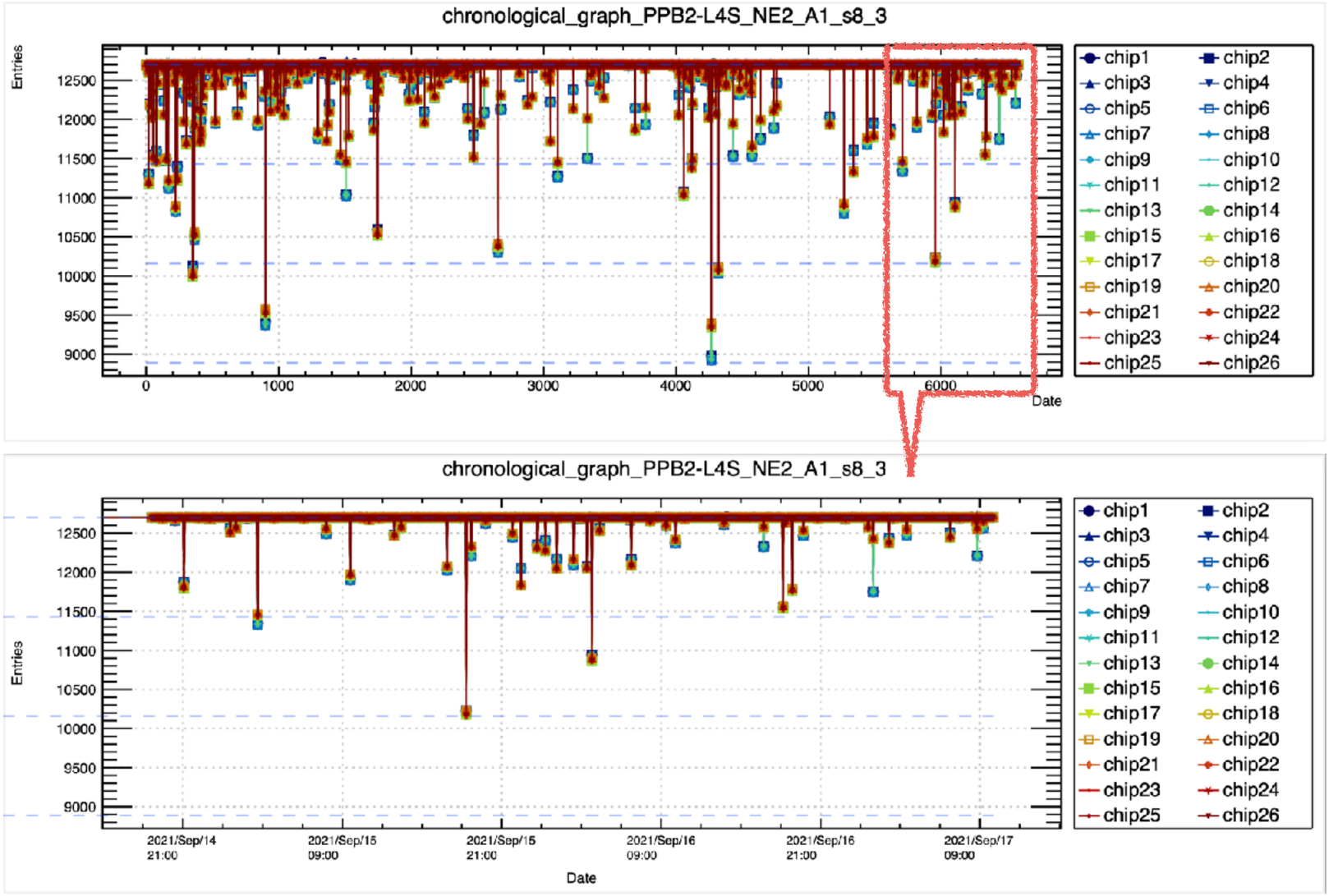
理研、RBRC
秋葉康之、中川格、**糠塚元気**
立教大学：
今井皓、中村友亮、中野元太

内容

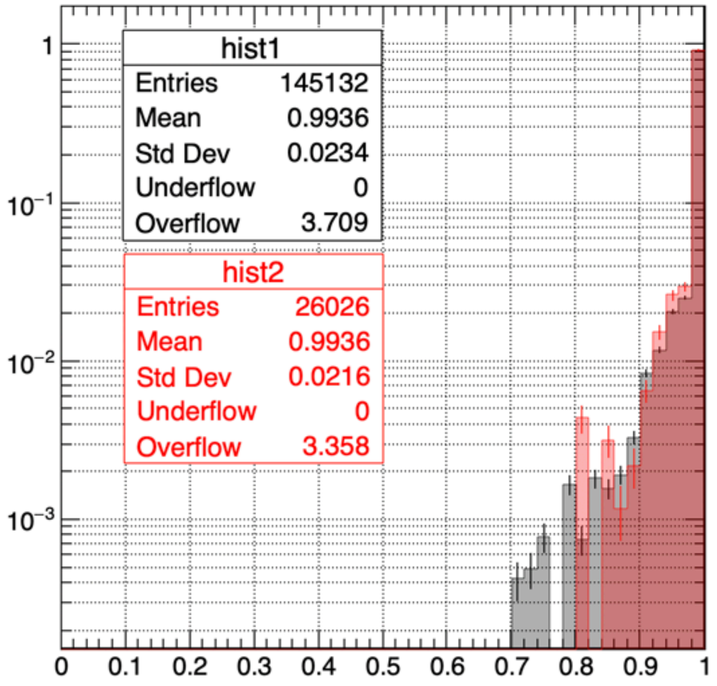
- 測定間隔を開けたときのキャリブレーション安定性
- Upgraded 1008ROC のテスト

測定間隔を開けたときのキャリブレーション安定性

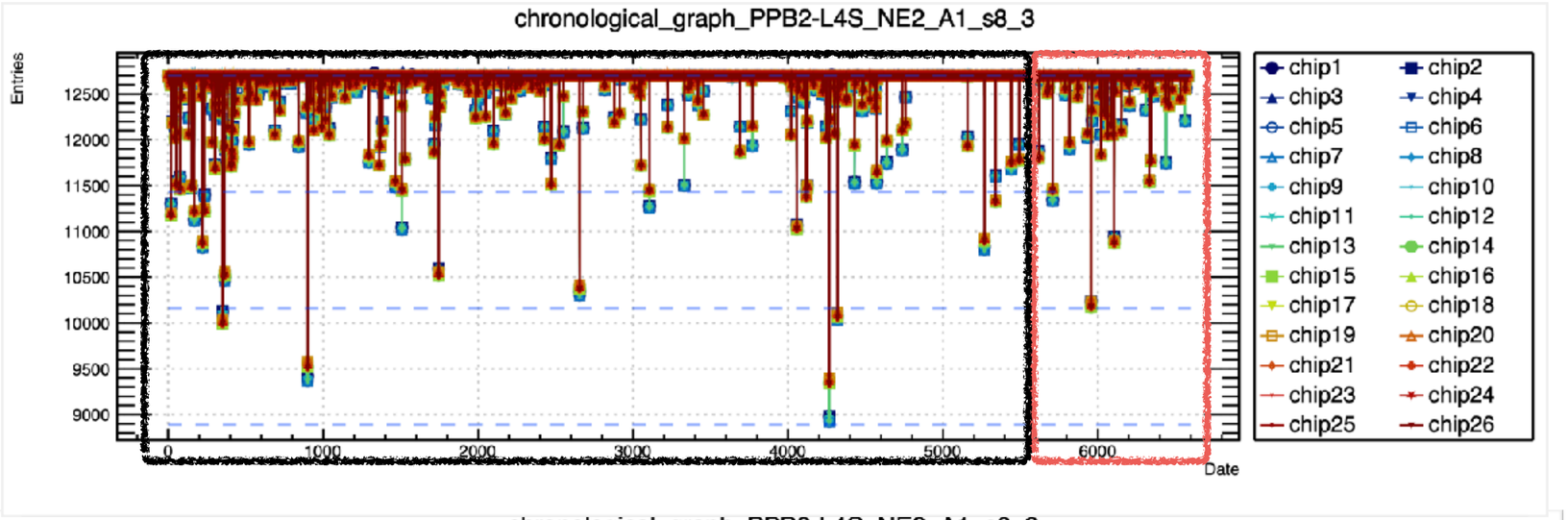


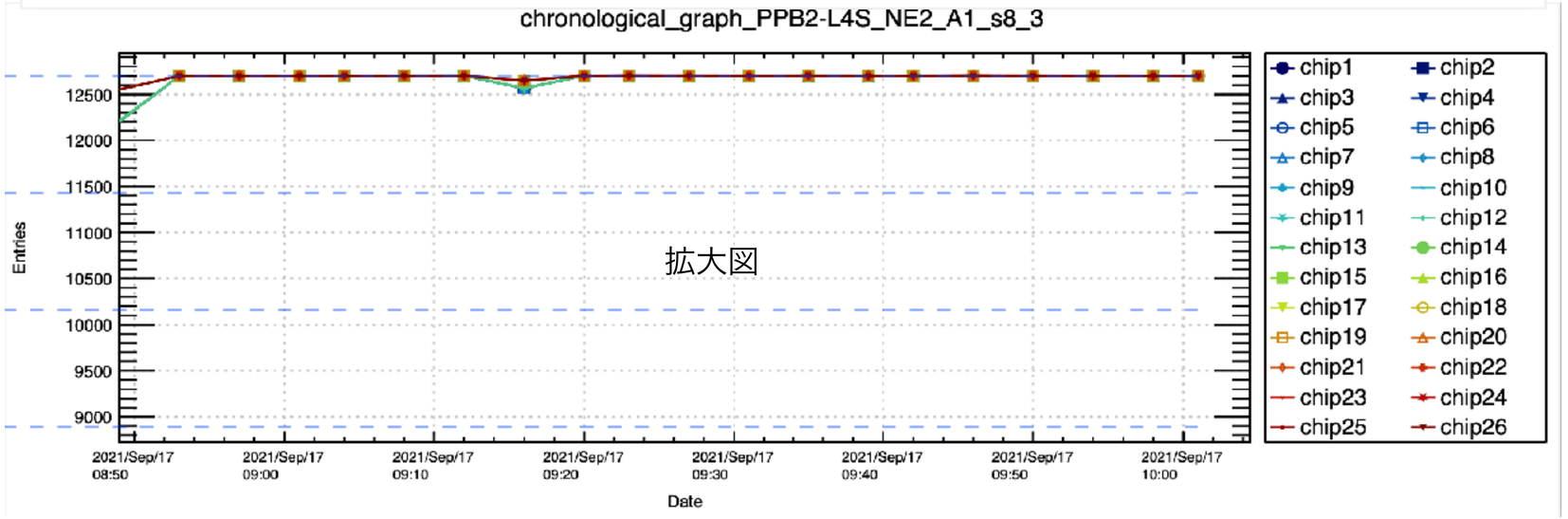


測定間隔を開けたときのキャリブレーション安定性



これまでの測定（黒）と今回の測定（赤）のイベント数分布（規格化済）。





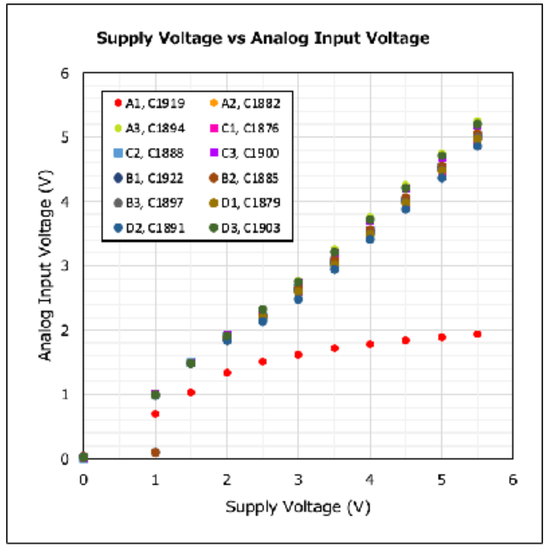
これまでの測定と安定性はほとんど変わらないように見える。

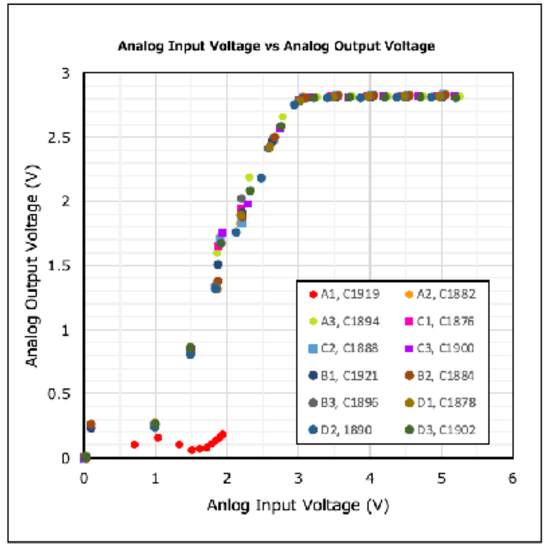
Upgraded 1008ROC のテスト

電源の設定電圧 vs 入力電圧

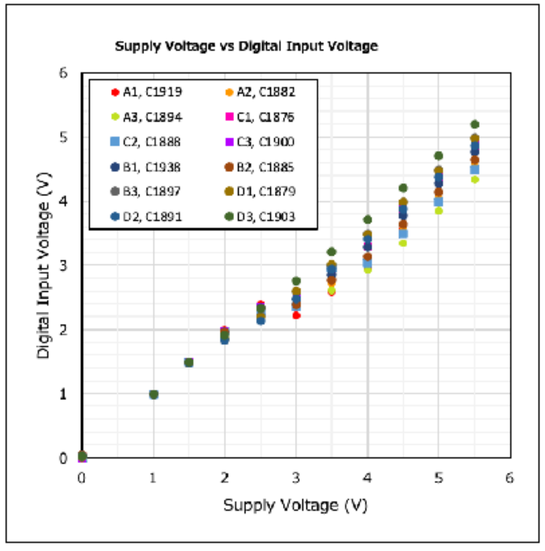
入力電圧 vs 出力電圧

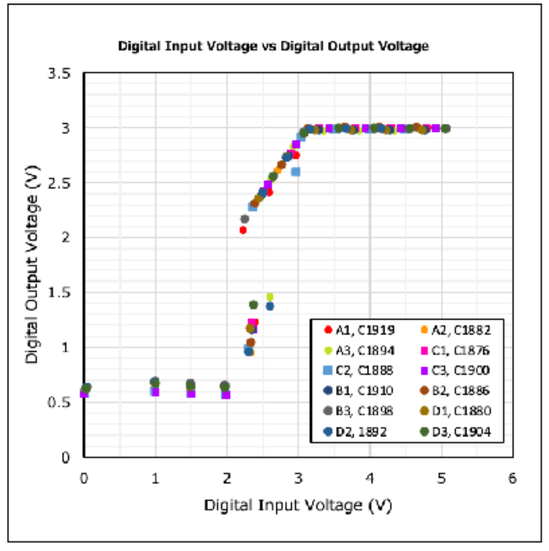
アナログ用
レギュレーター





デジタル用
レギュレーター



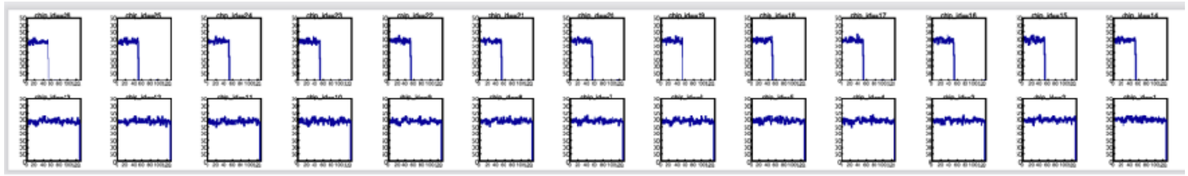


まだ安定性の理解が完全ではないが、
とりあえず NW4 のテストをやりきった。

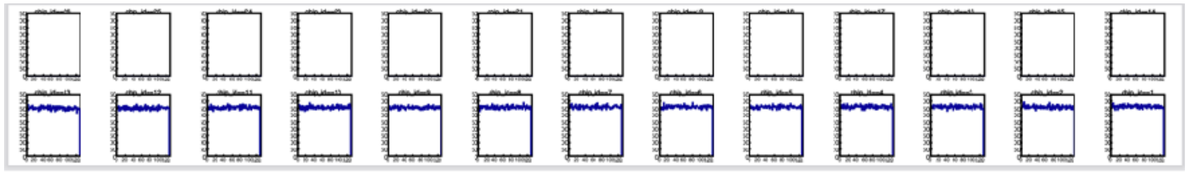
4 V 以上の電圧を供給すると安定して
2.8 V, 3.0 V を出力している。
※ ポート A1 アナログ用レギュレーターだけ挙動がおかしい

Upgraded 1008ROC のテスト

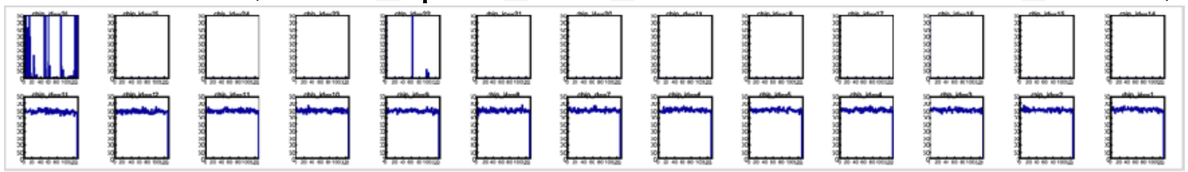
A3 (riken_fphx_raw_20210811-1040_0.dat)



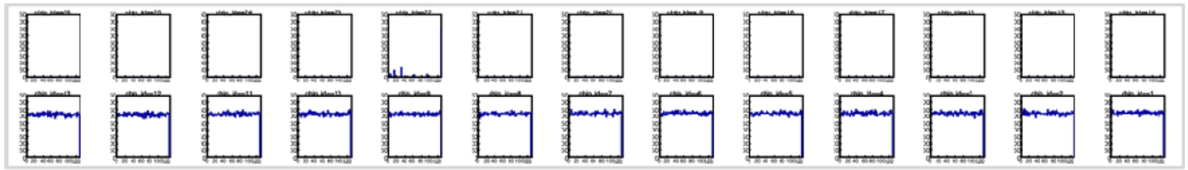
B1, FVTX (riken_fphx_raw_20210917-1233_0.dat)



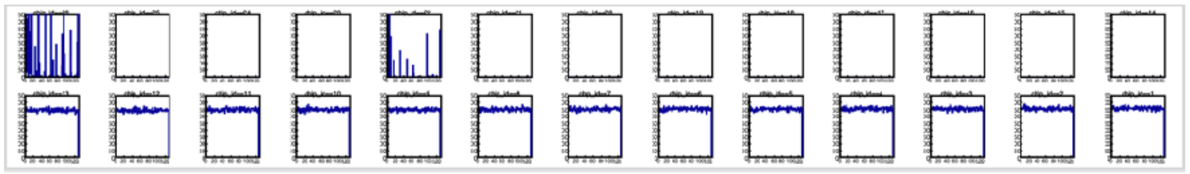
B2, FVTX (riken_fphx_raw_20210917-1858_0.dat)



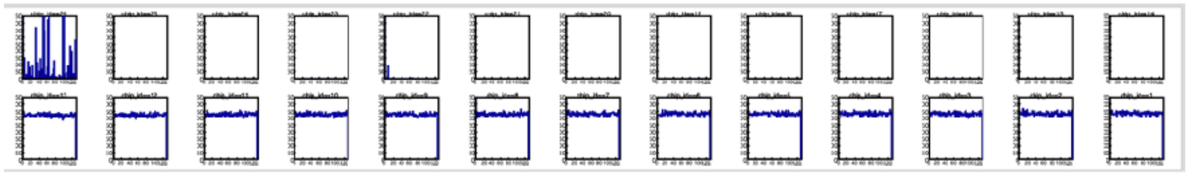
B3 FVTX (riken_fphx_raw_20210917-1932_0.dat)



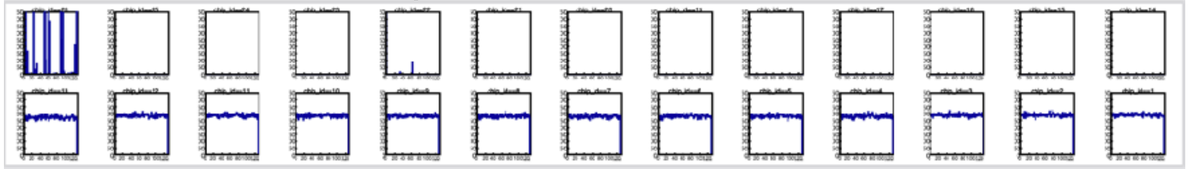
D1 FVTX (riken_fphx_raw_20210917-2003_0.dat)



D2 FVTX (riken_fphx_raw_20210917-2028_0.dat)



D3 FVTX (riken_fphx_raw_20210917-2054_0.dat)



A3 のチャンネル欠けはまだ理解できていない

FVTX を使った B, D ポートのキャリブレーションはすべて chip14 - 26 でデータ無しだった。

→FVTX やケーブルに問題あり？

Upgraded 1008ROC のテスト

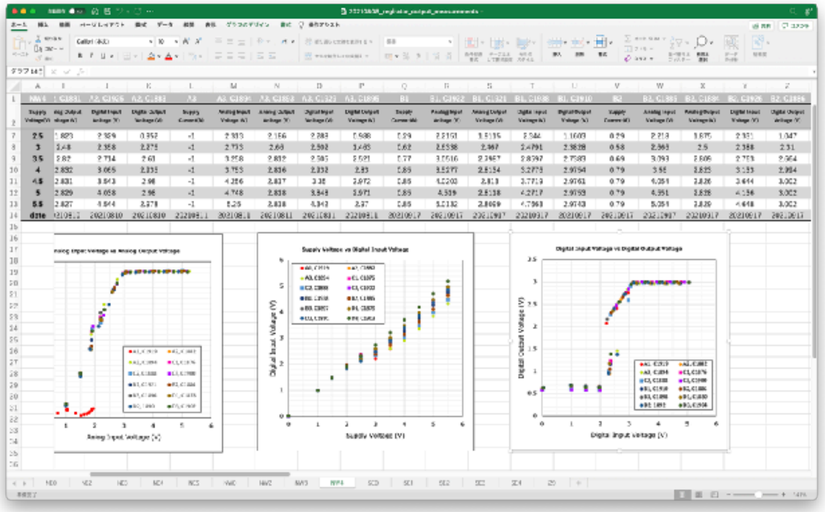
テスト結果を簡単にまとめるためのツールがおおよそ完成した

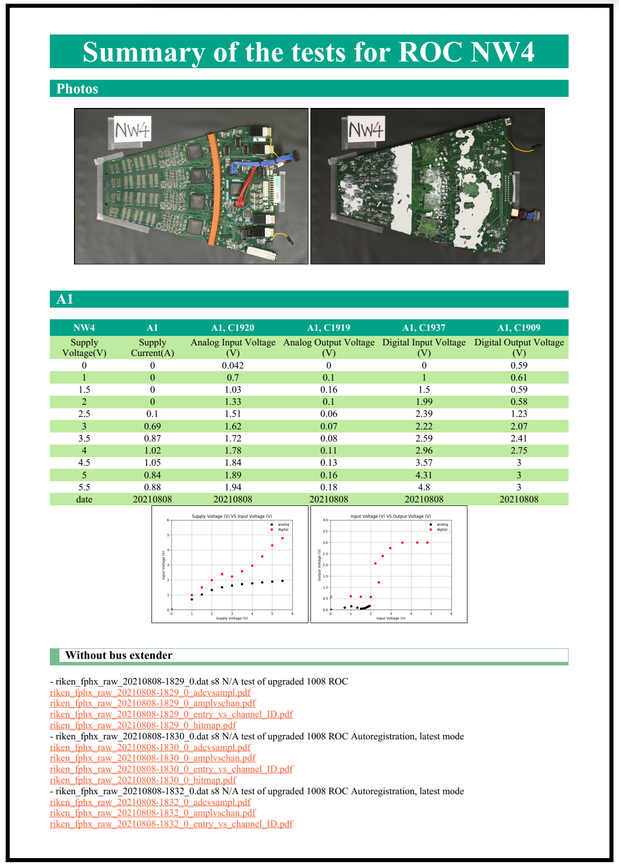
エクセルファイルに電圧測定結果を入力し、ROC ごとの

ディレクトリにキャリブレーションデータをおいて

スクリプトを実行するだけ

```
ROC_tests/
├── 20210808_regirator_output_measurements.xlsx
├── 29
├── DBManager.py
├── NE0
├── ...
├── NW4
│   ├── data
│   │   ├── riken_fphx_raw_20210808-1820_0.dat
│   │   ├── riken_fphx_raw_20210808-1820_0.root
│   │   ├── riken_fphx_raw_20210808-1820_0_adcvsampl.pdf
│   │   ├── riken_fphx_raw_20210808-1820_0_amplvschan.pdf
│   │   ├── riken_fphx_raw_20210808-1820_0_config.dat
│   │   ├── riken_fphx_raw_20210808-1820_0_entry_vs_channel_ID.jpg
│   │   ├── riken_fphx_raw_20210808-1820_0_entry_vs_channel_ID.pdf
│   │   ├── riken_fphx_raw_20210808-1820_0_hitmap.pdf
│   ├── index.html
│   ├── index.pdf
│   ├── pic
│   │   ├── NW4_back.JPG
│   │   └── NW4_front.JPG
│   ├── plots
│   │   ├── input_outputA1.png
│   │   ├── supply_input_A1.png
├── SE0
├── ...
├── make_summary.py  ←これを実行するだけ
├── make_summary_roc.py
└── markdown.css
```





Summary of the tests for ROC NW4

Photos

AI

NW4	A1	A1, C1920	A1, C1919	A1, C1937	A1, C1909
Supply Voltage(V)	Supply Current(A)	Analog Input Voltage (V)	Analog Output Voltage (V)	Digital Input Voltage (V)	Digital Output Voltage (V)
0	0	0.042	0	0	0.59
1	0	0.7	0.1	1	0.61
1.5	0	1.03	0.16	1.5	0.59
2	0	1.33	0.1	1.99	0.58
2.5	0.1	1.51	0.06	2.39	1.23
3	0.69	1.62	0.07	2.22	2.07
3.5	0.87	1.72	0.08	2.59	2.41
4	1.02	1.78	0.11	2.96	2.75
4.5	1.05	1.84	0.13	3.57	3
5	0.84	1.89	0.16	4.31	3
5.5	0.88	1.94	0.18	4.8	3
date	20210808	20210808	20210808	20210808	20210808

Without bus extender

- riken_fphx_raw_20210808-1829_0.dat s8 N/A test of upgraded 1008 ROC
riken_fphx_raw_20210808-1829_0_adcvsampl.pdf
riken_fphx_raw_20210808-1829_0_amplvschan.pdf
riken_fphx_raw_20210808-1829_0_entry_vs_channel_ID.pdf
riken_fphx_raw_20210808-1829_0_hitmap.pdf
- riken_fphx_raw_20210808-1830_0.dat s8 N/A test of upgraded 1008 ROC Autoregistration, latest mode
riken_fphx_raw_20210808-1830_0_adcvsampl.pdf
riken_fphx_raw_20210808-1830_0_amplvschan.pdf
riken_fphx_raw_20210808-1830_0_entry_vs_channel_ID.pdf
riken_fphx_raw_20210808-1830_0_hitmap.pdf
- riken_fphx_raw_20210808-1832_0.dat s8 N/A test of upgraded 1008 ROC Autoregistration, latest mode
riken_fphx_raw_20210808-1832_0_adcvsampl.pdf
riken_fphx_raw_20210808-1832_0_amplvschan.pdf
riken_fphx_raw_20210808-1832_0_entry_vs_channel_ID.pdf
riken_fphx_raw_20210808-1832_0_hitmap.pdf
- riken_fphx_raw_20210808-1833_0.dat s8 N/A test of upgraded 1008 ROC Autoregistration, latest mode
riken_fphx_raw_20210808-1833_0_adcvsampl.pdf
riken_fphx_raw_20210808-1833_0_amplvschan.pdf
riken_fphx_raw_20210808-1833_0_entry_vs_channel_ID.pdf
riken_fphx_raw_20210808-1833_0_hitmap.pdf
- riken_fphx_raw_20210808-1835_0.dat s8 N/A test of upgraded 1008 ROC Autoregistration, latest mode
riken_fphx_raw_20210808-1835_0_adcvsampl.pdf
riken_fphx_raw_20210808-1835_0_amplvschan.pdf
riken_fphx_raw_20210808-1835_0_entry_vs_channel_ID.pdf
riken_fphx_raw_20210808-1835_0_hitmap.pdf
- riken_fphx_raw_20210811-1455_0.dat s8 N/A test of upgraded 1008 ROC
riken_fphx_raw_20210811-1455_0_adcvsampl.pdf
riken_fphx_raw_20210811-1455_0_amplvschan.pdf
riken_fphx_raw_20210811-1455_0_entry_vs_channel_ID.pdf
riken_fphx_raw_20210811-1455_0_hitmap.pdf

With bus extender

- riken_fphx_raw_20210810-1043_0.dat s8 1.2mprepro3 test of upgraded 1008 ROC first 20ch of chip2, 3, 4, 6, 14, 15, 16, 17 lost half entry: chip6
riken_fphx_raw_20210810-1043_0_adcvsampl.pdf
riken_fphx_raw_20210810-1043_0_amplvschan.pdf
riken_fphx_raw_20210810-1043_0_entry_vs_channel_ID.pdf
riken_fphx_raw_20210810-1043_0_hitmap.pdf
- riken_fphx_raw_20210810-1044_0.dat s8 1.2mprepro3 test of upgraded 1008 ROC first 20ch of chip2, 3, 4, 6, 14, 15, 16, 17 lost half entry: chip6
riken_fphx_raw_20210810-1044_0_adcvsampl.pdf
riken_fphx_raw_20210810-1044_0_amplvschan.pdf
riken_fphx_raw_20210810-1044_0_entry_vs_channel_ID.pdf
riken_fphx_raw_20210810-1044_0_hitmap.pdf
- riken_fphx_raw_20210810-1046_0.dat s8 1.2mprepro3 test of upgraded 1008 ROC first 20ch of chip2, 3, 4, 6, 14, 15, 16, 17 lost half entry: chip6
riken_fphx_raw_20210810-1046_0_adcvsampl.pdf
riken_fphx_raw_20210810-1046_0_amplvschan.pdf
riken_fphx_raw_20210810-1046_0_entry_vs_channel_ID.pdf
riken_fphx_raw_20210810-1046_0_hitmap.pdf
- riken_fphx_raw_20210810-1048_0.dat s8 1.2mprepro3 test of upgraded 1008 ROC first 20ch of chip2, 3, 4, 6, 14, 15, 16, 17 lost half entry: chip6
riken_fphx_raw_20210810-1048_0_adcvsampl.pdf
riken_fphx_raw_20210810-1048_0_amplvschan.pdf
riken_fphx_raw_20210810-1048_0_entry_vs_channel_ID.pdf
riken_fphx_raw_20210810-1048_0_hitmap.pdf
- riken_fphx_raw_20210810-1049_0.dat s8 1.2mprepro3 test of upgraded 1008 ROC first 20ch of chip2, 3, 4, 6, 14, 15, 16, 17 lost half entry: chip6, 24
riken_fphx_raw_20210810-1049_0_adcvsampl.pdf
riken_fphx_raw_20210810-1049_0_amplvschan.pdf
riken_fphx_raw_20210810-1049_0_entry_vs_channel_ID.pdf
riken_fphx_raw_20210810-1049_0_hitmap.pdf
- riken_fphx_raw_20210810-1121_0.dat s8 1.2mprepro5 test of upgraded 1008 ROC first 20ch of chip1, 2, 3, 4, 6, 14, 15, 16, 17 lost half entry: chip6, 24
riken_fphx_raw_20210810-1121_0_adcvsampl.pdf
riken_fphx_raw_20210810-1121_0_amplvschan.pdf
riken_fphx_raw_20210810-1121_0_entry_vs_channel_ID.pdf
riken_fphx_raw_20210810-1121_0_hitmap.pdf
- riken_fphx_raw_20210810-1122_0.dat s8 1.2mprepro5 test of upgraded 1008 ROC first 20ch of chip2, 3, 4, 6, 14, 15, 16, 17 lost half entry: chip10
riken_fphx_raw_20210810-1122_0_adcvsampl.pdf
riken_fphx_raw_20210810-1122_0_amplvschan.pdf
riken_fphx_raw_20210810-1122_0_entry_vs_channel_ID.pdf
riken_fphx_raw_20210810-1122_0_hitmap.pdf
- riken_fphx_raw_20210810-1124_0.dat s8 1.2mprepro5 test of upgraded 1008 ROC first 20ch of chip2, 3, 4, 6, 14, 15, 16, 17 lost
riken_fphx_raw_20210810-1124_0_adcvsampl.pdf
riken_fphx_raw_20210810-1124_0_amplvschan.pdf
riken_fphx_raw_20210810-1124_0_entry_vs_channel_ID.pdf
riken_fphx_raw_20210810-1124_0_hitmap.pdf
- riken_fphx_raw_20210810-1125_0.dat s8 1.2mprepro5 test of upgraded 1008 ROC first 20ch of chip1, 2, 3, 4, 6, 14, 15, 16, 17 lost
riken_fphx_raw_20210810-1125_0_adcvsampl.pdf
riken_fphx_raw_20210810-1125_0_amplvschan.pdf
riken_fphx_raw_20210810-1125_0_entry_vs_channel_ID.pdf
riken_fphx_raw_20210810-1125_0_hitmap.pdf