

A_q FB (Charge FeedBack) and birdfeed

- turn on:

```
$ ssh apar@adaq1
$ gojapan
$ cd ~apar/PREX/japan_feedback
$ ./feedback_ana # to run charge feedback
```

```
$ ssh apar@adaq2
$ cd devika/birdfeed
$ ./runbird # to run birdfeed
```

- turn off:

```
$ Ctrl+C
```

- check possible running FFB:

```
$ ps aux | grep feedback
$ ps aux | grep birdfeed
```

- how to know it is running:

HAPPEX Feedback Monitor

Hall A patternMax PITA 225 Hall A patternMax IA 1800 Hall C patternMax IA 1800

RTP Pockels Cell

PITA-Feedback status	RTP PITA Correction	-0.0148343	
Calibrated Slope	300		
C IA Slope	350		
Hall A Aq	-4.45028	Hall C Aq	347.447

should < 10

Common Elements Hall A

Insertable Half-Wave Plate	OUT	V PITA	371	Hall A QIA	42570
Rotatable Half-Wave Plate	1.001	V apos, U	1509	Hall B QIA	37286
		V apos, V	337	Hall C QIA	25881
		V L/4, 1	12670		

Current Date & Time

07/17/2019 15:00:17 EDT

Quit HELP!

check the HAPPEX Feedback Monitor, if there is beam ($> 48\mu A$), then the three fields' (red rectangle) value will change every 10 s:

- RTP PITA Correction
- Measured Charge Asymmetry
- V PITA

The value of **Measured Charge Asymmetry** should be small: < 10 .

And the following two fields (blue rectangle) value will change every minute:

- Hacc C QIA
- Hacc C Aq

FFB (Fast FeedBack for BPM)

Hall A Fast Feedback Control Screen

Main Control

System **SW Mode** **BPM Gain Control Mode** Expert Debug

Unix Server Control

Master Switch Server -> (opsbat1) Auto Start (1 min) Period 2.0 Sec HB 29289

Cannot get controls

FF DAC FF Zero FF ! FF Gain FF Bandwidth Magnets 1500 RF 1500

Slow Lock Mode Abs Lock To: **Absolute** Saturation Alarm Status -> Magnets RF

Gain 0.10

Slow Lock South Linac RF zone 20 Cavities

Control Debug

Int Connect Mizar DAC DAC Satur Filter VMIC ADC Inp Param Skipped Pulse EPICS sync FB CPU Comm Beam Sync

VMIC_fail 7 algo_TO 28755 algo_overflow 3 DAC_overflow 6 DAC_saturation 0

Poles 4 Gain 0 0.0500 Gain angle 0.0000

Charge Asym 60 Hz 0.0010 0.0000 Integration time 120 Hz 0.0050 0.0000 180 Hz 0.0050 0.0000 30 Hz 0.0500 0.0000

Harmonic 30.0 Filter CF (mag) 2560 Hz Phase Lock Filter CF (RF) 2560 Hz DAC Delay 90.0 % Ethernet Int

Calibration Calibration Valid DAC_Limits Alarm Settings

uSec Spare DAC 242 FRAME 287

Hall A Fast Feedback BPM/Corrector Values

Horiz Position (microns)						Vert Position (microns)						Wire Sum 0.061 uA					
	min	max	mean	Std Dev	Outliers		min	max	mean	Std Dev	Outliers		min	max	mean	Std Dev	Outliers
1C07	0	0	0	0	0	1C07	0	0	0	0	0	1C07	-0.8875	-0.3334	0.0000	0.0694	149581
1C08	0	0	0	0	0	1C08	0	0	0	0	0	1C08	-0.8649	-0.3084	0.0000	0.0708	1327027
1C11	0	0	0	0	0	1C11	0	0	0	0	0	1C11	-1.1186	-0.5924	0.0000	0.0663	273686
1C12	0	0	0	0	0	1C12	0	0	0	0	0	1C12	-0.3214	0.3146	0.0000	0.0839	274489
1C14	0	0	0	0	0	1C14	0	0	0	0	0	1C14	-1.2338	-0.6573	0.0000	0.0786	94175
1C16	0	0	0	0	0	1C16	0	0	0	0	0	1C16	-1.1662	-0.5758	0.0000	0.0784	167854
1C18	0	0	0	0	0	1C18	0	0	0	0	0	1C18	-0.9344	-0.3498	0.0000	0.0751	244060
1C20	0	0	0	0	0	1C20	0	0	0	0	0	1C20	-1.0368	-0.4509	0.0000	0.0785	212640

Magnet Corrector (gauss-cm)					Energy Corrector (kV)				
	min	max	mean	Std Dev		min	max	mean	Std Dev
c1 -> 1C07H	0.00	0.00	0.00	0.00	SL-20	0.00	0.00	0.00	0.00
c2 -> 1C07V	0.00	0.00	0.00	0.00					
c3 -> 1C02V	0.00	0.00	0.00	0.00					
c4 -> 1C06H	0.00	0.00	0.00	0.00					

Hall A BPM Selection

RF Off Select 4 Select 5 RF On

unused used 1C07 unused used
 unused used 1C08 unused used
 unused used 1C11 unused used
 unused used 1C12 unused used
 unused used 1C14 unused used
 unused used 1C16 unused used
 unused used 1C18 unused used
 unused used 1C20 unused used

Energy Mode

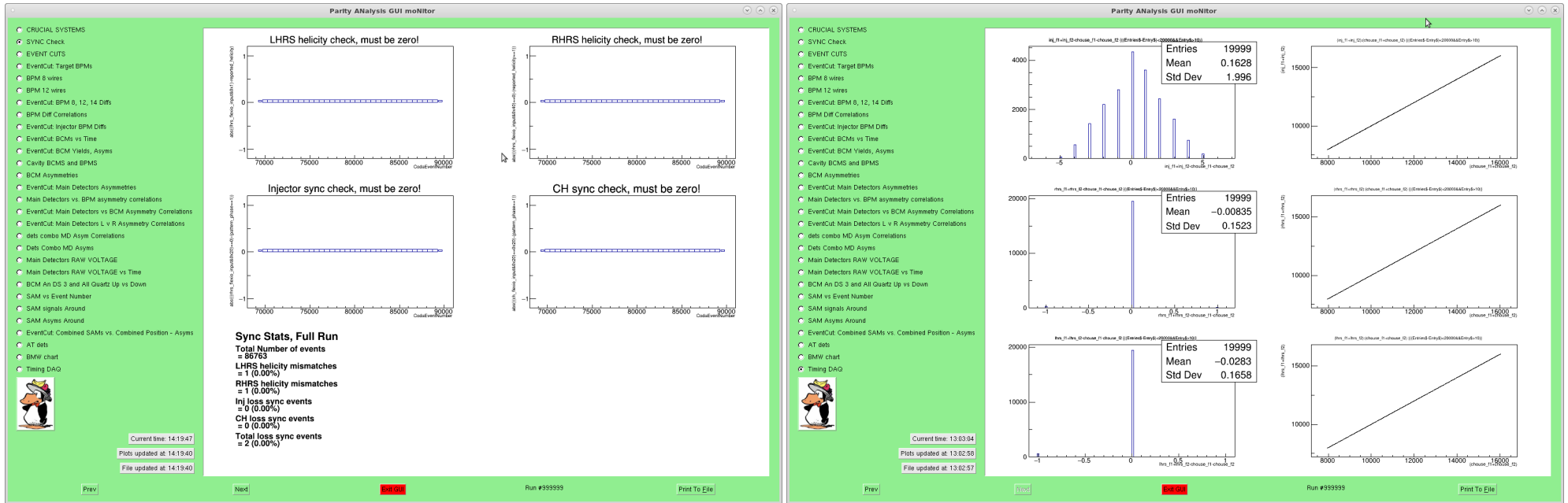
H Magnets V Magnets

Optics

Corrector Outlier Sigma Factor 6.00

for FFB, check the three button:

1. **System** in the Main Control panel
2. **FF DAC** and **FF** (Fast Forward) in the Unix Server Control panel
3. **Energy Mode** in the Hall A BPM Selection panel



You can check event sync status in either the **SYNC Checks** page or the **Timing DAQ** page in Panguin. In **SYNC Checks** page, all the 4 plots should have a horizontal line around $y=0$; and the helicity mismatches event should be 0 (or a few events). In **Timing DAQ** page, the correlation plot (the 4th one: $\text{rhrs}_f1 + \text{rhrs}_f2$ vs $\text{chouse}_f1 + \text{chouse}_f2$) should show a straight line with a perfect slope value of 1, then sync is on; otherwise something is wrong with the event sync, call RC.

BMW (Beam Modulation) https://prex.jlab.org/wiki/index.php/Beam_Modulation

- turn on:

```
$ ssh apar@adaq1
$ cd vown/BMWClient/PyGreenMonster
$ python3 ProductionModulation_Pause10Min.py
```

- turn off:

```
$ Ctrl+C
$ python3 gm_bmw_clearall.py # to clean up the DAQ records and release the EPICS FFB pause states
```

- check possible running FFB:

```
$ ps aux | grep -i modulation
```

Coda

If coda crashes, try to find Paul (in day) before you restart it.

prompt

do prompt analysis manually for every run, and you can check plots online (<https://hallaweb.jlab.org/parity/prex/onlinePlots>, updated every 15 mins)

```
$ gojapan
$ cd ../prompt
$ ./prompt.sh <run_number>
```

