

PUT MODE BIT ON CDB

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goal

- Put the below information on CDB file.
- Mode bit, data taking mode(streaming or trigger), ncoll, DAC0-7 value.
- CDB file are made by run.

Sat 20 Jul 2024 02:02:43 AM EDT

ESC[32mSlow Control # 0: TrueESC[0m

ESC[32mSlow Control # 1: TrueESC[0m

d.reg.n_collisions was changed to 127

General FPHX parameter configuration:written in /home/phnxrc/INTT/sphenix_inttpty/run_scripts/fphx_parameters_standard.txt are applied for all FPHX chips at first.
{'Vref': 1, 'DAC0': 30, 'DAC1': 45, 'DAC2': 60, 'DAC3': 90, 'DAC4': 120, 'DAC5': 150, 'DAC6': 180, 'DAC7': 210, 'N1sel': 6, 'N2sel': 4, 'FB1sel': 4, 'Leaksel': 0, 'P3sel': 0, 'P2sel': 4, 'Gsel': 2, 'BWsel': 8, 'Plsel': 5, 'Injsel': 0, 'LVDS': 63}

Vref 1 3478229008 -> 0xcf519010

DAC0 30 3478262240 -> 0xcf5211e0

DAC1 45 3478295248 -> 0xcf5292d0

DAC2 60 3478328256 -> 0xcf5313c0

DAC3 90 3478361504 -> 0xcf5395a0

DAC4 120 3478394752 -> 0xcf541780

DAC5 150 3478428000 -> 0xcf549960

DAC6 180 3478461248 -> 0xcf551b40

DAC7 210 3478494496 -> 0xcf559d20

N1sel/N2sel 6/4 3478525024 -> 0xcf561460

FB1sel/Leaksel 4/0 3478556736 -> 0xcf569040

P3sel/P2sel 0/4 3478590464 -> 0xcf571400

Gsel/BWsel 2/8 3478623264 -> 0xcf579420

Plsel/Injsel 5/0 3478655056 -> 0xcf581050

LVDS 63 3478688752 -> 0xcf5893f0

FPHX command 3478229008 is sent.

FPHX command 3478262240 is sent.

FPHX command 3478295248 is sent.

FPHX command 3478328256 is sent.

FPHX command 3478361504 is sent.

FPHX command 3478394752 is sent.

FPHX command 3478428000 is sent.

FPHX command 3478461248 is sent.

FPHX command 3478494496 is sent.

FPHX command 3478525024 is sent.

FPHX command 3478556736 is sent.

FPHX command 3478590464 is sent.

FPHX command 3478623264 is sent.

FPHX command 3478655056 is sent.

FPHX command 3478688752 is sent.

Take Cheng-Wei's FELIX channel mask. Hostname: intt0 [0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13]

Enabled FELIX channels: 0 1 2 3 4 5 6 7 8 9 10 11 12 13

Sat 20 Jul 2024 02:02:46 AM EDT

ESC[32mSlow Control # 0: TrueESC[0m

ESC[32mSlow Control # 1: TrueESC[0m

d.reg.n_collisions was changed to 127

General FPHX parameter configuration:written in /home/phnxrc/INTT/sphenix_inttpty/run_scripts/fphx_parameters_standard.txt are applied for all FPHX chips at first.

█

Judgement of whether mode is trigger or streaming

- From INTT scheduler,
- {24,54} {17,55,24,54} is streaming. ←in the cdb files, streaming =2
- {{0,54,91,53}} is trigger. ←in the cdb files, trigger =1
- Other than above is named others(expert). ←in the cdb files, others =-1

```
# modegrp repeat jump target modebitfile
# modebit default value is 0:0x36;95:0x35; (9 August 2023)
0 0 0 0 24:0x36;
1 0 1 1 17:0x37; 24:0x36
intt_streamingmode.scheduler (END)
```

```
# modegrp repeat jump target modebitfile
# modebit default value is 0:0x36;95:0x35; (9 August 2023)
0 0 0 0
1 0 0 0 0:0x36;91:0x35;
2 0 1 2
intt_triggermode.scheduler (END)
```

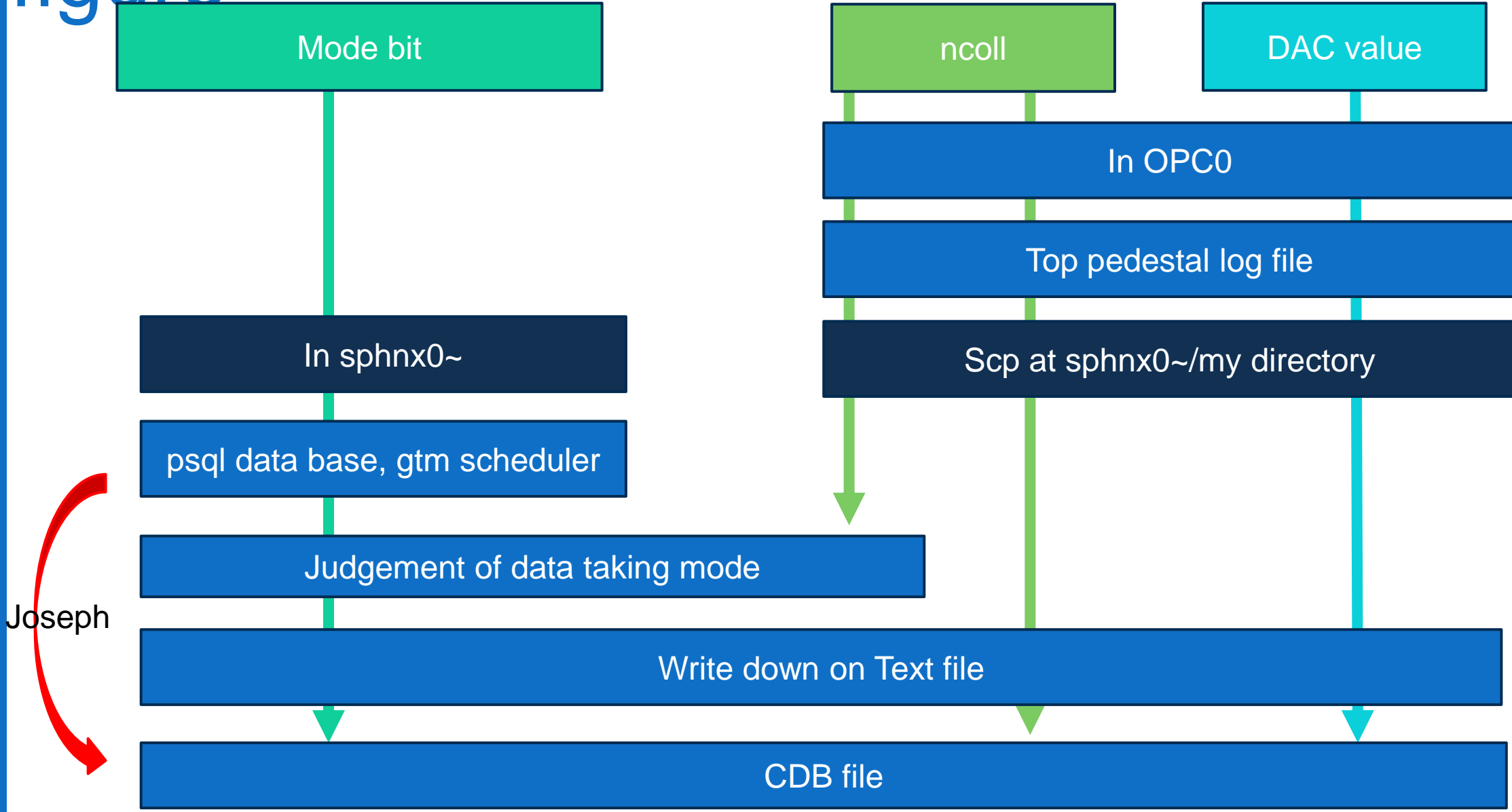
```
49033 {} {0,52} {} {} others
49034 {24,54} {17,55,24,54} streaming
49035 {24,54} {17,55,24,54} streaming
49038 {24,54} {17,55,24,54} streaming
49042 {24,54} {17,55,24,54} streaming
49043 {} {0,52} {} {} others
49044 {} {0,54,91,53} {} trigger
49045 {} {0,54,91,53} {} trigger
49046 {} {0,54,91,53} {} trigger
49047 {} {0,54,91,53} {} trigger
49048 {} {0,54,91,53} {} trigger
49049 {24,54} {17,55,24,54} streaming
49050 {24,54} {17,55,24,54} streaming
49051 {24,54} {17,55,24,54} streaming
49052 {24,54} {17,55,24,54} streaming
49053 {24,54} {17,55,24,54} streaming
49054 {24,54} {17,55,24,54} streaming
49057 {24,54} {17,55,24,54} streaming
```

Judgement was crosscheck by ncoll.

- There is really few run that testing for streaming, its means mode bit is same as streaming but ncoll is not 127.
- so I crosscheck by using ncoll and modebit.
- Mode bit is {24,54} {17,55,24,54} and ncoll is 127 is streaming.
- * Mode bit is {24,54} {17,55,24,54} and ncoll is not 127 is categorized as others(expert).

```
runnumber modebit mode ncoll dac
49042 2024-07-22 15:10:14 {24,54} {17,55,24,54} mode bit said streaming but ncoll is not 127 100 30 45 60 90 120 150 180
49043 2024-07-22 15:35:19 {} {0,52} {} {} others 100 30 45 60 90 120 150 180
49044 2024-07-22 15:49:39 {} {0,54,91,53} {} trigger 100 30 45 60 90 120 150 180
49045 2024-07-22 16:20:50 {} {0,54,91,53} {} trigger 100 30 45 60 90 120 150 180
49046 2024-07-22 16:51:11 {} {0,54,91,53} {} trigger 127 30 45 60 90 120 150 180
49047 2024-07-22 16:54:29 {} {0,54,91,53} {} trigger 127 30 45 60 90 120 150 180
49048 2024-07-22 16:58:33 {} {0,54,91,53} {} trigger 127 30 45 60 90 120 150 180
49049 2024-07-22 17:06:09 {24,54} {17,55,24,54} streaming 127 30 45 60 90 120 150 180
49050 2024-07-22 17:09:01 {24,54} {17,55,24,54} streaming 127 30 45 60 90 120 150 180
49051 2024-07-22 17:17:49 {24,54} {17,55,24,54} streaming 127 30 45 60 90 120 150 180
49052 2024-07-22 17:23:49 {24,54} {17,55,24,54} streaming 127 30 45 60 90 120 150 180
49053 2024-07-22 18:04:56
modebit_test2.txt (END)
```

figure



```
runnumber runtype ncoll dac0-7 data taking mode modebit
if top pedestal log file was not exist,ncoll dac0-7 are 00000000.trigger=1,streaming=2,expert=-1
52095 physics 127 35 45 60 90 120 150 180 210 2 {24,54} {17,55,24,54}
52096 physics 127 35 45 60 90 120 150 180 210 2 {24,54} {17,55,24,54}
52097 physics 127 35 45 60 90 120 150 180 210 2 {24,54} {17,55,24,54}
52098 physics 127 35 45 60 90 120 150 180 210 2 {24,54} {17,55,24,54}
52099 physics 127 35 45 60 90 120 150 180 210 2 {24,54} {17,55,24,54}
52100 physics 127 35 45 60 90 120 150 180 210 2 {24,54} {17,55,24,54}
52101 physics 127 35 45 60 90 120 150 180 210 2 {24,54} {17,55,24,54}
52102 physics 127 35 45 60 90 120 150 180 210 2 {24,54} {17,55,24,54}
52103 physics 127 35 45 60 90 120 150 180 210 2 {24,54} {17,55,24,54}
52104 physics 127 35 45 60 90 120 150 180 210 2 {24,54} {17,55,24,54}
52105 physics 127 35 45 60 90 120 150 180 210 2 {24,54} {17,55,24,54}
52106 physics 127 35 45 60 90 120 150 180 210 2 {24,54} {17,55,24,54}
52107 physics 127 35 45 60 90 120 150 180 210 2 {24,54} {17,55,24,54}
52108 physics 127 35 45 60 90 120 150 180 210 2 {24,54} {17,55,24,54}
52109 physics 127 35 45 60 90 120 150 180 210 2 {24,54} {17,55,24,54}
52110 physics 127 35 45 60 90 120 150 180 210 2 {24,54} {17,55,24,54}
52111 physics 127 35 45 60 90 120 150 180 210 2 {24,54} {17,55,24,54}
52112 physics 127 35 45 60 90 120 150 180 210 2 {24,54} {17,55,24,54}
52113 calib 127 35 45 60 90 120 150 180 210 2 {24,54} {17,55,24,54}
52114 calib 127 35 45 60 90 120 150 180 210 2 {24,54} {17,55,24,54}
52115 calib 127 35 45 60 90 120 150 180 210 2 {24,54} {17,55,24,54}
52116 junk 127 35 45 60 90 120 150 180 210 2 {24,54} {17,55,24,54}
52117 junk 127 35 45 60 90 120 150 180 210 2 {24,54} {17,55,24,54}
52118 junk 127 35 45 60 90 120 150 180 210 2 {24,54} {17,55,24,54}
52119 junk 127 35 45 60 90 120 150 180 210 2 {24,54} {17,55,24,54}
52120 junk 127 35 45 60 90 120 150 180 210 2 {24,54} {17,55,24,54}
52121 junk 127 35 45 60 90 120 150 180 210 2 {24,54} {17,55,24,54}
52122 junk 127 35 45 60 90 120 150 180 210 2 {24,54} {17,55,24,54}
52123 junk 127 35 45 60 90 120 150 180 210 2 {24,54} {17,55,24,54}
52124 junk 127 35 45 60 90 120 150 180 210 2 {24,54} {17,55,24,54}
52126 junk 127 35 45 60 90 120 150 180 210 2 {24,54} {17,55,24,54}
```


Result of CDB

```
inttCDBsettingvalue_run52095.root inttCDBsettingvalue_run52105.root inttCDBsettingvalue_run52115.root
inttCDBsettingvalue_run52096.root inttCDBsettingvalue_run52106.root inttCDBsettingvalue_run52116.root
inttCDBsettingvalue_run52097.root inttCDBsettingvalue_run52107.root inttCDBsettingvalue_run52117.root
inttCDBsettingvalue_run52098.root inttCDBsettingvalue_run52108.root inttCDBsettingvalue_run52118.root
inttCDBsettingvalue_run52099.root inttCDBsettingvalue_run52109.root inttCDBsettingvalue_run52119.root
inttCDBsettingvalue_run52100.root inttCDBsettingvalue_run52110.root inttCDBsettingvalue_run52120.root
inttCDBsettingvalue_run52101.root inttCDBsettingvalue_run52111.root inttCDBsettingvalue_run52121.root
inttCDBsettingvalue_run52102.root inttCDBsettingvalue_run52112.root inttCDBsettingvalue_run52122.root
inttCDBsettingvalue_run52103.root inttCDBsettingvalue_run52113.root inttCDBsettingvalue_run52123.root
-bash-4.2$ █
```

```
root [0]
Attaching file result/inttCDBsettingvalue_run52095.root as _file0...
(TFile *) 0x2220e10
root [1] .ls
TFile**      result/inttCDBsettingvalue_run52095.root
TFile*       result/inttCDBsettingvalue_run52095.root
KEY: TTree   Single;1      Single
KEY: TTree   Multiple;1    Multiple
root [2] Single->Show(0)
=====> EVENT:0
Idac0        = 35
Idac1        = 45
Idac2        = 60
Idac3        = 90
Idac4        = 120
Idac5        = 150
Idac6        = 180
Idac7        = 210
Imode        = 2
Incoll       = 127
root [3] Multiple->Scan()
*****
*   Row   *   IID.IID *   Imodebit0 *   Imodebit1 *   Imodebit2 *   Imodebit3 *
*****
*     0   *     0   *     24   *     54   *    -9999   *    -9999   *
*     1   *     1   *     17   *     55   *     24   *     54   *
*****
(long long) 2
root [4] █
```

summary

- I made CDB file which contains Mode bit, data taking mode (streaming or trigger), ncoll, DAC0-7 value.

dataxselect	* from run	where runtime = 'physics'	order by runnumber asc;						
runnumber	runtime	brtimestamp	ertimestamp	updatetimestamp	eventsinrun	marked_invalid	has_comment	qcomment	
-1	physics	2024-07-15 12:27:13	2024-08-24 20:57:56		2214831	-1	0		
-1	physics	2024-07-15 12:32:34	2024-08-24 20:57:56		2214831	-1	0		
-1	physics	2024-06-25 16:57:14	2024-08-24 20:57:56		2214831	-1	0		
1	physics	2024-06-25 17:04:23	2024-08-08 16:59:00		112874	-1	0		
40874	physics	2024-05-01 00:27:13	2024-05-01 00:30:32		2110767	-1	0		
40875	physics	2024-05-01 00:31:41	2024-05-01 00:32:34		331514	-1	0		
40876	physics	2024-05-01 00:51:43	2024-05-01 00:58:53		4178688	-1	0		
40877	physics	2024-05-01 00:59:42	2024-05-01 01:03:55		2048792	-1	0		
40878	physics	2024-05-01 01:08:12	2024-05-01 01:17:33		5266820	-1	0		
40879	physics	2024-05-01 01:20:33	2024-05-01 01:24:01		1768860	-1	0		
40880	physics	2024-05-01 01:25:33	2024-05-01 01:26:22		273104	-1	0		
40881	physics	2024-05-01 01:27:01	2024-05-01 01:28:07		515869	-1	0		
40882	physics	2024-05-01 01:28:52	2024-05-01 01:29:21		32559	-1	0		
40883	physics	2024-05-01 01:30:00	2024-05-01 01:30:40		227832	-1	0		
40884	physics	2024-05-01 01:31:21	2024-05-01 01:44:00		7314997	-1	0		
40885	physics	2024-05-01 01:46:42	2024-05-01 01:49:33		1683075	-1	0		
40886	physics	2024-05-01 01:58:06	2024-05-01 02:05:16		4395602	-1	0		
40887	physics	2024-05-01 02:06:20	2024-05-01 02:08:24		1167236	-1	0		
40888	physics	2024-05-01 02:09:29	2024-05-01 02:11:01		699469	-1	0		
40889	physics	2024-05-01 04:03:45	2024-05-01 04:11:32		3470711	-1	0		
40890	physics	2024-05-01 04:15:30	2024-05-01 04:26:31		8336680	-1	0		
40891	physics	2024-05-01 04:31:57	2024-05-01 04:35:22		894998	-1	0		
40892	physics	2024-05-01 06:32:28	2024-05-01 06:37:05		2609623	-1	0		
40893	physics	2024-05-01 06:38:13	2024-05-01 06:58:44		14396800	-1	0		
40894	physics	2024-05-01 06:58:51	2024-05-01 07:03:41		1363405	-1	0		
40895	physics	2024-05-01 07:04:51	2024-05-01 07:22:41		13729762	-1	0		
40896	physics	2024-05-01 07:23:36	2024-05-01 07:32:41		4853906	-1	0		
40897	physics	2024-05-01 07:33:56	2024-05-01 07:36:34		479319	-1	0		
40898	physics	2024-05-01 07:38:41	2024-05-01 07:45:38		5476186	-1	0		
41877	physics	2024-05-09 19:43:40	2024-05-09 19:43:56		70	-1	0		

- Do you need more information in cdb files?
- Can I make all run from first physics run to resent run?
- Is this file name “inttCDBsettingvalue_run52095.root” good?
- Should I make cdb files in the future for new runs?

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Tomoya Kato (form Rikkyo University)

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