GDL and Server

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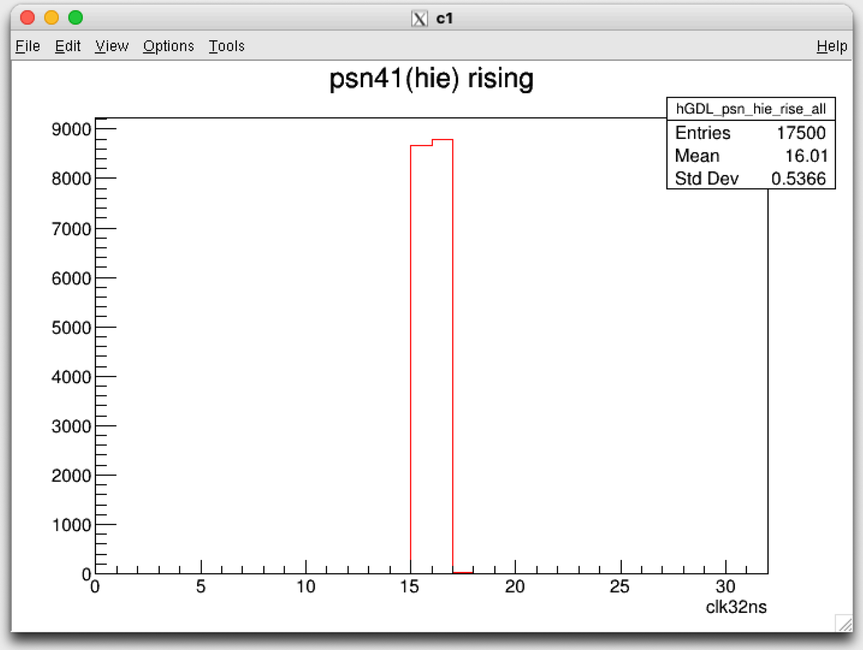
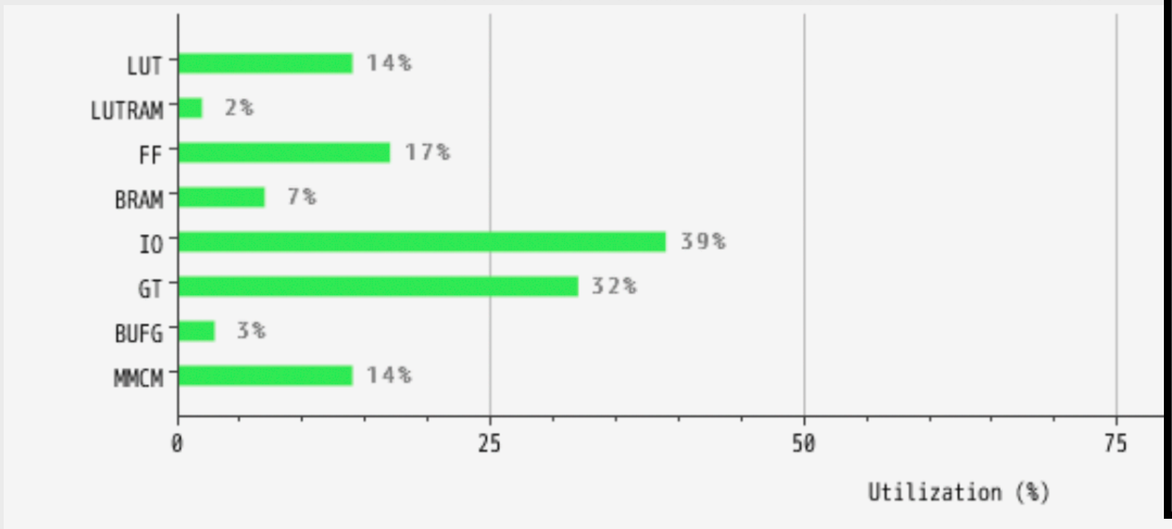
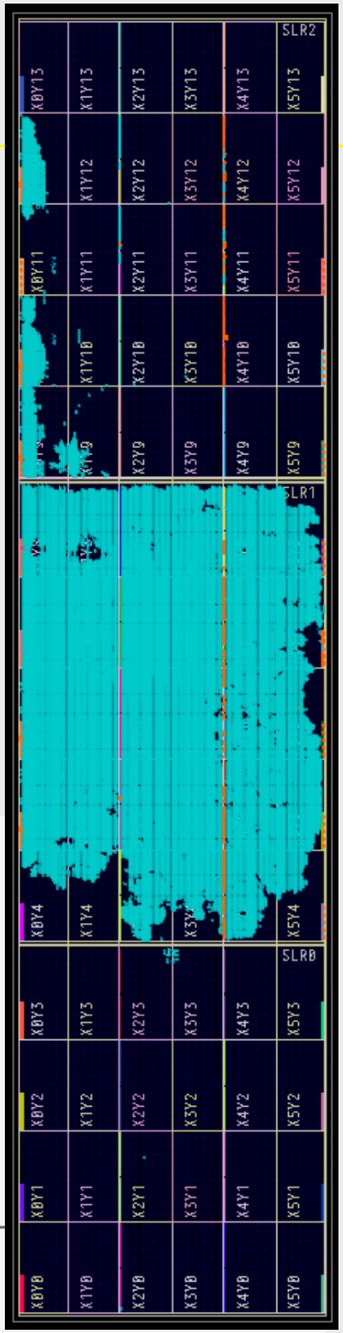
GDL Transition to UT4

- Main. UT3 as backup.
  - vu160
- Named as gdl2
- Resource less < 20%
- Concentrate on SLR1
  - Timing violation may happen when other SLR is used
- DAQ OK (only ECLTRG bit confirmed)







Link and Latency

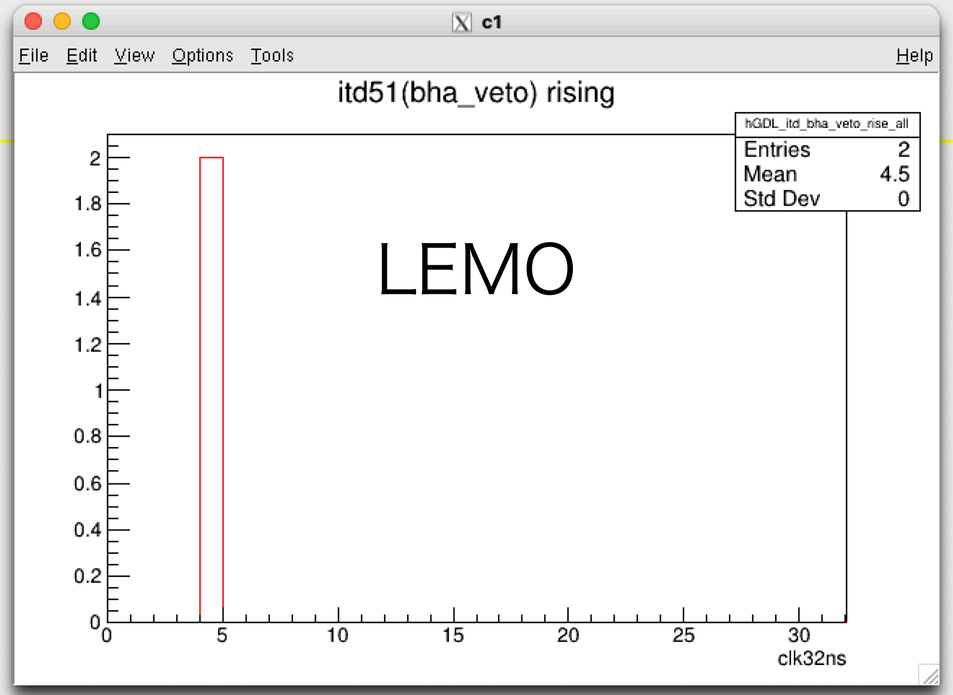
		Gbps	
GRL	GTY0	5	Link OK, limited LVDS signal.
KLM	GTY1	5	Link OK
ETM	GTY4	5	Confirmed Latency unchanged
ETF	GTY5	8	Not ready
TOP	GTY7	12	Used to be 5Gbps. Latency should be reduced. 12Gbps is maximum. No available GTY on TOPTRG.
B2L	GTH3		

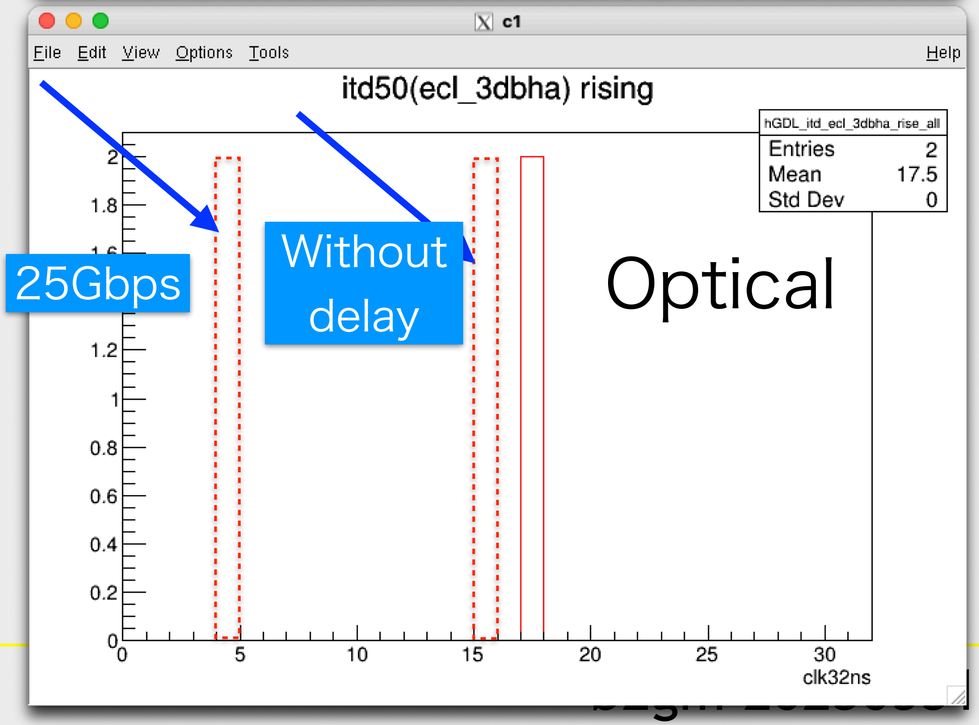
- Is Sue-san still responsible person of ETF?
  - We planned to move GDL-ETF link to LVDS to use more latency for ADC cut.
  - 25Gbps enough to not use LVDS ?

Latency

- 25 Gbps link tested successfully.

- ETM-GDL
  - Bhabha veto delivered via LEMO due to latency
  - ITD for ecl_3dbha is 10, ~78 nsec.
  - By 5 Gbps ->25 Gbps,
    latency reduced by ~44 sysclk
  - Optical signal can be used for Bhabha veto
    - Only 1 bit signal.
    - We can use the latency budget for other purpose
      - New logic on ETM





Latency

88 GRL signals and delay

- 25 Gbps link tested successfully.
  - We have not been able to use optical link for GDL-GRL connection due to limited latency, all GRL signals through LVDS cable.
    - 96 parallel signals

- Difference between LEMO (parallel) and Optical is ~34 sysclk.
  - 29 GRL bits with delay>34 can be moved to optical link
  - Upgrade to 25Gbps link in CDCTRG upstream further reduces latency

0	t3_0	0
1	t3_1	0
2	t3_2	0
3	t3_3	0
4	ty_0	31
5	ty_1	31
6	ty_2	31
7	ty_3	31
8	t2_0	67
9	t2_1	67
10	t2_2	67
11	t2_3	67
12	ts_0	27
13	ts_1	27
14	ts_2	27
15	ts_3	27
16	ta_0	67
17	ta_1	67
18	ta_2	67
19	ta_3	67
20	typ	22
21	typ4	22
22	typ5	22
23	cdc_open90	67
24	cdc_active	0
25	cdc_b2b3	67
26	cdc_b2b5	67
27	cdc_b2b7	67
28	cdc_b2b9	67
29	itsfb2b	91
30	ti	100
31	i2io	100
32	i2fo	100
33	f2f30	67
34	s2f30	40
35	s2s30	40
36	s2s3	40
37	s2s5	40
38	s2so	40
39	s2f3	40
40	s2f5	40
41	s2fo	40
42	fwd_s	32
43	bwd_s	32
44	track	48
45	trkflt	0

107	secl	47
108	iecl_0	47
109	iecl_1	11
110	samhem	11
111	opohem	11
112	d3	11
113	d5	11
114	d7	11
115	p3	11
116	p5	11
117	p7	11
118	typ6	22
119	cdcecl_0	11
120	cdcecl_1	11
121	cdcecl_2	11
122	cdcecl_3	11
123	c2gev_0	11
124	c2gev_1	11
125	c2gev_2	11
126	c2gev_3	11
127	cdctop_0	0
128	cdctop_1	0
129	cdctop_2	0
130	cdctop_3	0
131	cdcklm_0	16
132	cdcklm_1	16
133	seklm_0	11
134	seklm_1	11
135	ecleklm	2
136	ieklm	2
137	fwdsb	0
138	bwdsb	0
139	fwdnb	0
140	bwdnb	0
141	brlfb1	0
142	brlfb2	0
143	brlnb1	0
144	brlnb2	0
145	trkbha1	0
146	trkbha2	0
147	grlgg1	0
148	grlgg2	0

New servers

- btrgsrv2 and btrgsrv3 (backup)

- LDAP users in trg, ecltrg, klm, klmtrg, top, toptrg, cdc, cdctrg, and gdl groups can login.
  - Just login with *ssh* from bdaq, then your directory is generated
  - *id username* gives status of the account
  - Ask Nakao-san to join particular group

- Slow control libraries on server and vme compiled.

- Running. VMEs and PDUs booted by btrgsrv2.
  - Only vmeusa uses different linux kernel, vmlinuz-vmeusa because of different endian for particular application
  - Local IP changed: Old (11.22.33.x) -> New (192.168.16.x)
    - See /etc/hosts

New servers

- btrgsrv2/3 with CentOS7.
  - CentOS7 support will end June, 2024.

- RockyLinux9 seems to be next standard.
  - Mikhail from DAQ group is preparing (ready?) server package (SLC, LDAP, etc)
  - Nakao-san successfully boot new VME module which is same one with ours with RockyLinux9.

- Iwasaki-san started building RockyLinux9 server
  - On btrgpc08, which used to be Firmware compilation server but its HDD was broken.

Summary

- UT4 GDL ready for global cosmic ray runs with ECL trigger and readout.

- Further latency reduction possible with 25Gbps link
  - Maybe able to abandon some of parallel LVDS cable

- New server is running, but next one is coming soon.