BLT Test Summary

Run Plan (I)

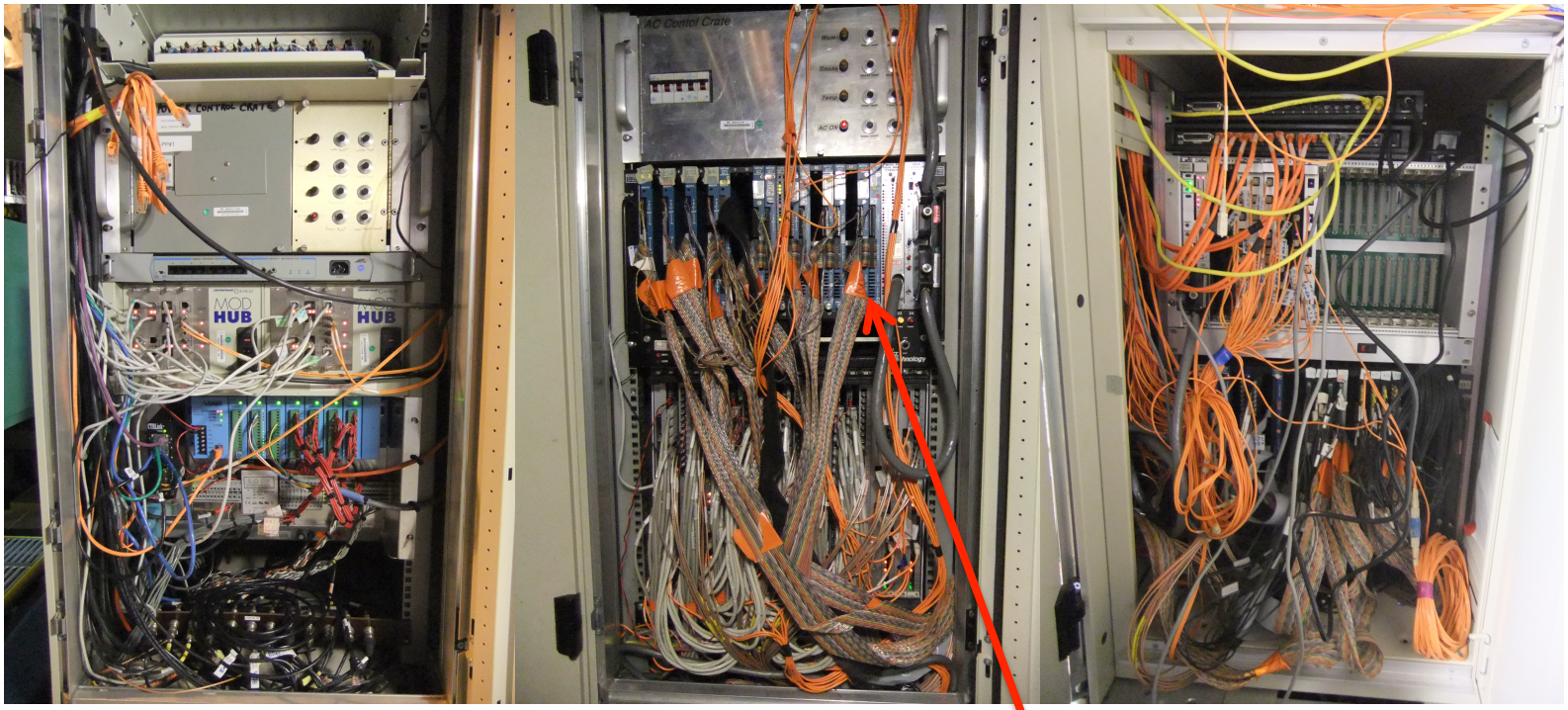
1. If you have access to IR, then take a voltmeter with you and then measure the all low voltage levels of BLT camac crate and NIM crates (involved in BLT trigger electroncis) in East carrige low-voltage levels.
2. Take South HV=full setting for 90 seconds. Then try cycling the BLT power and reload mlu program.
   http://www.phenix.bnl.gov/WWW/muon/muid/online/blt/blt_run4.html
   Then repeat South HV=full measurement to see if things changes or not.
3. Dead time measurement with a visual scaler. While taking regular BLT-standalone run, measure number of triggers in 60 seconds using visual scaler twice. Execute these measurements for HV setting SQ1, SQ2, SQ1+SQ2, Full. Scaler records are compared with standalone data, so the runs should be separate for each HV setting.

Run Plan (II)

4. Look at the BLT signals on the scope at the output of the level adapter just in front of GTM. Observe how often signals are come in bursts, or to be true w/o any transition when all panels are plugged in (e.g., if a significant fraction of the rate comes from sparking panels). Compare HV on condition under SQ1 and Full.
5. Unplug BLT lemo input from GTM and run standalone with the clock trigger. No change necessary for GTM file. Just run with GTM.MUID_COSMIC_S. Run with HV setting SQ1, SQ2, and Full. This measurement is to see the pure hit efficiency.
6. Threshold scan. Keep only SQ1 HV on. Try 50mV first and make sure the rates increases and then move on to 80mV. Take 1minute for both 50mV and 80mV settings. Move on to 100mV, 120mV with all South HV on (2minutes each). Get back to 90mV (default) after the measurement.

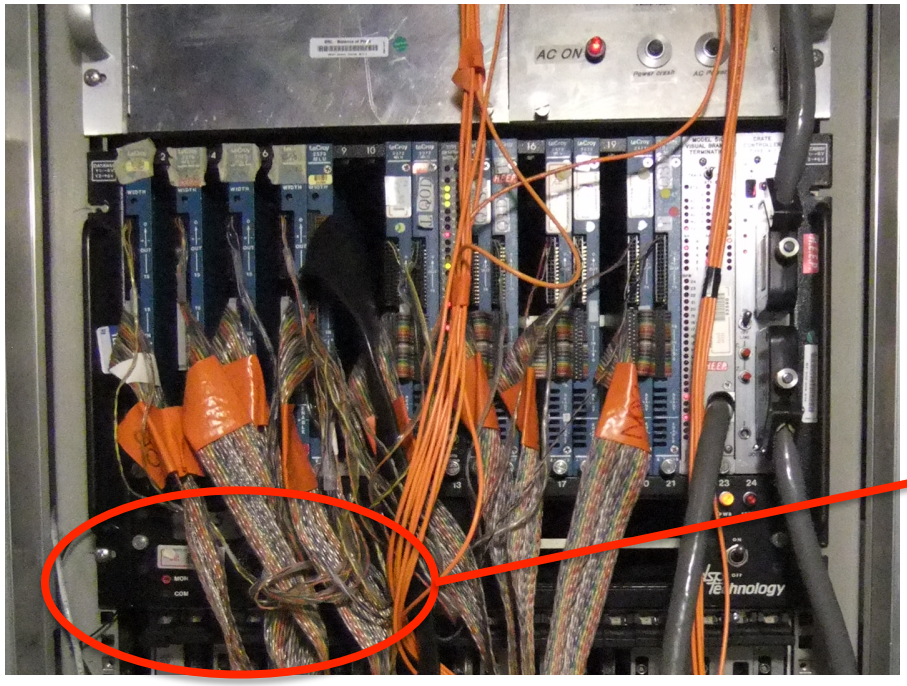
Item #1

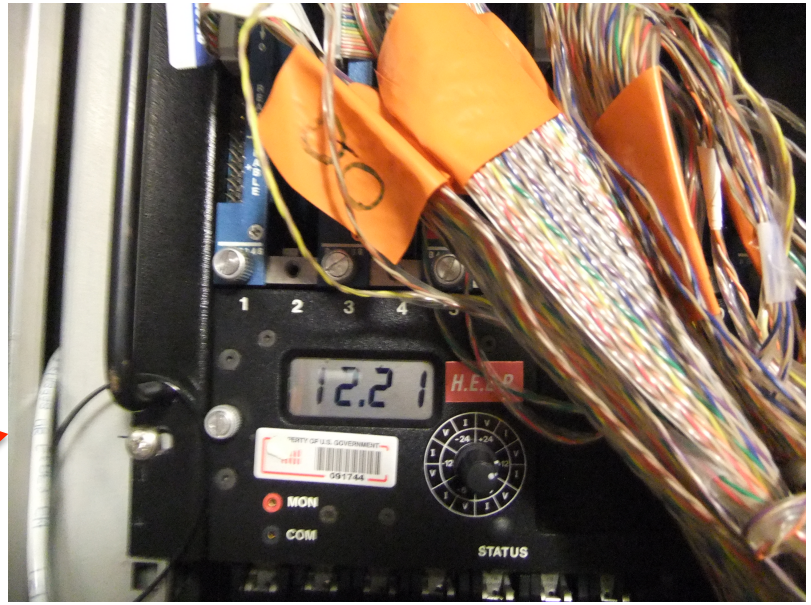
- 3 racks in the east carriage:



BLT camac crate

Item #1





- Measured LV with a voltmeter, and it's almost same as what I set (-24, -12, -6, +6, +12, +24).
- For example, when it sets to +12V as shown in the right picture, the measured LV with a voltmeter was 11.97 V.

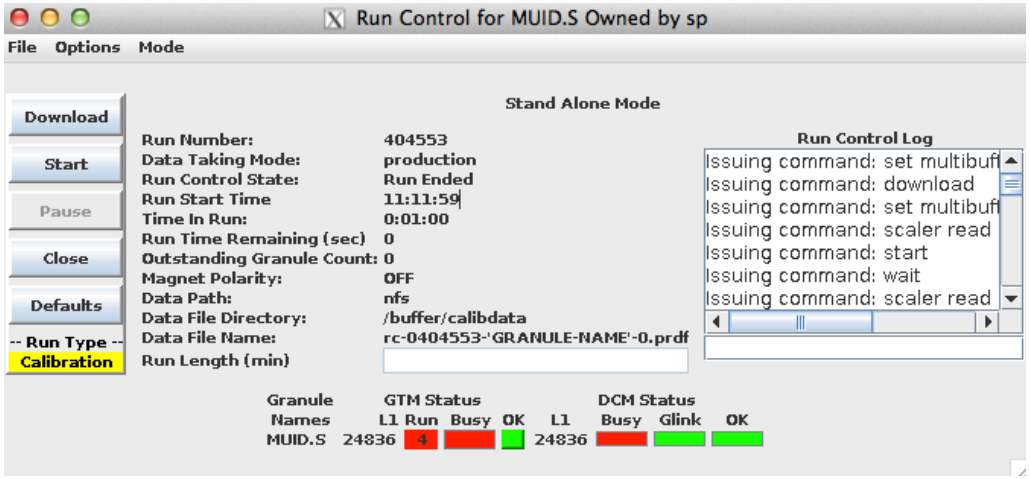
Item #2

- Cycled BLT and reloaded mlu program.
- Took two runs after the power cycle.

Run#	Arm	HV	# trigger	Trigger rate [Hz]
404523	South	Full	21378	277.6
404524	South	Full	39618	327.4

Item #3

- Dead time measurement with a visual scaler.
- Note: the “time in run” in RC and the updated run duration in database are different because it actually takes time to start taking events. For example, run #404553, the time in run was 1min, but the database says it took for 85 seconds. Since we are interested in the relative rate difference, I guess it doesn’t matter much.
- I tried to take take each run for 1min (time in run) for fair comparison.



connected to database daq on phnxdb1
Begin run: 2014-03-05 11:12:00
Update: 2014-03-05 11:13:25
End run: 2014-03-05 11:13:25
Run duration: 85 seconds
RHIC fill: 0/0
Run type: CALIBRATION
Trigger configuration: StandAloneMode(0)
BB LL1 configuration: None(0)
ERT electron algorithm E: 0 W: 0
Partition: MUID.S
Events: 24836
Events/sec: 292.19
Status: -1
Comment:

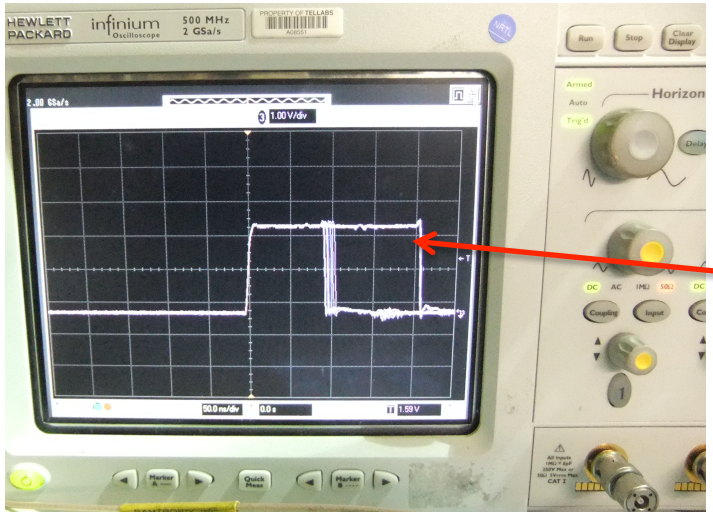
Item #3

- Dead time measurement with a visual scaler.
- South arm only. Default threshold (90mV).
- Scaler rate = # of scaler count / run duration in DB
- Trigger rate= # of trigger / run duration in DB

Run	HV	# Scaler	Scaler rate [Hz]	# trigger	Trigger rate [Hz]	Run duration in DB [sec]	Time in run (RC) [sec]
404555	SQ1	26126	303.79	17080	207.07	86	62
404556		25839	303.99	17766	209.01	85	60
404557	SQ2	29770	358.67	20867	252.41	83	60
404558		30078	395.76	21167	278.51	76	60
404559	SQ1 + SQ2	53891	649.29	24684	297.40	83	60
404560		54002	650.63	24691	297.48	83	60
404552	full	101981	1228.69	24824	299.08	83	60
404553		101971	1199.66	24836	292.19	85	60

Item #4 and Item #5

- Item #4: I couldn't separate pulses to measure the interval between the pulses..



← Snapshot with SQ1 HV on.

Not sure what this one is...

- Item #5: standalone didn't take any events after unplugged BLT input (with cosmic GTM) even with full HV.

Item #6

- Threshold scan with BLT-standalone.
- Recorded the scaler count just in case.
- Trigger rate = # of trigger / run duration in DB

Run	HV	Threshold	#trigger	Trigger rate	#scaler	Run duration in DB [sec]	Time in run (RC) [sec]
404580	SQ1	50mV	24447	309.46	540290	79	60
404581	SQ1	80mV	17806	211.98	26081	84	60
404585	Full	90mV	49113	341.06	202504	144	120
404582	Full	100mV	48949	344.71	199920	142	120
404584	Full	120mV	48979	357.51	192282	137	120