

# Recent update on H0 trigger

## HO Trigger Weekly Meeting

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# Commisiong

## > Reminder:

- After series of tests since last year Oct. with Karol & Andrea from TwinMUX, we could not manage to align the HO twinmux links.
- The main issue was that BC0 keep fluctuating from links to links
- oslb fw upgrade from 0x82 – 0x97, bud did not fixed this issue. HCAL expert intervention was needed.

## > Last Week Update

- Since March, Dick and Drew involved in this project and helping with the commission the HO trigger links in TwinMUX.
- After series of long email exchange between, Dick, drew and Mr. Wu (BU), converge on firmware oslb0x9b.mcs
- Easter break and Dick visit to USA for two weeks hinder the progress.
- 25<sup>th</sup> April: Drew and I did test with the hcal splited signals at CERN.<sup>[1]</sup>
  - > Summary: HTR code need modification for debugging
- May 2: scheduled to have test, as Dick and Karol both back at CERN.
  - > Karol expressed his absence at the last moment
- Yesterday, Drew, Dick and I did the tests.<sup>[2]</sup>
  - > Summary: oSLB fw response was not understood.

[1] <http://cmsonline.cern.ch/cms-eelog/977830>

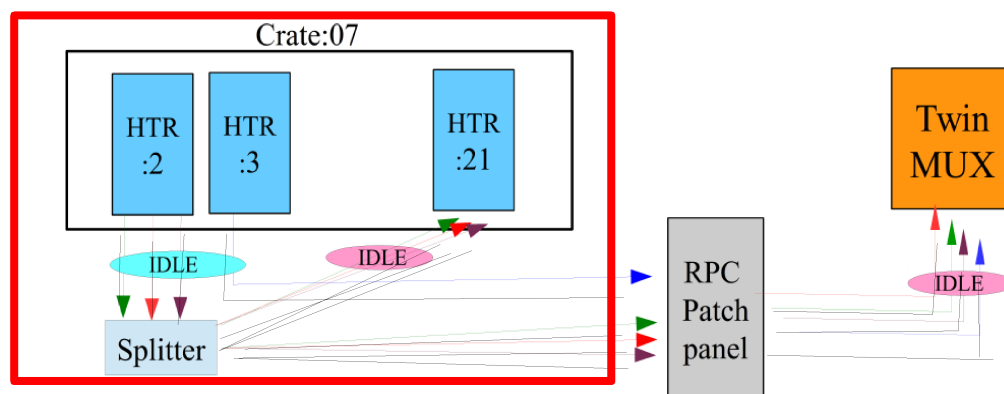
[2] <http://cmsonline.cern.ch/cms-eelog/999721>



# Commissioning

## > Recent Update:

- Followed from modified htr.cc with debugging feature by Drew, we did tests with the splitted signals on HCAL side on May 5<sup>[1]</sup>
  - > **Summary:** Everything looks OK and oSLB data was perfectly synchronized over the 3 fibers from oSLB in slot:2



- Conveyed to Karol to report his finding from TwinMUX side
  - > Yesterday, he replied that 80% links are locked right and reported few issues

Sorry for responding so lately, but I was busy last days with the CPPF commissioning.

I just checked the HO RX in the TWInMux, when both the TwinMux and HCAL where in global. It looks much better now:

- About 80% of links lock and align with very similar alignment delay (3-4BX, for the BCN0 delay of 3478BX). The links lock by themselves after I reset the receiver, so I guess you send commas(idles) periodically? How frequent it is (I could not catch the commas with the spy memories, so I guess not very frequent)?
- On many above links I can see a repeating pattern of data:

[1] <http://cmsonline.cern.ch/cms-elog/980139>






























































































# Commisiong

## ➤ TwinMUX monitoring:

- Just checked, all HO links still shows all in **Error**
- Conveyed to Karol, seems he use other tool to check the HO status, but it is the standard tool.

YB0_S9											Monitoring: <span>Enabled</span>
Port ID	Status	Monitoring	Masked	Parity_Down_Rate	Parity_Integration_Time	word_done	delay_done	Parity_Up_Rate	crcErrors	isAligned	isLocked
DT01	Good	Enabled	False	0	20.0093	255	255	0	0	true	true
DT02	Good	Enabled	False	0	20.0094	255	255	0	0	true	true
DT03	Good	Enabled	False	0	20.0094	255	255	0	0	true	true
DT04	Good	Enabled	False	0	20.0094	255	255	0	0	true	true
RPC00	Good	Non critical	False	2	1	0	0	0	true	true	
RPC01	Good	Non critical	False	1	0	0	0	0	true	true	
RPC02	Good	Non critical	False	2	0	0	0	0	true	true	
RPC03	Good	Non critical	False	2	0	0	1	0	true	true	
RPC04	Good	Non critical	False	2	0	0	0	0	true	true	
HO0	Error	Non critical	False	8	3	0	0	19342750	true	true	
HO1	Error	Non critical	False	2	2	0	0	18491073	true	true	

YB0_S10 											Monitoring: Enabled	
Port ID	Status	Monitoring	Masked	Parity_Down_Rate	Parity_Integration_Time	word_done	delay_done	Parity_Up_Rate	crcErrors	isAligned	isLocked	
DT01	Good	Enabled	False	 0	 20.0095	 255	 255	 0.299858	 0	 true	 true	
DT02	Good	Enabled	False	 0	 20.0095	 255	 255	 0	 0	 true	 true	
DT03	Good	Enabled	False	 0	 20.0095	 255	 255	 0	 0	 true	 true	
DT04	Good	Enabled	False	 0	 20.0095	 255	 255	 0	 0	 true	 true	
DT05	Good	Enabled	False	 0	 20.0096	 255	 255	 0	 0	 true	 true	
RPC00	Good	Non critical	False	 1	 0	 0	 0	 0	 true	 true		
RPC01	Good	Non critical	False	 1	 0	 0	 0	 0	 true	 true		
RPC02	Good	Non critical	False	 1	 0	 0	 0	 0	 true	 true		
RPC03	Good	Non critical	False	 1	 0	 0	 0	 0	 true	 true		
RPC04	Good	Non critical	False	 1	 0	 0	 1	 0	 true	 true		
HO0	Error	Non critical	False	 7	 0	 0	 0	 19185483	 true	 true		
HO1	Error	Non critical	False	 15	 50	 553207916	 553207917	 702101892	 false	 false		



# Emulator

- Soham is working on integrating the HO in TwinMUC since sometime
- He has made good progress so far, efficiency plot of DT TP by him
- More update follows in next talk by him..

