New ROD Fw tests

Debugging history…

New ROD Fw from Nico under test: Fifth Iteration

"--pixTestFw" in SR1 ➔ rodSlave_top_boot_TriggerInhibition.ace

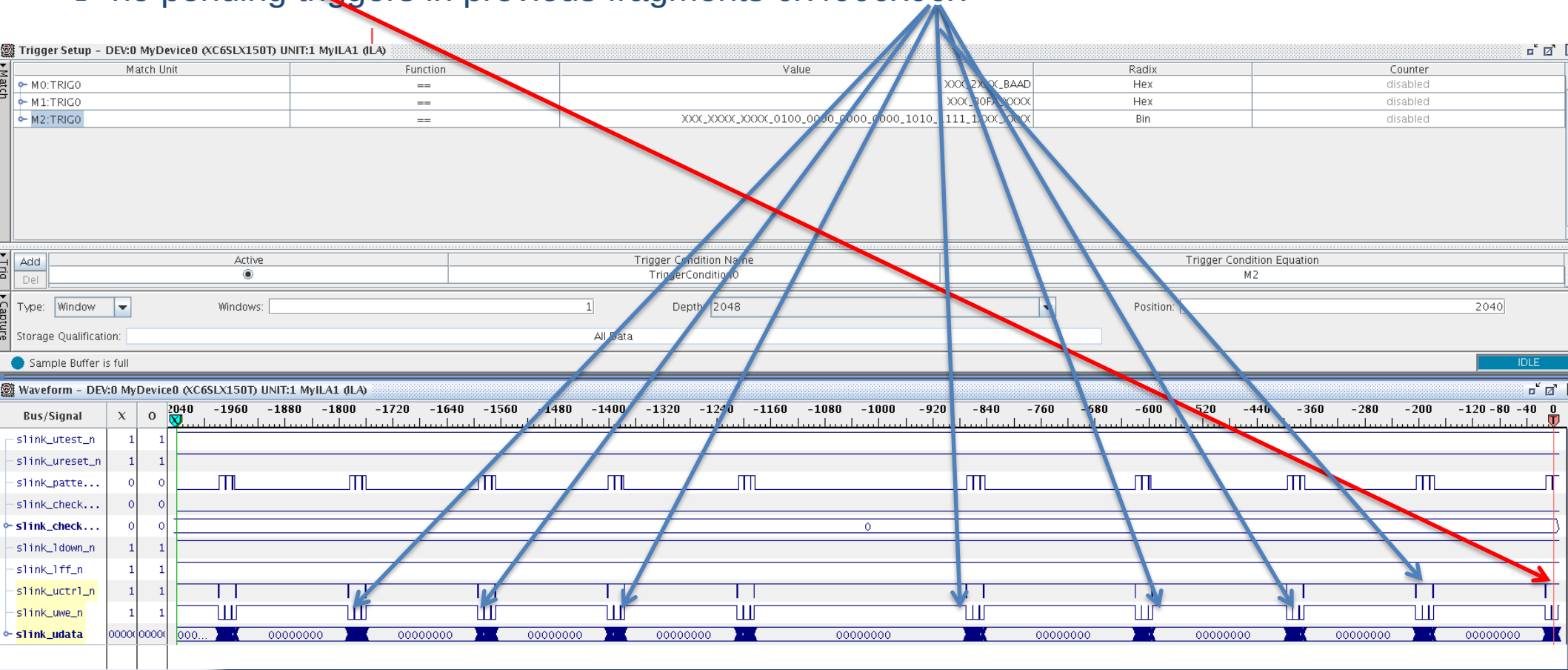
- Loading new Fw only in C1 _S7 only (git hash 7a1b51….despite should be 5f6bd1..)
  - C1_S17 stays with HLT count Fw (git hash 33bce3…)
- Detector in STANDBY ➔ 1 BC read out only ➔ no hits….only empty frames.
- Reading back at 80 Mb/s.
- L1Trigger Rate (Prescale) varied using Dave Card:
  - **40(2) kHz** / 15(4) kHz / 4(6) kHz
- **Complex Dead time** settings is important here:
  - **➔ set to a more reasonable value 9/350 like in ATLAS**
- Simple Dead time settings is also important:
  - **➔ set to 20 BC.**

Checking the pending triggers..

Rx active 10/11/12/13 ➔ Fmt-Link in the header word 0x62/0x73/0x44/0x55.

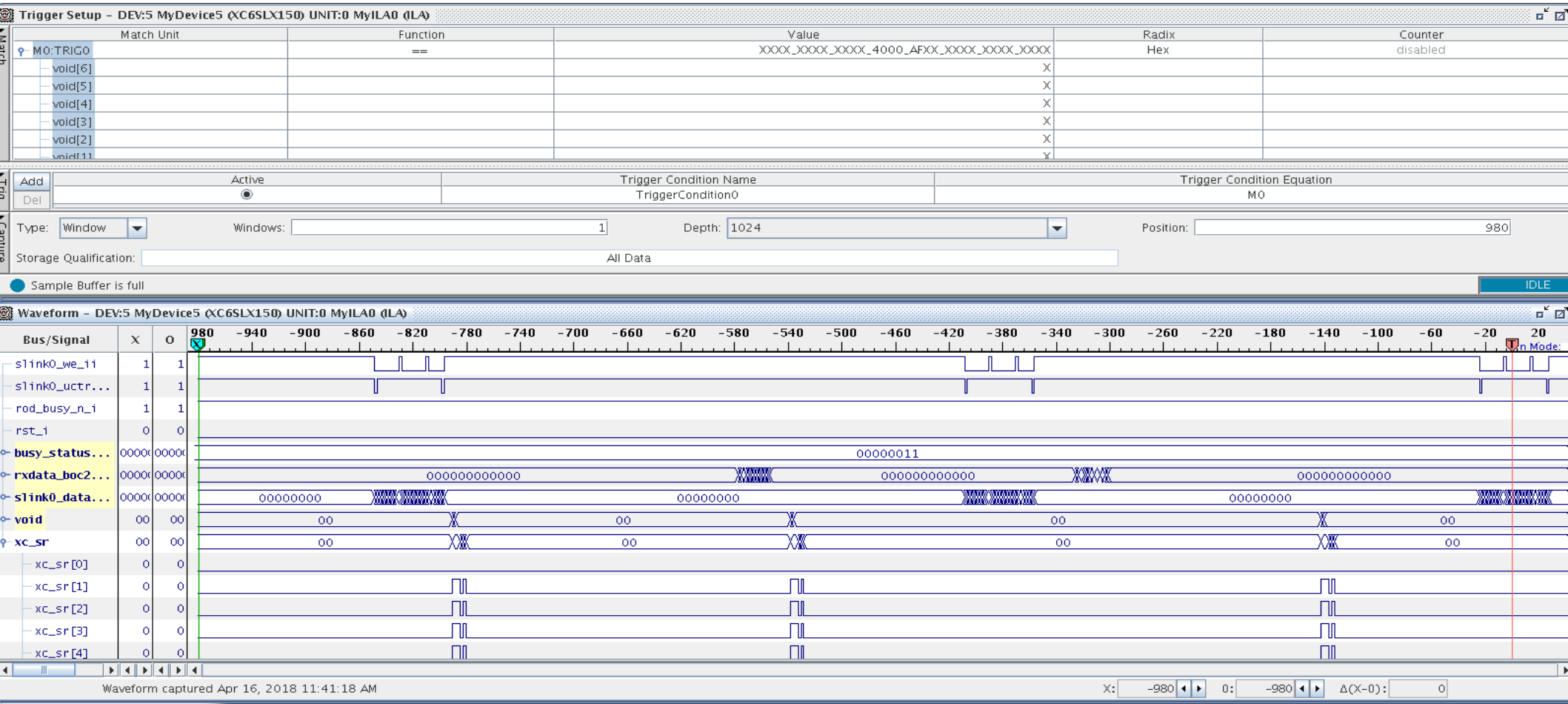
Checking Chipscope:

- despite the dead time settings and the empty frames(STANDBY), I could catch pending triggers different for different trigger rates;
- counter is in the module trailers and match the same for all the modules
  - ➔ 0x4000x**F8**x in this case
  - ➔ no pending triggers in previous fragments 0x4000x**00**x



Sequence in the ROD

- NO special sequence of L1A signals that seem to generate the counter overflow (underflow?)
- Observed sequences from **x00** to maximum value (**xF8**) and vice versa…hard to justify in both cases.
- Other sequences look reasonable with +/-1 pending trigger or values that remain constant between consecutive events !! ➔ **try with different Simple Dead time…**
- 4000A**D0**2 4000A**D0**2 4000A**D0**2 4000A**D0**2 4000A**C8**2
- 4000A**B8**2 4000A**C0**2 4000A**B8**2 4000A**B8**2 4000A**C0**2
- 4000A**B0**2 4000A**A8**2 4000A**A8**2 4000A**A8**2 4000A**A8**2



Further tests

- Stop seeing pending triggers with
  - Simple Dead time = 140 BC;
  - Even after increasing the trigger rate up to 40 kHz.
- Still sporadic cases of pending triggers with Simple Dead time =120 BC
- Try with LTP constant pattern?