Tests of new ROD Firmware

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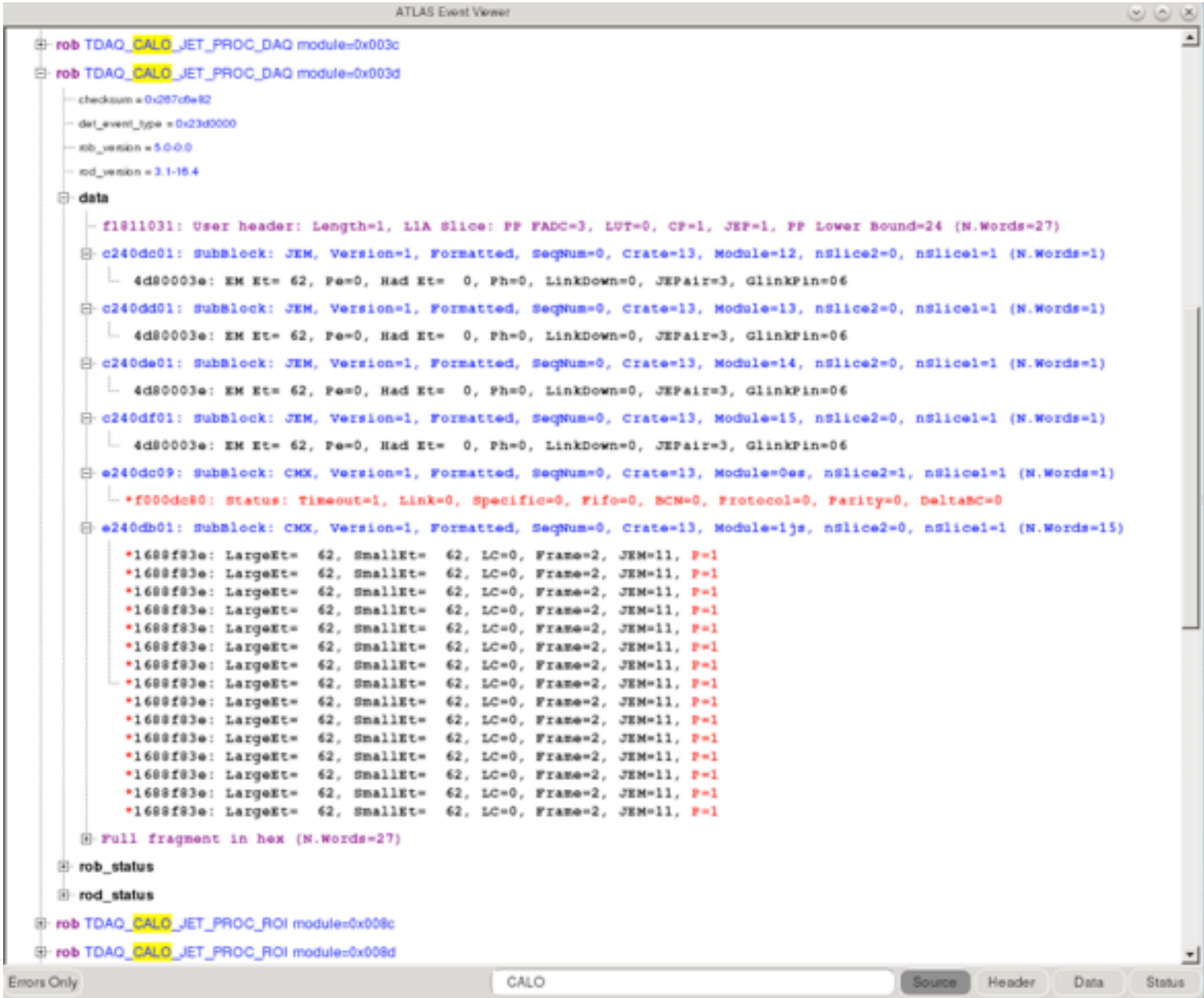
- Method
- Screenshots
- Current state

ROD FW: Test Method

- Load firmware to flash, etc
  - Various contortions in test rig to get non-neutral ROD
    - Much easier setup in USA15 system (apart from trip downstairs)
- Simple playback: 256 BC ramps from JEM, random L1A
- Record some events and/or monitor online
- Display events in new TDAQ EventViewer tool
  - With custom L1Calo display of our fragments (evl1.sh)
    - Which might have bugs of course
- Also compare with input Glink streams from neutral
  - Interpret Steves Excel format spreadsheets
    - Only very few events analysed this way (or else too many headaches!)
- NB CMX currently only sends one slice
  - For tests need to do the same from the JEMs

CMX Jet/Energy DAQ

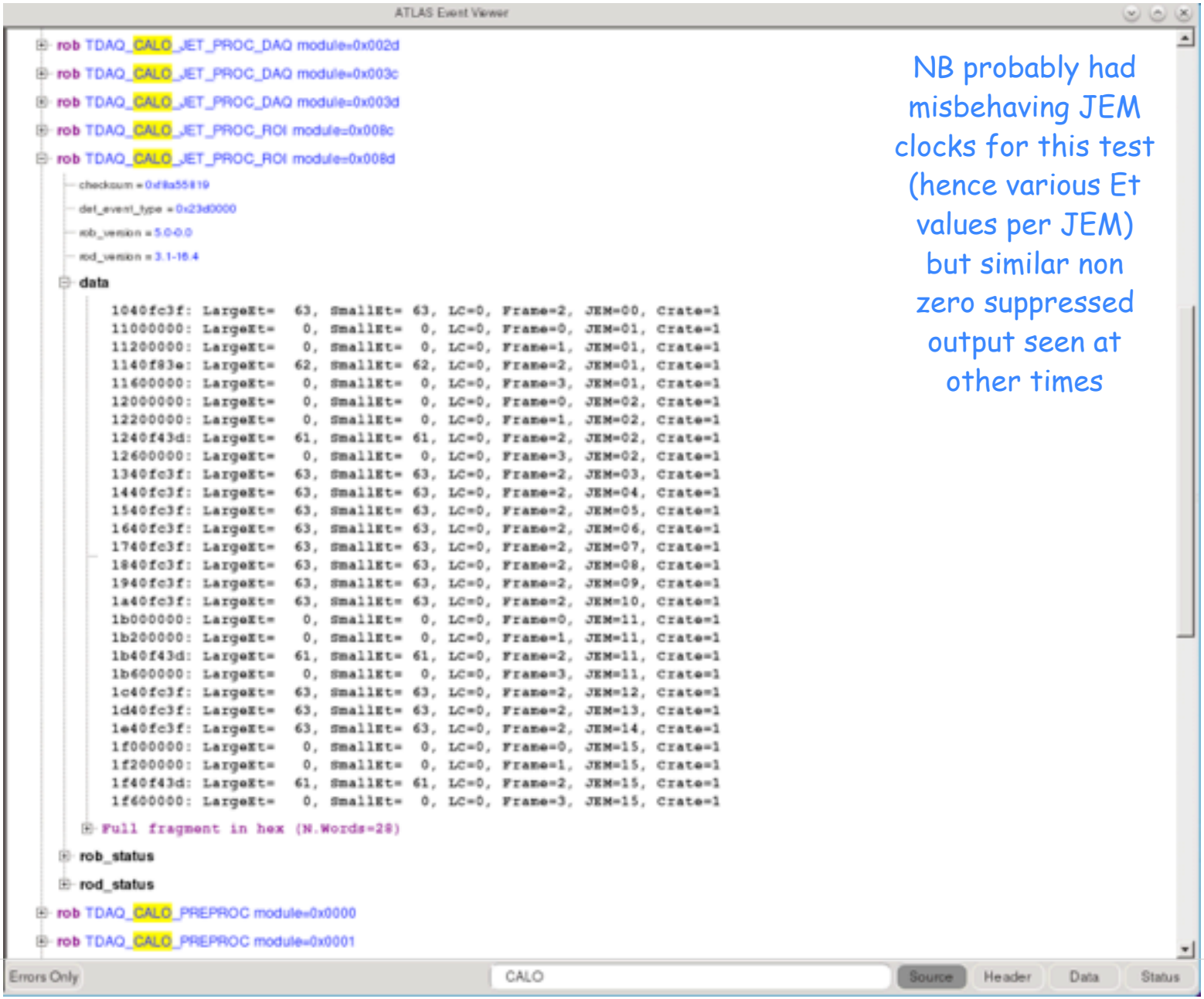


One 62 GeV channel per JEM in each of 16 JEMs per crate (4 JEMs per Slink)

Nothing from CMX Energy DAQ Slink (except timeout) NB confirmed 97 word input Glink packet in neutral

15 (not 16) TOBs reported in CMX Jet DAQ Slink all in JEM 11. Some events have parity error set (mostly not) Et, LC, Frame all correct

Jet RoI, CMX Energy RoI

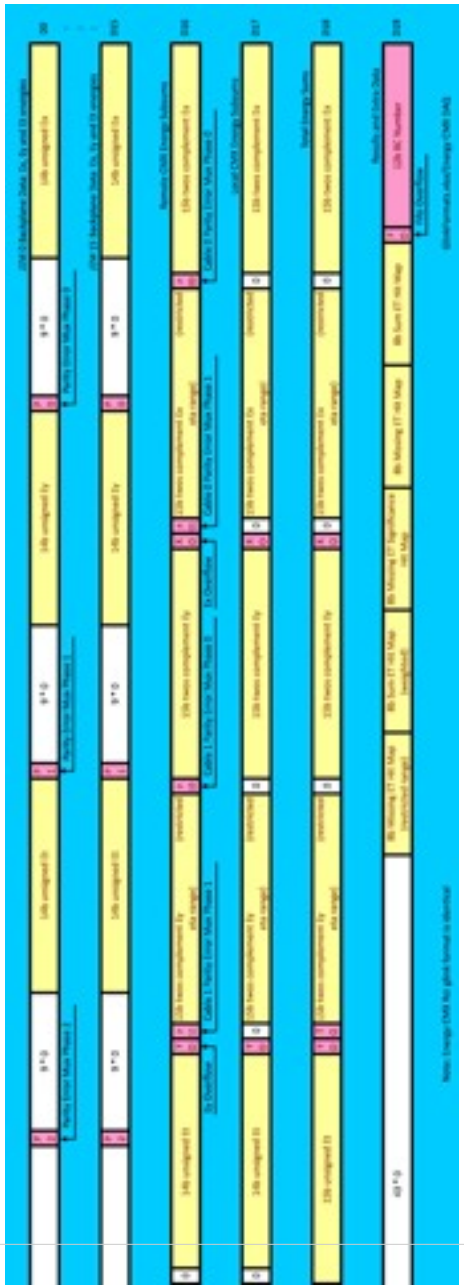


NB probably had misbehaving JEM clocks for this test (hence various Et values per JEM) but similar non zero suppressed output seen at other times

Jet RoI not uniformly zero suppressed (but all TOBs are present & correct)

In this event see no CMX Energy RoIs (should be six: Et,Ex,Ey * 2) In other tests have seen two extra RoI words in this Slink which might be malformed energy RoIs perhaps??

Comparing with neutral



ATLAS Event Viewer <@lxplus0077.cern.ch>

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data
  f0000021: User header: Length=1, L1A Slice: PP FADC=2, LUT=0, CP=0, JEP=0, PP Lower Bound=0 (N.Words=100)
  e2009109: SubBlock: CMX, Version=1, Neutral, SeqNum=0, Crate=9, Module=1cc, nSlice2=1, nSlice1=1 (N.Words=98)
                    D00   D04   D08   D12   D16
    00000000: (0000) 0000  0000  0000  0000  0000  (DAV=0, LinkDown=0, Error=0)
    00000000: (0001) 0000  0000  0000  0000  0000  (DAV=0, LinkDown=0, Error=0)
    00000000: (0002) 0000  0000  0000  0000  0000  (DAV=0, LinkDown=0, Error=0)
    00000000: (0003) 0000  0000  0000  0000  0000  (DAV=0, LinkDown=0, Error=0)
    00000000: (0004) 0000  0000  0000  0000  0000  (DAV=0, LinkDown=0, Error=0)
    00000000: (0005) 0000  0000  0000  0000  0000  (DAV=0, LinkDown=0, Error=0)
    00000000: (0006) 0000  0000  0000  0000  0000  (DAV=0, LinkDown=0, Error=0)
    00000000: (0007) 0000  0000  0000  0000  0000  (DAV=0, LinkDown=0, Error=0)
    00000000: (0008) 0000  0000  0000  0000  0000  (DAV=0, LinkDown=0, Error=0)
    00000000: (0009) 0000  0000  0000  0000  0000  (DAV=0, LinkDown=0, Error=0)
    00000000: (0010) 0000  0000  0000  0000  0000  (DAV=0, LinkDown=0, Error=0)
    00000000: (0011) 0000  0000  0000  0000  0000  (DAV=0, LinkDown=0, Error=0)
    00000000: (0012) 0000  0000  0000  0000  0000  (DAV=0, LinkDown=0, Error=0)
    00000000: (0013) 0000  0000  0000  0000  0000  (DAV=0, LinkDown=0, Error=0)
    00000000: (0014) 0000  0000  0000  0000  0000  (DAV=0, LinkDown=0, Error=0)
    00000000: (0015) 0000  0000  0000  0000  0000  (DAV=0, LinkDown=0, Error=0)
    00000000: (0016) 0000  0000  0000  0000  0000  (DAV=0, LinkDown=0, Error=0)
    00000000: (0017) 0000  0000  0000  0000  0000  (DAV=0, LinkDown=0, Error=0)
    00000000: (0018) 0000  0000  0000  0000  0000  (DAV=0, LinkDown=0, Error=0)
    00000000: (0019) 0000  0000  0000  0000  0000  (DAV=0, LinkDown=0, Error=0)
    00000000: (0020) 0000  0000  0000  0000  0000  (DAV=0, LinkDown=0, Error=0)
    00000000: (0021) 0000  0000  0000  0000  0000  (DAV=0, LinkDown=0, Error=0)
    00000000: (0022) 0000  0000  0000  0000  0000  (DAV=0, LinkDown=0, Error=0)
    00000000: (0023) 0000  0000  0000  0000  0000  (DAV=0, LinkDown=0, Error=0)
    00000000: (0024) 0000  0000  0000  0000  0000  (DAV=0, LinkDown=0, Error=0)
    00000000: (0025) 0000  0000  0000  0000  0000  (DAV=0, LinkDown=0, Error=0)
    00000000: (0026) 0000  0000  0000  0000  0000  (DAV=0, LinkDown=0, Error=0)
    00000030: (0027) 0000  1100  0000  0000  0000  (DAV=0, LinkDown=0, Error=0)
    00000000: (0028) 0000  0000  0000  0000  0000  (DAV=0, LinkDown=0, Error=0)
    00000000: (0029) 0000  0000  0000  0000  0000  (DAV=0, LinkDown=0, Error=0)
    00000000: (0030) 0000  0000  0000  0000  0000  (DAV=0, LinkDown=0, Error=0)
    00000000: (0031) 0000  0000  0000  0000  0000  (DAV=0, LinkDown=0, Error=0)
    00000000: (0032) 0000  0000  0000  0000  0000  (DAV=0, LinkDown=0, Error=0)
    00000000: (0033) 0000  0000  0000  0000  0000  (DAV=0, LinkDown=0, Error=0)
    00000000: (0034) 0000  0000  0000  0000  0000  (DAV=0, LinkDown=0, Error=0)
    00000000: (0035) 0000  0000  0000  0000  0000  (DAV=0, LinkDown=0, Error=0)
    00000000: (0036) 0000  0000  0000  0000  0000  (DAV=0, LinkDown=0, Error=0)
    00000000: (0037) 0000  0000  0000  0000  0000  (DAV=0, LinkDown=0, Error=0)
    00000000: (0038) 0000  0000  0000  0000  0000  (DAV=0, LinkDown=0, Error=0)
    00000000: (0039) 0000  0000  0000  0000  0000  (DAV=0, LinkDown=0, Error=0)
    00000000: (0040) 0000  0000  0000  0000  0000  (DAV=0, LinkDown=0, Error=0)
    00000000: (0041) 0000  0000  0000  0000  0000  (DAV=0, LinkDown=0, Error=0)
    00000000: (0042) 0000  0000  0000  0000  0000  (DAV=0, LinkDown=0, Error=0)
    00000000: (0043) 0000  0000  0000  0000  0000  (DAV=0, LinkDown=0, Error=0)
    00000000: (0044) 0000  0000  0000  0000  0000  (DAV=0, LinkDown=0, Error=0)
    00000000: (0045) 0000  0000  0000  0000  0000  (DAV=0, LinkDown=0, Error=0)
    00000000: (0046) 0000  0000  0000  0000  0000  (DAV=0, LinkDown=0, Error=0)
    00000000: (0047) 0000  0000  0000  0000  0000  (DAV=0, LinkDown=0, Error=0)
    00000000: (0048) 0000  0000  0000  0000  0000  (DAV=0, LinkDown=0, Error=0)
    00000000: (0049) 0000  0000  0000  0000  0000  (DAV=0, LinkDown=0, Error=0)
    00000000: (0050) 0000  0000  0000  0000  0000  (DAV=0, LinkDown=0, Error=0)
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Errors Only | CALO | Source | Header

97 Glink words
+1 block status = 98
+ 1 block header
+ 1 user header
= 100

Current State

- Tested collection 0xBC
- Jet DAQ & RoI work
  - But RoI not all zero suppressed
- CMX formats have more serious problems
  - Various format errors as shown in snapshots
  - CMX_Jet_DAQ: hangs with BCID FIFO overflow (fixed??)
  - CMX_Energy_RoI: no hangups but no output (timeout set)
  - CMX_Energy_DAQ: hangs with input FIFO full
  - NB Pawel reports that Steves Excel sheet for CMX-CMX cable format is wrong (only 26 pairs used)