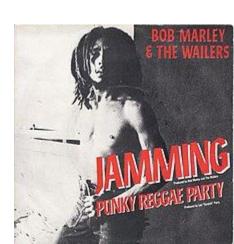
Jamming

Roberto Preghenella



Jamming setup

- external pulse generator
 - two outputs to generated differential (LVDS) signal
 - signal sent to the SPILL input of the KC705 board
- SPILL generates a SOFT RESET
 - whenever a "SPILL up" is detected the KC705 sends a SOFT RESET to all ALCOR chips
- Jamming
 - o pulse frequency: 20 kHz
 - o pulse width: 500 ns

Jamming sequence

- program KC705
- initialise ALCOR chips
 - o make sure that ECCR "Column 0 Enable" and "Column 1 Enable" bits stay zero
 - o needed to modify programs for that, not big issue
- turn ON the Jamming pulser
- set KC705 in SPILL mode (mode = 0x5)
 - this will trigger a SOFT RESET at each SPILL signal
 - ALCOR chips are "jammed", frame counters do not increase
- enable columns in ECCR
 - o manually set ECCR "Column 0 Enable" and "Column 1 Enable" to one
- reset KC705 SPILL mode (mode = 0x0)
 - stop sending SOFT RESET signals
 - ALCOR chips are "unjammed" all together, frame counters start increasing
- turn OFF the Jamming pulser
- ready to collect data with synchronised frames

It works

total number of first frame rollovers in data in data

chip-0 lane-0 chip-0 lane-1 chip-1 lane-0

000023ef 1074 000023ef 1074 chip-0 lane-2 000023ef 1074 chip-0 lane-3 000023ef 1074 000023ef 1074

Currently just running in "catch mode" to see if there is any occurrence of frame mismatch

Taking data continuously, checking consistency. If inconsistency found

- log
- save data for further inspection

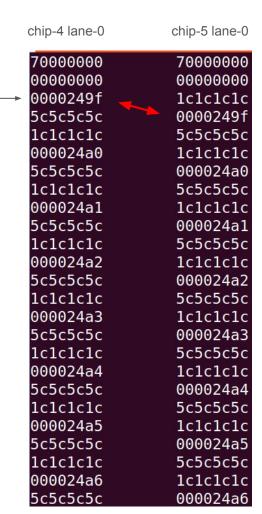
Few inconsistencies found last night, but did not have time for full inspection.

Later we will add real test pulses to check alignment

Anomaly #1

first frame mismatch

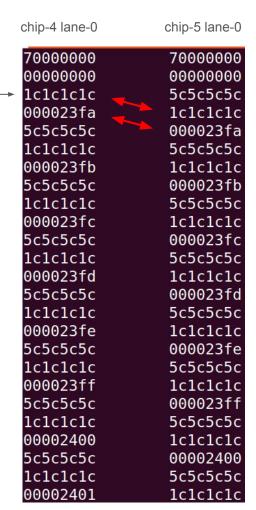
first word is the frame number



first word is frame header followed by the same frame number

Anomaly #2 rollover mismatch

first word is the frame header



rollover from the previous frame followed by a frame header with the same frame number