

DHH Status

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EMCM Tests

DESY Test Beam

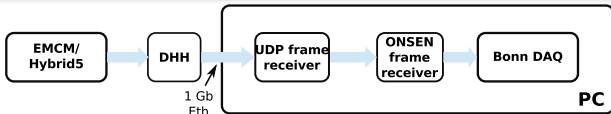


Figure: Data read-out chain at HLL

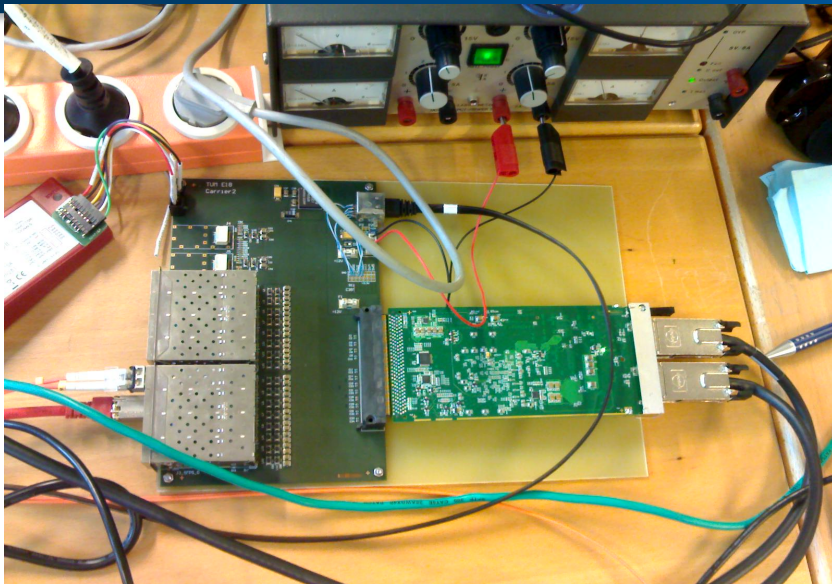
- DHH (prototype and AMC) tested with single- and fully populated EMCM
- data read-out over dedicated UDP link
- JTAG driver is able to configure 4 DHP in JTAG chain (GUI changed accordingly)
 - successfully established Aurora link to 4 DHPs
 - one Aurora link on AMC board shows smaller signal eye amplitude: 25 mV vs 118 mV
 - channel stable for short period (approx. 5 minutes). Longer test was not performed
 - bug found in reading back registers from not the first DHP in the chain → fixed
 - DCDB configuration was not performed due to the accident with bond

EMCM Tests

DESY Test Beam



Test Beam Preparations





- One week of system debugging. Several issues found:
 - New AMC boards can not establish Aurora link @ 6.25 Gbps.
 - Few smaller bugs in firmware found and fixed
 - B2TT synchronization fails → no trigger was possible. Solved by increasing internal delays.
 - connection desynchronizes regularly
 - double trigger numbers observed
- Software for slow control installed and tested
- EMCM-DHH-ONSEN operation using software trigger:
 - trigger rate up to 1 kHz (IPBus limitation)
 - trigger also sent for generation of the HLT
- EMCM-DHH-ONSEN operation using B2TT trigger:
 - trigger rate approx. 18 kHz
 - no back pressure from ONSEN
 - data corruption in the read-out chain. Problem under investigation.



DHH Setup at Test Beam

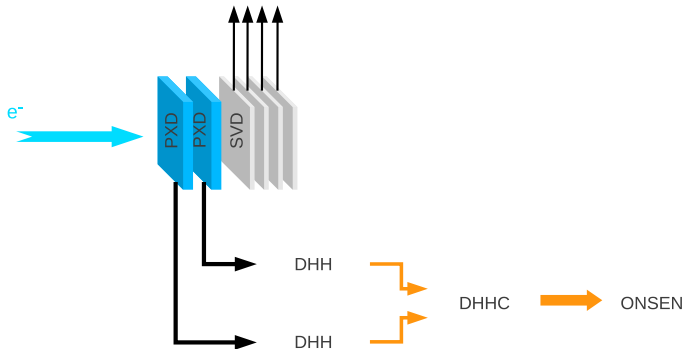


Figure: DHH setup at test beam in January



● Sub-event builder

- round robin based on Start/End-Of-Event
 - sanity check by trigger tag
 - scalable architecture
 - dynamical activation/deactivation of channels
 - works in simulation
 - some issues in hardware
 - still missing recovery from error state
- IPBus over Aurora: works
 - Trigger over Aurora:
 - issues with implementation
 - backup for January: dedicated high speed link for clock and trigger

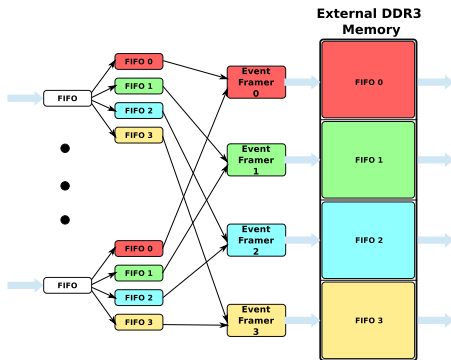


Figure: Sub-event builder



Thank you!