Known DAQ-FE Problems

- DAQ Multiplexer #4 was main source of DAQ problems in 2016 run
  - Problem originated in broken DDR3 memory module => new memory module installed
- SlinkMX is bottleneck
  - DC chambers connected wo SLinkMX in 2015
  - SciFis in target region shall be connected to CMX – plan to test next week
- SciFi Gandalf readout gets stuck during change of super cycle
  - Caused by overfilling buffers
  - Scalers main data source => investigation of possibility to reduce scaler data size
- ECAL2/ECAL0 MSADC high data rate can cause readout errors
  - Current solution : increase of threshold
  - Better solution is to add SDRAM memory in HGeSiCA, first tests were not successful, work in progress
- Maximum event size is limited
  - 64kW(256kB) after Multiplexer level – should be OK for all detectors
  - 128kW(512kB) after Switch level – problem for calibration events in coincidence with Gandalf diagnostic events

  Solution : not merge Multiplexer sub-events in one event instead send all sub-events as they are.

  Requires change of Switch firmware and DAQ read out program. More probably will not be done for 2017 run

Known DAQ-FE Problems

- PCI DMA error – caused by scrambled data.
  - Shall be better after Multiplexer #4 fixed
  - As possible alternative we are testing UDP data transmission

  For a moment we see data loss which more probably are originated in firmware – work in progress
- One channel of Trigger Pre-scaler didn’t work correctly in 2016
  - Pre-scaler version features Pre-scaler functionality and APV dead time generator

  Current status :
  - new TCS-controller firmware version 210 with built-in APV dead time generator
  - Old Pre-scaler firmware

DAQ Activities

- Continuously running DAQ
  - Idea : no stop of run during normal data, run # incremented after N spills

  Status
  - Ready : TCS controller firmware which changes spill number to 1 on DAQ request
  - In progress : run control program to support continuous run
    - Dry run – no data taking , only test of read out , special run number
    - Continuous run - normal data taking
- GUI for changing DAQ topology for incorporating Cross-Switch module

  Status
  - Ready and being tested
- Cross-Switch
  - delayed by finalizing schematic
  - Standalone module 1U rack mounted
  - Layout outsourced , design sent to different companies for price quotation
- New firmware for Switch module to support higher bandwidth

  Status
  - Finalized, to be tested at CERN in beginning of April

DAQ Activities

- RICH APV reloading
  - Implementation in case of error : stop of run and warning for shift to reload corresponding SrcID
  - Murphy TV modified to establish message exchange with Run Control
  - RICH group provided error type to trigger reloading, missing information about percentage of affected events

  Status
  - Work in progress

DAQ Plans

- DAQ tests will be continued till Easter, DAQ will be provided to detector experts on request
- After Easter DAQ will be available for all