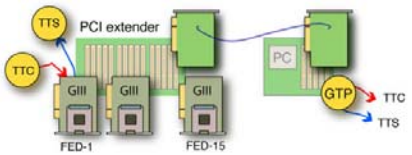
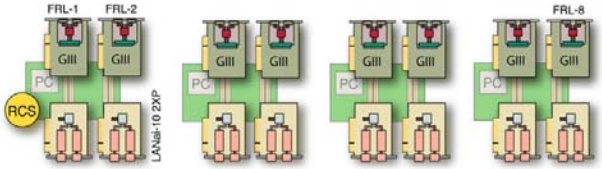
TDR Demonstrator / DAQ column

- Introduction
- Current status

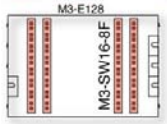
Architecture



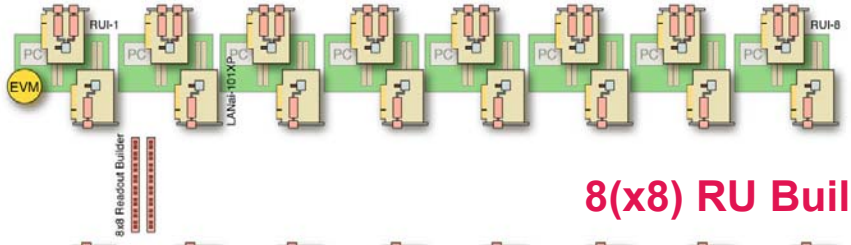
8..15 FED emulator



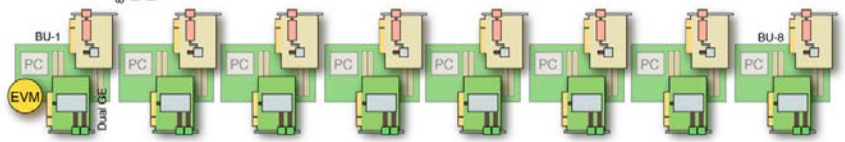
8 FRL system

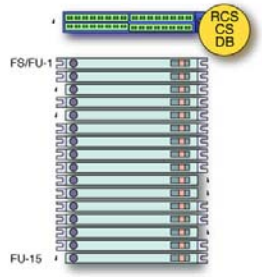


FED Builder



8(x8) RU Builder





8 BU-FF system
+
GTP, TTC
a/s TTS
EVM, RCN
RCS, DCS, DB ..

Aim of the TDR Demonstrator

- Complete system with hardware components...
  - Data sources (GIII based, with SLINK)
  - 8 FRLs
  - 1 FED Builder
  - 1 RU-builder (downscaled version: 8x8)
  - 1 EVM
  - 1 Trigger emulator with throttling
  - later: 1 Filter farm
- ...and software components:
  - XDAQ based
  - new completely rewritten EVB-application (S. Murray).
    should develop towards the final EVB-software.

TDR Demonstrator

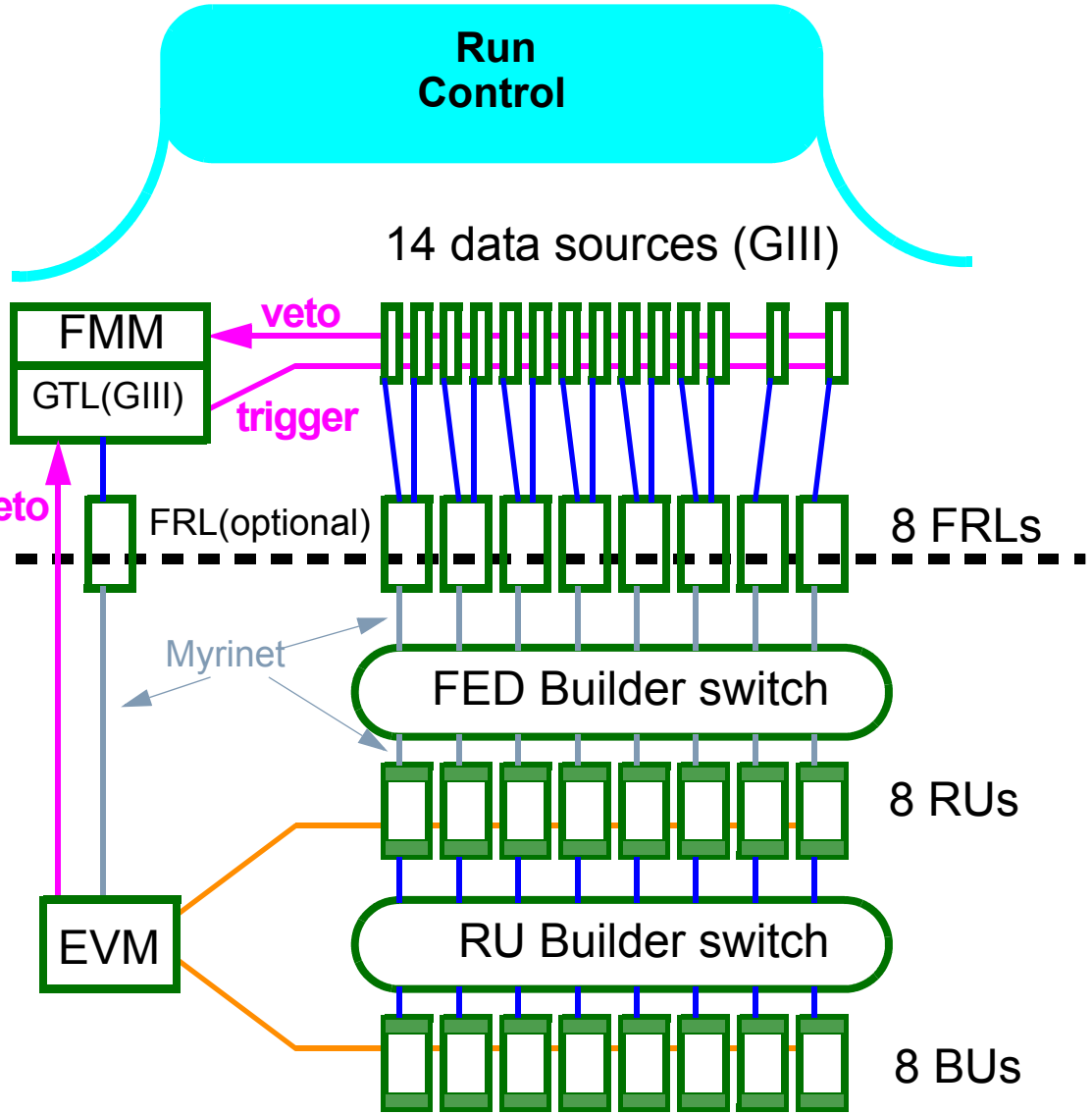
XDAQ software: for configuration

custom hardware

commercial hardware

XDAQ software: for data transport and configuration

EVB software: completely rewritten

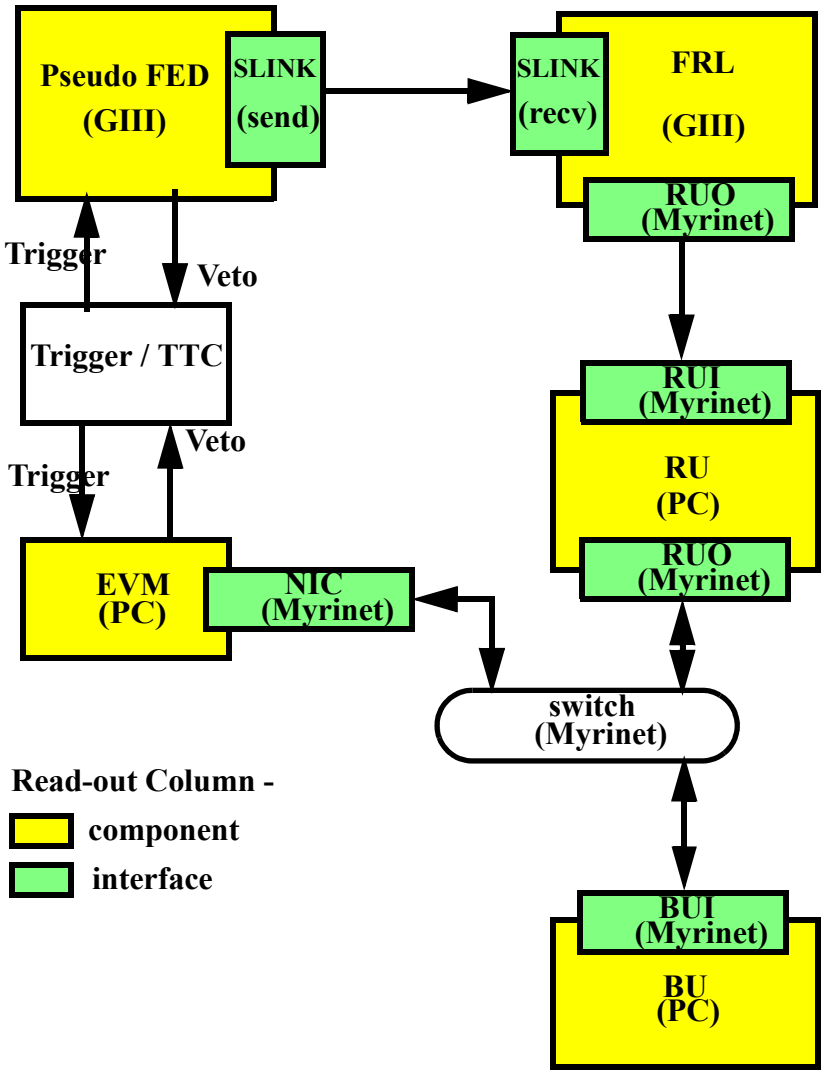


main activities forseen:

- Optimization
  - data transfer throughput
  - system robustness
  - RCMS system
- Measurements
  - performance for various configurations:
    - RU builder with Gigabit Ethernet or Myinet,
    - one or more functional units in one PC (e.g. 2 RUs or 2 BUs or 1BU,1RU per PC)
- Developments
  - Error handling recovery
  - aTTS system
  - DAQ-Doctor

Status:

- Hardware setup: a column EVB:
  - Data input : Pseudo FED (GIII event generator)
  - The rest: complete column until BU
  - FRL: emulator on GIII basis
- RCMS Control of the column
  - RCMS prototype has been tested
  - Column setup was easy to configure
  - Scripting facility for automatic measurement series is currently being improved.
- Status:
  - Hardware test: Events from FED to RUI (mixture XDAQ code, stand-alone C-code)
  - XDAQ applications for all components are written
  - Debugging is onging
  - No measurements yet



Event Generator Modes

- Fixed size:
  - programmable size (fixed), source, BC
  - event number from counter
- Variable size:
  - Up to 4*10^6 programmable event descriptors:
    - bc, event source
    - event number from counter or descriptor
    - possibility to introduce event number errors to simulate synchronization problems

'Trigger' - EVM Interface: Current setup and future plan

- TTC based trigger
  - NIM logic as generator
  - TTC system to bring trigger to EVM (will not be in final system)
  - TTL output to pseudo-fed
- Software
  - Readout class for TTCrx receiver board
  - Trigger interface to interface with EVB
- Future
  - GTL emulator (Theo's presentation CPT 05-2003).
  - Trigger-FRL and RUI-like EVM input