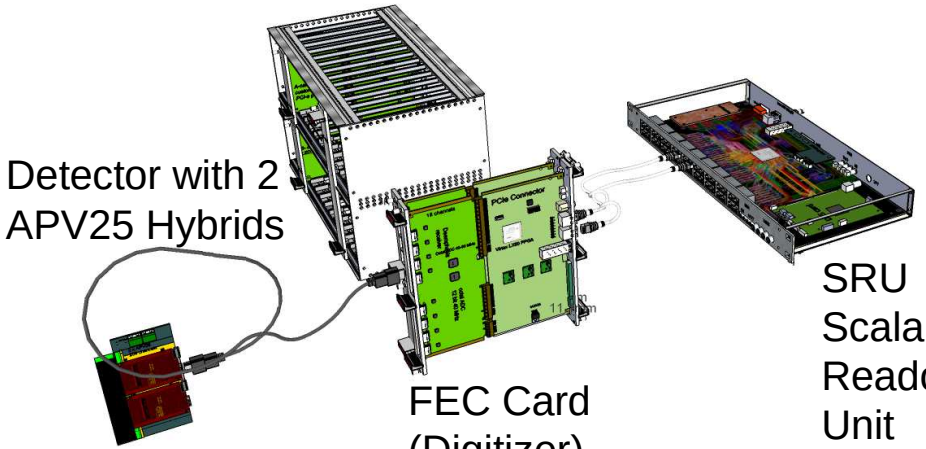
Development of a MicroMegas ReadOutDriver for ATLAS

A. Zibell, LMU, LS Schaile
on behalf of the MAMMA collaboration

- The **MicroMegas technology** has been chosen to upgrade the precision chambers of the ATLAS Small Wheel muon detectors.
- Two MicroMegas prototype detectors **have been installed** in ATLAS, one in the MBTS (Minimum Bias Trigger Scintillators) region (left) and one on a Small Wheel CSC detector (right), regions of high γ, n-background rates.

- To read out these detectors along with all other ATLAS subsystems, a **ReadOutDriver** (ROD) is currently under development, using modern FPGAs (Virtex5/6 family) of the **Scalable Readout System** (SRS).

SRS system



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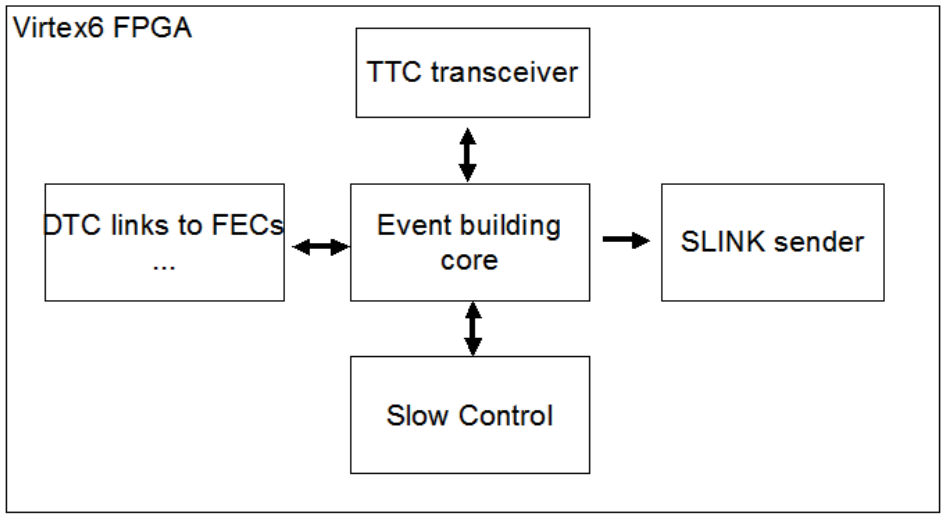
- The SRU board works as **ReadOutDriver**, interfacing the MicroMegas detectors to a Trigger Timing and Control (TTC) partition, and to the Data aquisition system (ROS).
- In addition, the FPGA firmware under development has to manage slow control via ethernet, establish high speed links to the FEC cards to gather event data and **format the data** correctly (eventbuilding) with a Level1 trigger rate of up to 100 kHz.



- With help of the Virtex6‘s onboard ressources, the need of a seperate **SLINK** daughter card (HOLA) could be eliminated.
- Formatting and serializing is done inside the SRU‘s FPGA, using its internal highspeed **GTX transceivers**