

# Integration of SRU in ATLAS readout

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# Outline

- Micromegas chambers at ATLAS
- Use of the SRS System to read detector data
- SRU firmware layout for a ReadOutDriver
- SLINK implementation
- Current status / outlook

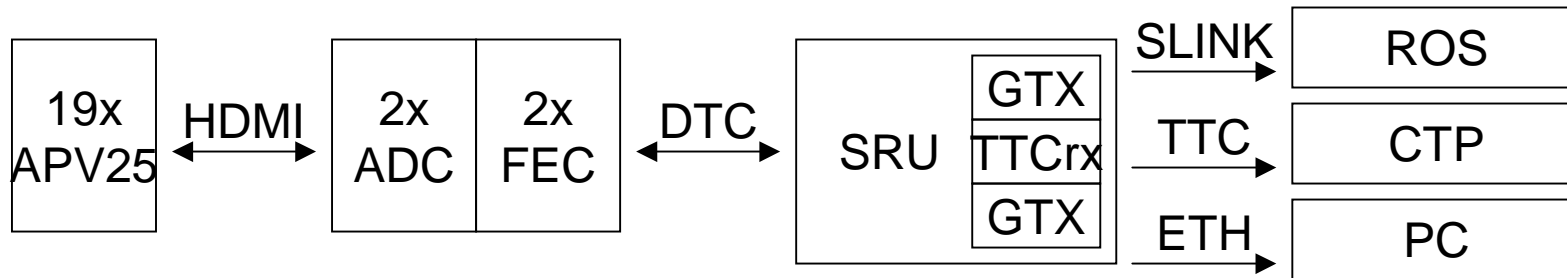
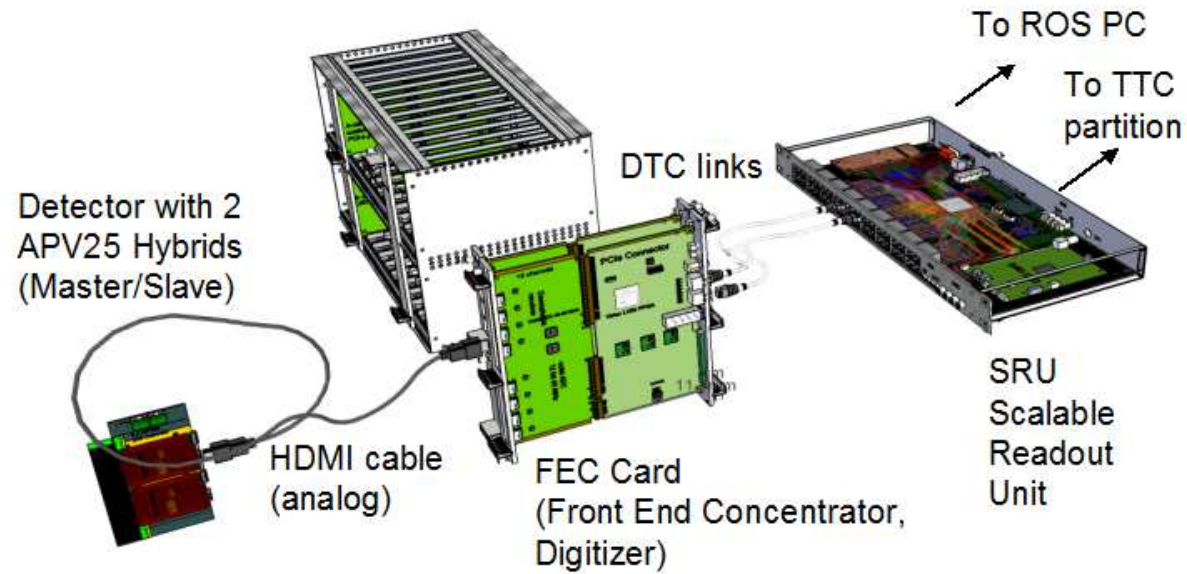
# Installation of prototype chambers in ATLAS



- 2 chambers  $9 \times 4.5 \text{ cm}^2$  @MBTS region
- 4 chambers  $9 \times 9 \text{ cm}^2$  @Small Wheel



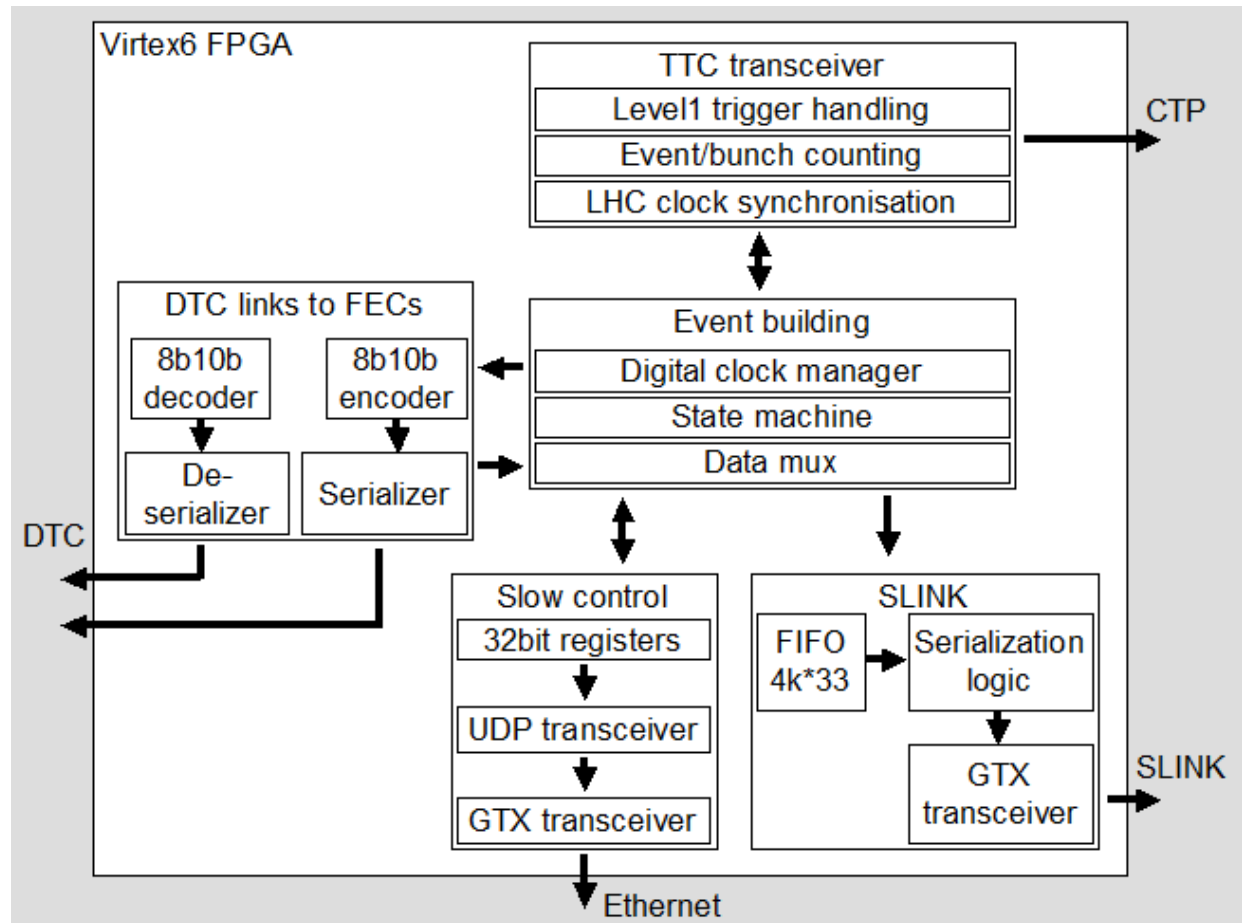
# SRS (Scalable Readout System)



# SRU (Scalable Readout Unit)

Main tasks:

- Reception and distribution of Level1 triggers, LHC synchronization
- Detector data collection and event building (BCID, EventID, ... , Data)
- Data transmission to ROS PC via SLINK
- Slow control / DCS via Ethernet



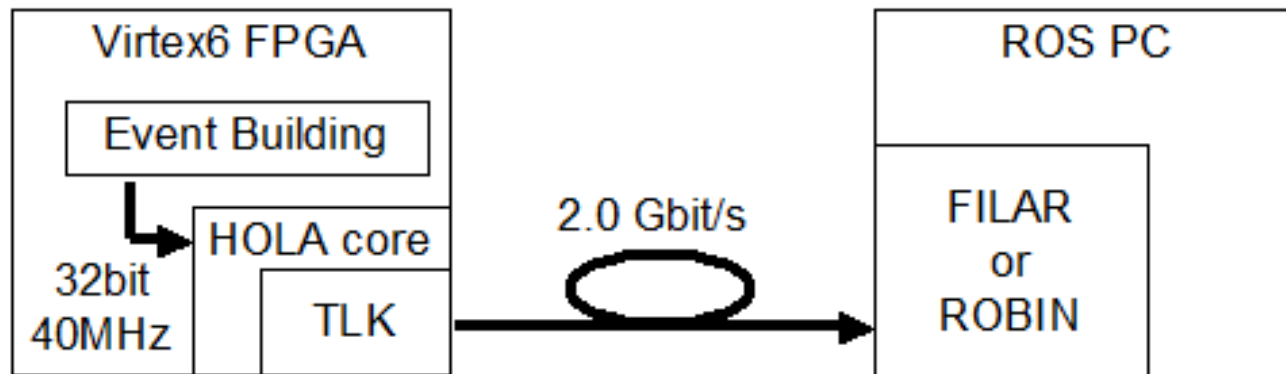
# DCS / Slow control

- Slow control is done via optical Gbit ethernet connection to the SRU
- SRU DCS requests are handled directly, packets for FEC and APV are forwarded via DTC links
- Online access to parameters like run control and error conditions
- Fine tuning of TTCrx, APVs, etc...
- Preview of the data taken, apart from the ATLAS DAQ / run condition

# SLINK implementation

(M. Della Volpe, R. Giordano, V. Izzo, S. Perrella)

- Event data are transmitted using SLINK = ATLAS standard ReadOutLink (ROL) to the data acquisition system (formerly HOLA based)
- No need of a separate HOLA daughter card, due to the implementation of the serialisation logic in the Virtex6 FPGA
- Data transfer to a standard ROS PC tested successfully with both FILAR and ROBIN pci cards, the latter used in the ATLAS ROS PCs



# Current status of project

- MicroMegas detectors have been installed at ATLAS
- SRU's Basic Event building firmware and slow control is working
- Integration of SLINK protocol and hardware layers on SRU tested successfully
- ToDo: TTC connectivity, DCS handling and data readout from FrontEnd Cards

