



Wayne State CMS GEM DAQ Activities



CMS Forward Muon Trigger and DAQ Workshop
Texas A&M University
9-10 February, 2014

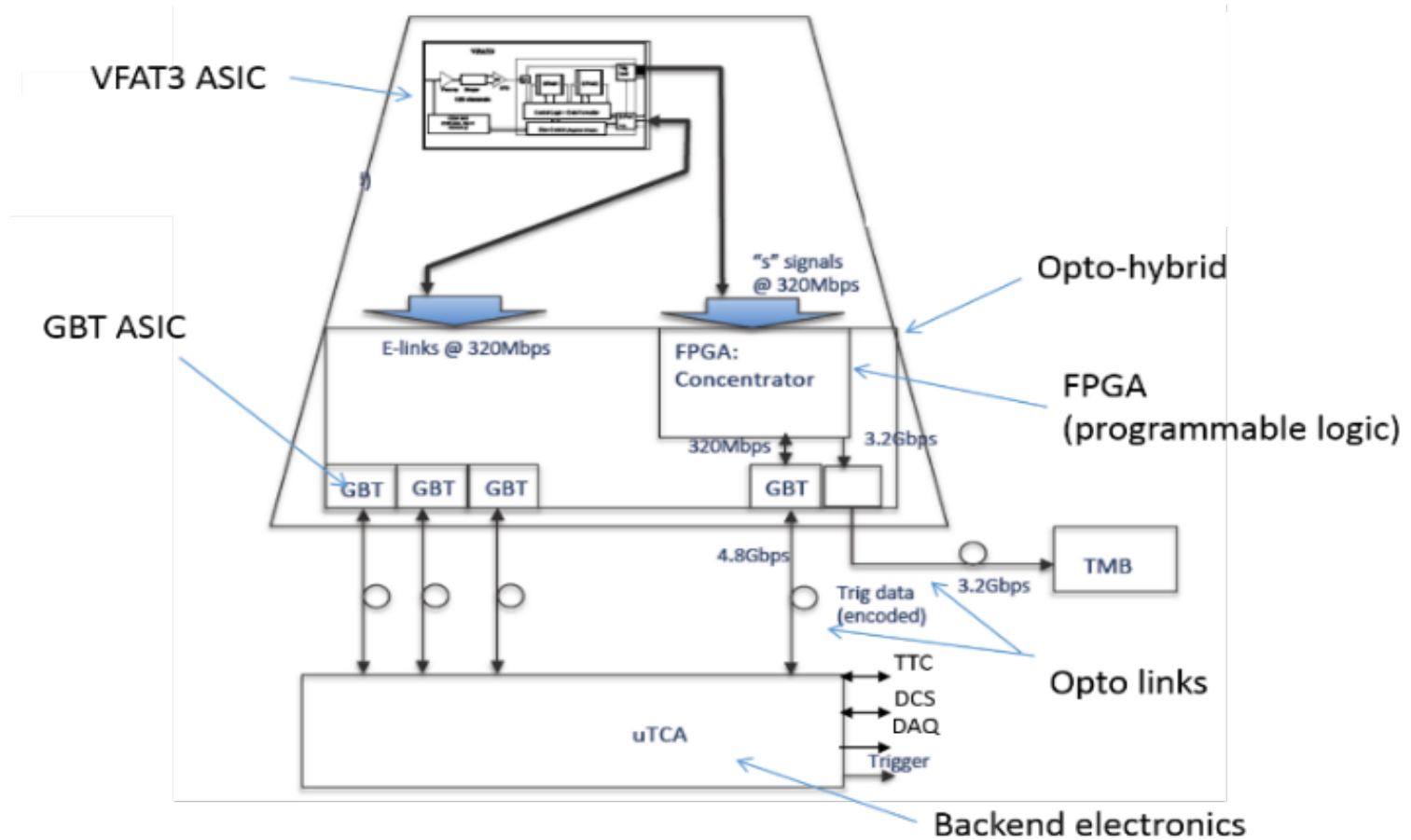
Group Members

Faculty: Paul Karchin (resident at WSU)

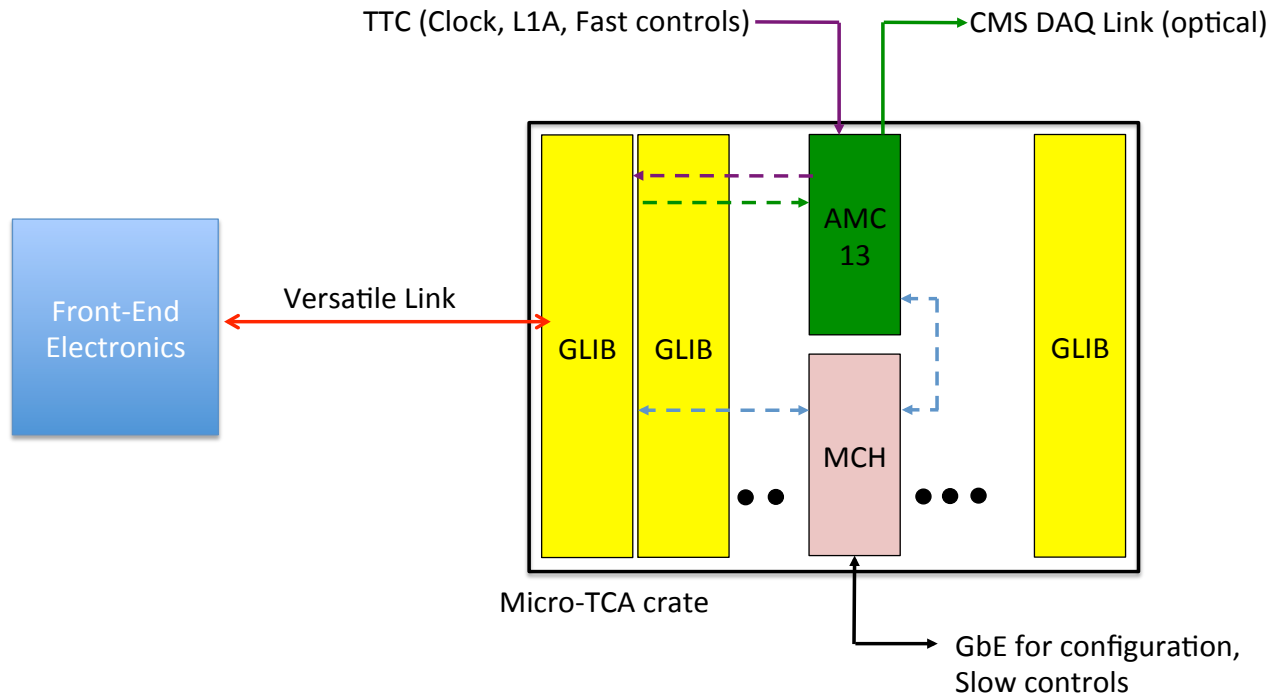
Engineer: Alfredo Gutierrez (resident at WSU)

Post-Doc: Jared Sturdy (resident at CERN)

GEM Readout Overview



mTCA Crate Modules



CERN Gigabit Link Interface Board (GLIB) utilizes commercial technologies:

- Versatile Link serial optical link

- micro Telecommunications Computing Architecture (μ TCA)

CERN GigaBit Transceivers (GBTX):

- located on the Opto-Hybrid and GLIB modules

- provide bi-directional serial communication at 4.8 Gb/s

mTCA Test Stand at WSU

Micro-TCA test stand at WSU with dedicated DAQ computer and general purpose computer. The inset shows the micro-TCA crate with CERN GLIB communications module.



GLIB



CERN GLIB Project

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GLIB Firmware Tests (1)

Features of GLIB:

- FPGA is programmed with XILINX Impact software
- operation as module in uTCA crate or stand alone in bench top mode powered by a pc (ATX) power supply

Firmware Test #1: Loopback

- transmit fixed pattern, receive with same GLIB, count errors
- source code compilation failed using Xilinx tools on Windows PC
- code compiled by Erik Verhagen (ULB) on Linux system loads and runs without fiber
- ordered transceivers with pluggable fibers - should arrive Monday

GLIB Firmware Tests (2)

Firmware Test #2: GLIB-to-GLIB

- transmit fixed pattern between GLIBs - test in both directions
- source code by Erik
- use 2nd GLIB board from ULB

Access Test using IPBus

- confirm IPBus register access failure observed by Erik
- access to error counter register needed for TX/RX tests

Discussion of firmware development at this meeting