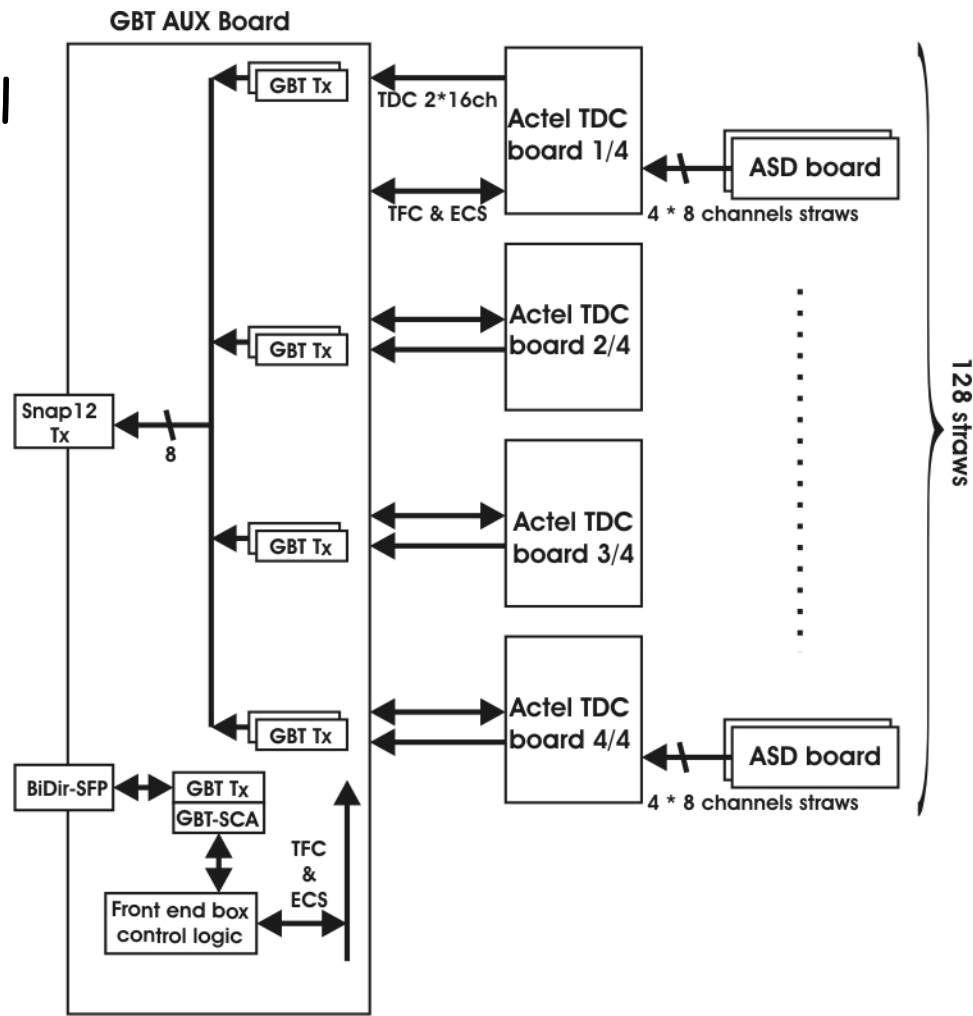
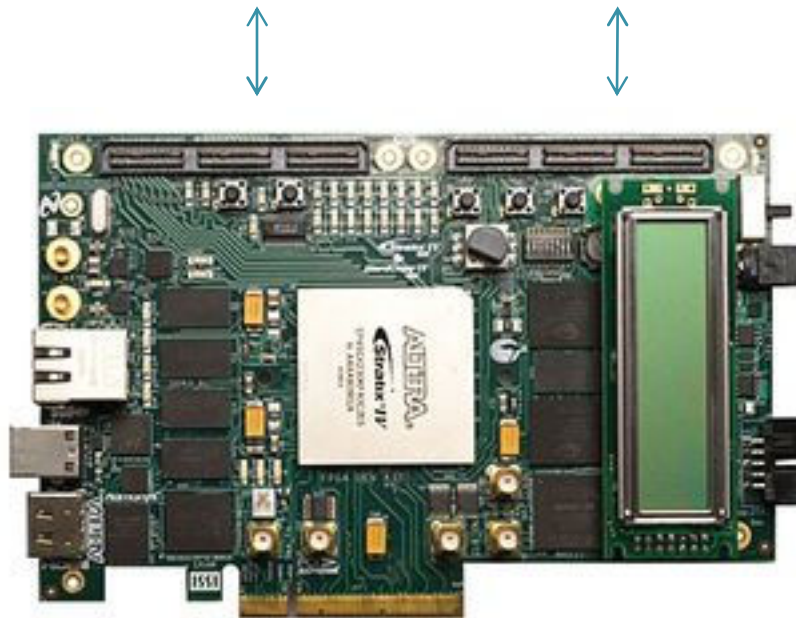


# GBT AUX board

- GBT AUX board replaces Gol board
  - Identical mech. dimensions
- 8 GBT -> data transmission
  - Snap 12 MPO opt. Tx
  - Option use of 4 Dual SFP Tx
- 1 GBT / GBT-SCA for TFC/ECS
  - Bidir SFP
- Interfaces four TDC cards
  - 128 TDC channels @ 40MHz



# GBT AUX proto board



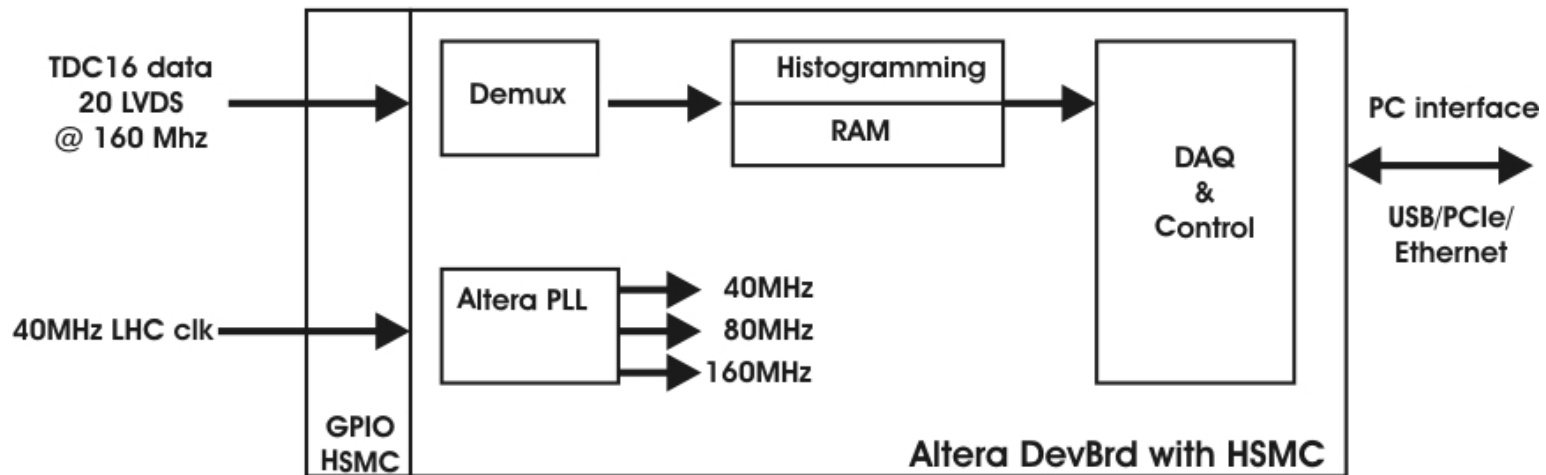
# GBT AUX proto board

- First proto based on Altera Stratix IV dev kit
  - 4SGX230N expanded with High Speed Mezzanine Card(HSMC)
- **Interfaces single Actel with 16 TDC channels**
- GBT like data bus 20b @ 160 Mb/s
- **Functionality:**
  - Real time data Analysis: histogram TDC output (long runs)
  - Prove Actel TDC / ZS concept
  - **Test GBT data transmission**
  - Histogram of TDC Zero Suppressed data
  - Buffer burst of consecutive TDC output in RAM
    - Offline analysis ZS data
    - Short runs, length to be defined depending on ZS and memory
- Data interface to host for offline analysis (proto only)
  - Ethernet
- Altera development board expected July ☹

# GBT AUX proto board

- TDC Data analysis, without GBT data TxRx
  - Analyze 16 channel TDC output
- 20 bits @ 160 Mb/s LVDS data interface with Actel 16ch TDC
  - HSMC pio to interface TDC data bus

Actel TDC16 read out test setup without GBT



# Actel TDC 16 readout with GBT

- Expanded with GBT Tx Rx loopback in data path
  - HSMC with SFP
  - Avago SFP transceiver(s)
  - Use "GBT-FPGA Firmware Starter Kit"
- Data analysis includes check of GBT data path

