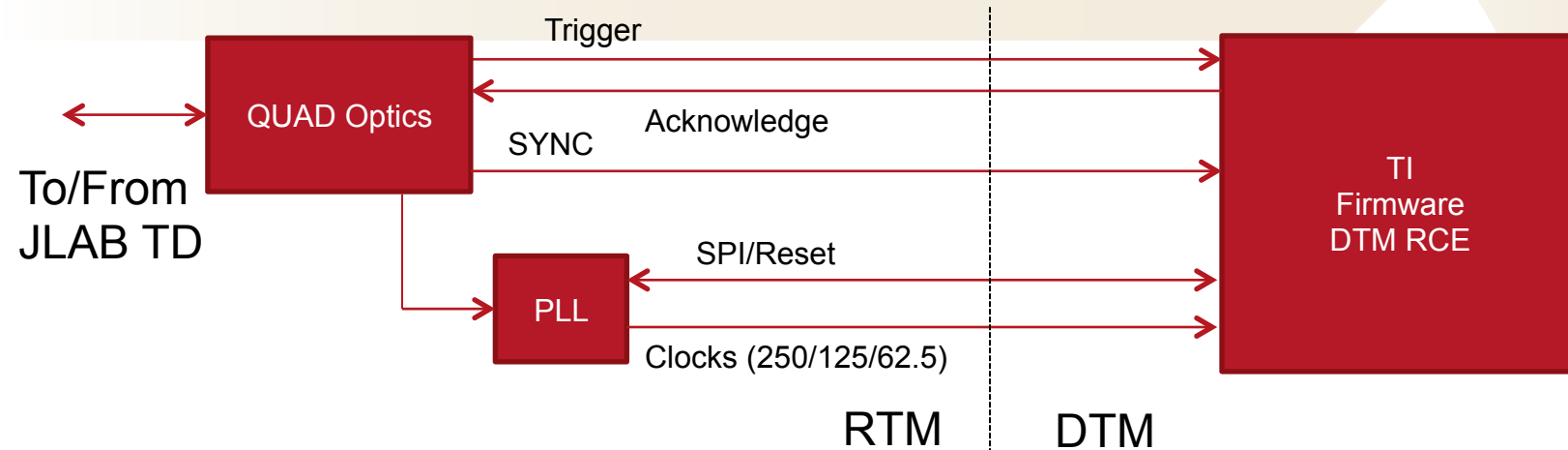
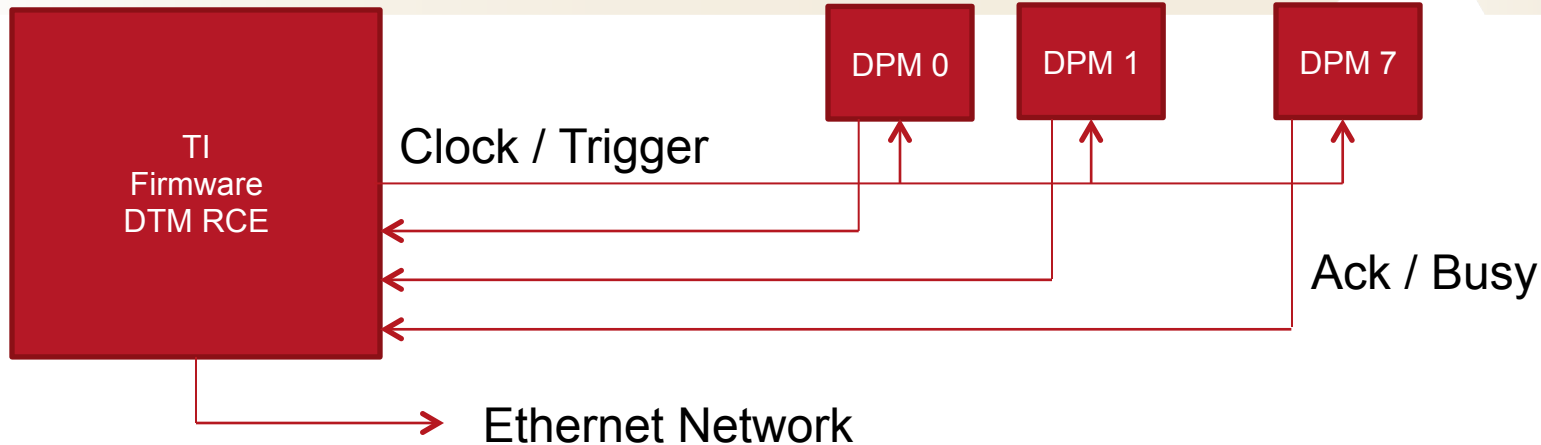


SVT Trigger Interface



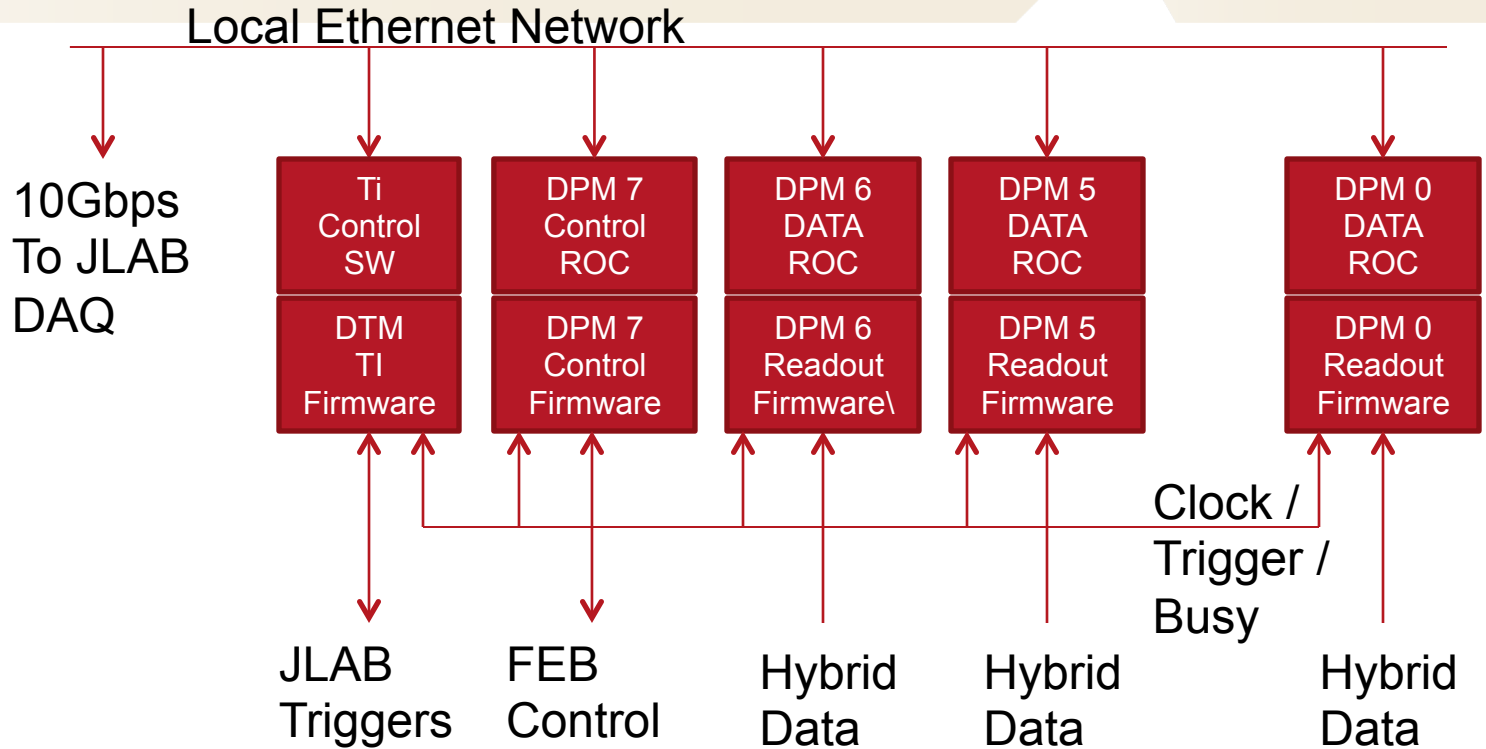
- Replicates portion of JLAB TI Board
- Quad optics and PLL exist on RTM
- TI firmware implemented in RCE FPGA
- Fully allocated available signals between RTM and DTM
 - 1 high speed pair for trigger & SYNC
 - 1 low speed pair for SYNC
 - 2 low speed pairs for PLL SPI and Reset signals
 - 3 low speed pairs for PLL generated clocks (250/125/62.5 Mhz)

SVT Trigger Distribution



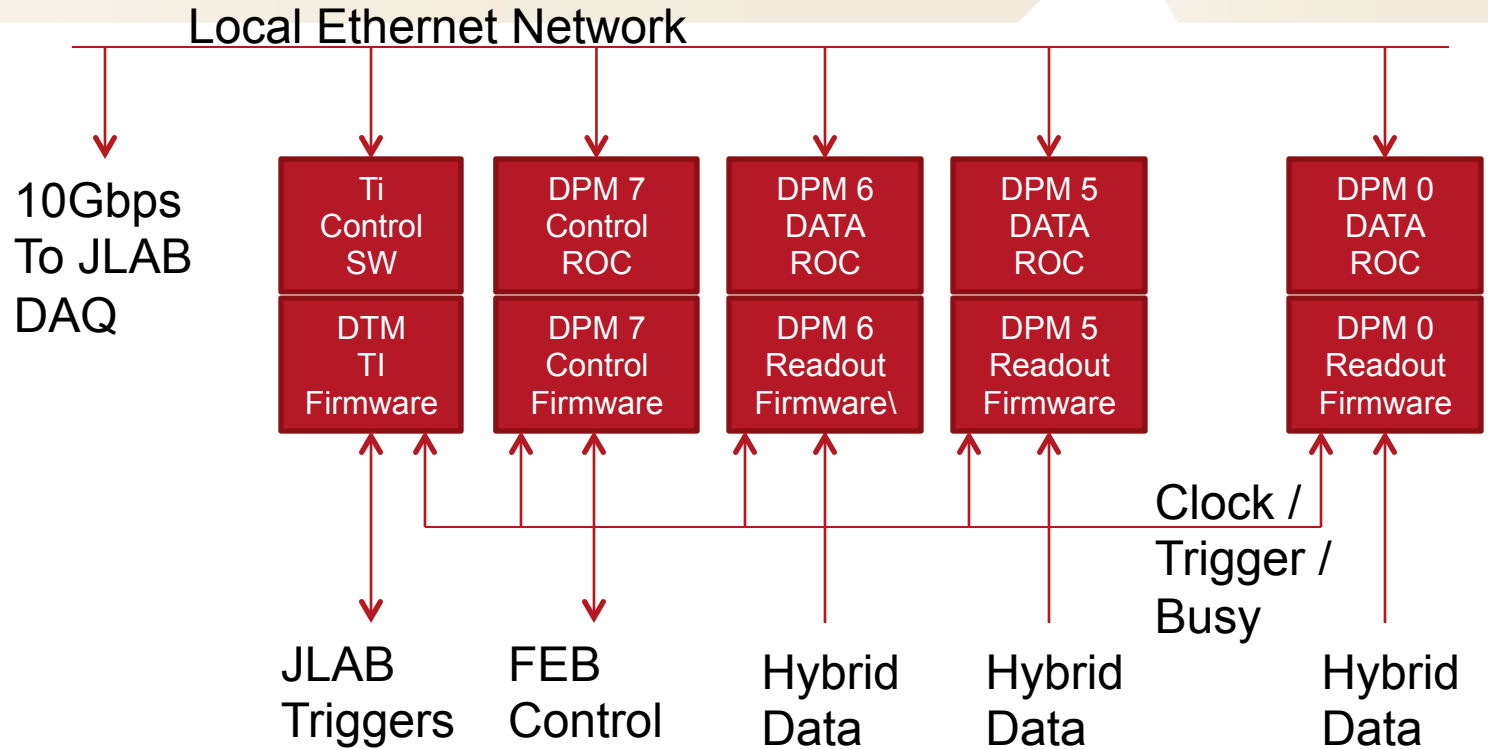
- DTM FPGA has ability to distribute clock and trigger to DPMs
 - Clock and trigger wired as fan out to DPMs
 - Individual feedback signals from each DPM
- 1 pair for clock fan out
- 1 pair for trigger fan out
 - 125Mhz serial protocol transfers 8-bit codes (easily expanded to longer words)
 - Used to distribute event codes to DPMs
 - System clock sync, APV25 sync & JLAB triggers
- 1 pair per DPM for feedback
 - Similar 8-bit op-code
 - Readout and trigger acknowledge
 - Busy
- Ethernet network used to distribute bulk trigger records to DPMs

ROC Instances On SVT



- Data DPM
 - Data processing ROC application
 - Builds event record for 2 or 3 hybrids
 - APV25 ADC Data
 - Hybrid environmental data
 - Operates as slave when interfacing to TI firmware
 - Clock and trigger received over COB signals
 - Busy and acknowledge passed over COB signals
 - Trigger event data passed over Ethernet from TI control software

TI Control Software



- TI Control Software
 - Direct access to TI register space
 - Slaves to control ROC application for CODA transitions
 - Bridge to data ROC applications
 - Sends out readout block trigger record to data DPMs & control DPM

- Download
 - Control ROC
 - Opens link to control software application
 - Configures FEBs and Hybrids
 - Configures data processing DPM firmware
 - Configures TI firmware
 - Data ROC
 - Opens link to data path software
- Prestart
 - Control ROC
 - Generates APV25 sync command through TI bridge software
 - Monitors APV25 sync status
 - Data ROC
 - Registers with TI through TI bridge software
- GO
 - Data ROC
 - Retrieve trigger/block info from TI through bridge software
 - Enable local data path
 - Control ROC
 - Enable the TI to accept triggers when all data DPMs have retrieved trigger/block information

- Trigger
 - Data ROC
 - Receives trigger mask from DTM over COB signals
 - Send acknowledge over COB signals to DTM
 - Receive associated trigger block data over TCP/IP
 - Control ROC
 - Send triggers and mask data over COB signals
 - Send trigger block data to data DPMs over network
- End
 - Control ROC
 - Request TI firmware to disable
 - Wait for ROCs to acknowledge last block
 - Disable triggers
 - Data ROC
 - Acknowledge last triggers
 - Disable data path