MANCHESTER 1824

The University of Manchester

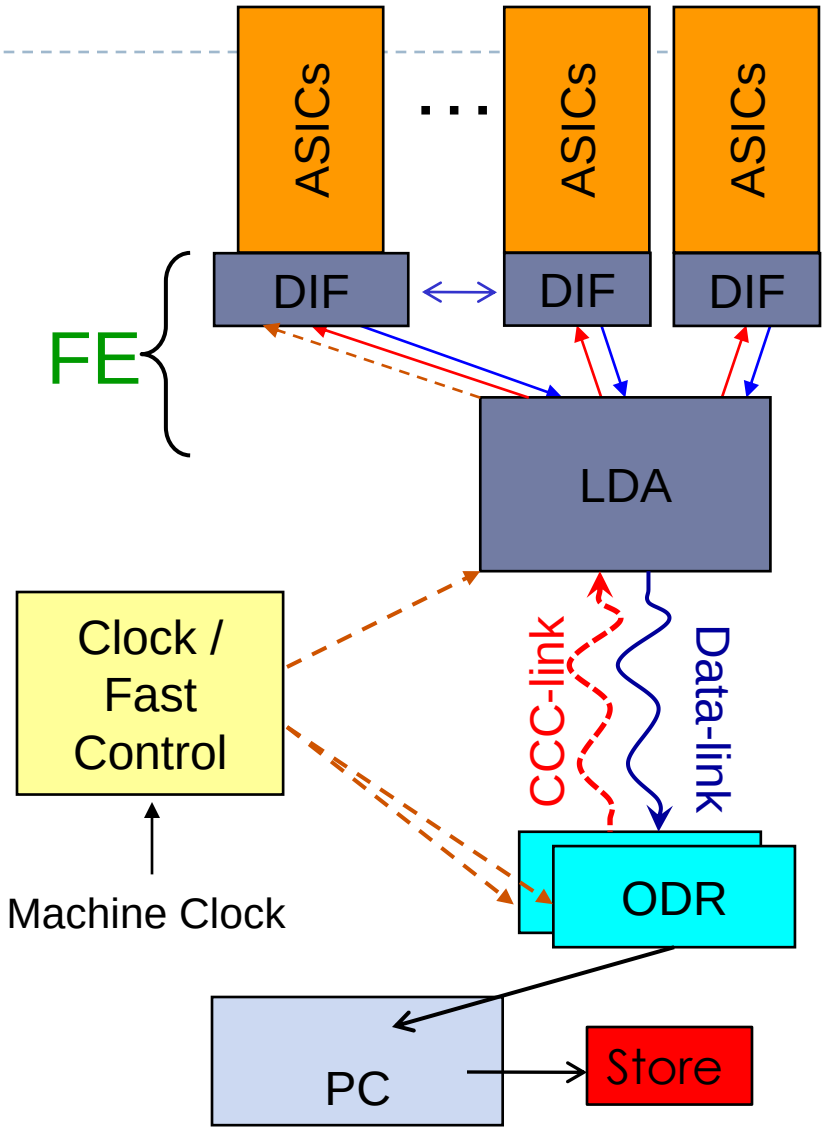
CALICE Calorimeter for ILC

DIF→LDA Interface

David Bailey

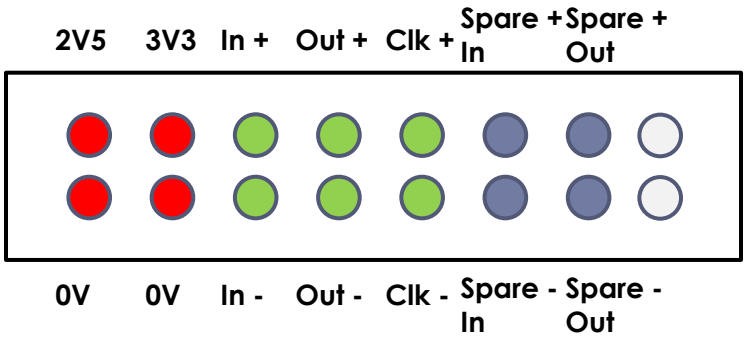
Current Architecture

- DIF
  - Supplied with low jitter clock from LDA
    - 50MHz with ½ns jitter (for now)
    - All detector-specific clocks are derived from input master clock on the DIF
  - Bi-directional serial links to LDA
    - Would like these to be "generic" – driven by highest bandwidth requirement
    - Require fixed latency links if clock and control encoded across them
  - Clock feed through and redundant data links to neighbouring DIF for readout and clock redundancy
  - Standard firmware to talk to DAQ



Current Architecture

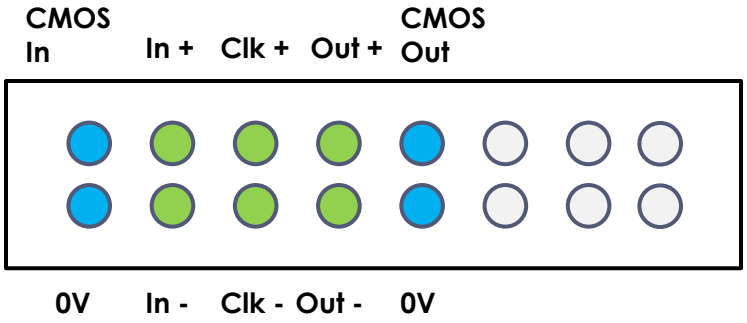
- DIF → LDA Interface
  - Keep it simple
  - Standard 10/16 pin IDC format connector
    - Power from DIF for link SERDES if required (3V3 and 2V5 at 250mA)
    - Input from/to LDA
      - Serial In
      - Serial Out
      - Clock In (may be recovered from link)
      - 2 spares (sync signal?)
      - All LVDS 2V5
      - 8B10B encoding (or Manchester)



HDMI might be another option for this connector. We loose one of the spare pairs but get more control lines and connector is compact.

Current Architecture

- DIF→DIF
  - Same format as LDA interface
  - Used for redundant communications and clock between DIFs in case primary link to LDA fails
  - Require 2 extra single ended lines to specify link and clock direction
    - Master/Slave signal to define clock master
    - CMOS 2V5 suggested
    - Maybe use a single 3-state line later



Aim to make this a simple crossover cable connection if possible

Document

- Discussion document available
  - No final – might have been by next week but no time to finalise it this week...
  - Please read it!
    - Comments welcome
    - We will have to iterate again anyway to think about HDMI and possible opto/magneto isolation schemes on the LDA
  - Have some quotes from a company (Enterpoint) who could make the LVDS interface/drivers for LDA with or without isolation (arrived this morning)
    - Turnaround time is ~weeks, so (in principle) can get samples on short timescales