



FNAL test beam planning



- ◆ Goal: measure efficiency and resolution of 2 R-R and $\phi-\phi$ sensor planes partially irradiated and including PR04 and PR05 sensors:
 - Important input on behavior of sensors in the early LHCb operation
 - Important input on behavior of replacement sensors being produced NOW



What we need (VELO readout and control)

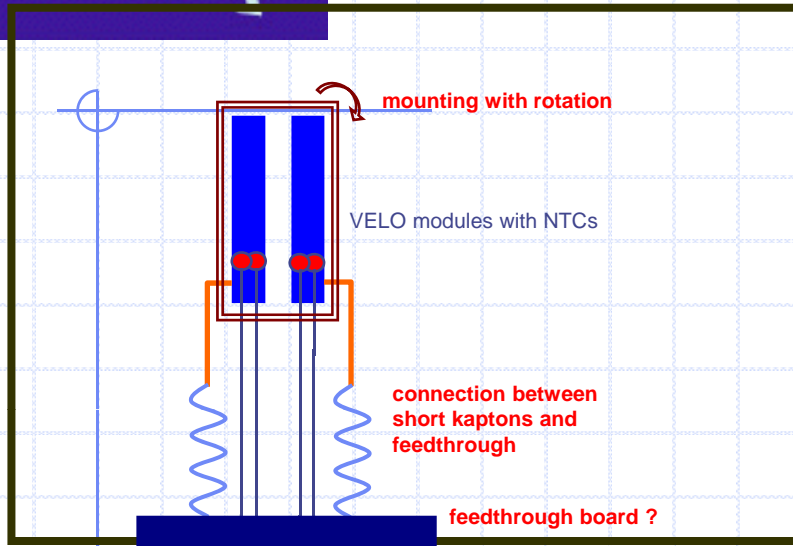


- ◆ Modules:
 - Sensors
 - Hybrids
 - Module mechanics (mounting, cooling, rotation mechanism)
 - Interconnects (short kaptons, long kaptons mock-up, feed-through...)
- ◆ VELO DAQ (repeater cards, tell1)
- ◆ VELO Monitoring (temperature, standalone with DVM & Labview)
- ◆ VELO Interconnect (to repeater cards + data cables)

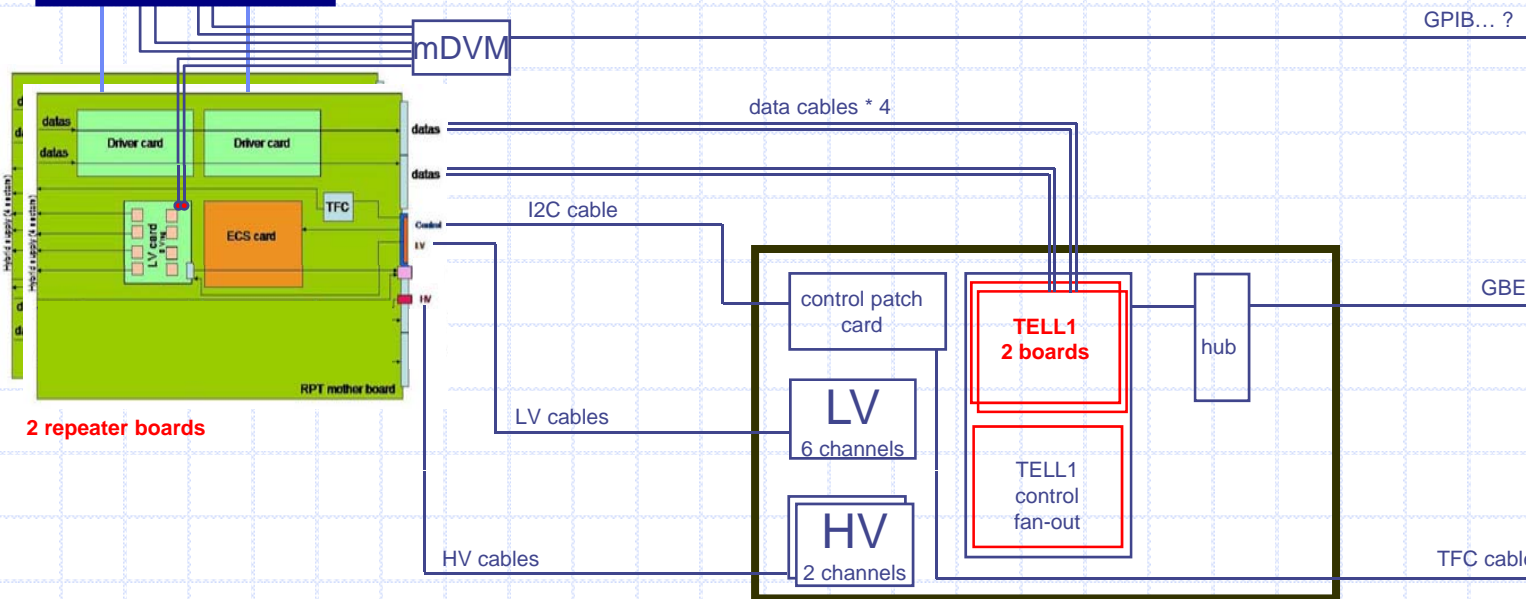


What we need (pixel telescope)

- ◆ 4 stations (2 precision xy points)
- ◆ Pixel DAQ (see next slide)



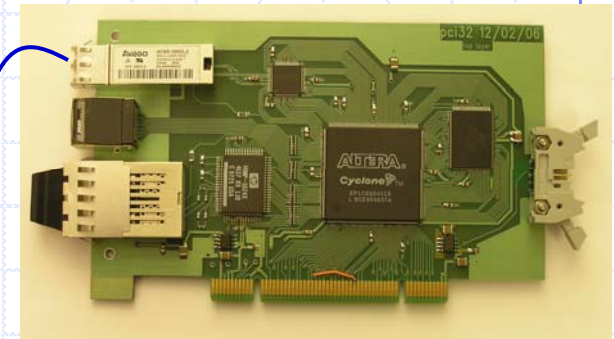
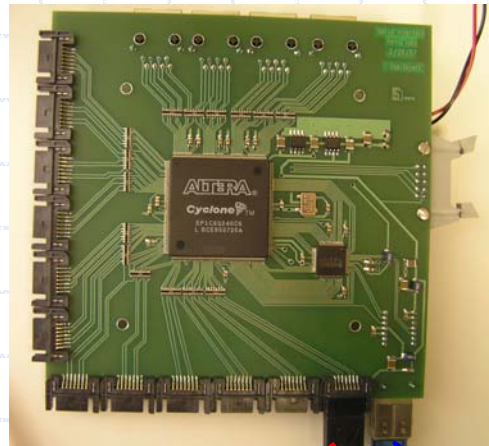
Lots of details need to be ironed out on velo mechanics and interconnections- discussion started this week



To DAQ PC

Router

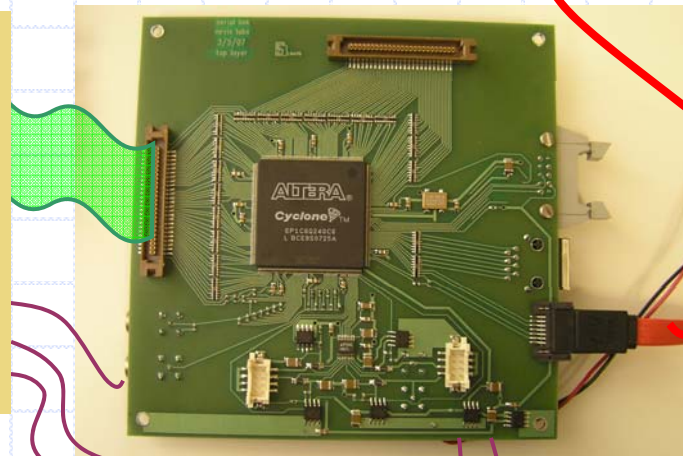
Relay commands & responses.
Collect and merge data.



PCI card

Send out commands.
Receive data, external trigger,
& timing control.

Pixel module



SLink

Relay commands & responses.
Collect & merge data.
Add time tag, chip ID headers.



Hardware Need and Status

Subsystem	Status	Responsible Person/Institution
Pixel Modules	In production	D. Christian FNAL
Pixel DAQ	In production, firmware needs debugging and optimization	D. Christian FNAL
Velo Modules	Ready	T. Affolder, Liverpool
Velo Modules Mechanics and Interconnections	Short Kaptons available, mock long kaptons in production, integration in test beam box, rotation and translation mechanism	T. Affolder, Liverpool CM Lei, Fermilab
Velo DAQ (1 tell1 crate, 2 tell1 boards, repeater cards)	Tell1 crate borrowed from Liverpool	G. Lefeuvre, Syracuse, TBA (Glasgow?)



What we need (software)

- ◆ Online pixel DAQ [needed for 1st week in May] & pixel-VELO integration (JC, Tomasz S)
- ◆ Monitoring software (JC, Gwen)
- ◆ Standalone tracking (JC)
- ◆ Interface between standalone tracking and VELO description (JC/Tomasz)



Schedule

- ◆ Phase 1 tell1/pixel daq synchronization
 - Needs: Tell1 crate & board needed, timing interconnection, pixel daq
 - Preferred time: last week in April, may need to be 1st week in May due to tell1 crate/pixel daq availability schedule
- ◆ Phase 2 tb data with 2 pixel stations (expected for the 1st week in May)
 - In parallel: full commissioning of VELO DAQ (calibration, time alignment, functionality test)Dummy hybrid & all cables, repeater cards, and tell1 boards are needed for this test.

Schedule continued

- ◆ Data taking with full pixel telescope (2nd week in May)
- ◆ Installation and IV test of the 2 velo modules (end of 2nd week in May-beginning of the 3rd week)
- ◆ Data taking:
 - Commissioning of the VELO/pixel data integration
 - 3 different VELO positions to have full detector coverage, ~5 angles 0-20°, all of them with HV scans to check operation partially depleted are likely to take > 1 week of data taking (~1 week)
- ◆ We want to do a lot, and we have a lot to do to get there



In addition

- ◆ Weekly meeting on Monday at 9AM EDT
- ◆ TB web page maintained by Gwen
- ◆ Shift personnel (to get final ID, radiation training,...)
- ◆ Additional components non listed are commercially available and are being collected