

# NEWS on LHCb 40MHz upgrade

- Progress in most subdetectors
- 40 MHz readout Architecture specified in a document (ask Ken for preliminary wider circulation?)
- In general upgrade electronics meeting of June 10<sup>th</sup>

<http://indico.cern.ch/conferenceDisplay.py?confId=93393>

- Important first presentation on link between Tell40 and DAQ
- Initial discussions on ECS for TELL40 => extended in meeting to a more general discussion on ECS for front-end
- Both points will result on request of information and therefore work from subdetectors => calo group

# ECS (I)

- **For calo (and most subdetectors) the ECS uses presently the SPECS**
- **In the GBT “standard” there are 80 bits of data + 2 bits for GBT control + 2bits for ECS. A two fiber GBT system has two bits in each direction. The two bits can be equivalent to the two twisted pair of the specs or I2C long distance.**
- **In principle on could foresee special ECS40 cards with fibers replacing SPECS master. The GBT “consortium” would provide a chip doing the interface between the GBT and I2C/JTAG drivers. This would replace SPECS slaves**
- **We should minimize work and find way to use ECS on present cards which do not need to be replaced**

# ECS(II)

- In principle Daniel not available for ECS of 2016 but we asked for his advice => 4 solutions to minimize work
- 1) Emulate the specs master protocol in the ECS40 cards then connect the two bits from GBT to entrance of specs mezzanine
- 2) all GBT solution => reprogram glue and mezzanine firmware in cards which are reused (validation + LEDTSB + CW + current readout?) Specs protocol replaced by I2C
- 3) All SPECS solution => keep SPECS and implement specs glue in new FE boards
- 4) mixed solution => keep specs alive for “old cards” use GBT for new cards. But only one bus in backplane???
- HOW do we organise study?

# Tell 40 and data flow simulation

- **There will be a request to test general data flow**
- **Each subdetector should simulate succession of events and give file**
- **For us, if we keep the packing algorithm presented before, it would be a succession of groups of 350 events including a certain beam bunch structure.**
- **How do we organize this? What is the timescale?**

# PS/SPD : to upgrade or not to upgrade!

- **Work done on quantifying role of PS/SPD on trigger**
- **Study of PS role in particle ID to be completed**
  - **Photon at high Et and low Et**
  - **Electron ID**
- **Estimate of difficulty of upgrade... Zero suppression... number of links**

# LOI : calorimeter section

- **Next slide taken from Frederic presentation 10/03/2010**

# What could contain a “LOI” type document (I) ?

- We could imagine a calo part including
  - a Section on pile-up issues at  $10^{33}$  or  $2 \times 10^{33}$  and performances
  - a Section on possible system of readout electronics
  - a Section on Proto tests
  - a Section on radiation issues
    - Existing knowledge
    - Already planned new tests
    - Possible change ?
  - Cost estimation
  - Planning

# LOI

- **Received draft from Frederic on pileup**
- **JL => introduction to be released this week!**
- **Text from Barcelona on amplifier integrator**
- **Plans?**