

LHCb Outer Tracker Electronics 40MHz Upgrade

Intro

LHCb OT upgrade , intro



Outer Tracker detector

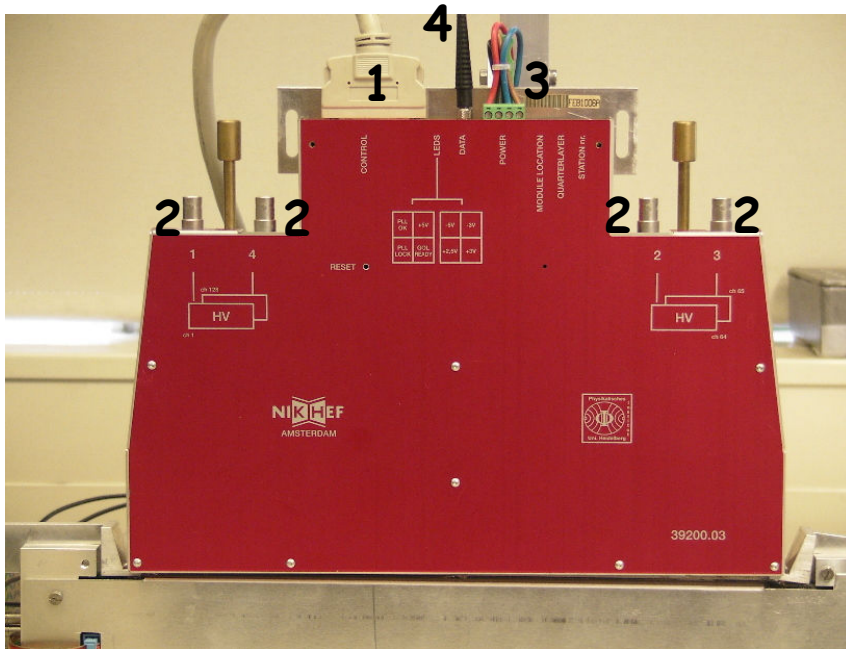
- We are studying the 40 Mhz Upgrade of the LHCb Outer Tracker detector with 432 Front Ends of 128 channels

The digital output is:

the signal arrival times (4/5bit per straw)
They tell where the straw was hit.
Max design straw hit occupancy is
5% now, 25% future

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Which connections will be new for each of the 432 OT-Front Ends?

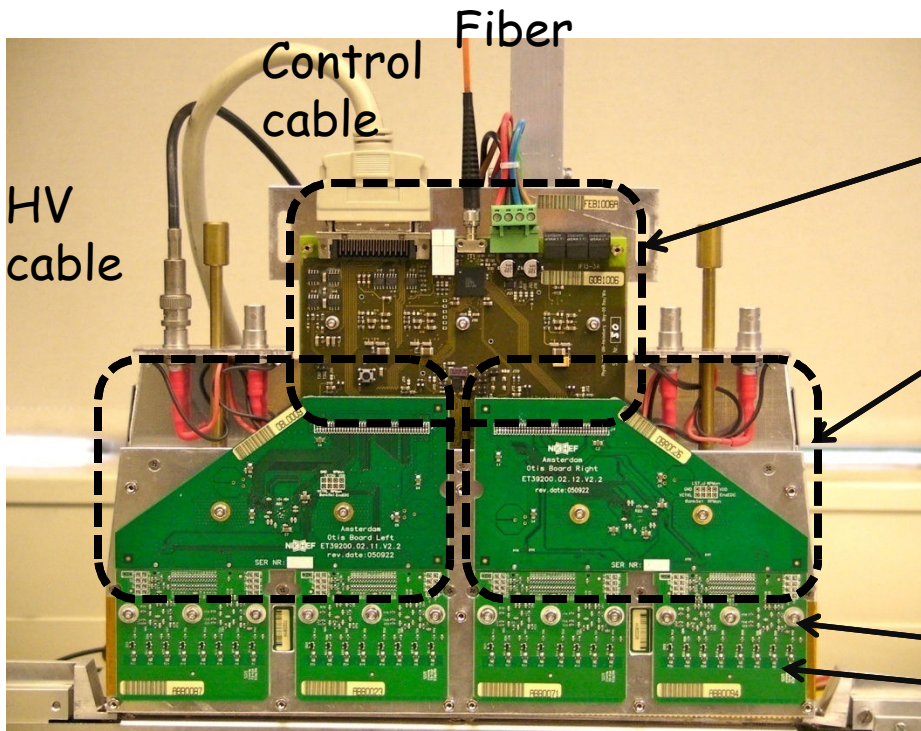


Outer Tracker Front End

- **INPUTS:**
 - 1: multi wire cable with control (slow and fast) clock resets etc temp's
NEW: Versatile Link
 - 2: HV for wires 1.5KV
 - 3: Low Voltage Supply
- **OUTPUT:**
 - 4: DATA FIBER 1.2 Gbps
NEW: RIBON

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So what must be NEW ?



Front End Boards

1. GOL/AUX board= FE interface board
NEW: GBT , Opto , reg
2. Otis board = TDC board
NEW: FPGA's , adc and dac
-high speed output
-Zero suppress
3. Optical communication system

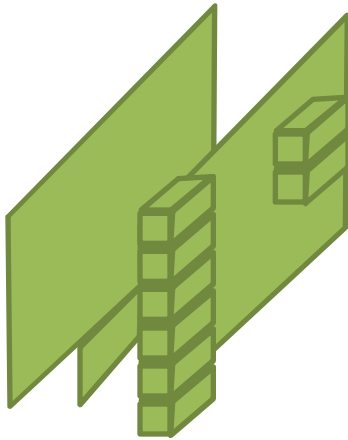
Same:

ASDBLR board= Amp /discriminator board

Inside: HV signal separation board=
incl Detector interface to 128 straws



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PCI card
with stratix

Mezzanine card
With 8 versatile links

Receiving side:

**Heidelberg/Dortmund are working on
PCI mezzanine card for an Altera board,
for receiving 8 versatile links**

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Added Talks about :

1. TDC in Actel FPGA
2. GBT-Aux evaluation board
3. Photonics Outer tracker