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Testbeam 2008 - Data Analysis

Meetings

Date	Meeting	URL
25/08/08	TB meeting	http://indico.cern.ch/conferenceDisplay.py?confId=38277
18/08/08	TB meeting	http://indico.cern.ch/conferenceDisplay.py?confId=38276
15/08/08	VELO meeting	http://indico.cern.ch/conferenceDisplay.py?confId=38235
11/08/08	TB meeting	http://indico.cern.ch/conferenceDisplay.py?confId=38275
08/08/08	VELO meeting	http://indico.cern.ch/conferenceDisplay.py?confId=38234
04/08/08	TB meeting	http://indico.cern.ch/conferenceDisplay.py?confId=38274
21/07/08	TB meeting	http://indico.cern.ch/conferenceDisplay.py?confId=38263
18/07/08	VELO meeting	http://indico.cern.ch/conferenceDisplay.py?confId=38231
14/07/08	TB meeting	http://indico.cern.ch/conferenceDisplay.py?confId=37795
11/07/08	VELO meeting	http://indico.cern.ch/conferenceDisplay.py?confId=37767
04/07/08	VELO meeting	http://indico.cern.ch/conferenceDisplay.py?confId=37238

Benchmark Datasets

A series of datasets will be used for "benchmark analysis". There are available in .mdf, .root or .bin formats.

Contact K. Hennessy

Any data set can be used - this will just help you compare results with colleagues!

Datasets on CASTOR

***Noise data:** RR-pulser-larscfg-HV500-HV500-20080625-153410.mdf*

Test pulse data:

N+n unirradiated/N+n irradiated:

For information on how to use CASTOR (listing, copying etc) see their help pages.

Dataset Formats and decoding

mdf: decode using VETRA

stored in /castor/cern.ch/lhcb/testbeam/lhcbvelo/fnalTB/FNALTestBeam/data1/velo/

ntuples: use root!

stored in /castor/cern.ch/lhcb/testbeam/lhcbvelo/fnalTB/FNALTestBeam/data1/velo/ntuples/

bin: data format:

```
struct rec{
    int evt;
    int pcn5;
    int pcn8;
    float adcs5[2048];
    float adcs8[2048];
    float head5[256];
    float head8[256];
};
```

stored in /castor/cern.ch/lhcb/testbeam/lhcbvelo/fnalTB/FNALTestBeam/data1/velo/bindata/

Comments:

***10/July/2008:** We note that PCN numbers for TELL5 and TELL8 are out of sync in Noise data set*

p1v1p2.PNG

Also spot that header cross-talk appears to be anomalous for TELL8. The PCN for TELL5 feeds the bits as expected. For TELL8 least significant bit seems to be swapped. Investigating. For those who desire to know what PCN is - its the pipeline column number for the Beetle. It is encoded in 8 bits at the beginning of every output on the chip (4 output/cjip), 2 bits before each channel is read. The PCN "feeds through" into the observed ADC signals in the first and second ADC channels and must be removed.

PCN decoding First ten events Vetra left, Karol right. These are for TELL5

```
114 117
84 147
163 68
212 19
104 127
74 157
153 78
231 0
123 108
93 138
```

11/July/2008: Suggested solution to PCN problem (thanks to Lars!).

Lars points out that the PCN# as readout from the TELL1 is from the beetle emulation i.e. is not necessarily forced (at this time) to be the same as the hardware number in the Beetles.

The numbers we were using from Vetra were the FEM PCN which is decoded on the Tell1 and were comparing them to the numbers we got from the header ADCs. We thought the FEM and the module beetles have the same PCNs but that's not necessarily the case. And the Tell1s are reset at slightly different times so the FEM pcns are different but the module beetles get their pcn from only one Tell1 (Tell8 which sends all the control signals) so they should be the same for both modules (and this is confirmed in the data).

So we see a difference in FEM pcns which is due to a delay (from ssh-ing from richdaq to the two Tell1s and configuring) ,

and we see the same pcn on the module Beetles because they receive the same signal at the same time from Tell8.

-- KarolHennessy - 10 Jul 2008

This topic: LHCb > DATAANALYSIS2008

Topic revision: r11 - 2008-10-13 - GwenaelleLefevre



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