

Introduction

- CDB code changes
 - ▷ Tile Quality
 - ▷ Pixel Quality
 - All in mu3eUtil/cdb (dev), many thanks to **Mark Grimes**
 - ▷ Pixel Time Calibration: pushed to branches "correlate-CDB"
- CDB payload additions
 - ▷ David's metrology-improved pixel sensor alignment
 - ▷ Mikio's cosmics-improved pixel sensor alignment
 - ▷ Elizaveta's tiles quality
 - ▷ Replaced all pixelqualityLM payloads
- RDB changes
 - ▷ fibres good runs list included
- CDB backends all uptodate and sync'ed
 - ▷ pc11740 (REST/mongo)
 - ▷ merlin7:/data/project/mu3e/cdb (JSON)
 - ▷ mu3ebe:/data/mu3e/cdb (JSON)

Tile Quality

- `calTileQuality.cc`
 - ▷ current contents
 - channel ID
 - quality
 - "Good"
 - "Dead"
 - "Noisy"

The screenshot shows the MU3E CDB Browser interface. At the top, it displays "MU3E CDB Browser" in a browser window titled "Not Secure pc11740.psi.ch/cdb/".

Global Tags

- Filter global tags...
- qc2024v1.0
- datav6.1=2025Beam
- datav6.2=2025Beam
- datav6.2=2025CosmicsNoMagnet
- datav6.3=2025V1test
- datav6.3=2025V0**
- datav6.3=2025V2test

Tags datav6.3=2025V0

- pixeltimecalibration_datav6.3=2025V0
- detsetupv1_datav6.3=2025V0
- tilequality_datav6.3=2025V0**
- tilealignment_datav6.3=2025V0
- fibrealignment_datav6.3=2025V0
- mppcalignment_datav6.3=2025V0
- pixelalignment_datav6.3=2025V0

Payloads tilequality_datav6.3=2025V0 (Total IOVs: 13) (13 payloads)

IOV	Date	Comment	Schema
4597	11/25/2025, 8:39:27 AM	Elizaveta's tile quality as of 2025/11/18	ui_id_i_qual
4494	11/25/2025, 8:39:26 AM	Elizaveta's tile quality as of 2025/11/18	ui_id_i_qual
4493	11/25/2025, 8:39:25 AM	Elizaveta's tile quality as of 2025/11/18	ui_id_i_qual
4489	11/25/2025, 8:39:25 AM	Elizaveta's tile quality as of 2025/11/18	ui_id_i_qual
3361	11/25/2025, 8:39:24 AM	Elizaveta's tile quality as of 2025/11/18	ui_id_i_qual
3355	11/25/2025, 8:39:23 AM	Elizaveta's tile quality as of 2025/11/18	ui_id_i_qual
3347	11/25/2025, 8:39:23 AM	Elizaveta's tile quality as of 2025/11/18	ui_id_i_qual

Detconfigs Summary

Tag	Files	Actions
tdac_files_bu_06_06_tuning_first	109	[Download] [Delete]
tdac_files_bu_06_10	109	[Download] [Delete]
tdac_files_bu_2025_06_04	109	[Download] [Delete]

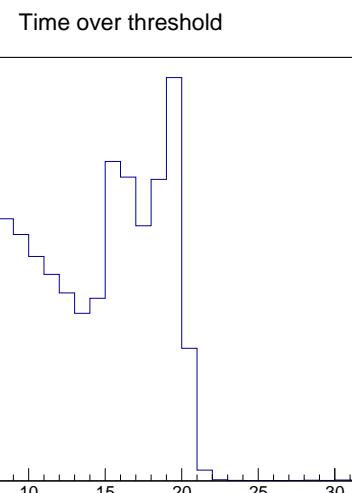
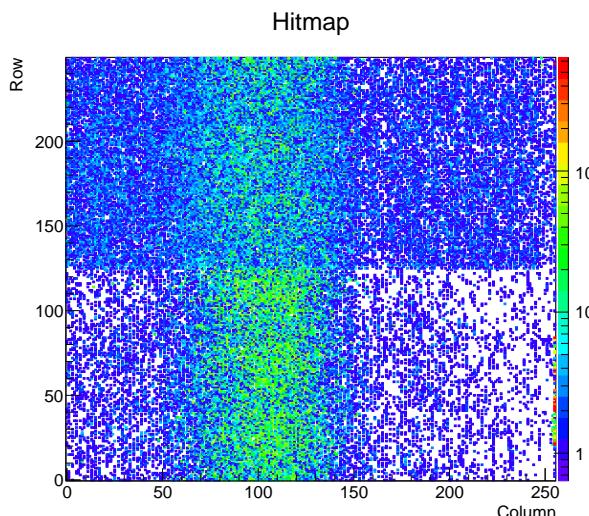
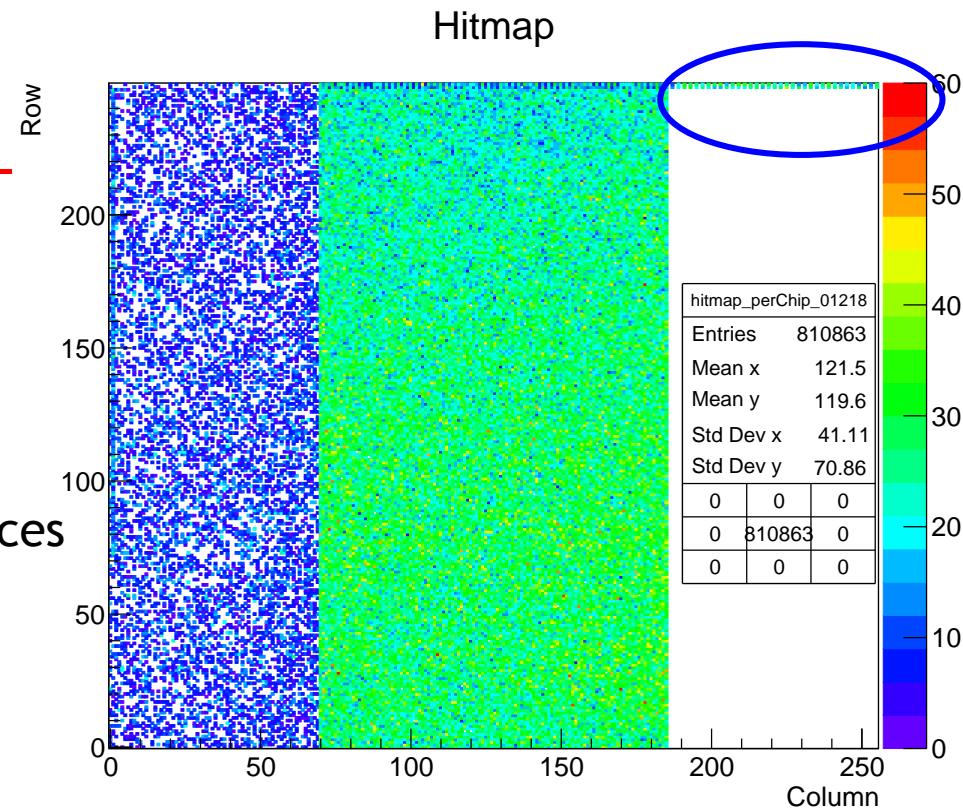
- Interface quite simple currently
 - ▷ `calTileQuality::getChannelQuality(uint id)`

Pixel Quality

- calPixelQualityLM
 - ▷ chip subMatrices without hits (but unmasked links) flagged as such (this was a bug)
 - ▷ all payloads have been updated
 - many thanks to Haris
- Algorithm
 - ▷ **links:** Use LVDS errors from midas meta data and hit counts
 - "3" if link data mean row position < 10 or > 245 (cf next slide)
 - "4" if link has LVDS error rate > 10 Hz or (unmasked) 'E'
 - "5" if other unmasked link has LVDS error rate > 10 Hz
 - "8" if no hits on link (**recovered code**)
 - "9" if link masked
 - ▷ **columns:** determine average column hit count
 - "9" if column hit count $< 10\%$ of average (**not for cosmics!**)
 - "3" if more than 40 noisy pixels in column
 - ▷ **pixels:** determine average chip hit count
 - "1" if pixel hit count $> 10\sigma$ above average
 - improvements possible!

Pixel pathologies

- Run 4756, chip 1218
 - ▷ immaculate MIDAS metadata
 - ▷ overflow would be useful (Mark?)
 - ▷ cannot be flagged currently
 - regions not aligned w/ chip submatrices
- Also: run 4756, chip 1089
 - ▷ ToT distribution inconsistent with other "good" chips
 - ▷ 1284 "noisy" pixels, 18 "suspicious" columns
 - ▷ unclear how to diagnose this reliably - `hitmap(!)` looks OK for other runs



Summary/Outlook

- pixelquality should provide better MC/data agreement now
(I guess Haris will show these plots)
- Two new alignment settings available:
 - ▷ `datav6.3=2025V0` ideal MC alignment
 - ▷ `datav6.3=2025V1test` David's metrology-improved alignment
 - ▷ `datav6.3=2025V2test` Mikio's cosmics-improved alignment
 - ▷ **Test it with your physics code**

```
login001>../_build/mu3eTrirec/mu3eTrirec --conf ./trirec_twolayer_beam.conf \
--cdb.dbconn=/data/project/mu3e/cdb --cdb.globalTag=datav6.3=2025V0 \
/data/project/mu3e/data/2025/trirec/250829/006/run06300-sorted.root --output ./test.root
```

```
login001>../_build/mu3eTrirec/mu3eTrirec --conf ./trirec_twolayer_beam.conf \
--cdb.dbconn=/data/project/mu3e/cdb --cdb.globalTag=datav6.3=2025V1test \
/data/project/mu3e/data/2025/trirec/250829/006/run06300-sorted.root --output ./test.root
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```

- Outlook
 - ▷ fibre quality (indexed by ASIC number, not channel)
 - ▷ use good-runs list of tiles and fibres for insignificant run list