

ROC killing via SiPixelQuality DB at the digitizer and raw2digi level

Tamas Almos VAMI

Wigner RCP IPNP, Hungarian Academy of Sciences, Budapest

Pixel offline meeting, April 2, 2015



- Recently the question arose whether we can switch modules off in the raw2digi step
- I wanted to examine whether we can do it at ROC level as well



- 1 An empty SiPixelQuality payload (1)
- 2 GEN-SIM-DIGI-DIGI2RAW using (1)
- 3 A non-empty SiPixelQuality payload (2)
- 4 RAW2DIGI-RECO using (2)
- 5 GEN-SIM-DIGI-DIGI2RAW using (2)
- 6 RAW2DIGI-RECO without SiPixelQuality
- 7 Comparing the maps



Howto?

In the digitizer step

```
import CalibTracker.Configuration.Common.PoolDBESSource_cfi
# ----- SiPixelQuality -----

process.SiPixelQualityDBReader = cms.ESSource("PoolDBESSource",
    BlobStreamerName = cms.untracked.string('TBufferBlobStreamingService'),
    DBParameters = cms.PSet(
        messageLevel = cms.untracked.int32(0),
        authenticationPath = cms.untracked.string('')
    ),
    connect = cms.string('sqlite_file:SiPixelQuality_v23_3.db'),
    toGet = cms.VPSet(
        cms.PSet(
            record = cms.string('SiPixelQualityFromDbRcd'),
            tag = cms.string('SiPixelQuality_v23')
        )
    )
)
process.es_prefer_Quality = cms.ESPrefer("PoolDBESSource", "SiPixelQualityDBRead
#-----
```



Howto?

In the raw2digi step

- For more details see the pdf:
"Usage of the SiPixelQuality DB"

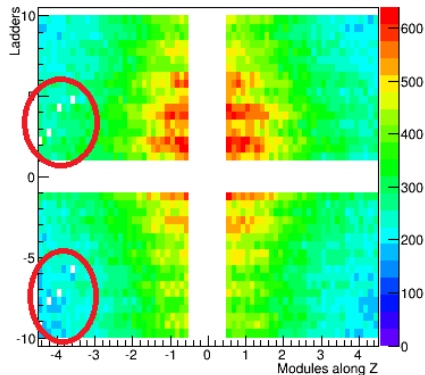
```
process.siPixelDigis.UseQualityInfo = cms.bool(True)
import CalibTracker.Configuration.Common.PoolDBESSource_cfi
# ----- SiPixelQuality -----

process.SiPixelQualityDBReader = cms.ESSource("PoolDBESSource",
    BlobStreamerName = cms.untracked.string('TBufferBlobStreamingService'),
    DBParameters = cms.PSet(
        messageLevel = cms.untracked.int32(0),
        authenticationPath = cms.untracked.string('')
    ),
    connect = cms.string('sqlite_file:SiPixelQuality_v23_3.db'),
    toGet = cms.VPSet(
        cms.PSet(
            record = cms.string('SiPixelQualityFromDbRcd'),
            tag = cms.string('SiPixelQuality_v23')
        )
    )
)
process.es_prefer_Quality = cms.ESPrefer("PoolDBESSource", "SiPixelQualityDBRead
#-----
```

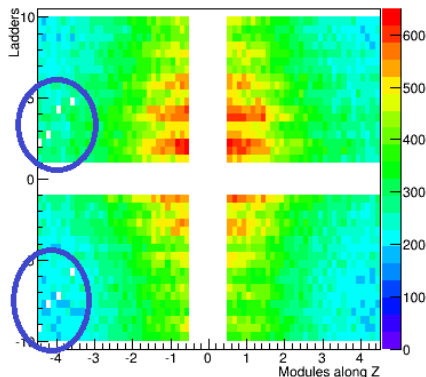
BPix comparison - Layer 1

ROCs switched off

Layer 1 @digitizer



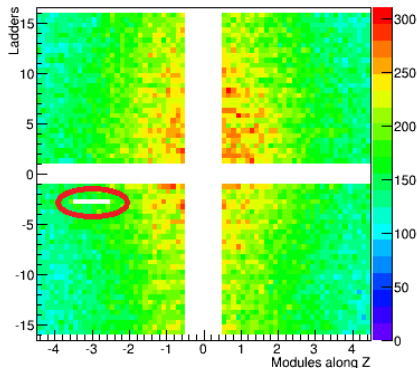
Layer 1 @raw2digi



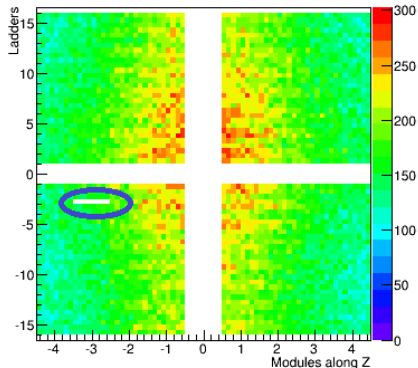
BPix comparison - Layer 2

Half module switched off

Layer 2 @digitizer



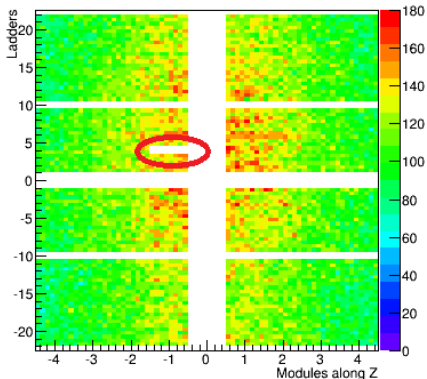
Layer 2 @raw2digi



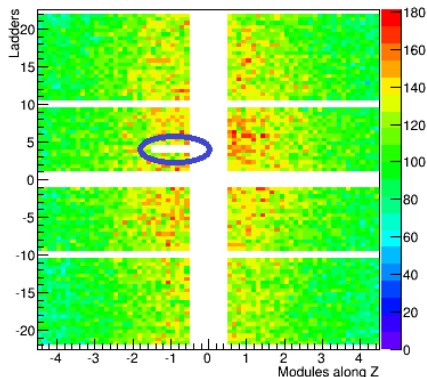
BPix comparison - Layer 3

Whole module witched off

Layer 3 @digitizer



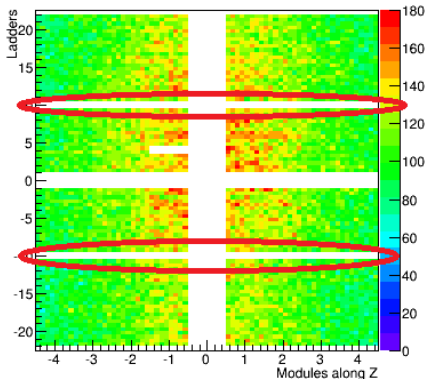
Layer 3 @raw2digi



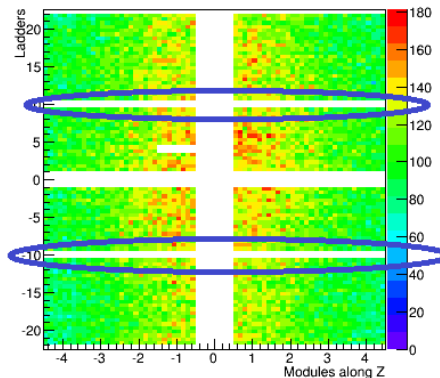
BPix comparison - Layer 3

Whole ladder witched off

Layer 3 @digitizer



Layer 3 @raw2digi

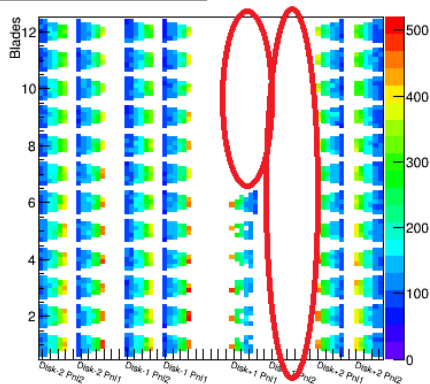


FPix comparison - Inner Shells

ROCs and whole modules switched off

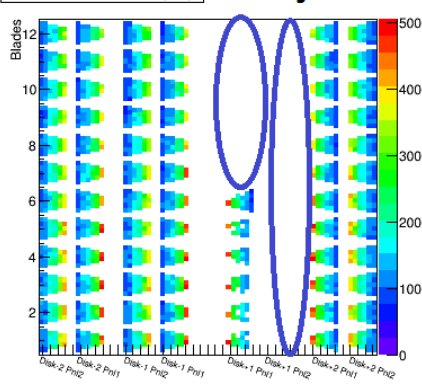
FPix Inner Shells (+x)

@digitizer



FPix Inner Shells (+x)

@raw2digi

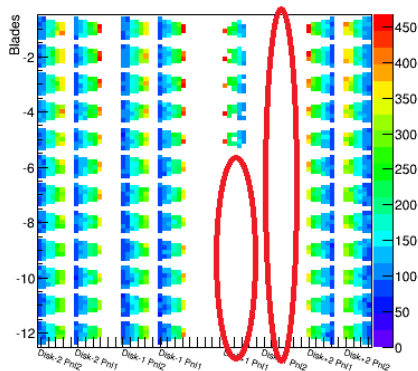


FPix comparison - Outer Shells

ROCs and whole modules switched off

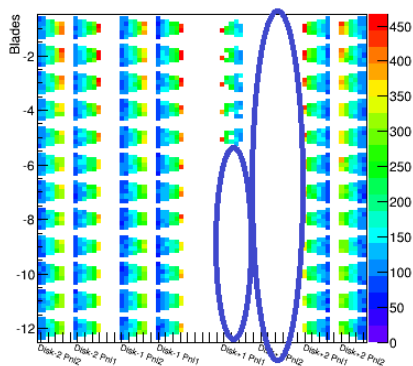
FPix Outer Shells (-X)

@digitizer



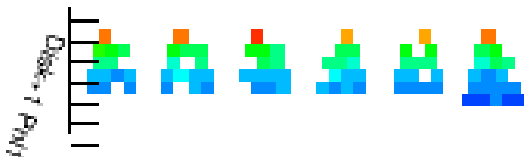
FPix Outer Shells (-X)

@raw2digi

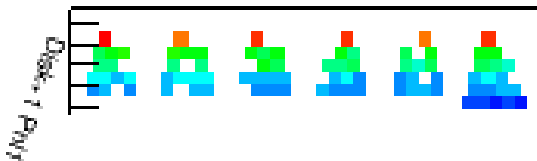


FPix comparison - Zoom in

ROCs switched off



@digitizer



@raw2digi



- It is possible to switch off individual ROCs in the raw2digi as well
- The two methods have the equivalent effect

