

## Raw event size

Geo tag: 1r16

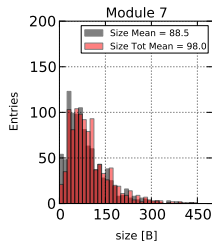
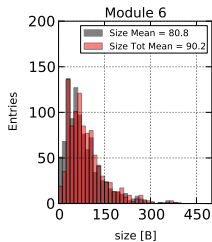
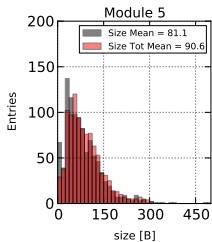
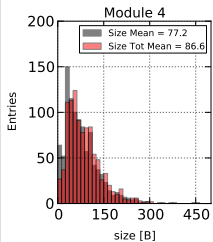
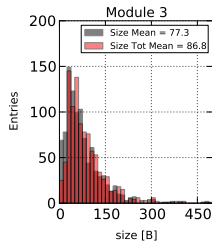
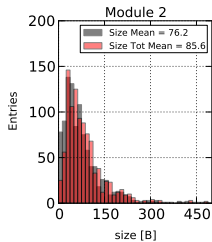
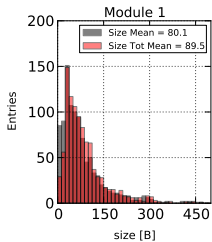
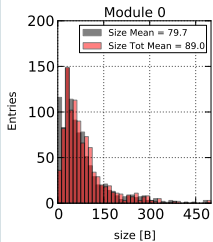
Digi tag: 0r2

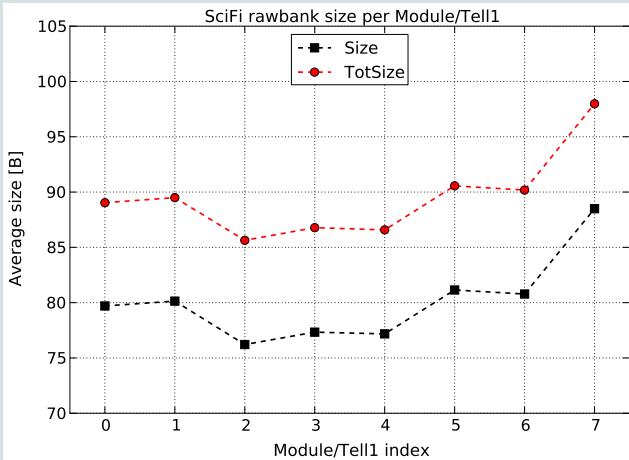
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- **Initial estimate of the raw event size**
- Disclaimer: the used digitization algorithm is as simple as possible
  - The clusters are made of 2 strips (most of the times)
- Digitized 1000 BGV events
- mdf file **on disk**: 535 kB
- Checked the raw banks size **in memory**
  - 3 bank types are present, with the following average size
    - totSize includes bank header and uint padding, see <https://indico.cern.ch/event/301212/contribution/2/material/slides/0.pdf>
  - **SciFi**: 641/716 kB (size/totSize)
  - **DAQ**: 48 kB (totSize)
  - **ODIN**: 40 kB (totSize)
  - **Sum**: 804 kB
- Discrepancy between disk and memory sizes not understood
  - All sizes/representations include padding?

# SciFi raw bank

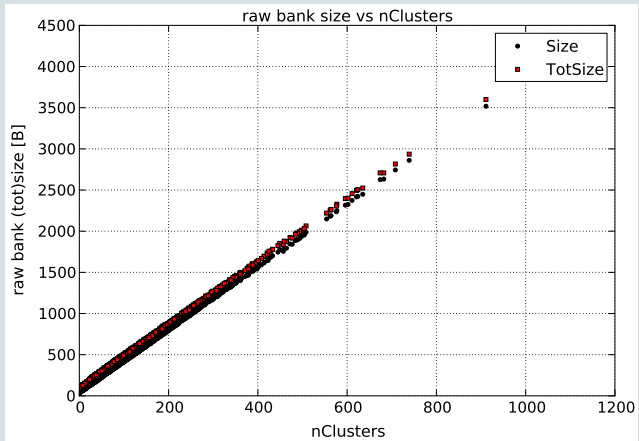
RawBank size per TELL1 [Bytes]

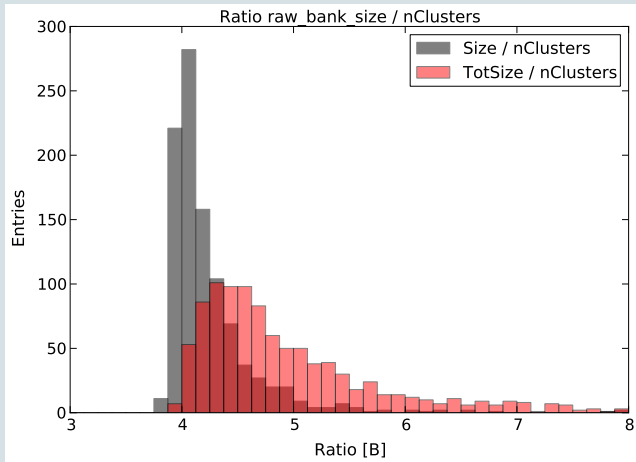




- Observation

- $\sim 20$  clusters/module and  $\sim 4$  kB/cluster (see last slide)
- $\sim 160$  clusters/event ( $\Rightarrow 640$  kB/event)





- The expected cluster size is: 4 kB (2 strips per cluster)
  - The raw bank structure can be seen here (slide 3):  
<https://indico.cern.ch/event/301212/contribution/2/material/slides/0.pdf>

# Summary

- In the initial version of the digitization the average event size is
  - On disk:  $\sim 550$  B
  - In Memory:  $\sim 800$  B
  - $\sim 100$  B from DAQ and ODIN banks are included
    - This is “default” LHCb content; the BGV content of these banks needs to be defined
- In the real data, expect the events to be 10 – 50 % (?) larger
  - Due to clusters made of more than 2 strips
- Should be able to get a more exact values when a realistic digitization is developed