ROB seen from detector side

- Overview
- Detector Parameter table
- Definition of the ROB?
- Implementation issues
Overview

• ROB and ROD design are strongly connected
  – Mapping the front end --> number of ROB
  – ROD Data processing --> influence ROBsource “Preprocessing ?”
  – Data format --> read-out organization and ROB input bandwidth

• FE Critical Issues and Constraints
  – ROI mapping
    » before or after ROD?
    » eta variation (barrel to end cap)
  – ROD latency --> availability of data in the ROB
  – ROD - ROB relative position --> USA 15 - SXC
  – ROD- ROB Busy
  – L1 rate 75 vs 100 KHz ? --> need clarification
## Detector Parameters table

<table>
<thead>
<tr>
<th>Partition</th>
<th>Channels Count</th>
<th>FEB elements</th>
<th>ROI element</th>
<th>ROD</th>
<th>FE * bandwidth Gbit/sec</th>
<th>ROB</th>
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</table>

* assuming 75KHz L1 rate
**
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Definition of the ROB

• **What is a “ROB”?**
  – TP and DAQ-1 view: one ROB = one RIO2 like module
  – LVL2 view(s)
    » One ROB = one Buffer --> # of “ROBIN”
    » One ROB = one “source“ or one ROB complex?

• **Suggestion to solve the confusion**
  – We need a clear definition of the ROB
    » according to the evolution of the “multiROB” concept?
      --- ROB = Buffer + “local buffer manager” plus interface to the “local bus”
  – Need to get an agreement of the overall community
  – Reevaluate the Cost
    » CORE 7 = 5 KSF /ROB
    » ROBIN cost = 1.5 KSF
“MultiROB” concept

• Components
  – ROBIN= Buffer + microcontroller
  – ROBCOL= Bus (PCI) or local network
  – ROBCON = Control Processor
  – ROBOUT= Network interface
  – ROBCOP= Optional Co-Processor

• ROBIN Grouping
  – depends on detector
    » 4, 8 or 16?