PROPOSAL
for a

COMPACT ROB

based on components
of the
Region of Interest Collector
(RoIC)

http://www2.informatik.uni-jena.de/pub_kps/roic.html
Compact ROB:

* 8 ROBs / board
* 1..4 boards / PCI-bus <70 MB/s
* 1..8 PCI-bus / subdetector --> TRT: 22 PCI-bus
  Calo: 32 PCI-bus

* there are more PCI-bus per crate
* each crate has interface to supervisor, LVL 1.5, LVL 2, LVL3/DAQ
RoI-Collection (Components)

available!

S-Link

ROI fragments (from Concentrator)

104 MByte/s

2 MByte

1k events (or RoI-fragments) x 2kB size

10 ms latency

RoIC-Memory Modul
(local modul)

fragment controller

local memory controller

Memory

FPGAs (programmable)

RoIC-Control Modul
(global modul)

readout controller

global memory controller

data for monitoring

complete ROIs (to FEX)

320 MByte/s

LVL 1.5 37..52 MB/s

LVL 2 3..10 MB/s

LVL 3/DAQ 16..24 MB/s

373x220

1k events (or RoI-fragments) x 2kB size

10 ms latency

RoIC-Modul

P-KammelOctober 1997

available!
Memory Module

Region of Interest Collector (RoIC)
available:

* main ROB component: memory module
  - S-Link input
  - 104 MB/s throughput
  - 2 MB memory (1k events x 2kB size = 10ms latency)
  - static memory addressing (event-ID --> page address)
  - reconfigurable hardware (FPGAs)
  - programmable data format and control

* readout control module
  - reconfigurable hardware (FPGAs)
  - programmable algorithm
  - control up to 8 memory modules
  - manage LUT with data-header information from all memories
  - currently interprete data-header for readout instructions
  - monitoring output

to develope:

* network connecting 8 memory modules to PCI
* interface from readout control module to PCI
* modified readout algorithm:
  - now interprete requests from supervisor (via PCI)
  - save events that exceed 10 ms latency

advantages:

* can be realised with current technology
* simple and cheap
* scalable