Detector Data Buffering and Readout to Level 3

Detector "A" Event Data to Level 3 via Ethernet

SBC VME Card

VME Backplane

Typically 8 Stages

FIFO Buffer Holds Events Accepted by L2 and now Awaiting Their Turn to be Read by the SBC

Typically 16 Stages

FIFO Buffer Holds Events Awaiting Their L2 Decisions

L2 Acpt.

Level 2 Decision Controls this Switch

L2 Full Signal

Typically 32 Stages

Holds Detector Data Awaiting the L1 Decision

Location of this Top is Adjusted to Fit the Level 1 Latency

Discard the Detector Data Not "Captured" by an L1 Acpt., i.e. 99.9% of it.

Write

Read

Beam Crossing History Shift Register

132 nsec Clock i.e. BX Rate

Level 1 Accept from the Trigger Framework via the Serial Command Link

A Level 1 Accept Causes an Event to be Loaded into the buffer that holds events that are awaiting their Level 2 Decisions.

Level 1 Busy to the Trigger Framework via the Serial Command Link

When Asserted the Trigger FW Must Pause Issuing L2 Decisions if the L2 Decision about to be Issued would Send on L2 Accept to this Geographic Section.

When Asserted the Trigger FW Must Disable All L1 Triggers, the Firing of which would Send Additional L1 Accepts to this Geographic Section.

L2 Decision Accept/Reject from the Trig FW via the SCL

L2 Busy to the Trig FW via the SCL

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