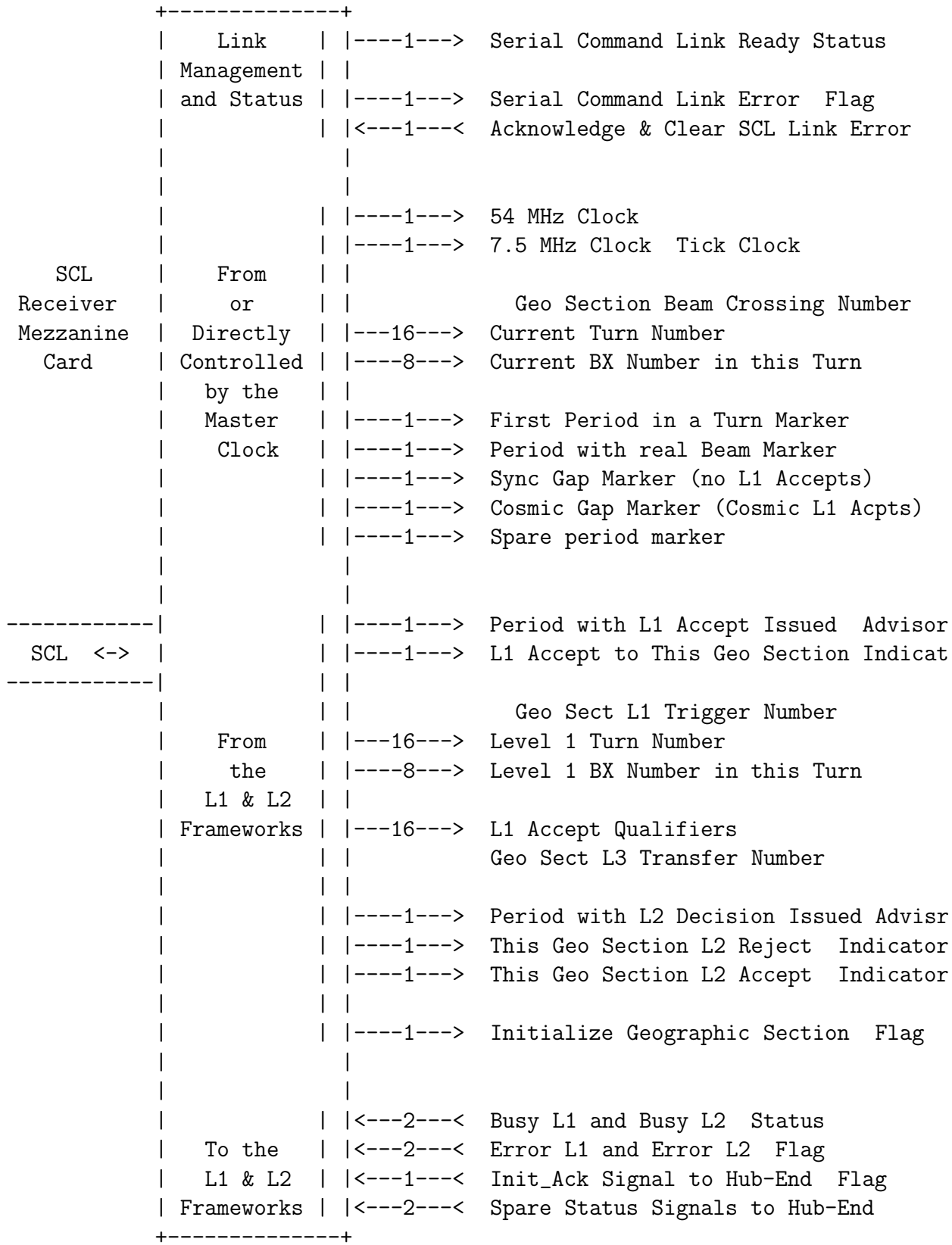
Timing and Control Signals in the
Run IIB Level 1 Calorimeter Trigger

D-Zero Trigger Presented by D. Edmunds 25-APR-2002

The purpose of this talk was just to continue the discussion about the generation and distribution of Timing and Control Signals to all the crates in the Run IIB L1 Calorimeter Trigger.

- Classes of Timing and Control Signals:
  - Signals that always repeat the same pattern every tick, i.e. every 132 nsec.
  - Signal that do something special for just some ticks, e.g.
    - L1 Accept
    - Insert Test Pattern on this tick
    - Capture Monitor data on this tick
- How to implement:
  - What pins on what connector ?
  - What signal levels ?
  - How to fanout ?
- Specification of signal quality:
  - How much jitter can you stand (and still operate your serial links) ?
  - How stable wrt the beam crossings ?
  - How isochronous must all the crates be ?
- Sources of the Timing and Control Signals:
  - SCL Receiver
  - Common Control and Fanout Module ?
- Uses of the Timing and Control Signals:
  - Support normal Physics Triggering operation of the L1 Cal Trig
  - Support testing of the L1 Cal Trig
  - Support separate testing of the ADC part and the Digital part ?

SCL Receiver Mezzanine Card Showing Its I/O Connections



There are two basic documents about the SCL. The description of the information that is sent over the SCL is in:

`http://www.pa.msu.edu/hep/d0/ftp/scl/scl_description.ps`

The other document is:

`http://d0server1.fnal.gov/users/baldin/public/gs_spec1.eps`

This explains the "operating rules" that all Geographic Sections (i.e. crates that plug into the SCL) must follow.

The electrictronics details about such things as the SCL Receiver can be found at:

`http://www-ese.fnal.gov/d0trig/default.htm`