SVT Synchronization

SVT is a data-driven pipeline:

- Assumes FIB and XTRP send one event per L1A, and no others
  - No data in, none out
  - One event in, one out ASAP
  - STOP: no action (FIB input stopped)
  - RECOVER: FIFO's and FSM's are reset
  - RUN: resets dropped, live immediatly ($< 0.5\mu$s)
  - If any input stream is missing, SVT will hang, waiting, until a timeout when it will continue in an error condition
  - Doesn't monitor or react to B0 signal or trigger signals†
- Assumes L2 will wait for SVT result (up to a L2 time-out)
  - Events will vary in processing time

→ SVT does not need to be synched

(† One exception under consideration: if L1 trigger bits could be sent to the track fitters, they could process lesser quality tracks for lower rate triggers. SVT would expect one L1 word per L1A.)

SVT bunch number processing:

- Bunch number checked for internal consistency in each event
  - FIB prepends bunch number to each of 360 data streams
  - As data streams are merged in SVT, the bunch numbers are checked against each other
  - If not in synch, the error is reported
- Bunch number in data stream is not checked against trigger signals
- In each event the merged bunch number is:
  - sent to L2
  - stored in L2 event record