Track Lists in Level 2

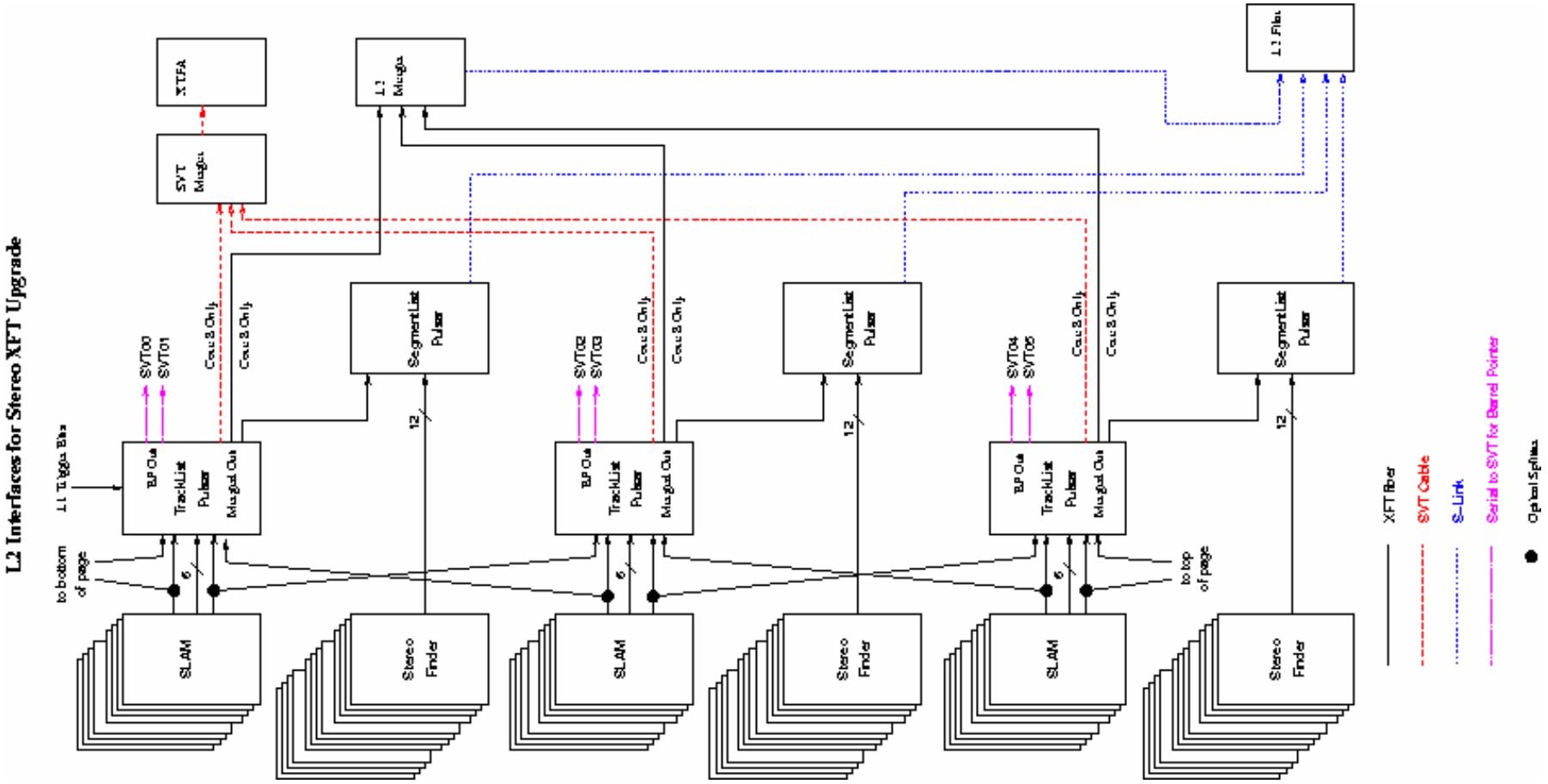
- Outputs from SLAM provide lists of tracks faster than the current path to SVT and Level 2 via XTRP
- Sparsify lists of tracks based on L1 bits
- Other applications:
  - Sparsify list of segments passed to Level 2
  - Barrel pointer for SVT
- Specification draft:

  http://www.physics.purdue.edu/~mjones/xft/ttl2_Nov10_2005.ps

Level 1/Level 2 XFT Interfaces

- Two main functionalities, each implemented using 3 Pulsar boards:
  - **Segment List**: concatenate segments from stereo finders and send to Level 2
  - **Track List**: concatenate tracks from SLAM boards and send to various places
- Connected together as shown...

It might be easier to look at the draft of the note...



Track List path to Level 2

- Track List Pulsars receive tracks from SLAM modules
- Sparsify based on Level 1 trigger bits
  - If no subsequent path requires lower p_T tracks, don't bother to send them to Level 2.
- Order tracks by φ, send to Level 2 merger
- Level 2 merger sends complete list, ordered by φ, to Level 2 using S-Link.
- How much faster is this?

Track List path to SVT

- Similar to previous path to Level 2...
- Track List Pulsars receive tracks from SLAM modules
- Sparsify based on Level 1 trigger bits
- Order tracks by φ, send to SVT mergers using SVT cables and data format
- How much faster is this?

Track List path for Barrel Pointer

- SLAM modules set bits corresponding to candidate SVX-II half barrels
- OR all masks from tracks selected based on Level 1 trigger bits
- Pass the resulting 6-bits per phi wedge to SVT by some convenient means, *eg*., copper serial link
- Possible performance still a bit unclear but can only improve on what we have now

Track List to Segment List Pulsars

- One possible algorithm:
  - Sparsify tracks based on Level 1 trigger bits
  - For each track selected, set a bit for each possible stereo pixel in its road
  - Pass the resulting pixel masks to the Segment List Pulsars
  - Segment List Pulsars only send pixels in masked regions to Level 2

Implementation

- Main prerequisite is the list of tracks out of SLAM
  - Good enough to start with axial XFT tracks with SLAM operating as Linker Output Module
  - Stereo confirmation with full SLAM implementation comes for free
- Need to provide lots of information in L2 buffers for commissioning/diagnostics
- Natural to implement in incremental stages

Summary

- Please send comments or suggestions on the draft of the specification
- Should plan to distribute widely later this week.