Pulsar Readout within DAQ system

• Two Pulsar banks: T2PD (old) and TP2D (new)
  – T2PD (muon board readout): unchanged since last fall
    • Three buffers read out: DAQ, muon fibers, XTRP
      – DAQ and XTRP are variable-length, muon is fixed-length
    • Read out on ROL 7 due to readout time (16 fibers each require separate VME read due to address mapping)
  – TP2D: multi-board, multi-buffer readout
    • “final” bank for L2 Pulsar system
    • Can read all buffers for diagnostic readout or limited readout for every event (to control readout time)
    • Flexibility in fiber readout – N fibers in hardware database
    • Address mapping for fibers….continuous address space (big help in speeding up readout -- N=1 reads)
**TP2D Readout**

- **Hardware database parameters control readout at the board level**
  - Can turn on/off 2 x 2 DataIO (fiber) buffers, 2 CTRL buffers (maximum Nbuffers=6 per board)
    - Variable- or fixed-length readout
    - Nfibers = 1 for most boards
  - Board-level readout-list (can read out a board only on ROL7)

- **Bank format**
  - Each buffer -> card in bank
  - Access by pointers
  - Burkard's modifications remove extra words and commissioning board separators -> 'final' format
• Readout speed
  – Formerly, 1 board  ~0.6 ms
  – Burkard's tests last weekend:
    • 3 boards, full readout < 0.7 ms
• Further possible improvements
  – VISIONfastread calls
  – Spy mode readout