128k x 32 FIFOs

HTR 1
HTR 2
HTR 7 thru 15

SDRAM buffer
128 events x 18 HTRs
(512x32 each)

PCI-1

Event Builder

Monitor buffer
128 events

S-Link FIFO
256 x 64

S-Link currently runs at 32MHz
(256 mbyte/sec)

Tag FIFOs

L1A FIFO 624 evt

TTCrx

18 FIFOs
Header info for each event

Thresholds
OF Warn: 96 up, 64 down
Busy: 112
Lost Sync: > 624

L1A FIFO flags used to generate TTS overflow warning (programmable upper/lower limits)
Questions...

• **Behavior when S-Link LINK FULL active**
  - S-Link FIFO fills, Event builder stops, L1A FIFO fills
    • OFW @ 96 L1A (1ms), BUSY @ 112 L1a, LOS @ 624 L1A

• **Buffer capacity 112 max-size events**
  - Above that, data is discarded but sync maintained up to 624 events, then sync is lost

• **Recovery from lost sync requires reset**

• **Maximum HTR event size about 1048 bytes. DCC can handle up to 2048 byte events.**
Error Reporting / Recovery

• **How/where to report these types of errors:**
  
  – What do do when one channel fails?
  
  – What about intermittent problems which could be fixed by a reset, but affect only one or a few channels?
  
  – What about link errors which indicate corrupted data but sync is okay?

• **Report via fast TTS (cable)?** Probably not. **Report via slow TTS (software)?** How? To whom?
HCAL Error Handling

• **We propose to handle all errors from various sources (HTR, DCC) the same.** For each:
  - Increment a counter on the DCC
  - Set a summary bit in the CDF (private) header
  - Set a bit in a VME status register
  - [optionally] cause a transition on TTS cable to a particular state

• **Does this cover all the bases?**