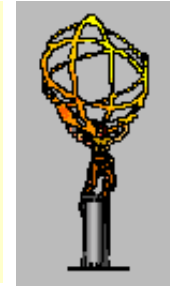




16th March 2002

Readout Ramblings

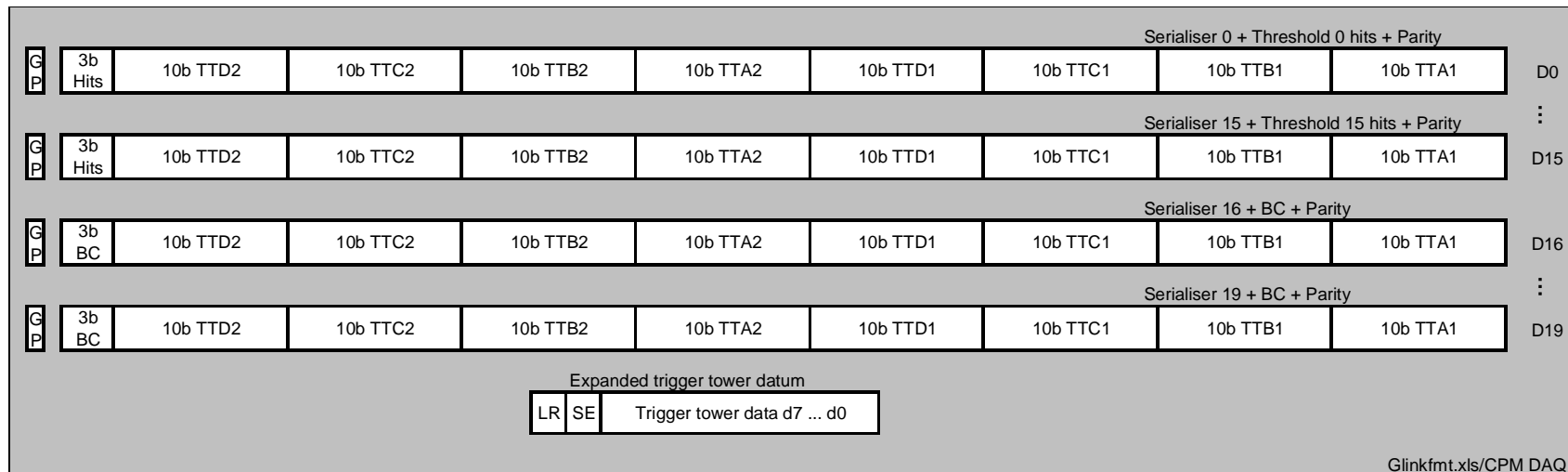


Readout - Event Format
RoIB Review Status
ROBIN/S-Link Developments

C .N .P .Gee
Rutherford Appleton Laboratory



CPM Formats - Glink into ROD

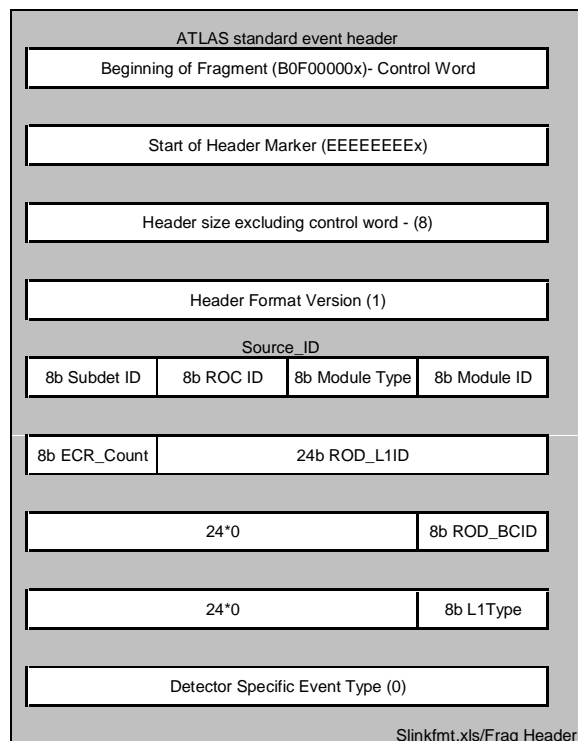




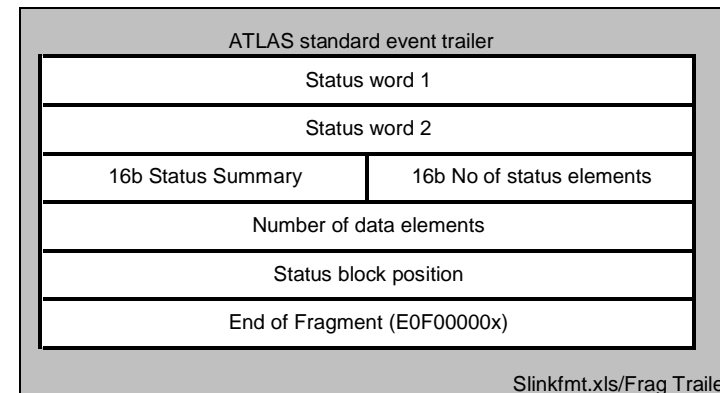
CPM Formats - S-Link Fragment



Header...

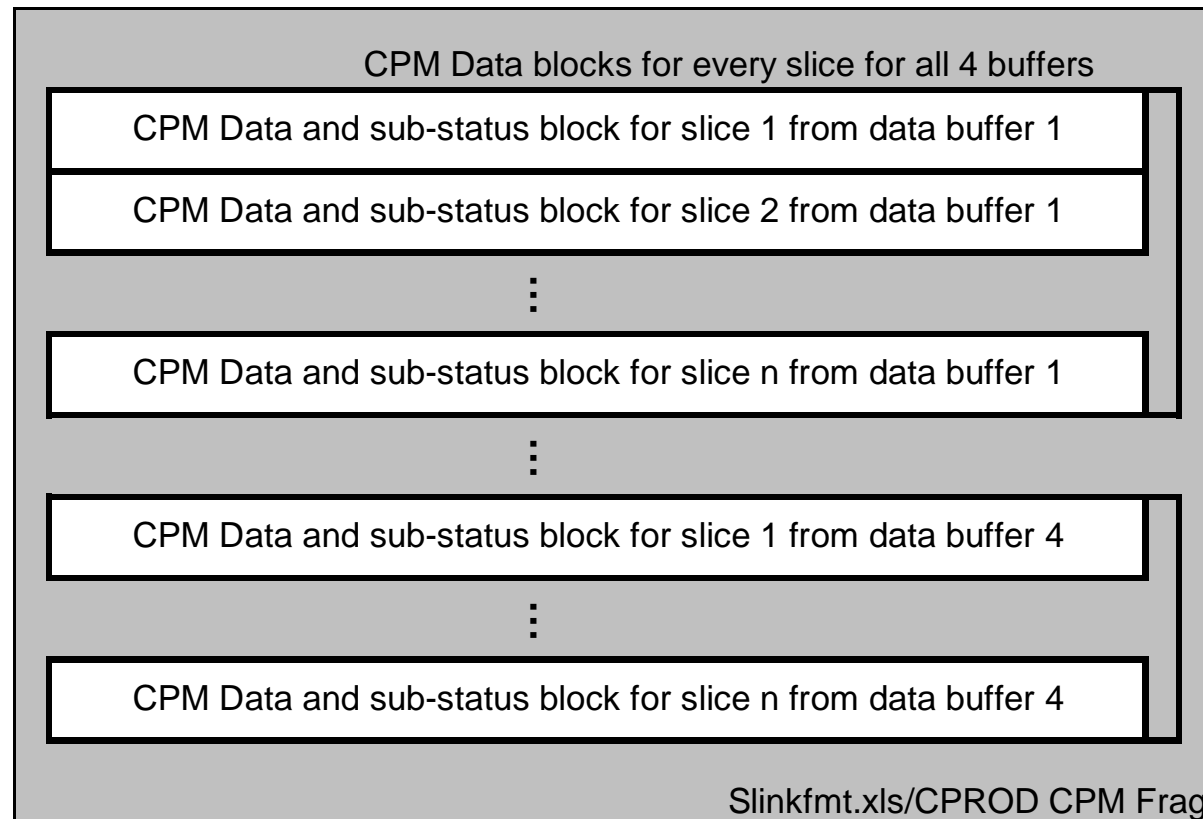


and Trailer





CPM Formats - Fragment payload



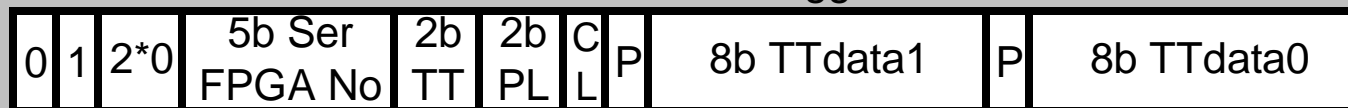


CPM Formats - Payload Detail

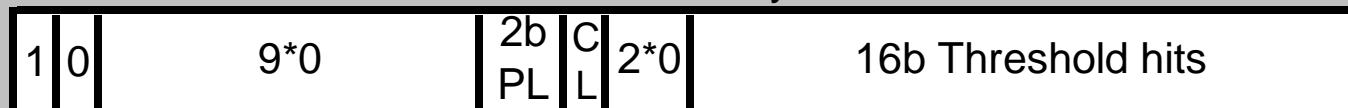


Each Data and Sub-Status Block consists of the following:

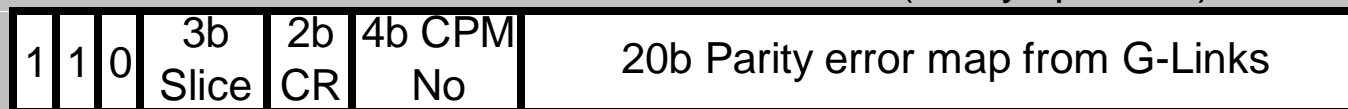
WordID 0 or more trigger tower data words



WordID 0 or exactly 3 threshold data words



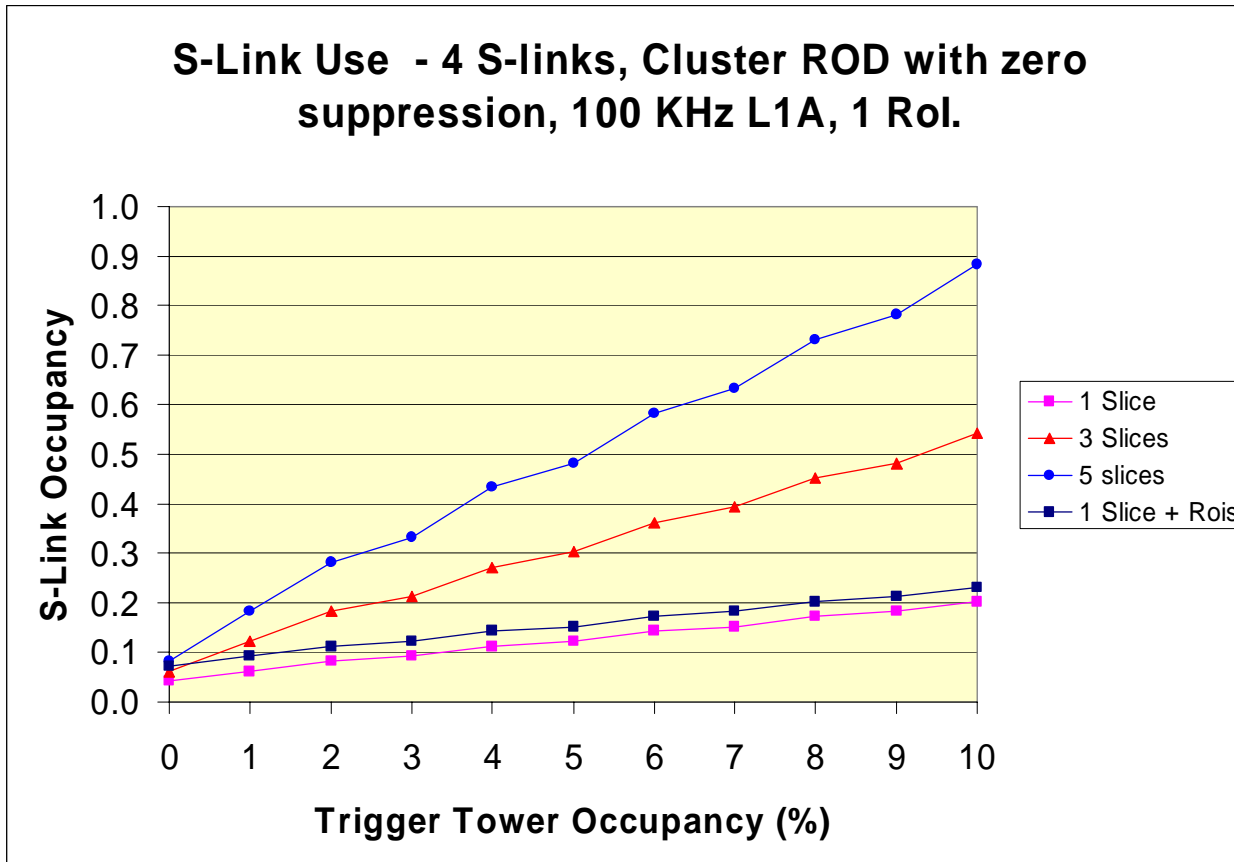
WordID Sub-Status word (always present)



Slinkfmt.xls/CPROD CPM Datablock



CPM S-Link Occupancy



If no ZS:

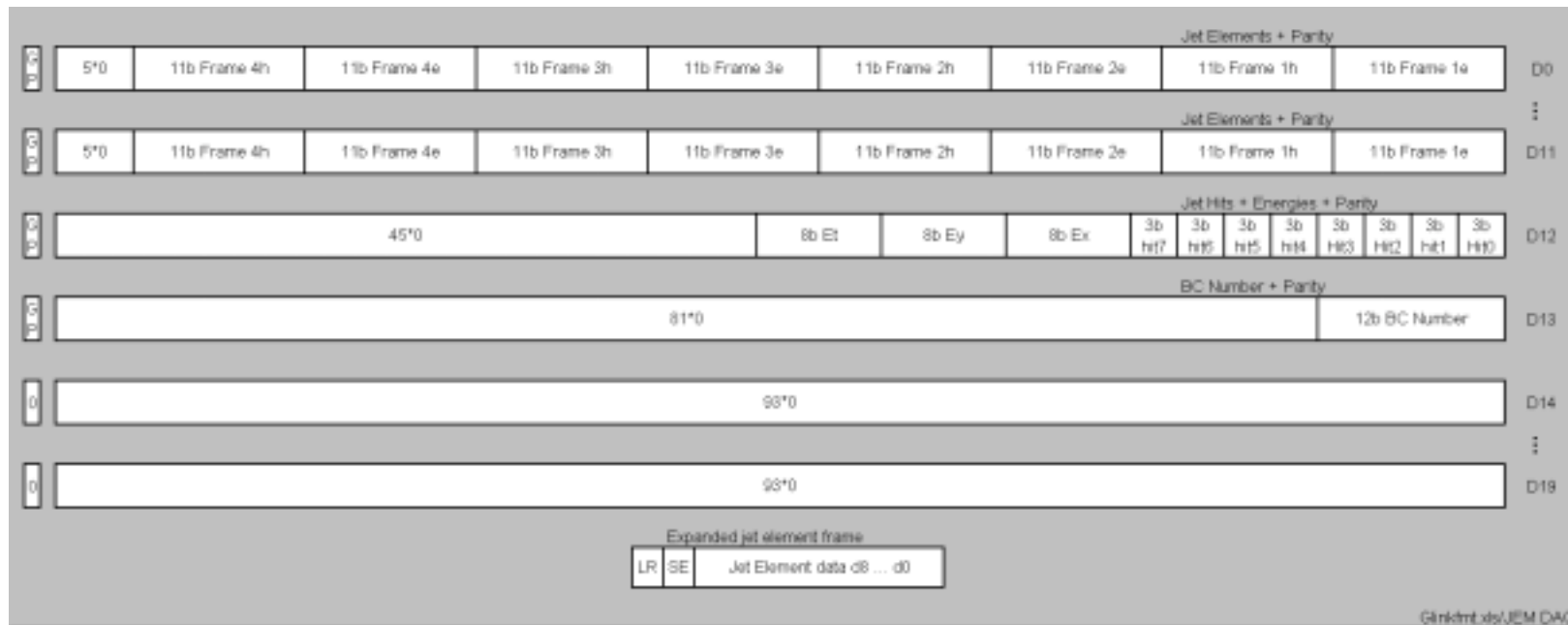
1 slice: 87%

3 slices 255 %

5 slices 422 %



JEM Formats - Glink into ROD



Glinkfmt.xls/JEM DAQ



JEM Formats - Payload Detail



Each JEM Data and Sub-Status Block consists of the following:

Word ID 0 or more trigger tower data words

0	1	7b Tower Pair	2b PL	J L	P	9b Hadron data	P	9b Electron data
---	---	---------------	----------	--------	---	----------------	---	------------------

Word ID 0 or 1 threshold data words

1	0	6*0	3b Thr7	3b Thr6	3b Thr5	3b Thr4	3b Thr3	3b Thr2	3b Thr1	3b Thr0
---	---	-----	------------	------------	------------	------------	------------	------------	------------	------------

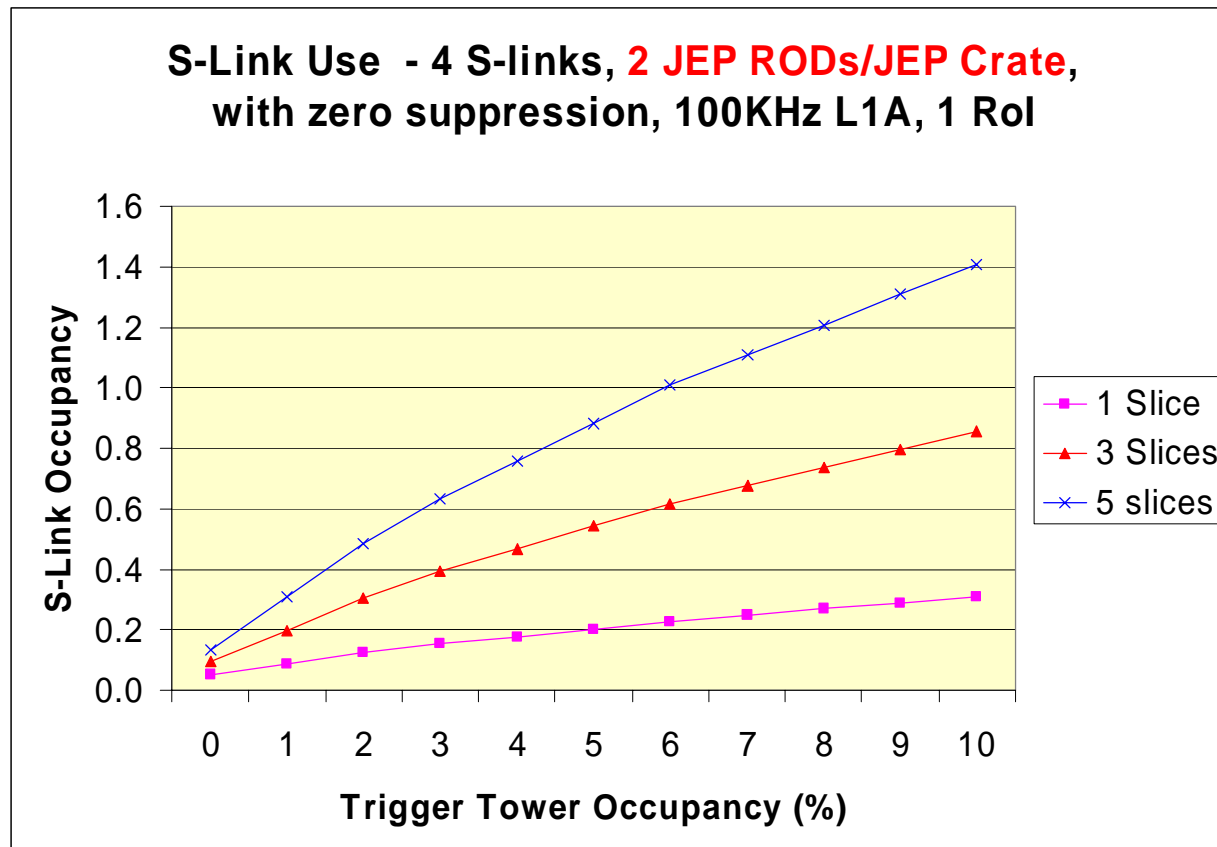
Word ID Sub-Status word (always present)

1	1	0	7*0	3b Slice	C R	4b JEM No	14b JEM-CPROD Glink PE map
---	---	---	-----	-------------	--------	--------------	-------------------------------

Slinkfmt.xls/CPROD JEM Datablock



JEM S-Link Occupancy



If no ZS:

1 slice: 49%

3 slices 141 %

5 slices 233 %



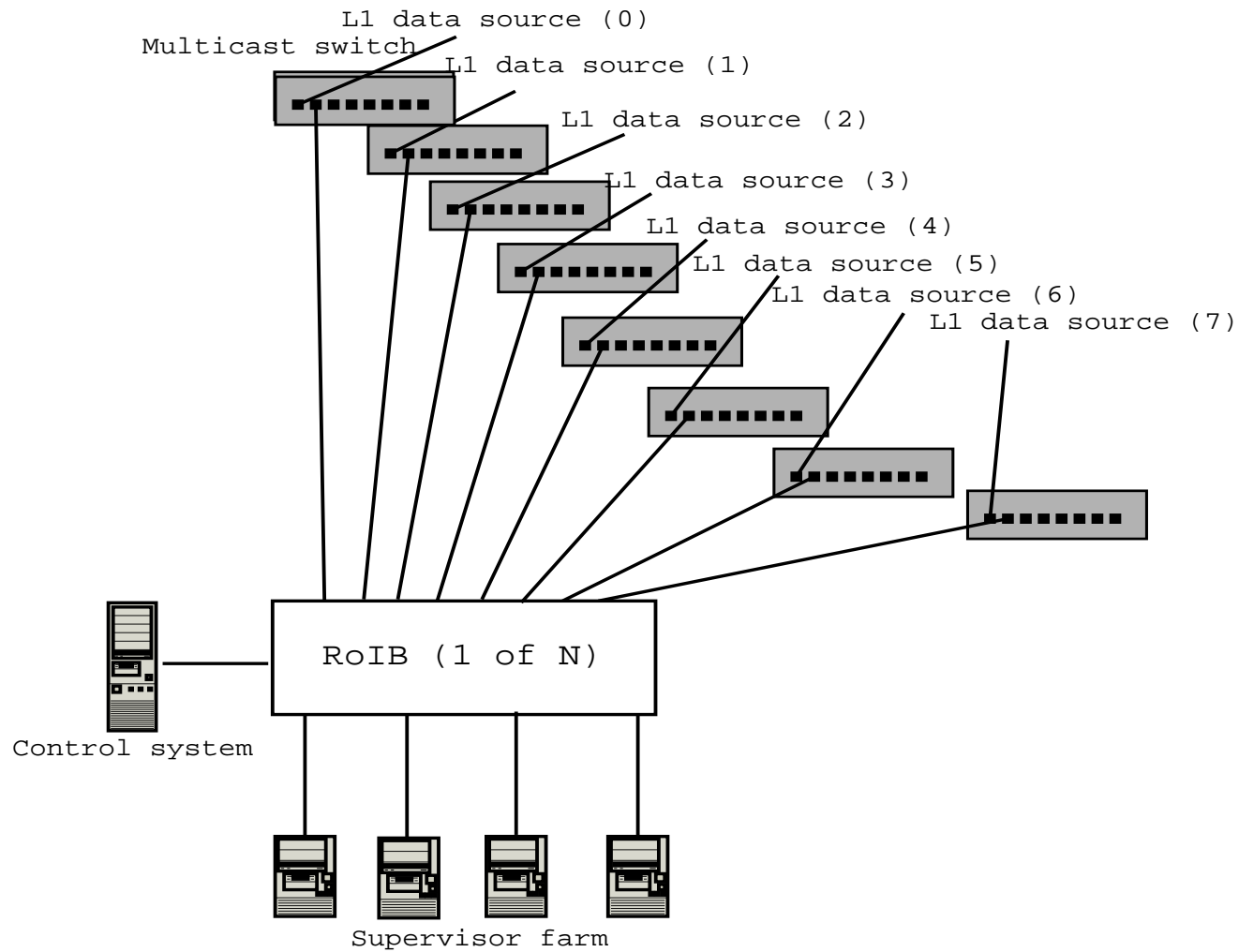
Questions so far



- **I am (still) collecting event formats in a document (see http://hepwww.rl.ac.uk//Atlas-L1/TIN/compendium_045.pdf) Some formats still to be defined, including CMM readout.**
- **Questions:**
 - (1) We need an internal check of these before writing the firmware. Who should review them?
 - (2) Do we need to be able to read out data without zero suppression? I suggest yes, but only for 1 slice at 75 KHz;
 - (3) What maximum rate do we design for with Z.S., i.e. up to what point should system readout be scalable? (e.g. 75KHz, 3 slices, 1 RoI, 10 % occupancy...);



New RoI Builder (J Dawson)





RoI Builder



- **Report of RoIB Review has just been released:**
- **Data from RODs carried by ANL Gigabit Ethernet S-Links**
 - Can an ATLAS standard links be used?
 - Can ethernet switches eliminated?
 - *E.g. by compressing the RoIB to a single board*
 - *Maybe in pizza-box format rather than VME?*
- **Flow Control details requested**
 - recommendation to study single-board RoIB
- **Error handling scenarios requested**

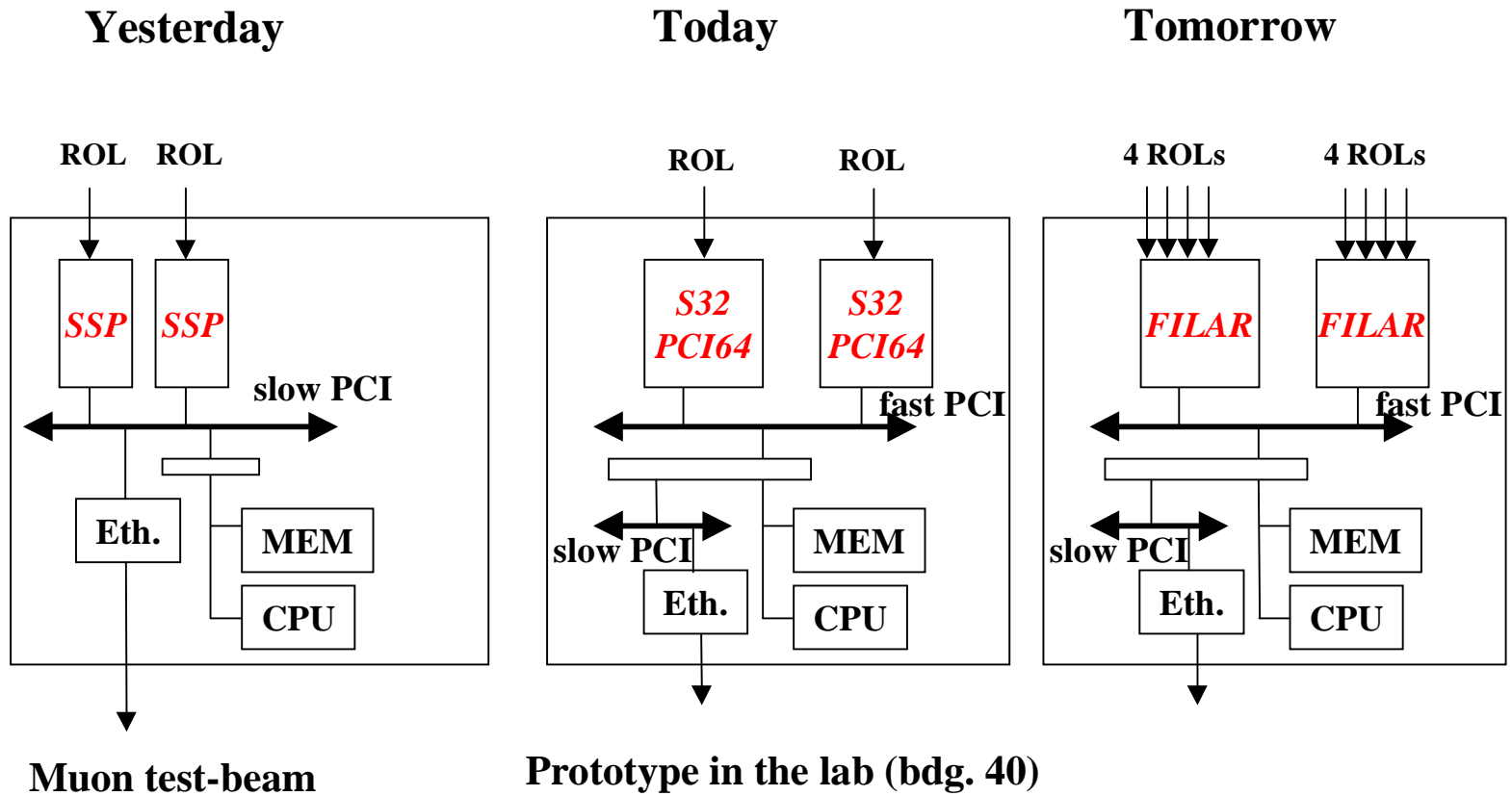


RoI Builder



- **Internal Monitoring**
 - Can events be sampled at input and output stages?
- **Is TTC input needed for testing?**
 - For example, to run without LVL1 for testing.
- **Atlas asked to revise RoIB Requirements.**
- **The RoI Builder group have asked for a new integration test once the new RoIB is complete and debugged - they will not be ready before Autumn.**
 - Do we agree? What timescale?

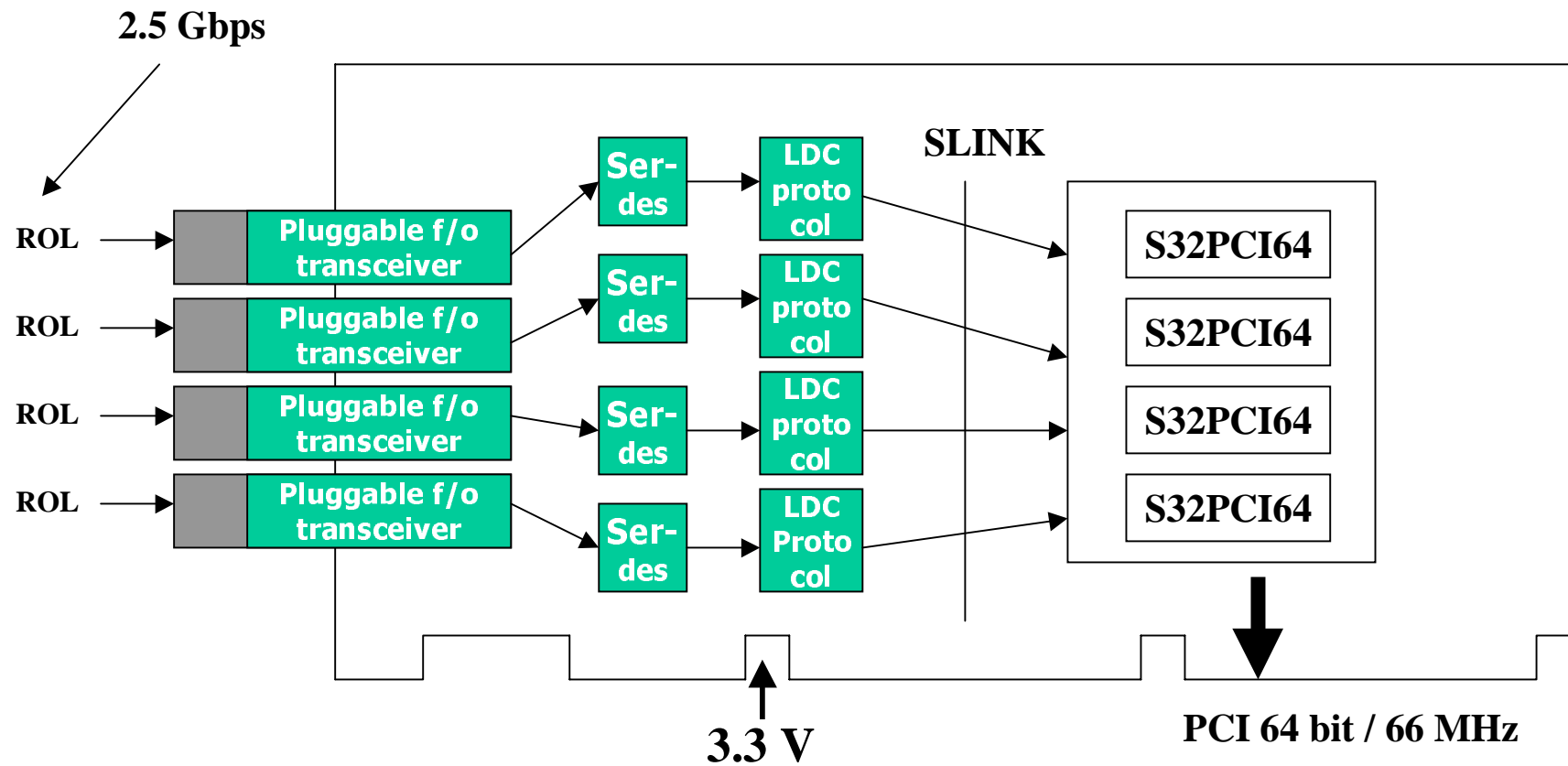
S-Link system evolution (M Joos)



(same Elonex PC / Super Micro 370DLE motherboard in all three cases)

“FILAR”

- Standard PCs: only few (2 or 3) PCI 66/64 slots
- 4 x LDC logic integrated on board





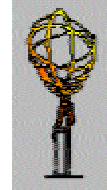
S-Link



- **R McLaren asks if we are willing to test FILAR/2.5 Gbit fibre link when it is fully debugged.**
 - We are “interesting” as we generate multiple saturated links.



Summary of Questions



- **Questions:**
 - (1) Who should review event formats?
 - (2) Do we need to be able to read out data without zero suppression?
 - (3) What maximum rate do we design for with zero suppression
 - (4) Do we agree to a test with RoIB? What timescale?
 - (5) Should we try the FILAR/2.5 Gbit S-link interface? What timescale?



End



The End