Proposal for an RCE-based DAQ system for LBNE

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ABSTRACT

Abstract

1 Introduction

...an intelligent and concise introduction...

2 The Data Acquisition Toolkit

....some stuff...

2.1 ATCA

2.2 Reconfigurable Cluster Element

2.3 Cluster-on-Board

2.4 Rear Transition Module

.... or something...can steal from ATLAS CSC proposal for much of this stuff?

3 Implementation of RCE-based DAQ for LBNE

... first, sketch of the DAQ layout for full LBNE; then for 35t ....

3.1 Full LBNE

.... assumptions, schematic of DAQ chain, summary of what/how many of each component we need ....

3.2 Phase 2 of 35t Prototype

.... assumptions, schematic of DAQ chain, summary of what/how many of each component we need ....

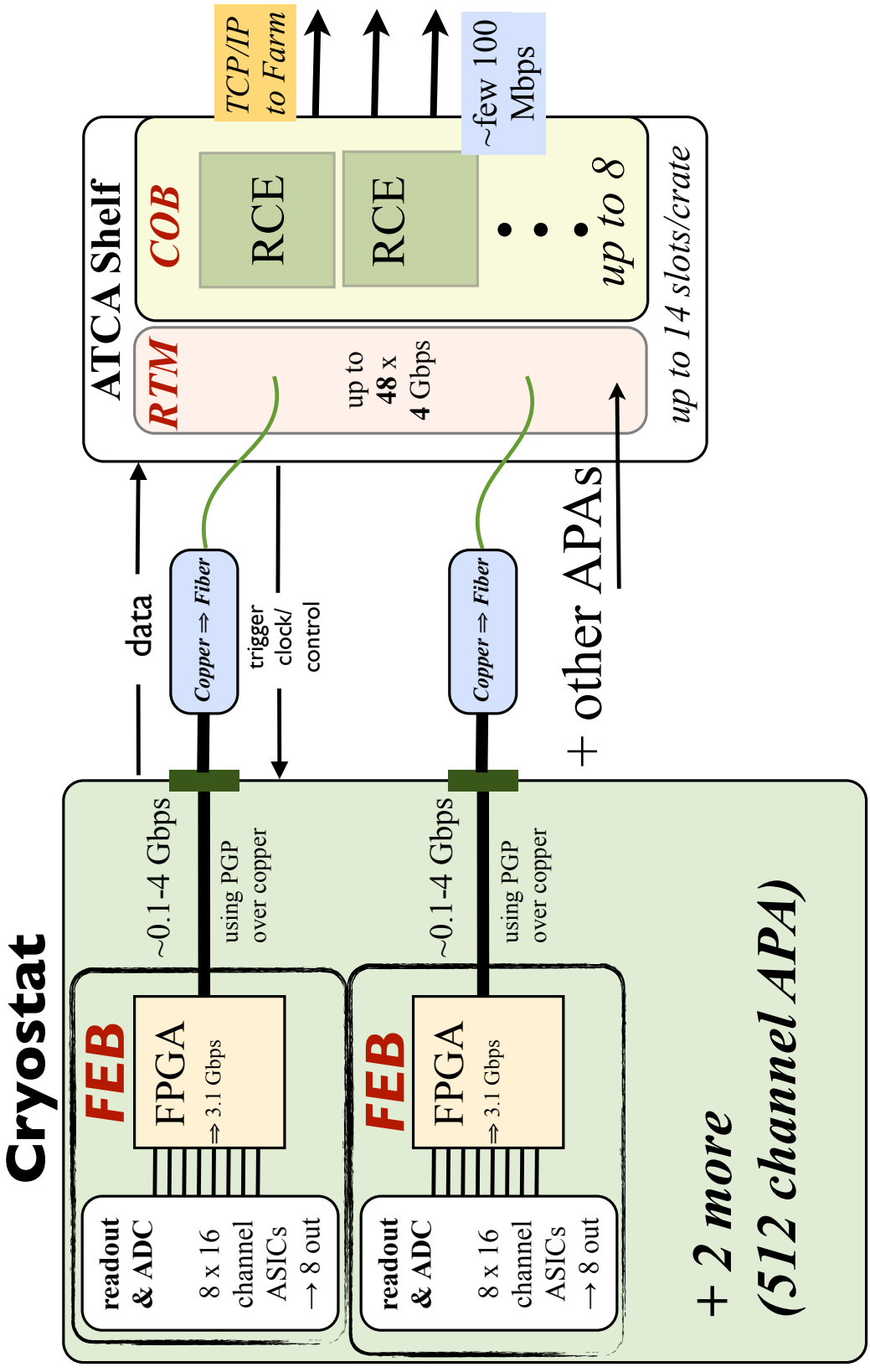

FIG. 1: Block diagram of the RCE-based DAQ for a single TPC APA.

	35t	Full LBNE
Total Channels	∼2k	∼307k
Number of APAs	4 (?)	120
Number of FEBs	16	2400
Transition Boards	16(???)	2400(????)
RTM+COB Boards	1	50
ATCA Crates	1	4 (14-slot)

TABLE I: DAQ-related quantities for the 35t and full LBNE (as of Jan. 2013 design).

3.3 Comparision of RCE-based vs DCM-based Backend DAQ Systems

... list of the many ways RCE-based system is so much better ....

3.4 High-speed Data Links From Cold FPGA to Backend DAQ

...possibilities and our plans on this ...

4 Schedule and Budget

... show both 35t and 35t+full lbne? ...

5 Conclusions

... why there is no choice be to go with us ...

[1] A. Grillo *et al.* [HPS Collaboration], HPS Proposal to JLab PAC37 PR-11-006, http://www.jlab.org/exp_prog/PACpage/PAC37/proposals/Proposals/