HCAL Status Report

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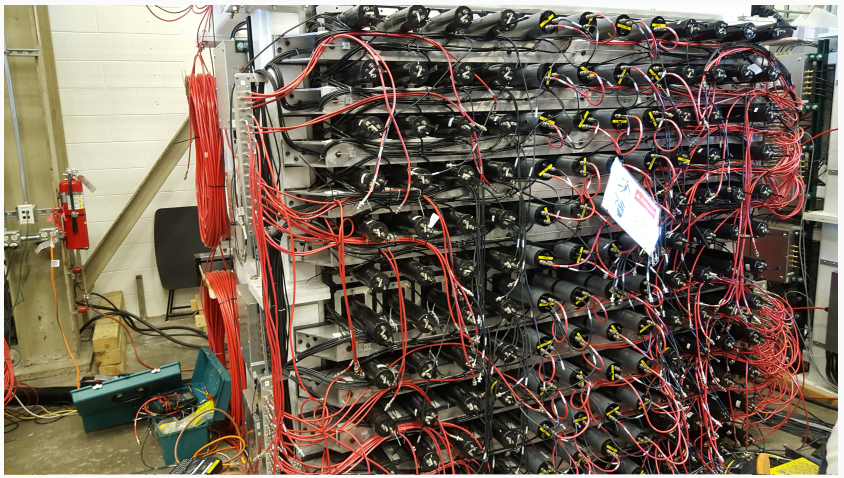
August 5th 2019

SBS Collaboration Meeting - Jefferson Lab

Jefferson Lab
Thomas Jefferson National Accelerator Facility



HCAL Detector Status

Item(s)	Status	Comments
288x Modules	On-site	Last set of modules arrived Feb 2018
4x Sub-Assemblies	Assembled	Spring 2018
288x PMT + base	On-site	Fall 2018
$\rightarrow$ 96x 20-pin base	Installing[1]	by Sep 2019
$\rightarrow$ 192x 19-pin base	Installing[1]	by Oct 2019[2]
Pulser/fiber system	Installed	Aug 2018

[1] Cleaning, applying grease, and rotating PMT needed by pulser system.

[2] Recently added 300 V Zener diode (explained in a weekly meeting update), and testing (one week) is pending OSP approval.

HCAL HV + Front-End Electronics Status

(**Note:** Installed here means in Test Lab area without Weldment)

Item(s)	**Status**	**Comments**
HV Cards	Installed	25x V^- Cards
HV Cables	Installed	12x 75-m long (multi-core) + 288x2 short cables.
Racks	Installed	3x FE + 1x HV + 2x DAQ
Crates	Installed	7x NIM + 2x LeCroy HV mainframes
Summing	Installed	10x modules
Amplifiers	Installed	18x P.S. 776 (1x needs repair)

HCAL HV + Front-End Electronics Status (II)

(**Note:** Installed here means in Test Lab area without Weldment)

Item(s)	**Status**	**Comments**
FE Discriminators	All Present	18x P.S. 706 (cross talk issue electronics group attempting repairs Est 1-2 months)
DAQ Discriminators	Installed	18x LeCroy 2313
FE Splitter Panels	Installed	18x (1x ch broken)
Patch Panels	Installed	10x FE + 10x DAQ side
HCAL FE Cables	Half Installed	Remaining ≈1008 BNC-LEMO 2m Det. Support Group Est ≈ 3 Months
Sum Discriminator	Exists (Find)	Remote adjustable threshold

HCAL DAQ Status

Item(s)	Status	Comments
Crates	Installed*	1x VXS, 2nd VXS available after GEM tests (*using temp VME64x)
CPU + TI	Installed	2x each
fADC 250	Installed	18x fADC + 2x SD (4x already repaired, 1x bad ch needs repair)
F1TDCs	Installed	5x F1TDC + 1x SD (have 1x spare)
Triggers	In progress	Available now: cosmic-paddle (top crate), pulser (bottom crate). By Oct 2019: HCAL trigger (summing mod) and identical triggers sent to both crates simultaneously.

HCAL DAQ Status (II)

Item(s)	Status	Comments
CODA	Installed	Standalone mode only (one instance per crate). Readout-lists written, need to combine (estimate by end of Dec 2019).
Ribbon Cables	20% Complete	Have 3x, need 18x (Searching JLab otherwise will need to order)
F1TDC SD Cables	40% Complete	Have 2x, need 5x.
Scalers (64 ch)	In LHRS	Free Mid-Sept.
Scaler Readout	Use Xscaler	Bob offered to help

HCAL Software Status

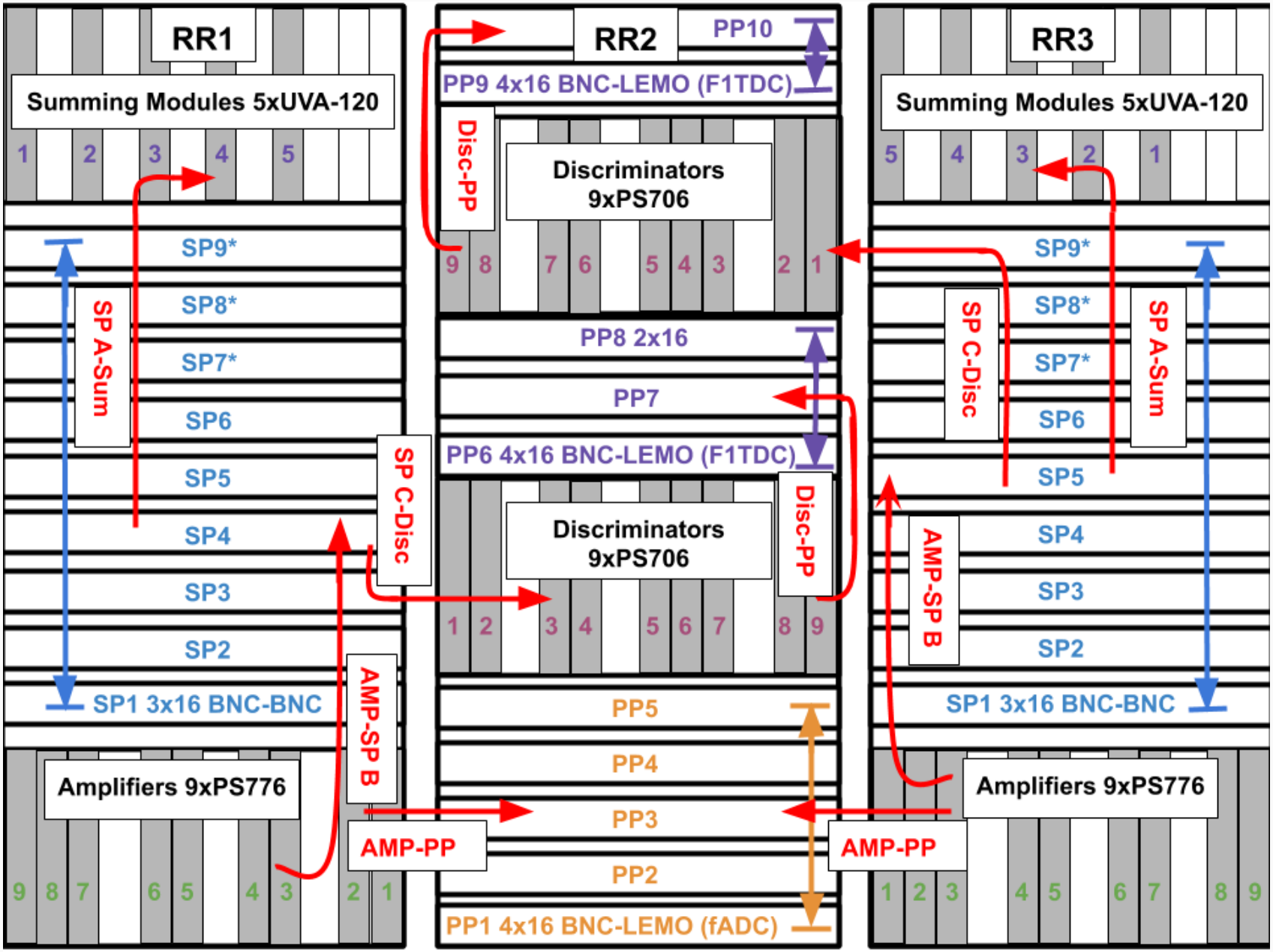
Item(s)	Status	Comments
Decoders	Working & Tested	F1TDC in SBS-offline, fADC from Hall A Analyzer
Analyzer	Working & Testing	Tested with cosmic+pulser in standalone mode
Databases	Created	(uncalibrated)
Online Monitor	In Progress	Mockups used and tested with cosmics and pulser.
Online Replay	Pending	Full version (tested with G4SBS) by Dec 2019

Infrastructure/Misc HCAL Needs

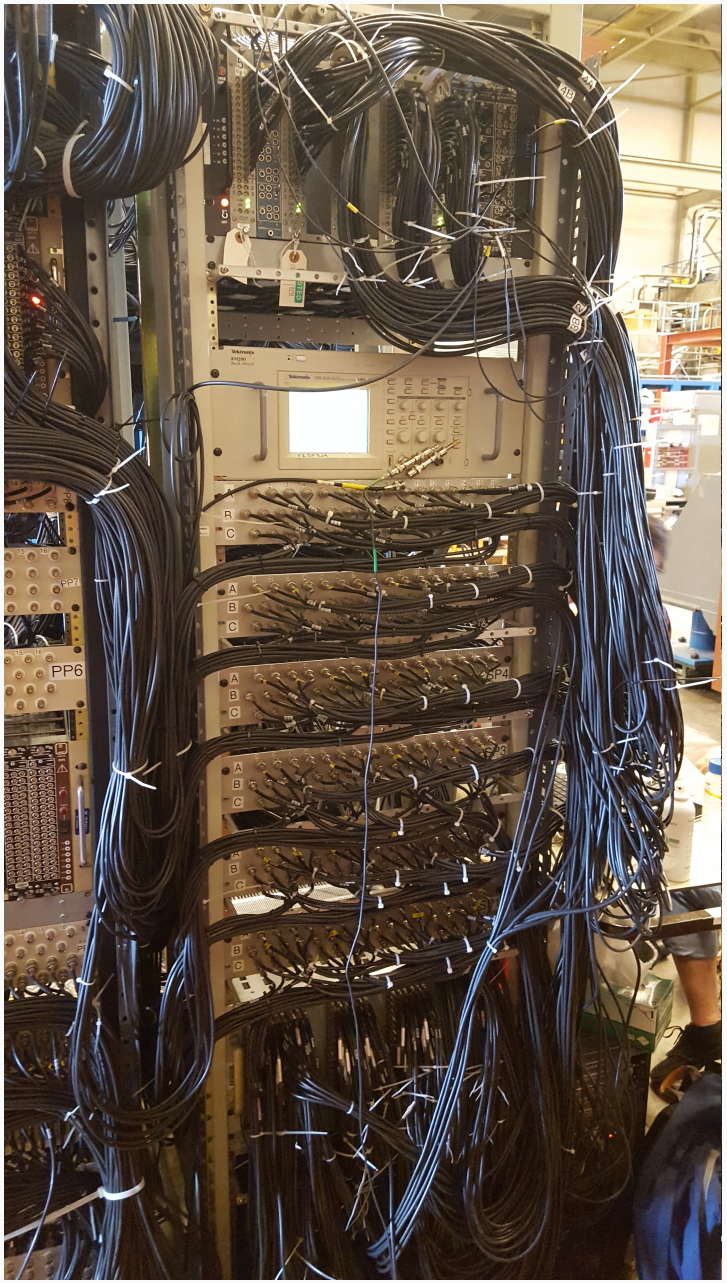
This is a list of items needed for HCAL that are being handled by JLab Staff. We present them here for completion but refer you to different talks for status and timeline.

Item(s)	**Comments**
Detector Stand	(See Robin's earlier talk)
Dry Air	Pending Hall Installation
Shims	3x missing and planned to be manufactured at JLab (20x already installed on HCAL)
Floor Plates	(See Robin's earlier talk)
HCAL Rollers	(See Robin's earlier talk)

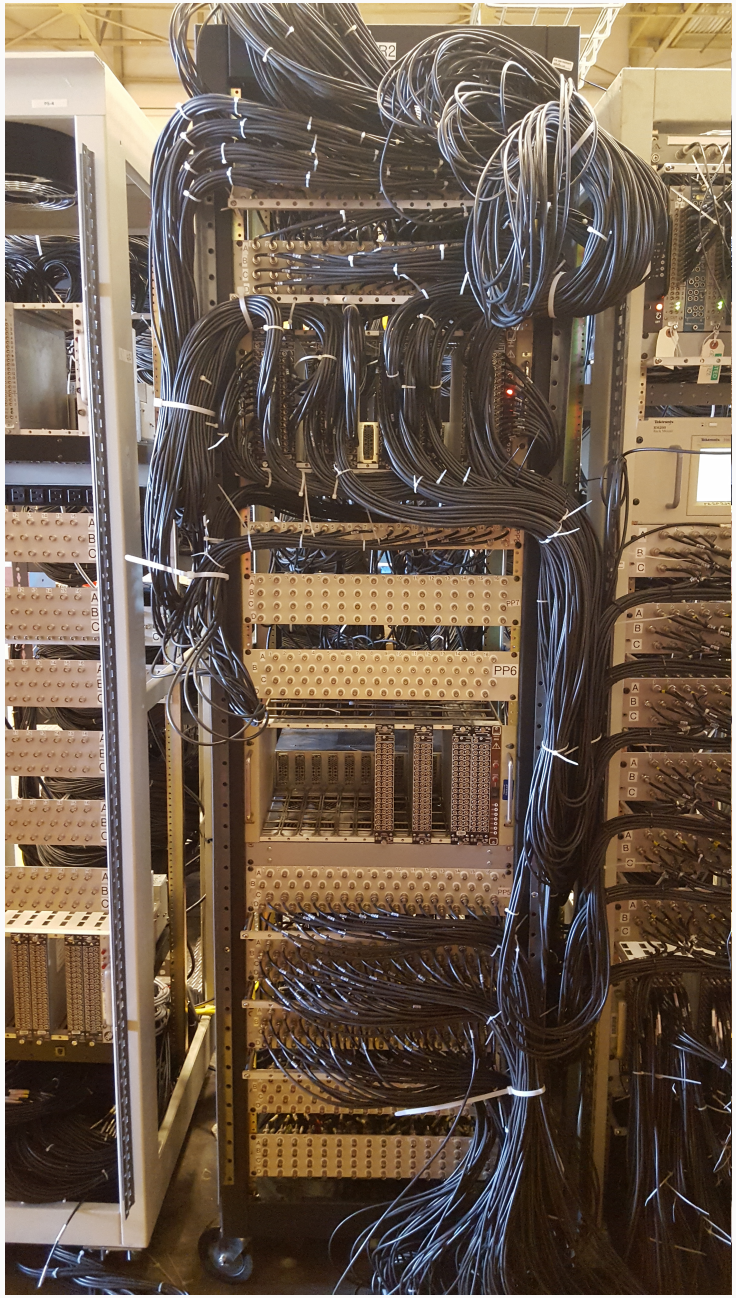
HCAL Front End



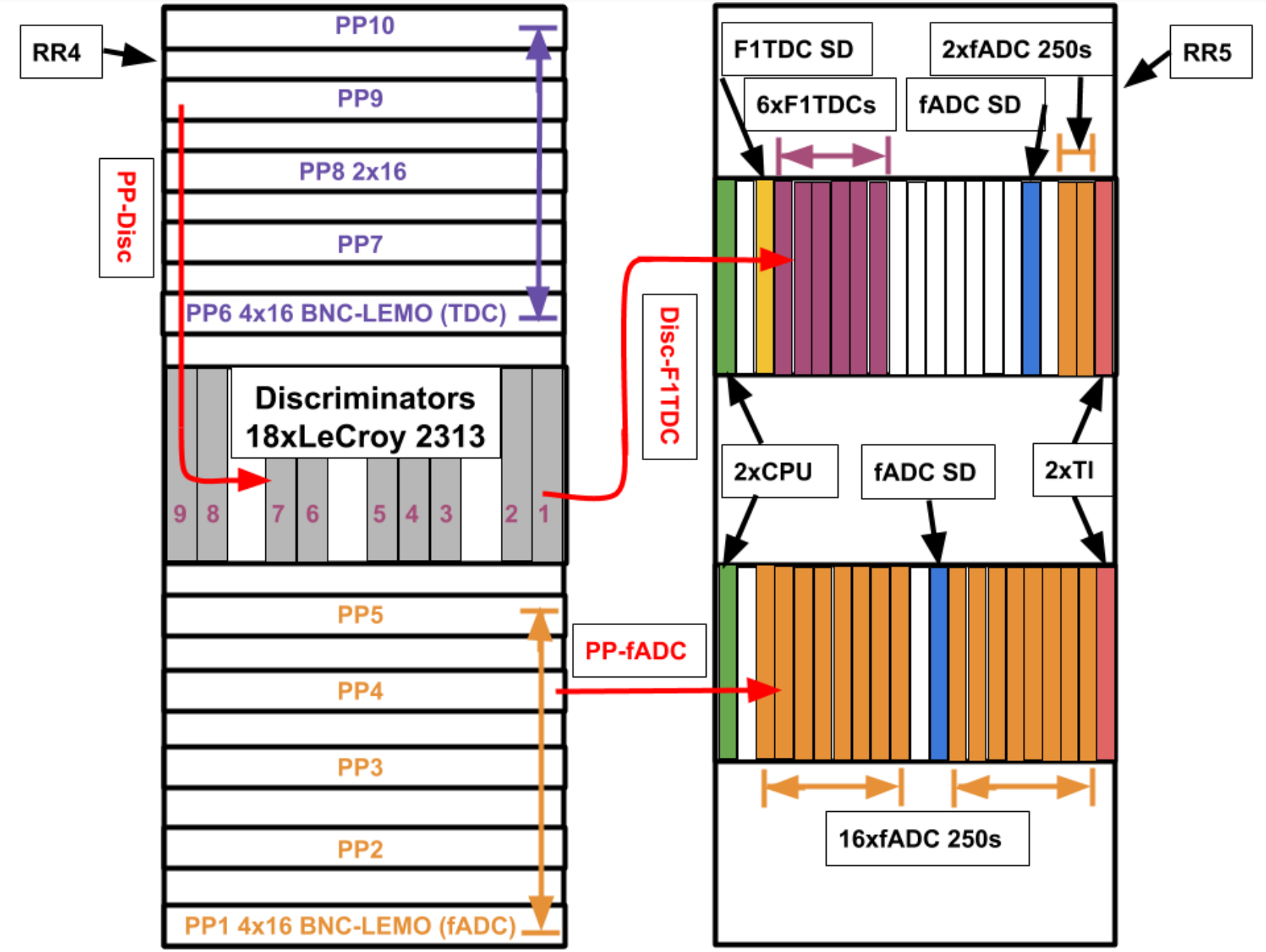
HCAL Front End Cont.



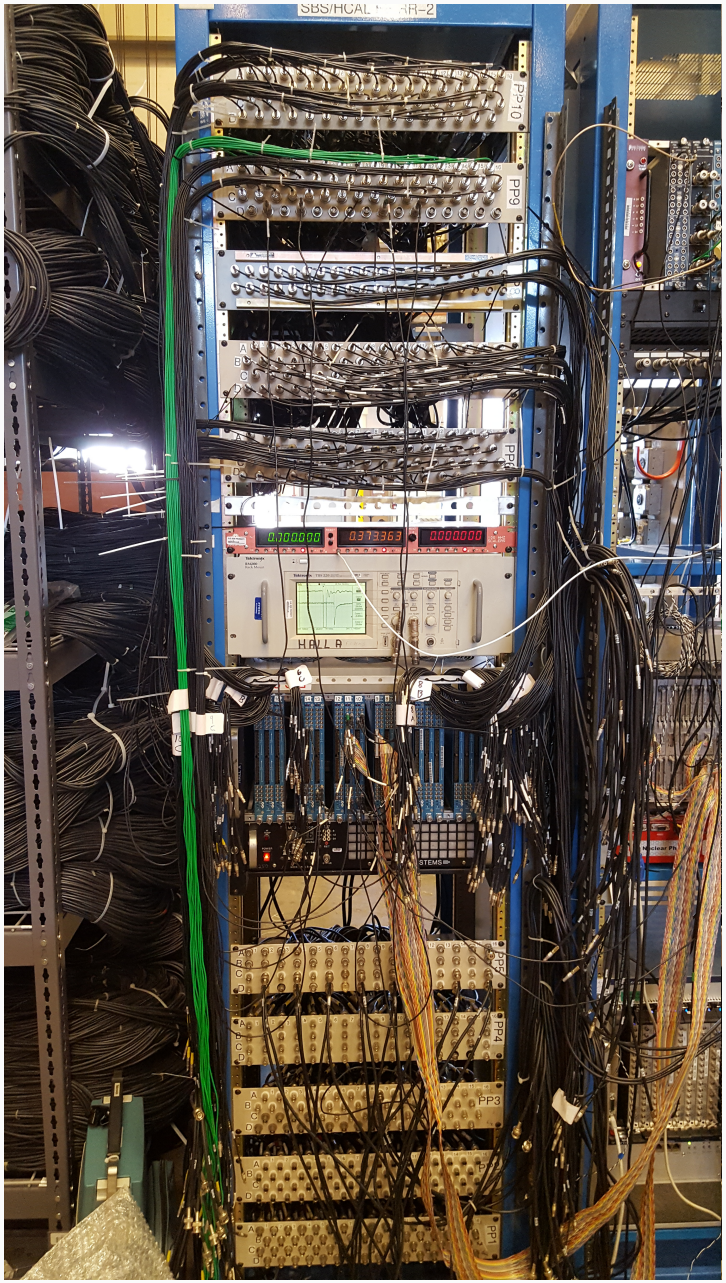
HCAL Front End Cont.

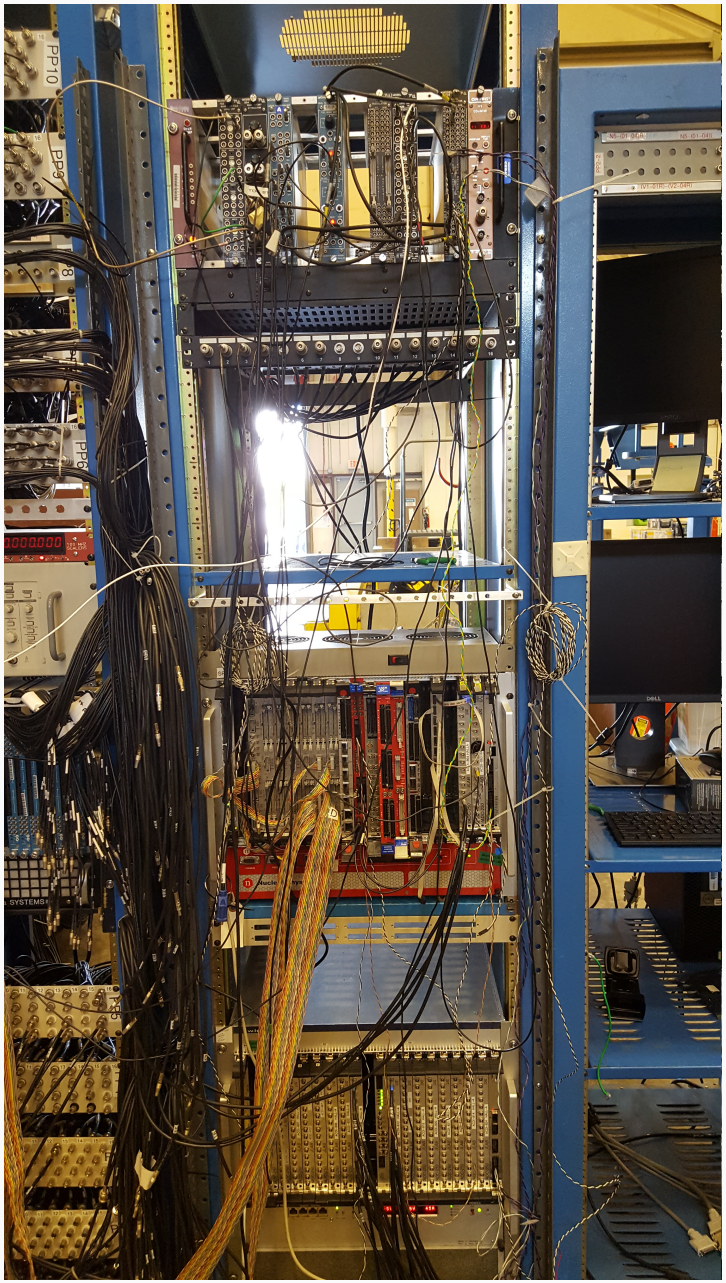


HCAL DAQ Side



HCAL DAQ Side Cont.





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- Thanks to Alexandre Camsonne for helping us get the DAQ working and finding all the modules for us.
- Thanks to Chuck Long for all his help fixing and acquiring things.
- Thanks to Bryan Moffit for helping us get the fADC/F1TDC ROLs working.
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