

Production Status

RIKEN/RBRC

Itaru Nakagawa

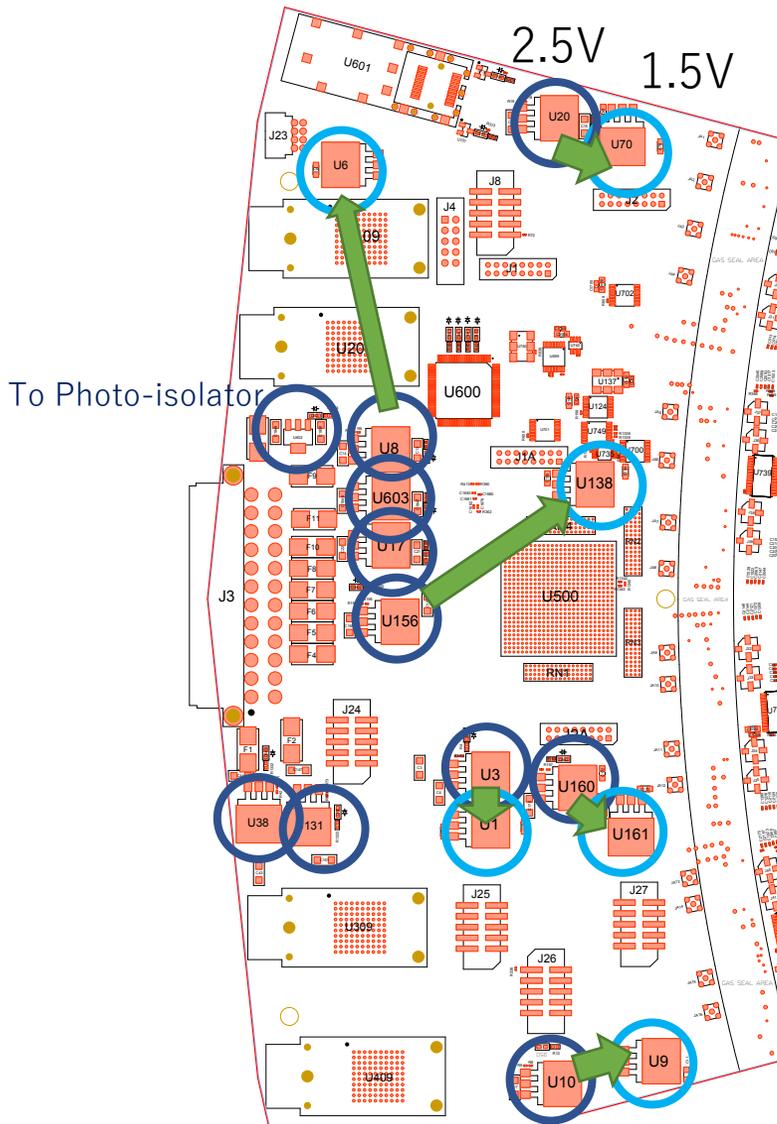
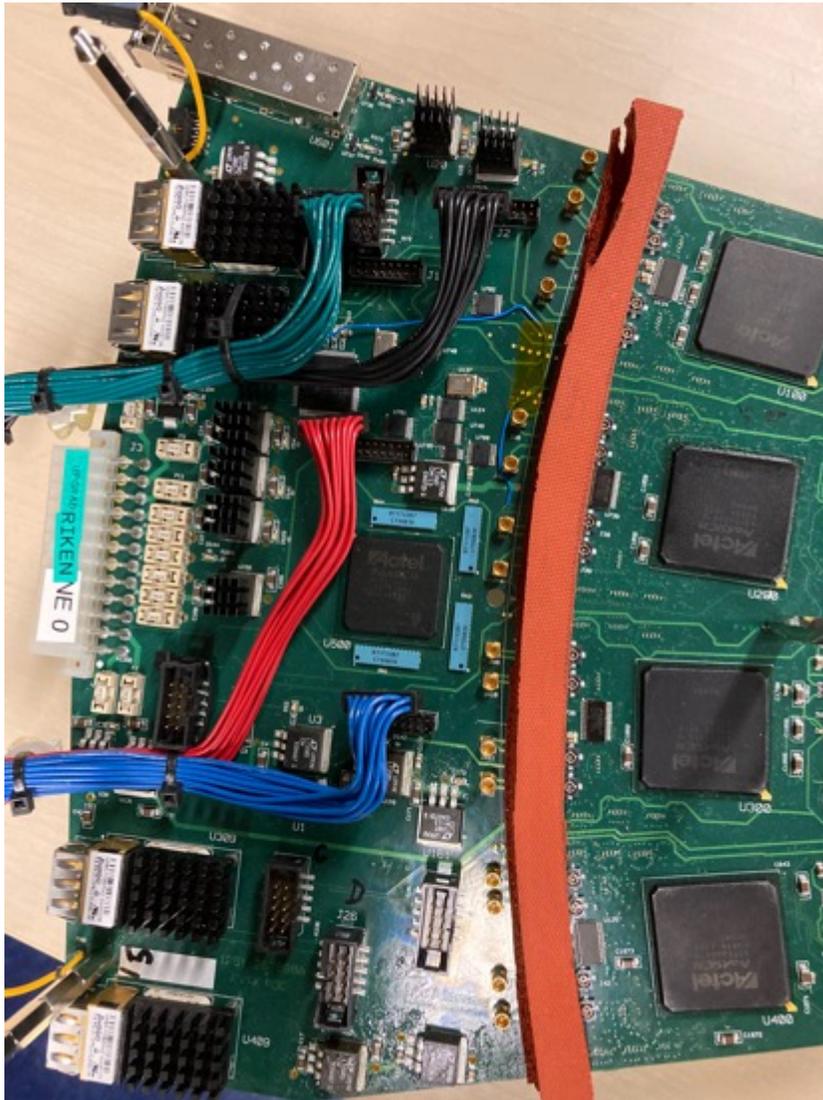
ROC Test @ RIKEN

Heat Sink



Thanks to Genki.
250 Heat sinks were delivered to
RIKEN on Feb. 10th.

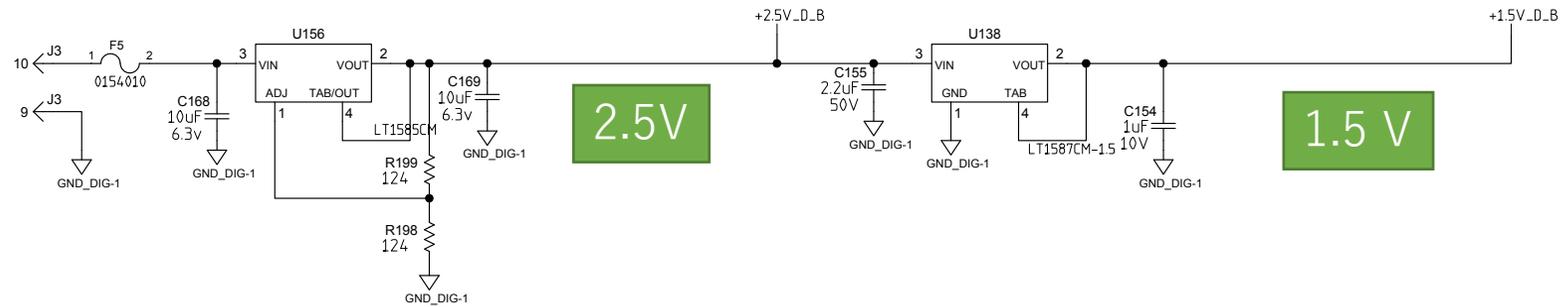
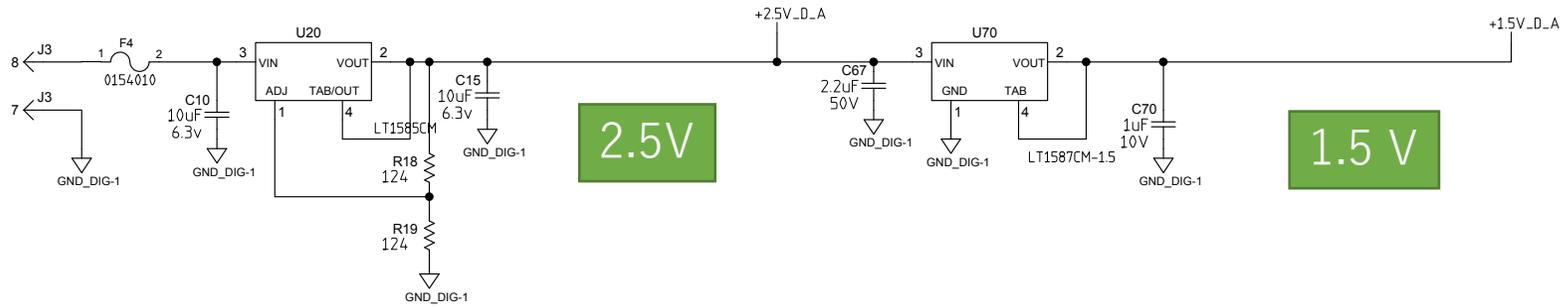
Regulator Heat Sinks



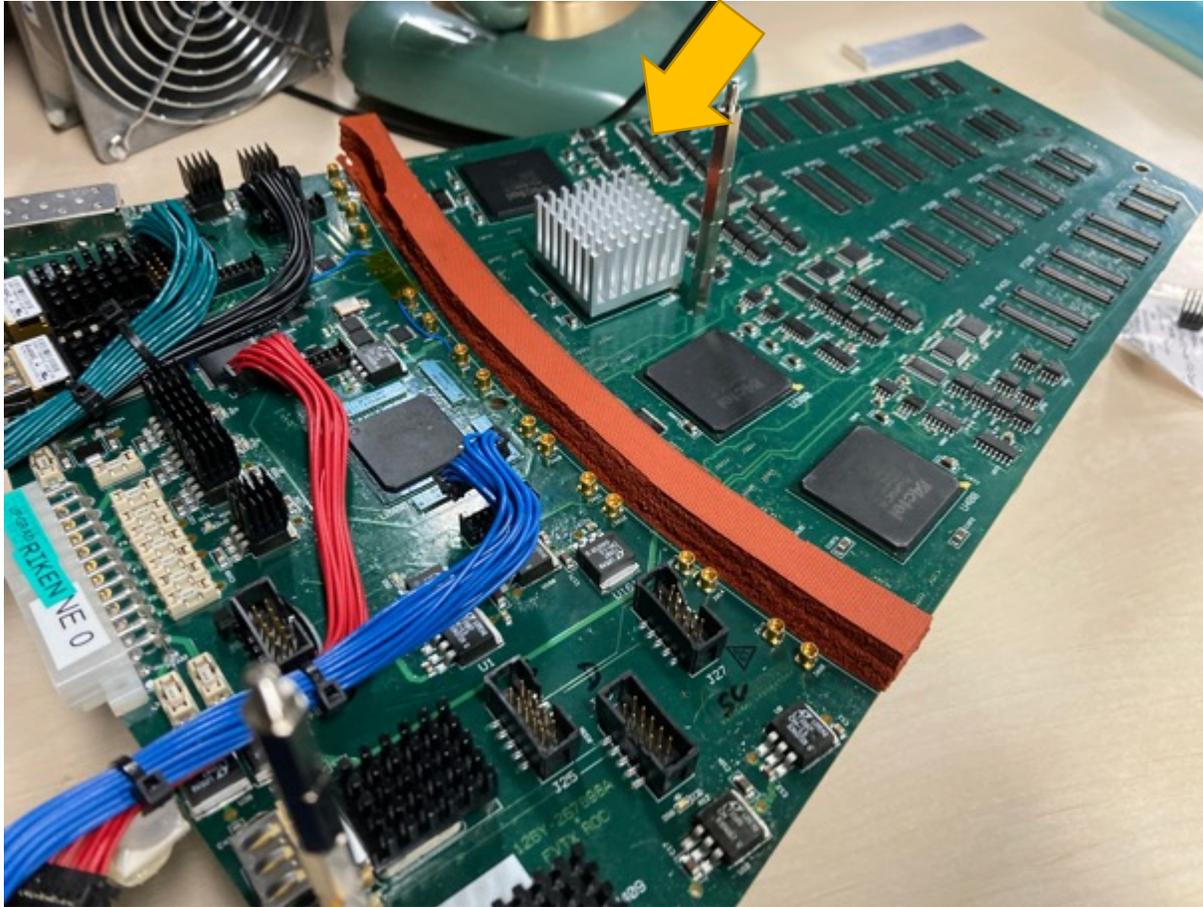
- There are 16+1 regulators implemented on the primary side
- Are we going to mount heat sinks to all of them?
- If so we need 16 x 18ROCs=288 heat sinks, while we have only 250.
- Some regulators may not generate too much heat
- For example, 2nd stage regulators which drop voltage from 2.5V to 1.5V.
- Can be confirmed by the thermal shot took in BNL sometime ago.

○ $\Delta V=1V$

Regulator Cascade Chains

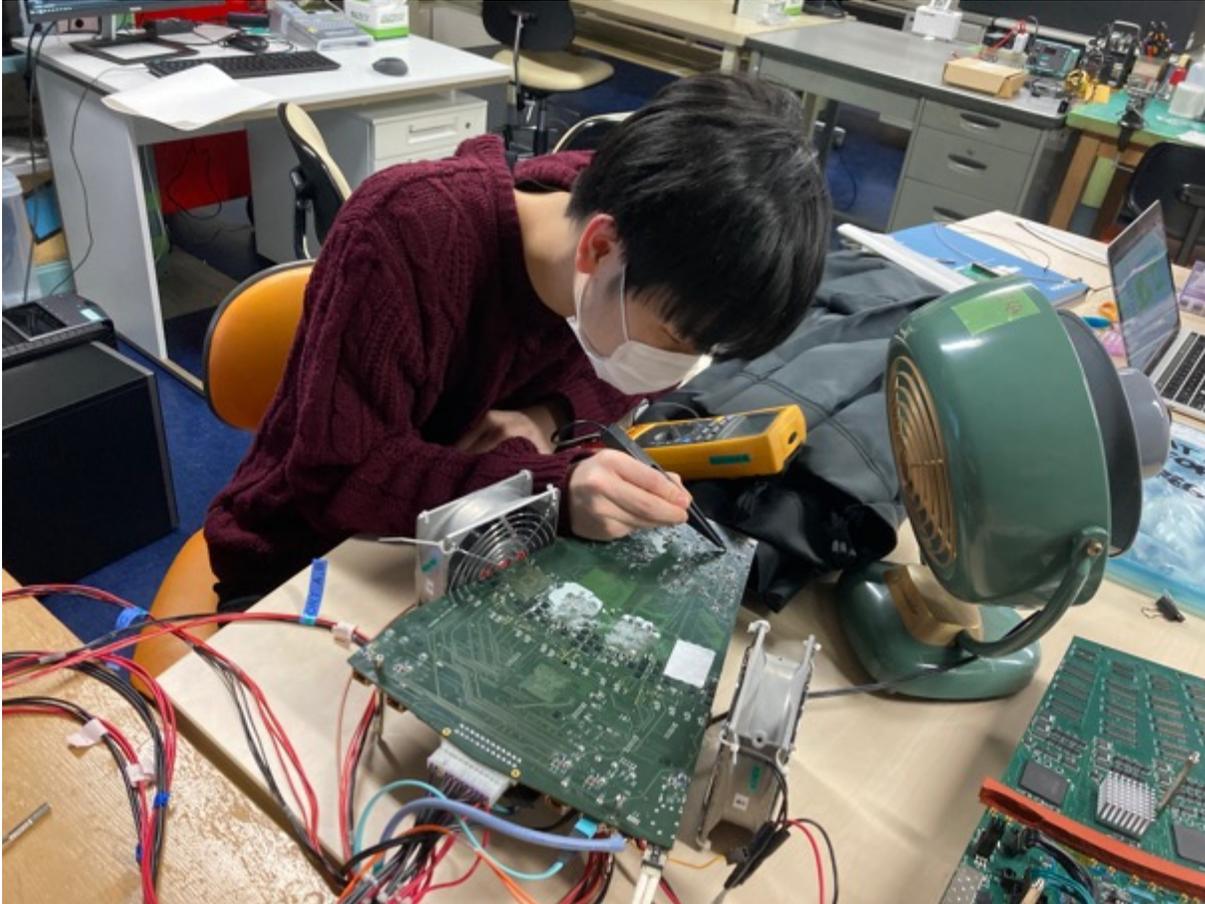


Heat Sinks for FPGA



- We don't have sufficient heat sinks for FPGA to mount all 1008 ROCs.
- We have several heat sinks which is sufficient to be used for testing ROCs, but only for temporary use. Not permanent mount on FPGAs.
- Can BNL crews procure heat sinks and mount them to all FPGA for all ROCs sent back from RIKEN after testing?

1008 ROC Tests

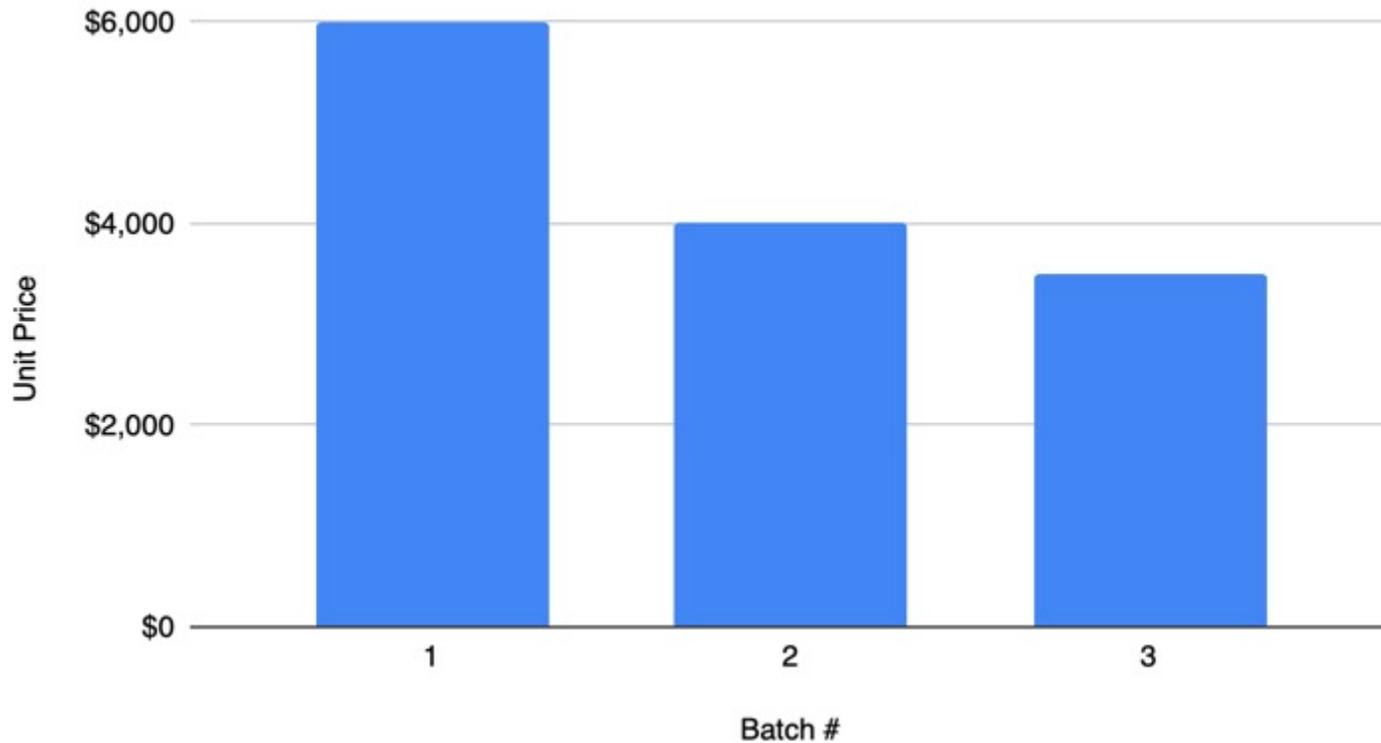


- Hikaru Imai has started 1008 ROC test at RIKEN test bench

Bus Extender Production

Bus Extender Production Cost

Unit Price と Batch #



Bus Extender Production Batch-1

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Bus Extender

- 2022.2.10 Production Bus Extender Database spreadsheet
- 2021.11.4 1.1m Bus Extender Design File zip (970KB)
- 2021.5.27-29 Half Entry Issue Investigation
- 2020.9.16 Width measurement of radiation damage samples (Hikaru, Genki, Itaru) : photo
- 2020.9.14 Through hole measurement with Microscope at TIRI (Kondo, Imai, Nakagawa) : photo
- 2020.9.14 Channel Map : xlsx
- U-shape bending strength measurement data: 2020.06.22 measurement by Kondo-san zip, 2020.08.06 measurement zip
- mailing list for Bus Extender Developer (Japanese) sign up
- R&D Schedule link
- Tsuruta's records and data for series of line width and peel strength tests. zip (36MB)

This page was last edited on 9 February 2022, at 21:40.

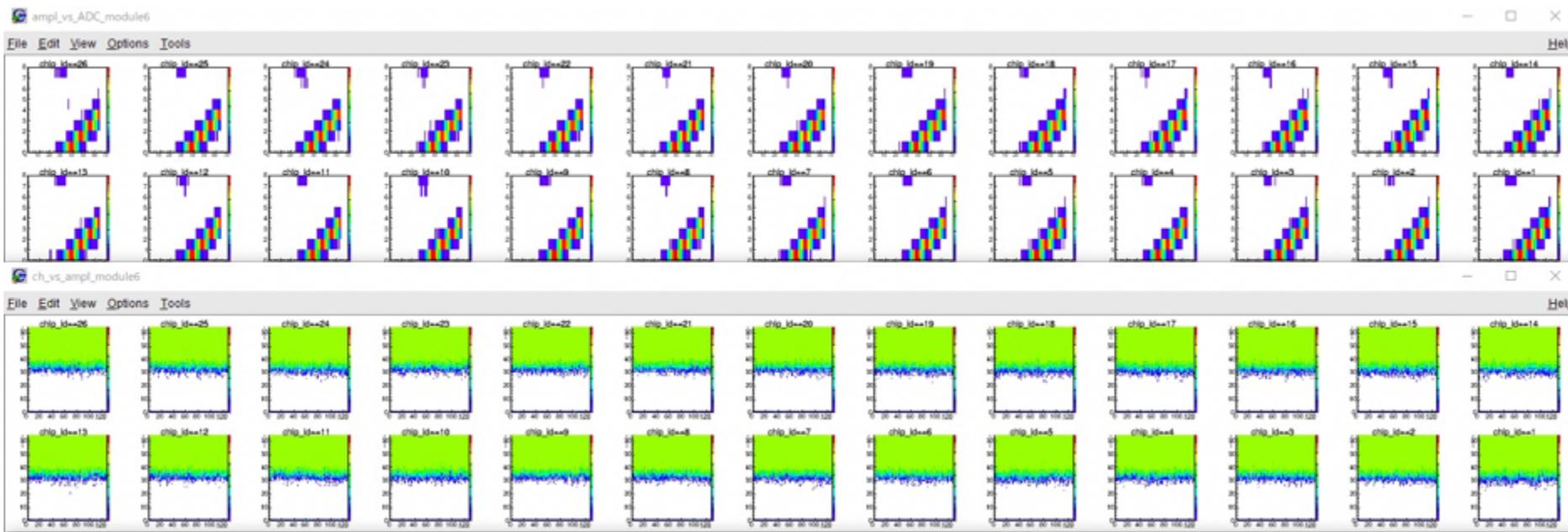
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Batch	Serial Number	2022/2/10
1	1	TIRI
	2	Takwan
	3	NWU
	4	NWU
	5	NWU
	6	BNL
	7	BNL
	8	BNL
	9	BNL
	10	BNL
1	11	BNL
	12	BNL
	13	BNL
	14	BNL
	15	BNL
	16	BNL
	17	BNL
	18	BNL
	19	BNL
	20	BNL

All Delivered.

1.1m Bus Extender

Measurement by Hikaru Imai



Successful Calibration

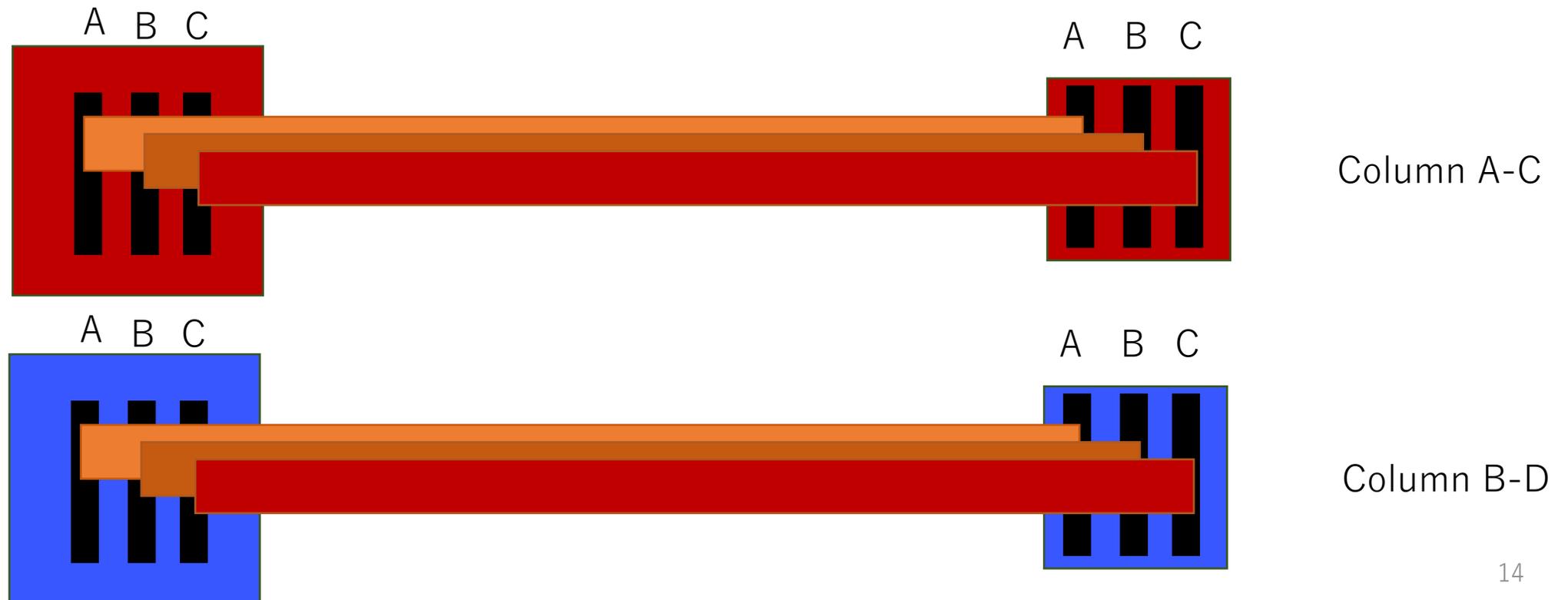
1st attempt to take calibration data with 1.1m bus extender using short/long FPC conversion cable. Similar LVDS current dependence observed with 1.3m bus extenders.

Conversion Cable

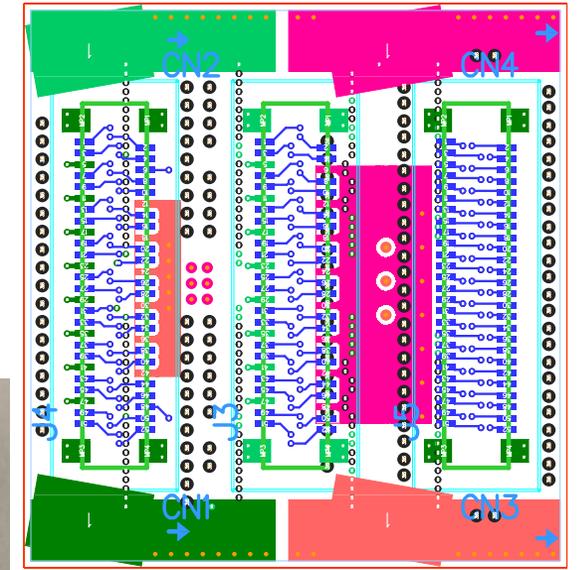
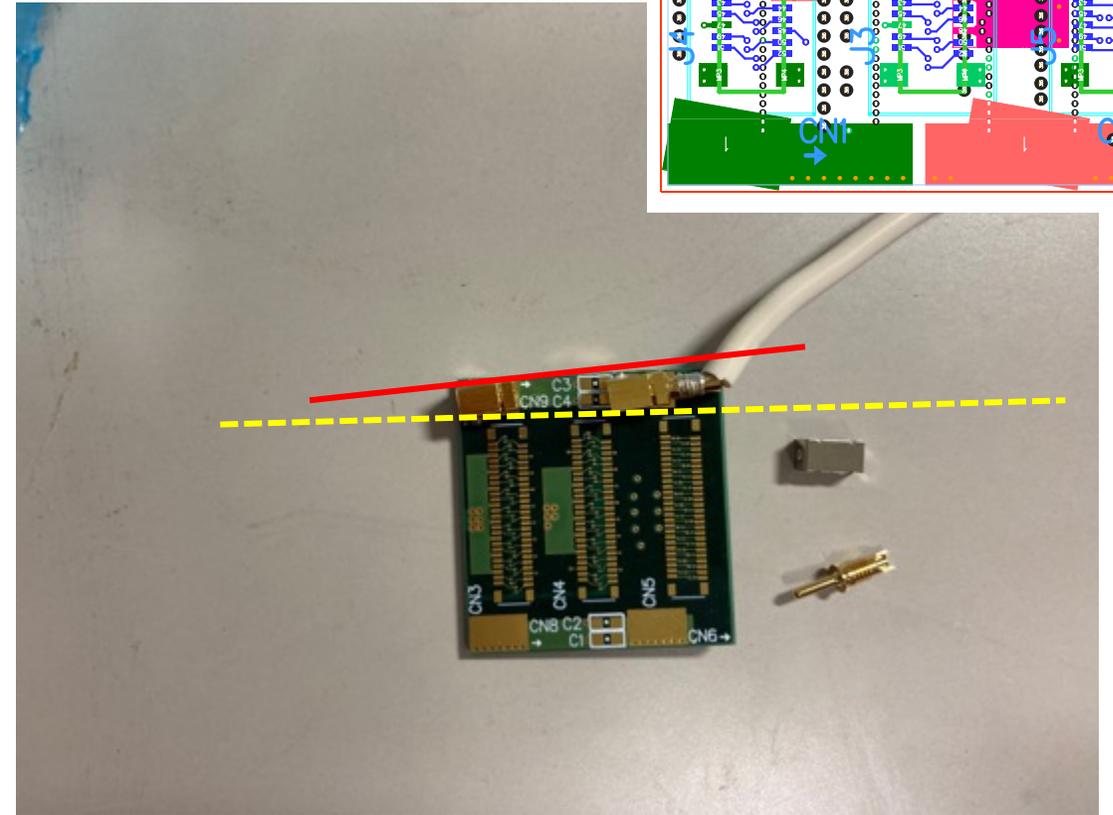
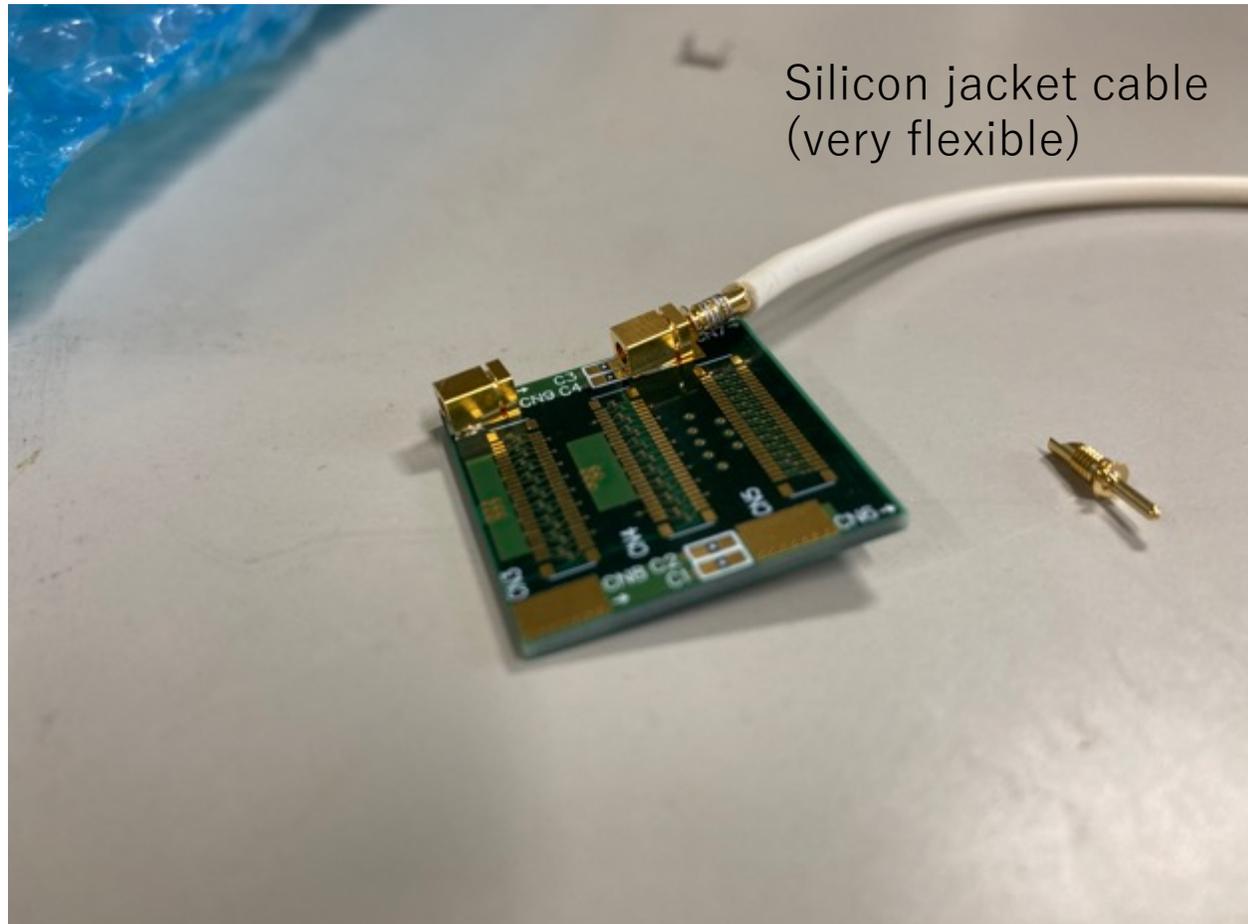
Design work towards prototype-II

A,C Cable and B,D Cable

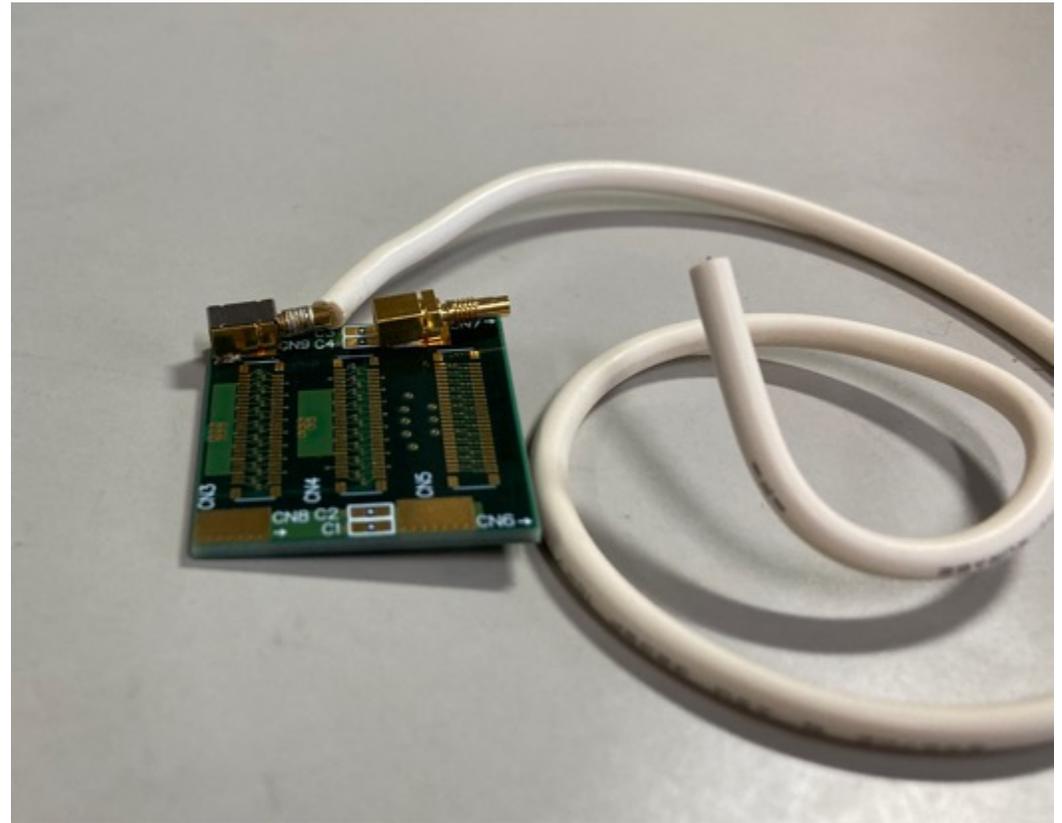
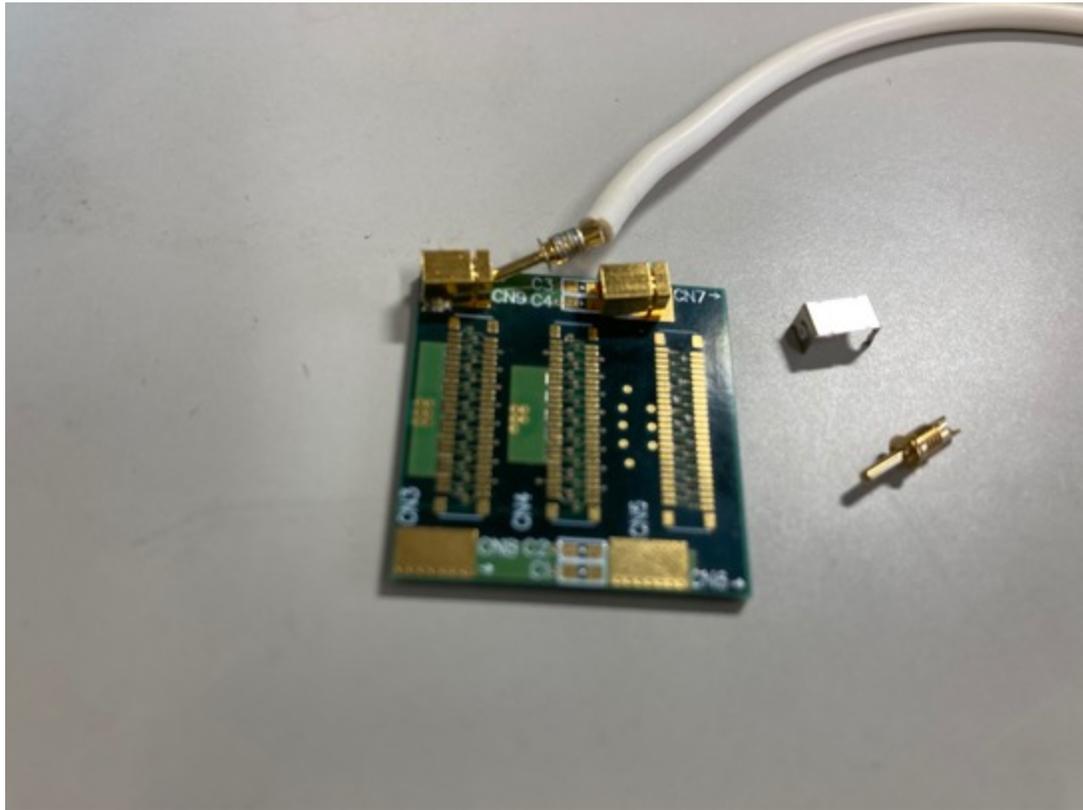
- The connectors for B,D and A,C needs dedicated boards. They look identical, but the inner layer layout will be different in both ROC/BEX side boards.



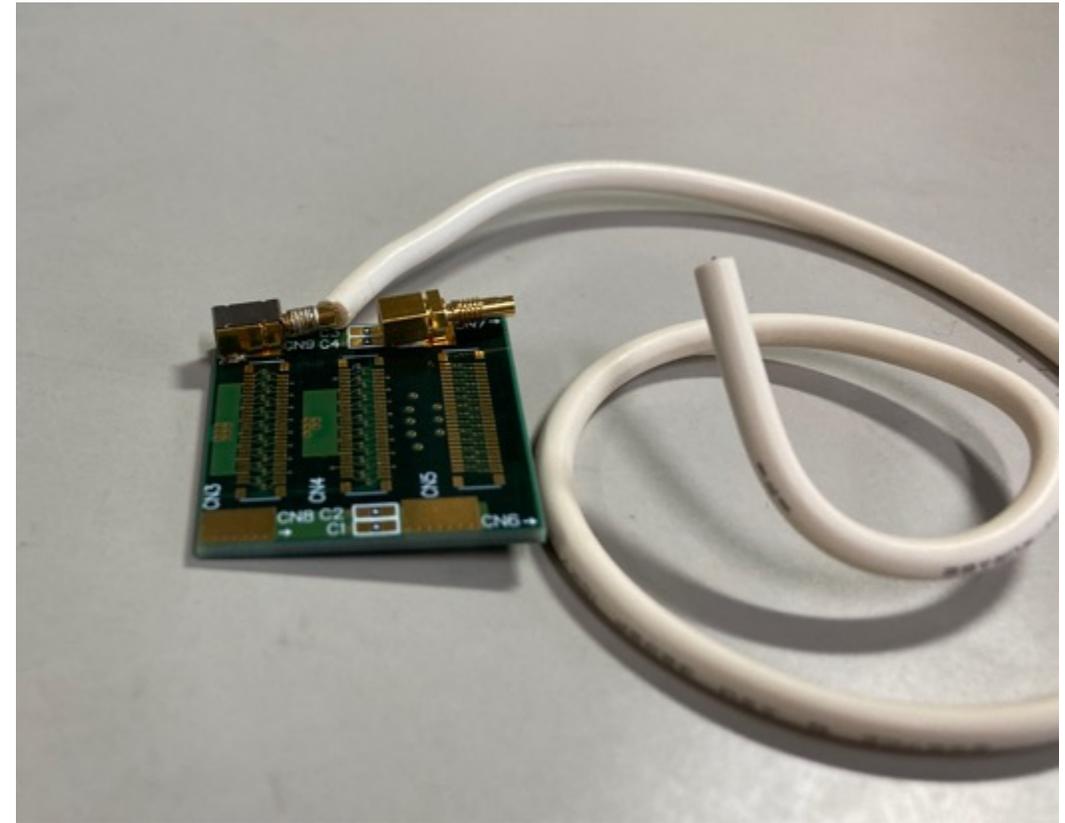
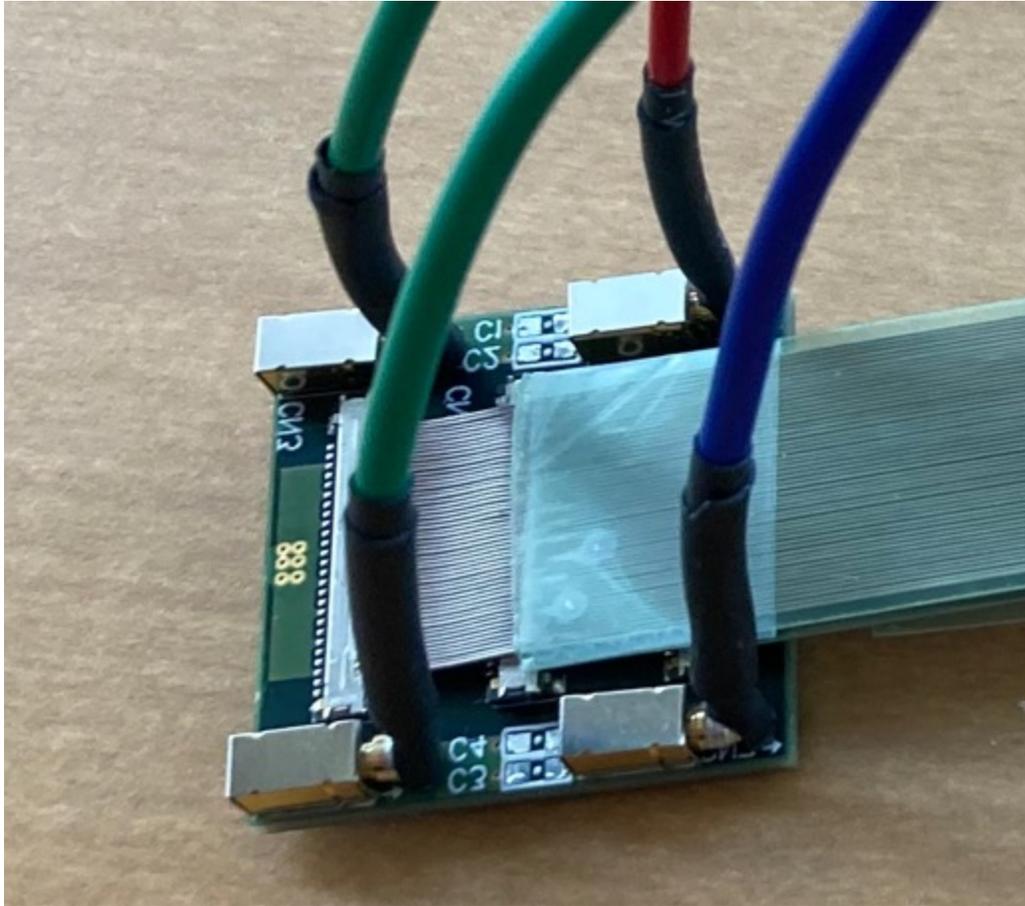
Board Design (ROC Side)



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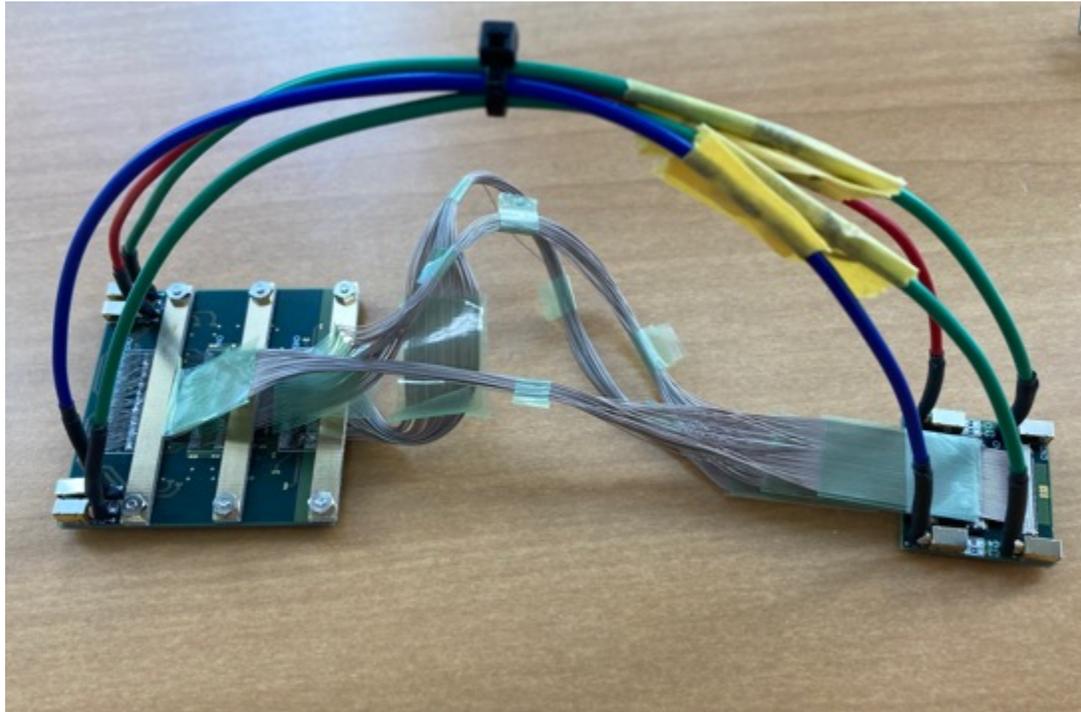


Board Design (ROC Side)



Keeping GND cables in-plane.

Stiffness of the GND Cables



The GND cables were too stiff and they invades vertical space above coaxial bundles.



Silicon jacket cable secures good flexibility

Possible Show Stopper

1. Lead Time for μ -Coax harness is estimated to be at least 6months. Seeking for any get around solution now.
2. Radiation hardness of μ -Coax cable (to be discussed in the dedicated slide).

Backup

Twisting m-Coax bundle for column B,D

