

Production Status

RIKEN/RBRC

Itaru Nakagawa

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Towards Batch-4 Stave Production

Batch-4 Stave Production

			BNL	Taiwan	Total	
Assembly			80	40	120	
Fraction			67%	33%		
Barrel	# of Ladders	With Spares	BNL	Taiwan	Available in TW	Batch-4
1	24	52	35	17	0	17
2	32	68	45	23	24	0
Total	56	120	80	40	24	17

The proposed plan is to hold the batch-4 stave production until middle of September, hoping we have reasonable guess about the yield rate of the ladder assembly in Taiwan. We will place an order 17 barrel-1 staves plus whatever quantity needed to compensate the yield rate. The expected delivery will be in November then and you will keep assembly of 14 ladders in the meantime. Does this plan sound OK?

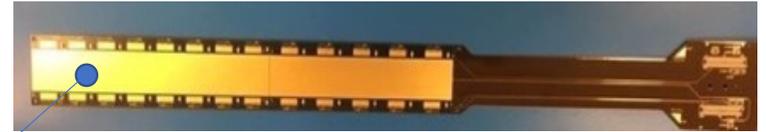
HDI Batch-3 Production

HDI 3rd Batch Production

Delivery Day	Batch	Order #	LOT #	Quantity	HDI Serial No.		Incremented Quantity	Inspection	Result	Shipped to Taiwan
2019/1/23	Preproduction	349670	302382	6						
2019/2/6		349670	302725	4						
2019/9/11		350963	306716	20						
2019/11/20		Exchanged	307469	1						
2020/4/2	Batch-1A	352075	310184	9	1	9	9			
2020/4/2		352075	310185_1	7	10	16	16			
2020/4/2		352075	310185_2	13	17	29	29			
2020/4/2		352075	310186	29	30	59	59	50	Good?	
2020/4/28	Batch-1B	352075	310188	17	60	76	76	70	bad	
2020/4/28		352075	310189	24	77	100	100	80, 94	bad	
2020/6/8		352075	311139	2	101	102	102			
2020/6/8		352075	311587_1	7	103	109	109	105		6
2020/6/17		352075	311587_2	2	110	111	111			
2020/6/17		352075	311614	15	112	126	126	122		14
2020/6/24		352075	311615	21	127	147	147	127		20
2020/7/9		352075	312095	20	148	167	167	-160		
2020/7/9		352075	312096_1	6	168	173	173			
2020/7/21		352075	312096_2_1	7	174	180	180			
2020/7/28	Batch-1A	Exchanged	312096_2_2	1	24	24	180			
2020/9/28	Batch-2	353110	312532	20	181	200	200			⚠
2020/9/28		353110	312533	16	201	216	216			
2020/9/29		353110	312534	7	217	223	223	-220		
2020/9/29		353110	312535	14	224	237	237			
2020/9/29		353110	312536	7	238	244	244			
2020/10/27		353110	313304	24	245	268	268	265		3
2020/11/27		353110	313673	2	269	270	270			2
2021/6/28	Batch-3		317333_2_2	11	271	281	281			
2021/7/5			317338	14	282	295	295			
2021/7/19			317341	23	296	319	319			
2021/8/6			318459	22	319	340	342			
2021/8/6				31860	13	341	353	353		

- 23 HDI's were shipped to BNL on Aug. 4th together with batch-3 staves and delivered on Aug.9th.
- 32 HDIs were delivered in Aug.6th.
- We have ~83 out of 100 HDI's to be produced as batch-3.
- Due to delay of polyimide sheet procurements, they have no estimate when the next LOT can be started.
- Yamashita will stop the production by 100 batch-3 HDIs.
- Based on the agreement in May, they will produce more upon necessity if we find bad HDIs and number of HDIs becomes short.

HDI 3rd Batch Production



- Size of the unplated spots issue on the gold plating for the silicon pads on the top layer of HDI.
- The requirement of the spots is $< 50\mu\text{m}$ and these spots are larger than $100\mu\text{m}$.
- Since these spots are just local and isolated, so I won't worry any defect in the conductivity of the silicon bias.
- If we agree, we let them move on.

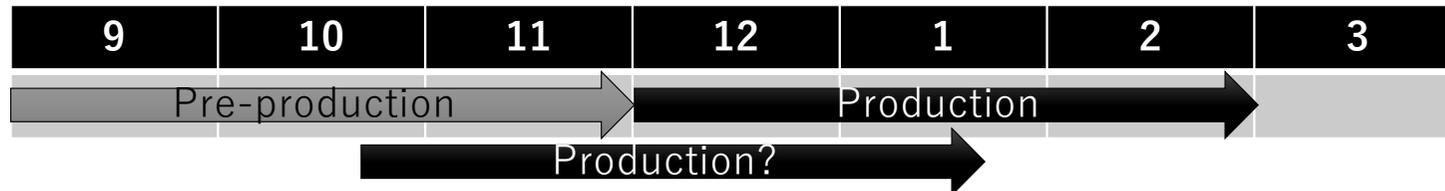


We agreed these is not severe and we can accept.

Bus Extender

Bus Extender Production

- Need 2 STEPS for new length 1.11m. Normally pre-production + production takes 6 months.
- Contract is in preparation for 10 Pre-production 1.11m bus extender.
- Fixture and masks have to be renewed. Fabrication parameters have to be re-tuned (additional 1 ~ 1.5 months?)
- Expected 3 months lead time (End of Nov~December delivery).
- Trying to come up with the scenario we can run another 40 cables production without completion of pre-production to be delivered by the end of December, 2021 (None-trivial).

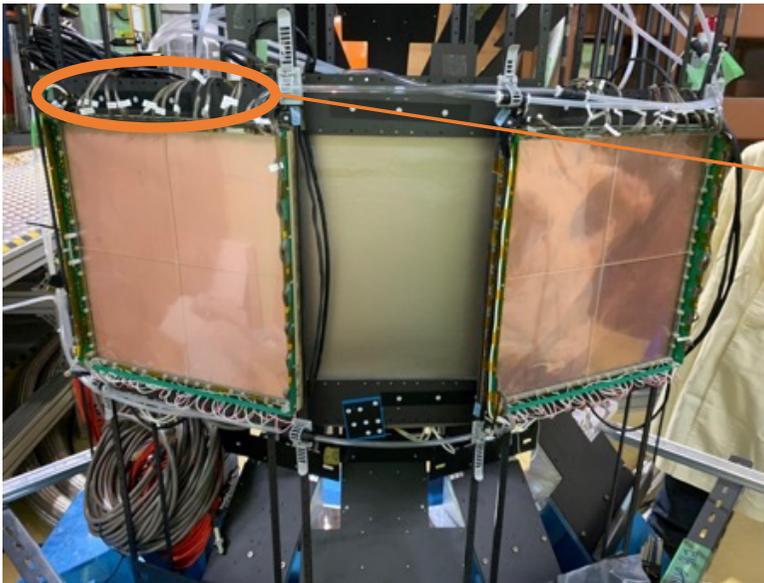


Conversion Cable

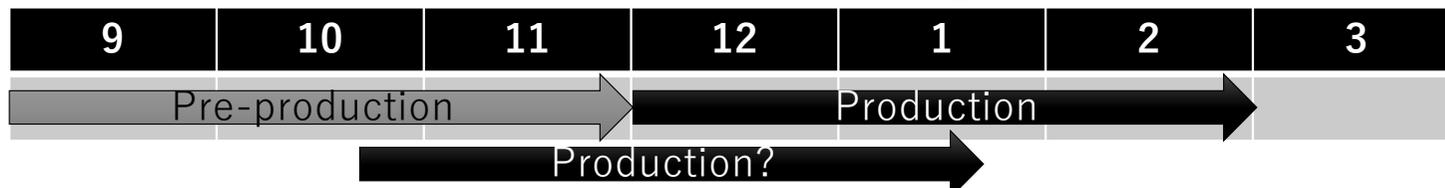
KEL-XSL Cables for signal transmission tests

The lead-time for 48ch KEL-XSL cables are normally 3 months (fabricated in China). Additional 1~2 month to assemble both connectors. (Expected delivery of prototype in December).

I got 3 bundle of 48ch KEL-XSL cables (some dead-channels) from a J-Parc group.



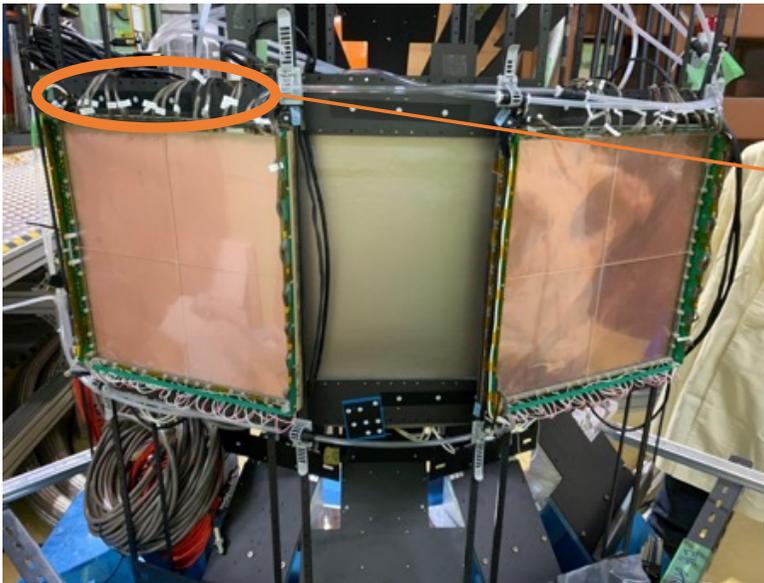
Pushing for the first conversion cable at least for the high frequency signal transmission test as soon as possible once both connector end's design is settled and fabricated.



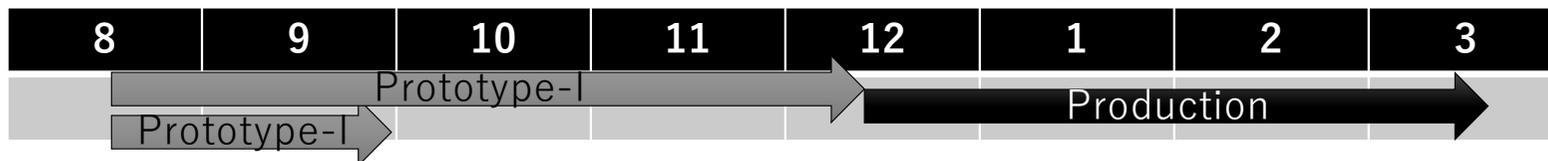
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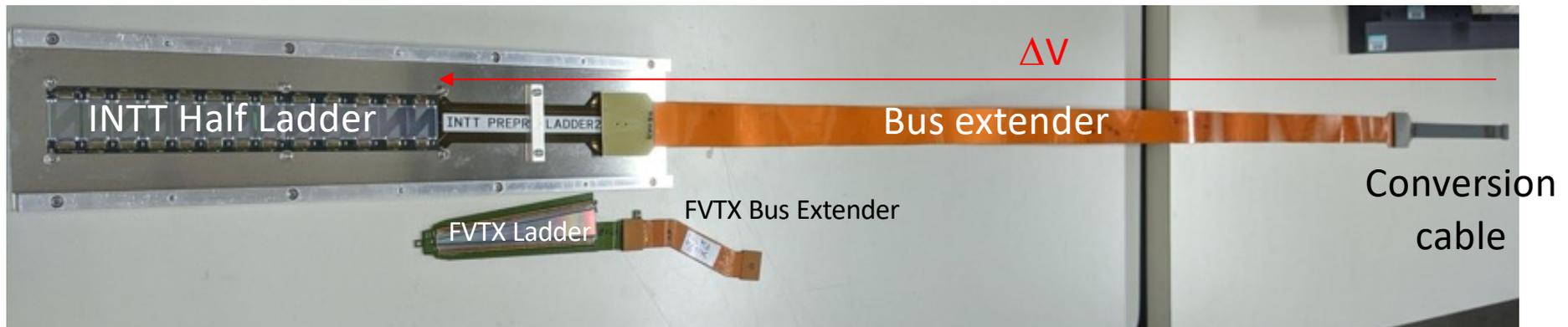
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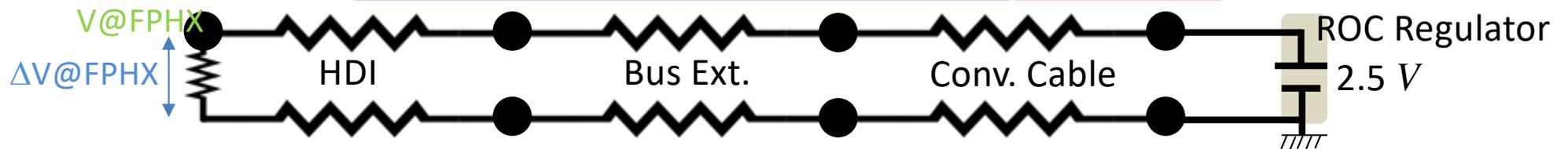
Homework from the readout review

Is it safe to operate FPHX at $\Delta V > 2.5V$?

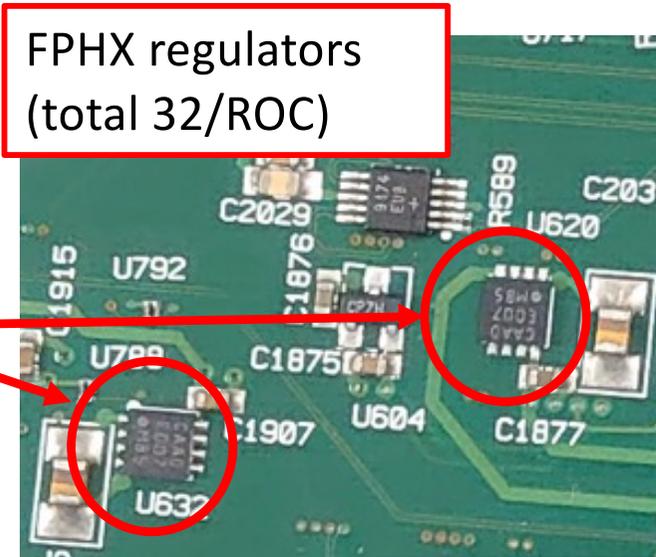
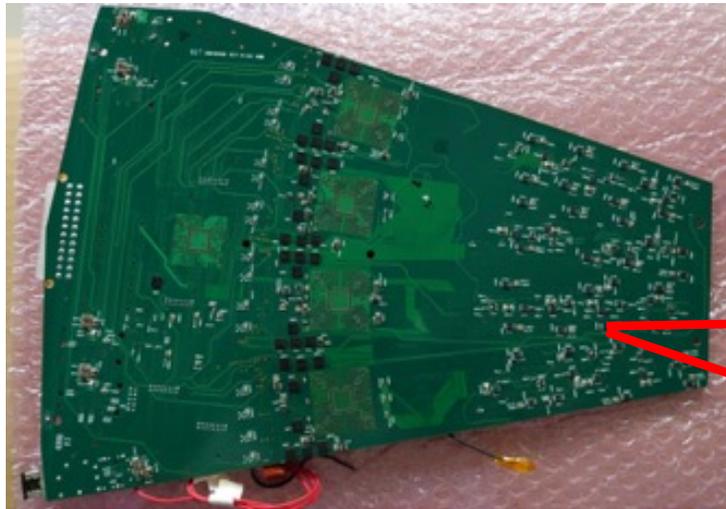
Voltage Drop for FPHX Power



	@ROC	HDI	Bus Ext.	Conv. Cable	Volt. Drop	@FPHX
	V [V]	Resistance [$m\Omega$]			ΔV [V]	V [V]
INTT	2.5	135 ~ 185	145	185	0.20 ~ 0.25	2.30 ~ 2.25
FVTX		70	70	N/A	~ 0.1	2.4



ΔV for FPHX Power Solution



FPHX regulators
(total 32/ROC)



1A, Low-Voltage, Low Quiescent Current

Features:

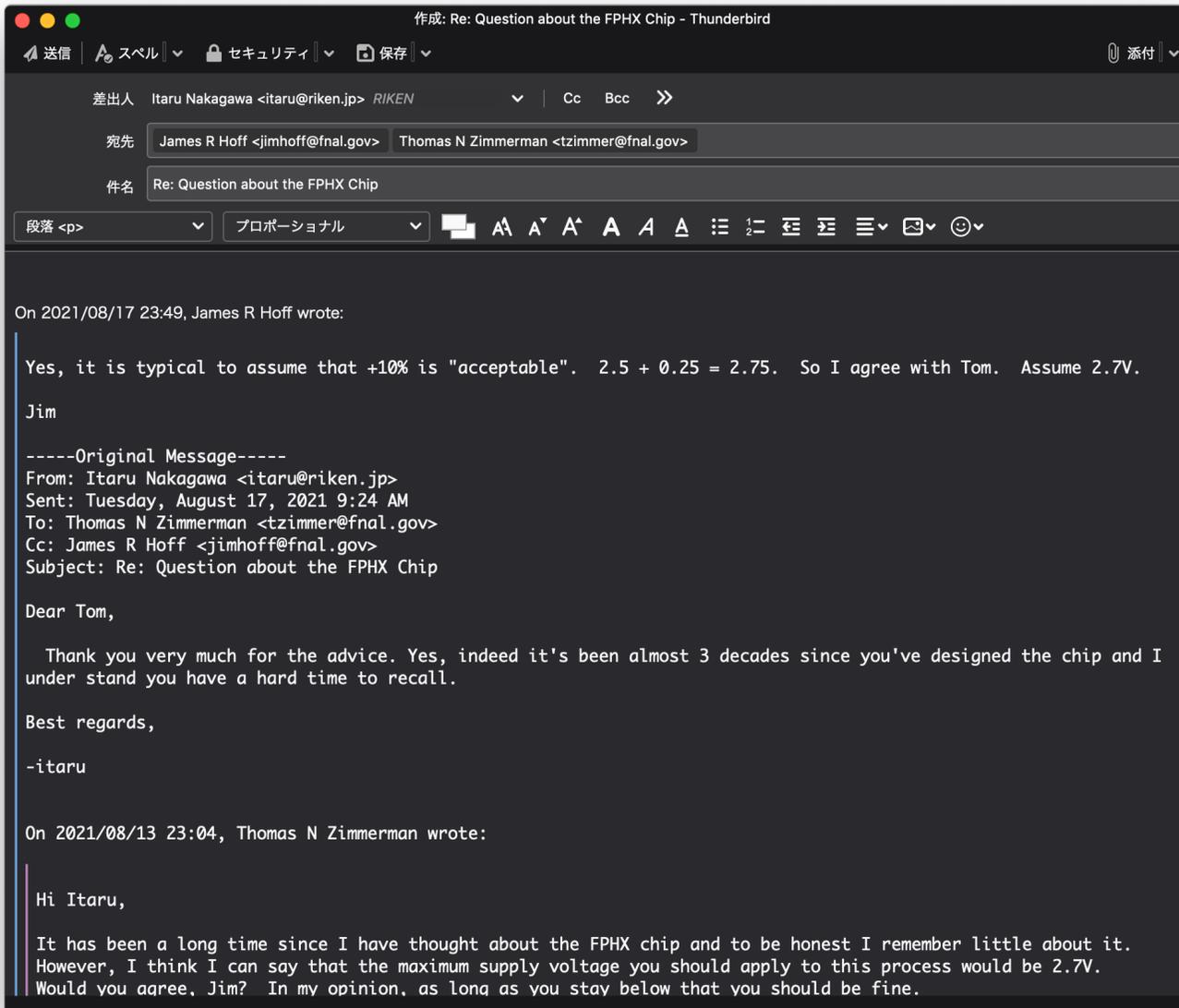
- 1A Output Current Capability
- Input Operating Voltage Range: 2.3V to 6.0V
- Adjustable Output Voltage Range: 0.8V to 5.0V
- Standard Fixed Output Voltages:
- 0.8V, 1.2V, 1.8V, 2.5V, 3.0V, 3.3V, 5.0V

Descripti

The MCP1¹ regulator th comes in fi with an outp curr

		V@ROC [V]	ΔV [V] /way	ΔV @FPHX [V]
I N T T	Digital	3.0 V	0.20 ~ 0.25	2.50 ~ 2.60
	Analogue	2.8 V	0.1	2.6
FVTX		2.5 V	~0.1	2.3~2.4

Upgrade of 2.5 V regulators by 3.0 (digital) and 2.8 V (analogue) ones on the backplane of the ROC is ongoing. This upgrade is mandatory for higher LVDS current operation. (To be discussed by Takashi's talk).



Response

- Contacted with Tom Zimmerman and Jim Hoff @ FNAL
- Their best guess is OK as long as the voltage gap is less than 2.75V.