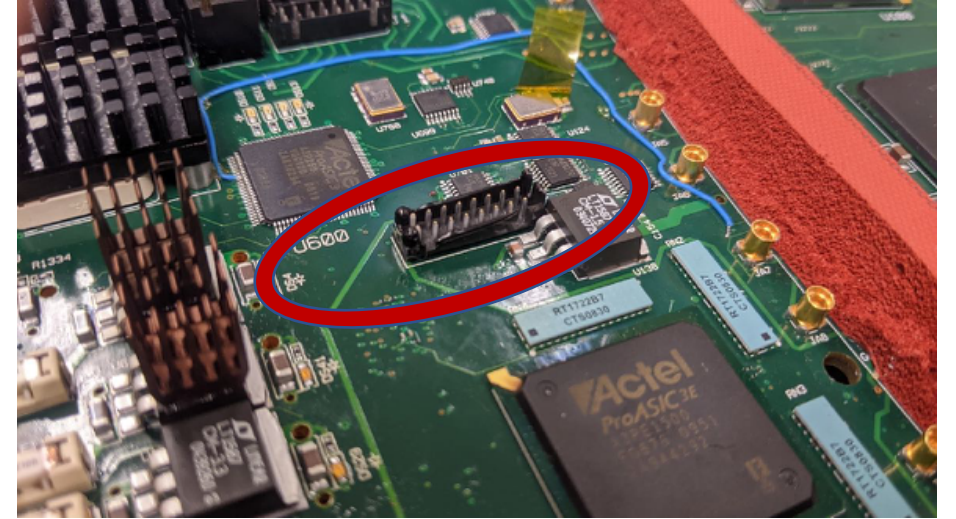
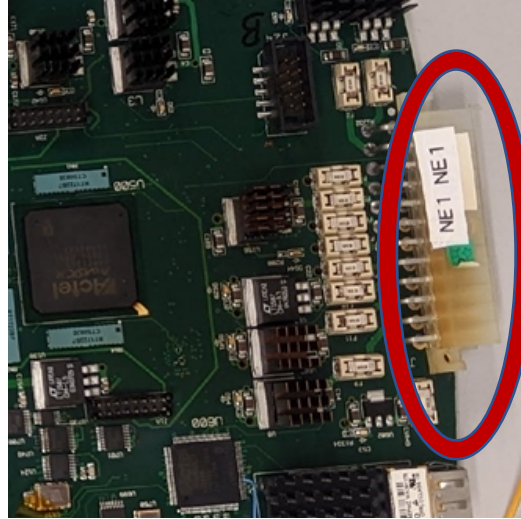
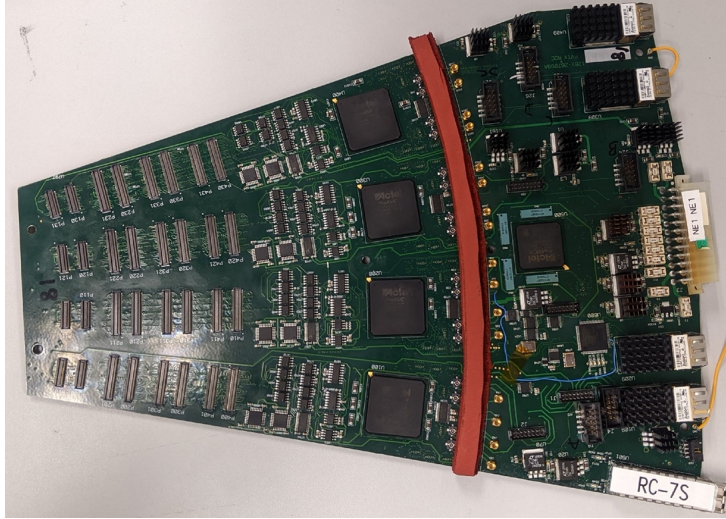


Slow Control TLK Replacement

RIKEN/RBRC

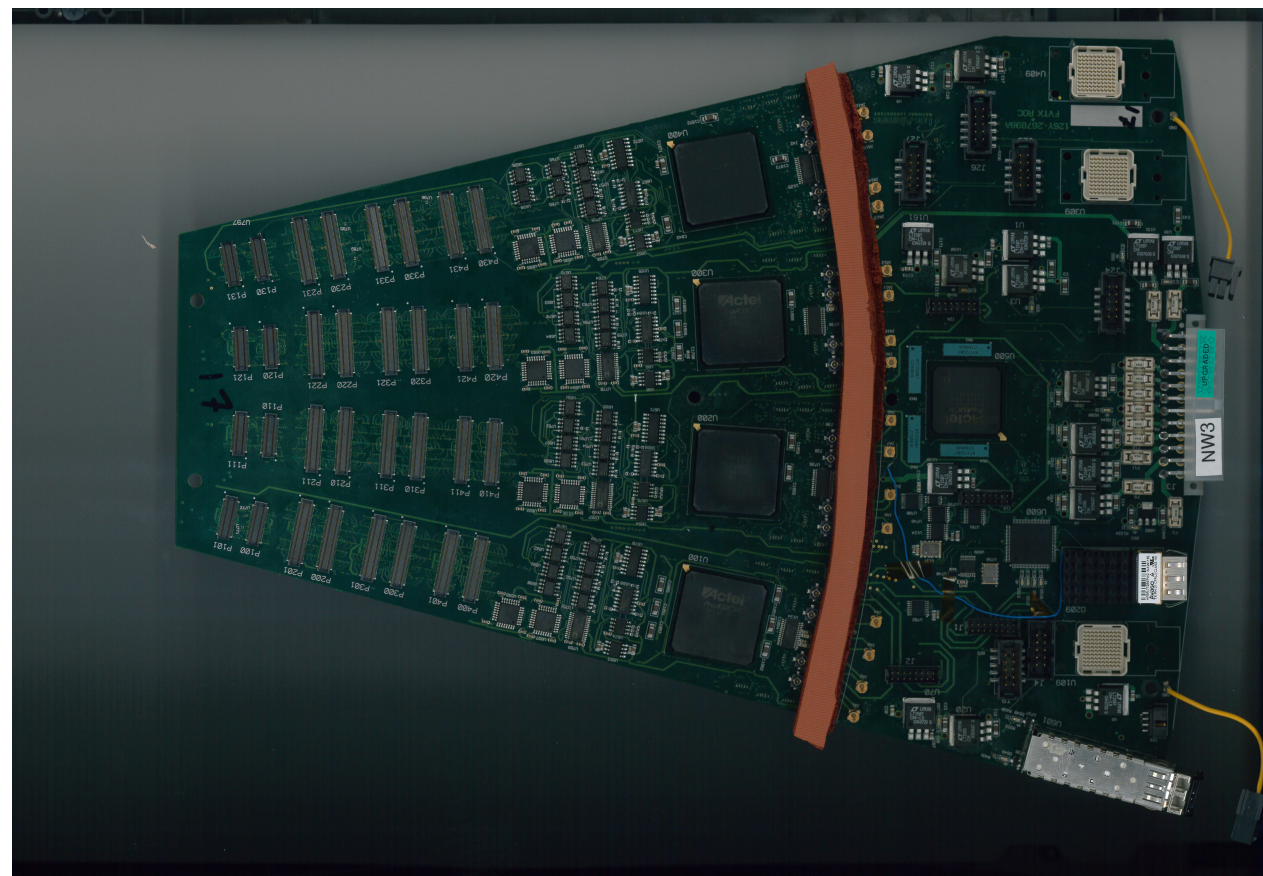
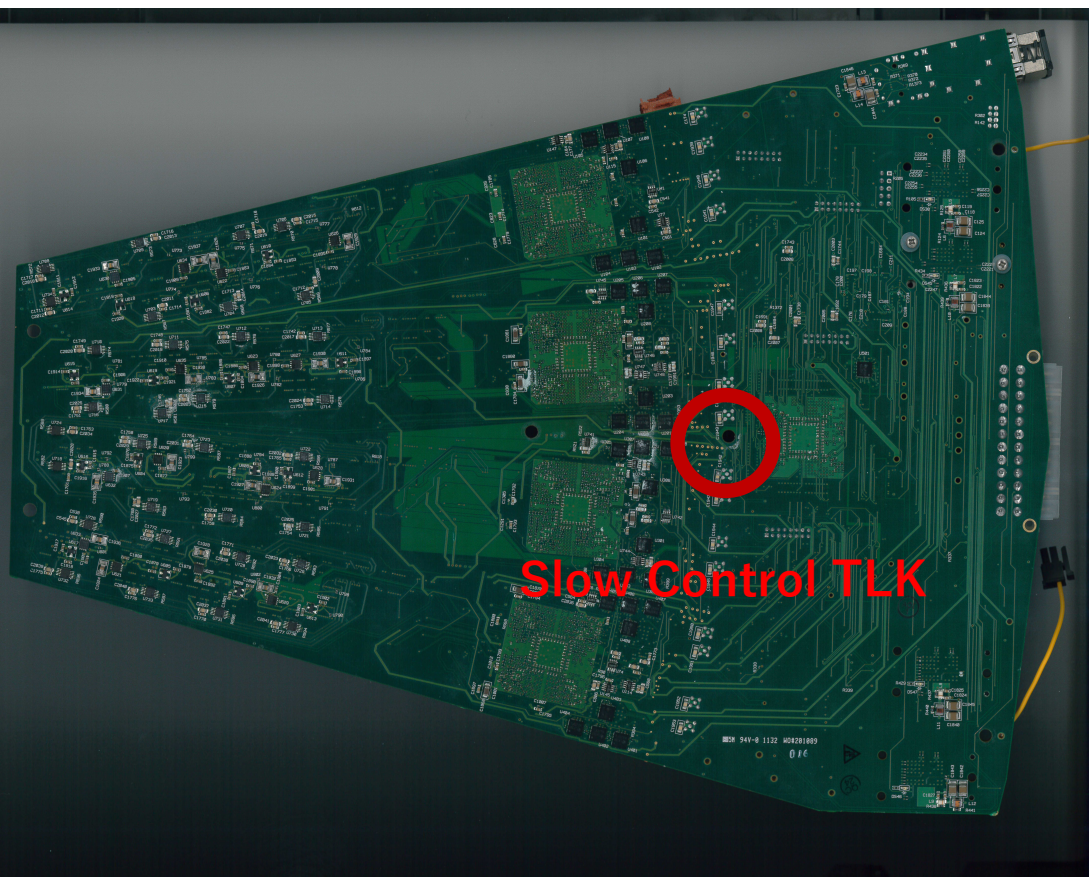
Itaru Nakagawa

TLK Replacement at BNL



After Slow Control Replacement, some surface mount components on the opposite side are damaged.

ROC NW3 Slow Control Replacement



ROC NW3 Repair History

ROC_database

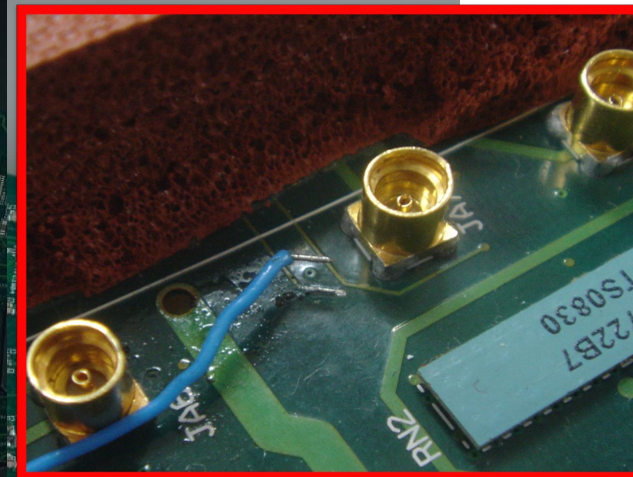
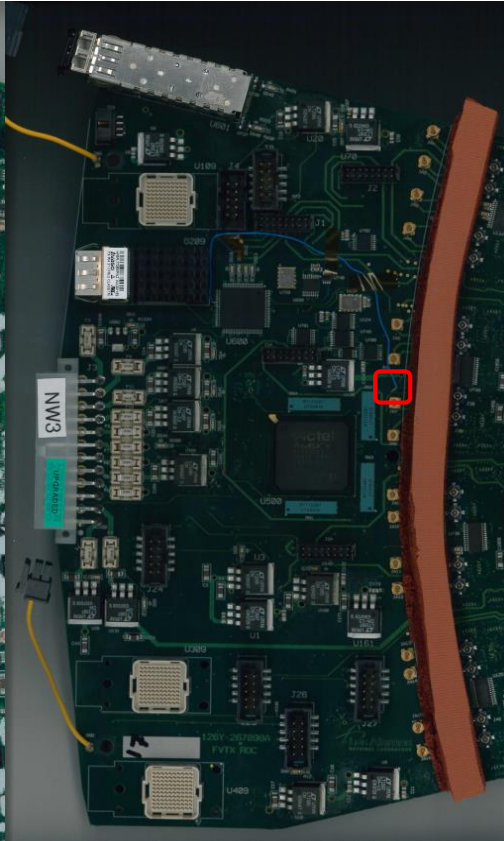
ROC #	FVTX	Regulator Upgrade	SC TLK Replacement	Location	Class	Barrel	A1	A2	A3	B1	B2	B3	C1	C2	C3	D1	D2	D3	Issue	Status
1	8	NW2	✓	BNL	1	E-05														Given to Joe (2023/01/09)
2	13	NE4	✓	BNL	1	W-xx														It must be NE2. Given to Joe
3	18	NE1	✓	BNL	1															Given to Joe (2023/01/09)
4	26	SE3	✓	BNL	1	E-25														Given to Joe (2023/01/09)
5	28	SE0	✓	BNL	1	W-xx														Given to Joe (2023/01/09)
6	29	-	✓	BNL	1	W-xx														Given to Joe (2023/01/09)
7	30	SW5	✓	BNL	1	E-35														Given to Joe (2023/01/09)
8	32	SE2	✓	RKEN	2															A1 TLK Replaced
9	23	SE1	✓	BNL	1	W-xx														Given to Joe (2023/01/09)
10	31	NW1	✓	BNL	1	E-2N														Given to Joe (2023/01/09)
11	32	NE2	✓	BNL	1	E-3N														Given to Joe (2023/01/09)
12	9	-	✓	BNL	1															Given to Joe (2023/01/09)
13	8 (10)	-	✓	BNL	1	E-0N														NW3?
14	27	SE5	✓	BNL	1	E-1N														L12 Replaced at Column-D
15	19	NE5	✓	BNL	1	E-15														TLK2711 Replaced
16	24	SE4	✓	RKEN	2															Fiber Sync TLK2711 Replaced (A3,D1)
17	16	NE3	✓	BNL	3															Carib Pulse Waiting for SC-FPGA download
18	15	NE0	✓	NWU	2															Fiber Sync
19	2	NW4	✓	RKEN	3															B1, D1 Mechanical prob in DF18
20	7	-	✓	NWU	3															Replaced all DF18
21	17	NW3	✓	RKEN	2															Fiber Sync
22	3	NW5	✓	RKEN	2															Fiber Sync
23	14	NE1	✓	RKEN	3															L12 Replaced at Column-D (done), TLK replacement of A2, A3 for takeht study
24	5	-	✓	RKEN	3															

Jan. 13, 2023 Replaced B1 port TLK.
B1 port didn't fixed after TLK replacement.
Soon later, we lost the slow control.

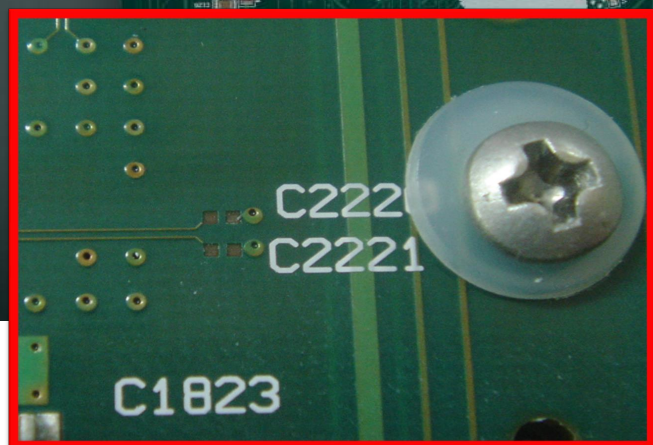
ROC_database

ROC #	FVTX	Regulator Upgrade	SC TLK Replacement	Location	Class	Barrel	A1	A2	A3	B1	B2	B3	C1	C2	C3	D1	D2	D3	Issue	Status
1	8	NW2	✓	BNL	1	E-05														Given to Joe (2023/01/09)
2	13	NE4	✓	BNL	1	W-xx														Given to Joe (2023/01/09)
3	18	NE1	✓	BNL	1															Given to Joe (2023/01/09)
4	26	SE3	✓	BNL	1	E-25														Given to Joe (2023/01/09)
5	28	SE0	✓	BNL	1	W-xx														Given to Joe (2023/01/09)
6	29	-	✓	BNL	1	W-xx														Given to Joe (2023/01/09)
7	30	SW5	✓	BNL	1	E-35														Given to Joe (2023/01/09)
8	32	SE2	✓	A1	BNL	2														A1 TLK Replaced
9	23	SE1	✓	BNL	1	W-xx														Given to Joe (2023/01/09)
10	31	NW1	✓	BNL	1	E-2N														Given to Joe (2023/01/09)
11	32	NE2	✓	BNL	1	E-3N														Given to Joe (2023/01/09)
12	9	-	✓	BNL	1															Given to Joe (2023/01/09)
13	8 (10)	-	✓	BNL	1	E-0N														Given to Joe (2023/01/09)
14	27	SE5	✓	BNL	1	E-1N														L12 Replaced at Column-D
15	19	NE5	✓	BNL	1	E-15														TLK2711 Replaced
16	24	SE4	✓	A2	BNL	2														Fiber Sync TLK2711 Replaced (A3,D1)
17	16	NE3	✓	NWU	3															Carib Pulse Waiting for SC-FPGA download
18	15	NE0	✓	NWU	2															Fiber Sync
19	2	NW4	✓	D1	RKEN	2														B1, D1 Mechanical prob in DF18
20	7	-	✓	NWU	3															Replaced all DF18
21	17	NW3	✓	C3	BNL	2														Fiber Sync (SC-FPGA) SC TLK Repair
22	3	NW5	✓	B1	RKEN	4														Fiber Sync
23	14	NE1	✓	D2	RKEN	3														D: All chip over 15
24	5	-	✓	RKEN	3															L12 Replaced at Column-D

Jan 26, 2023 Replaced Slow Control TLK



Disconnected
Jumper cable.
-> Most likely this is
the cause of the slow
control problem.



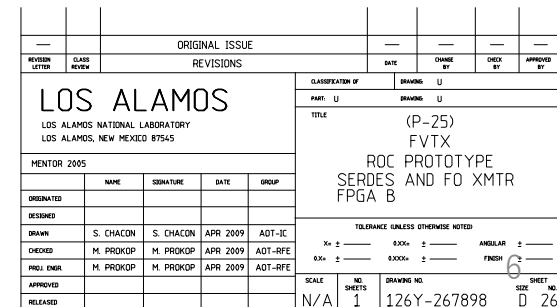
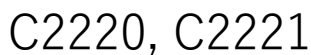
NW3

作業内容

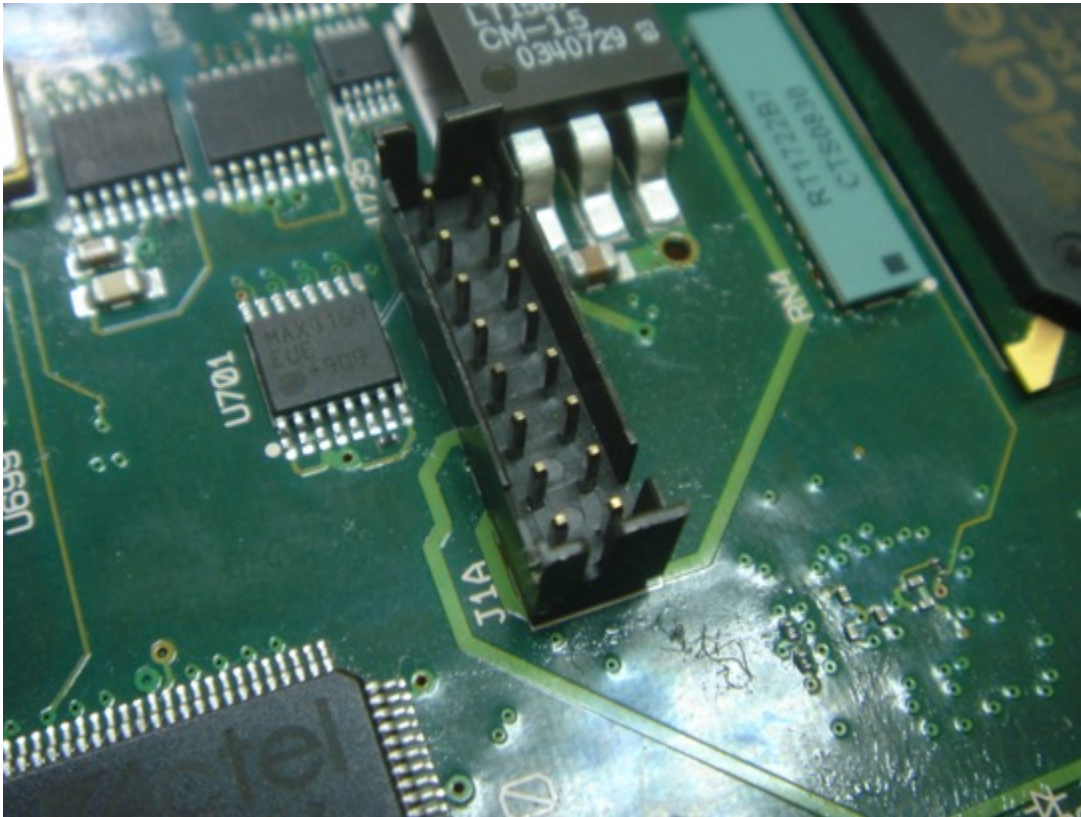
- ・ U501の交換 (TLK2711AJRZQE)
- ・ C2220、C2221 (パット無し) : 0201 6.3V 0.1 μ F $\pm$ 10%
- ・ ジャンパー線の再配線

C2220, C2221 are lost.

They are AC-coupled capacitors which bridge between TLK2711 serializer and the HFBR722 optical driver. Loosing these capacitors directly means loosing the contact between them. This results in fiber latch problem. This is another scenario of the fiber latch problem. Again, the fiber latch problem is still 100% fixable.



After SC-TLK Replacement



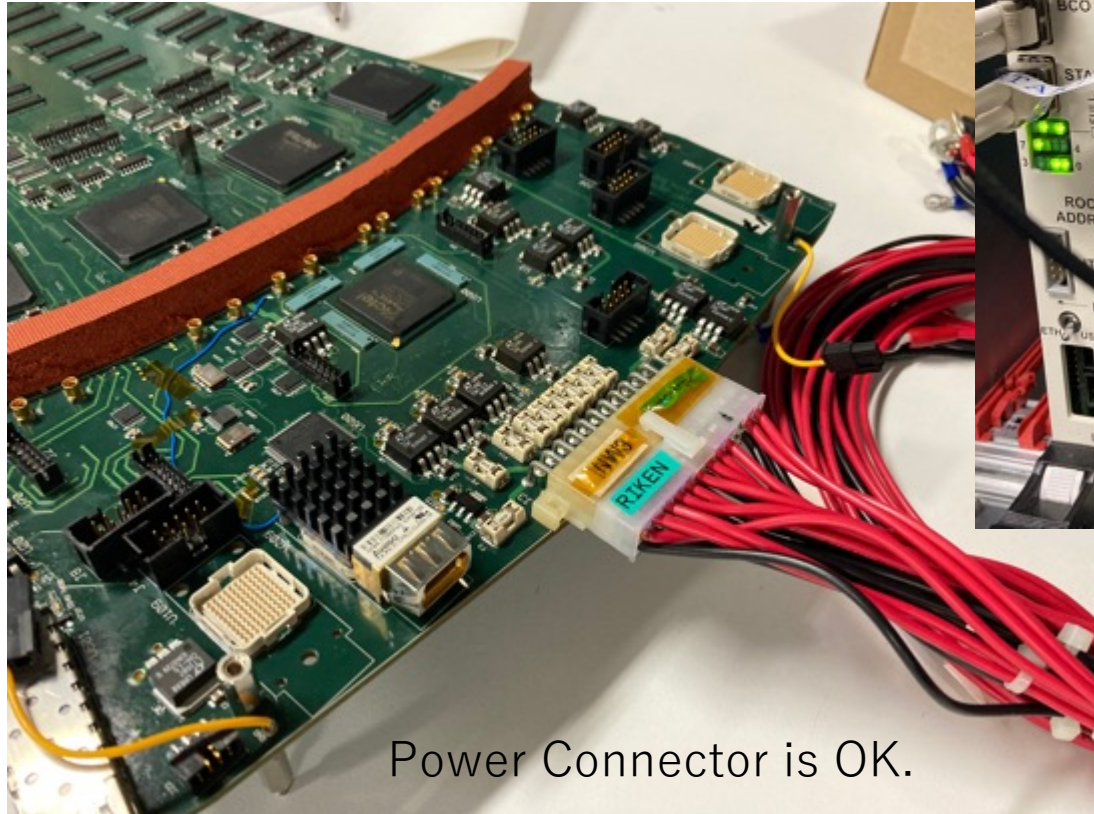
J1A connector is OK (no damage)



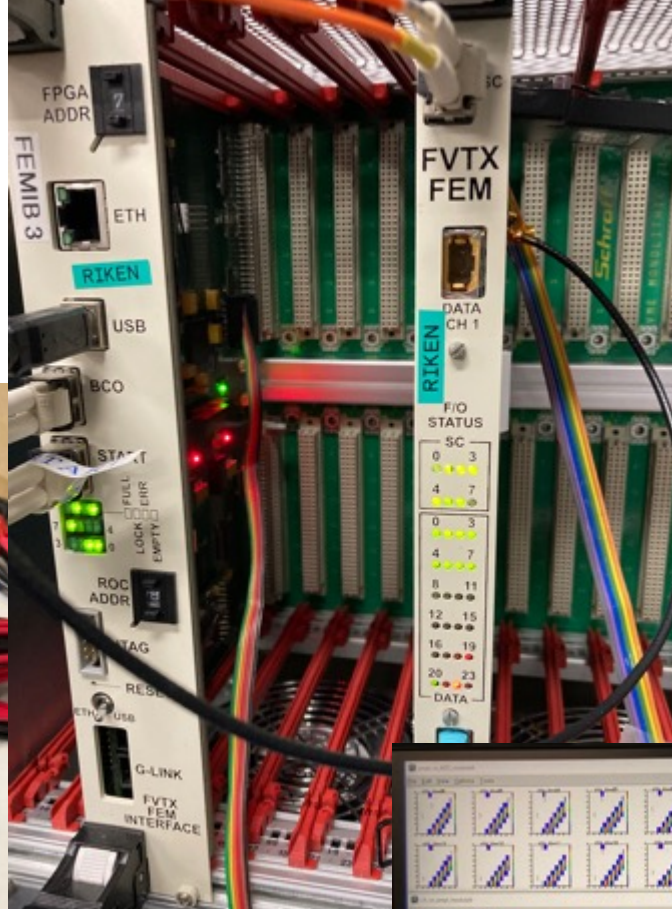
J3 connector was somewhat deformed by the heat

The replacement procedure was one-side heating, not double side in the company.

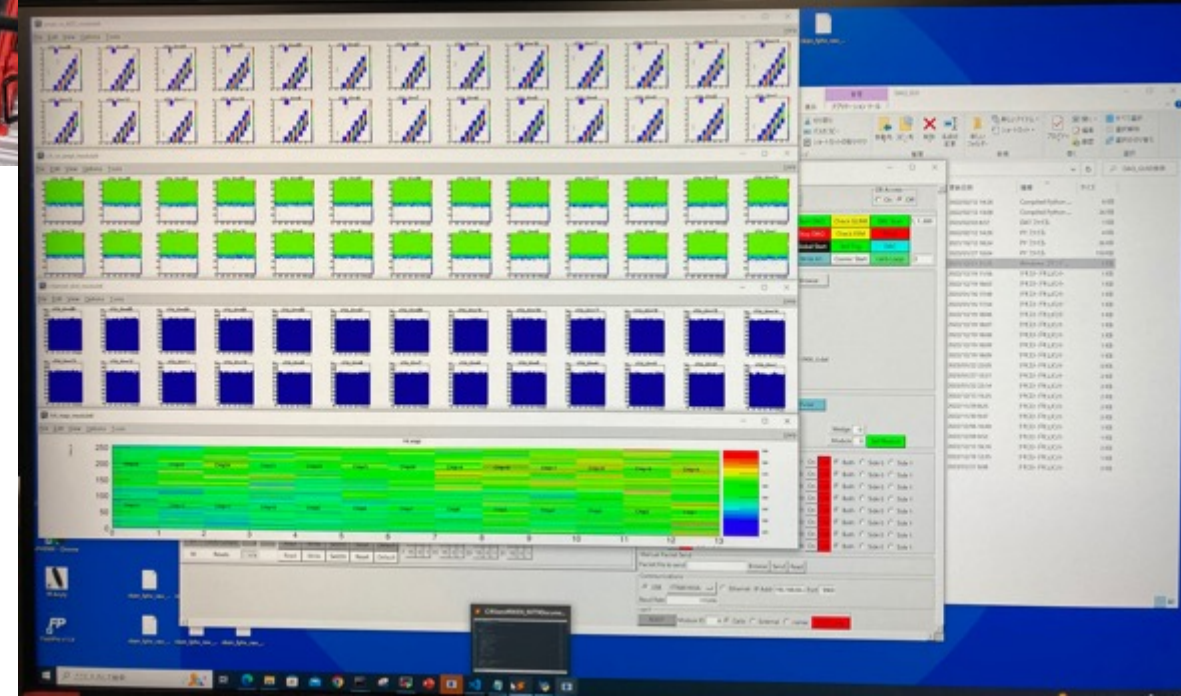
Good News



Power Connector is OK.



Slow control back in working.
Fiber latches OK for all ports.



Good calibration data from B1 port.
Other ports are to be tested next week.

ファイル 編集 表示 挿入 表示形式 データ ツール 拡張機能 ヘルプ 最終編集: 数秒前

https://docs.google.com/spreadsheets/d/11jsgrsl7pS02la_Huew4Fw-nbNwOzl6Vhbl0nRYUX-w/edit#gid=401985413

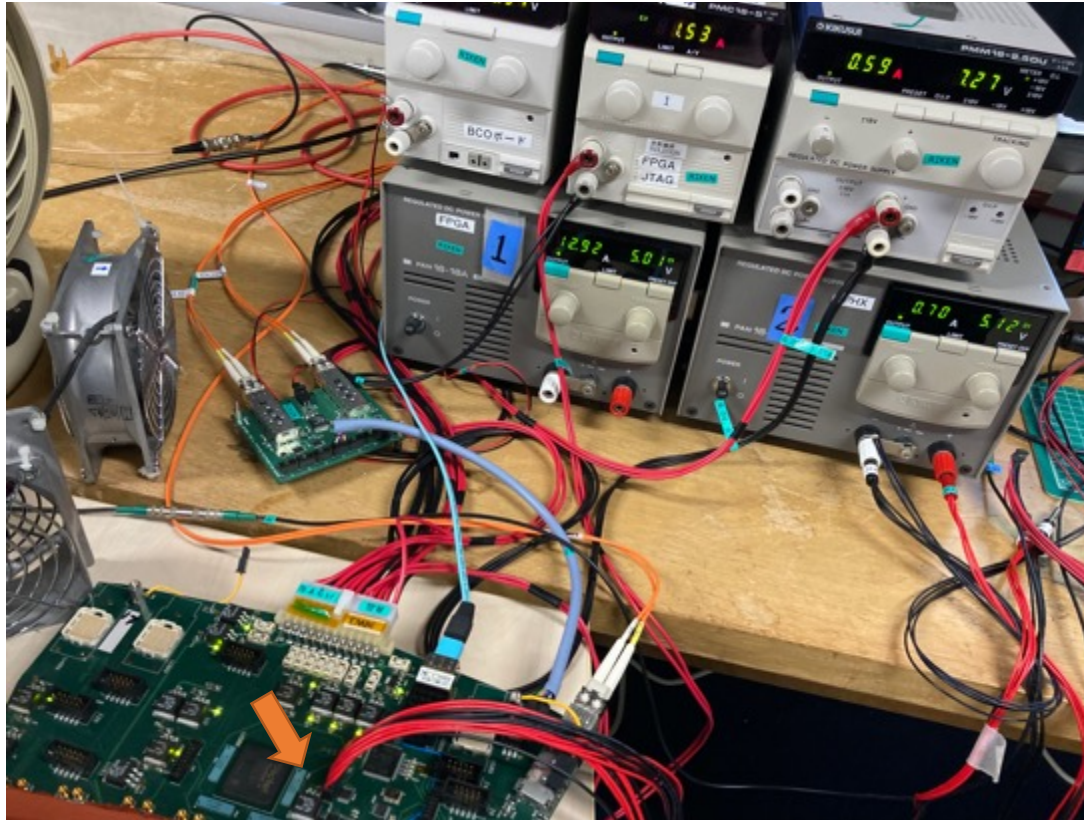
31 ∇ f_X

9

f_X

10

Damaged J1A port



I happened to damaged J1A connector. It still holds the cable, but may be better to be replaced before use.

