

Production Status

RIKEN/RBRC

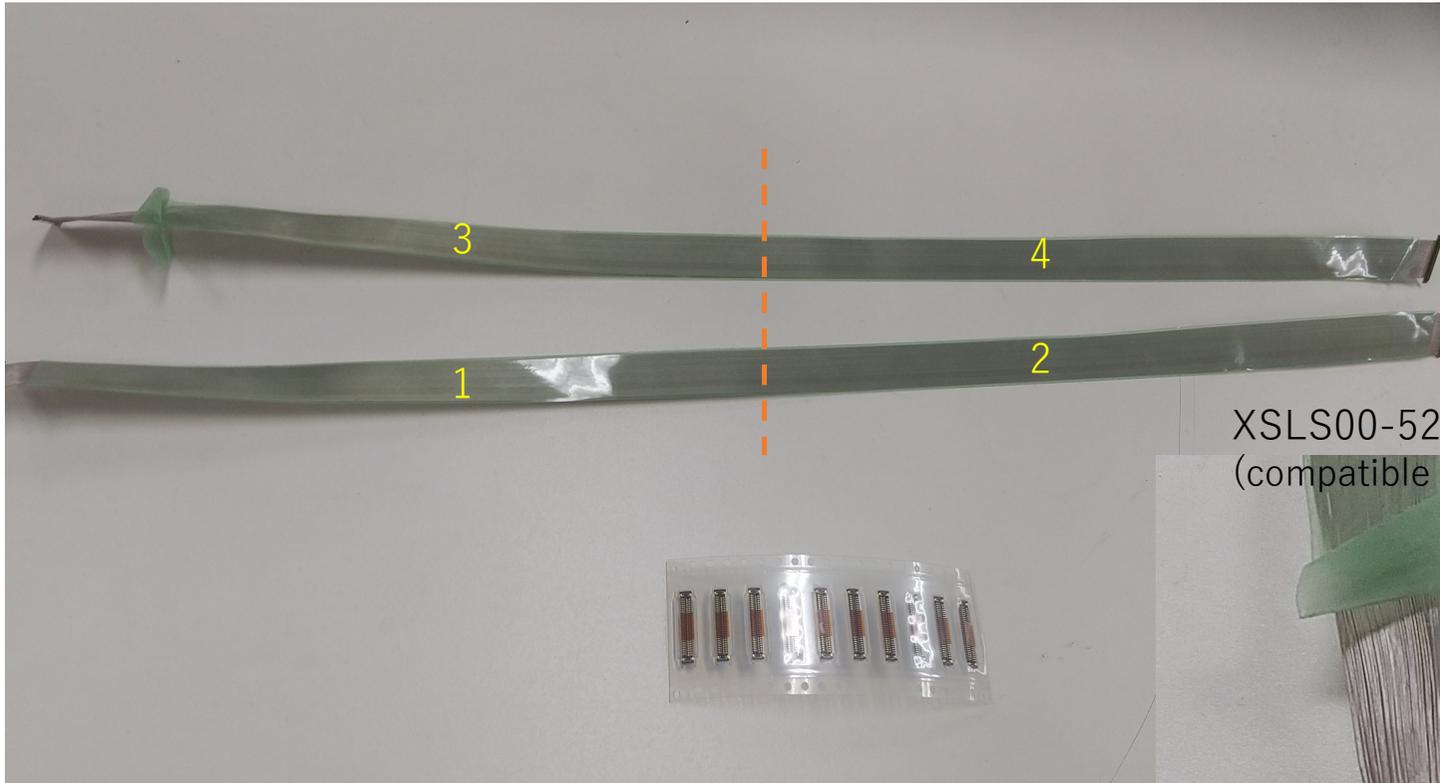
Itaru Nakagawa

Production Summary

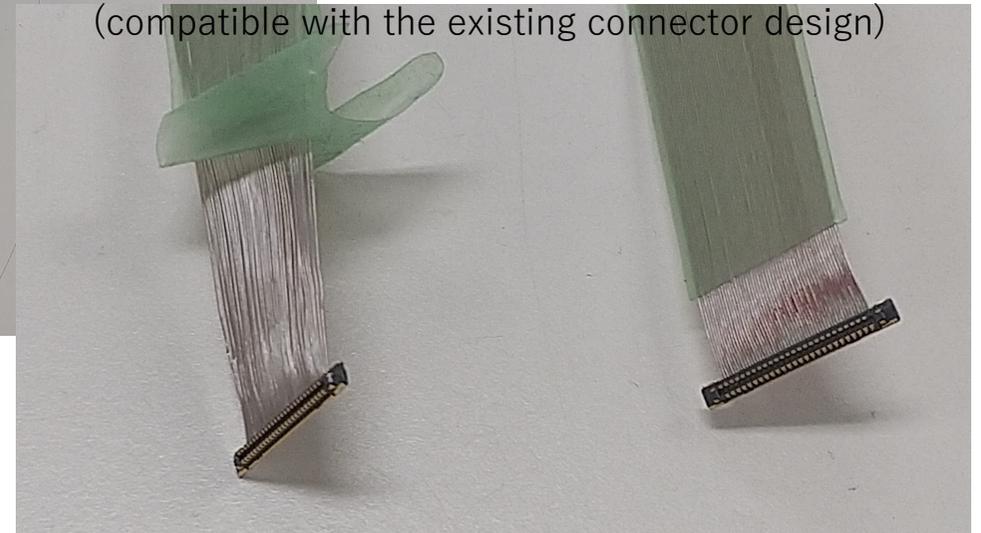
- Silicon Sensors
 - 19 pcs sets are to be shipped from Taiwan to BNL soon.
 - 25 pcs additional sets are to be ordered

Conversion Cables

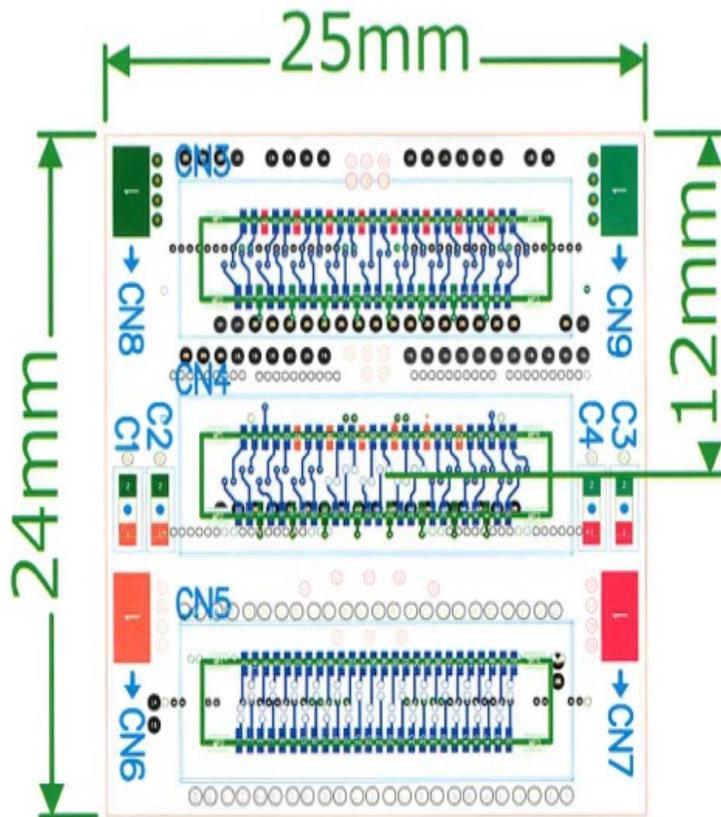
- Offered XSL samples from KEL
- 40cm x 2 bundles (AWG44)
- Can be chopped off in the middle and create 4 x 20cm bundles.
- We can make 1 prototype conversion cable for performance test.



XSLS00-52-B Connector
(compatible with the existing connector design)



Schedule



Designed by REPIC

- GND/Power cable gauge needs to be optimized. (Requested > AWG24).
- Waiting for quote from REPIC co.
- Contract paper works is ready
- 1 week for connector fabrication
- < 1 week for manual soldering of 52 x 3 wires
- Expected delivery of 1 prototype conversion cable is sometime in 1st half November.
- Once we have the prototype, we will go through various tests.
 - s-Parameter, TDR, eye-diagram
 - Standalone DAQ, long term data taking
 - To be used to readout from the one of the ladders in December beam test.
 - Radiation test
 - Heat cycle

Specification Comparison (Executive Summary)

High Frequency Signal Transmission Performance @400MHz

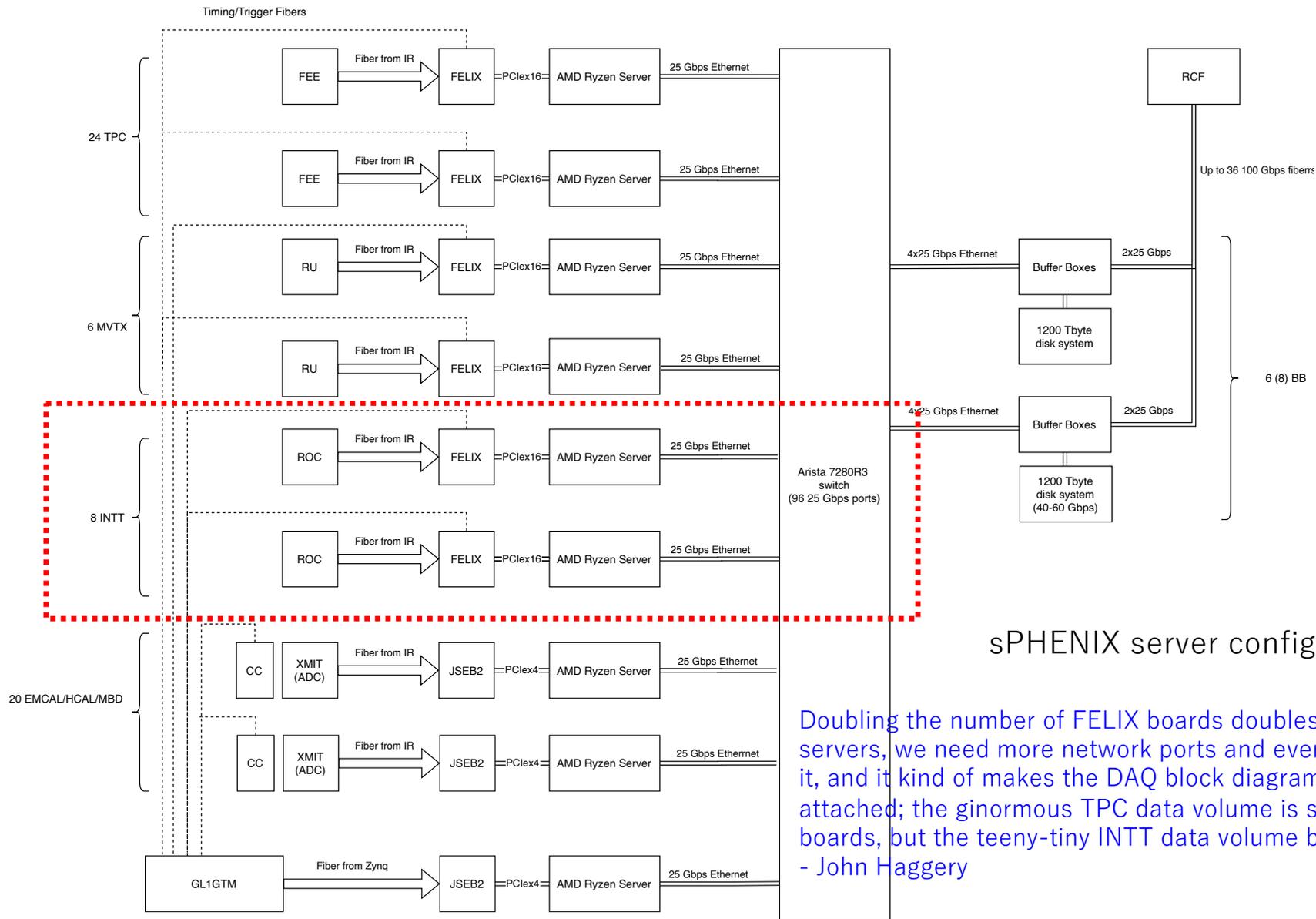
	FPC		KEL XSL				IPEX UX-II
Length [cm]	20	40	10	10	20	30	50
AWG	N/A	N/A	46		44		44
Impedance [Ω]	50	50	50		45 \pm 3		50
Diff Impedance [Ω]	110	110	93		83		
Insertion Loss [%]	80	56	84	90	84	80	
Return Loss [%]	10	20	25		18		
Cross Talk [%]	<12*		1				
Eye Diagram	similar		similar				

*20cm conversion cable with bus extender

- No prototyping for [1.3m long conversion + bus extender cable](#) by μ -Coax.
- May be worthy to process AWG46 (93 Ω) prototype cable in parallel even it takes 3 months to fabricate. Try to proceed in parallel

FELIX Board

- Consulted with Jin Huang and John Haggerty regarding 1ROC/1FELIX configuration.
- To be short, 1ROC/1FELIX is not feasible at this point for many reasons.
 - No scheduled production by ATLAS
 - 1ROC=>1FELIX=>1Server. 8 additional FELIX needs 8 additional server.
 - etc.



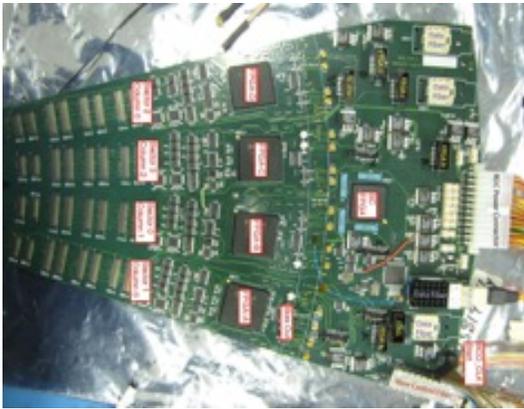
sPHENIX server configuration

Doubling the number of FELIX boards doubles the number of servers, we need more network ports and everything that goes with it, and it kind of makes the DAQ block diagram look goofy (see attached; the ginormous TPC data volume is served by 24 FELIX boards, but the teeny-tiny INTT data volume by 16?).
 - John Haggery

2ROCs/1FELIX Configuration

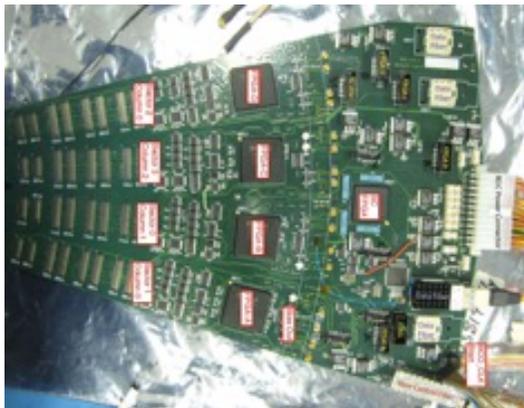
We readout from 2 St-1 and St-3 ports for all 4 A,B,C,D columns by default.

ROC1



16 fiber channels

ROC2



16 fiber channels



48 input channels



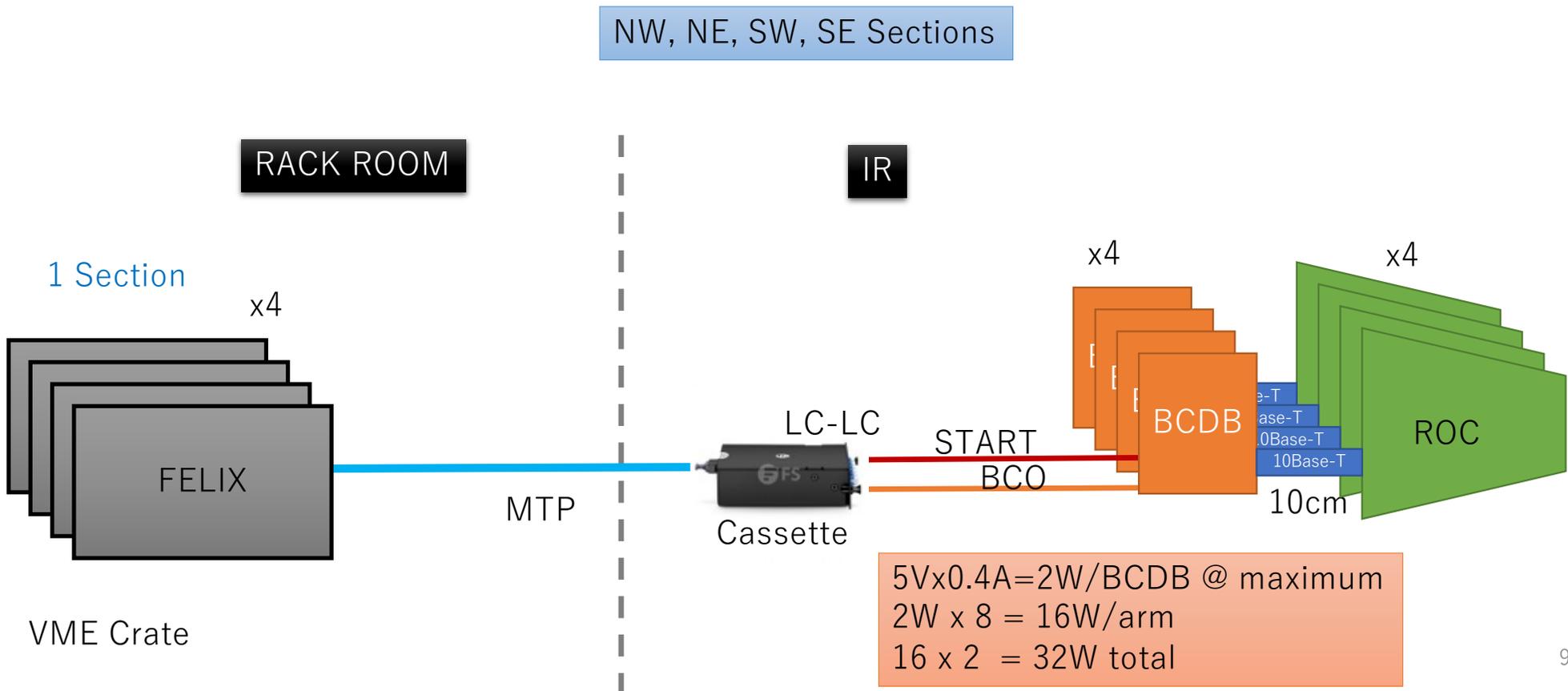
FELIX



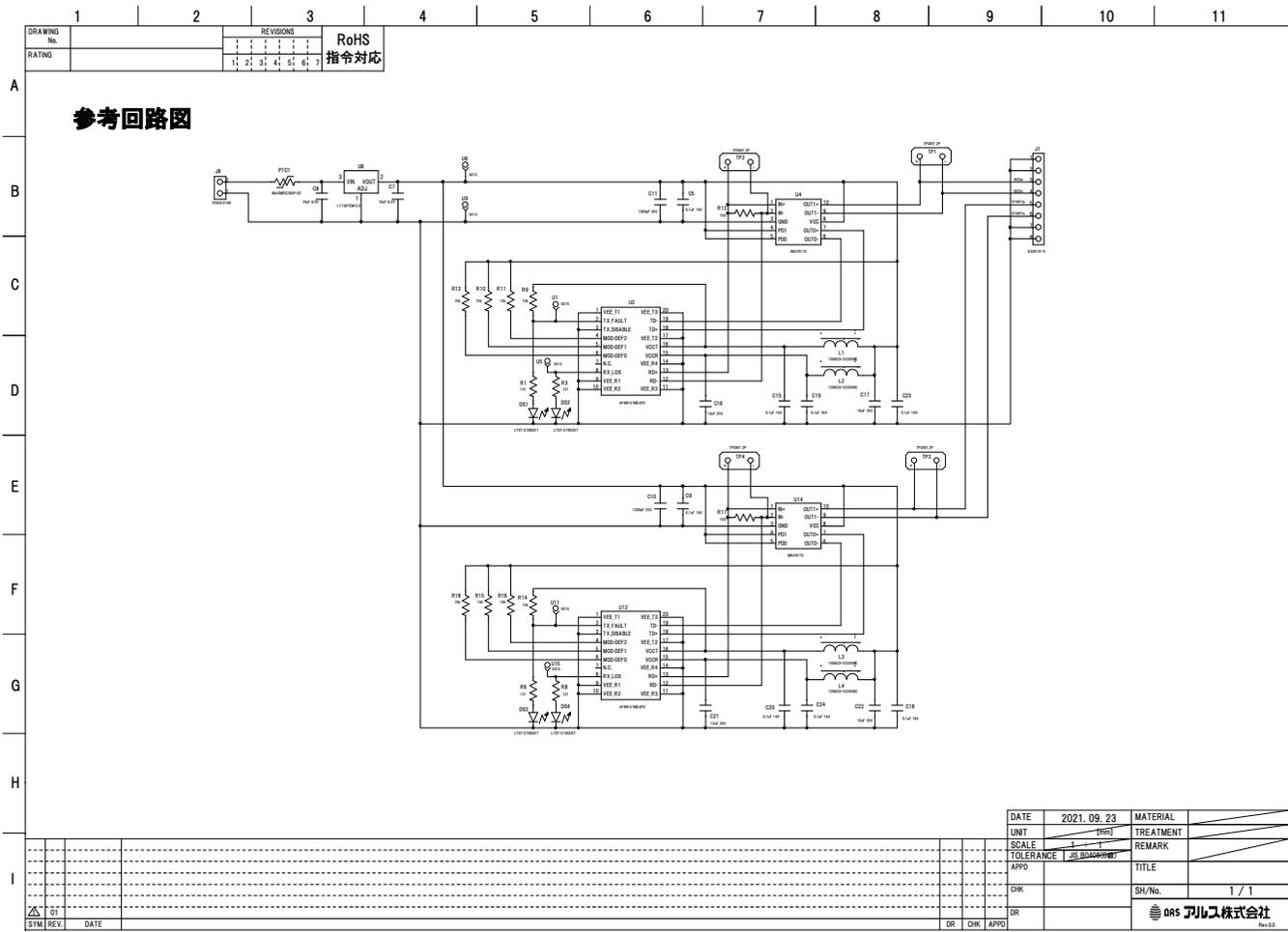
Total of $16+16=32$ channels which is still less than 48 fiber channels capacity of FELIX board.

1ROC/1FELIX BCLK Configuration

- Assuming 1 FELIX is assigned to each ROC (confirmed by Sioan).



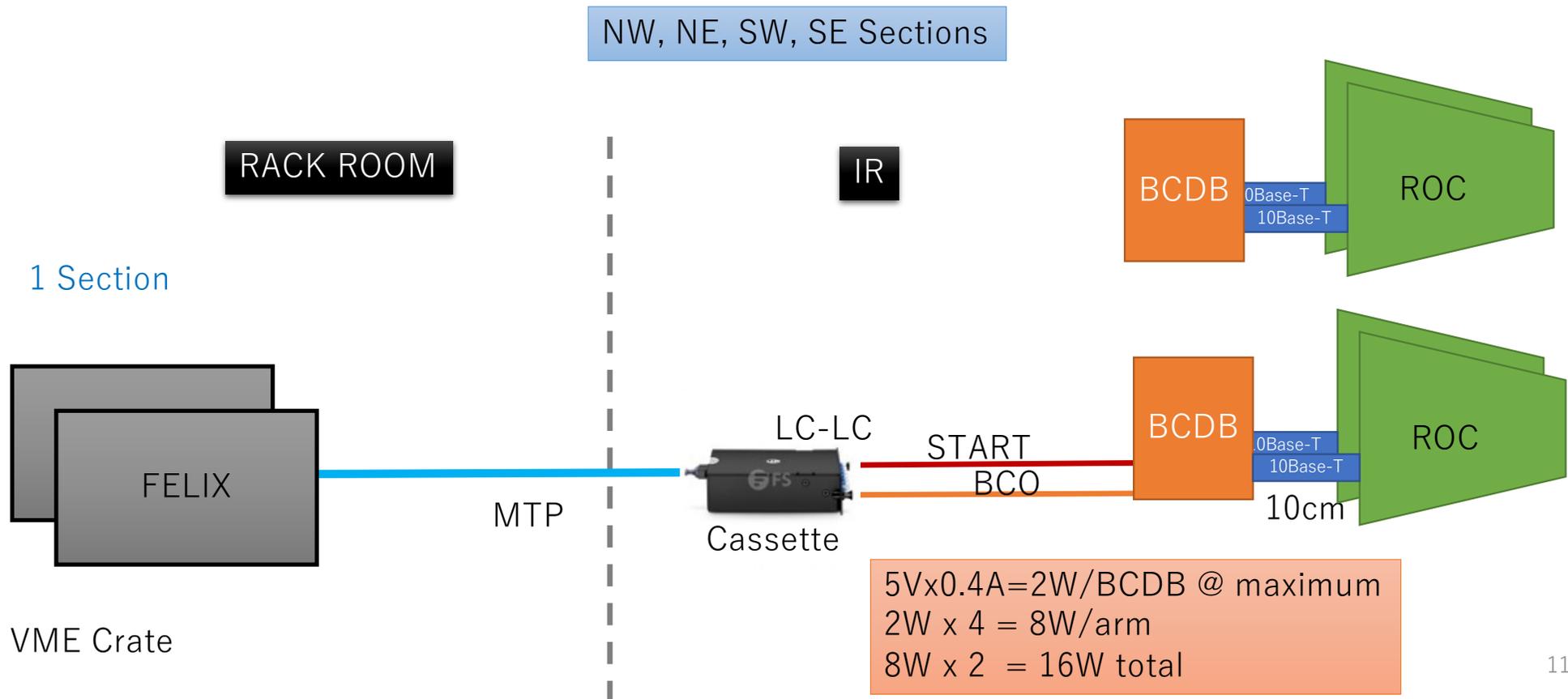
Beam Clock Distribution Board



- Design work by ARS co.
- Waiting for my review.

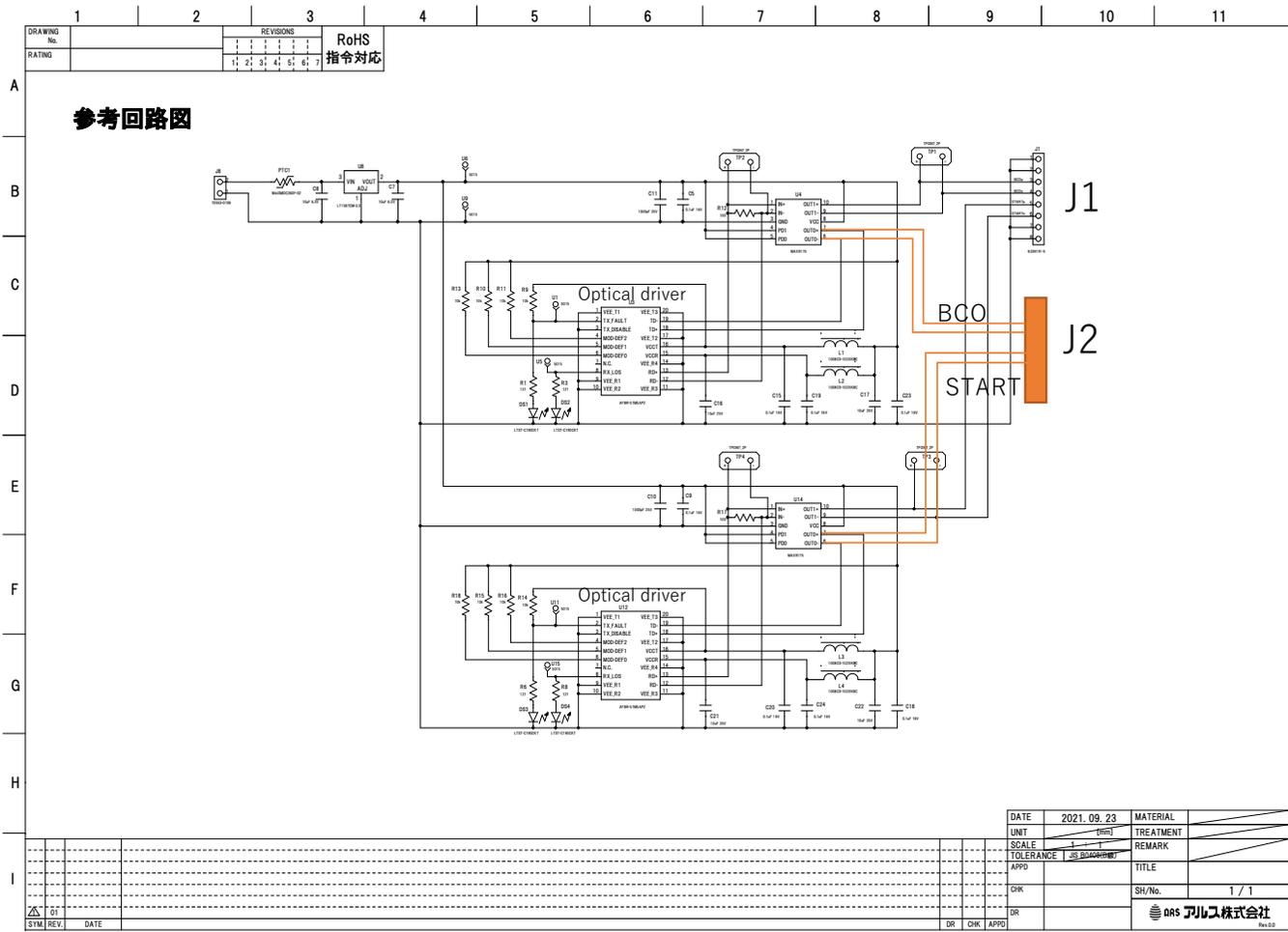
2ROC/1FELIX BCLK Configuration

- BCDB needs to implement 2 output ports



Beam Clock Distribution Board

- Design work by ARS co.
- Waiting for my review.



Beam Clock Distribution Boards

A	B	C	D	E	F	G	H	I	J	K	L	M
ITEM	QTY	メーカー	型式	1U-ル数/MCQ	規格DLT	備考	代替型式	代替メーカー	備考	QTY	LOCATION	
1	6	PANASONIC	ECJ-ZEB1E102K	15,000	-	EOL品	FN18N102J500P9S-GL 0603B102K500CT C1608X7R1H102K080AE GRM188R11H102KA01D	PDC WALSIN TDK MURATA	サイズ変更: 0201 (0603) →0603 (1608) 定格電圧変更: 25V→50V ※容量、許容差、温度特性同等	2	C10/C11	
2	12	PANASONIC	ECJ-1V81C104K	4,000	-	EOL品	FN18X104K500PBG-GL 0603B104K500CT GRM188R11E104KA01D GRM188R11H104KA93D	PDC WALSIN MURATA MURATA	定格電圧変更: 16V→25V or 50V ※容量、許容差、温度特性同等	8	C5/C9/C15/C18/C19/ C20/C23/C24	
3	2	PANASONIC	ECJ-3Y801106K	2,000	-	EOL品	FS31X106K250EPG-GL GRM31CD71H106KE11L GRM31CR71E106KA12L	PDC MURATA MURATA	C7/C8 サイズ変更: 1210 (3225) →1206 (3216) 定格電圧変更: 25V→25V or 50V C16/C17/C21/C22 定格電圧変更: 6.3V→25V or 50V ※部品共通化 ※容量、許容差、温度特性同等	6	C7/C8/C16/C17/C21/ C22	
4	4	TAIYO YUDEN	UMK325B1106K08P	1,000	12w以上	25V→50V品にて提案						
5	4	LITE-ON	3DKLEY_160-1181-1-ND	20,000	23w	EOL予定→代替で提出	APT1608SRCPRV	KingBright		4	DS1/DS2/DS3/DS4	
6	7	MOLEX	87831-0820	4,000	10w以上	-				-		
7	1	MOLEX	70553-0106	50	-	-				-	1	J8
8	4	COILCRAFT	1008CS-102XKBC	2,000	-	代替で提出	LQW2UAS1R0J0C*	MURATA	※サイズ、諸特性同等	4	L1/L2/L3/L4	
9	1	TYCO	⇒分取ルネージュ MiniSMDC260F-02	2,000	18w		MINISMDCC260F-2	LITTELFUSE		1	PTC1	
10	4	VISHAY DALE	CRCW0402121RFNED	10,000	87w以上		TSR3GT121V RK73H1JTTD121F CR1/16 121FV	TATEYAMA KOA HOKURIKU	サイズ変更: 0402 (1005) →0603 (1608) ※抵抗値、許容差、温度係数同等、電力UP	4	R1/R3/R6/R8	
11	6	VISHAY DALE	CRCW0201100RFNED	10,000	20w以上		TSR3GT101V RK73H1JTTD101F CR1/16 101FV	TATEYAMA KOA HOKURIKU	サイズ変更: 0201 (0603) →0603 (1608) ※抵抗値、許容差、温度係数同等、電力UP	2	R12/R17	
12	8	VISHAY DALE	CRCW020110K0FNED	10,000	20w以上		TSR3GT103V RK73H1JTTD103F CR1/16 103FV	TATEYAMA KOA HOKURIKU	サイズ変更: 0201 (0603) →0603 (1608) ※抵抗値、許容差、温度係数同等、電力UP	8	R9/R10/R11/R13/R14/ R15/R16/R18	
14	6	KEYSTONE	5015	1,000	18-20w					6	U1/U5/U6/U9/U11/U15	
15	4	MAXIM	MAX9169ELUE+T	2,500	未定					-		
16	2	AVAGO	AFBR-57MSAPZ	170	未定						2	U3/U12
17	2	MAXIM	MAX9175ELUB+T	2,500	未定						2	U4/U14
18	1	LINTEAR TECHNOLOGY	LT1587CM-3.3#TRPBF	750	30-32w		LMS1587IS-3.3/NOPB	TEXAS INSTRUMENTS	※パッケージ、諸特性同等	1	U8	
19	2	AMP	1367073-1	2,400	12w以上							
20	2	AMP	73927-0002			EOL品	U77-A1118-200T	Amphenol	OR ?	2	U3/U12	
21	2	AMP	73927-0004			EOL品						
			TPONT_3P				OPEN	OPEN	未実装	4	TP1/TP2/TP3/TP4	

- Even the alternative components are selected, parts cost is estimated to be \$30,000 for 20 BCDB by ARS co.
- This is unreasonably pricy, so we'll start looking for alternative quote from different company.
- The alternative quote is likely to be mandatory even for 2 prototype fabrication. Too bad.

Components

Due to peak season, we will change the shipping methods for some orders and cover the freight difference to avoid shipping delays.

Invalid, Date NaN, undefined GMT+8 Help USD

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More Asian Brands, Lower Prices

Part #/ Keyword

CC1206KKX7RDBB102 W25Q64JVSSIQ H5AN8G6NAFR-UHC

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Manufacturer Maxim Integrated

Mfr. Part # MAX9175EUB+T

LCSC Part # C2675155

Package uMAX-10

Customer #

EasyEDA [EasyEDA Model](#)

SnapEDA [Symbol, Footprint, 3D Model](#)

Description uMAX-10 Signal Buffers, Repeaters, Splitters ROHS

In Stock: 173

173 Can Ship in 3 Days
[Inquire for More Quantity](#)

Minimum : 1 Multiples : 1

Packaging: Cut Tape

Unit Price US\$ 2.3046

Ext. Price US\$ 115.23

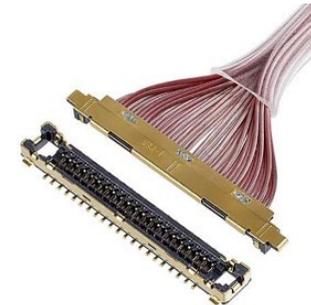
Saved US\$ 12.81

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Thanks to Cheng-Wei,
Saves \$10,000

Conversion Cable

- We considered other models, like I-PEX, JAE, etc...
- Itaru did performance study previously and it will take a few more weeks to know their performance tot the level of KEL.
- Unknown radiation hardness is also a concern.
- It's a risk to drop KEL option completely now.



CABLINE®-UX II
The simulation for transmission performance
Part No. Plug: 20531-0**T-02, Receptacle: 20533-0**E

Technical Report

0	R21018	2021/01/18	A.Koyama	T.Taniguchi	H.Kitai		
Rev.	ECN	Date	Prepared by	Checked by	Approved by		

048-070503-01 Rev.1

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*20cm conversion cable with bus extender

There is no data available for the exactly same condition between FPC and μ Coax cables. Presumably 20cm FPC can be compared to XSL-AWG46-10cm and XSL-AWG44-20cm. Resulting performances look similar within 20cm. To be executed actual measurement once prototype is made. Hard to extrapolate the performance to 1.41m, need to wait for the actual measurement.

Conclusion

We'll proceed to do prototype with KEL even though their leadtime is 3monthes. Arranged a meeting with KEL co. on Monday next week.

Windows-10 Upgrade

- Current FPGA codes only compile with ISE7.4 (Xilinx)
- ISE7.4 only runs on Windows 7.
- FPGA codes are to be upgraded by HDLab co. to be compatible with the latest version ISE14.7.
- ISE14.7 runs on Windows-10.
- Ultimate goal is to get rid of Windows-7 completely.

Kick off meeting with HDLab on Oct.4th(Takashi, Genki, Itaru). Expected completion by the end of October.

