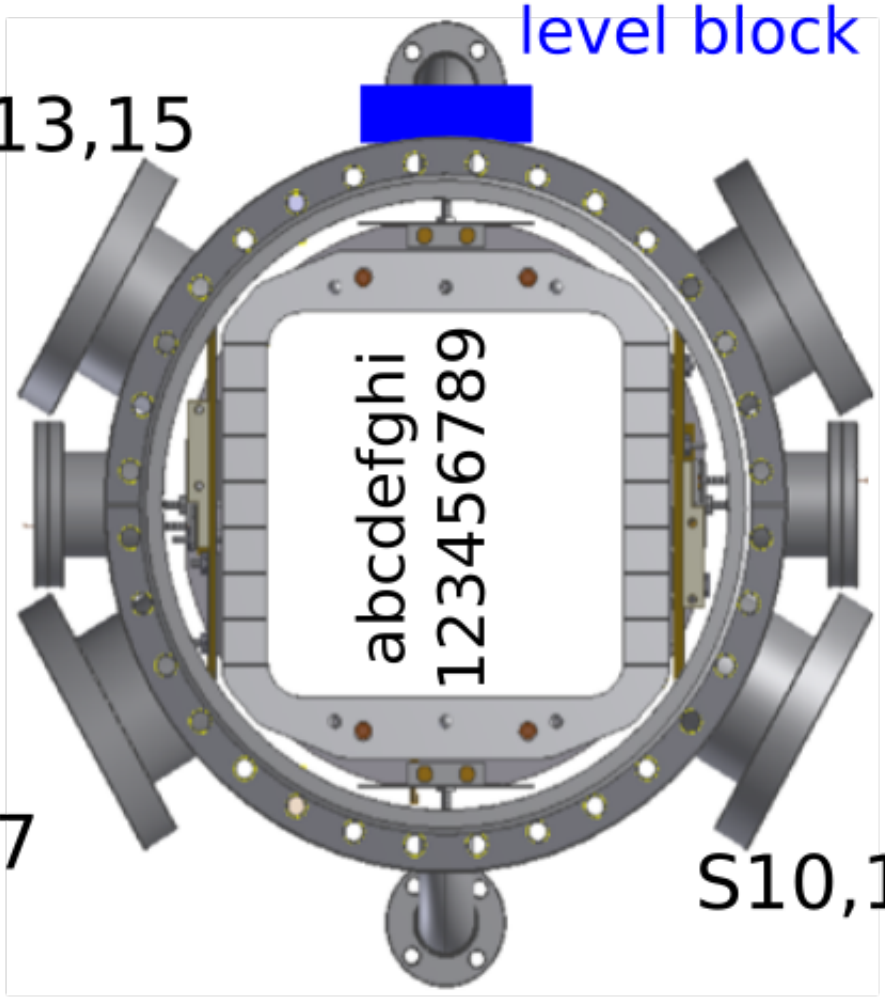
Signal Wire to Feed Thru to ADC Mapping

2015/09/29 r2 Mark McCrea

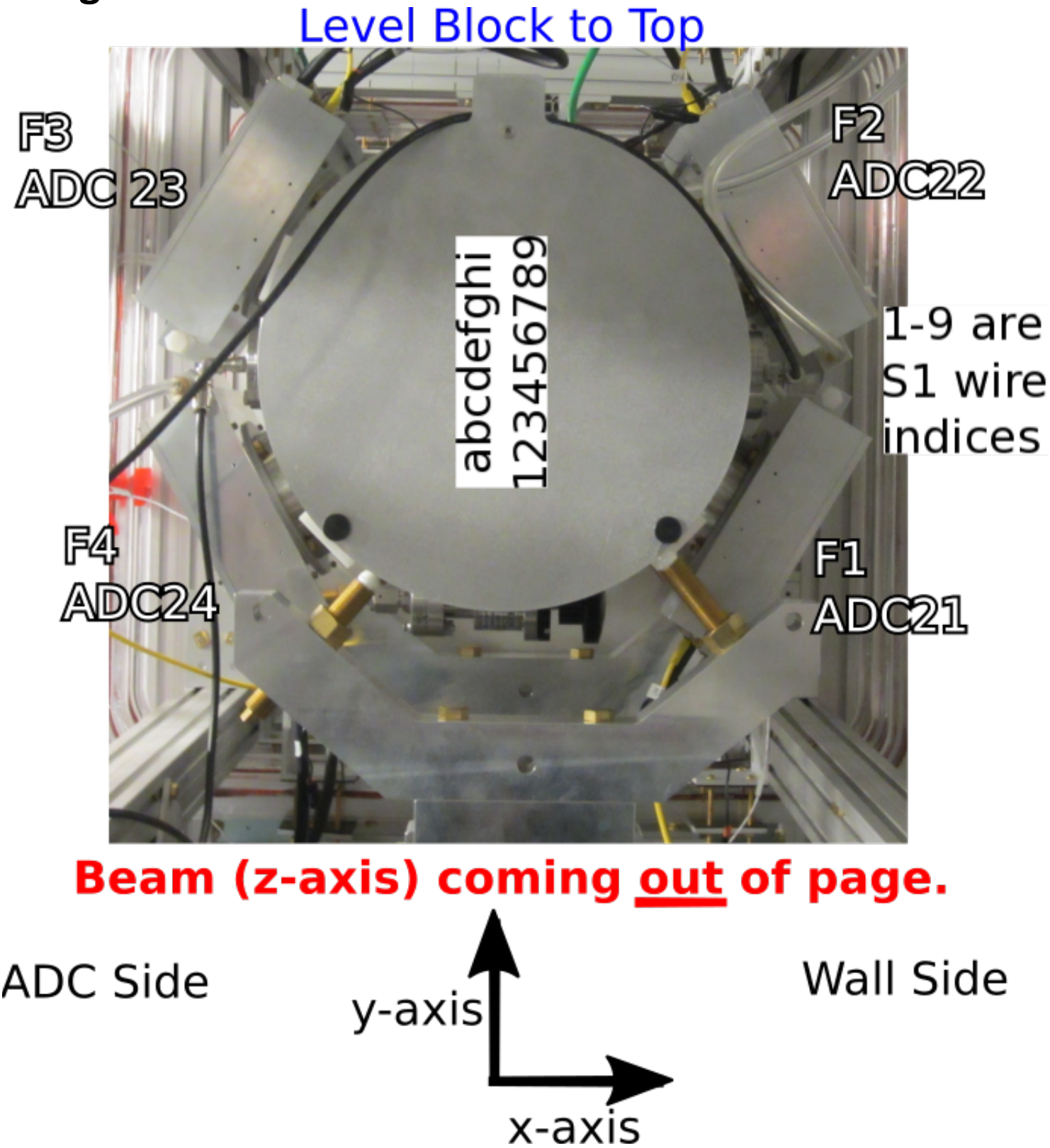
Chamber Orientation During Normal Running

Up-Down Asymmetry



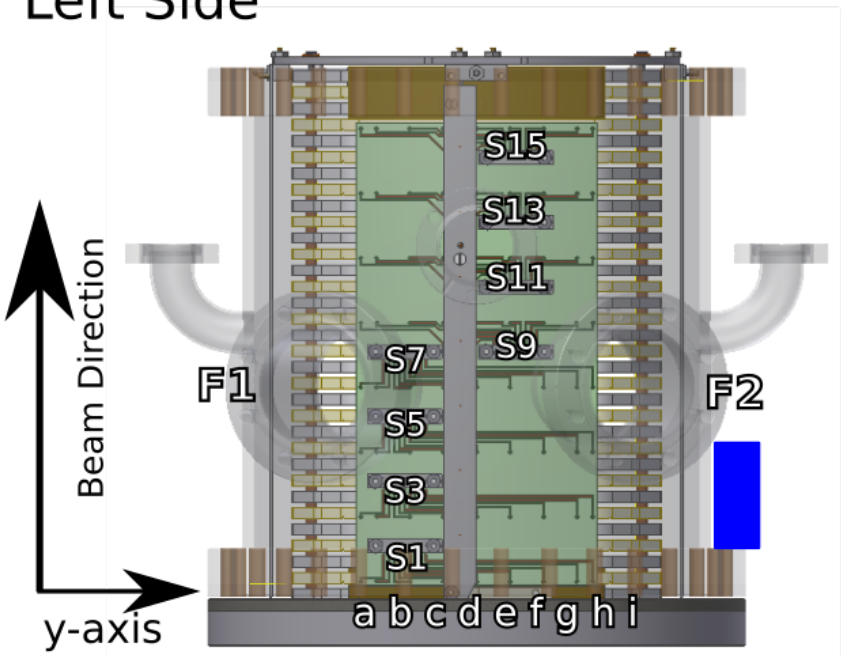
ADC 21 Channel 0 is S1-a is wire index 1 and is the first cell in the bottom of the chamber.

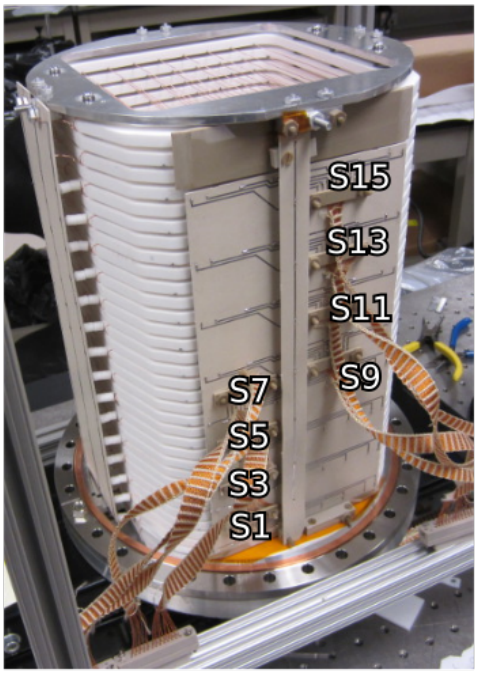
Target Chamber in Beam Line



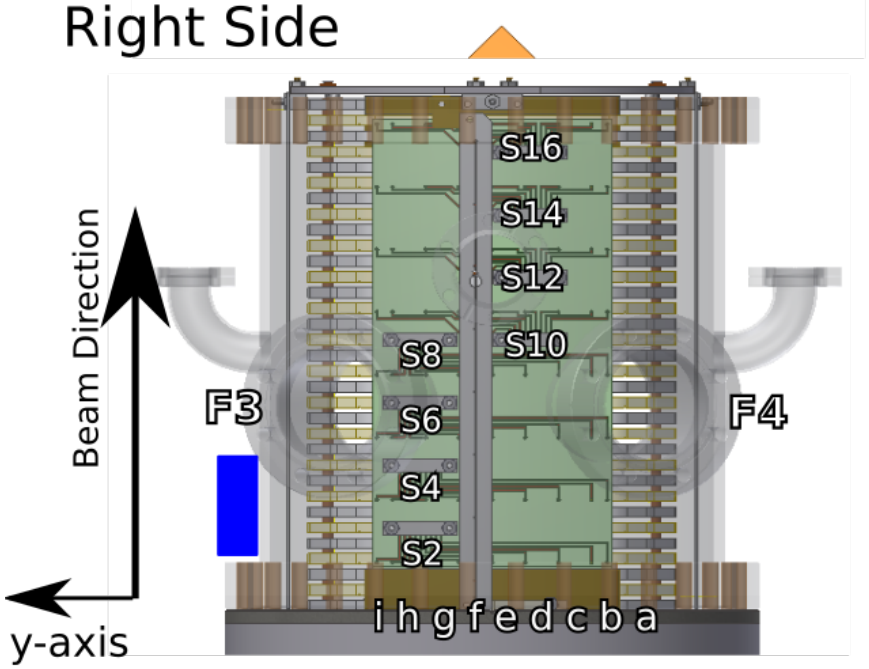
Chamber Interior Cabling

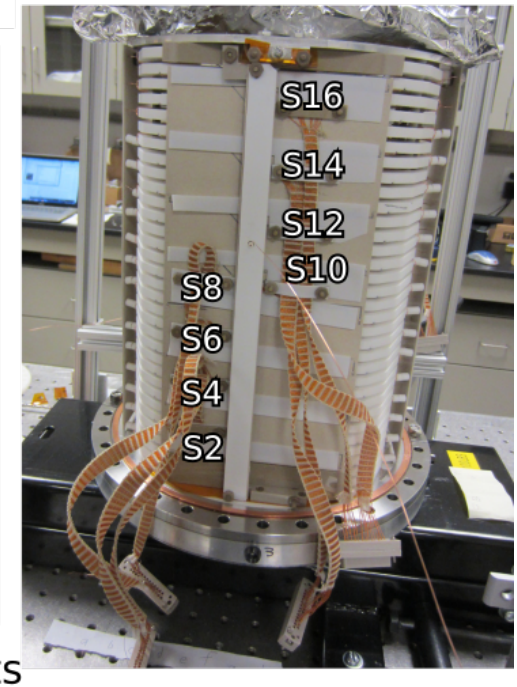
Left Side





Right Side

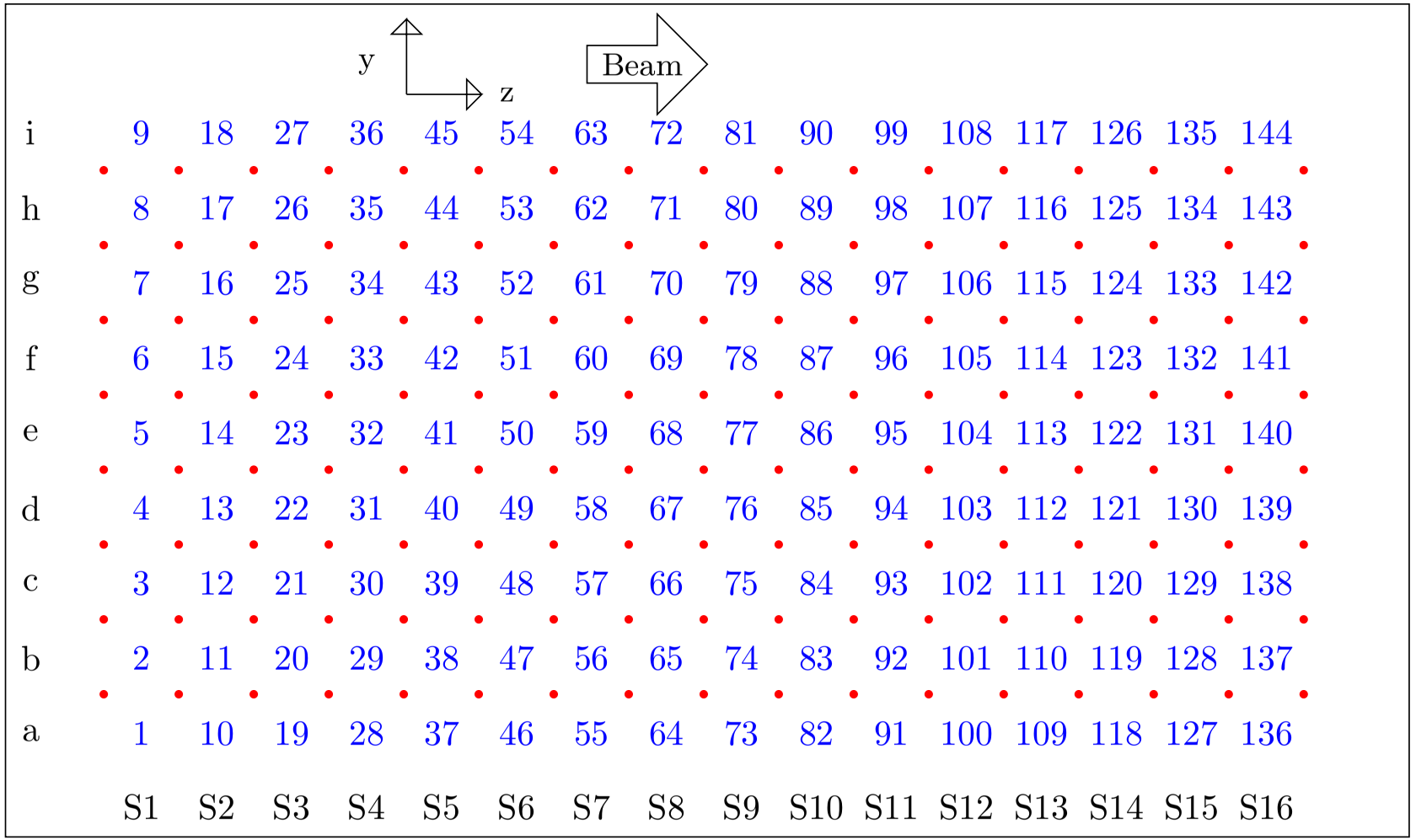




NOTE: Blue level block postion in layouts

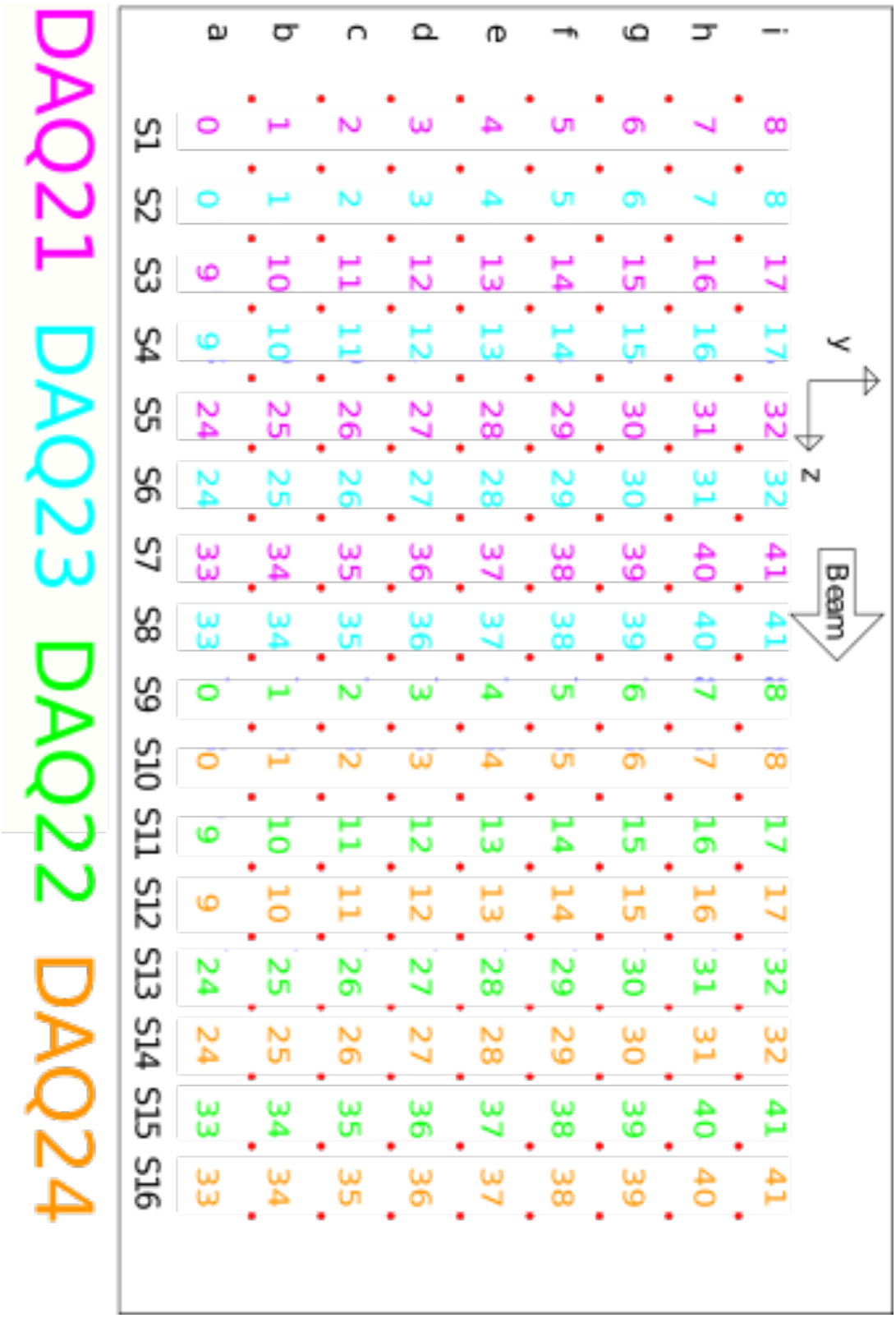
8 Dsub 25 pin plugs are used to readout the wire planes.
Each plug has two ribbon cables, a 12 and 13 wire cable.
Each cable goes to one plane.
Each cable has a few unused wires that are not connected to anything inside the chamber

Chamber Frame and Wire Labels



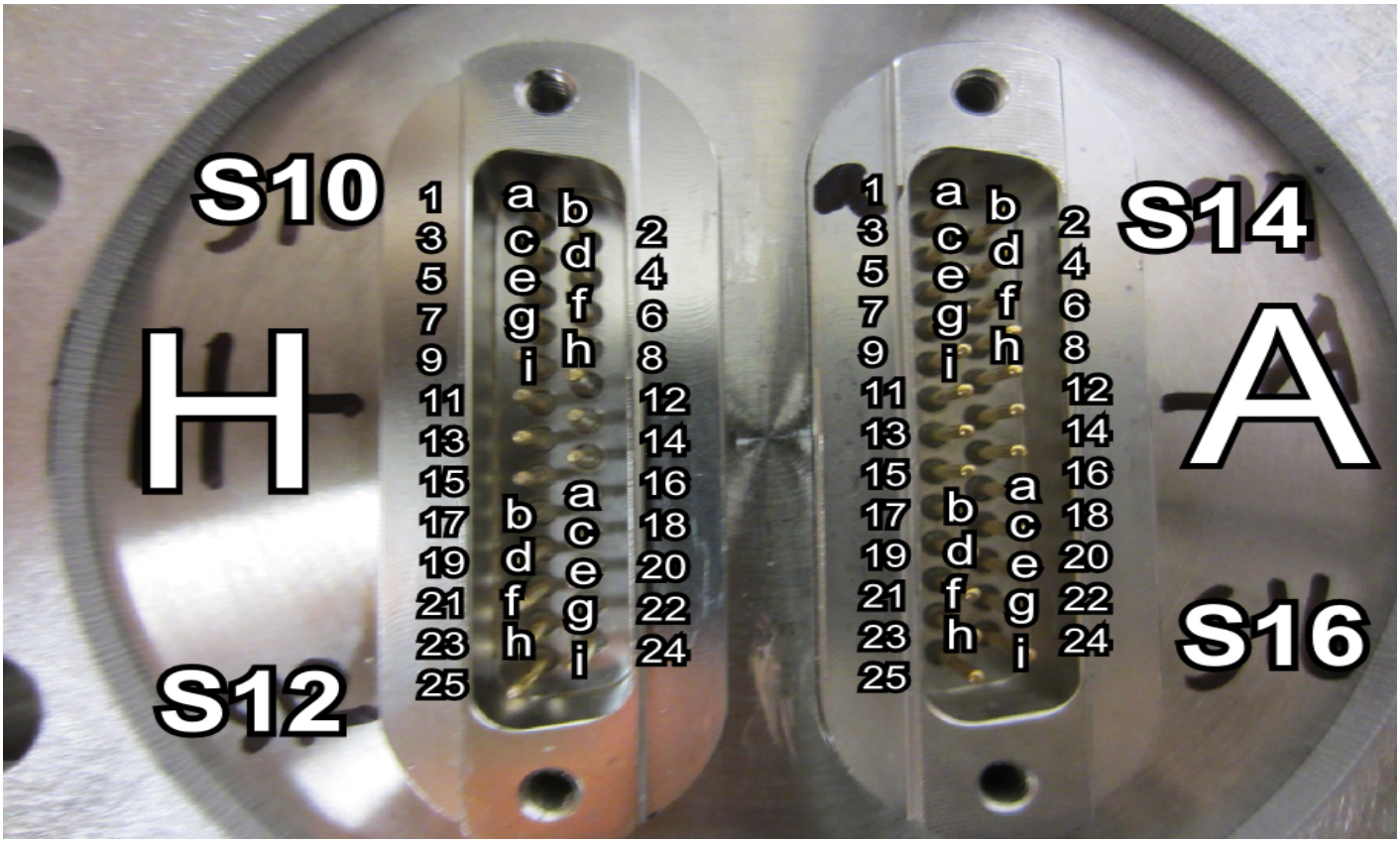
- HV — 17 HV Frames with 8 wires each
- Signal — 16 signal Frames with 9 wires each

DAQ Channels to Chamber Postion



Channels are color coded to their matching DAQ

Feed Thru Pin Labels

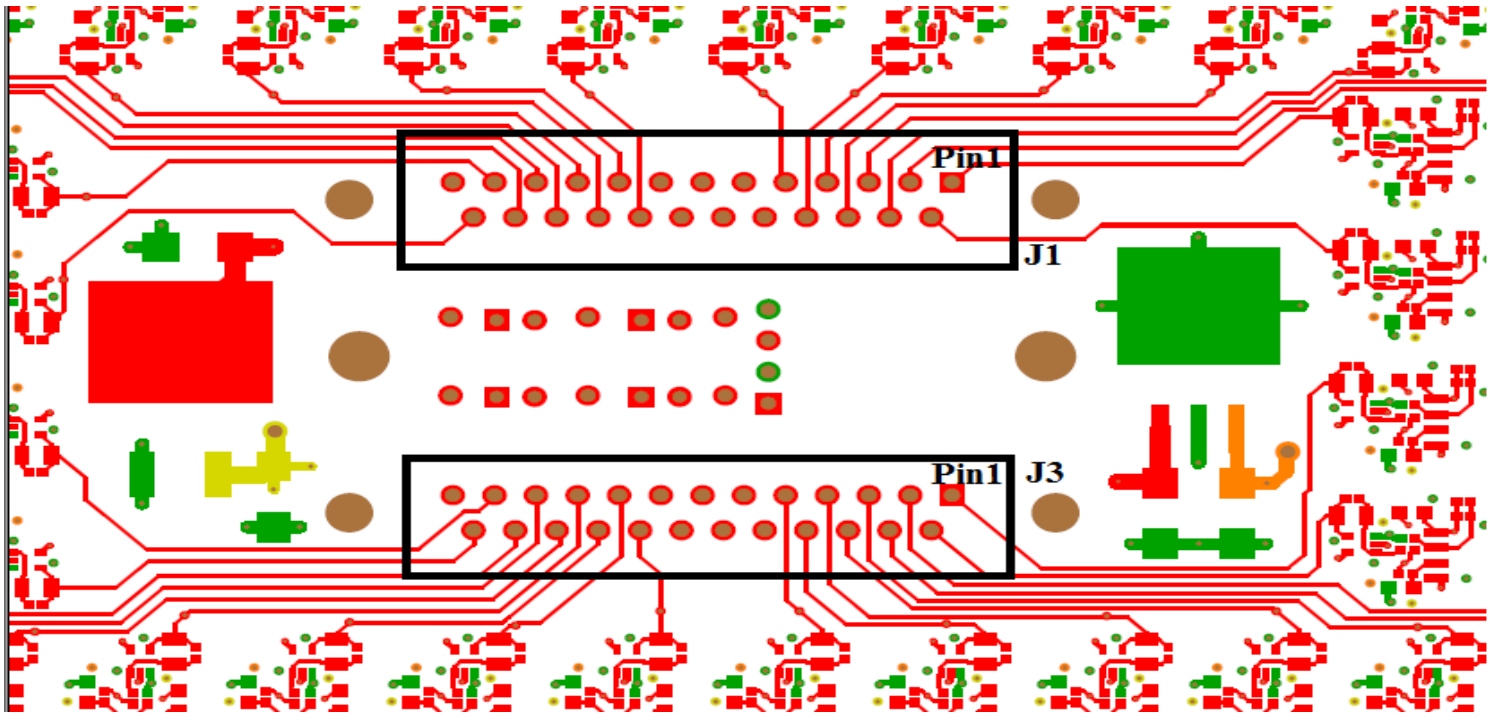


Note: 25 pin plugs are labeled in a non-standard order from 1-25.
Letters indicate which wire comes to each pin from inside the chamber.

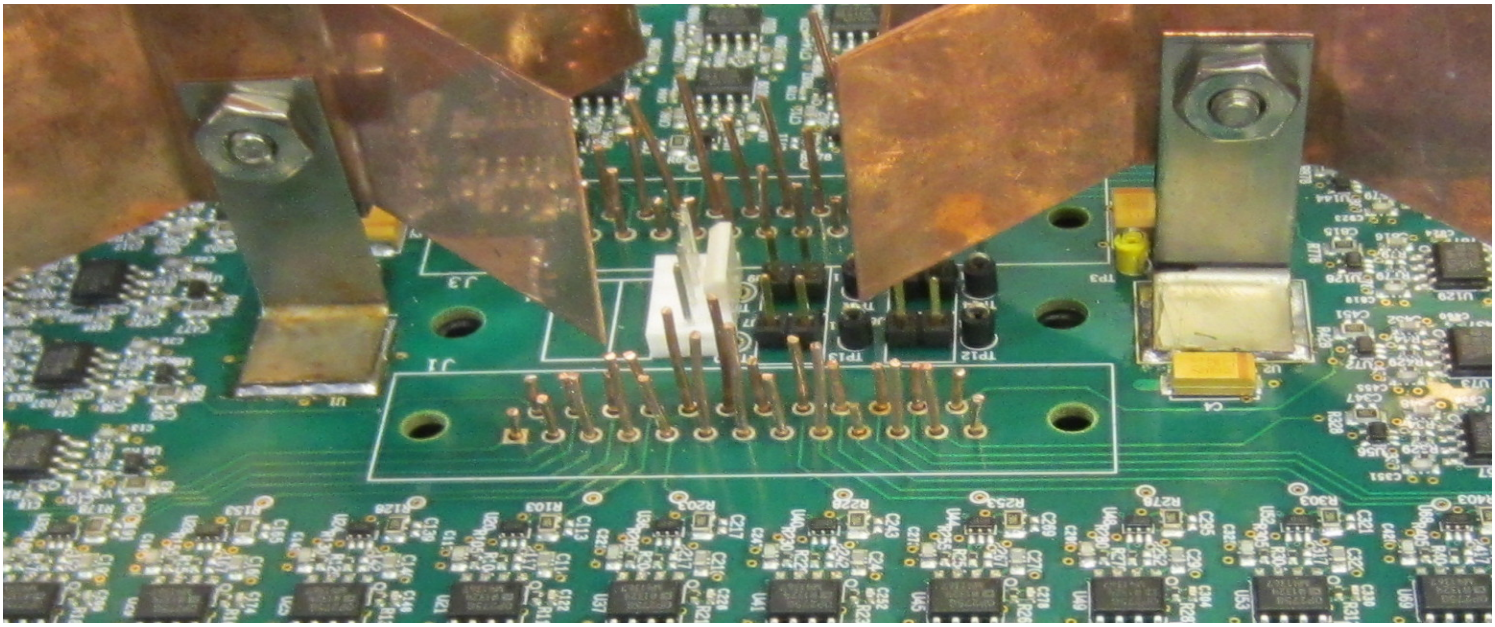
Singal Wires:	144
Wire Planes:	16
Wires Per Plane:	9
Feed Thrus:	4
Total Connectors:	8
Pins Per Connector:	25
Total Connectors:	200

Frames are labeled in the beam direction starting with S1 to S16
Feed Thrus are labeled F1 to F4 starting upper left and going clockwise looking down the beam

Preamp to ADC Pin Mapping

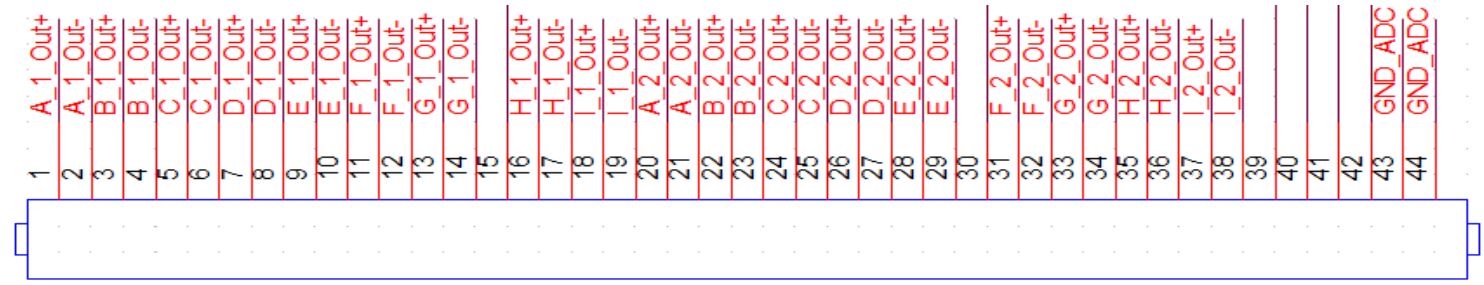


Here we can see the two 25 pin plugs in the middle of the preamp board have a J1 and J3 pin labeled beside them that is then used to label each input and output.



This photograph shows a close up of the dual 25 pin plugs being with the adapter plug being solder to the back of the board. On the left hand side the J1 and J3 labels can be seen.

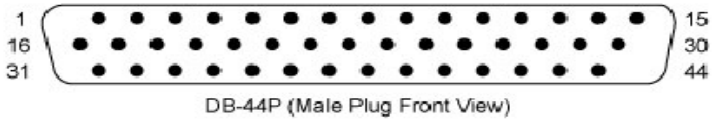
44 Pin Plug Pin Outs



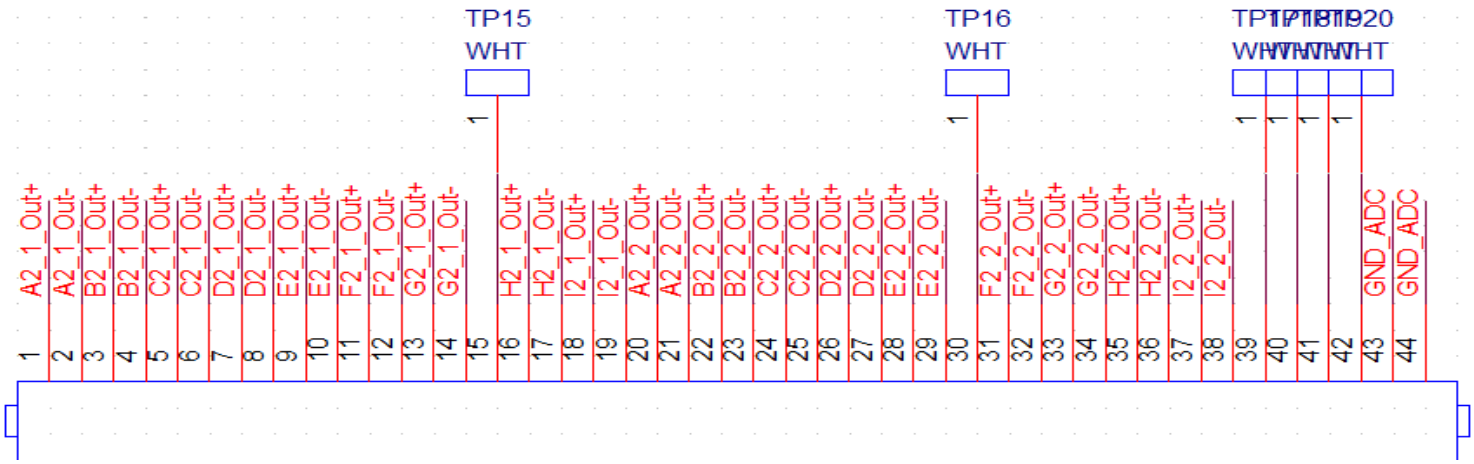
I13
HEADER 44

44-Pin HD D-Sub Cable (HD44)

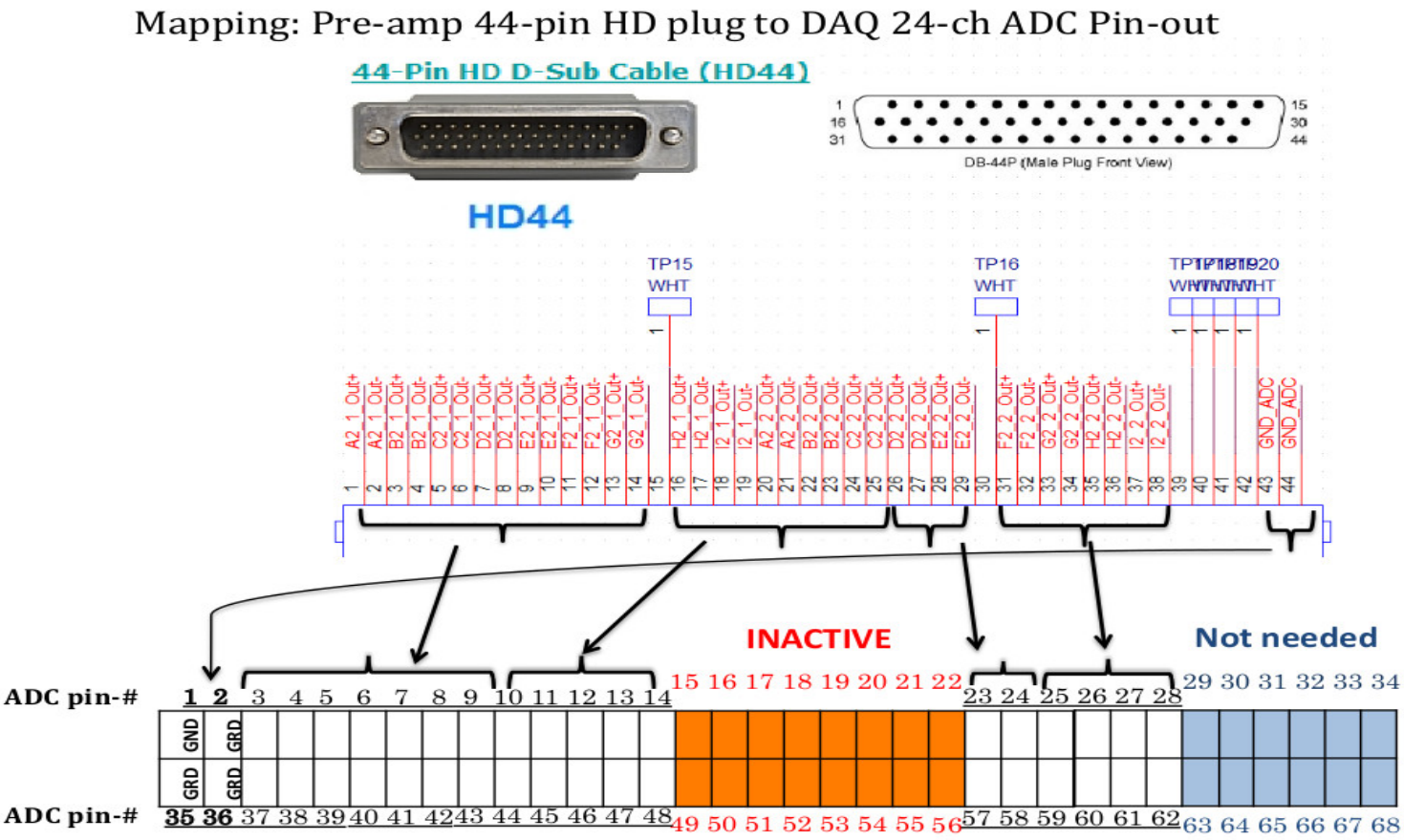
HD44



DB-44P (Male Plug Front View)



Cable Pin Map



ADC Setup

Each ADC has two 24 channel inputs.
Output from each ADC combines the 48 input channels in one 64 channel output file.
16 of the channels are blank.

Channels 1-12 and 21-32 are live in each ADC input
Channels 15-22 are inactive, and would be used with 32 channel ADC

18 of the 24 channels are used for wire chamber signals
6 ADC channels are left unused.

ADC Channel Map from D-TAQ Manual

3.3 24 Channel Pinout

after software mapping for faceplate order

Input Configuration Key Follower Transimpedance

Pin	Variant		Pin	Variant	
	24FF	20TF-4FF		24FF	20TF-4FF
1	0V	0V	35	0V	0V
2	0V	0V	36	0V	0V
3	AI01+	AI01+	37	AI01-	AI01-
4	AI02+	AI02+	38	AI02-	AI02-
5	AI03+	AI03+	39	AI03-	AI03-
6	AI04+	AI04+	40	AI04-	AI04-
7	AI05+	AI05+	41	AI05-	AI05-
8	AI06+	AI06+	42	AI06-	AI06-
9	AI07+	AI07+	43	AI07-	AI07-
10	AI08+	AI08+	44	AI08-	AI08-
11	AI09+	AI09+	45	AI09-	AI09-
12	AI10+	AI10+	46	AI10-	AI10-
13	AI11+	AI11+	47	AI11-	AI11-
14	AI12+	AI12+	48	AI12-	AI12-
15			49		
16			50		
17			51		
18			52		
19			53		
20			54		
21			55		
22			56		
23	AI21+	AI21+	57	AI21-	AI21-
24	AI22+	AI22+	58	AI22-	AI22-
25	AI23+	AI23+	59	AI23-	AI23-
26	AI24+	AI24+	60	AI24-	AI24-
27	AI25+	AI25+	61	AI25-	AI25-
28	AI26+	AI26+	62	AI26-	AI26-
29	AI27+	AI27+	63	AI27-	AI27-
30	AI28+	AI28+	64	AI28-	AI28-
31	AI29+	AI29+	65	AI29-	AI29-
32	AI30+	AI30+	66	AI30-	AI30-
33	AI31+	AI31+	67	AI31-	AI31-
34	AI32+	AI32+	68	AI32-	AI32-

Feed Thrus Pins, Wire Number, ADC Mapping

FeedThru	Plane	Wire Label	Wire #	Plug	Dsub-25pin	ADC	ADC Channel
F1	S1	a	1	1	1	21	0
		b	2	1	2		1
		c	3	1	3		2
		d	4	1	4		3
		e	5	1	5		4
		f	6	1	6		5
		g	7	1	7		6
		h	8	1	8		7
		i	9	1	9		8
				1	10		
				1	11		
				1	12		
				1	13		
				1	14		
				1	15		
	S3	a	19	1	16	21	9
		b	20	1	17		10
		c	21	1	18		11
		d	22	1	19		12
		e	23	1	20		13
		f	24	1	21		14
		g	25	1	22		15
		h	26	1	23		16
		i	27	1	24		17
				1	25		

Note: ADC Channel is for on the stored data accessed on the computer not physical channel on DAQs

Note: Each ADC plug has the same active and blank channels.

Note: The unused pins in each plug still connecto back to the ribbon cable inside the chamber.

FeedThru	Plane	Wire Label	Wire #	Plug	Dsub-25pin	ADC	ADC Channel
F1	S5	a	37	X	1	21	24
		b	38	X	2		25
		c	39	X	3		26
		d	40	X	4		27
		e	41	X	5		28
		f	42	X	6		29
		g	43	X	7		30
		h	44	X	8		31
		i	45	X	9		32
				X	10		
				X	11		
				X	12		
				X	13		
				X	14		
				X	15		
	S7	a	55	X	16	21	33
		b	56	X	17		34
		c	57	X	18		35
		d	58	X	19		36
		e	59	X	20		37
		f	60	X	21		38
		g	61	X	22		39
		h	62	X	23		40
		i	63	X	24		41
				X	25		

FeedThru	Plane	Wire Label	Wire #	Plug	Dsub-25pin	ADC	ADC Channel
F2	S9	a	73	Y	1	22	0
		b	74	Y	2		1
		c	75	Y	3		2
		d	76	Y	4		3
		e	77	Y	5		4
		f	78	Y	6		5
		g	79	Y	7		6
		h	80	Y	8		7
		i	81	Y	9		8
				Y	10		
				Y	11		
				Y	12		
				Y	13		
				Y	14		
				Y	15		
	S11	a	91	Y	16	22	9
		b	92	Y	17		10
		c	93	Y	18		11
		d	94	Y	19		12
		e	95	Y	20		13
		f	96	Y	21		14
		g	97	Y	22		15
		h	98	Y	23		16
		i	99	Y	24		17
					25		

FeedThru	Plane	Wire Label	Wire #	Plug	Dsub-25pin	ADC	ADC Channel
F2	S13	a	109	Z	1	22	24
		b	110	Z	2		25
		c	111	Z	3		26
		d	112	Z	4		27
		e	113	Z	5		28
		f	114	Z	6		29
		g	115	Z	7		30
		h	116	Z	8		31
		i	117	Z	9		32
				Z	10		
				Z	11		
				Z	12		
				Z	13		
				Z	14		
				Z	15		
	S15	a	127	Z	16	22	33
		b	128	Z	17		34
		c	129	Z	18		35
		d	130	Z	19		36
		e	131	Z	20		37
		f	132	Z	21		38
		g	133	Z	22		39
		h	134	Z	23		40
		i	135	Z	24		41
				Z	25		

FeedThru	Plane	Wire Label	Wire #	Plug	Dsub-25pin	ADC	ADC Channel
F3	S2	a	10	V	1	23	0
		b	11	V	2		1
		c	12	V	3		2
		d	13	V	4		3
		e	14	V	5		4
		f	15	V	6		5
		g	16	V	7		6
		h	17	V	8		7
		i	18	V	9		8
				V	10		
				V	11		
				V	12		
				V	13		
				V	14		
				V	15		
	S4	a	28	V	16	23	9
		b	29	V	17		10
		c	30	V	18		11
		d	31	V	19		12
		e	32	V	20		13
		f	33	V	21		14
		g	34	V	22		15
		h	35	V	23		16
		i	36	V	24		17
					25		

FeedThru	Plane	Wire Label	Wire #	Plug	Dsub-25pin	ADC	ADC Channel
F3	S6	a	46	T	1	23	24
		b	47	T	2		25
		c	48	T	3		26
		d	49	T	4		27
		e	50	T	5		28
		f	51	T	6		29
		g	52	T	7		30
		h	53	T	8		31
		i	54	T	9		32
				T	10		
				T	11		
				T	12		
				T	13		
				T	14		
				T	15		
	S8	a	64	T	16	23	33
		b	65	T	17		34
		c	66	T	18		35
		d	67	T	19		36
		e	68	T	20		37
		f	69	T	21		38
		g	70	T	22		39
		h	71	T	23		40
		i	72	T	24		41
				T	25		

FeedThru	Plane	Wire Label	Wire #	Plug	Dsub-25pin	ADC	ADC Channel
F4	S10	a	82	H	1	24	0
		b	83	H	2		1
		c	84	H	3		2
		d	85	H	4		3
		e	86	H	5		4
		f	87	H	6		5
		g	88	H	7		6
		h	89	H	8		7
		i	90	H	9		8
				H	10		
				H	11		
				H	12		
				H	13		
				H	14		
				H	15		
	S12	a	100	H	16	24	9
		b	101	H	17		10
		c	102	H	18		11
		d	103	H	19		12
		e	104	H	20		13
		f	105	H	21		14
		g	106	H	22		15
		h	107	H	23		16
		i	108	H	24		17
					25		

FeedThru	Plane	Wire Label	Wire #	Plug	Dsub-25pin	ADC	ADC Channel
F4	S14	a	118	A	1	24	24
		b	119	A	2		25
		c	120	A	3		26
		d	121	A	4		27
		e	122	A	5		28
		f	123	A	6		29
		g	124	A	7		30
		h	125	A	8		31
		i	126	A	9		32
				A	10		
				A	11		
				A	12		
				A	13		
				A	14		
				A	15		
	S16	a	136	A	16	24	33
		b	137	A	17		34
		c	138	A	18		35
		d	139	A	19		36
		e	140	A	20		37
		f	141	A	21		38
		g	142	A	22		39
		h	143	A	23		40
		i	144	A	24		41
				A	25		