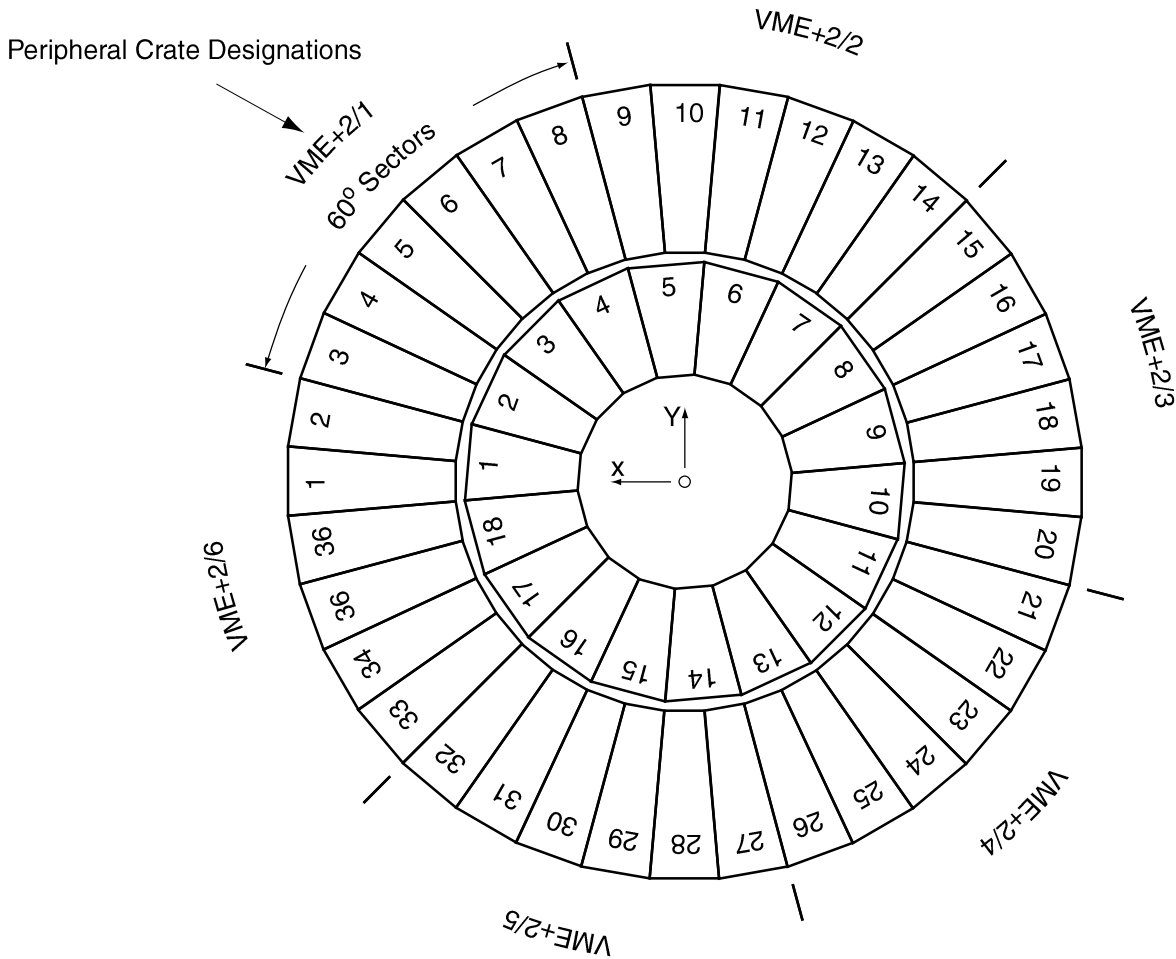


# Peripheral Crate - to - Chamber Correspondence and Slot Assignments

Compiled by Ben Bylsma (8 pages)  
4-Mar-03

Peripheral Crate and Slot Assignments per Chamber												
Peripheral Crate				Chamber Type and Chamber Number								
	Trigger Sector		Crate Position	ME(+,-)(1)/1			ME(+,-)(1)/2			ME(+,-)(1)/3		
VME(+,-)(1)/	1	/	1	3	4	5	3	4	5	3	4	5
	1	/	2	6	7	8	6	7	8	6	7	8
	2	/	1	12	13	14	12	13	14	12	13	14
	2	/	2	9	10	11	9	10	11	9	10	11
	3	/	1	18	19	20	18	19	20	18	19	20
	3	/	2	15	16	17	15	16	17	15	16	17
	4	/	1	24	25	26	24	25	26	24	25	26
	4	/	2	21	22	23	21	22	23	21	22	23
	5	/	1	27	28	29	27	28	29	27	28	29
	5	/	2	30	31	32	30	31	32	30	31	32
	6	/	1	33	34	35	33	34	35	33	34	35
6	/	2	36	1	2	36	1	2	36	1	2	
Crate Slot Numbers	TMB			2	4	6	8	10	14	16	18	20
	DMB			3	5	7	9	11	15	17	19	21
	Trigger Sector			ME(+,-)(2,3,4)/1			ME(+,-)(2,3,4)/2					
VME(+,-)(2,3,4)/	1			2	3	4	3	4	5	6	7	8
	2			5	6	7	9	10	11	12	13	14
	3			8	9	10	15	16	17	18	19	20
	4			11	12	13	21	22	23	24	25	26
	5			14	15	16	27	28	29	30	31	32
	6			17	18	1	33	34	35	36	1	2
Crate Slot Numbers	TMB			2	4	6	8	10	14	16	18	20
	DMB			3	5	7	9	11	15	17	19	21

## Idealized View of EMU CSC Chambers (Stations 2,3,&4)



### Peripheral Crate to CSC Chamber Correspondence (for stations 2,3,&4):

Total of 9 chambers per peripheral crate.

$$\text{Chamber Numbers} = \begin{cases} [(3*(n-1) + (2,3,4)-1) \text{ modulo } 18] + 1 & \text{for } 20^\circ \text{ chambers} \\ [(6*(n-1) + (3,4,5,6,7,8)-1) \text{ modulo } 36] + 1 & \text{for } 10^\circ \text{ chambers} \end{cases}$$

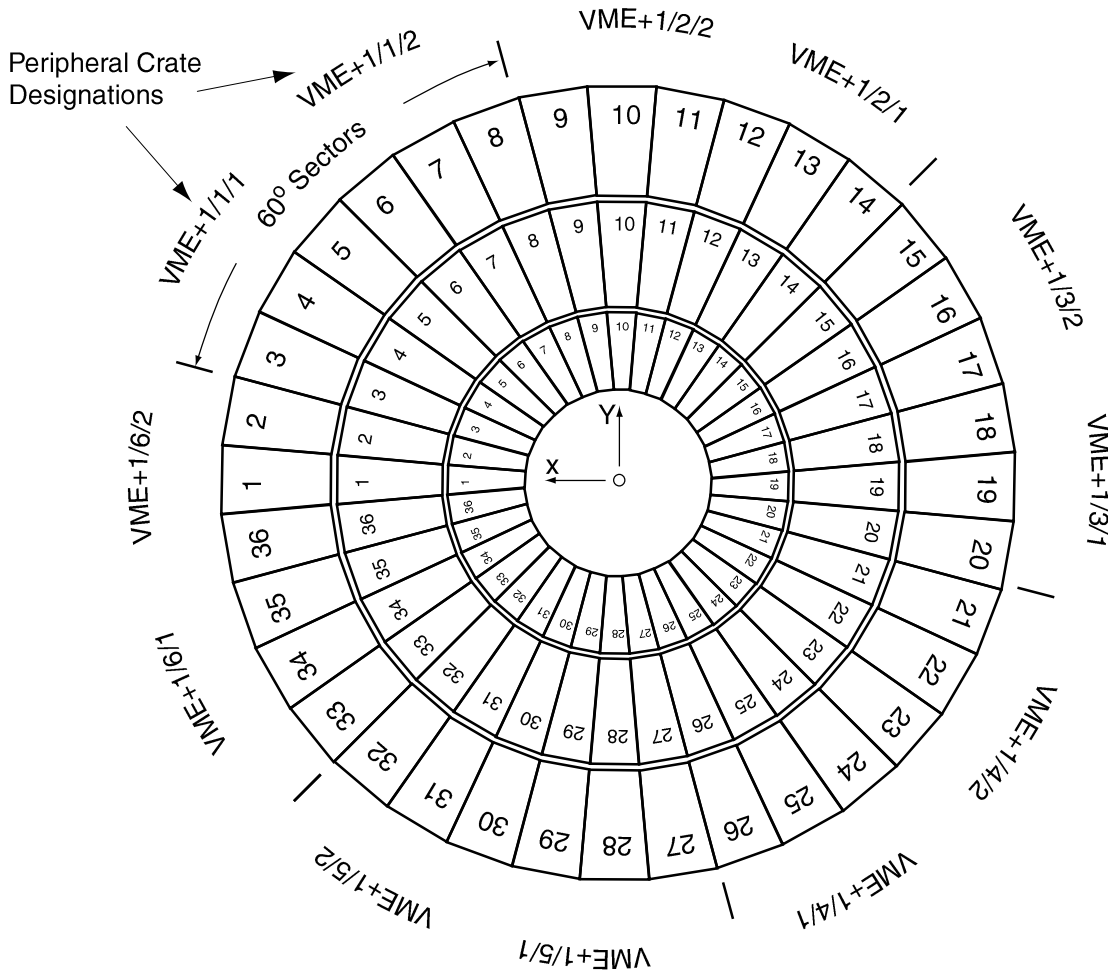
Where: n = Trigger sector # (1 to 6)

Note: Chamber numbering starts with chambers along the positive X axis. Starting with 1, the numbers increase in the  $\phi$  direction. (This definition holds regardless of point of view.)

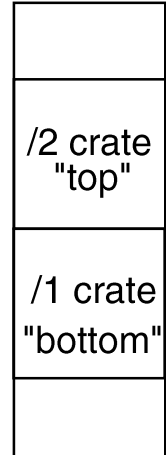
Trigger Sector #	/1 Chambers	/2 Chambers
1	2,3,4	3,4,5,6,7,8
2	5,6,7	9,10,11,12,13,14
3	8,9,10	15,16,17,18,19,20
4	11,12,13	21,22,23,24,25,26
5	14,15,16	27,28,29,30,31,32
6	17,18,1	33,34,35,36,1,2

# Idealized View of EMU CSC Chambers (Station 1)

Two crates per sector in common rack  
 Top crate is /2  
 Bottom crate is /1



Example Rack



## Peripheral Crate to CSC Chamber Correspondence (for station 1):

Total of 9 chambers per peripheral crate.

$$\text{Chamber Numbers} = \begin{cases} [(6(n-1)+(3,4,5)+3(m-1)-1) \text{ modulo } 36]+1 & \text{for } n = 1,5,&6 \\ (6(n-1)+(3,4,5)-3(m-2)) & \text{for } n = 2,3,&4 \end{cases}$$

Where: n=Trigger sector # (1 to 6)  
 m=crate position (1 or 2, bottom or top)  
 Repeat for /1,/2,/3 chambers

Note: Chamber numbering starts with chambers along the positive X axis.

Starting with 1, the numbers increase in the  $\phi$  direction.

(This definition holds regardless of point of view.)

Trigger Sector #	Crate Position	/1 Chamb.	/2 Chamb.	/3 Chamb.	Trigger Sector #	Crate Position	/1 Chamb.	/2 Chamb.	/3 Chamb.
1	1 (bot)	3,4,5	3,4,5	3,4,5	4	1 (bot)	24,25,26	24,25,26	24,25,26
1	2 (top)	6,7,8	6,7,8	6,7,8	4	2 (top)	21,22,23	21,22,23	21,22,23
2	1 (bot)	12,13,14	12,13,14	12,13,14	5	1 (bot)	27,28,29	27,28,29	27,28,29
2	2 (top)	9,10,11	9,10,11	9,10,11	5	2 (top)	30,31,32	30,31,32	30,31,32
3	1 (bot)	18,19,20	18,19,20	18,19,20	6	1 (bot)	33,34,35	33,34,35	33,34,35
3	2 (top)	15,16,17	15,16,17	15,16,17	6	2 (top)	36,1,2	36,1,2	36,1,2

# Slot Assignments

## Correspondence of CSC Chambers to Peripheral Crate Slots. (For Stations 2,3,&4)

One VME crate serves one 60° sector.

A VME crate has 21 slots.

Even numbered slots are TMBs.

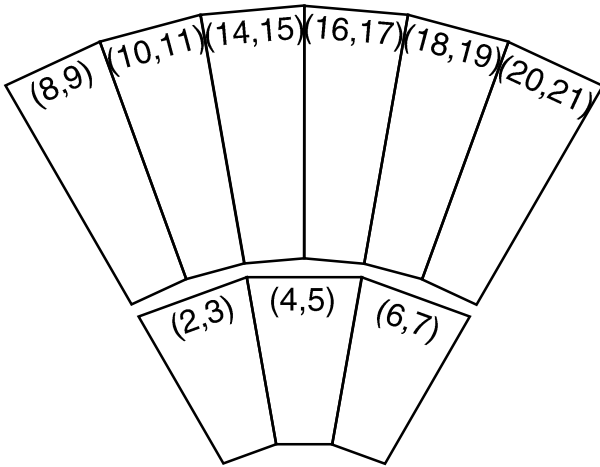
Odd numbered slots are DMBs.



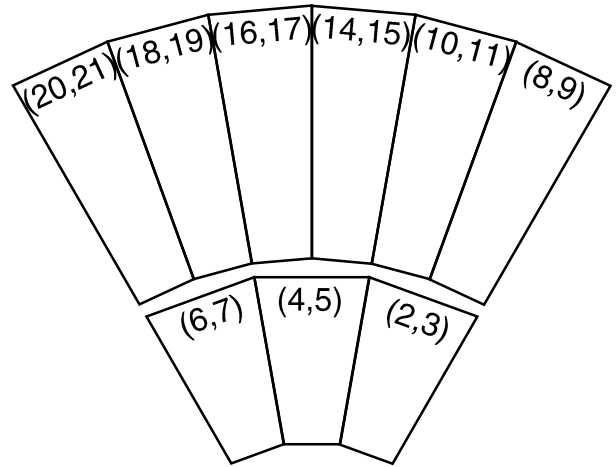
Exceptions:  
Slot 1 is crate controller  
Slot 12 MPC  
Slot 13 CCB

Slot number assignments are shown in pairs as (TMB slot #, DMB slot#)

Slot assignments per 60° sectors:



Looking in +Z direction



Looking in -Z direction

### Example Peripheral Crate: VME+2/6

Slot:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
VCC	VME Crate Controller																				
TMB	ME+2/1/17																				
DMB																					
TMB	ME+2/1/18																				
DMB																					
TMB	ME+2/1/1																				
DMB																					
TMB	ME+2/2/33																				
DMB																					
TMB	ME+2/2/34																				
DMB																					
MPC	Muon Port Card																				
CCB	Clock and Control Board																				
TMB	ME+2/2/35																				
DMB																					
TMB	ME+2/2/36																				
DMB																					
TMB	ME+2/2/1																				
DMB																					
TMB	ME+2/2/2																				
DMB																					

# Slot Assignments

## Correspondence of CSC Chambers to Peripheral Crate Slots. (For Station 1)

Two VME crates serve a 60° sector (30° sector/crate).

A VME crate has 21 slots.

Even numbered slots are TMBs.

Odd numbered slots are DMBs.



Exceptions:

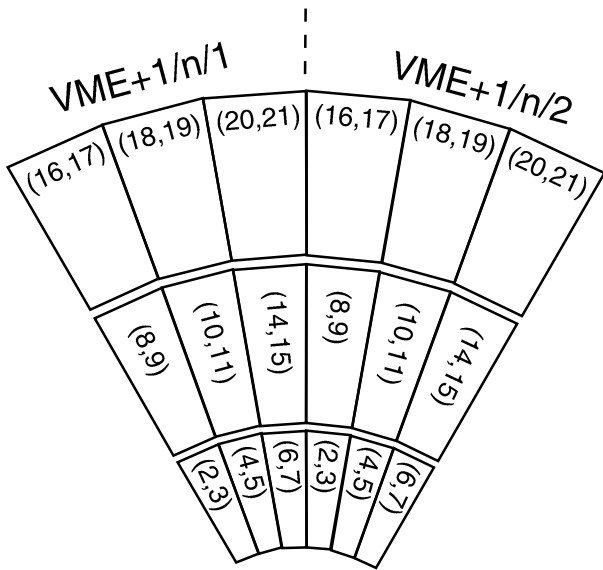
Slot 1 is crate controller

Slot 12 MPC

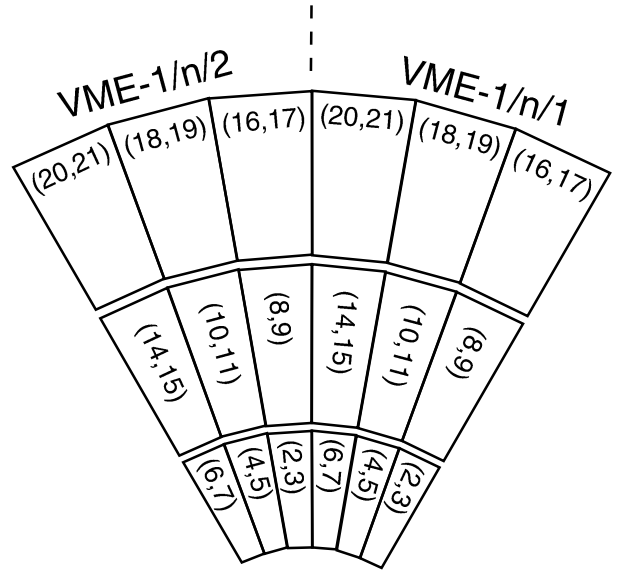
Slot 13 CCB

Slot number assignments are shown in pairs as (TMB slot #, DMB slot#)

Slot assignments per 30° sectors:



Looking in +Z direction



Looking in -Z direction

### Example Peripheral Crate: VME+1/4/1

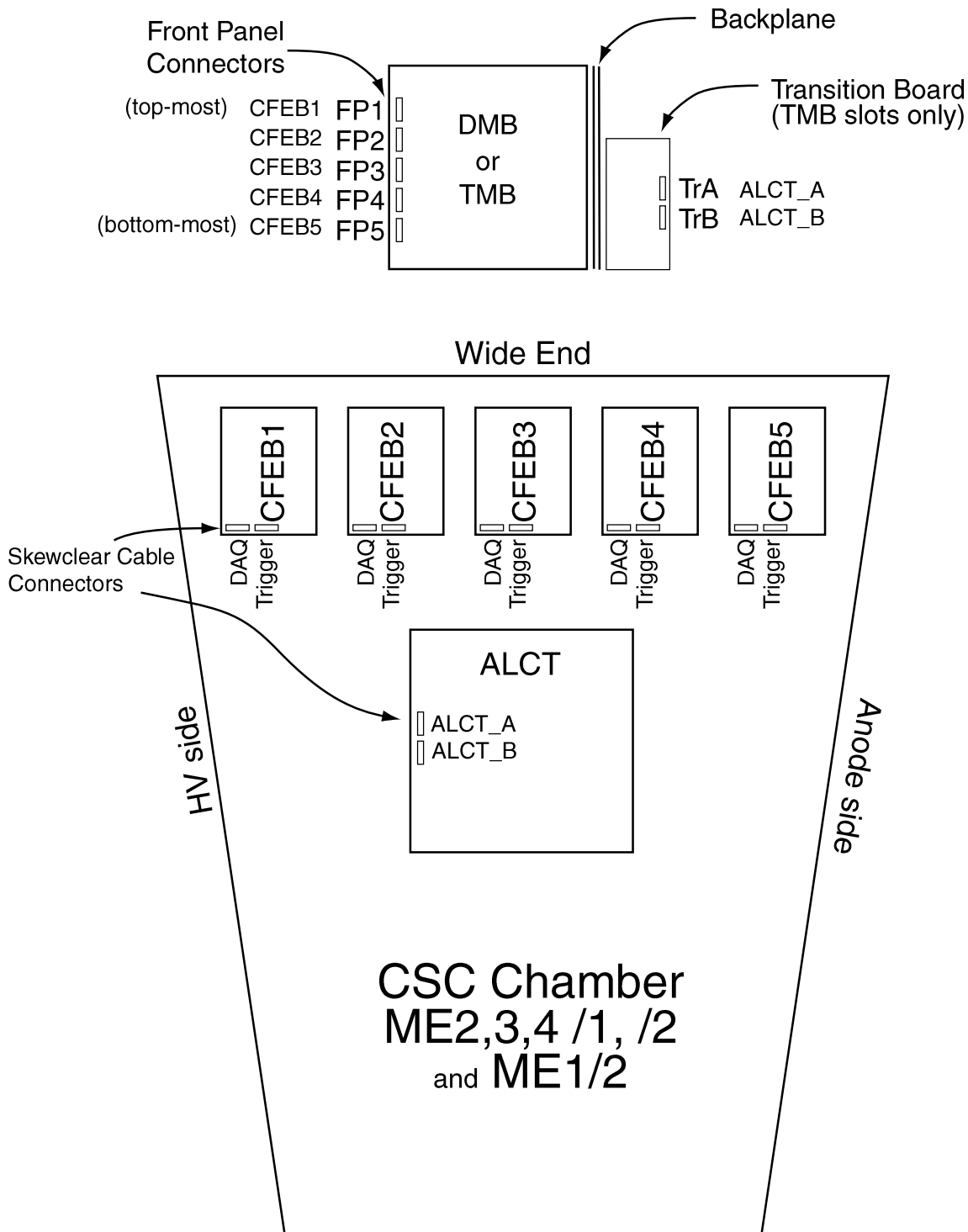
Slot:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
VCC	VME Crate Controller																				
TMB	ME+1/1/24																				
DMB																					
TMB	ME+1/1/25																				
DMB																					
TMB	ME+1/1/26																				
DMB																					
TMB	ME+1/2/24																				
DMB																					
TMB	ME+1/2/25																				
DMB																					
MPC	Muon Port Card																				
CCB	Clock and Control Board																				
TMB	ME+1/2/26																				
DMB																					
TMB	ME+1/3/24																				
DMB																					
TMB	ME+1/3/25																				
DMB																					
TMB	ME+1/3/26																				
DMB																					

# Front Panel Connections: ME2,3,4 /1, /2 and ME1/2

The TMBs and DMBs are connected to CFEBs via Skewclear cables.

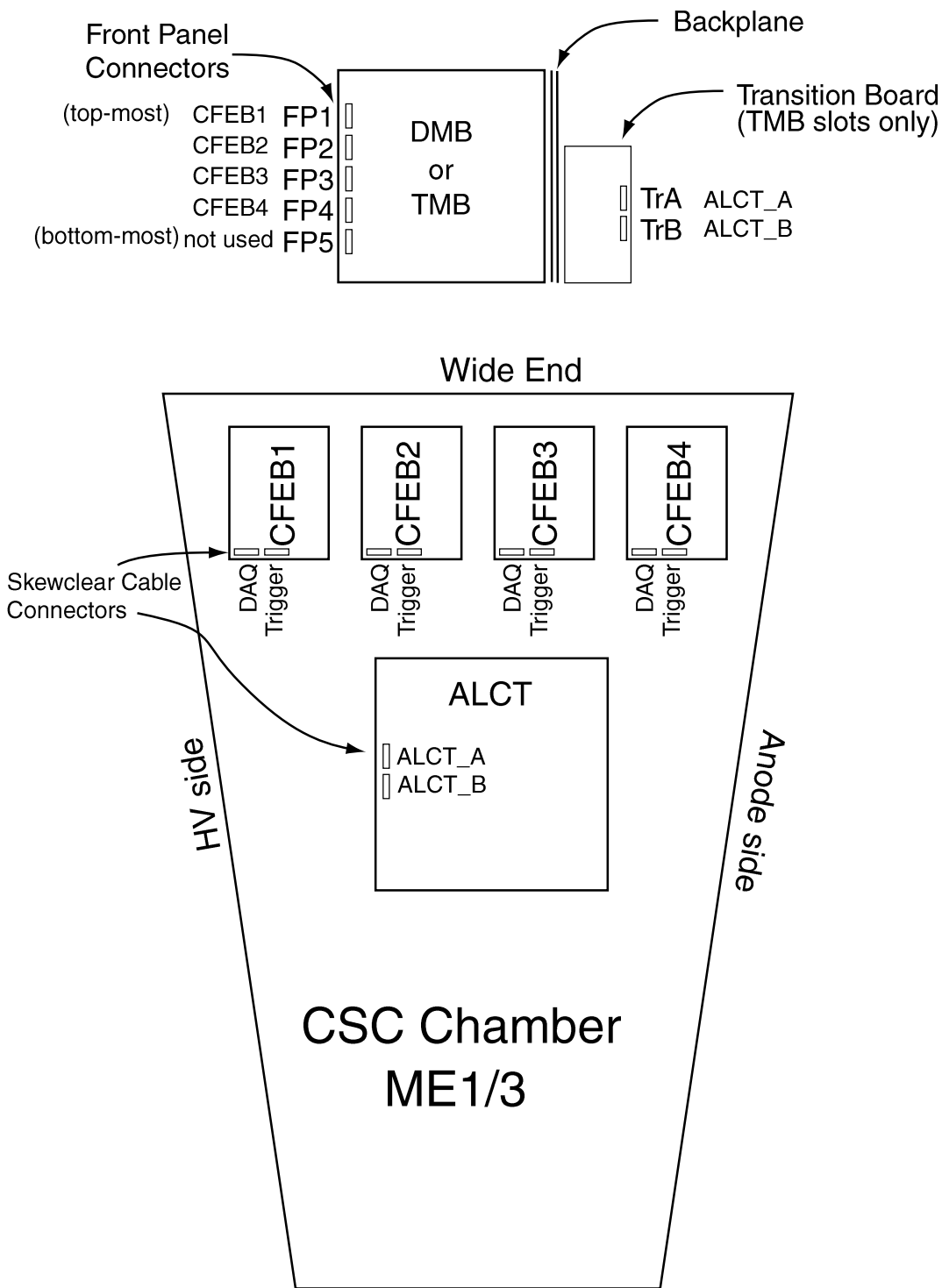
The CFEBs are designated CFEB1 thru CFEB5 with CFEB1 near the HV side of the chamber and CFEB5 near the Anode side.

The top-most Skewclear connection on the TMB or DMB corresponds to CFEB1 and the bottom-most to CFEB5.



# Front Panel Connections: ME1/3

The TMBs and DMBs are connected to CFEBs via Skewclear cables. The CFEBs are designated CFEB1 thru CFEB4 with CFEB1 near the HV side of the chamber and CFEB4 near the Anode side. The top-most Skewclear connection on the TMB or DMB corresponds to CFEB1 and the next to bottom-most to CFEB4. The bottom-most connector is left unused.



# Front Panel Connections: ME1/1a, and ME1/1b

The TMBs and DMBs are connected to CFEBs via Skewclear cables.

The CFEBs for ME1/1b are designated CFEB1 thru CFEB4 with CFEB1 near the HV side of the chamber and CFEB4 near the Anode side on the wide end.

There is only one CFEB for ME1/1a on the narrow end.

The top-most Skewclear connection on the TMB or DMB corresponds to CFEB1 on ME1/1b and the next to bottom connection to CFEB4 on ME1/1b.

The bottom-most connector corresponds to CFEB1 on ME1/1a.

