CFT Trigger

Organization of the Optical Signals at the Cassette input to use 16 Fiber Connectors

AND

inposed constraints

- **A required change in the Back Plane connectors using 5x32 pins instead of 3x32 pins allows to reorganize the way information arrives to the Cassettes.**
- **Taking into account the fact that there are two flavors of the FE Trigger Board: Left and Right and**
- **that these two flavors coexist in the same cassette.**
- **Shifting information from one FE Board to the other it is possible to form a pattern of data arriving to the cassettes by which the minimum size optical connector required has 16 fibers.**
- **Furthermore, by increasing the number of traces in the Back Plane, the order in which the data is presented to the FE Board is far more less restrictive than before.**

The next slide presents the suggested pattern of data arriving to the cassettes

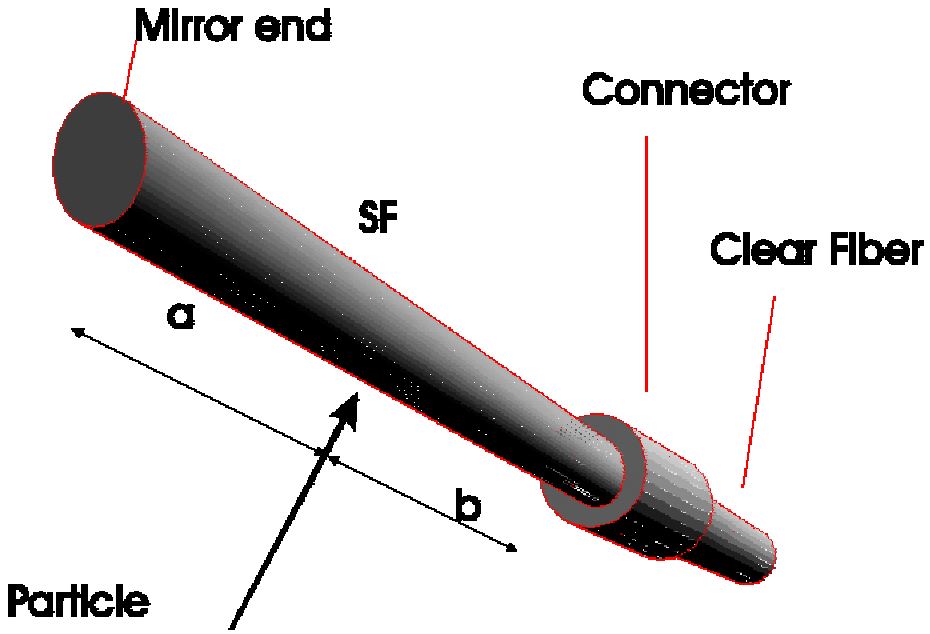
minimum sets

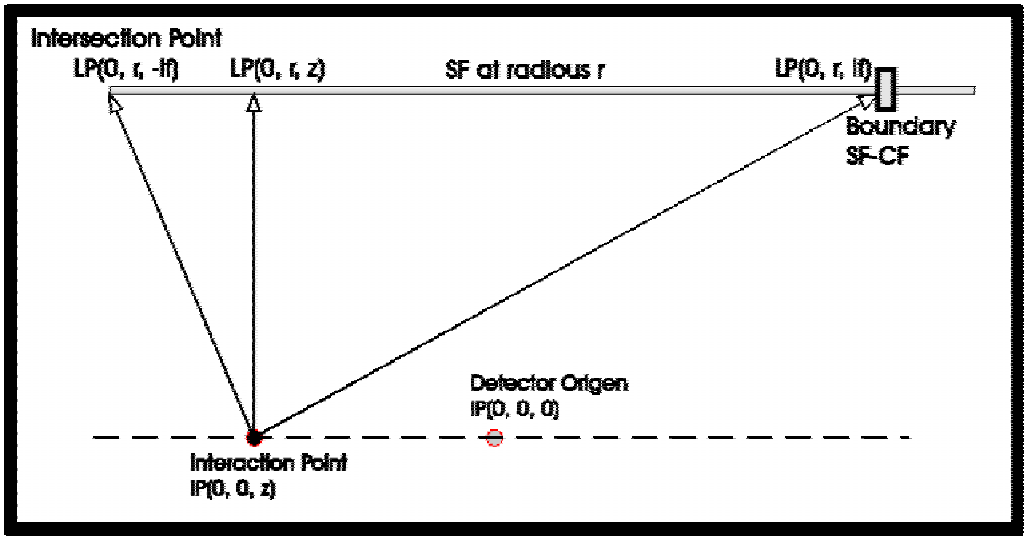
	Left			Right	
	# Signals			# Signals	
Layer		Signals			Signals
A	32			32	
		LA1:32			RA1:32
B	32			48	
		LB1:32			LB33:40
					RB1:32
C	48			48	
		LC1:48			RC1:48
D	64			48	
		LD1:56			
		RD1:8			RD9:56
E	64			64	
		LE1:64			RE1:64
F	64			80	
		LF1:64			LF65:72
					RF1:72
G	80			80	
		LG1:80			RG1:80
H	96			80	
		LH1:88			
		RH1:8			RH9:88
TOT.	480			480	

CONSTRAINTS

- All cassettes must have the same organization.
- PreShower data must be in same cassette as CFT data.
- All connectors must have the same organization.
- The 80 subsectors should be organized into 5 identical sectors.
- Within a sector the length of the clear fibers connecting the SF and the cassettes should be such that all signals generated in the middle of a SF will arrive at the same time to the cassettes.

timing


Mirror end
Connector
SF
Clear Fiber
a
b
Particle


Intersection Point
LP(0, r, -lf)
LP(0, r, z)
SF at radious r
LP(0, r, lf)
Boundary
SF-CF
Detector Origen
IP(0, 0, 0)
Interaction Point
IP(0, 0, z)

J3 connector
(organization example)

	A	B	C	D	E
1	1LA1	8LA1	8R1	1RA1	2R1
2	2LA1	2RA1	3R1	3LA1	3RA1
3	4R1	4LA1		4RA1	5R1
4	5LA1	5RA1	6R1	6LA1	6RA1
5	7R1	7LA1	7RA1	9LA1	16LA1
6		14R1	9RA1	10LA1	17LA1
7	15R1	17RA1	11LA1	18LA1	16R1
8	18RA1	10R1	12LA1		10RA1
9	11R1	13LA1	11RA1	12R1	14LA1
10	12RA1	13R1	15LA1	13RA1	21LA1
11	19LA1		24R1	19RA1	22LA1
12	20LA1	25R1	20RA1	23LA1	28LA1
13	26R1	21RA1	22R1	26LA1	
14	22RA1	23R1	27LA1	23RA1	24LA1
15	29LA1	27R1	29RA1	25LA1	30LA1
16	28R1	30RA1		3LA2	1LA2
17	9R2	1RA2	4LA2	2LA2	10R2
18	2RA2	5LA2	11LA2	11R2	3RA2
19		6LA2	12LA2	12R2	4RA2
20	7LA2	13LA2	13R2	5RA2	8LA2
21	14LA2	14R2	6RA2		15LA2
22	23LA2	23R2	15RA2	16LA2	24LA2
23	24R2	16RA2	17LA2	25LA2	25R2
24	17RA2		18LA2	26LA2	26R2
25	18RA2	19LA2	27LA2	27R2	19RA2
26	20LA2	28LA2	28R2	20RA2	
27	21LA2	29LA2	29R2	21RA2	22LA2
28	30LA2	30R2	22RA2	1LA3	13LA3
29	11R3	1RA3		2LA3	14LA3
30	12R3	2RA3	3LA3	15LA3	13R3
31	3RA3	4LA3	16LA3	14R3	4RA3
32		5R3	7LA3	5RA3	6R3