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Engineering Note

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Project: CFT Axial, CFT Stereo
Doc. No: A990408A

Subject: Routing of fiber ribbons into cassettes

Introduction

Recent design discussions have resulted in the elimination of the fiber mixing box in favor of an electronic mixing box. This decision has the result that, instead of fibers grouped by sector, fibers grouped by ribbon are dropped into the cassettes. This document lays down some naming conventions to insure we all work off the same page.

General Numbering Scheme

The detector is cylindrical and consists of eight layers of 'fibers' (layers A through H) and one layer of 'preshower fibers'. A polar coordinate scheme is used, where the angle Φ runs from 0 to 360 degrees. A crude sketch is shown as figure 1.

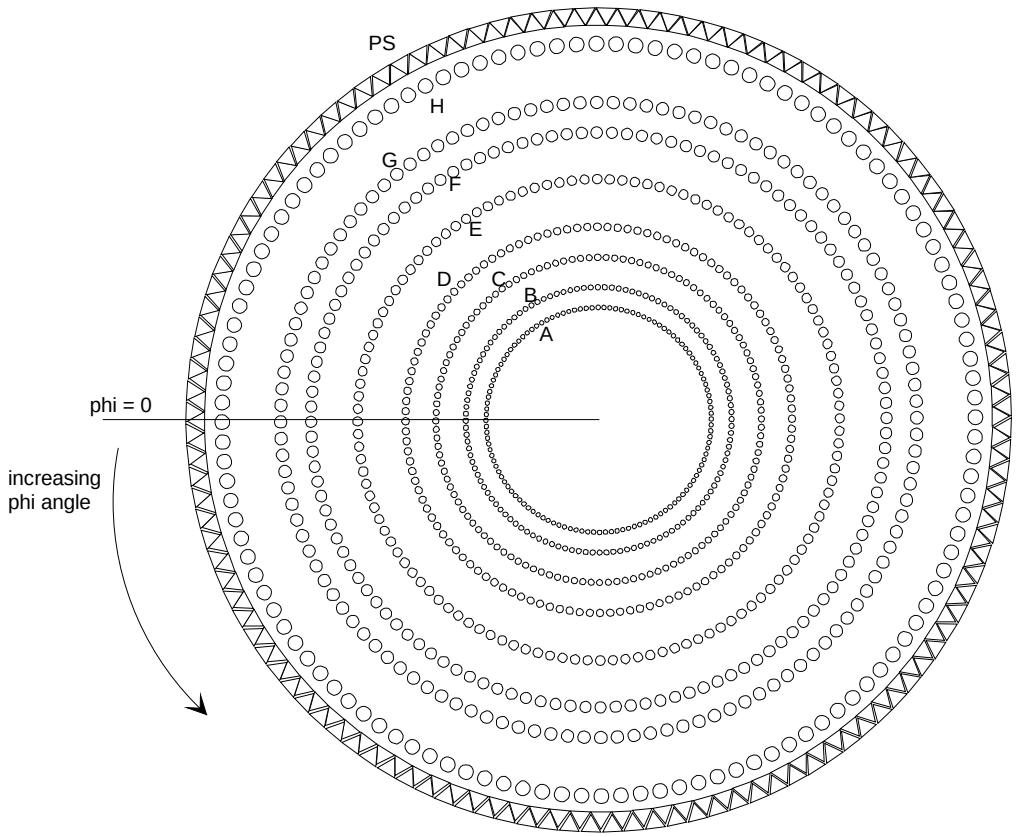

Figure 1

Each layer of fibers is stripped off the detector in ribbons of 256. These ribbons are loaded into the warm end connectors of the cassettes. A picture of one of the warm end connectors is given in Figure 2.

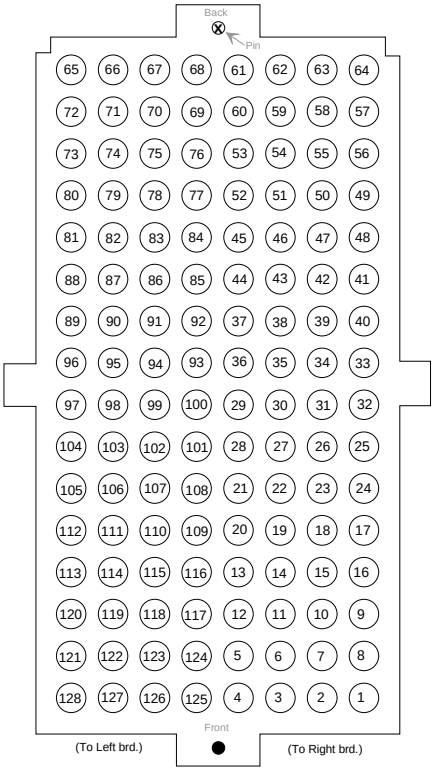

Figure 2

A single ribbon fills two connectors. The ribbon is cut in half and each half is wrapped in a serpentine pattern to fill the 128-pin optical connector. The lowest phi fiber of the ribbon is aligned to the left-most, rear-most pin of the rear-most connector of the pair.

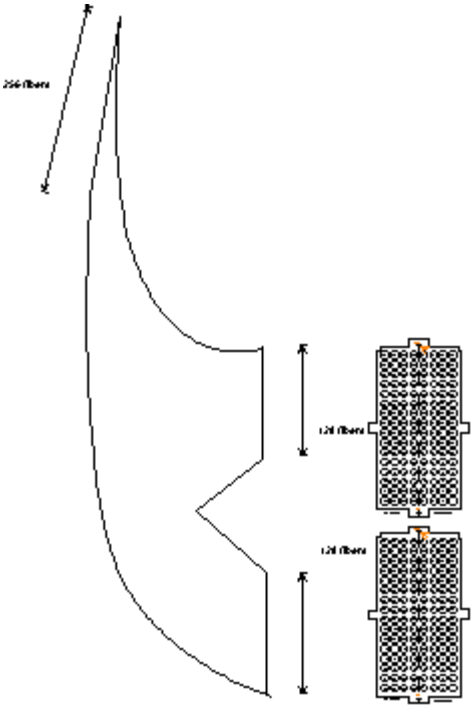

Figure 3

Within each of the 128-pin warm end connectors, the half of the ribbon is loaded in a serpentine pattern as shown in Figure 4.

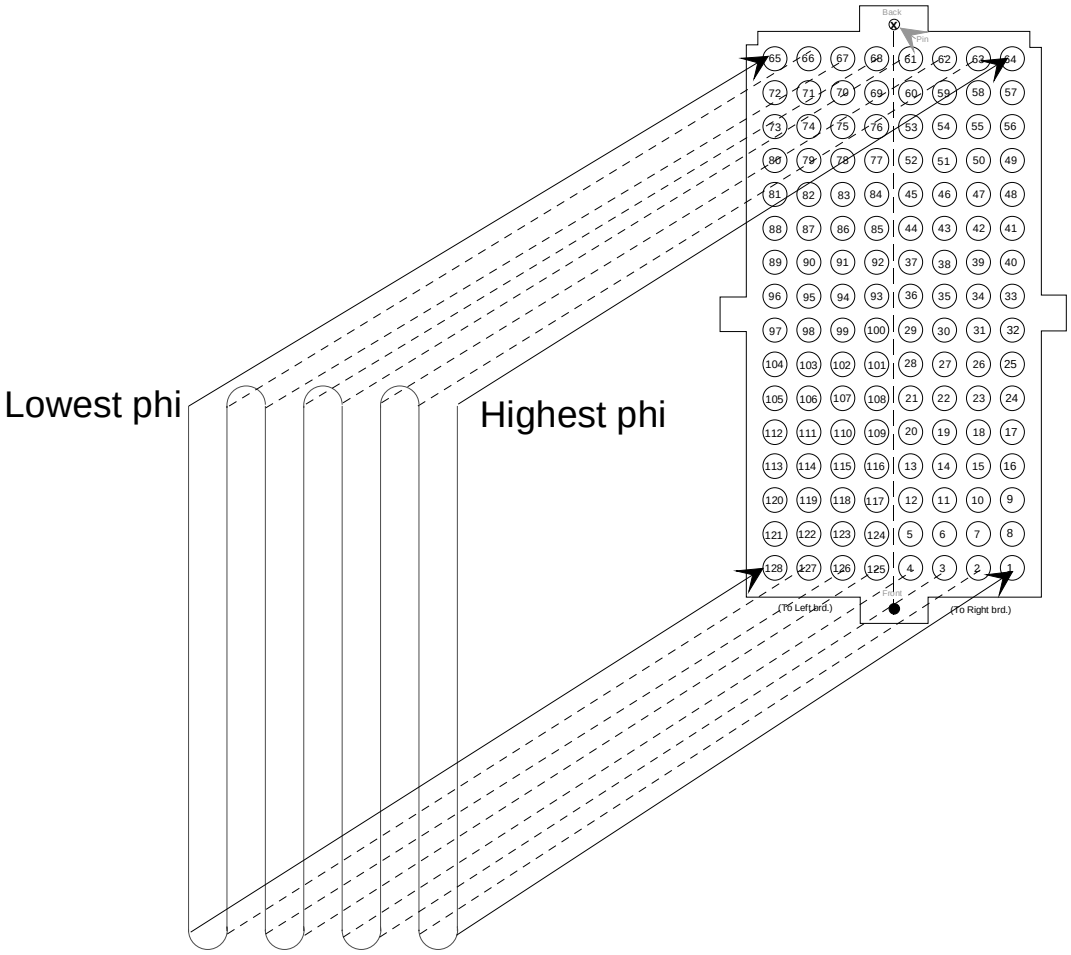

Figure 4

Table 1 shows an example for the ‘A’ layer of the detector, pictorially showing which fiber is landed in each position of two Warm End connectors.

REAR

A1	A32	A33	A64	A65	A96	A97	A128
A2	A31	A34	A63	A66	A95	A98	A127
A3	A30	A35	A62	A67	A94	A99	A126
A4	A29	A36	A61	A68	A93	A100	A125
A5	A28	A37	A60	A69	A92	A101	A124
A6	A27	A38	A59	A70	A91	A102	A123
A7	A26	A39	A58	A71	A90	A103	A122
A8	A25	A40	A57	A72	A89	A104	A121
A9	A24	A41	A56	A73	A88	A105	A120
A10	A23	A42	A55	A74	A87	A106	A119
A11	A22	A43	A54	A75	A86	A107	A118
A12	A21	A44	A53	A76	A85	A108	A117
A13	A20	A45	A52	A77	A84	A109	A116
A14	A19	A46	A51	A78	A83	A110	A115
A15	A18	A47	A50	A79	A82	A111	A114
A16	A17	A48	A49	A80	A81	A112	A113

FRONT

REAR

A129	A160	A161	A192	A193	A224	A225	A256
A130	A159	A162	A191	A194	A223	A226	A255
A131	A158	A163	A190	A195	A222	A227	A254
A132	A157	A164	A189	A196	A221	A228	A253
A133	A156	A165	A188	A197	A220	A229	A252
A134	A155	A166	A187	A198	A219	A230	A251
A135	A154	A167	A186	A199	A218	A231	A250
A136	A153	A168	A185	A200	A217	A232	A249
A137	A152	A169	A184	A201	A216	A233	A248
A138	A151	A170	A183	A202	A215	A234	A247
A139	A150	A171	A182	A203	A214	A235	A246
A140	A149	A172	A181	A204	A213	A236	A245
A141	A148	A173	A180	A205	A212	A237	A244
A142	A147	A174	A179	A206	A211	A238	A243
A143	A146	A175	A178	A207	A210	A239	A242
A144	A145	A176	A177	A208	A209	A240	A241

FRONT

Table 1

This pattern is repeated for all Warm End connectors.