The BROADCASTER

communication protocols
and
data encoding

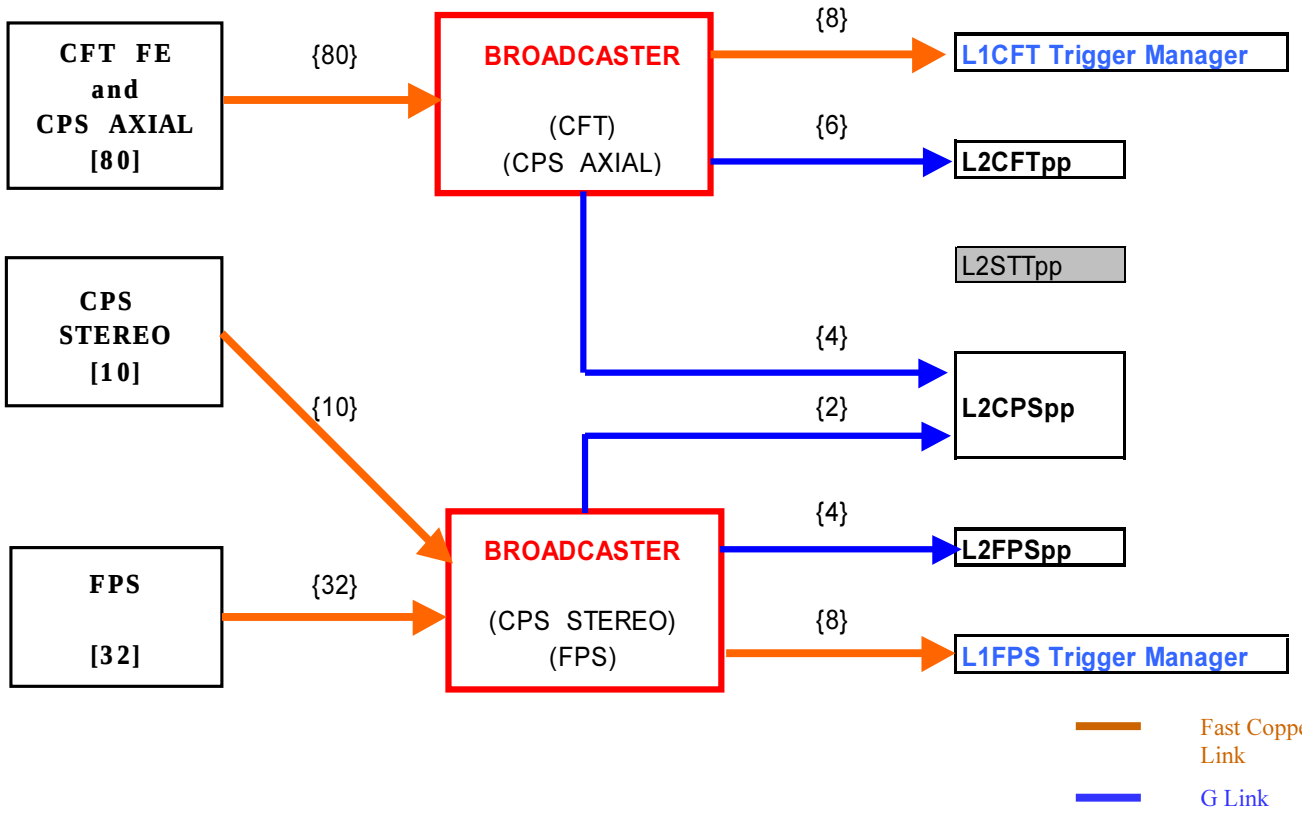
A PROPOSAL BY

Manuel I. Martin

for the DØ Trigger

CFT ARCHITECTURE and DATA FLOW to L1 and L2

LINKS between FE and BROADCASTER
BROADCASTER and TRIGGERS



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CFT ARCHITECTURE and DATA FLOW to L1 and L2

For a System as complex as the Central Tracker Trigger, the definition of the Hardware Architecture is not sufficient to ensure good performance. A good definition of "ALL" the codes used to transfer data from one Functional Block to another is also necessary. This is imperative when different groups are responsible for the design of different Blocks. Normally this is the responsibility of the System Designer. As nobody had taken this responsibility, I make a Proposal for a cohesive way of dealing with the Data Flow between main Functional Blocks.
I will use as starting point the Data Encoding for the FE to the Broadcaster that I presented long ago.

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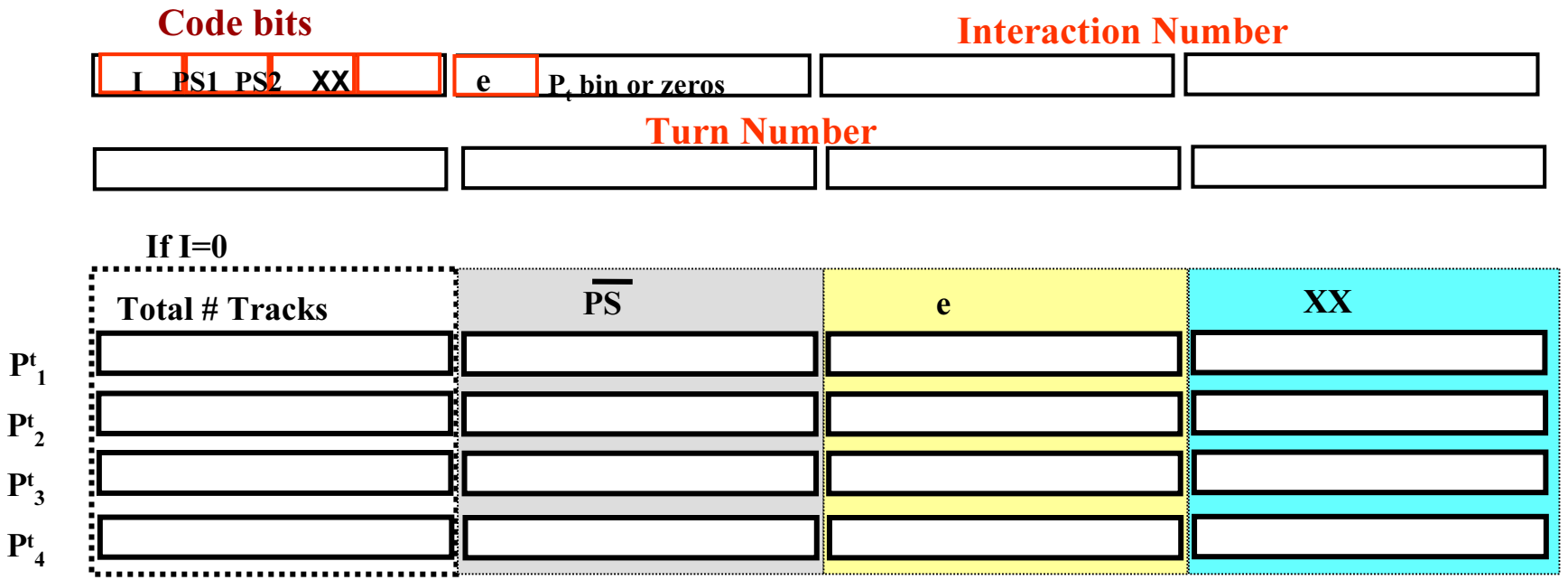
Data Codes proposed for the transfer of L1 data from the FE to the Broadcaster (presented long ago)



Equivalent to 4 bits

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Data Codes proposed for the transfer of L1 data from the Broadcaster to the CFTTM (presented long ago)

Encoding of:

Header…. Error(1bit), LSB of Event # (up to 3 bits)
Tracks with Tag X (2 bits per Pt bin)
Total Tracks (6 bits per Pt bin)
Tracks wit PS tag (6 bits per Pt bin)
Electron candidates (6 bits per Pt bin)
Isolated Tracks (3 bits per Pt bin)

Header			
Tag X (Pt 1)	Tag X (Pt 2)	Tag X (Pt 3)	Tag X (Pt 4)
Total # of Tracks (Pt 1)		Total # of Tracks (Pt 2)	
Total # of Tracks (Pt 3)		Total # of Tracks (Pt 4)	
Tracks with PS (Pt 1)		Tracks with PS (Pt 2)	
Tracks with PS (Pt 3)		Tracks with PS (Pt 4)	
e candidates (Pt 1)		e candidates (Pt 2)	
e candidates (Pt 3)		e candidates (Pt 4)	
Isolated (Pt 1)	Isolated (Pt 1)	Isolated (Pt 1)	Isolated (Pt 1)

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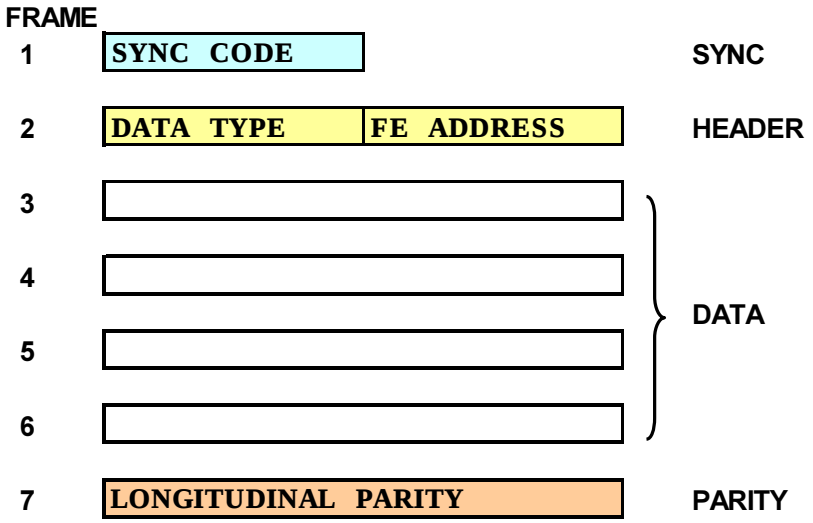
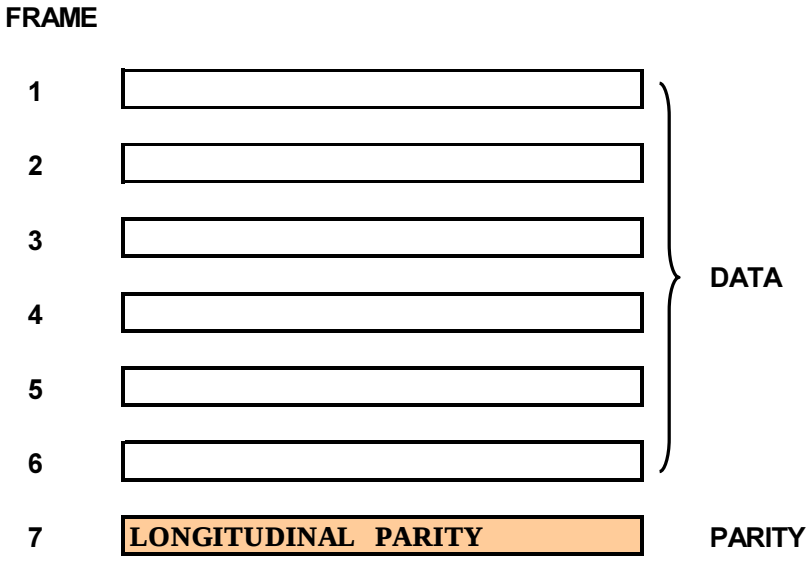
L1
PROTOCOLS for the Fast Cu Serial Link

FE to BROADCASTER



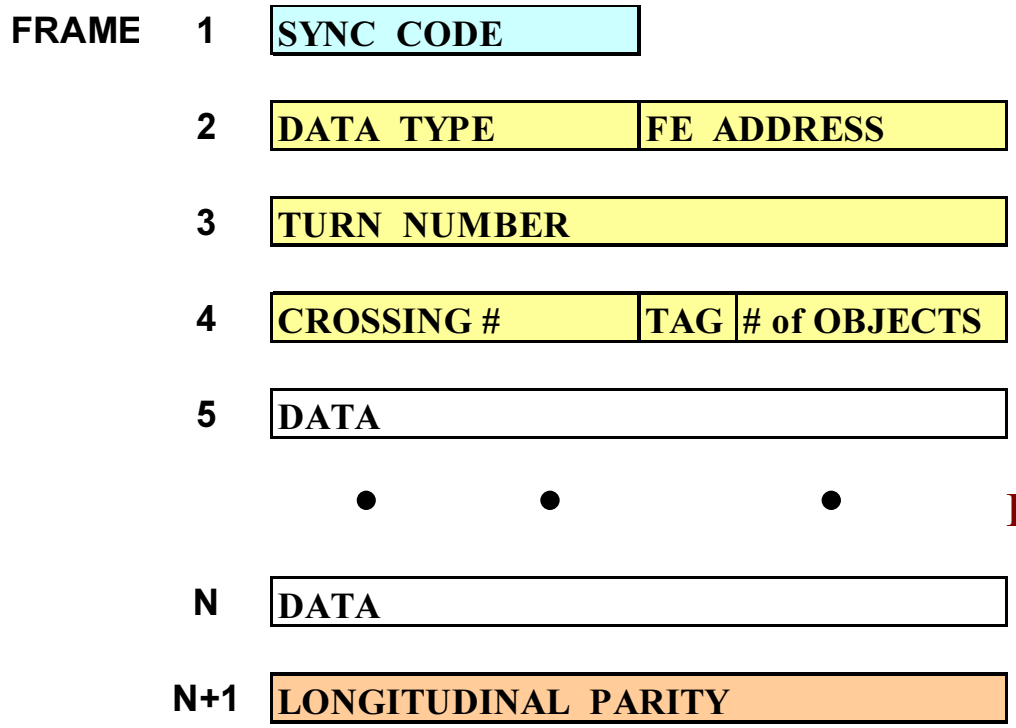
BROADCASTER to Trigger Manager (L1) (same as FE to μ)



Each Frame consists of 16 bits

Proposal by M. I. Martin

L2 PROTOCOLS
for the Fast Cooper Serial Link



Each Frame consists of 16 bits

Proposal by M. I. Martin