FEE A

Network Header
Event Information
Length — Source
D0
D1
D2
Network Termination

FEE B

Network Header
Event Information
Length — Source
Network Termination

FEE C

Network Header
Event Information
Length — Source
D0
D1
Network Termination

Hub D

Network Header
Event Information
Length — Source D
Length — Source A
D0
D1
D2
Length — Source B
Length — Source C
D0
D1
Network Termination

Hub F

Network Header
Event Information
Length — Source F
Length — Source A
D0
D1
D2
Length — Source B
Length — Source C
D0
D1
Length — Source Y
D0
D1
D2
Length — Source Z
D0
D1
Network Termination

Subevent Builder

Sub Event Header
Length — Source A
D0
D1
D2
Length — Source B
Length — Source C
D0
D1
Length — Source Y
D0
D1
D2
Length — Source Z
D0
D1
Length — Source SEB
D0

FEE Y

Network Header
Event Information
Length — Source
D0
D1
D2
Network Termination

FEE Z

Network Header
Event Information
Length — Source
D0
D1
Network Termination

Hub E

Network Header
Event Information
Length — Source E
Length — Source Y
D0
D1
D2
Length — Source Z
D0
D1
Network Termination

Working algorithm of a Hub:

- wait until event information from all connected has been received
- send network header
- compare all event information, store information about errors
- generate merged event information
- add up all received length information
- send new length / source word
- if "pack bit" in event information has been set: throw away all received length/source (in this example, Hub F throws away length/source from Hubs E and D)
- send rest of received data from all FEE
- in case that more data is received as was given in length field: Additional data is padding and therefore removed
- in case of errors, the hub can add another data block (length/source + data words) in the end
- send network termination.

Example Network Structure

FEE A, FEE B, FEE C → Hub D
FEE Z, FEE Y → Hub E
Hub D, Hub E → Hub F → Ethernet

Notes:

Event Information: Contains trigger number, random code to prevent event mixing, trigger type
Length: Count of 32bit words following this header
Source: TrbNet address of the board generating this word

Subevent Builder

The subeventbuilder generates the subevent headers needed to sent event data to the Event Builder.
It reads the event information and length/source word and builds the SubEventHeader based on this information. The SubEventID can be deduced from the source, length information and trigger number can simply be copied. The length information in the subeventheader marks the length of the whole subevent, the length in the len/src word is the number of datawords following from this one source. The rest of the data words can be passed on without further processing. Padding is removed. Finally, the SubEventBuilder adds its own dataword containing the information from the network termniation packet about possible errors & problems.