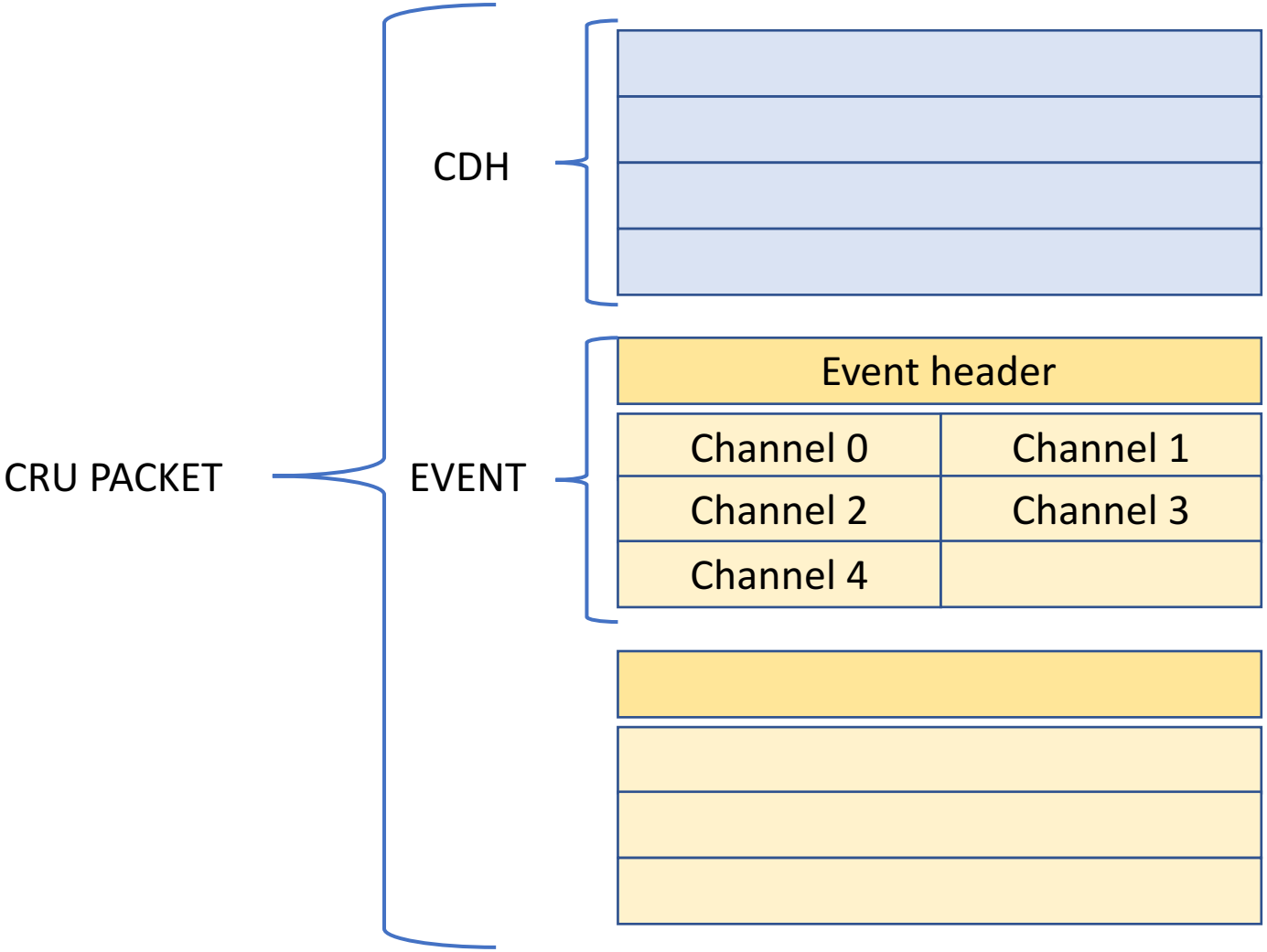
FIT PM/TCM readout format



CDH provided by WP6:

https://alice-o2.web.cern.ch/node/145

https://alice-o2.web.cern.ch/system/files/RDH%20V3_2.pdf

Event header (08/19)

79 76	75 72	71 44	43 12	11 0
0xF	number of channels [GBT words in event]	0x0 *	ORBIT	BC

- Under discussion :
  To indicate the type of module (TCM/PM), TCM data format

PM Channel data format V.1 (40 bit, ½ GBT word)

Bits	Value
0 - 11	Time with sign bit. (Relative to IP center time value).
12 - 24	Charge with sign bit (base line/range corrected)
25	ADC number (0/1)
26	Double event (two CFD pulses during one BC period)
27	Time information not valid
28	ADC in gate (CFD pulse time is inside ADC gate)
29	Time information too late (TDC outputs data too late to include in trigger)
30	Amplitude too high (CFD saturated, time may be incorrect)
31	Event time included in trigger calculations
32	Time information lost (TDC data did not arrive for any reason)
33 - 35	Reserved (0)
36 - 39	Channel id (1-12)

TCM data format v.0

Bits	Value
0	OrA trigger
1	OrC trigger
2	SemiCentral trigger
3	Central trigger
4	Vertex trigger
5 – 7	Reserved (0)
8 - 14	Number of A-side active channel
15	Reserved (0)
16 - 22	Number of C-side active channel
23	Reserved (0)
24 - 41	Total charge for A-side
42 - 59	Total charge for C-side
60 - 68	Average time for A-side
69	Reserved (0)
70 - 78	Average time for C-side
79	Reserved (0)

TCM extended data format v.0 (additional words)

Words	Bits	Value
1	0 - 31	A0 PM trigger data
	32 - 63	A1 PM trigger data
	63 - 79	A2 PM trigger data 0 – 15 bits
2	0 - 15	A2 PM trigger data 16 – 31 bits
	16 - 47	A3 PM trigger data
	48 - 79	A4 PM trigger data
3	0 - 31	A5 PM trigger data
	32 - 63	A6 PM trigger data
	63 - 79	A7 PM trigger data 0 – 15 bits
4	0 - 15	A7 PM trigger data 16 – 31 bits
	16 - 47	A8 PM trigger data
	48 - 79	A9 PM trigger data
5	0 - 31	C0 PM trigger data
	32 - 63	C1 PM trigger data
	63 - 79	C2 PM trigger data 0 – 15 bits
6	0 - 15	C2 PM trigger data 16 – 31 bits
	16 - 47	C3 PM trigger data
	48 - 79	C4 PM trigger data
7	0 - 31	C5 PM trigger data
	32 - 63	C6 PM trigger data
	63 - 79	C7 PM trigger data 0 – 15 bits
8	0 - 15	C7 PM trigger data 16 – 31 bits
	16 - 47	C8 PM trigger data
	48 - 79	C9 PM trigger data

HDMI data format v.1(A/C side PM trigger data)

Bits	Value
0 - 3	Number of active channels (4 bits)
4 - 17	Time data (14 bits)
18 - 31	Charge data (14 bits)