

## Inner-Tracker DAQ/LUMI data format

Version 1.4

Date: 2020-10-13

Word	Bit #	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	S-link 128b order (following page)	Notes
0x00000000	Magic #1 (0xC3)									Ver Major (1)			Ver Minor (3)					7	3 bit major version, 5 bit minor version
0x00000001	Error Flags				Chip Count													6	
0x00000002	Reserved																	5	
0x00000003	Trig source				BX													4	Trig source: bit 0 → TCDS; bit 1 → LUMI
0x00000004	Orbit # MSBs													3					
0x00000005	Orbit # LSBs													2					
0x00000006	Reserved													1					
0x00000007	Reserved													0					
0x00000008	Chip 1 offset (in 16-bit words)(MSBs)																	7	
0x00000009	Chip 1 offset (in 16-bit words)(LSBs)																	6	
...	...																		
...	Chip N offset (MSBs)																		
...	Chip N offset (LSBs)																		
...	Padding to 128 bit word size																	0	padding filled with '0's
...	Magic #3 (0xE)				Res			Error flags				End bit #				7	Error flag bit 0 → LOS ; bit 1 → time-out; bit 2 – chip disabled		
...	Chip 1 size (in 16-bit words)																	6	
...	Raw chip 1 binary data																	Unused bits are padding with '0's	
...	...																		
...	Raw chip 1 binary data										Padding bits (End bit #)								
...	...																		
...	Magic #3 (0xE)				Res			Error flags				End bit #							
...	Chip N size (in 16-bit words)																		
...	Raw chip N binary data																		
...	...																		
...	Raw chip N binary data						Padding bits (End bit #)												
...	Padding to 128 bit word size																	0	
...	Magic #2 (0x3C)									Reserved								7	
...	IT-DTC-Link unique ID																	6	
...	Reserved																	5	
...	Reserved																	4	
...	Reserved																	3	
...	Reserved																	2	
...	Reserved																	1	
END	Reserved																	0	

Max size = 8+8+((2 + 2 + MAX\_CHIP\_SIZE) \* N\_CHIPS) = 16+ (~54000 \* N\_CHIPS)