2013-03-05

Table 11: L1Topo

	ns	BCs	Sub Total	Total	
Optical Input available from CMX, eFex, jFex & Muctpi				60.2	
L1Topo Input Deserialisers	50	2.0			
Synchronize to local clock - 320-> 40 MHz	25	1.0			
Algorithmic Processing	125	5.0			
			8.0		
Electrical Output to CTP (multiplexed) (if used)	25	1.0			
Electrical Cable to CTP (if used) (2m)	10	0.4			
			1.4		
L1Topo electrical input available at CTP				69.6	L1Topo_Elec
Output Multiplexers 40-320 MHz (if used)	25	1.0			
Output Serialisers for optics (if used)	50	2.0			
Fibres to CTP (if used) (2m)	10	0.4			
			3.4		
L1Topo Optical inputs to CTP available			11.4	71.6	L1Topo_Opti

Table 12: CTP

	ns	BCs	Sub Total	Total
Last Electrical Signal arrival				69.6
CTP Input Delay - Electrical Input		2.0		
CTP_In processing + PITbus		3.0		
Electrical input data ready in CORE			5.0	74.6
Last Optical Signal Arrival				71.6
Input deserialisers		2.0		
CTP Input Delay - Optical Input		2.0		
Optical input data ready in CORE			4.0	75.6
Last Input Data available to CORE for processing				75.6

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Table 14: L1Topo

	ns	BCs	Sub Total	Total	
Input available from CP_JE, eFex, jFex, gFex & Muctpi				64.3	
L1Topo Input Deserialisers	50	2.0			measured
Synchronize to local clock - 320-> 40 MHz	25	1.0	3.0		estimated
Algorithmic Processing	125	5			estimated
Electrical Output to CTP (multiplexed) (if used)	25	1.0			measured
Electrical Cable to CTP (if used) (2m)	10.0	0.4	6.4		measured
L1Topo electrical input available at CTP			9.4	73.7	L1Topo_Electrical
Processing	100	4			estimated
Output Multiplexers 40-320 MHz (if used)	25	1.0			measured
Output Serialisers for optics (if used)	50	2.0			measured
Fibres to CTP (if used) (2m)	10.0	0.4	7.4		measured
L1Topo Optical inputs to CTP available			10.4	74.7	L1Topo_Optical

Table 15: CTP

	ns	BCs	Sub Total	Total	
Last CTP_IN Electrical Signal arrival				69.2	CTP_IN
CTP_In processing + PITbus	49.9	2.0			measured
CTP_IN Electrical input data ready in CORE			2.0	71.2	CTP_CORE_PIT
Last Optical Signal Arrival				74.7	CTP_Direct_Optical
Input deserialisers	75	3.0			estimated
Optical input data ready in CORE			3.0	77.7	CTP_Optical
Last CTP_CORE Direct Electrical Signal				73.7	CTP_Direct_Electrical
Signal Retiming	12.5	0.5			estimated
CTP_CORE Electrical input available to CORE			0.5	74.2	CTP_CORE_Electrical
Last Input Data available to CORE for processing				77.7	
New CTP_CORE: processing and output	149.7	6.0			estimated
CTP Out				83.7	CTP_L1A

Table 6: jFEX

Nov 5, 2018	ns	BCs	Sub Total	Total
Input data available - PPM, Tile opt I, LAr DPS				46.8
Deserializer on jFex	50	2.0		
Data dupl between FPGAs via PMA Loopback	37	1.5		
Channel demultiplexing/synchronization	25	1.0		
Primitive processing (Jet, Energy Sums)	125	5.0		
Tob selection for output	25	1.0		
Multiplexing	25	1.0		
Serializer	50	2.0		
Optical cable (16.2m) to L1Topo via TopoFox		3.2		
Optical data available at L1Topo input			16.7	63.6	L1

Table 6: jFEX

Aug. 2020	ns	BCs	Sub Total	Total	
Input data available - PPM, Tile opt I, LAr DPS				47.5	
Deserializer on jFex	50	2.0			
Data dupl between FPGAs via PMA Loopback	37	1.5			
Channel demultiplexing/synchronization	25	1.0			
Primitive processing (Jet, Energy Sums)	125	5.0			
Tob selection for output	25	1.0			
Multiplexing	25	1.0			
Serializer	50	2.0			
Optical cable (16.2m) to L1Topo via TopoFox	81	3.2			
Optical data available at L1Topo input			16.7	64.3	L1Calo_jFex