

L1CAL & CAL-TRK LATENCY

updated

3-Sep-02

Step	delta-t (clk)	delta-t (ns)	cumul-t (ns)	Notes
Bunch Crossing		0.0	0.0	
Transmit to ADF				
BC to ADF		650.0	650.0	measured - scope
<i>sub-total</i>		<i>650.0</i>	<i>650.0</i>	
ADF	<i>CLK units (ns)</i>	16.5		Calvet Mail - 25-Jun-02
Signal synchronization		91.0	741.0	
ADC value valid	10.0	165.0	906.0	
ADC pins sensed	0.5	8.3	914.3	
Digital input decimated	5.0	82.5	996.8	
Peak at convolver output	26.0	429.0	1425.8	
Peak detect & dec. done	9.0	148.5	1574.3	
Et LUT done	1.0	16.5	1590.8	
Serial stream selected	1.0	16.5	1607.3	
Delay adjustment	0.0	0.0	1607.3	
Parity calc / 8-10 bit select	1.0	16.5	1623.8	
FPGA out valid - ser clk	0.5	8.3	1632.0	
LSB of chan at TAB	3.0	49.5	1681.5	
MSB of chan at TAB	7.0	115.5	1797.0	
<i>sub-total</i>		<i>1147.0</i>	<i>1797.0</i>	
TAB	<i>CLK units (ns)</i>	11.0		
<i>Sliding Windows Chip</i>				discussion w/ B.Sippach 8/22
Resynch inputs	12.0	132.0	1929.0	
Parity,etc.	2.0	22.0	1951.0	
Data to/from neighbors	1.0	11.0	1962.0	
Test/Data mux	2.0	22.0	1984.0	
ICR sums	1.0	11.0	1995.0	
Jet/EM algorithm	7.0	77.0	2072.0	
Load results	1.0	11.0	2083.0	
Et threshold comparisons	12.0	132.0	2215.0	
Thresh counts over eta	2.0	22.0	2237.0	conservative 2-step sum
Construct output word	1.0	11.0	2248.0	
Miscellaneous	0.0	0.0	2248.0	
<i>Global Chip</i>				all this is a guess
Wait for thresh n (max)	10.0	110.0	2358.0	
Count thresh n	3.0	33.0	2391.0	conservative 3-step sum
Construct output word	4.0	44.0	2435.0	made of 4-bit parts
<i>SLDB</i>				
transmitter in to out		90.0	2525.0	K.Johns - 26-Aug-02
<i>sub-total</i>		<i>728.0</i>	<i>2525.0</i>	
CAL-TRK				K. Johns 01-Aug-02
Deserialize		40.0	2565.0	TDR - meas w/o 250 ns cable
8b - 10b decode		50.0	2615.0	
DAV to FF MT		40.0	2655.0	
FF MT to start processing		19.0	2674.0	
Start proc to FB data		56.0	2730.0	
FB data to avail (+MTC05)		396.0	3126.0	MTC05 tri logic - 132 ns
Data avail to data ready		38.0	3164.0	
extra		90.0	3254.0	assumes no MTM for Cal-Trk
<i>sub-total</i>		<i>729.0</i>	<i>3254.0</i>	
TOTAL			3254.0	
TFW decision due (Run 2a)			3300.0	
Difference			-46.0	
TFW decision due (Run 2b)			4092.0	
Difference			-838.0	