

T10/01-162r0						
Preliminary Timing Budget for Fast-320 (Currently does not have positive margin)						
William Petty, LSI Logic (05/09/2001)						
	LSI's #'s (William Petty)	LSI's #'s (William Petty)	Seagate #'s (Gene Milligan) T10/00-323r2	From SPI-3	From SPI-3	
Transfer Rate / Clock Info	Fast-320	Fast-160	Fast-160	Fast-80	Fast40	
Basic Period (ns)	6.250	12.500	12.500	25.000	25.000	
DT Period	3.125	6.250	6.250	12.500	0.000	
Period Tolerance	0.030	0.030	0.030	0.600	0.700	
Deterministic errors						
Silicon TX Driver Routing Skew	1.000	1.000	0.750	1.500	1.500	
Package Skew (Initiator)	0.065	0.065	0.065	0.065	0.065	
PCB Layout Skew (Initiator)	0.200	0.200	0.200	0.200	0.200	
Cable Skew (@ 25ps/Ft)	2.500	2.500	2.500	2.500	2.500	
PCB Layout Skew (Target)	0.200	0.200	0.200	0.200	0.200	
Package Skew (Target)	0.065	0.065	0.065	0.065	0.065	
Silicon RX Routing Skew	1.000	1.000	0.750	1.500	1.500	
Cable Distortion ISI	3.000	3.000	4.000	3.000	3.000	
HL Vs LH Matching	0.400	0.500	0.500	0.500	0.500	
Non-Deterministic errors						
Low Vt Vs Substrate Noise	0.100	0.200	0.700	0.100	0.100	
Clock Jitter	0.250	0.250	0.250	0.500	0.500	
Cross Talk Induced Jitter	0.500	0.500	0.700	0.500	0.500	
Input Slew Rate Dependent Skew	0.200	0.200	0.000	0.200	0.200	
Receiver Amplitude Dependent Skew	0.200	0.200	0.200	0.200	0.200	
Receiver Asymmetry	0.400	0.500	0.350	0.500	0.500	
Strobe Placement Accuracy (X2)	0.100	0.200	0.500	0.000	0.000	
Data Deskew Accuracy (X2)	0.100	0.200	0.300	0.000	0.000	
Total Error Budget	10.095	10.395	11.245	11.830	11.880	
Compensatable Total	6.330	6.130	5.730	6.030	6.030	
Data Valid Window without Deskew or PreComp	-6.970	-4.145	-4.995	4.170	16.620	
Data Valid Window with Deskew and PreComp	-0.640	1.985	0.735	NA	NA	
Data Setup/Hold without Deskew or PreComp	-3.485	-2.073	-2.498	2.085	8.310	
Data Setup/Hold with Deskew and PreComp	-0.320	0.992	0.368	NA	NA	
NOTE Cable timings based on good quality twisted pair round shielded cable						
* These values are removed by Skew Compensation Logic						
* Calculated Value						
* Reduced Values (From SPI-4)						
* Possible to Reduce						