T10/02-047r0							
Preliminary Timing Budget for Fast-320 (U-640)							**How to get there**
William Petty, LSI Logic (01/15/2002)							
		Proposed for SPI-5	From SPI-4	From SPI-3	From SPI-3		
Transfer Rate / Clock Info		**Fast-320**	**Fast-160**	**Fast-80**	**Fast40**		
	Basic Period (ns)	6.250	12.500	25.000	25.000		
	DT Period	3.125	6.250	12.500	0.000		
	Period Tolerance	0.030	0.030	0.600	0.700		
Deterministic errors							
	Silicon TX Driver Routing Skew	1.000	1.000	1.500	1.500		
	Package Skew (Initiator)	0.065	0.065	0.065	0.065		
	PCB Layout Skew (Initiator)	0.200	0.200	0.200	0.200		
	Cable Skew (@ 25ps/Ft)	2.500	2.500	2.500	2.500		
	PCB Layout Skew (Target)	0.200	0.200	0.200	0.200		
	Package Skew (Target)	0.065	0.065	0.065	0.065		
	Silicon RX Routing Skew	1.000	1.000	1.500	1.500		
	TX HL Vs LH Matching	0.500	0.500	0.500	0.500		Via Deskew of both rising/falling edges
	RX HL Vs LH Matching	0.500	0.500	0.500	0.500		Via Deskew of both rising/falling edges
	Cable Distortion ISI	3.000	3.000	3.000	3.000		Will require receiver equalization
Non-Deterministic errors							
	Low Vt Vs Substrate Noise	0.100	0.200	0.100	0.100		Via Silicon Improvements
	Clock Jitter	0.250	0.250	0.500	0.500		
	Cross Talk Induced Jitter	0.500	0.500	0.500	0.500		
	Input Slew Rate Dependent Skew	0.100	0.200	0.200	0.200		Via Silicon Improvements
	Receiver Amplitude Dependent Skew	0.200	0.200	0.200	0.200		Via Receiver Equalization
	Strobe Placement Accuracy (X2)	0.200	0.200	0.000	0.000		Via Silicon Improvements
	Data Deskew Accuracy (X2)	0.100	0.200	0.000	0.000		Via Silicon Improvements
Total Error Budget		10.195	10.395	11.830	11.880		
Compensatable Total		7.980	4.880	4.780	4.780		
Data Valid Window without Deskew or PreComp		-7.070	-4.145	1.670	14.120		
Data Valid Window with Deskew and PreComp		0.910	0.735	NA	NA		
Data Setup/Hold without Deskew or PreComp		-3.535	-2.073	0.835	7.060		
Data Setup/Hold with Deskew and PreComp		0.455	0.367	NA	NA		
	NOTE Cable timings based on good quality twisted pair round shielded cable						
	* These values (in all or part) are removed by **Skew Compensation Logic**						
	* Calculated Value						
	* Reduced Values (From SPI-4)						
	* Possible to Reduce these values						