Signal Integrity Cheat Sheet

Signal Integrity In Practice 2.8 50
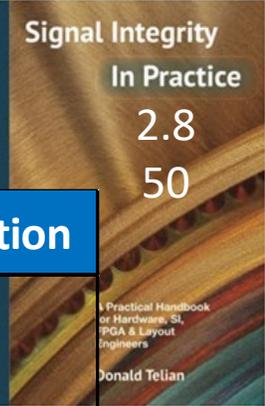
Feature	4 (5) Gbps	8 Gbps	16 Gbps	32 Gbps	64 Gbps	Unit	SIiP Section
Industry/PCIe terminology	Gen2	Gen3	Gen4	Gen5	Gen6		
Fundamental Frequency	2	4	8	16	16 (PAM4)	GHz	
Relevant Feature Size what's that?	160 traces	80 vias	40 conn pads	20 everything	20 everything	mils	4.1, 2.1, 4.x 4.2, 4.3, 4.4
Max Stub backdrills	64 none?	32 seq-lam	16 2 layers	8 per-layer	8 per-layer	mils	2.5, 1.3.3
P/N Matching, static	10	5	2	1	1	mils	2.3
Target Bit Error Ratio (BER)	1.E-12			1.E-06			
Route Style	45°	45°	curved	curved	curved		2.4
Diff-pair Spacing (XY/Z, min)	25	25	25	30	30	mils	5.3
Insertion Loss (max)	16	22	28	36	32	dB	2.2, 3.5
Min EQ: Tx_FFE/Rx_DFE taps, CTLE	1 / 0	2 / 1, C	2 / 2, C	2 / 3, C	3 / 16, C+	#taps	3.3, 3.4, 2.7
Length match method	serpentines		irregular spaced bumps				2.4
Fiberglass weave	spread glass and rotate image 12 degrees on panel						2.6
GND Return Vias (GRVs)	within 30 mils of signal layer transition						[48a, 3.2.2]
Solid GND reference layers	both sides of trace (don't use microstrips)						2.3, 2.6

that's my book →

Signal Integrity, In Practice

SI GUYS