

HDMI TPA-P TDR Test board

Comparison test case study using HDMI TPA-P TDR test board:

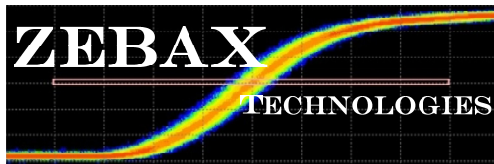
Wilder TPA-P TDR Type A vs. Zebax ZX200 HDMI test board

Test Case : **4Kx2K resolution**
HDMI Clock Frequency: **2.97GHz**

The followings are comparison test results using ZX200 vs. Wilder HDMI test board type A, Model : HDMI-TPA-P

ZX200 test record

Wilder test record



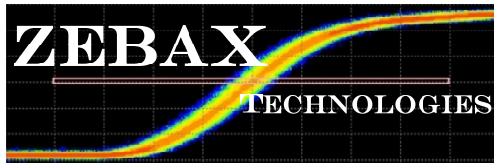
HDMI Test board

Zebax ZX200 Type A →

Index	Test Name	Lanes	Spec Range	Meas Value	Result
1	7-9 : Source Clock Jitter	CK	Clock Jitter < 0.25*Tbit;	0.099*Tbit	Pass
2	7-10 : Source Eye Diagram	CK - D0	Data Jitter < 0.3*Tbit;	0.13*Tbit	Pass
3	7-10 : Source Eye Diagram	CK - D1	Data Jitter < 0.3*Tbit;	0.13*Tbit	Pass
4	7-10 : Source Eye Diagram	CK - D2	Data Jitter < 0.3*Tbit;	0.14*Tbit	Pass
5	7-6 : Source Inter-Pair Skew	D0 - D1	Skew < 0.2*TPixel;	0.011*TPixel	Pass
6	7-6 : Source Inter-Pair Skew	D1 - D2	Skew < 0.2*TPixel;	0.001*TPixel	Pass
7	7-6 : Source Inter-Pair Skew	D2 - D0	Skew < 0.2*TPixel;	0.01*TPixel	Pass
8	7-4 : Source Rise Time	CK	75.00ps < TRISE;	137.61ps	Pass
9	7-4 : Source Rise Time	D0	75.00ps < TRISE;	124.23ps	Pass
10	7-4 : Source Rise Time	D1	75.00ps < TRISE;	124.05ps	Pass
11	7-4 : Source Rise Time	D2	75.00ps < TRISE;	125.28ps	Pass
12	7-4 : Source Fall Time	CK	75.00ps < TFALL;	137.98ps	Pass
13	7-4 : Source Fall Time	D0	75.00ps < TFALL;	120.50ps	Pass
14	7-4 : Source Fall Time	D1	75.00ps < TFALL;	121.89ps	Pass
15	7-4 : Source Fall Time	D2	75.00ps < TFALL;	122.63ps	Pass
16	7-8 : Max Duty Cycle	CK	Max Duty Cycle < 60.0%;	50.49%	Pass
17	7-8 : Min Duty Cycle	CK	40.0% < Min Duty Cycle;	49.6%	Pass

Wilder TPA-P Type A →

Index	Test Name	Lanes	Spec Range	Meas Value	Result
1	7-9 : Source Clock Jitter	CK	Clock Jitter < 0.25*Tbit;	0.097*Tbit	Pass
2	7-10 : Source Eye Diagram	CK - D0	Data Jitter < 0.3*Tbit;	0.11*Tbit	Pass
3	7-10 : Source Eye Diagram	CK - D1	Data Jitter < 0.3*Tbit;	0.12*Tbit	Pass
4	7-10 : Source Eye Diagram	CK - D2	Data Jitter < 0.3*Tbit;	0.12*Tbit	Pass
5	7-6 : Source Inter-Pair Skew	D0 - D1	Skew < 0.2*TPixel;	0.012*TPixel	Pass
6	7-6 : Source Inter-Pair Skew	D1 - D2	Skew < 0.2*TPixel;	0.002*TPixel	Pass
7	7-6 : Source Inter-Pair Skew	D2 - D0	Skew < 0.2*TPixel;	0.009*TPixel	Pass
8	7-4 : Source Rise Time	CK	75.00ps < TRISE;	122.68ps	Pass
9	7-4 : Source Rise Time	D0	75.00ps < TRISE;	107.49ps	Pass
10	7-4 : Source Rise Time	D1	75.00ps < TRISE;	115.62ps	Pass
11	7-4 : Source Rise Time	D2	75.00ps < TRISE;	109.72ps	Pass
12	7-4 : Source Fall Time	CK	75.00ps < TFALL;	116.08ps	Pass
13	7-4 : Source Fall Time	D0	75.00ps < TFALL;	103.53ps	Pass
14	7-4 : Source Fall Time	D1	75.00ps < TFALL;	107.70ps	Pass
15	7-4 : Source Fall Time	D2	75.00ps < TFALL;	104.31ps	Pass
16	7-8 : Max Duty Cycle	CK	Max Duty Cycle < 60.0%;	50.49%	Pass
17	7-8 : Min Duty Cycle	CK	40.0% < Min Duty Cycle;	49.6%	Pass



HDMI Test board

Comparison test case study:

The comparison table lists the signal measured on both ZX200 vs. Wilder TPA-P using identical signal source, test software, scope and probe cable assemblies.

Conclusion:

ZX200 Type A exhibits identical if not better signal measurements compared to (Wilder Model HDMI-TPA-P type A)Module costing 15 times the cost of a single ZX200 module.

Test Name	Unit	ZX200	Wilder	Zebax Improvements %
Clock Jitter <0.25*Tbit		0.099	0.097	-2.062
CK-D0 Eye Diagram <0.3*Tbit	*Tbit	0.130	0.110	-18.182
CK-D1 Eye Diagram <0.3*Tbit		0.130	0.120	-8.333
CK-D2 Eye Diagram <0.3*Tbit		0.140	0.120	-16.667
Source Inter-Pair-Skew D0-D1		0.011	0.012	8.333
Source Inter-Pair-Skew D1-D2	*Tpixel	0.001	0.002	50.000
Source Inter-Pair-Skew D2-D0		0.010	0.009	-11.111
CK Source Rise Time		137.610	122.680	-10.84950222
D0 Source Rise Time		124.230	107.490	-13.47500604
D1Source Rise Time		124.050	115.620	-6.795646917
D2 Source Rise Time		125.280	109.720	-12.4201788
CK Source Fall Time	ps	137.980	116.080	-15.87186549
D0 Source Fall Time		120.500	103.530	-14.08298755
D1Source Fall Time		121.890	107.700	-11.64164411
D2 Source Fall Time		122.630	104.310	-14.93924814
CK Max Duty Cyle	%	50.400	50.490	-0.09
CK Min Duty Cyle		49.600	49.600	0