



DDR3 Compliance Report

Table of Contents

Design Summary
Solution Setup
Per-Lane
Per-DQ

Design Summary

Design Details

Description	
Project	Pyra_Memory3_DDR3_OMAP5a
Design	Circuit1
Design ID	0
Design Type	Circuit Design
Location	C:/Users/juliano/Desktop/pyra/
Date	10/02/2015 16:14:36
Product Version	Designer 2015.2.0
UDD Version	DDR3 Compliance Report, 1.0 (R15.0)
User	juliano

Solution Setup

Solution Details

Description	
Name	DDR31
UDO	C:\Program Files\AnsysEM\AnsysEM16.2\Win64\ElectronicsDesktop\syslib\UserDefinedOutputs\DDR\DDR3.py
Parameters	
AC DQ Level	AC150
Speed Bin	Auto (from DQS)
CK delay	0ps
DQS delay	0ps
Probes	
A0	UNASSIGNED
A1	UNASSIGNED
A10	UNASSIGNED
A11	UNASSIGNED
A12	UNASSIGNED
A13	UNASSIGNED
A14	UNASSIGNED
A15	UNASSIGNED
A2	UNASSIGNED
A3	UNASSIGNED
A4	UNASSIGNED
A5	UNASSIGNED
A6	UNASSIGNED

Description	
A7	UNASSIGNED
A8	UNASSIGNED
A9	UNASSIGNED
CK	UNASSIGNED
CK#	UNASSIGNED
DM	UNASSIGNED
DML	UNASSIGNED
DMU	UNASSIGNED
DQ0	UNASSIGNED
DQ1	UNASSIGNED
DQ2	UNASSIGNED
DQ3	UNASSIGNED
DQ4	UNASSIGNED
DQ5	UNASSIGNED
DQ6	UNASSIGNED
DQ7	UNASSIGNED
DQL0	V(dq0_out)
DQL1	V(dq1_out)
DQL2	V(dq2_out)
DQL3	V(dq3_out)
DQL4	V(dq4_out)
DQL5	V(dq5_out)
DQL6	V(dq6_out)
DQL7	V(dq7_out)
DQS	UNASSIGNED
DQS#	UNASSIGNED
DQSL	V(dqs0n_out)
DQSL#	V(dqs0p_out)
DQSU	V(dqs2n_out)
DQSU#	V(dqs2p_out)
DQU0	V(dq16_out)
DQU1	V(dq17_out)
DQU2	V(dq18_out)
DQU3	V(dq19_out)
DQU4	V(dq20_out)
DQU5	V(dq21_out)
DQU6	V(dq22_out)
DQU7	V(dq23_out)
VDD	V(Vcc)
Variables	
bitwidth	938ps
pw	bitwidth*2
trf	bitwidth/7

Per-Lane

AC and DC Input Levels^[a]

Metric	Value	Unit
Vref [avg]	750 ^[b]	mV
VIH(ac) [avg]	900 ^[b]	mV
VIL(ac) [avg]	600 ^[b]	mV
VIH(dc) [avg]	850 ^[b]	mV
VIL(dc) [avg]	650 ^[b]	mV
VIHdiff(ac) [avg]	300 ^[b]	mV
VILdiff(ac) [avg]	-300 ^[b]	mV
Speedbin	1066	
Freq(DQSL) [mean]	1066.42	Mbps
Freq(DQSL) [stddev]	17.9959	Mbps
Freq(DQSU) [mean]	1066.42	Mbps
Freq(DQSU) [stddev]	18.0934	Mbps

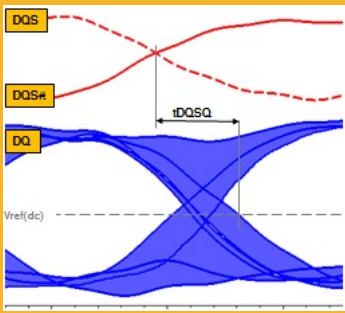
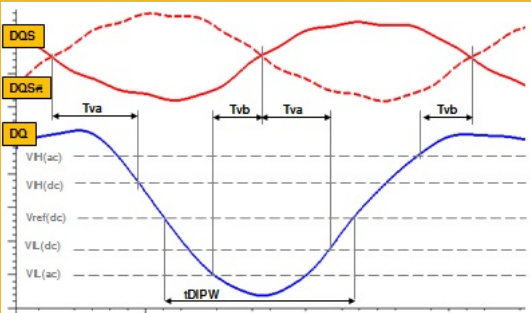
^[a] JESD79-3F, Section 8.1.2, 8.3

^[b] Levels reported are average. Actual input levels for per-edge measurements are calculated at each transition.

Data Timing^[a]

Metric	Worst Actual	Worst Margin	Spec Value	Unit	Result
Tvb_DQL(base)	424.478	349.478	75	ps	PASS
Tvb_DQU(base)	439.209	364.209	75	ps	PASS
Tva_DQL(base)	335.95	235.95	100	ps	PASS
Tva_DQU(base)	326.679	226.679	100	ps	PASS
Tvb_DQL(derated)	365.051	290.051	75	ps	PASS
Tvb_DQU(derated)	368.324	293.324	75	ps	PASS
Tva_DQL(derated)	273.95	173.95	100	ps	PASS
Tva_DQU(derated)	265.679	165.679	100	ps	PASS
tDIPW_DQL	919.826	429.826	490	ps	PASS
tDIPW_DQU	920.123	430.123	490	ps	PASS

^[a] JESD79-3F, Section 13.1 Data Timing



Per-DQ

Tvb(base) - Timing Metrics

DQL	Min [ps]	Max [ps]	Mean [ps]	StdDev [ps]	t(worst) [ps]	Margin [ps]	Result
0	430.234	455.394	439.16	4.69536	117567	355.234	PASS

DQL	Min [ps]	Max [ps]	Mean [ps]	StdDev [ps]	t(worst) [ps]	Margin [ps]	Result
1	429.924	454.942	438.703	4.62944	117567	354.924	PASS
2	425.33	450.318	434.088	4.58641	117567	350.33	PASS
3	426.647	451.014	435.229	4.60265	117567	351.647	PASS
4	425.647	451.834	435.188	4.73572	117567	350.647	PASS
5	424.478	450.426	433.83	4.7092	117567	349.478	PASS
6	429.777	454.614	438.591	4.62329	117567	354.777	PASS
7	430.323	455.225	439.224	4.68782	117567	355.323	PASS
DQU	Min [ps]	Max [ps]	Mean [ps]	StdDev [ps]	t(worst) [ps]	Margin [ps]	Result
0	465.895	488.005	473.191	3.41975	76304.9	390.895	PASS
1	465.277	487.07	472.424	3.39478	76304.9	390.277	PASS
2	460.324	482.036	467.31	3.35081	109134	385.324	PASS
3	461.421	483.314	468.58	3.42854	76304.9	386.421	PASS
4	440.444	464.807	448.827	4.67544	151349	365.444	PASS
5	439.209	463.487	447.566	4.6872	151349	364.209	PASS
6	464.03	487.075	471.732	3.47668	109134	389.03	PASS
7	465.403	488.27	473	3.47801	109134	390.403	PASS

Tva(base) - Timing Metrics

DQL	Min [ps]	Max [ps]	Mean [ps]	StdDev [ps]	t(worst) [ps]	Margin [ps]	Result
0	335.98	380.513	359.48	9.65743	1279.9	235.98	PASS
1	336.481	380.968	359.916	9.62205	1279.9	236.481	PASS
2	339.959	384.277	363.481	9.55264	1279.9	239.959	PASS
3	338.303	382.594	361.814	9.52942	1279.9	238.303	PASS
4	338.391	381.444	361.506	9.31348	1279.9	238.391	PASS
5	340.232	383.462	363.444	9.34888	1279.9	240.232	PASS
6	336.644	381.025	360.039	9.60363	1279.9	236.644	PASS
7	335.95	380.445	359.423	9.64898	1279.9	235.95	PASS
DQU	Min [ps]	Max [ps]	Mean [ps]	StdDev [ps]	t(worst) [ps]	Margin [ps]	Result
0	344.679	387.255	367.954	9.63978	1291.98	244.679	PASS
1	345.336	387.843	368.609	9.61111	1291.98	245.336	PASS
2	348.344	390.885	371.588	9.58841	1291.98	248.344	PASS
3	346.943	389.565	370.211	9.62335	1291.98	246.943	PASS
4	326.679	370.635	349.787	9.84834	1291.98	226.679	PASS
5	328.539	372.344	351.683	9.81619	1291.98	228.539	PASS
6	345.287	387.856	368.572	9.62273	1291.98	245.287	PASS
7	344.5	387.047	367.774	9.64006	1291.98	244.5	PASS

Tvb(derated) - Timing Metrics

DQL	Min [ps]	Max [ps]	Mean [ps]	StdDev [ps]	t(worst) [ps]	Margin [ps]	Result
0	369.463	394.394	378.246	3.37863	76290.9	294.463	PASS
1	368.472	393.942	377.154	3.40436	109121	293.472	PASS
2	365.051	389.318	372.937	3.41235	76290.9	290.051	PASS
3	366.5	391.014	374.54	3.35032	109121	291.5	PASS
4	367.331	389.834	374.8	3.26668	76290.9	292.331	PASS
5	365.201	388.426	373.024	3.33774	109121	290.201	PASS

DQL	Min [ps]	Max [ps]	Mean [ps]	StdDev [ps]	t(worst) [ps]	Margin [ps]	Result
6	368.435	393.614	377.053	3.31531	109121	293.435	PASS
7	369.552	394.225	378.364	3.35847	76290.9	294.552	PASS
DQU	Min [ps]	Max [ps]	Mean [ps]	StdDev [ps]	t(worst) [ps]	Margin [ps]	Result
0	372.895	391.005	378.083	2.87958	76304.9	297.895	PASS
1	372.277	390.07	377.338	2.87805	76304.9	297.277	PASS
2	368.324	387.036	373.73	2.92078	109134	293.324	PASS
3	369.54	388.314	375.129	2.86812	109134	294.54	PASS
4	380.227	401.807	387.246	3.36382	109134	305.227	PASS
5	379.022	400.487	385.63	3.40249	109134	304.022	PASS
6	372.03	390.075	377.206	2.86695	109134	297.03	PASS
7	372.403	391.27	378.237	2.95044	109134	297.403	PASS

Tva(derated) - Timing Metrics

DQL	Min [ps]	Max [ps]	Mean [ps]	StdDev [ps]	t(worst) [ps]	Margin [ps]	Result
0	273.98	318.513	299.856	9.50969	1279.9	173.98	PASS
1	274.481	319.968	300.819	9.55952	1279.9	174.481	PASS
2	278.959	324.277	304.986	9.39804	1279.9	178.959	PASS
3	277.303	322.594	303.384	9.399	1279.9	177.303	PASS
4	277.391	321.237	303.001	9.14867	1279.9	177.391	PASS
5	279.232	323.462	304.896	9.20494	1279.9	179.232	PASS
6	274.644	320.025	300.888	9.47831	1279.9	174.644	PASS
7	273.95	318.445	299.842	9.45714	1279.9	173.95	PASS
DQU	Min [ps]	Max [ps]	Mean [ps]	StdDev [ps]	t(worst) [ps]	Margin [ps]	Result
0	275.679	319.255	300.566	9.77143	1291.98	175.679	PASS
1	276.336	319.843	301.351	9.65492	1291.98	176.336	PASS
2	280.344	322.885	304.878	9.60228	1291.98	180.344	PASS
3	278.943	322.455	303.555	9.68112	1291.98	178.943	PASS
4	265.679	309.635	291.174	9.59683	1291.98	165.679	PASS
5	267.539	311.344	292.726	9.55537	1291.98	167.539	PASS
6	276.287	319.856	301.529	9.64958	1291.98	176.287	PASS
7	275.5	319.047	300.505	9.70044	1291.98	175.5	PASS