



# DDR3 Compliance Report

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## Design Summary

### Design Details

Description	
Project	Pyra_Memory1_DDR3_OMAP5a
Design	Circuit1
Design ID	0
Design Type	Circuit Design
Location	C:/Users/juliano/Desktop/pyra/
Date	10/02/2015 16:08:55
Product Version	Designer 2015.2.0
UDD Version	DDR3 Compliance Report, 1.0 (R1 5.0)
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
A1 0	UNASSIGNED
A1 1	UNASSIGNED
A1 2	UNASSIGNED
A1 3	UNASSIGNED
A1 4	UNASSIGNED
A1 5	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<sup>[a]</sup>

Metric	Value	Unit
Vref [avg]	750 <sup>[b]</sup>	mV
VIH(ac) [avg]	900 <sup>[b]</sup>	mV
VIL(ac) [avg]	600 <sup>[b]</sup>	mV
VIH(dc) [avg]	850 <sup>[b]</sup>	mV
VIL(dc) [avg]	650 <sup>[b]</sup>	mV
VIHdiff(ac) [avg]	300 <sup>[b]</sup>	mV
VILdiff(ac) [avg]	-300 <sup>[b]</sup>	mV
Speedbin	1066	
Freq(DQSL) [mean]	1066.63	Mbps
Freq(DQSL) [stddev]	18.7327	Mbps
Freq(DQSU) [mean]	1066.61	Mbps
Freq(DQSU) [stddev]	18.8075	Mbps

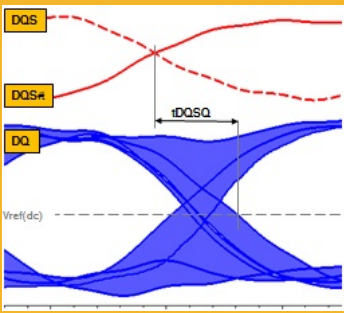
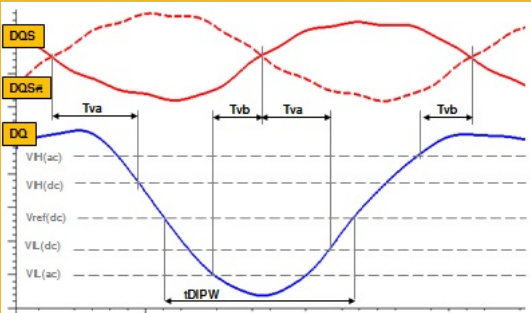
<sup>[a]</sup> JESD79-3F, Section 8.1.2, 8.3

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

Data Timing<sup>[a]</sup>

Metric	Worst Actual	Worst Margin	Spec Value	Unit	Result
Tvb_DQL(base)	424.491	349.491	75	ps	PASS
Tvb_DQU(base)	439.321	364.321	75	ps	PASS
Tva_DQL(base)	335.931	235.931	100	ps	PASS
Tva_DQU(base)	326.66	226.66	100	ps	PASS
Tvb_DQL(derated)	365.066	290.066	75	ps	PASS
Tvb_DQU(derated)	368.334	293.334	75	ps	PASS
Tva_DQL(derated)	273.931	173.931	100	ps	PASS
Tva_DQU(derated)	265.66	165.66	100	ps	PASS
tDIPW_DQL	926.953	436.953	490	ps	PASS
tDIPW_DQU	927.544	437.544	490	ps	PASS

<sup>[a]</sup> 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	430.246	447.386	438.772	4.41533	117567	355.246	PASS

DQL	Min [ps]	Max [ps]	Mean [ps]	StdDev [ps]	t(worst) [ps]	Margin [ps]	Result
1	429.937	446.798	438.316	4.35312	117567	354.937	PASS
2	425.342	442.068	433.702	4.32079	117567	350.342	PASS
3	426.659	443.125	434.829	4.35525	117567	351.659	PASS
4	425.66	443.883	434.825	4.46968	117567	350.66	PASS
5	424.491	442.192	433.454	4.44807	117567	349.491	PASS
6	429.79	446.588	438.203	4.35012	117567	354.79	PASS
7	430.335	447.325	438.831	4.41418	117567	355.335	PASS
DQU	Min [ps]	Max [ps]	Mean [ps]	StdDev [ps]	t(worst) [ps]	Margin [ps]	Result
0	465.915	482.275	472.959	3.06196	76304.9	390.915	PASS
1	465.297	481.598	472.186	3.03521	76304.9	390.297	PASS
2	460.334	476.634	467.062	2.97532	109134	385.334	PASS
3	461.442	478.02	468.318	3.07107	76304.9	386.442	PASS
4	440.549	456.552	448.523	4.36006	113828	365.549	PASS
5	439.321	455.172	447.256	4.37919	113828	364.321	PASS
6	464.039	481.034	471.509	3.10085	109134	389.039	PASS
7	465.41	482.161	472.777	3.11107	109134	390.41	PASS

Tva(base) - Timing Metrics

DQL	Min [ps]	Max [ps]	Mean [ps]	StdDev [ps]	t(worst) [ps]	Margin [ps]	Result
0	335.961	380.501	359.414	9.99721	1279.9	235.961	PASS
1	336.462	380.955	359.853	9.9624	1279.9	236.462	PASS
2	339.94	384.264	363.413	9.89359	1279.9	239.94	PASS
3	338.284	382.581	361.747	9.86966	1279.9	238.284	PASS
4	338.372	381.432	361.439	9.66626	1279.9	238.372	PASS
5	340.213	383.45	363.37	9.70109	1279.9	240.213	PASS
6	336.625	381.012	359.974	9.94544	1279.9	236.625	PASS
7	335.931	380.433	359.356	9.9895	1279.9	235.931	PASS
DQU	Min [ps]	Max [ps]	Mean [ps]	StdDev [ps]	t(worst) [ps]	Margin [ps]	Result
0	344.662	387.245	367.858	9.94651	1291.98	244.662	PASS
1	345.319	387.832	368.517	9.91768	1291.98	245.319	PASS
2	348.326	390.874	371.499	9.89929	1291.98	248.326	PASS
3	346.926	389.554	370.124	9.93245	1291.98	246.926	PASS
4	326.66	370.622	349.701	10.1778	1291.98	226.66	PASS
5	328.52	372.332	351.596	10.1476	1291.98	228.52	PASS
6	345.27	387.846	368.482	9.92723	1291.98	245.27	PASS
7	344.483	387.037	367.68	9.94547	1291.98	244.483	PASS

Tvb(derated) - Timing Metrics

DQL	Min [ps]	Max [ps]	Mean [ps]	StdDev [ps]	t(worst) [ps]	Margin [ps]	Result
0	369.476	384.507	377.906	3.05543	76290.9	294.476	PASS
1	368.486	383.393	376.841	3.06715	109121	293.486	PASS
2	365.066	379.068	372.641	3.06486	76290.9	290.066	PASS
3	366.51	380.741	374.254	2.97559	109121	291.51	PASS
4	367.345	380.767	374.488	2.94038	76290.9	292.345	PASS
5	365.212	378.386	372.68	2.98264	109121	290.212	PASS

DQL	Min [ps]	Max [ps]	Mean [ps]	StdDev [ps]	t(worst) [ps]	Margin [ps]	Result
6	368.448	383.282	376.729	2.97497	109121	293.448	PASS
7	369.566	384.576	378.036	3.04572	76290.9	294.566	PASS
DQU	Min [ps]	Max [ps]	Mean [ps]	StdDev [ps]	t(worst) [ps]	Margin [ps]	Result
0	372.915	386.275	377.857	2.55913	76304.9	297.915	PASS
1	372.297	384.598	377.126	2.54585	76304.9	297.297	PASS
2	368.334	381.634	373.493	2.56754	109134	293.334	PASS
3	369.551	383.02	374.854	2.51427	109134	294.551	PASS
4	380.239	394.788	386.956	3.0101	109134	305.239	PASS
5	379.033	392.505	385.35	2.97667	109134	304.033	PASS
6	372.039	385.034	376.963	2.55098	109134	297.039	PASS
7	372.41	386.161	377.968	2.62441	109134	297.41	PASS

Tva(derated) - Timing Metrics

DQL	Min [ps]	Max [ps]	Mean [ps]	StdDev [ps]	t(worst) [ps]	Margin [ps]	Result
0	273.961	318.501	299.812	9.82666	1279.9	173.961	PASS
1	274.462	319.955	300.757	9.85688	1279.9	174.462	PASS
2	278.94	324.264	304.92	9.73089	1279.9	178.94	PASS
3	277.284	322.581	303.309	9.72098	1279.9	177.284	PASS
4	277.372	321.222	302.933	9.48551	1279.9	177.372	PASS
5	279.213	323.45	304.822	9.55693	1279.9	179.213	PASS
6	274.625	320.012	300.851	9.79316	1279.9	174.625	PASS
7	273.931	318.433	299.767	9.78577	1279.9	173.931	PASS
DQU	Min [ps]	Max [ps]	Mean [ps]	StdDev [ps]	t(worst) [ps]	Margin [ps]	Result
0	275.662	319.245	300.461	10.0703	1291.98	175.662	PASS
1	276.319	319.832	301.243	9.95559	1291.98	176.319	PASS
2	280.326	322.874	304.773	9.90897	1291.98	180.326	PASS
3	278.926	322.441	303.452	9.98892	1291.98	178.926	PASS
4	265.66	309.622	291.07	9.90421	1291.98	165.66	PASS
5	267.52	311.332	292.624	9.8701	1291.98	167.52	PASS
6	276.27	319.846	301.413	9.96319	1291.98	176.27	PASS
7	275.483	319.037	300.392	10.0342	1291.98	175.483	PASS