QLX4270MDPCxyEVALZ Active DisplayPort Cable Module Evaluation Board User Guide

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Introduction to the QLX4270MDPCxyEVALZ Evaluation Board

The QLX4270MDPCxyEVALZ Evaluation Board is an Active Embedded Cable Module designed for easy prototyping and evaluation of active DisplayPort copper cables.

Incorporating Intersil's QLx4270-DP lane extender on the module, the QLx270MDP provides complete functionality for the DisplayPort 1.2 (RBR and HBR) protocol, and is ready for DisplayPort 1.2 (HBR2) data rates of 5.4 Gb/s.

The compensation level for various cable lengths and gauges is set by resistors applied to the three control pins of the QLx4270-DP equalizer, providing a total of 18 boost levels. The “xy” in the part number refers to the default boost setting on the board, which currently comes with the settings of “17” or “28”. The customer can easily change the boost setting by changing the value of the resistors R1, R2 and R3 per the schematic in Figure 3.

The board is shown in Figure 1.

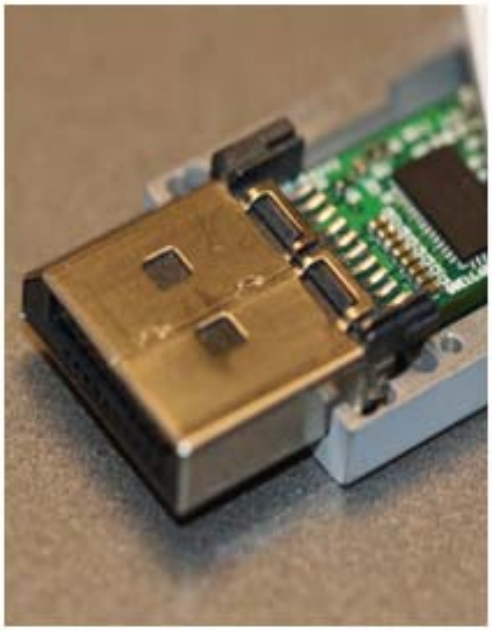


FIGURE 1. QLX4270MDPCxyEVALZ BOARD

The board should be used as the Sink side of the active DisplayPort cable assembly, and should be terminated to the customer’s cable with a passive DisplayPort plug connector on the source end. A dedicated power wire must run through the cable, and there must also be connections through the cable for the Config 1 and Config 2 pins (as required by the DisplayPort 1.2 Standard). While the length and gauge of the Active Cable assembly is achievable with this design, it also depends on the quality of the customer’s cable and, thus, cannot be guaranteed by Intersil. Boost 17 is generally consistent with a good quality 10 meter 32AWG cable, while Boost 28 is consistent with a good quality 15 meter 32AWG cable.

Baseline Performance

Figure 2 shows the expected performance of the module with a good quality 15 meter 32AWG cable and tested with a PRBS-7 pattern and an eye diagram captured on a digital sampling scope.

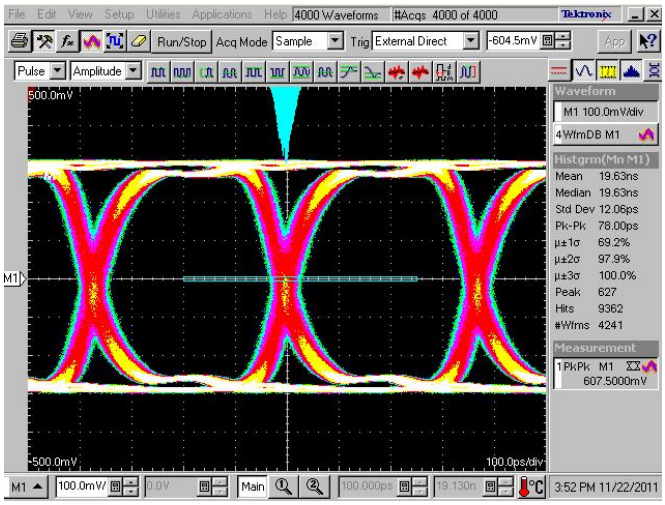
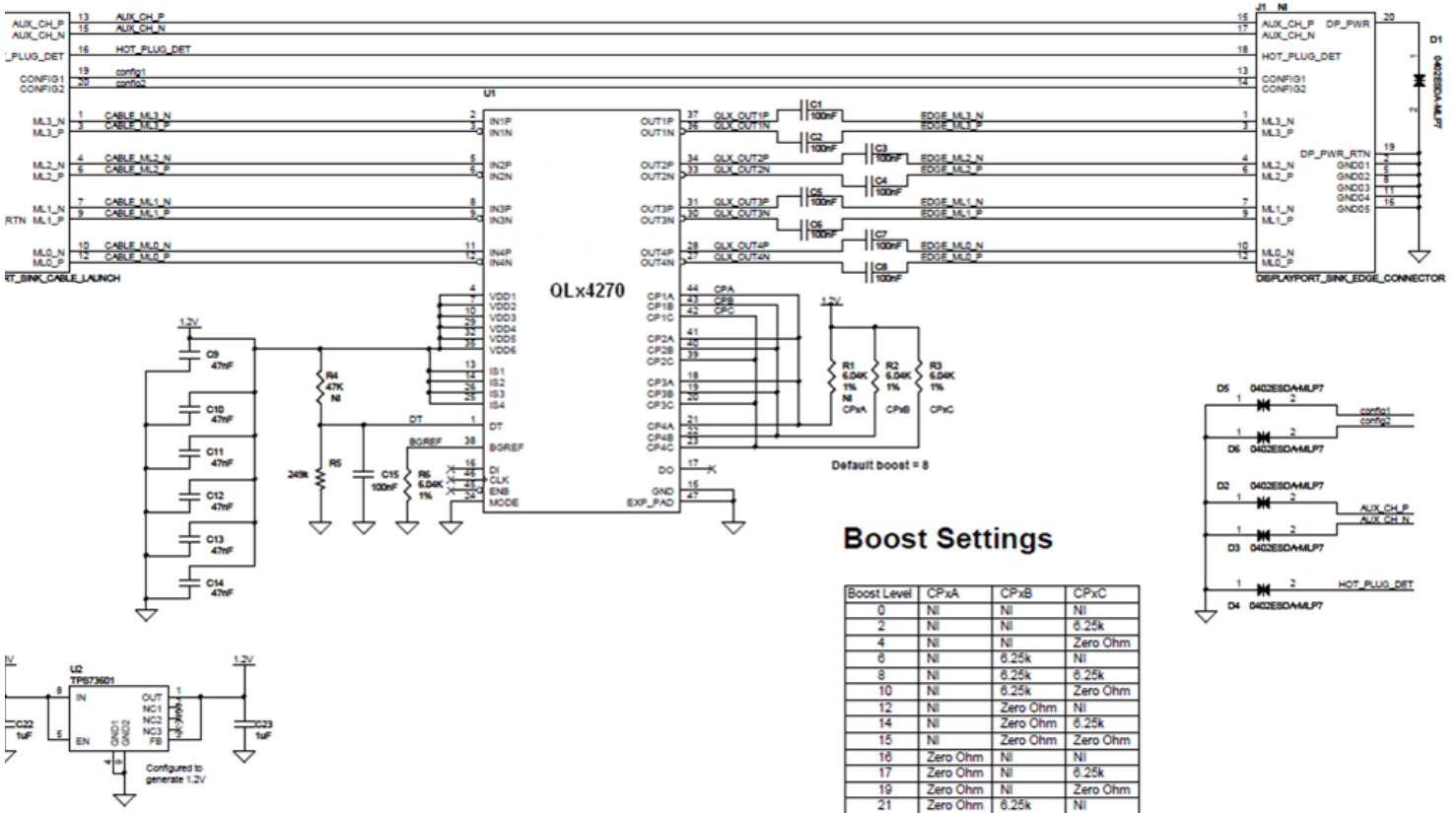


FIGURE 2. QLX4270MDPCxyEVALZ PERFORMANCE

QLX4270MDPCxyEVALZ Schematic



Boost Level	CPxA	CPxB	CPxC
0	NI	NI	NI
2	NI	NI	6.25k
4	NI	NI	Zero Ohm
6	NI	6.25k	NI
8	NI	6.25k	6.25k
10	NI	6.25k	Zero Ohm
12	NI	Zero Ohm	NI
14	NI	Zero Ohm	6.25k
15	NI	Zero Ohm	Zero Ohm
16	Zero Ohm	NI	NI
17	Zero Ohm	NI	6.25k
19	Zero Ohm	NI	Zero Ohm
21	Zero Ohm	6.25k	NI
23	Zero Ohm	6.25k	6.25k
24	Zero Ohm	6.25k	Zero Ohm
26	Zero Ohm	Zero Ohm	NI
28	Zero Ohm	Zero Ohm	6.25k
31	Zero Ohm	Zero Ohm	Zero Ohm

Note 1: NI = Not Installed

Note 2: 6.04K may be substituted for 6.25K resistors

FIGURE 3. QLX4270MDPCxyEVALZ EVALUATION BOARD SCHEMATIC

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For a complete listing of Applications, Related Documentation and Related Parts, please see the respective device information page on intersil.com: QLX4270-DP

To report errors or suggestions for this datasheet, please go to: www.intersil.com/askourstaff

FITs are available from our website at: http://rel.intersil.com/reports/search.php