

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.

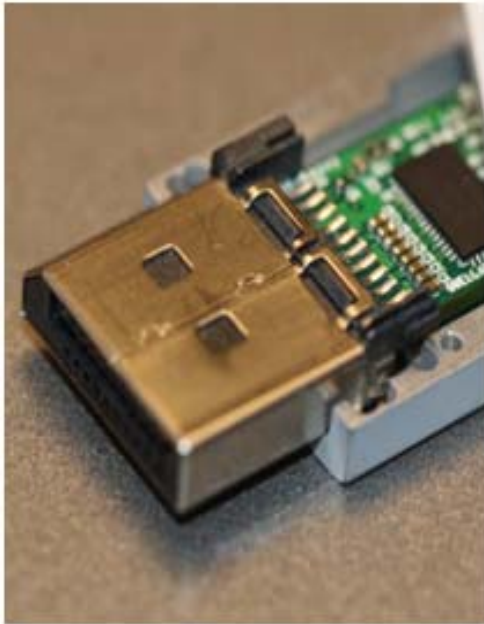


FIGURE 1. QLX4270MDPCxyEVALZ BOARD

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.

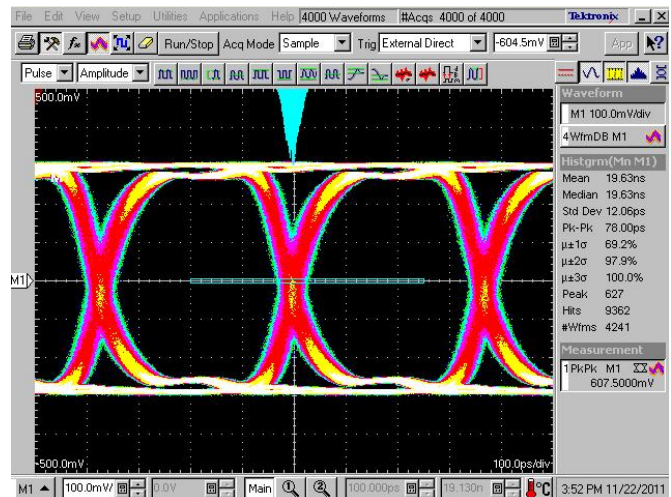


FIGURE 2. QLX4270MDPCxyEVALZ PERFORMANCE

QLX4270MPCxyEVALZ Schematic

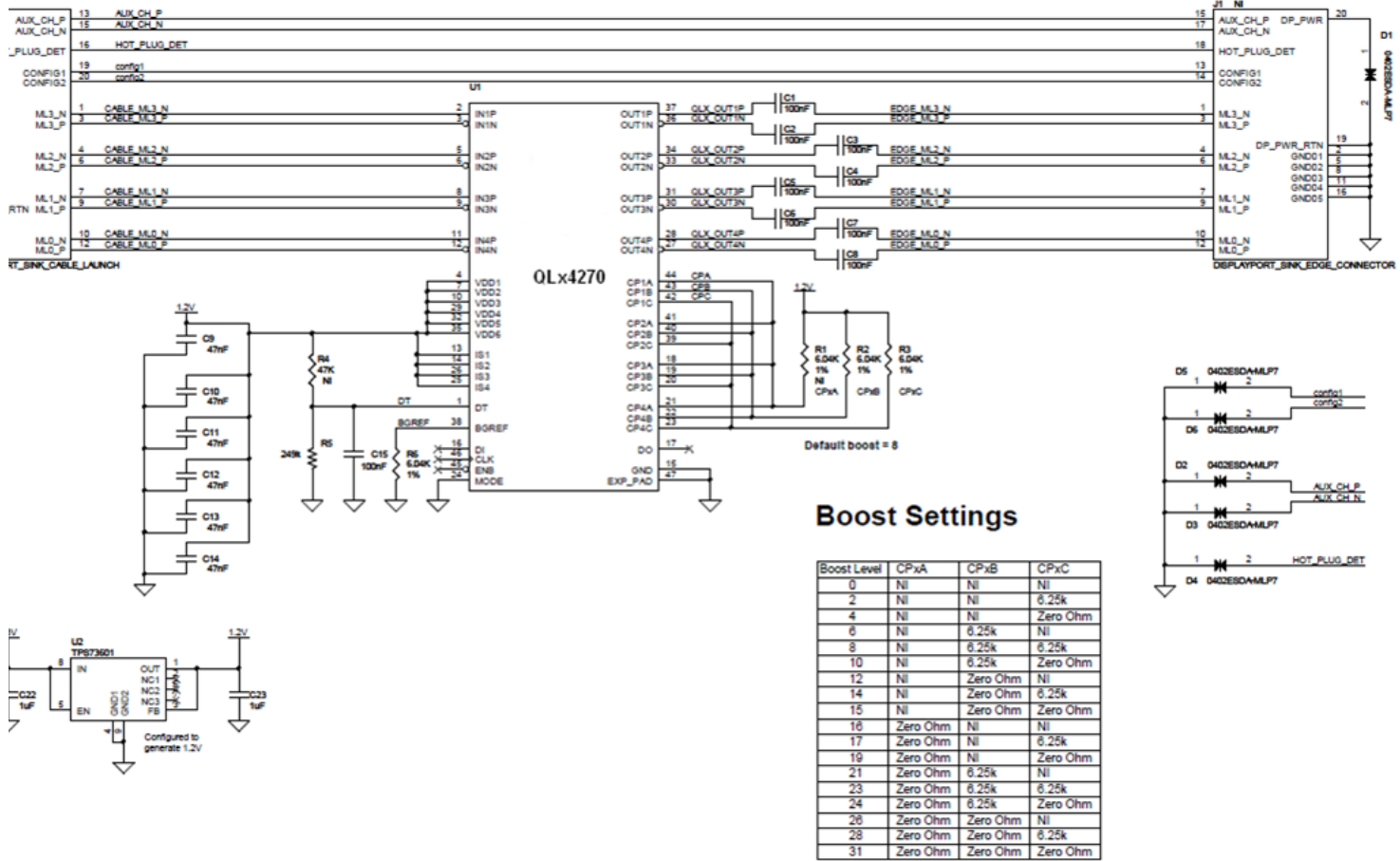


FIGURE 3. QLX4270MPCxyEVALZ EVALUATION BOARD SCHEMATIC

Application Note 1731

Products

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