

LeWiz Open Source LVDS Transceiver Design

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Analog design is difficult and time consuming. Less and less engineers pursue this field.

High speed transceiver circuits are analog. Their designs require specialized knowledge and transistor-level tuning for specific silicon process. High speed transceivers are used in many areas. Examples of these are Ethernet networking, communication channel interfaces, bus interfaces, and others. They are also used for inter-chip connectivity such as from A/D converter to FPGA/processing chip or from Ethernet MAC to PHY devices. They help to reduce the number of signals required for connecting from 1 chiplet to another in multi-chip modules. If you're using a USB device, you're using a high-speed transceiver.

Low-voltage differential signaling (LVDS) circuits are a class of high-speed transceivers. To help advancing the industry in this area, today LeWiz Communications open-source the LVDS transceiver design for the open-source Skywater 130nm silicon process. This design has been tuned for up to 1 Giga bit per second speed. Its databases are available at:

https://github.com/lewiz-support/LVDS_Transceiver/tree/main

(Or go to github.com and search for “LeWiz” or “LVDS transceiver”)

This design uses open-source tools, libraries, and low-cost silicon process. Its advantages include: Driving capability up to 10 meters, good eye opening/good immunity to noise, has low off-set and unbalanced differential output voltages.

Previously, LeWiz released to open source 3 Ethernet MAC cores supporting up to 100Gbps speed. This open-source transceiver is the first to complement those cores. The open-source technologies are released with Apache 2.0 license – free of licensing or royalty fee with source code/designs available to designers. We hope you will use and contribute to open-source further advancing this technology.

LeWiz Communications, Inc. develops extensive networking solutions for use in aerospace, datacenters and embedded products including advanced time-trigger Ethernet, time-sensitive networking technologies, eFPGA and radiation hardened electronics in GF 12LP and Skywater RH90 silicon processes. Further information are available at www.LeWiz.com or contact: info@lewiz.com

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