



# EVB1011-MC-RTL8211

## Media Converter Evaluation Board

KD1000 FAMILY

### OVERVIEW

The KDPOF EVB1011-MC-RTL8211 board is a tool to evaluate the KDPOF KD1001 and KD1011 Gigabit Ethernet POF Transceiver ICs (10 mm x 10 mm, 88-pin, QFN plastic package). It is a media converter between Gigabit POF and 1000/100BASE-T Ethernet. Based on the RTL8211FI Gigabit Ethernet PHY from Realtek, this new board enables a more affordable BOM and has a smaller package than the copper PHY on previous evaluation boards.



The companion EVB1011-MC-RTL8211 Media Converter Reference Design provides guidelines for design and evaluation capabilities in a flexible platform, enabling product designers to successfully shorten the time-to-market for KD1001/11-based end products..

### KEY FEATURES

- Full duplex, 1 Gbps per direction over 50 m of IEC 60793-2-40 subcategory A4a.2 step-index multimode POF without in-line connectors (gigabit mode). Guaranteed bit error rate (BER) better than 10<sup>-10</sup> at 1 Gbps according to RFC-2544
- Full duplex, 100 Mbps per direction over 150 m of IEC 60793-2-40 subcategory A4a.2 step-index multimode POF without in-line connectors (long-reach mode). Guaranteed bit error rate (BER) better than 10<sup>-10</sup> at 100 Mbps according to RFC-2544
- 100BASE-FX (100 Mbps) backward compatible over POF, clauses 24 and 26
- Ethernet: 1000BASE-T, 100BASE-TX; auto-crossover, auto-negotiation
- Configurable Adaptive Bit Rate (ABR), enabling longer distances reducing the line speed of the link
- Configurable Pause-Frames Flow Control (FC), allows the device at the end of the link to reduce the traffic load to adapt it to the ABR speed
- Easy monitoring and control of KD1011 through MDIO port thanks to included multi-platform (Linux, Mac, Windows) GUI tool and USB adapter
- Industrial temperature range: -40 to 85°C
- Typical power consumption: 2.5 W

### MAJOR BENEFITS

- Easy to use with common lab equipment, without need for additional items
- Enables real-time monitoring of the link, reporting key performance parameters like: local and remote received average optical power (dBm), local and remote link margin (dB), transmit and receive link speed, and local configuration
- Enables control of the local transceiver, enabling different loopback modes and test modes, and resetting
- Auto-logging of monitoring parameters
- SDK provided
- Affordable BOM
- Smaller PCB area
- Powered with +5.0 V via a micro-USB connector

### CONFIGURATION

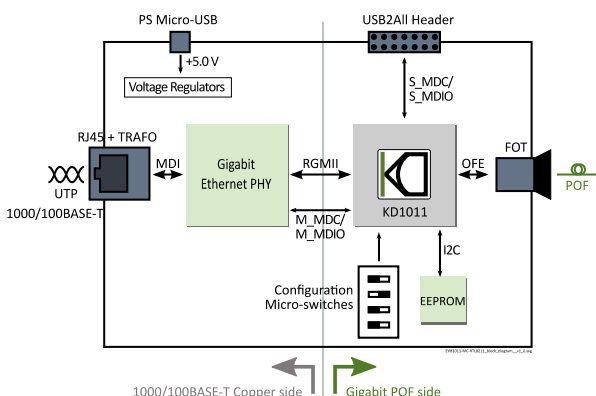


Figure 1: Block diagram of board

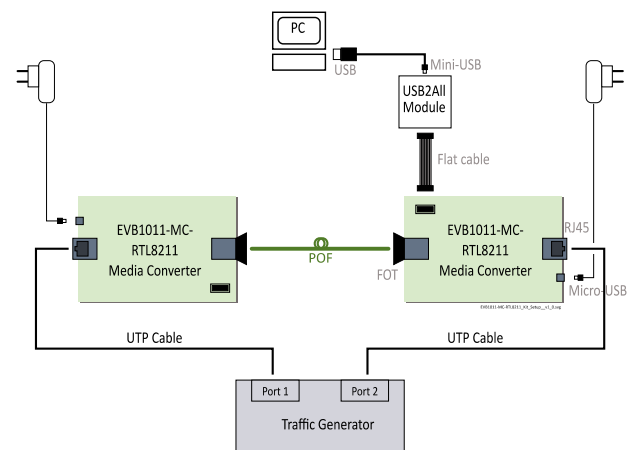


Figure 2: Test set-up for the board

## PRODUCT DESCRIPTION

The KDPOF EVB1011-MC-RTL8211 Media-Converter Evaluation Kit is a flexible tool that enables testing of KDPOF gigabit POF technology through its KD1011 Gigabit Ethernet POF transceiver. The user can plug the board into a standard 100/1000BASE-T link, and extend the link using standard SI-POF while maintaining the link performance. In addition, the user-friendly GUI included in the kit can be used for real-time monitoring of several low-level link parameters so that the performance of the KD1011 transceiver can be observed and measured.

Control and status of the KD1011 is accessed through the GUI, which is run on a computer connected via USB. Using either the GUI or easily accessible on-board switches, the user can configure several chip options, such as the Adaptive Bit Rate feature or the Flow Control behavior.

The GUI, shown in Figure 3, includes several panels which provide complete access to the KD1011 transceiver, link status and parameters.

## KIT CONTENTS

The typical configuration of the evaluation kit includes:

- Two EVB1011-MC-RTL8211 media-converter boards with KD1011 transceiver on board
- One USB2All adapter module for USB to MDIO interfacing and configuration
- SDK and GUI software for easy system debugging and monitoring
- Duplex SI-POF cable
- Two power adapters
- Documentation

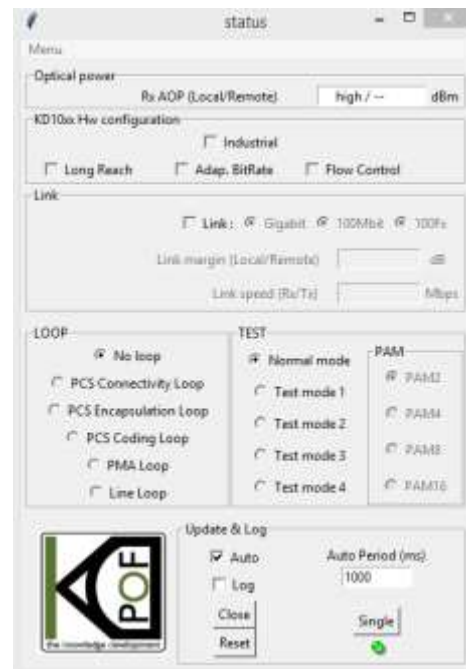
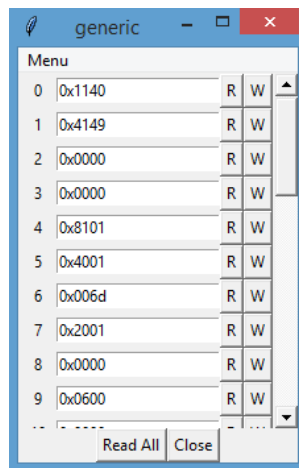


Figure 3: Multi-platform GUI tool.



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