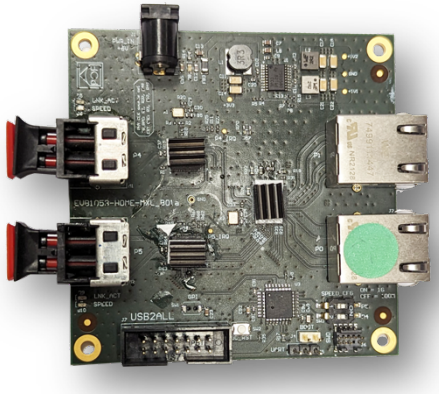
Product Brochure

EVB1053-HOME-MXL

Home-Networking Daisy-Chain Evaluation Board

KD1000 FAMILY

OVERVIEW



The EVB1053-HOME-MXL board is a tool to evaluate the KD1053 Gigabit Ethernet POF Transceiver IC (7 mm x 7 mm, 56-pin, QFN package) from KDPOF, together with the FB01GKAR FOT from Firecomms, for home-networking applications. It is an Ethernet switch with two 1000/100BASE-RHA (optical Ethernet over POF) ports and two 1000/100/10BASE-T ports (copper Ethernet). Based on the GSW120 Gigabit Ethernet switch part from Maxlinear, this new board enables a more affordable BOM and extended daisy-chain functionality, as demanded in common home-networking and small-office environments.

The companion EVB1053-HOME-MXL Reference Design provides guidelines for design and evaluation capabilities in a flexible platform, enabling product designers to successfully shorten the time-to-market for KD1053-based consumer end products.

KEY FEATURES

- Full duplex, 1 Gbps per direction over 40 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^{-10} at 1 Gbps according to RFC-2544
- Full duplex, 100 Mbps per direction over 100 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^{-10} at 100 Mbps according to RFC-2544
- Ethernet: 1000BASE-T, 100BASE-TX, 10BASE-T; auto-crossover, auto-negotiation
- Easy monitoring and control of KD1053 through MDIO port thanks to included multi-platform (Linux, Mac, Windows) GUI tool and USB adapter (USB2ALL)
- Support for implementation of IGMP snooping
- Operation temperature range: -20 to +60°C
- Low power consumption: 730 mA (traffic on the four ports)

MAJOR BENEFITS

- Easy to use with common laboratory equipment, without need for additional items
- Enables real-time monitoring of the link, reporting key performance parameters like: 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
- The user can customize the software to support higher functionality, such as IGMP snooping
- Auto-logging of monitoring parameters
- SDK provided
- Affordable BOM
- Smaller PCB area
- Powered with +5.0 V

CONFIGURATION

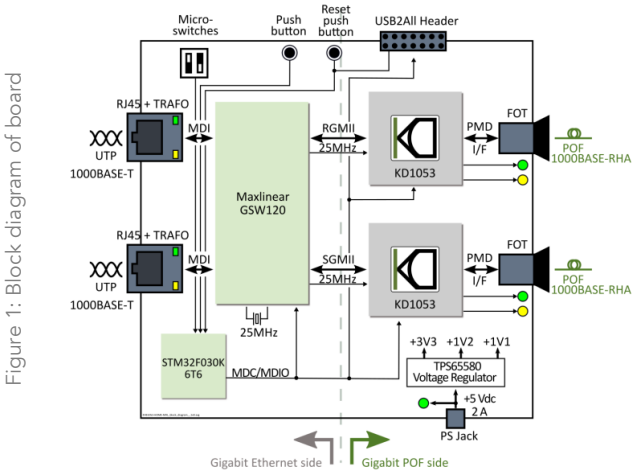


Figure 1: Block diagram of board

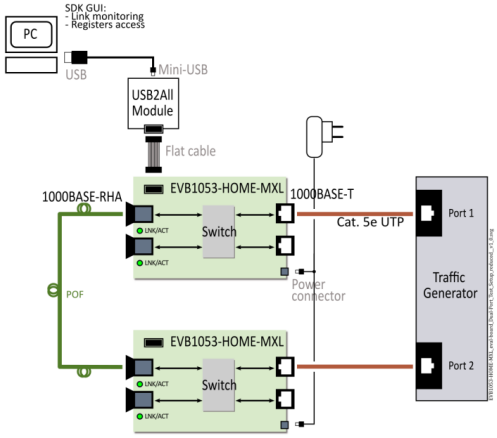


Figure 2: Test set-up for the board

PRODUCT DESCRIPTION

The EVB1053-HOME-MXL home-networking daisy-chain evaluation kit is a flexible tool that enables testing of KDPOF gigabit POF technology through the KDPOF KD1053 Gigabit Ethernet POF transceiver and the Firecomms FB01GKAR FOT. 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, or daisy-chain several boards. 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 KD1053 transceiver can be observed and measured.

Control and status of the KD1053 is accessed through the GUI, which is run on a computer connected via USB. Using either the GUI, the user can configure several chip options.

The default software allows the user to monitor the link margin and to configure the line speed of the two optical ports just by pressing a button. The software may be upgraded to support IGMP snooping.

The GUI, shown in Figure 3, includes several panels which provide complete access to the KD1053 transceiver, link status and parameters.

KIT CONTENTS

The typical configuration of the evaluation kit includes:

- Two EVB1053-HOME-MXL boards with KD1053 transceivers and FB01GKAR FOTs 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

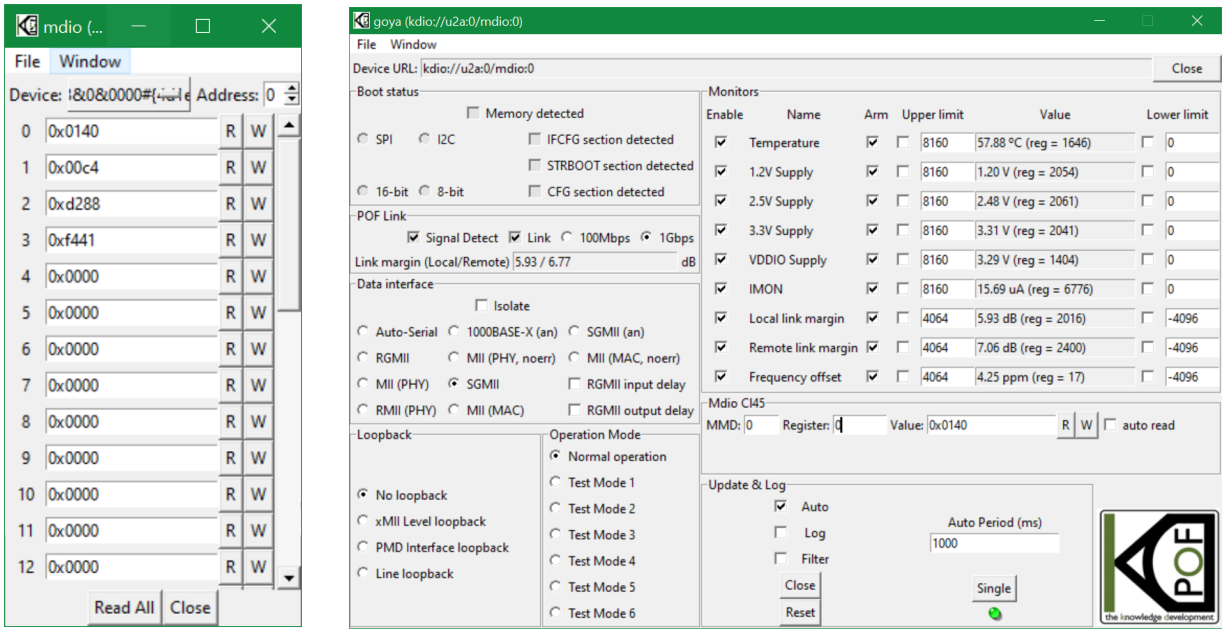


Figure 3: Multi-platform GUI tool.

KDPOF
Ronda del Poniente 14, 2C-D
28760 Tres Cantos, Madrid, Spain
Tel: +34 918043387 • Fax: +34 918063725
www.kdpof.com

BR029 v1.3 | June 2023