M8047B Redriver

Introduction

The M8047B Redriver expands the backchannel equalization capabilities of M8000 Series error detectors.

Features

- Extends back channel reach up to 21 dB NRZ and up to 10 dB PAM4
- CTLE and linear output driver
- Integrated into M8070B software
- Controlled and powered through USB

KEYSIGHT

Description

The M8047B Redriver enables testing of devices with longer back channels than the M8000 Series error detectors could accept by themselves. It offers a continuous-time linear equalizer and a linear output driver. Using the M8047B Redriver (together with M8046A) the backchannel reach can be extended by approximately 21 dB @ 16 GHz for NRZ signals and 10 dB @ 16 GHz for PAM4 signals. It is designed to operate up to 32 Gbaud.

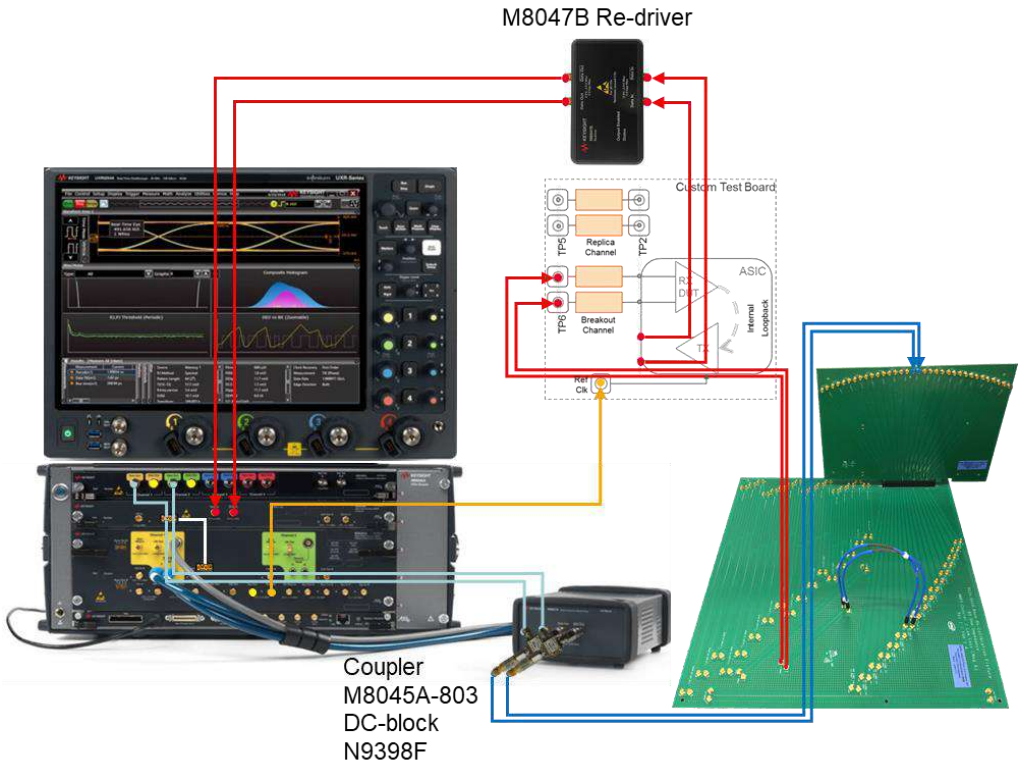

Figure 1. PCI Express Receiver Testing is a typical use case of the M8047B Redriver

The M8047B Redriver is suitable for PCI Express®, CCIX, SAS and OIF CEI as well as IEEE 802.3 applications within its range of operation.

The M8047B is controlled through the M8070B graphical user interface. The operation requires the presence of a M8000 Series BERT module or a M8100 Series AWG module in the system. The Redriver appears as an additional module in the M8070B SW.

Specifications

M8047B Redriver parameters

Parameters	
Output	On / Off
Output driver gain settings	0 – 3
EQ Boost	0 – 33
PAM4 Eye expander	0 – 3
EQ DC gain	0 – 3

Data input and data output

Data Input	
Baud rate	Up to 32 Gbaud
Data format	NRZ / PAM4
Absolute maximum input voltage	Min. -2.0 V, max. +2.0 V
Differential input amplitude linear range[1])	100 mVpp to 1250 mVpp
Input coupling	DC: 50 Ohm to GND AC: 100 Ohm differential
Connector	Differential 2.4 mm (f)

[1] Depends o the gain setting used

Data Output	
Differential output amplitude1)	100 mVpp to 1400 mVpp
Integrated AC-coupling at Output	Yes
Connector	Differential 2.4 mm (f)

[1] Depends on the gain setting used

Status indicators, general characteristics, physical dimensions and regulatory

Status Indicators

Location of Status Indicator LEDs	On top of instrument
LED 1	Output enabled Solid green indicates outputs are enabled
LED 2	Instrument status Solid green indicates instrument is ready Blinking green is used to identify the instrument Solid red indicates an instrument error

General Characteristics and Physical Dimensions

Operating Temperature	5 °C to 40 °C (41 °F to + 104 °F)
Storage Temperature	-40 °C to 70 °C (-40 °F to + 158 °F)
Operating Humidity	15% to 95% relative humidity at 40 °C (non-condensing)
Storage Humidity	4% to 90% relative humidity at 68 °C (non-condensing)
Power Requirements	Max. 2.5 W
Physical dimensions instrument (W x H x D)	110 mm x 80 mm x 170 mm
Weight Net	0.28 kg
Weight Shipping	0.85 kg
Connection to control PC	USB Type C

Regulatory Standards

EMC	IEC 61326-1
Safety	IEC 61010-1
Quality Management	ISO 9001, 14001

System Requirements

Software

The M8047B Redriver is controlled through the M8070B software. It requires at least version 9.1. The M8070B software will allow control of a M8047B Redriver only if an AXIe module of the M8000 BERT Series or a M8195A, M8196A, M8194A or M8199A AWG AXIe module is present.

Remote programming

The M8047B can be remote programmed the M8070B software like any other module which is controlled by the M8070B software.

Related Products

The M8047B Redriver complements the M8040A 64 Gbaud High-performance BERT as well as the J-BERT M8020A High-Performance BERT.

The M8100 series Arbitrary Waveform Generators enable setting up of complex real-world signals.

Receiver test automation for PCI Express, CCIX and SAS is provided by the N5991 Receiver Compliance Test Automation Platform for servers.

Automated transmitter compliance testing is available. N5939G PCI Express Electrical Performance Validation and Compliance Software covers PCI Express specification up to PCI Express 4.0. D9050PCIC PCI Express 5.0 Transmitter Electrical Performance Validation and Compliance Software covers PCI Express 5.0 specifications. The N5412E Serial Attached SCSI – 4 (SAS-4) Transmitter Test Application covers SAS transmitter testing for 1.5G, 3G, 6G, 12G and 22.5G.

The N1085A PAM4 Measurements Application for Ethernet and OIF-CEI for the sampling oscilloscopes and the N6473A OIF-CEI 4.0 Compliance Application for Infinium real-time oscilloscopes offer automated transmitter testing for CEI-56G-VSR host or module, CEI-56G-MR and CEI-56G-LR outputs.

Automated electrical receiver testing for 400G and 100G is offered by M809256PA, M8091BSPA and M809228XA.

The N4917BSCA Optical Receiver Stress Test Application addresses test needs for optical input test of transceiver modules for 400GBASE-LR8/-FR8 as well as 200GBASE-LR4/-FR4/-DR4

For more information, please visit: www.keysight.com/find/M8047B