

BERT 800

800G Bit Error Rate Tester



Optical communication has become the backbone of modern communication technology due to its low transmission loss, high capacity, and fast speeds. As transmission rates continue to accelerate, accurately measuring bit error rates in optical modules is crucial to ensure reliable performance. Dimension Technology's BERT800 bit error tester series offers a comprehensive solution for testing and verifying high-speed optical transceiver modules. These versatile devices can be used in various applications, including mass production, performance verification, and reliability testing. By combining a universal control board with interchangeable interface boards, the BERT800 series provides a flexible platform for testing bit error rates, configuring module parameters, and monitoring module status.

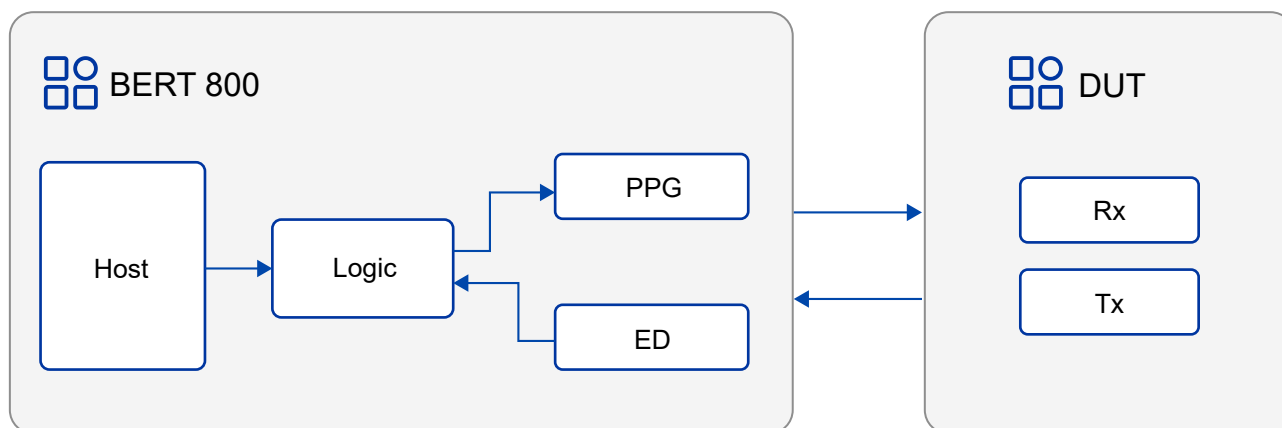
Key Features

- Use control board and replaceable interface board to reduce long-term use cost
- Flexible configuration, support transceiver modules with different packages such as 800G OSFP, QSFP-DD, QSFP28
- Support 800GbE to 100GbE
- Available in production and portable types, suitable for mass production, performance verification, reliability testing, etc.
- Use optimized PHY chip and optical module heat dissipation design
- Provide standard communication protocol, can be easily integrated with test system
- Support NRZ/PAM4, multiple PRBS code types are optional
- Support FEC, support multiple equalization methods
- No high-speed cable required
- Simple user interface

Applications

- Mass production of 800G-100G optical transceiver modules
- R&D and verification of high-speed optical transceiver modules

Flexible and cost-effective



The BERT800 series bit error tester employs a modular design, featuring a control board and interchangeable interface boards. This flexible architecture allows for testing a wide range of optical transceiver modules with different packages, including OSFP, QSFP-DD, and QSFP28. Optimized for high-frequency performance, the BERT800 series effectively manages consumable costs while ensuring accurate data transmission. When the optical module connector reaches its service life, simply replace the corresponding interface board to extend the system's lifespan and reduce long-term operating costs.



Portable Model



Production Model

Various Test Options

The Dimension BERT800 utilizes a host computer system to control the pattern generator and error detection unit, enabling comprehensive testing of 800G-100G optical transceiver modules. This system supports various coding modes, including NRZ and PAM4, and offers a range of pseudo-random code patterns, such as PRBS7, PRBS9, PRBS21, PRBS23, PRBS31, and PRBS58.

Packages	Interface Board	Supported Transceiver Modules
OSFP	OSFP	112G/800G PAM4 OSFP, 56G/400G PAM4 OSFP
QSFP-DD	QSFP-DD	112G/800G PAM4 QSFP-DD, 56G/400G PAM4 QSFP-DD
QSFP28	QSFP28	QSFP28SR4

The diagram illustrates the network topology for testing. A BERT 800 device is connected to a PC. The PC is connected to a DUT 800G OSFP device. The DUT 800G OSFP device is connected to an OSW (Optical Switching Wavelength) device. The OSW device is connected to four output devices: DCA, CDR, OPM, and POA. The POA device is also connected to the DUT 800G OSFP device.

Bert Soft V1.0.0.0

Connect

USB Generic Status

●

Module

Optical Type

QSFP DD

Chip Type

QSFP-DD 80

TX/RX

System

Save Data

●

Log Viewer

●

DIMENSION

Bert Test

Start Time: / End Time: /

Channel	Pattern	Polarity	Pre Cursor	Eye Hight	Post Cursor		Channel	Link	Total Bit Count	Bit Error Count	Bit Error Rate
1	PRBS13Q	Normal	3	44	14		1	Lock	6537398975520	1	1.52966E-13
2	PRBS13Q	Normal	3	44	14		2	Lock	6537551762880	86629	1.325099E-08
3	PRBS13Q	Normal	3	44	14		3	Lock	6900815393120	135908	1.969448E-08
4	PRBS13Q	Normal	3	44	14		4	Lock	6900799307040	401780	5.822224E-08
5	PRBS13Q	Normal	3	44	14		5	Lock	6901035457280	16	2.318493E-12
6	PRBS13Q	Normal	3	44	14		6	Lock	6901561242240	1780	2.579127E-10
7	PRBS13Q	Normal	3	44	14		7	Lock	6901029039520	6790	9.839113E-10
8	PRBS13Q	Normal	3	44	14		8	Lock	6901939743840	56980	8.25565E-09

2024-06-05 14:46:46 Bert System

2024-06-05 14:46:46 Initialize...

2024-06-05 14:46:46 Finish!

2024-06-05 14:46:48 USB Connection

2024-06-05 14:46:49 Comm param : Generic

2024-06-05 14:46:49 Please wait...

2024-06-05 14:46:49 Read Version Information

Hardware Ver: 1.0.0

Firmware Ver: 11.1.0.0

Temperature 46.3℃

System

Data Save Path

E:\workspace_chilBERT\BERT\BERTIrc\bin

Parameter Save Path

E:\workspace_chilBERT\BERT\BERTIrc\bin

Language: English

Software Ver: 1.0.0.0

Restore Factory Defaults

Import Export

Initialize

Clear Ber

Save

Read Mode

Timed

Read Interval(s)

3

Start

Read Time(s)

30

2024-06-06 14:53:02

The screenshot displays the Keysight FieldFox software interface. The main window shows a waveform plot with a 'Waveform' tab selected. The plot shows a periodic signal with a 'Signal' label. The left sidebar contains various measurement tools: RFLP Histogram, COI Histogram, T3 Histogram, COI vs. Symbol, Complete COI Histogram, and Complete COI Histogram. The bottom status bar shows 'Here (12)'. The right sidebar contains a 'Waveforms (Overview)' tab and a 'Level' table. The 'Level' table has columns for 'Measurement', 'Level 0', 'Level 1', and 'Level 2'. The 'Level' table contains the following data:

Measurement	Level 0	Level 1	Level 2
T1 (L0-E)	-29.5 dBm	98.6 dBm	204.8 dB
T1 (L1-E)	45.3 dBm	61.1 dBm	42.5 dBm
T2 (L0-E)	27.6 dBm	52.1 dBm	92.2 dBm
T2 (L1-E)	41.1 dBm	45.0 dBm	41.2 dBm
T2 (L2-E)	43.8 dBm	46.7 dBm	42.3 dBm
PS (L0-E)	20.5 dBm	40.5 dBm	20.5 dBm
PS (L1-E)	5.96 dBm	5.96 dBm	5.96 dBm
PS (L2-E)	4.4 dBm	4.4 dBm	4.4 dBm

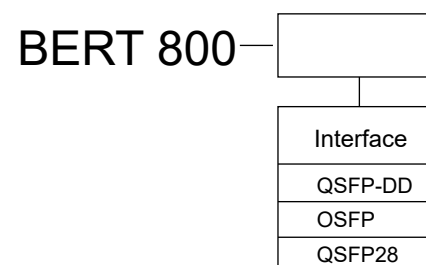
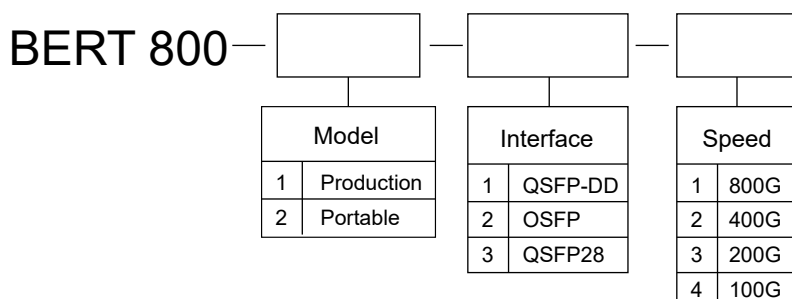
The 'Level' table also includes a 'Signal Amplitude' row with values: 108 dBm, 108 dBm, 206 dBm, 206 dBm.

The bottom status bar shows 'Here (12)'. The bottom right corner shows 'Here (12)' and 'Here (12)'.

Specifications

Specification	Parameter
Mode	800G BASE-R; 400G BASE-R; 200G BASE-R; 100G BASE-R
Modulation	NRZ/PAM4
Tx/Rx Connectors	QSFP DD, OSFP, QSFP28
Date Rate	PAM4: 53.125GBaud; 26.5625GBaud; NRZ:25.78125Gbps
Patterns	SSPRQ, PRBS58, PRBS31, PRBS23, PRBS15, PRBS9, PRBS7,PRBS31Q, PRBS23Q, PRBS15Q, PRBS13Q
Tx Amplitude	200~950mVpp
Clock Divider	2~1024
Module Power Supply	3.3V
Module Power Supply	10A
Module Communication	I ² C , ≤400K
Communication	USB, RS232, TCP/IP RJ45
Power Supply	24V/3A
Dimensions (LxWxH)	Production Model:398mm*200mm*85mm; Portable Model:215mm*104mm*90mm
Weight(kg)	Production Model:5.2KG; Portable Model:2KG;
Operational Temperature	5°C - 40°C
Storage Temperature	-20°C - 70°C
Humidity	20% - 85%
Power Supply	220/240Vac, 50W

Order Info



Example.

BERT 800-11-1

BERT800G Bit Error Rate Tester has the interface board for 800G QSFP-DD transceiver module. It's equipped with adapter for thermal cycling tester.

Related Products



16-CH MM Programmable
Optical Attenuator



Optical Switch



CDR

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