BIT ERROR RATE TESTERS

Our Bit Error Rate Testers set the standard in BER testing for telemetry systems.

Our Bit Error Rate Testers incorporate leading edge interfaces for high-performance, cost-effective telemetry systems testing. Our Bit Error Rate Testers are designed for testing synchronous serial communications equipment, communications links, and radio telemetry systems. In addition to several standard configurations, we also offer the advantages of custom configurations, including multi-channel, mixed data rates and integration of Reach Technologies clock synthesizers and non-blocking crossbar switches.

Key Features

Extremely High Data Rates	■ Serial data rates to 1 Gbps per channel
Multi-Channel	■ Up to 16 channels per chassis
Flexible Configurations	■ High-speed modules are 0 bps to 400 Mbps, 800 Mbps or 1 Gbps ■ Low-speed modules are 0 bps to 50 or 100 Mbps ■ Turn key CompactPCI Bit Error Rate Testers ■ PCI, Compact PCI and PCIe board and software only solutions ■ Available external Tx clock input
High-speed I/O	■ LVDS or Single-ended and Differential ECL
User Defined Low-Speed I/O	■ Programmable electrical levels on Input and Output supports: ■ TTL, RS-422, LVDS, S-E/Differential ECL/PECL, etc.
Remote Control	■ Ethernet control interface using XML over TCP/IP ■ Control using web browser ■ Control using a client computer
Low-Speed I/Q Testing	■ Can use common Tx and Rx clocks for QPSK (I/Q) testing
High-Speed I/Q Testing	■ Can be combined with our Telemetry Crossbar Switch for common clock I/Q testing
Common Clocking	■ Adding a Telemetry Crossbar Switch allows sharing Tx and Rx clocks across four or more channels



BERT User Interface

Our Bit Error Rate Testers have an intuitive graphical user interface that displays the bit error statistics and allows the user to control the operation of the BERT hardware. The BERT can be controlled locally or remotely using the same software.

The BERT displays:

- Bit error rate
- Bit errors / Bit slips
- Actual receive clock rate
- Actual transmit clock rate
- Errored seconds statistics:
  - Errored seconds
  - Severely errored seconds
  - Bit slip seconds
  - Sync loss seconds
  - Receive data loss seconds
  - Receive clock loss seconds

The BERT allows control of:

- Checker Properties:
  - BER calculation interval from 1 second to infinity
- Input Properties:
  - Data polarity
  - Clocking edges
  - Data decoding
  - PRBS or user pattern
- Output Properties:
  - Bit rate
  - Data polarity
  - Clock edges
  - Data encoding
  - PRBS or user pattern
  - Insert of a single bit error or constant BER
  - Zero run insertion



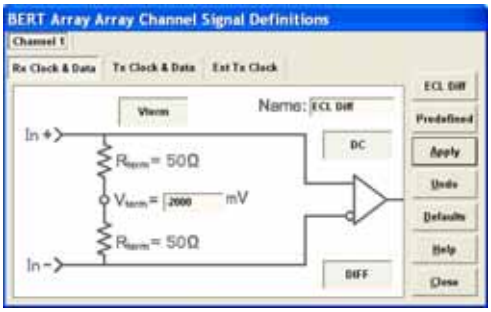
Features

User Defined Thresholds

All measurements have user-defined thresholds. When these thresholds are exceeded the information is sent to an event log. This event log is saved to disk and may be viewed at any time.

User Defined Low-Speed Input Output Signal Definitions

All low-speed BERT Channels have universal programmable input and output which supports TTL, RS-422, LVDS, and Single Ended/Differential ECL, PECL, LVECL, and LVPECL electrical levels (i.e. Users can manually modify electrical levels to suit their testing needs).



Reach Technologies Inc. Suite 103, 1581H - Hillside Avenue, Victoria, British Columbia, Canada V8T 2C1
Phone: 250.598.1308 Fax: 250.598.1304 email: marketing@reachtest.com URL: http://www.reachtest.com

Options

High Speed I/O Options

High speed interfaces require I/O modules to connect to standard connectors. I/O module choices include:

- SMA I/O modules
- TRIAX I/O modules
- BNC I/O modules

Rack mountable I/O modules are also available.



SMA I/O module and cable

High Speed I/Q Testing Option

Installing our Reach Technologies non-blocking crossbar switch in our BERT chassis, allows our two channel high-speed BERT to be easily be set up for QPSK (I/Q) testing.

Common Clock Option

Installing our Reach Technologies non-blocking crossbar switch in our BERT chassis, allows four or more BERT channels to share a common receive clock and a common transmit clock.

The TCP/IP Remote Control Option

The TCP/IP remote control option allows control of the BERT over a TCP/IP network. Control software for Windows based computers is provided. This control software provides the same user interface as the BERT but over a TCP/IP network. A single control computer may control up to 16 remote BERT channels. A BERT may control up to 15 other BERT channels on the TCP/IP network using the 16-channel user interface.

Software Development Kit ("SDK") Option

The software development kit option enables the user to easily create software to control the BERT hardware. Custom user interfaces as well as completely automated test systems can be developed. The SDK includes Active-X, VCL, and .NET components that encapsulate the BERT hardware and allow the user software to control all aspects of the BERT operation and collect error statistics. The components may be used with Delphi, Microsoft Visual Studio, LabView, LabWindows, and other 3rd party tools.

Specifications

Checker

- Accepts input data from 0 bps up to the maximum rate of the tester
- $1x10^{-2}$ maximum BER detected
- $1x10^{-20}$ minimum BER detected
- Errored seconds statistics
- Display of actual received data rate
- Data decoding: RNRZ-L, NRZ-L, M, S (Optional Asynchronous NRZ and BiPhase decoding)
- PRBS patterns of 2^{23}-1, 2^{15}-1, 2^{11}-1, and 2^{7}-1
- Insert from 8 to 2040 bits of zero in PRBS patterns
- 3-bit to 32-bit user patterns
- Eight user defined preset patterns

Generator

- Internal clock Synthesizer: 100 bps up to the maximum rate of the tester
- External clock input
- Display of actual transmitted data rate
- Data encoding: RNRZ-L, NRZ-L, M, S (Optional BiPhase encoding)
- PRBS patterns of 2^{23}-1, 2^{15}-1, 2^{11}-1, and 2^{7}-1
- Insert from 8 to 2040 bits of zero in PRBS patterns
- 3-bit to 32-bit user patterns
- Eight user defined preset patterns are stored
- Single bit errors may be inserted with a button push
- Constant bit error rate may be inserted

Bit Error Rate Tester Models

Bit Error Rate Tester Sample Turn-Key Models include Compact PCI Chassis, CPU and Touch Screen Display

Channels	Channel Data Rates				
	Low-Speed Models		High-Speed Models		
	50 Mbps Serial	100 Mbps Serial	400 Mbps Serial	800 Mbps Serial	1 Gbps Serial
N	BERT-50S-N	BERT-100S-N	BERT-400S-N	BERT-800S-N	BERT-1000S-N

Note: Substitute number of channels for N, where N is the number of channels from 1 to 16
Mix and match of channel speeds is also available (e.g. .2 channels of 50 Mbps with 4 channels of 400 Mbps)

Bit Error Rate Tester Board and Software Only

Our Bit Error Rate Testers are also available as PCI, PCIe or Compact PCI boards with application software and device drivers for Windows XP/Vista.