Electrical BERT Module
PN L-6001-EBERT-3

DESCRIPTION

EBERT is a Bit Error Rate Test module that plugs in to the *XBERT* and *ParalleX*™ Chassis. EBERT-3 can generate and receive electrical data from 9.9 Gb/s up to 11.3 Gb/s. Optionally the EBERT-3 module can operate at 4.9 Gb/s up to 5.7 Gb/s. User programmable PRBS patterns can be changed via an easy to use GUI. A pattern trigger output provides an electrical trigger synchronous with the pattern for use with an oscilloscope or other test equipment. Optional Pre-emphasis (option 108) applies frequency selective attenuation to the data signal at the transmit side to compensate for losses in the transmit medium. Front panel indicators give immediate status for Tx and Rx Data.

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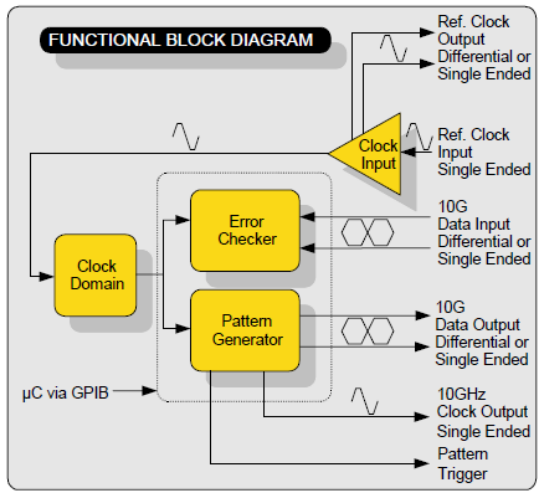
KEY FEATURES

- Data Rates 9.9 to 11.3 Gb/s. Optional 4.9 to 5.7 Gb/s operation (additional CDR module may be necessary for 4.9-5.7G operation, dependant on device under test)
- Protocol independent OC192, Ethernet, Fibrechannel, Infiniband, 40Gbase, 100Gbase testing
- Test XFP, QSFP, SFP+, TOSA/ROSA, AOC, and other devices
- Differential Electrical Pattern Generator (SMA Connector)
- Differential Electrical Error Detector (SMA Connector)
- 10GHz Clock Output (single ended)
- PRBS: 7, 9, 10, 11, 15, 21, 23, 31
  User-Pattern: 8Bit - 8Kbyte
  Clock-Pattern: $^1/_1$, $^1/_2$, $^1/_4$, $^1/_8$
  Additional: K28.0-K28.7, CJPAT, SSPS-64 and oth
- Duo-Binary pre-coder
- Optional Pre-emphasis of transmit signal
- Data output polarity swap and data input polarity swap
- BER detection: 0.5 to < 10E-15
- Single error and error rate injection: E-3 to E-15
- Data log Gating-time: up to 5000h
- Reference Clock Input (single ended) and output (diff)
- LabView™ drivers available
- Small size: width 50.8mm (2”)



XBERT PLATFORM: LETS YOU START SMALL AND GROW BIG

XBERT is a low-cost, modular Bit Error Rate Test Platform used for verification and test of 10Gb/s and above optical and electrical chip, sub assembly and system designs. *ParalleX*™ allows users to perform several BER tests at once using a single clock source. The system is ideal for developers desiring to run simultaneous BER tests on parallel interfaces or multiple independent interfaces. *XBERT* and *ParalleX*™ are scalable so users can start off with a single channel and add modules to grow the system. Manufacturers can realize great savings by taking advantage of the *XBERT* and *ParalleX*™ system’s scalability to perform parallel testing in volume production environments.

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KEY PERFORMANCE PARAMETERS

PARAMETER	SYMBOL	Min	Max	UNIT	NOTE
Data Rate	DR	9.5	11.5	Gbps	Standard mode
		4.9	5.7	Gbps	Additionally by Option 107
Data Formats		NRZ, Duo Binary			Note 4
Data Output Signal Channel P or N (single ended)	$D_{OutP/N}$	400	600	mV_{pp}	
Synthesized 10GHz Output Clock (single ended)	CLK_{Out}	400	1200	mV_{pp}	f=REFCLK x 16
Data Output Rise and Fall time	t_r / t_f	Typical	23	ps	20% - 80%
Output Jitter	J_{rms}	Typical	1.1	ps	Note 3
Differential Output Impedance	Z_{ODiff}	90	110	Ω	
Data Output Termination		AC - coupled			
Data Input Signal Channel P or N	$D_{InP/N}$	110	700	mV_{pp}	Single ended
Differential Data Input signal (D_{InDiff}=D_{InP}-D_{InN})	D_{InDiff}	220	1400	mV_{pp}	Note 1
Differential Input Impedance	Z_{InDiff}	90	110	Ω	
Data Input Termination		AC - coupled			
Reference Clock Input Frequency	P_{ref}	622.08	707.5	MHz	
Reference Clock Input Impedance	Z_{Ref}	45	55	Ω	
Reference Clock Input Termination		AC - coupled			
Sync Signal output amplitude	Sync	550	1100	mV	Note 2
Operating Temperature	T_{OP}	0	40	°C	Ambient temp.

Note:

1 Minimum input voltage to guarantee error free detection (BER < 10^{-15})

2 Default function is pattern trigger. Other functions like pulse per error byte are possible. For more detailed information contact Luceo Technologies.

3 Measured at: duty cycle 50%, PRBS31, DR=11.3Gbps

4 **Duo-binary precoder** function is a feature of the generator part of the EBERT module. To measure the BER of a duo binary signal it has to be decoded by the user. The duo-binary precoder function can be switched on/off via GPIB command or GUI.

\- **Pre-emphasis** function (option 108) can be adjusted in 22 steps via GPIB commands or GUI.

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