



HSI-BERT-30

4 channel 9-15 and 22-30 Gbps
Bit Error Rate Tester (BERT)



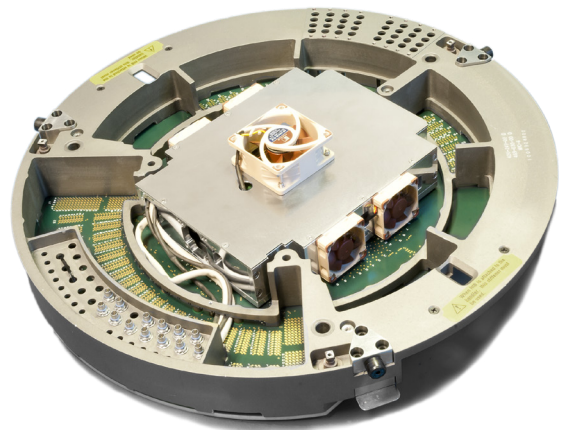
Key features

- ▶ Four independent parallel BERT lanes
- ▶ Data Rates from 9-15 and 22-30 Gbps
- ▶ Independent voltage level adjustment for each of the 4 outputs; see Generator Data Out table
- ▶ PRBS: 7, 9, 15, 23, 31; User Pattern 40 bits
- ▶ High fidelity signal capture, low intrinsic Jitter
- ▶ Support for external API calls from other software e.g. LabView
- ▶ Repeatable performance and traceable to standards
- ▶ High port density configuration and Low power consumption
- ▶ Phase Margin capabilities
- ▶ Compact form factor for integration into load boards for most ATE systems

Salland Engineering's HSI-BERT-30 is a state of the art, low cost 4 Lanes 30Gbps BERT module that is fully featured for production testing of 30G components and systems used in the AOC, 100G electro-optical modules and systems.

Targeted Applications

- ▶ At rate testing in ATE applications used for wafer sort and packaged parts testing
- ▶ Ultra High Speed Backplane Test Solution, emphasis and skew tolerance test
- ▶ High-Speed SerDes Testing & Characterization
- ▶ Multi-Lane BERT testing, ideal for high port count volume production testing
- ▶ 100GbE Device Test Solution - High quality and functional test signals





- ▶ Electro-optical Transceiver Testing
- ▶ Production Test Solution for Multiple Optical Modules and High-Speed Connectors - Low Cost and Low Power Consumption: Active Optical Cable (AOC), Direct Attach Cable (DAC), SFP+, zQSFP, QSFP+, CFP-2 / CFP4, CXP, 5x 7 long hauls interconnect, and EDR test applications
- ▶ 100G EDR QSFP line cards
- ▶ Design/Validation Test (DVT) of Telecom/ Datacom, Components and Systems
- ▶ 32/16/8/4/2G Fiber Channel applications

BER and Measurements Suite

- ▶ Eye contour
- ▶ Bathtub
- ▶ Continuous
- ▶ Pre-Emphasis control



Deliverables

Hardware:

- ▶ HSI-BERT-30 module

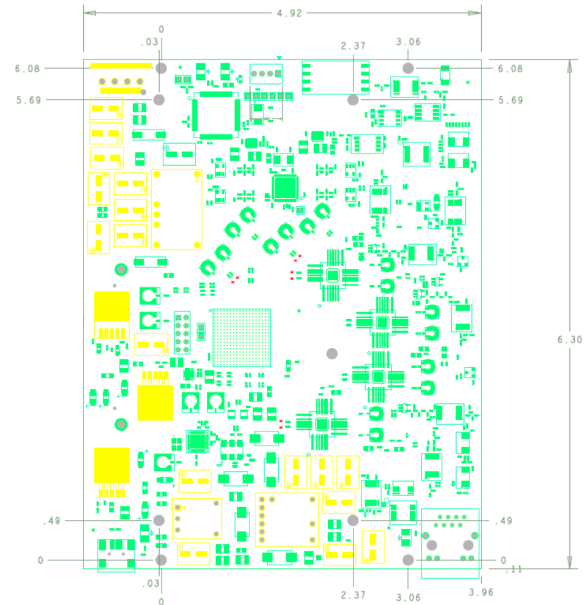
Software:

- ▶ Windows GUI and API access by 3rd party software
- ▶ Function libraries for ATE platforms:
 - ▶ For Windows, incl. DLL and C++ header files containing the Interface Classes
 - ▶ For Linux: incl. library documented socket interfaces and Interface Classes

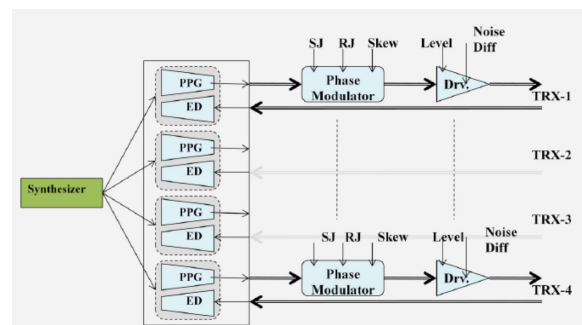
Manuals:

- ▶ User Manual (Incl. installation)
- ▶ API function library description & usage calls

Board Dimensions



Functional Block Diagram





Specifications

Generator Data Out

Bit Rates (TX) and supported protocols	4 Channels 9-15 & 22-30 Gbps/Lane
Data Format	NRZ
Data Patterns	PRBS PN7, 9, 15, 23, 31 40 bits user Pattern
Rise / Fall Time (20–80%)	19/16ps typical
TX Amplitude Differential	1600mVpp
TX Amplitude Adjustment	5mV
TX Amplitude Resolution	10 bit
Pre-Emphasis	-
Pre-Emphasis Resolution	-
Equalizing Filter Spacing	-
Random Jitter RMS	0.4ps
Deterministic Jitter @ 25G	6ps
Output Return Loss up to 10GHz	-11dB
Output Return Loss (16-25GHz)	-8dB
IO connectors	SMPM-RA

Error Detector

Data rates	4 Channels 9-15 & 22-30 Gbps/Lane
Data input amplitude	110-1050mV Differential
Maximum Input amplitude	1200mV Differential
Input Sensitivity	25mVpp
Patterns	PRBS PN7, 9, 11, 15, 23, 31 and User Pattern
Vertical Scan Resolution	8 bits
Phase Scan Resolution	7 bits
Phase margin 1	5ps
Input CTLE Dynamic Range	10dB
Input IO connectors	SMPM-RA

Reference Clock

Clock Out	Rate/16 for 9-15G Rate/40 for 22-30G
Clock Data Recovery	Rate/N (User Selectable)
Amplitude	550-850mVpp, typical 400mVpp
Clock Input	Rate/16 for 9-15G Rate/40 for 22-30G
Amplitude	300-1900mVpp
Connector	SMP

General

Power requirements	27 Watt
Calibration	Quarterly is recommended



SALLAND Engineering

Test Technology Center

Salland Engineering is an international leading Test Technology & Engineering company specialized in solutions & services that enable semiconductor manufacturers to achieve Lower cost of test, Higher quality and reliability, Improved test floor efficiencies, Faster time to market and Streamlined supply chain. Salland Engineering is in business since 1992, headquartered in Zwolle – The Netherlands, and operates worldwide.

- ▶ Supply Chain services from **prototyping, manufacturing** up to **repair service** for **advanced measurement** solutions **on site** in The Netherlands
- ▶ **ISO 9001:2015** certified