



Marketing Datasheet

ML4039

**4-Lane 8.5-15 & 21-30 Gbps/lane
Bit Error Rate Tester**

Vertical & Horizontal Eye Closure

Bathtub Curve Measurement

Eye Contour Measurement

Receiver Sensitivity

Jitter Tolerance

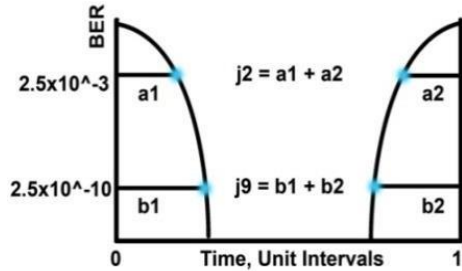


ML4039 Marketing Datasheet rev. 2.3

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ML4039

4 Channel 30Gbps BERT



Summary

The ML4039 series is a state of the art 4 Lane Pulse Pattern Generator and Error Detector with Jitter Generator & Equalizer up to 30 Gbps. That is fully featured for lab and production testing of systems, components, and Electro-Optical Modules, O-optical modules. The instrument is offered in 4 different variants:

Key Features

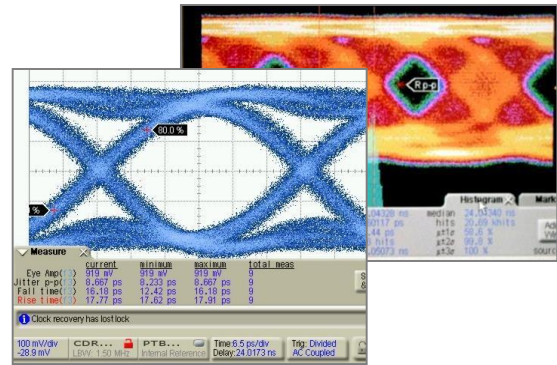
- Available in ATE and cPCI form factors
- 8.5-15 and 21-30 Gbps data rate
- Low intrinsic jitter
- Automated J2/J9 measurement
- Integrated synthesizer
- Eye contour measurement
- Bathtub measurement
- Intuitive comprehensive GUI
- Window and Linux API functions
- Repeatable traceable measurement

RX Tolerance Measurement

- BER measurement
- Receiver mask tolerance

Software Capabilities

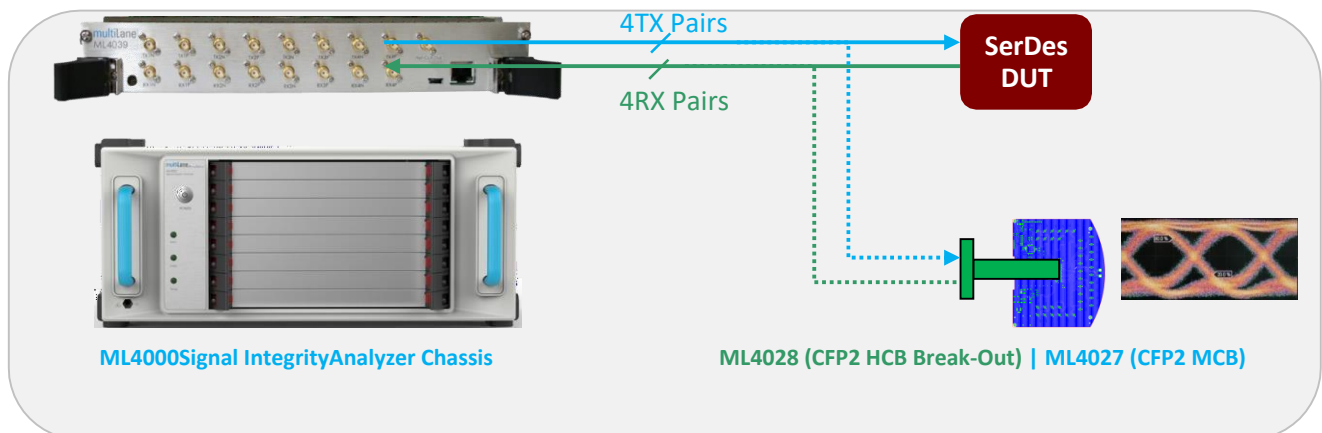
- Provide LabVIEW drivers
- Multiple modules can be controlled via Fast Ethernet 100 BASE-TX



Target Applications

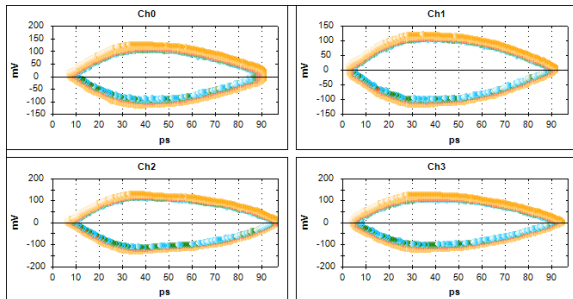
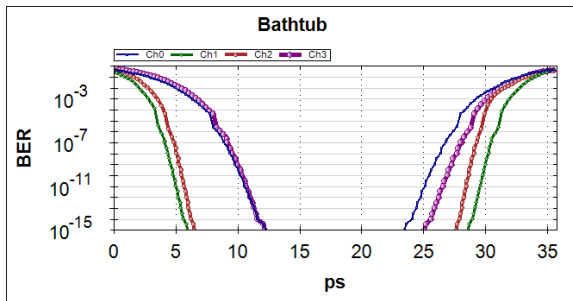
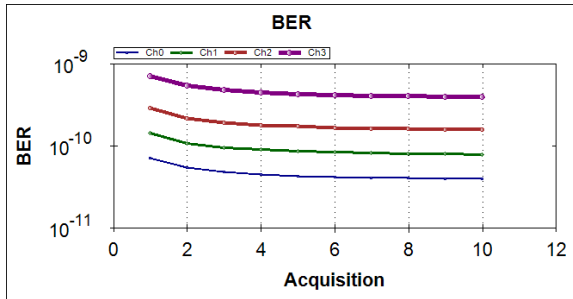
- Interconnect testing CFP2, CFP4, QSFP28
- Backplane testing
- Interference and crosstalk testing
- Receiver sensitivity testing
- Electro-Optical module testing
- Electrical testing for 100 Gbps Ethernet, MLD/CAUI application, OIF CEI-28G-VSR, CPPI-4, CAUI-4, 32G Fiber Channel chip to module

SerDes & CFP2 Test Application



ML BERT GUI

- Test 4-channel BER test at the same time
- Support BER curve
- Provide multiple and single layouts of bathtub and eye contour



Ch	TX Pattern	RX Pattern	Amplitude	Pre-Emph	Post-Emph	Error-Insr	CTLE
Ch 0	PN31	PN31	270	0	10	Running	4.02
Ch 1	PN31	PN31	270	0	10	Running	Auto-ada
Ch 2	PN31	PN31	270	0	10	Running	Auto-ada
Ch 3	PN31	PN31	270	0	10	Running	Auto-ada

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Electrical Specification	
	ML4039
Bit Rate	8.5-15 & 21-30Gbps
Bit Rate Accuracy	Better than ± 20 ppm ¹
Data Format	NRZ
Pattern	PRBS 7, 9, 15, 23, 31, and User Defined Pattern 16 bits@10G & 40 bits@25G
TX Amplitude Differential	200-800mV ²
TX Amplitude Adjustment	200 mV/step
Pre-Emphasis	6dB
Pre-Emphasis Resolution	20 steps
Equalizing Filter Spacing	-
Total Jitter pk-pk @10G	10 ps (typical)
Total Jitter pk-pk @25G	12 ps (typical)
Rise/Fall Time (20–80%) @25G	< 14 ps ³
Sinusoidal Phase Modulation	-
Sinusoidal Jitter Frequency	-
Random Jitter in Phase Modulation	-
Output Return Loss up to 10GHz	-15 dB
Output Return Loss (16-25GHz)	-8dB
TX Skew Control Range	-
Lane to Lane Skew Resolution	-
Error Detector Phase Margin	5ps
Error Detector Input Amplitude	110-1050 mVpp @11G, 1200 mVpp @25G
Error Detector Maximum Input	1200mV Diff
Error Detector Input Sensitivity	30 mVpp @ 10.3125G / 50 mVpp @ 28G
Phase Scan Resolution	7 bits
Vertical Scan Resolution	8 bits
Input CTLE Dynamic Range	10dB
Reference Clock Output	Rate/32 for 8.5-15G and Rate/80 for 21-30G
Reference Clock Output Amplitude	550-850 mVpp
Reference Clock Input	Rate/32 for 8.5-15G and Rate/80 for 21-30G
Reference Clock Input Amplitude	300-1900 mVpp
Clock Data Recovery	Rate/N (user selectable from 8 and 16)
TX/RX and Clock Connectors in cPCI	2.92mm K connector
TX/RX and Clock Connectors in ATE	SMPM-RA
cPCI Form Factor Slot Height	2
Power Requirement	21.5 Watt

Order Information	
Order No.	Description
ML4039	4 Channels 30 Gbps BERT
ML4039-3W	3-Year Warranty
ML4000-4	Signal Integrity Analyzer Main Chassis, 4 slots
ML4000-8B	Signal Integrity Analyzer Main Chassis, 8 slots with optional switch function
<ul style="list-style-type: none"> • Please select cPCI form factor or ATE (5" x 6.5") form factor. • Standard Warranty - 1 Year 	
<i>For more information on this or other products, contact Multilane sales team by email at sales@multilaneinc.com</i>	

¹ At bit rates between 19 and 30 Gbps

² Output amplitude setting error: ± 50 mV $\pm 17\%$ of setting amplitude

³ Test condition is differential, PRBS7, 70GHz-bandwidth sampling scope with a 80cm phase-matched K(2.92mm) cable pair.

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