

### Introducing FEC on MultiLane's ML4054-400 400G BERT

The **ML4054-400** is a fully featured 400G BERT with connector savers for QSFP-DD, OSFP, and QSFP28. This BERT is ultimately suitable for manufacturing and high-volume testing.

On November 1<sup>st</sup>, 2019, a new software and firmware were released on the **ML4054-400**, enabling the FEC feature. Three FEC types are currently implemented and supported on both PAM4 and NRZ:

- RS544
- RS528
- Firecode



Figure 1: ML4054-400-BTP

The FEC feature is available on all new ML4054-400s and can be upgraded for all revD versions. RevC and older versions can only be upgraded with limited FEC capability (SER measurement is only supported on the revD version). MultiLane FAEs can remotely upgrade the firmware upon request.

**ML4054-400 updates**  
 Software revision: ML4054-400 GUI v1.9.0  
 Firmware revision: ML4054-400-RevD\_V2\_3

#### Post-FEC Measurements

Three FEC measurements: post FEC BER, corrected codewords, and uncorrected codewords, can be selected allowing to detect the sequences of errors by channel.

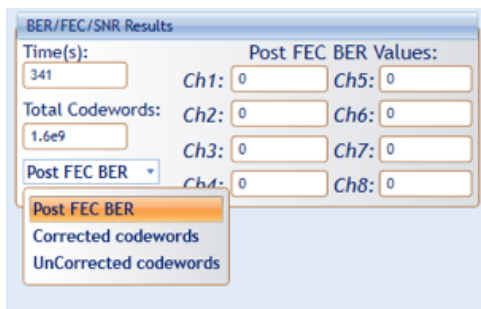


Figure 2: ML4054-400 GUI screenshot showing Post FEC BER values

#### SER Measurements

- SER is supported on RS544 and RS528 types
- As displayed in the table below, the SER determines the count of FEC blocks with “i” errors, where i is the number of symbol errors in each block (from 1 to 15 symbol errors).

Graph	SER							
	Ch1	Ch2	Ch3	Ch4	Ch5	Ch6	Ch7	Ch8
Sym1	0	0	0	0	0	0	0	0
Sym2	0	0	0	0	0	0	0	0
Sym3	0	0	0	0	0	0	0	0
Sym4	0	0	0	0	0	0	0	0
Sym5	0	0	0	0	0	0	0	0
Sym6	0	0	0	0	0	0	0	0
Sym7	0	0	0	0	0	0	0	0
Sym8	0	0	0	0	0	0	0	0
Sym9	0	0	0	0	0	0	0	0
Sym10	0	0	0	0	0	0	0	0
Sym11	0	0	0	0	0	0	0	0
Sym12	0	0	0	0	0	0	0	0
Sym13	0	0	0	0	0	0	0	0
Sym14	0	0	0	0	0	0	0	0
Sym15	0	0	0	0	0	0	0	0

Figure 3: ML4054-400 GUI screenshot showing SER values

#### Support

The link to the new software can be found [here](#).

To get the updated firmware and more information, please contact us at [support@multilaneinc.com](mailto:support@multilaneinc.com).

#### New Product Brochure

Download our latest product brochure [here](#).