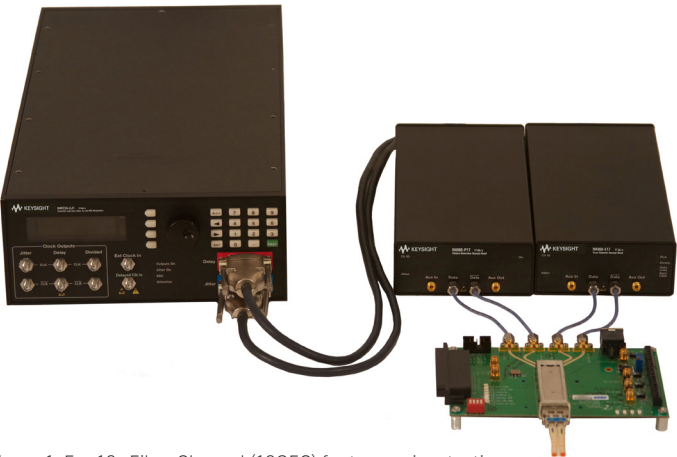


# Keysight 4 to 17 Gb/s Programmable Stressed BERT Solution

Fast, compact, and affordable BER testing



Testing 16x fibre channel (16GFC) transceivers requires equipment capable of 14 Gb/s and accurate characterization to strict tolerances. Until now, these systems have been extremely expensive. This often results in multiple designers needing to share the one serial BERT in the lab, delaying their characterization and development schedule.

The Keysight Technologies, Inc. N4960A serial BERT 17 Gb/s is an affordable alternative for R&D working at data rates up to 17 Gb/s. In fact, it's even affordable for manufacturing test.

The solution is compact, allowing it to be easily transported throughout the lab and manufacturing. But with its low price, a fraction of competing stressed BERTs, you can afford to put one on each bench.

Figure 1. For 16x Fibre Channel (16GFC) for transceiver testing

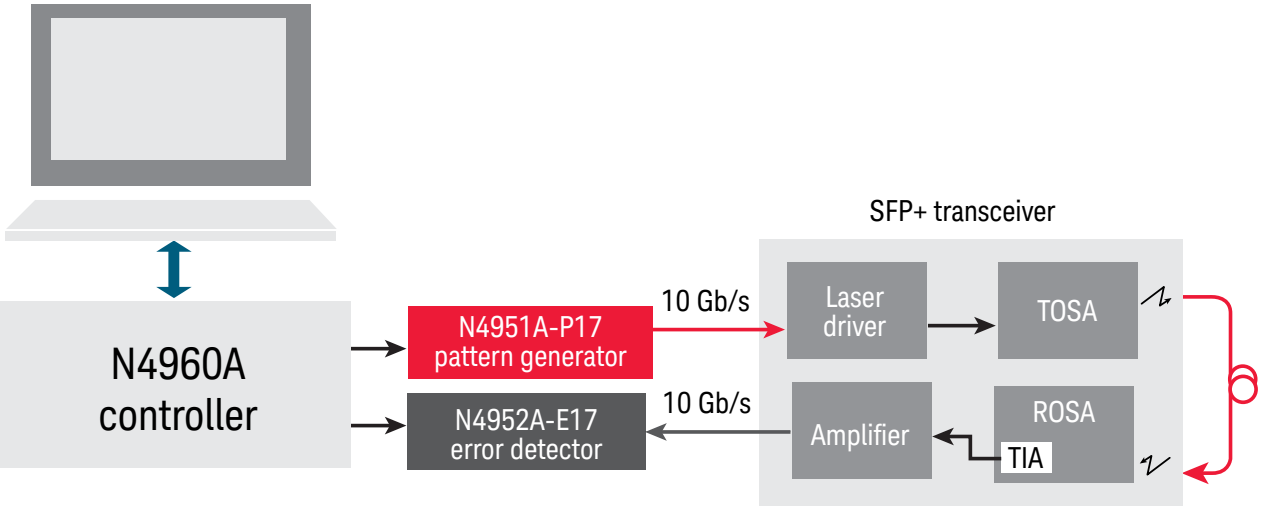


Figure 2. Typical configuration

Components – 16x Fibre Channel (16GFC)

Product number	Description
N4960A 17 Gb/s (SSB17)	Serial BERT 17 Gb/s
For special applications the system components are available individually	
N4960A-CJ0 (SSB16000)	Printed documentation
N4951A-P17 (PG17)	17 Gb/s pattern generator remote head
N4952A-E17 (ED17)	17 Gb/s error detector remote head

## Integrated analysis software

Support for both models of the N4960A (SSB16000) is included in the N4980A multi-instrument BERT software (Signal Integrity Studio). The base software provides an intuitive user interface. It also provides single or multi-channel BER measurement capability with an unlimited number of channels.

Setup is so easy that you'll be testing in seconds.

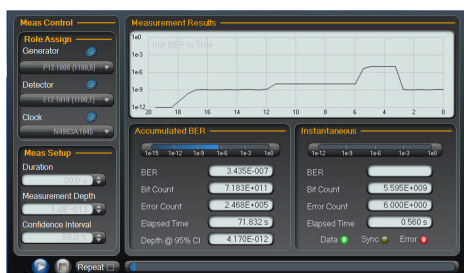


Figure 3. BER measurement window

## Compact architecture

The N4960A-CJ0/N4960A-CJ1 serial BERT controller (SSB16000/SSB16000J) is a platform that forms the basis of the stressed serial BERT. Based on our high performance N4972A-CJ0 (SCS16000) clock synthesizer, the N4960A-CJ0/N4960A-CJ1 serial BERT controller (SSB16000) adds the precision timing and control required for the remote pattern generator and error detector heads.

The concept of remote heads, first introduced in the N4965A-CTR (PCB12500) multi-channel BERT controller, puts the pattern generation and error detection near the device under test, eliminating long cables which degrade the signal. This is especially important at 17 Gb/s.

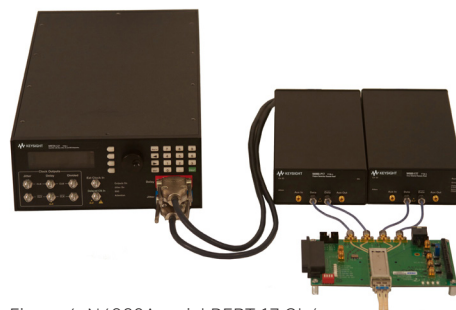


Figure 4. N4960A serial BERT 17 Gb/s

## Affordability without compromise

The N4951A-P17 (PG17) pattern generator and N4952A-E17 (ED17) error detector remote heads operate from 4 to 17 Gb/s in a single band with no gaps or missing data rates. They generate and test full rate patterns directly without the need for external multiplexers and delay matching often used in other modular BERT systems.

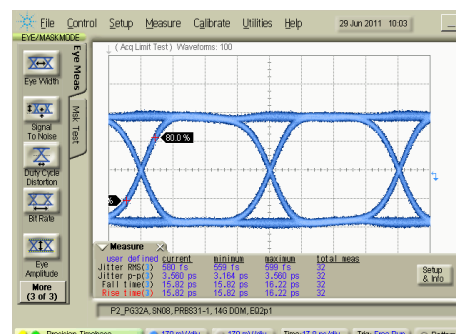


Figure 5. Typical eye at 14 Gb/s

The signal fidelity in the eye is outstanding, owing to the use of custom-designed and built output amplifiers. Output parameters of amplitude, offset, and termination voltage are user settable.

Accurate, repeatable jitter tolerance

The N4960A-CJ0/N4960A-CJ1 serial BERT controller (SSB16000/SSB16000J) contains an accurately calibrated sinusoidal jitter source capable of high deviation at low frequencies, and lower deviation at frequencies up through 200 MHz.

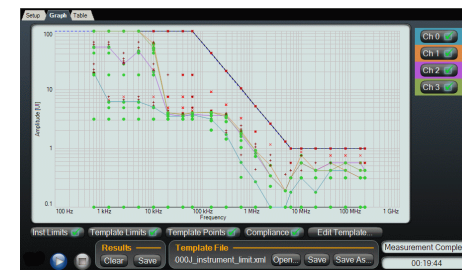


Figure 6. JTOL measurement window

The optional JTOL measurement package in the N4980A multi-instrument BERT software (Signal Integrity Studio) performs all the set-up and control for single or multi-lane JTOL, and with an intuitive “point and click” template editor.

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