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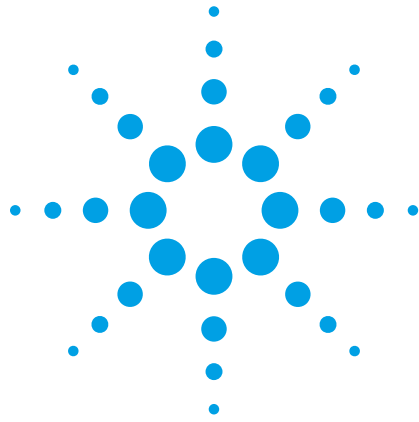
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The N2101A 5Gb/s BERT consists of a high accuracy clock source, data pattern generator and error detector. It will automatically perform Bit Error Ratio analysis to characterize the quality of devices from 1.0625 to 5 Gb/s. When combined with the N2100 Digital Communications Analyzer, the N2101A PXI BERT represents extraordinary value in communications test equipment.

Agilent

5 Gb/s Bit Error Ratio Tester

N2101A (PXIT Model PX2000-336)

Data Sheet



Agilent Technologies

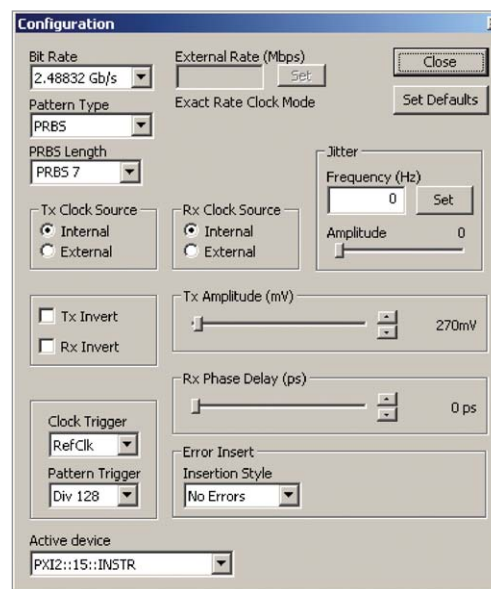
Functionality

- Single instrument 2 slot wide PXI card containing pattern generation and error detection
- Easily combined with DCA, Pattern Generator or multiple BERT modules in a PXI chassis
- Pattern generation and BER measurements for the following data rates:
 - 1.0625 Gb/s (1x Fibre Channel)
 - 1.25 Gb/s (Gigabit Ethernet)
 - 2.125 Gb/s (2x Fibre Channel)
 - 2.488 Gb/s (OC-48/STM-16)
 - 2.5 Gb/s (Parallel optics, PCI-Express)
 - 4.25 Gb/s (4x Fibre Channel)
 - 5.0 Gb/s (Parallel optics, PCI-Express II)
- Single error and error rate injection
- Automatic clock/data alignment
- Jitter bathtub measuring eye opening at defined error ratio depth
- Total error counts over definable time or number of bits
- Bit error over time display

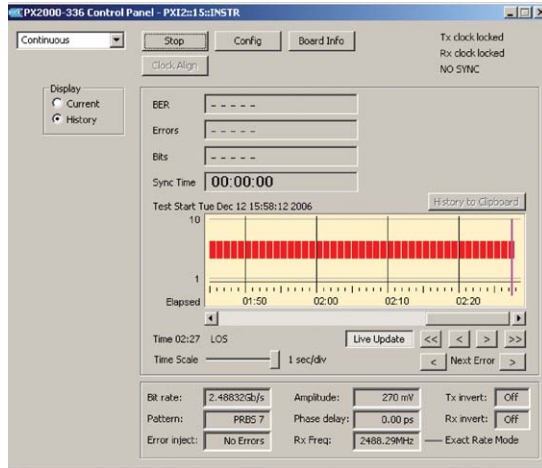
Features

The N2101A 5 Gb/s BERT implements a full function Bit Error Ratio testing system in a double-wide 3U high PXI module. The card-size instrument enables a wide variety of applications previously not possible with traditional rack & stack type instruments.

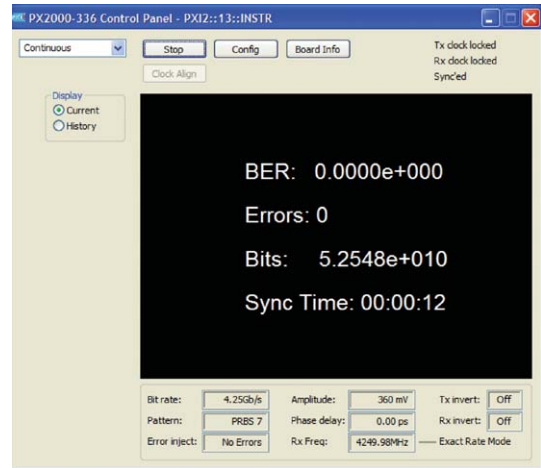
- Significantly smaller than a conventional BERT
- Differential data generation and analysis
- User selectable data patterns PRBS 2^n-1 , $N = 7, 9, 10, 11, 15, 23, 31$; K28.5, K28.7, CRPAT
- 2Kbits user pattern memory
- Internal clock for the following rates (GHz, ± 20 ppm):
 - 1.0625
 - 1.25
 - 2.125
 - 2.488
 - 2.50
 - 4.25
 - 5.0



Changing main settings in the easy user interface



Gain design insight seeing BER performance over time, such as when prototypes undergo heat cycling.



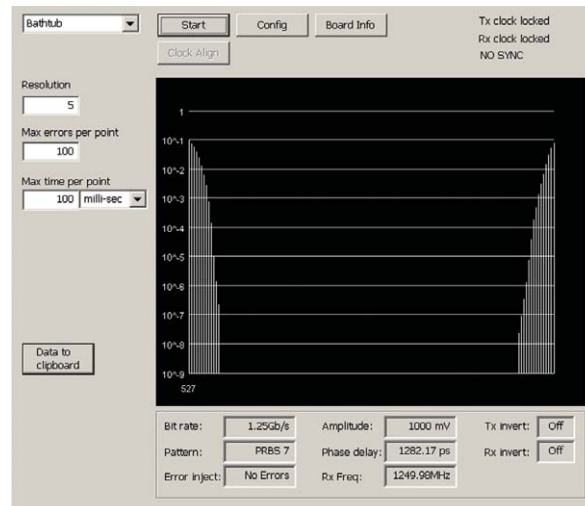
Main BER results page.

Performance Specifications

| Pattern Generator: | Limits |
|---------------------------|--------------------------|
| Output Jitter | 2 ps RMS |
| Rise/Fall Time (20 – 80%) | 35 ps max |
| Output Range | 250 mV – 1.6 V peak-peak |
| Amplitude Resolution | 5 mV |

| Error Detection: | |
|-------------------|-------------|
| Input Range | 50 mV - 2 V |
| Input Sensitivity | 50 mV |

| Trigger Output: | |
|-----------------------------|------------------|
| Trig Clock | Div8, Div9 |
| Pattern Trigger | User Defined |
| Output Amplitude DC Coupled | 500 mV peak-peak |



Jitter Bath Tub showing eye opening at different BER depths.

Software

The N2101A BERT and its accompanying software fully complies with PXI specifications. To fulfill this a Windows® application and DLL are provided. The Windows application enables the user to control the instrument without any user development required. The DLL provides an API through which custom applications can be easily developed to integrate the BERT. For further ease of programming and compatibility, PXIT supply examples code and also an ActiveX Control to control the BERT. The ActiveX Control extends programmability to any ActiveX container application or COM compliant programming environment. This includes Visual C++, Visual Basic, C#, Excel®, LabVIEW and many other environments.

Software features include:

- A DLL providing the functions of the API.
- VISA distribution software (from National Instruments).
- An ActiveX Control wrapper for the DLL providing the same functions.
- A Windows application control panel.

The following sample code is also provided:

- C++ sample code shows how to use the DLL directly.
- Visual Basic sample code shows how to use the ActiveX Control.
- C# sample code also shows how to use the ActiveX Control.

Ordering

N2101A-H10 5 Gb/s BERT, including pattern generation and error detection in a single module. 3U high, double-wide PXI module, requires PXI mainframe and controller, sold separately. Operates at spot-rates through use of internal clock.



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