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622 Mbits/sec Bit Error Analyzer

Patented Real-Time Error Analysis

The BitAlyzer is a high-rate, easy-to-use error analysis system that provides multiple simultaneous perspectives of your digital channel. In a field where simple BER only scratches the surface of understanding complex channels and systems, the patented analysis capabilities of the BitAlyzer can provide insight into the nature of errors, and even be used to examine the effectiveness of various FEC and interleaving approaches without requiring additional hardware.

For A Broad Array Of Applications

- Manufacturing QA
- Communications Channel R&D
- Digital Instrumentation Recorder R&D
- EDAC Architecture Analysis & Experimentation
- Disk Drive R&D
- Head/Media Evaluation
- Read/Write Channel Design
- Media Evaluation & Certification

The BitAlyzer provides all the measurements you have come to expect from conventional BERTs; bit and bit error counts and rates, but goes much further to include burst error and block error counts and statistics.

Advanced Analysis Tools

- Strip Chart Analysis
- Burst Profile Analysis
- Error-Free Interval Analysis
- Modulo Analysis
- Pattern Sensitivity Analysis
- 2-D Error Mapping, "Media Scan"
- Error Correction Emulation
- Multi-Channel BER Analysis
- Error Position Autocorrelation

ERROR MAPPING AND ECC

Advanced applications found in the BitAlyzer622 include the ability to image errors found in a data stream onto a user-defined two-dimensional error-map as well as Error Correction Coding (ECC) emulation support. Error mapping analysis provides complete pan/zoom and error-size threshold tools to allow for easy understanding of error phenomena and their relationships to other errors and communication packets or storage sectors. ECC emulation allows users to prototype interleaving, one- and two-dimensional

block code ECC strategies on uncorrected channels to evaluate hypothetical performance before formats and real hardware are available.

The standard BitAlyzer622 provides the following analyses:

- Total, Bit and Burst Error Rates and Counts
- Strip Chart of Error Rates
- Histogram of Error Free Intervals
- Distribution of Error Occurrences per Block
- Error Correlation to external marker input
- Histogram of Pattern Sensitivity
- Multi-channel BER measurements in TDMA formats
- Error Position Autocorrelation
- Burst Length Histogram
- Error-free Interval Histogram

Advanced Analysis Tools

With the patented analysis tools only available from SyntheSys, the BitAlyzer can provide insight into how your channel is working, and often more importantly, how it is not...

Strip Chart Analysis

This animated chart allows you to view events while experimenting or while adjusting your channel.

Burst Profile Analysis

Quantifying the occurrences of bursts of different lengths, this chart can measure the probability of having errors of given lengths and qualitatively analyze a channel's baseline performance.

Error-Free Interval Analysis

With this graph, which displays the occurrence rates of intervals between errors, you may begin to see some repetitiveness at certain intervals, or frequencies. These frequency components could very well correspond to systematic error in your channel.

Modulo Analysis

This analysis correlates the error position information with some repeating cycle and displays the number of channel errors with respect to position in this repeating cycle.

2-D Error Mapping, "Media Scan"

Error locations can be mapped to a 2-D coordinate system, showing location of errors within frames or blocks of data. These frames or blocks can be easily user-configured to correspond to the user's TDMA frames, FEC blocks, tape head position, or many other useful logical divisions (requires BA6MEDIA option.)

Error Correction Emulation

Using its extensive post-processing capabilities, the BitAlyzer can evaluate the effectiveness of various FEC and interleaving approaches without requiring the use of additional hardware. This analysis is even available for data sets which have been previously recorded (requires BA2ECC option.)

Multi-Channel BERT

Up to 32 channels of data can be analyzed simultaneously using the BitAlyzer, permitting easy examination of multi-channel systems using a single set of test equipment.

Easy To Use...

...Easy To Connect

The BitAlyzer622 connects to your channel via either a high-speed, single-ended ECL serial interface, or the differential ECL parallel interface. A variety of clocking options are available including crystal controlled fixed-frequency and user-programmable internal sources, as well as an external clock input.

Control over the analysis data-valid window is easy to accomplish with the Blank and Marker inputs. The BitAlyzer also can provide many useful internal signals, such as Serial Data and Clock, Error Event, Blank, Marker, and Retrigger, for display on external devices such as oscilloscopes and logic analyzers.

...Easy To Configure

The main control panel of the BitAlyzer consists of a color touchscreen display, coupled with a context sensitive rotary control. The display is divided under user control into virtual setup and analysis panels, each providing status and analysis results formatted for easy understanding. Displays can be zoomed in or out by simply touching the area of interest for closer examination.

The BitAlyzer's ability to store many different configurations for future use maximizes your efficiency by saving your favorite settings and panels for immediate access at the touch of the screen. Repetitive tasks can be pre-programmed to speed setup and to ensure that test parameters do not change from run to run.

...Easy To Automate

In addition to the simple, manual setup, including saving and restoring common configurations, all operations that can be performed through the front panel can be accessed by remote control. Port options presently include IEEE-488 and RS-232-C.

...Easy To Document

The BitAlyzer can save your error data to an MS-DOS-compatible file system for later experimentation and analysis. Only the BitAlyzer can provide you with this valuable feature. This data can be formatted in many ways, and can be output to popular printers for hardcopy of experimental and analytical results. The data can also be exported for use in popular spreadsheet applications including Microsoft Excel and Lotus 1-2-3.

BA622	BitAlyzer622 Error Analyzer	Provides comprehensive analysis tools for testing and characterization of digital channels at data rates up to 625 Mbit/sec
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Options

BA6CLOCK	670Hz-625MHz Internal Clock Synthesizer	Adds user-programmable internal clock source
BA6RAM4	4-Mb Fixed Pattern Memory	Adds arbitrary pattern generation & detection to 4 Mb length Provides ability to automatically generate reference data from stream
BA6RAM16	16-Mb Fixed Pattern Memory	Adds arbitrary pattern generation & detection to 16 Mb length Provides ability to automatically generate reference data from stream

BA6BERT	2-Channel Auxiliary Track BERT	Provides complete, internal two-channel BERT for low-rate applications typical in digital recorders
BA6RACK	Rackmount Hardware	Enables simple rackmounting
BA6ECC	ECC Emulation Package	Provides post-processing analysis of Error Correcting Coding (ECC) effectiveness <ul style="list-style-type: none"> • Interleave; 1-, 2-, and 3-D • Reed-Solomon; 1- and 2-D with Erasure flag processing
BA6MEDIA	2-D Media-Scan Analysis Package	Enhances display of errors, providing a representation of error location as it relates to the media or blocked ECC
BA6DUT	Device Under Test Control Software	Complete remote control library for controlling 5 popular recorders <ul style="list-style-type: none"> • AMPEX DCRS Series • Loral DV-6XXX Series • Datatape LP-Series • Sony DIR-1000 series • Metrum VLDS (req. Metrum controller board)
BA6SASW	BA622 Stand Alone Software	Enables enhanced offline data analysis
BA6SAECC	BA622 Stand Alone ECC Software	Enables enhanced offline ECC simulation in conjunction with BA6ECC

BA6SAMEDIA

BA622 Stand Alone Media
Package

Enables enhanced offline 2-D
data analysis



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