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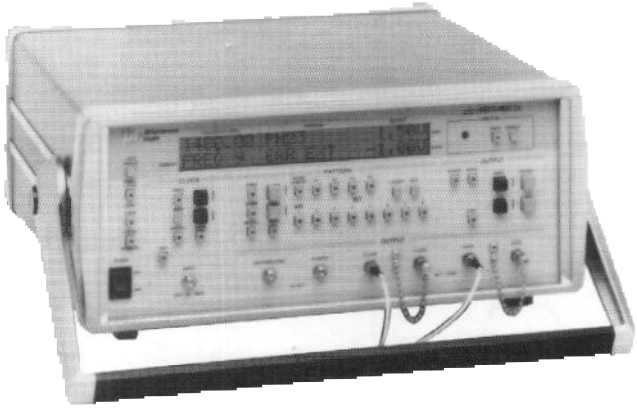
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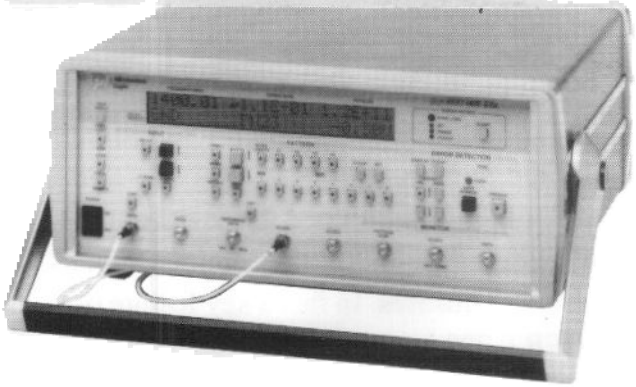
Find the *Tektronix / Microwave Logic GB700R gigaBERT-700* at our website: *Click HERE*

gigaBERT-700

= Tektronix CSA 907 T+R



gigaBERT-700 Tx
Generator



gigaBERT-700 Rx
Analyzer

With compliments
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Feldchen 16-24 D-52070 Aachen Germany

FEATURES

- Operating frequency range up to 700 MHz
- Internal PLL synthesized clock source
- PRBS 2^n-1: n=7, 15, 17, 20, 23
- 128Kbits programmable WORD option
- "Auto-Search" Synchronization
- Delay range: 0-4nS with 20pS resolution
- TTL, ECL and PECL I/O compatible

APPLICATIONS

- LAN, WAN sub-system developments
  Token-Ring, Ethernet 100, FDDI SONET/SDH, ATM-155 and 622
- Satellite system testing
- High speed circuits and system design
- Manufacturing test for communication products
- GaAs, ECL and optical component testing

Microwave Logic

285 Mill Road
Chelmsford, MA 01824
(508) 256-6800 or (800) 643-2167

For further information, please call and ask for a BER testing expert today!

The gB-700 Generator and Analyzer are engineered to operate at bit rates to 700 Mb/s. Yet both instruments are cost-effective for applications requiring much lower rates. Thus the gigaBERT-700 is ideal for companies developing digital systems operating below 100 Mb/s today, but with plans to develop systems operating to 700 Mb/s in the near future.

Microwave Logic's family of BERT instruments

Microwave Logic is committed to providing total bit error rate test solutions to the communications and computer industries. In fact a key feature of the gigaBERT-700 is its heritage of high-speed technology and user-friendly design from Microwave Logic's family of BERT instruments which includes:

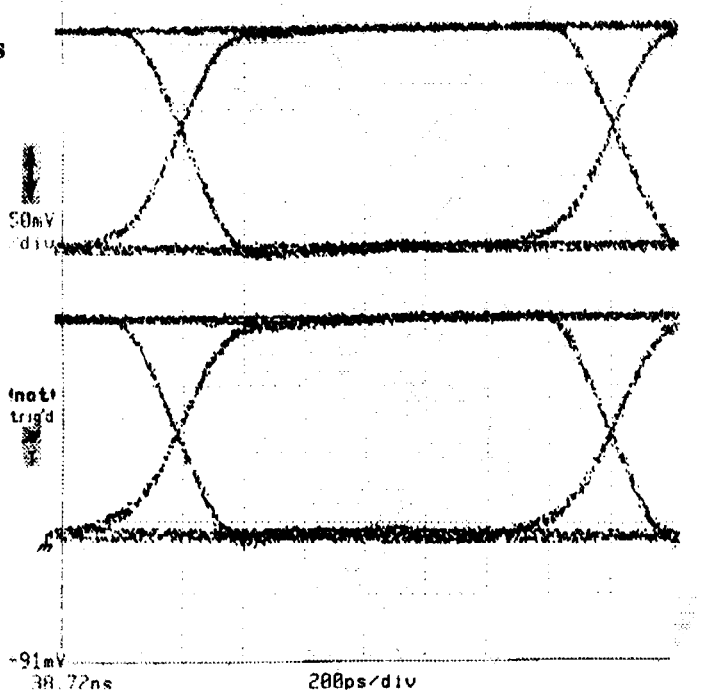
- **the gigaBERT**-1400, a 1.4 Gb/s serial BERT
- **the packetBERT**-200, a 200 Mb/s BERT optimized for packet and cell-based applications, and
- **the multiBERT**-100, a 100 Mb/s parallel BERT designed for multi-channel applications.

Thus you can be sure that the gigaBERT-700 is a leading-edge instrument, based on proven technology, and engineered for real-world BERT applications.

Symmetrical, low-jitter output waveforms

The **gigaBERT-700** Generator is equipped with a crystal-locked, synthesized clock source capable of operating from 1MHz to 700 MHz, in 1 kHz steps. In addition, the instrument's clock and data output amplifiers are carefully designed and tuned to generate low-overshoot pulses with equal rise and fall times. The gigaBERT-700 generates low-jitter, symmetrical waveforms over its entire operating frequency range.

The clock and data ports of the gB-700 Generator provide both true and inverted output signals. The instrument can drive single-ended or differential inputs. Moreover, the amplitude and baseline offset of gigaBERT-700 clock and data outputs may be adjusted for compatibility with a wide range of logic families including GaAs, ECL, PECL and TTL.



PRBS or user defined test patterns

By generating pseudo-random bit sequences (PRBS) up to 2^{23}-1 (8 million) bits in length, or user-programmable patterns containing up to 128 kbits, the gigaBERT-700 can effectively simulate live traffic or various "worst case" bit patterns. PRBS patterns are CCITT compatible. User-programmed patterns may be created locally using setup menus or externally using a workstation or PC. Externally created patterns may be downloaded via the instrument's GPIB or RS-232 ports. All user patterns are saved in battery-backed RAM. Please note that PROMs containing user-specified patterns may be installed at the factory.

Adjustable inputs for maximum flexibility

The clock and data ports on the gigaBERT-700 Analyzer will accept both true and inverted inputs. Also, the instrument can terminate either single-ended or differential signals. Input data delay is adjustable from 0 to 4 nS in 20 pS steps to accommodate different clock and data signal path delays. In addition, the input data decision level may be adjusted for compatibility with GaAs, ECL, PECL, and TTL logic families.

The gigaBERT-700 Analyzer can synchronize with any pattern sourced by a similarly optioned gigaBERT-700 Generator, including PRBS or user-programmed patterns. The Analyzer can also perform a bit-by-bit comparison of the received signal with an external signal connected to the Reference input. Thus the gigaBERT-700 can perform bit error analysis on any data pattern with a known good reference pattern.

AUTO-SEARCH for easy setup

The gigaBERT-700 Auto Search feature greatly simplifies Analyzer set up. When Auto Search is enabled, the gigaBERT-700 Analyzer automatically synchronizes to the incoming signal by: 1) setting the input data decision voltage to its optimum value; 2) adjusting input data delay for an optimum clock/data phase relationship; 3) selecting the correct PRBS test pattern; and 4) selecting the correct pattern polarity (normal or inverted).

Powerful analysis and reporting functions

The gigaBERT-700 performs a full-rate, bit-by-bit analysis of the received signal. Bit error results are then used to calculate three bit error rate (BER) measures. *Total BER* is calculated from the last power-on or reset. *Window BER* is calculated over a sliding window specified in terms of time (1 second to 24 hours) or bits (1^8 to 1^{16} bits). Test BER is calculated from the start of the current test. Moreover, the gigaBERT-700 calculates errored seconds (ES), percentage error-free seconds (%EFS), severely-errored seconds (SES), degraded minutes (DM), unavailable seconds (US), and loss of signal (LOS) seconds. All bit error results—including the three BER measures —are calculated simultaneously and may be displayed during a test or after a test has completed. A hard copy of all test results can be generated locally by connecting a printer to the parallel printer port or GPIB or RS-232 port. Reports may be printed when an error is detected, or at the end of test intervals, or both.

Front panel or automated operation

The gigaBERT-700 Generator and Analyzer are both equipped with high-contrast two-line by 24-character LCD displays. These displays are used to show the current setup of the instruments and to view test results. Commonly performed setup functions are accessed via dedicated keys. Less often or "auxiliary" setup functions are accessed by pressing the F1 "menu" key.

In cases where the same procedure is performed over and over again, for example in production test applications, the gigaBERT-700 Generator and Analyzer may be controlled from their GPIB or RS-232 remote ports. The gigaBERT-700 remote command set includes commands for all setup menus and front panel selections.

Commands are also provided to read the status of front-panel indicators and to retrieve available test results. Users already familiar with the command language used in other Microwave Logic BERT instruments will be right at home with the syntax and protocol of the gigaBERT-700 command language.

gigaBERT-700 SPECIFICATIONS

Pattern Generator

INTERNAL SYNTHESIZED CLOCK SOURCE

Frequency:	1 MHz to 700 MHz
Resolution:	1 KHz, 10 ppm stability
Memory:	10 frequencies

EXTERNAL CLOCK INPUT

Frequency range:	Compatible to Internal Clock
Termination select:	50Ω to GND or -2 V, dc Coupled
Level:	0.5-1.5 Vp-p

DATA PATTERNS

Format:	NRZ-L, Normal and Complement
PRBS pattern:	2^n-1, n=7, 15, 17, 20, 23
WORD length max.:	16 bits, 128 Kbit optional
WORD order select:	LSB or MSB First
WORD memories:	10 WORDs

DATA and CLOCK OUTPUTS

Outputs:	Differential, True/Complement
Source impedance:	50Ω
Amplitude:	0.5 V to 2.0 Vp-p into 50Ω load 1.0 V to 4.0 Vp-p into hi-Z_L
Baseline Offset:	-2.0 V to +1.0 V (50Ω to GND) -3.0 V to +0.8 V (50Ω to -2 V) +2.0 V to +4.0 V (50Ω to +3 V)
Variable resolutions:	50 mV step into 50Ω
Rise/Fall Time:	150pS typical (20-80%) @ 1Vp-p
CLOCK/DATA skew:	±100 pS max. rising edge to rising edge
Data Inhibit Input:	EXT, ECL

ERROR INJECTION

Internal:	Single or 10^{-n}, n=3, 4, 5, 6, 7 rate
External:	ECL, one error per each rising edge

AUXILIARY OUTPUTS

Clock/4 output:	One quarter rate system clock
Pattern sync:	One pulse per frame
Levels:	±250 mV p-p into 50Ω

Analyzer

CLOCK INPUT

Frequency:	150 KHz to 700 MHz
Input level:	0.5-1.5 Vp-p Differential or Single ended
Impedance	50Ω, dc coupled

DATA INPUT:

Format:	NRZ-L, Differential or Single ended
Input level:	0.5 V to 1.5 Vp-p
Input Threshold:	-2.0 V to +1.0 V (50Ω to GND) -3.0 V to +0.8 V (50Ω to -2 V) +2.0 V to +4.0 V (50Ω to +3 V)
Delay range:	0 to 4 nS, 20 pS step

PATTERNS:
Identical to Pattern Generator but independent

REFERENCE DATA INPUT:
Same as the DATA INPUT unless noted;

Format:	NRZ-L, true
Delay range:	0 to 4 nS, 100 pS step

MONITOR OUTPUTS: Data, Clock, Pattern Sync

Level:	250 mV p-p into 50Ω

SYNCHRONIZATION: For PRBS or WORD mode;

Auto Search:	Search and lock to input pattern
Search parameters:	Input threshold Clock/Data timing skew, Pattern and polarity selection
Disable mode:	Sync circuitry disabled.
Sync thresholds:	PRBS mode 25% (1024 errors/ 4096 bits) WORD mode 3.1% (128 errors/ 4096 bits).

MEASUREMENTS

BER:	9.9×10^{-01} to $< 1.0 \times 10^{-16}$
TOTALIZE:	up to 9.9×10^{16}
Test Time:	1 second to 24 hours
Window mode:	Time-1 second to 24 hours Bits-$1x\ 10^8$ to 1×10^{16}
Error Analysis:	Error sec., Error Free sec. and more
Frequency:	System Clock, 10 KHz resolution

PRINTER:

Print Queue:	BER threshold, End of Window or Test
Parallel Printer:	Centronics 25 pins

Specifications COMMON to Generator and Analyzer

REMOTE INTERFACE

GPIB :	IEEE 488.2 compatible
RS-232C :	DB-25 connector

GENERAL

Size:	6"H x 14.4"W x 13.4"D (152 mm x 366 mm x 340 mm)
Weight:	22 lbs (10Kg)
Operating temp.:	0 to 50°C
Power:	90 VAC to 250 VAC, 125 VA max.
EMI:	Complies with FCC A and VFG 243 specs

OPTIONS

Op-07MT1:	gB-700 Generator, 128 Kbit Memory
Op-07MR1:	gB-700 Analyzer, 128 Kbit Memory
Op-RM1:	19" Rack Mount adapter

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