KEYSIGHT TECHNOLOGIES (AGILENT HP)

81250A

The Keysight Technologies (formerly Agilent HP) 81250A Parallel Bit Error Ratio Tester (ParBERT) is a modular, VXI-based multi-channel BER testing platform. It is engineered for high-speed digital and mixed-signal characterization, supporting data rates up to 13.5 Gb/s. The 81250A ParBERT system enables simultaneous parallel generation and analysis of PRBS and complex user-defined patterns, making it highly suitable for testing multi-lane interfaces, optical transceivers, high-speed backplanes, and semiconductor devices.

SPECIFICATIONS

General

Interfaces	GPIB, LAN, IEEE 1394 (FireWire) via Slot-0 VXI Controller
Display	None (requires external PC or monitor)

Physical

Power Supply	100 - 240 VAC (±10%), 50/60 Hz (mainframe dependent)
Operating Temperature	5 °C to 40 °C °C
Dimensions (W×H×D)	424.4 mm × 352 mm × 554 mm (with E8403A 13-slot mainframe) mm
Mainframe Weight (Empty)	19.1 kg (E8403A mainframe only)
Mainframe Weight (Typical Maximum)	45 kg (fully loaded E8403A mainframe)

Platform & System Architecture

System Architecture	VXIbus-based modular parallel testing architecture
Mainframe Slot Compatibility	Fits standard C-size VXI mainframes (such as Agilent E8401A, E8403A)
Maximum Channel Capacity	Up to 64 channels per system

Protocol & Network Testing Capabilities

Maximum Data Rate Support	Up to 13.5 Gb/s (module and configuration dependent)
Minimum Data Rate Support	Down to 170 kb/s (module and configuration dependent)
Supported Standard Bitrates	675 Mb/s, 1.25 Gb/s, 2.7 Gb/s, 7 Gb/s, 13.5 Gb/s (depending on installed modules)
PRBS Pattern Generator Polynomials	2^7-1, 2^10-1, 2^11-1, 2^15-1, 2^23-1, 2^31-1
User Pattern Memory Depth	Up to 64 Mbit per channel (configuration dependent)

Clock & Timing Performance

Central Clock Module Options	Agilent E4805B (675 MHz), E4808A (2.7 GHz), E4809A (13.5 GHz)
Clock Frequency Range (E4805B)	170 kHz to 675 MHz
Clock Frequency Range (E4808A)	170 kHz to 2.7 GHz
Clock Frequency Range (E4809A)	21 MHz to 13.5 GHz
Clock Resolution	1 Hz
Clock Accuracy	±1 ppm

Module-Specific Capabilities

E4832A Module Data Rate Range	333.34 kb/s to 675 Mb/s
E4861B Module Data Rate Range	170 kb/s to 2.7 Gb/s
E4810A / E4811A Module Data Rate Range	21 Mb/s to 13.5 Gb/s
Delay Resolution (E4832A)	1 ps

Software & Data Management

Control Software	Agilent 81250 User Software
Supported Remote Control Commands	SCPI (Standard Commands for Programmable Instruments)
Automation Driver Support	LabVIEW, LabWindows/CVI, C/C++ API

Physical & Environmental

Storage Temperature Range	-40 °C to +70 °C
Relative Humidity Range	20% to 80% RH (non-condensing)

System Architecture

Mainframe Interface Compatibility	VXIbus C-size (typically E8404A 13-slot mainframe)

Environmental

Operating Altitude	Up to 2000 m

System Control

System Controller PC Connection	IEEE 1394 (FireWire) or MXI-2

Performance

N4872A / N4873A Module Data Rate Range	620 Mb/s to 13.5 Gb/s
E4868A / E4869A Module Data Rate Range	170 Mb/s to 10.8 Gb/s
E4862B Module Data Rate Range	170 kb/s to 2.7 Gb/s
N4872A Output Amplitude	0.1 Vpp to 1.8 Vpp
N4873A Input Sensitivity	50 mVpp (typical)
E4861B Output Amplitude	0.1 V to 3.0 V
E4832A Output Amplitude	0.1 V to 3.5 V (into 50 Ω)
N4872A / N4873A Delay Resolution	1 ps
E4809A Delay Range	±3.0 ns
E4809A Clock Jitter	< 1 ps RMS (typical)

Power

Power Supply Input	100 to 240 VAC (±10%), 47 to 66 Hz
Maximum Power Consumption	1500 VA (typical for fully loaded E8403A mainframe)

Software & Control

Supported Operating Systems	Windows NT 4.0 / 2000 / XP / 7 (software version dependent)

TECHNOLOGY

Parallel Bit Error Ratio Testing (ParBERT)

APPLICATIONS

Multi-channel digital transceiver, semiconductor, and backplane characterization