KEYSIGHT TECHNOLOGIES (AGILENT HP)

16555A

The Keysight (Agilent/HP) 16555A is a high-performance state and timing analysis module designed for the HP 16500 series logic analysis mainframes. It offers 68 channels of state and timing acquisition, featuring deep 1 M acquisition memory per channel (expandable to 2 M in half-channel mode), state clock speeds up to 110 MHz, and timing analysis sample rates up to 500 MHz. Designed for troubleshooting digital circuits, it provides versatile trigger sequencing, precise threshold controls, and comprehensive probing options.

SPECIFICATIONS

General

Interfaces	HP-IB, RS-232-C (via mainframe)
Display	Mainframe-dependent (supports waveform, mixed state/timing, and interleaved state/state listings)

Physical

Power Supply	Powered via mainframe backplane
Operating Temperature	0 °C to +55 °C °C
Weight	1.4 kg kg
Module Slot Width	1 slot

Acquisition & Performance

Total Channels	68 channels (64 data channels, 4 clock channels)
Max State Clock Speed (Single Clock, Single Edge)	110 MHz
Max State Clock Speed (Multiple Clocks/ Edges)	100 MHz
Max Timing Sample Rate	500 MHz (half-channel mode)
Minimum State Clock Pulse Width	3.5 ns
Channel Expandability	Expandable up to 340 channels (5 modules)

Memory & Tagging

Memory Depth (All Channels)	1 M samples
Memory Depth (Half-Channel Mode)	2 M samples
State Tagging Modes	Time tagging or number-of-qualified-states tagging
Time Tagging Resolution	4 ns
Maximum Time Count Between States	17.2 seconds
Maximum State Tag Count	4.29 x 10^9

Triggering & Analysis

State Trigger Sequence Levels	12 levels
Pattern Resource Terms	10 terms (available for both state and timing)
Range Terms	2 terms (available for both state and timing)
Timer/Counter Resources	2 (available for both state and timing)
Edge Terms	2 terms (timing analyzer only)
External Arming	Bidirectional arming to and from other modules through the intermodule bus

Probing & Connectivity

Supported Probes	Lightweight passive probes
Probe Compatibility	Compatible with previous HP logic analyzers and preprocessors

Accuracy & Timing Parameters

Threshold Accuracy	±(100 mV + 3% of threshold setting)
Sample Period Accuracy	0.01% of sample period
Channel-to-Channel Skew	2 ns typical
Time Interval Accuracy	±(sample period + channel-to-channel skew + 0.01% of time interval reading)

Measurement & Display

Marker Measurements	Supported
Programmability	Fully programmable

System Integration

Compatible Mainframes	HP 16500B, HP 16500C

Signal Inputs

Input Resistance	100 kΩ
Input Capacitance	8 pF
Threshold Range	-6.0 V to +6.0 V
Threshold Setting Resolution	50 mV
Minimum Input Voltage Swing	500 mV p-p

Performance

Glitch Triggering Minimum Width	3.5 ns

Electrical

Maximum Input Voltage	±40 V peak
Dynamic Range	±10 V about threshold

Power Requirements

Power Supply Current (+5 V)	4.5 A max (from mainframe)
Power Supply Current (-5.2 V)	1.8 A max (from mainframe)

TECHNOLOGY

logic analyzer

APPLICATIONS

Digital circuit troubleshooting, bus analysis, microprocessor debugging, timing and state verification

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