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Data Sheet

August 15, 2026

AGILENT / KEYSIGHT

Agilent/Keysight 16542A

HP Agilent 16542A High Speed Timing Analyzer Module for 16500 The HP 16542A is a high-speed timing module for the 16500 mainframe. OEM 16500-series module lists describe a 16-channel 2 GHz timing analyzer with 8K-deep memory for capturing fast digital edges that exceed conventional 100-500 MHz timing cards. High-speed timing of clocks and buses in 16500 modular systems alongside 16510/16550-class state cards. Instrument Type: High speed timing analyzer module The HP 16542A is a high-speed timing module for the 16500 mainframe. OEM 16500-series module lists describe a 16-channel 2 GHz timing analyzer with 8K-deep memory for capturing fast digital edges that exceed conventional 100-500 MHz timing cards. High-speed timing of clocks and buses in 16500 modular systems alongside 16510/16550-class state cards. Instrument Type: High speed timing analyzer module Use With State Cards: pairs with 16510B/16550A-class state modules



MODEL

**Agilent / Keysight
16542A**

CALIBRATION

**Available on
request**

CONDITION

Used

STATUS

In stock

RFQ / SKU

16542A

LISTING

<https://aumictechlabs.com/products/16542a-2/>

NIST-traceable cal

SAM registered

30-day returns

NAICS 423690 • 811210 • 541380

This unit

The Agilent/Keysight 16542A is a deep memory logic analyzer module that expands the capabilities of the HP 16500A Logic Analysis System. It delivers high-speed acquisition of complex digital data streams with memory depths reaching 10 Mpts per channel, making it suitable for analyzing systems with significant data processing and transfer requirements. Technical Specifications Maximum Acquisition Speed: 100 MHz Data Acquisition

Depth: - 1 Mpts per channel at 80-channel configuration (five 16542A modules) - 10 Mpts per channel with E2430A Memory Expansion Interface Up to 10 MB data per run Channel Configuration: Minimum: 16 data channels, 1 clock input, 1 clock/clock qualifier Maximum: 80 channels (1M deep) or 8 channels (10M deep with E2430A expansion) Analysis Modes: State and Timing logic analysis Key Features Modular design supports up to five 16542A units within a single 16500A system Extended memory via E2430A Memory Expansion Interface compatibility Captures extensive datasets to isolate intermittent failures and enable detailed performance characterization Simultaneous multi-module integration for comprehensive digital system analysis Typical Applications Debugging image processing, DSP, and telecommunications systems Analysis of high-data-rate applications including radar systems Root-cause identification of intermittent system faults Benchmark testing and performance analysis of complex digital architectures Compatibility & Integration The 16542A integrates directly into the HP 16500A Logic Analysis System card slots. Scalability across multiple modules enables channel counts and memory depths tailored to specific measurement requirements. The E2430A Memory Expansion Interface provides extended acquisition capability for applications demanding deeper capture windows.

16542A Characteristics / Specifications

PARAMETER	VALUE
Model	16542A
Instrument Type	High speed timing analyzer module
Host Mainframe	HP 16500A/B
Channel Count	16
Timing Rate	2 GHz
Memory Depth	8K
Analysis Mode	timing
Use With State Cards	pairs with 16510B/16550A-class state modules
Manufacturer	HP Agilent Keysight
Mechanical Package	16500 plug-in module
System Family	HP 16500 modular logic analysis
High Speed Class	2 GHz versus 100 MHz on 16510B
Channel Width Class	16 versus 68-102 on state cards
Deep Memory Class	8K on this timing card
Mainframe Slots	occupies a 16500 slot
Application Class	fast clock and bus timing
Probe Family	16500 high-speed timing probes as fitted
Minimum Timing Sample	2 GHz maximum timing as published
Display	via 16500 mainframe CRT/UI
Control	16500 touchscreen and HP-IB
Companion Scope Card	16534A 2 GSa/s digitizing oscilloscope card in the same mainframe family
Companion Pattern Gen	16522A 200 M vector/s pattern generator card

16542A Specifications

PARAMETER	VALUE
Applications	High-speed timing of clocks and buses in 16500 modular systems alongside 16510/16550-class state cards.
Key Features	16-channel 2 GHz timing
Technical Specifications	Model: 16542A

Full OEM specifications

Complete technical content extracted from the manufacturer datasheet. Sparse OEM tables are reconstructed as tables below; other text is preserved as paragraphs.

Specifications	
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Notes	
From HP 16500-series module lists for 16542A (16-channel 2 GHz timing, 8K). Confirm probe pods and any inter-module arming on the installed 16500 configuration.	

Available from Aumictech

Used and refurbished unit evaluated in-house. Calibration: Available on request. Used · In stock.

Request a quote: sales@aumictech.com · +1 (484) 841-9341

Aumictech

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Technical content from manufacturer specifications. Unit photo/stock from Aumictech listing when available. Specifications subject to OEM documentation and unit condition.