Agilent 16998A High-performance FPGA Analyzer

Data Sheet

The FPGA dynamic probe dramatically increases debug productivity.

Debug your FPGAs and surrounding system faster and more effectively

FPGAs play an increasingly important role in your digital designs. The high level of integration available in today's FPGAs allows you to use them in ways that weren't envisioned just a few years ago. In addition, you are faced with new measurement challenges as you develop and debug your designs.

Since pins on an FPGA are typically an expensive resource, there are a relatively small number available for debug. Signals that were previously available on the board may exist exclusively as nodes inside the FPGA. Getting visibility across critical internal interactions can be time-consuming. This makes integration of the FPGA and the surrounding system challenging.

The Agilent FPGA dynamic probe provides unprecedented visibility into your Xilinx and Altera FPGAs, enabling you to debug your FPGAs and the surrounding system faster and more effectively.

For the most up-to-date and complete application and product information, please visit our web site at: **www.agilent.com/find/fpga**

Feature	Benefit
Access up to 256 internal signals for each external pin dedicated to debug	Get unprecedented visibility to internal FPGA signal activity while minimizing the number of pins dedicated to debug. View internal activity at full speed and get insights into your design that you never had before.
Automatic mapping of internal FPGA signal and bus names from your FPGA design tool to the analyzer	Eliminate unintentional mistakes and save hours of time during measurement setup by leveraging the work you did in your design environment.
Move probe points internal to the FPGA in less than a second	Easily make multiple measurements in seconds without design changes. FPGA timing stays constant when you select a new set of signals for probing.
Map FPGA pin connection to the logic analyzer (this feature is automated for Xilinx FPGAs)	Save time by selecting your probe type and quickly specifying how the FPGA pins are connected to your logic analyzer. Automated pin mapping for Xilinx FPGAs eliminates mistakes that could be made with manual entry.
Time-correlate internal FPGA and external system activity	Precisely relate activity internal to the FPGA to the activity in the surrounding system in order to solve your toughest debug challenges.
4 M deep acquisition and advanced triggering capabilities	Deep memory is essential for finding the cause of a problem that is widely separated in time from the symptom. Maximize the amount of internal FPGA activity acquired without using FPGA block RAM for storage. You can also use the intuitive trigger interface to create simple to complex trigger scenarios to help isolate your problem.

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FPGA compatibility

Xilinx devices	Virtex-5, Virtex-4, Virtex-II Pro, Virtex-II, and Spartan-3/3A/3E; Requires Xilinx ChipScope Pro or Embedded Development Kit (EDK)
Altera devices	Stratix series, Cyclone series, MAX series, APEX series, and Excaliber series; Requires Altera Quartus II Logic Analyzer Interface

Refer to the B4655A and B4656A literature for more details on the FPGA dynamic probe characteristics and compatibility with Xilinx and Altera design tools.

Mainframe and acquisition capabilities

View and analyze data on the 15-inch (38.1 cm) color touch screen display

Acquire single-ended and differential signals at timing speeds up to 4 GHz and state speeds up to 667 MHz

Take advantage of the flexibility a modular system provides to upgrade and reconfigure the system as your needs evolve. Additional capabilities include another logic analyzer module for more channels, a pattern generator module for stimulus, or memory depth upgrades to capture more system activity.

Ordering information

16998A includes:	• B4655A FPGA Dynamic Probe software for Xilinx • B4656A FPGA Dynamic Probe software for Altera • 16901A 2-slot logic analyzer mainframe • 16950B logic analyzer module with 4 M acquisition memory
Recommended accessories and related products	• The 16998A is compatible with 90-pin flying lead, Mictor, Samtec, and Soft Touch logic analyzer probes. Probes are ordered separately. • To increase the acquisition memory depth, order the E5875A and appropriate option for the desired memory depth. Option 016: 16 M, Option 032: 32 M, and Option 064: 64 M.

Related literature

Publication title	Publication type	Publication number
Agilent Technologies B4655A FPGA Dynamic Probe for Xilinx	Data Sheet	5989-0423EN
Frequently Asked Questions for Agilent B4655A FPGA Dynamic Probe for Xilinx	Data Sheet	5989-1170EN
Agilent Technologies B4656A FPGA Dynamic Probe for Altera	Data Sheet	5989-5595EN
Frequently Asked Questions for Agilent B4656A FPGA Dynamic Probe for Altera	Data Sheet	5989-5716EN
Agilent 16900 Series Logic Analysis System Mainframes	Data Sheet	5989-0421EN
Agilent Technologies Timing and State Modules for the 16900 Series	Data Sheet	5989-0422EN

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