Agilent Technologies E8047B Analysis Probe System for the Intel® Xeon™ Processor Family

Product Overview

Requires an Agilent 16700A/B Series or 16900A Series Logic Analysis System

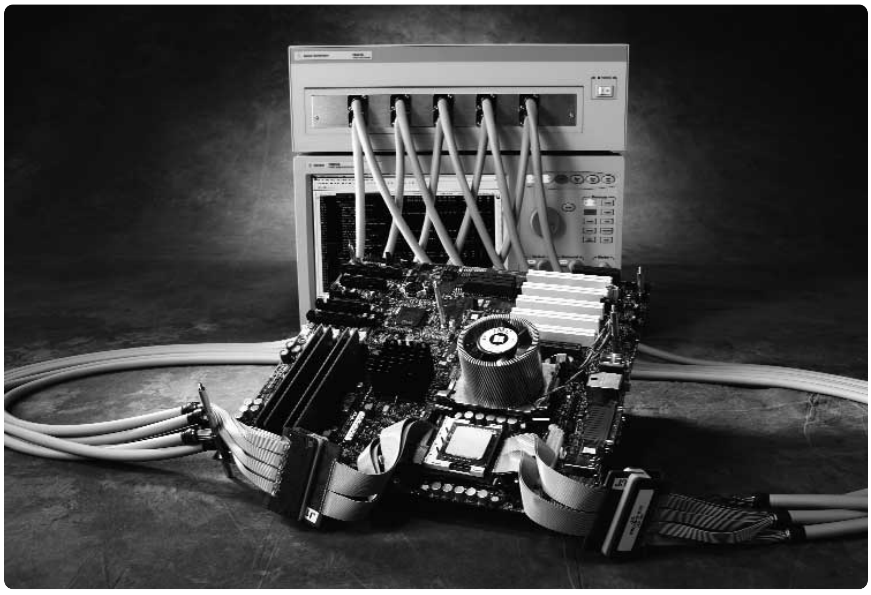

Figure 1. Intel Xeon processor analysis probe

The Agilent E8047B analysis probe system harnesses the power of the Agilent 16700A/B or 16900A Series logic analysis systems to greatly reduce your time to insight into critical Xeon processor family based system problems.

The analysis probe easily connects to your target system and allows you quickly begin making accurate measurements (See Figure 1).

The E8047B includes an analysis probe, a low-intrusion probe interface-adapter (interposer) and configuration files that allow you to trace the operation of an Intel Xeon processor system. The probe interface adapter is also sold separately as the Agilent E8048B. The probe interface adapter supports the entire Xeon family of processors, so there is maximum leveragability between designs. The precision design of this instrument makes it possible for you to interchange the probe interface without any recalibration of the system.

Trace bus operation simply

The Agilent E8047B analysis probe system simplifies tracing the Xeon processor system bus by aligning the source-synchronous, quad-pumped data lines and double-pumped address lines with the Bclk frequency control signals. The Agilent analysis probe synchronizes the clock and aligns the data, so you need not be concerned that the Xeon processor system bus uses multiple clock domains.

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Gain confidence in your data's integrity

To achieve maximum performance, the Intel Xeon processor system bus implements complex data transfer schemes. Agilent's exclusive technology effectively deals with these challenges.

The Intel Xeon processor system bus architecture allows for extremely tight setup and hold specifications. Agilent's bipolar front-end acquisition technology is uniquely positioned to capture these tight data valid windows. Data integrity is crucial to validating the operation of your design. Agilent's experience in high-speed circuitry and tight acquisition electronics offers you confidence that you are looking at the correct information on your logic analyzer.

For added confidence, the E8047B analysis probe system has built-in calibrated accuracy, which also decreases the time it takes to set up your measurements.

Get greater visibility with pass-through mode

Agilent's pass-through mode gives the analysis probe greater visibility to the original bus signal timing. Coupling pass-through mode with the superior 64 K samples of 4 GHz timing zoom on the Agilent 16753/54/55/56A and 16950A logic analysis modules offers the maximum practical sampling resolution for this system bus.

Flexible analysis capabilities

The E8047B analysis probe system offers four mode selections:

- All mode
- Expanded mode
- Compacted mode
- Pass-through mode

These four modes allow you to pre-filter varying levels of bus activity out of the trace, so you can use the full 64 MSa acquisition depth of the 16753/54/55/56A and 16950A logic analyzers for target system debug. A software interface lets you switch seamlessly between the four analysis modes of the E8047B analysis analysis probe, including switching between analysis modes remotely. You don't need to be in the same room as the logic analyzer to enjoy full debug capability.

Combining solutions for tough problems

Combining the power of Agilent's E8047B analysis probe system with other computer bus analysis probes yields a time-correlated view of your system that helps you solve problems faster. Agilent and its partners offer solutions for AGP2X, AGP4X, PCI, PCI-X, InfiniBand, DDR (all speeds), PC133, with solutions for PCI Express, PCI-X 2.0 and others. For more information, visit **www.agilent.com/find/logic_applications**.

Figure 2. Whole system measurements with DDR and other bus solutions

Transaction type display

The Agilent E8047B analysis probe system configuration software helps you quickly understand the transaction type. It uses plain language symbols to describe the transactions in the state listing display, so you can spend more time validating and debugging instead of wasting valuable time looking at reference documentation (Figure 3). This same feature in Agilent's state waveform display feature allows you to see the relationships of the various signal groupings (Figure 4).

Clock qualification

Three modes of the logic analyzer allow for a view that is customized for your needs. All mode allows for an unfettered view of every clock realized on the system bus. Expanded mode captures all bus activity except idle states allowing full view of bus operation while preserving capture storage memory. Compacted mode maximizes logic analyzer memory by filtering consecutive states, data wait, and multiple reset states.

Highlight critical transactions

Focus your analysis of the activities on the Intel Xeon bus by coloring those transactions that give you the best view of the problem. The filter and color options available in the E8047B enable you to selectively list and color transactions by agent and transaction type. For example, you can list only I/O writes originating from CPU 0. The filter dialog menu lets you use color to emphasize either transaction type or agent ID.

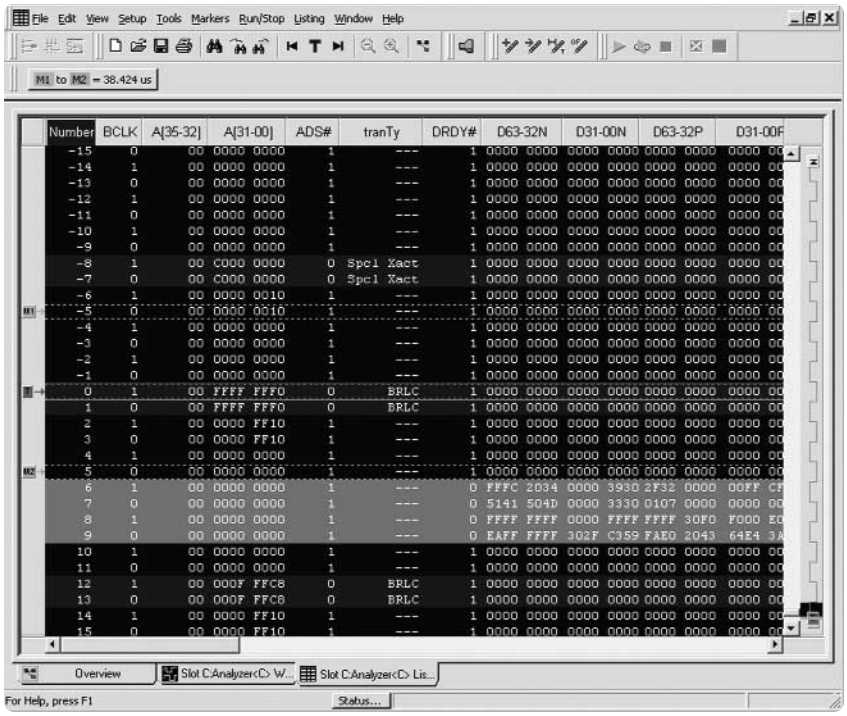


Figure 3. State listing display

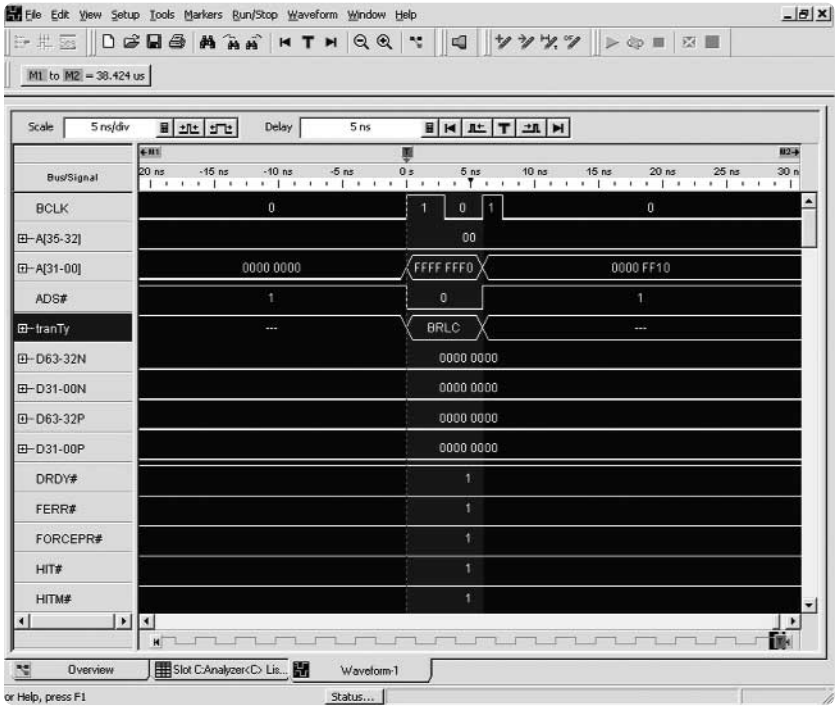


Figure 4. State waveform display

Probe Interface Adapter

Inserting into target system

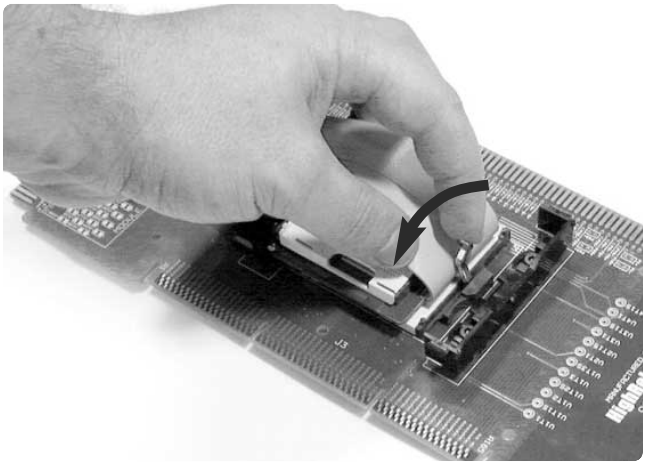


Figure 5. Removing the processor

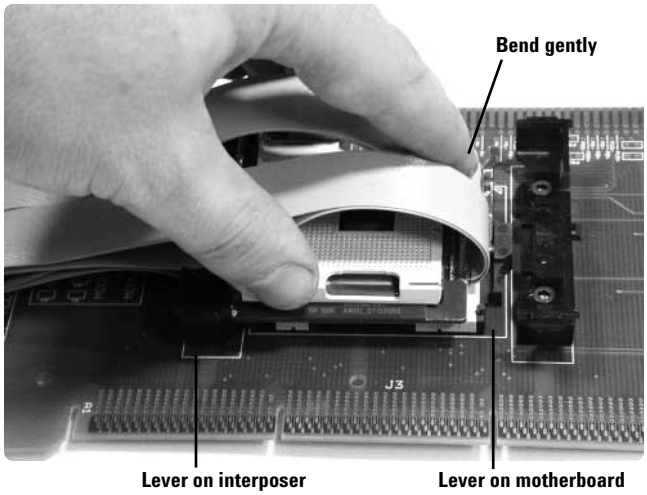


Figure 6. Inserting the mechanical adapter

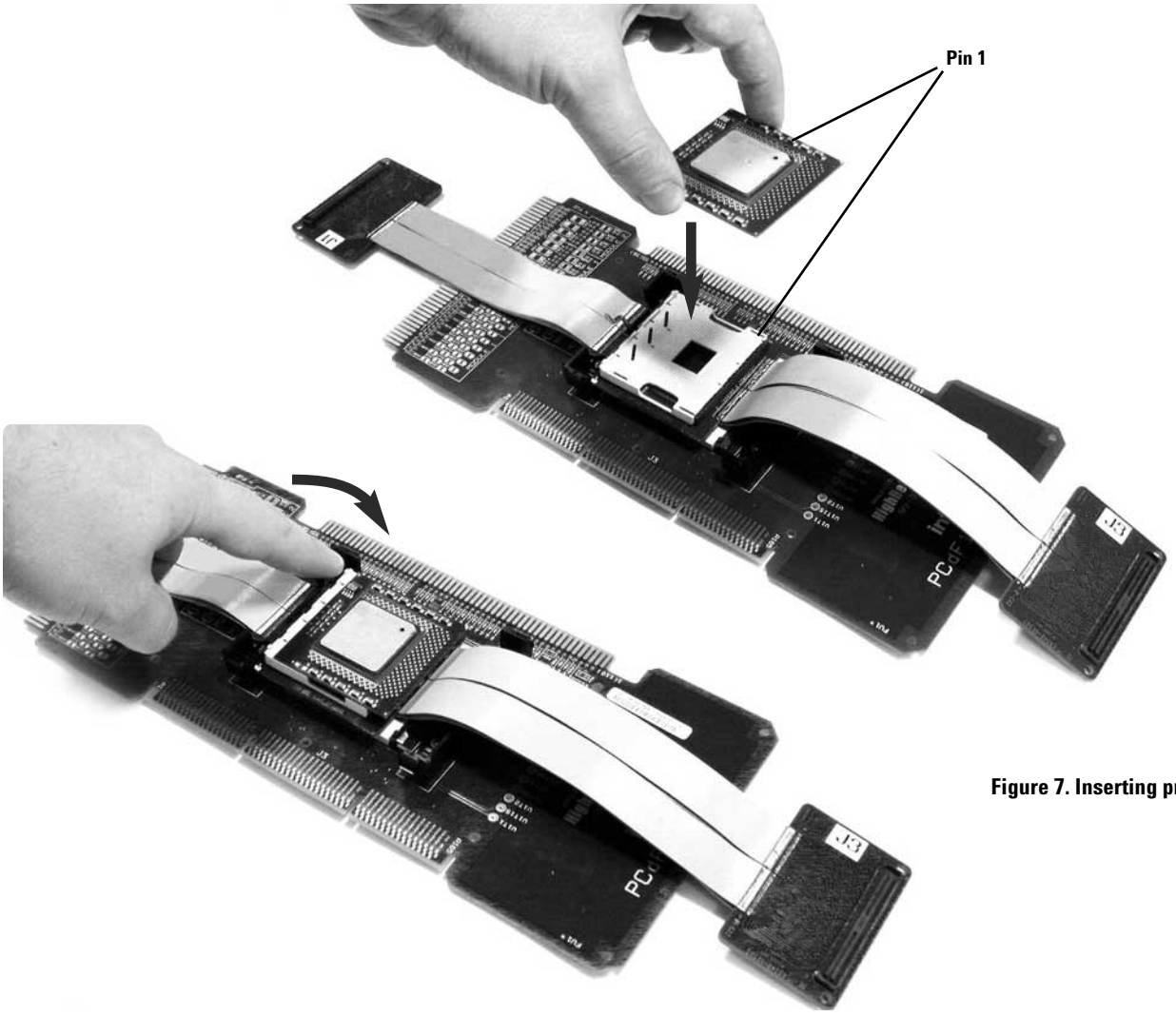


Figure 7. Inserting processor

Probe Interface Adapter
Mechanical dimensions

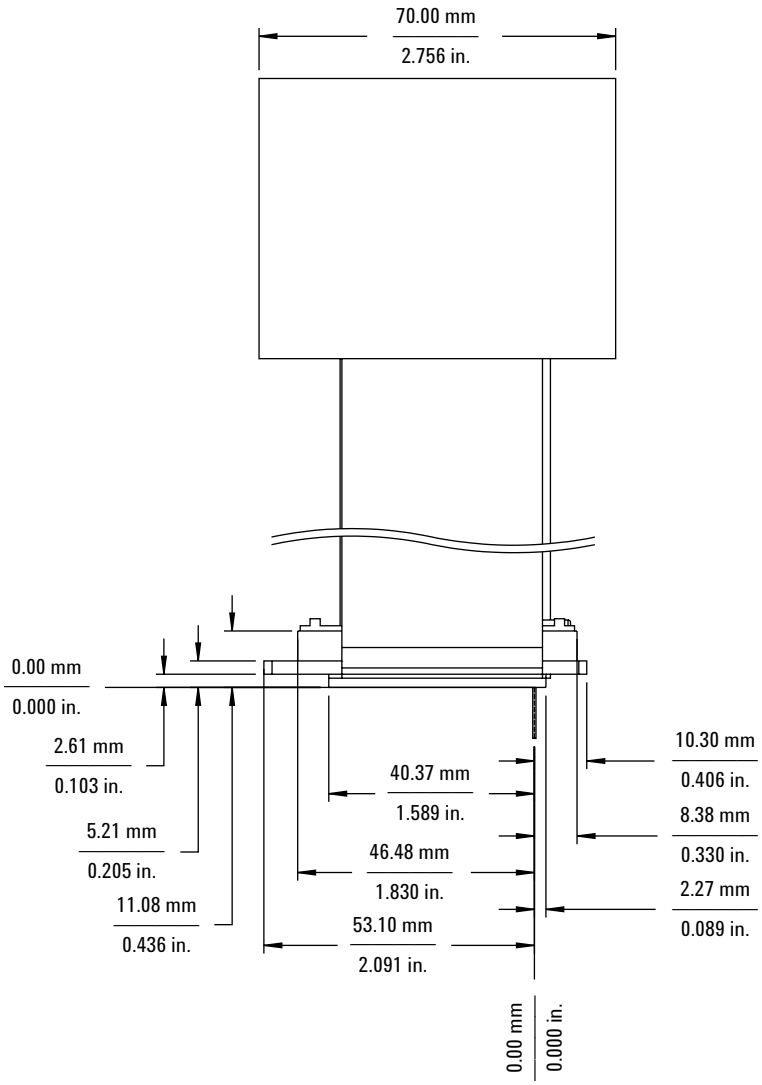
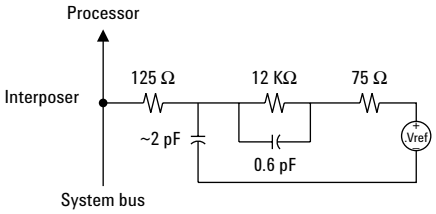


Figure 8. Mechanical dimensions

Operating Characteristics

Analysis probe	Agilent E8047B (includes probe interface adapter)
Processor package(s)	604-pin FC-PGA2 package 603-pin micro-PGA package 603-pin INT-mPGA package
Logic analysis system required	1 – Agilent 16900 or 16902 mainframe, or 16700 or 16702 mainframe 5 – Agilent 16753/54/55/56 logic analysis modules or 5 – Agilent 16950A* logic analyzer modules (*Compatible with 16900A Series only)
Clocking mode	State/clock – all mode (clock qualification off) State/clock – expanded mode State/clock – compacted mode Timing/pass-through mode
Signal line loading	
Analysis probe cable length	Approximately 4 feet
Clock frequency	200 MHz maximum for external BCLK
Data bus strobes	Source-synchronous quad-pumped
Target system	Must comply with Intel Xeon processor
Power requirement	Internal power supply 115/230 V, 48 to 66 Hz, 500 W

Environmental Characteristics

Operating	20° to 30° C (68° to 86° F)
Nonoperating	–40° to 70° C (–40° to 158° F)
Altitude operating	Up to 4,600 m (15,000 ft)
Altitude nonoperating	15,300 m (50,000 ft)
Humidity	Up to 50% noncondensing (avoid sudden, extreme temperature changes that could cause condensation within the instrument)

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