

# Fully Buffered Dimm Memory Bus Analysis Probes

**FuturePlus Systems**

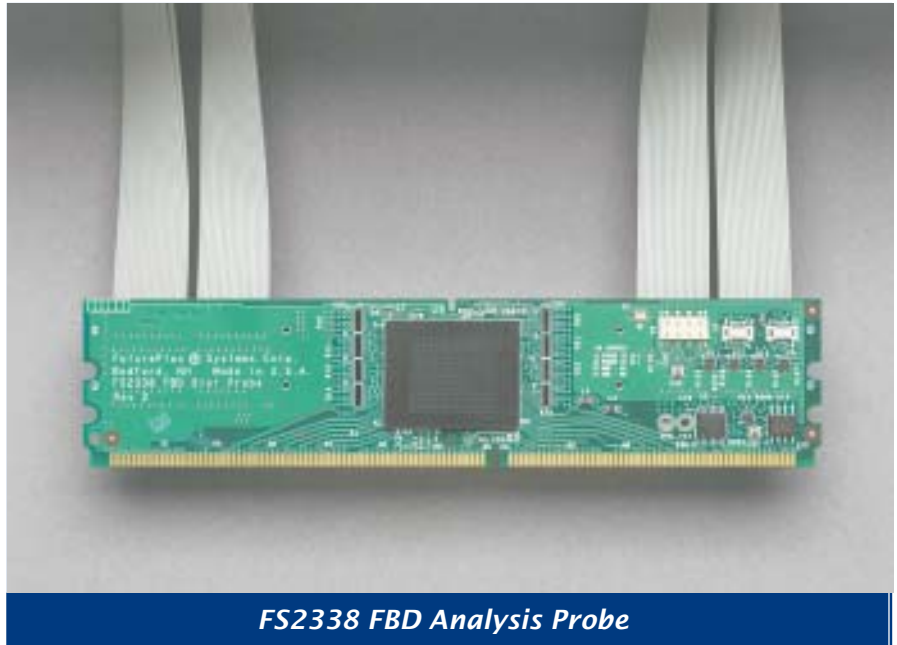
Power Tools For Bus Analysis

For Use With Agilent Logic Analyzers



## FuturePlus® FBD Memory Analysis Tools

Use your Agilent Technologies logic analyzer for complete FBD memory bus analysis. Coupled with the logic analyzer's powerful triggering and analysis capabilities, these tools provide an efficient, effective tool for debugging, testing and verifying products incorporating fully-buffered DIMM memory systems.



*FS2338 FBD Analysis Probe*

### Key Features:

- Quick, easy connection between the FBD bus and Agilent logic analyzers
- Choose from three models to fit your measurement needs
- Supports all FBD DRAMs and AMB components
- Comprehensive buffer and DIMM validation
- Analyze High Speed Channel transactions at up to 4.8 Gb/s

### Three FBD Analysis Tools

The FS2338 and FS2343 Analysis Probes allow two-way decoding of FBD Commands and Data. The FS2338 and FS2343 use the LAI function of the Advanced Memory Buffer (AMB) to analyze High Speed Channel transactions at up to 4.8 Gb/s.

Use the FS2340 validation DIMM probe to acquire DDR2 traffic between the Advanced Memory Buffer chip (AMB) and the SDRAMs on the FBDIMM. The FS2340 provides accurate state and timing analysis at data rates up to 800 MT/s.



### Helping You Design Tomorrow's Computer Buses, Today

FuturePlus Systems is the technology leader in protocol analysis tools for the computer design industry. Our analysis probes and software help you monitor and verify complex activities on your advanced-technology computer bus design. FuturePlus Systems offerings include bus-analysis solutions for HyperTransport®, PCI-X, DDR Memory, USB2.0, and most other popular computer buses.

# Choose From Three FBD Probes for a Comprehensive Analysis Solution

## FS2338 Slot Probe and FS2343 Interposer Analysis Probe

The FS2338 and FS2343, coupled with the powerful triggering and analysis capabilities of an Agilent Technologies logic analyzer, provide an extremely effective and efficient tool for debugging, testing and verifying products incorporating FBD memory systems.

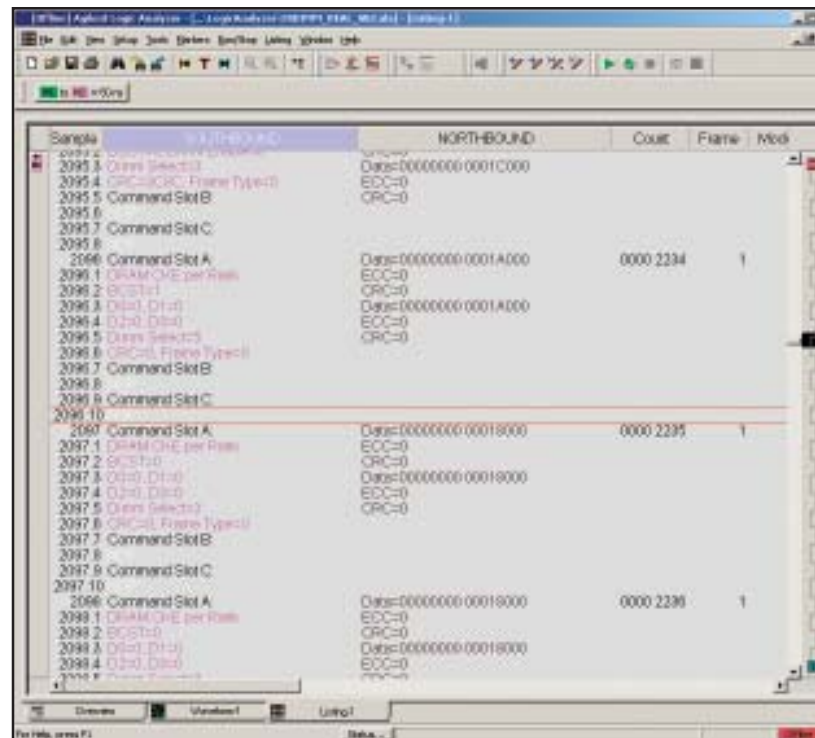
The FS2338 and FS2343 analysis probes use the "Logic Analyzer Interface" (LAI) mode of the Advanced Memory Buffer (AMB) chip used on fully-buffered DIMMs. This mode allows decoding of the Southbound and Northbound commands and data (from the FBDIMMs to the memory controller). These probes provide a single Southbound frame of 120 bits (10 lanes of 12 bits each) as well as a Northbound frame of 168 bits (14 lanes of 12 bits each) to the logic analyzer. Dual Sample Mode is used in the logic analyzer to perform a "double-capture" of the bits as the clock signal to the analyzer rises and falls. State analysis of these frames is provided by protocol-decode software. The I2C interface from the logic analyzer allows user-controlled setup, triggering, store qualification, and AMB register parameters.

The FS2338 slot analysis probe consumes one of the FBD slots when used, but is very close in size to an actual FB DIMM. Use it in locations where vertical clearance is limited. The FS2343 Interposer Analysis Probe does

not consume it's slot, as it includes a slot for an FB DIMM. Both the FS2338 and FS2343 include a logic analyzer adapter board that connects to the probe board by 1-meter cables. This adapter board has connectors that mate to termination adapters that connect to the Agilent logic analyzer pods. The FS2338 analyzes channel traffic at up to 4.8 Gb/s, and the FS2343 analyzes channel traffic at up to 4.0 Gb/s.

### Configuration Software for Quick, Easy Setup

FuturePlus Systems FBD analysis probes include automatic configuration software for all supported Agilent logic analyzers.



The FS2338 and FS2343 slot analysis probes include protocol-decode software. Protocol decode functionality may be added to the FS2340 validation DIMM probe with the optional FS1123 or FS1124 software. This software translates acquired signals into easily understood bus transactions at the full bus speed.

### Protocol Decode Software

The FS2338 and FS2343 include protocol-decode software.

Protocol-decode software is optional for the FS2340.

## FS2340 Validation DIMM Analysis Probe

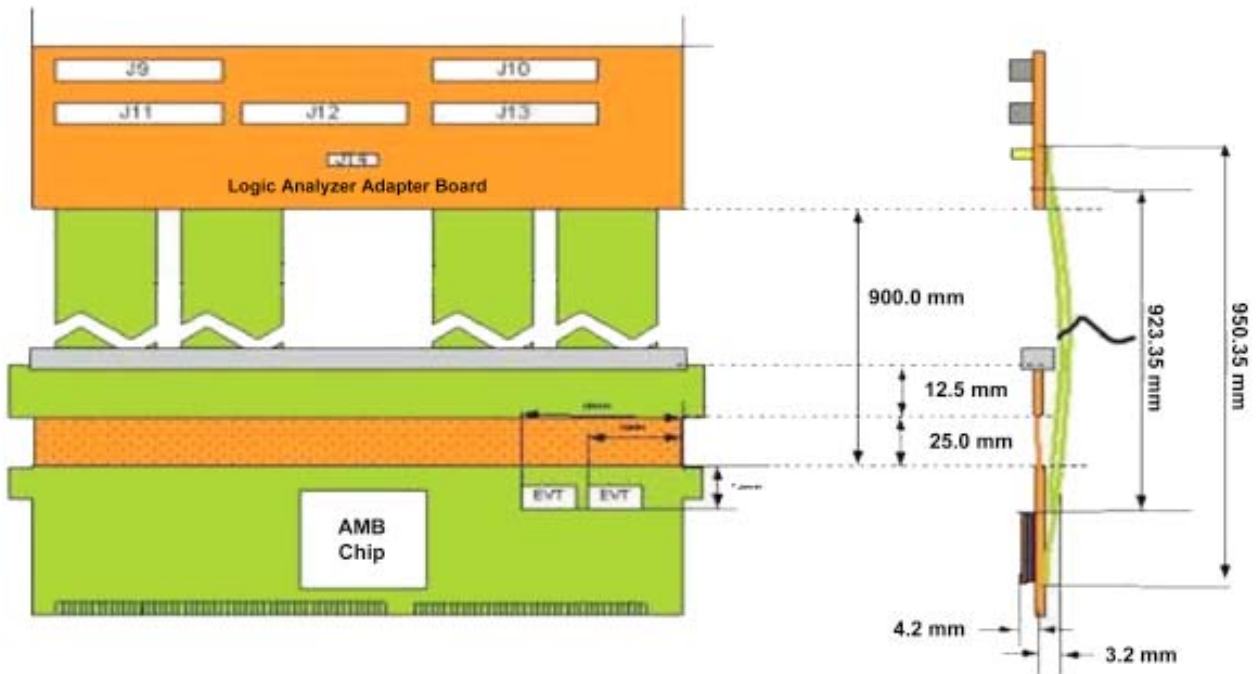
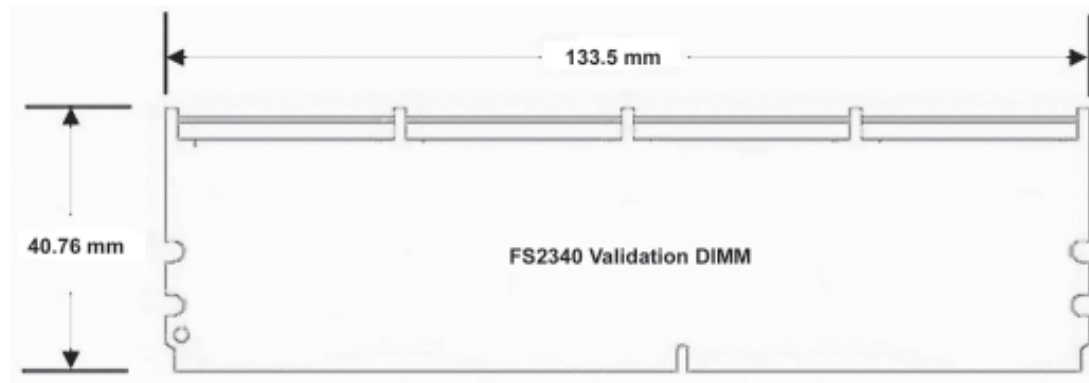
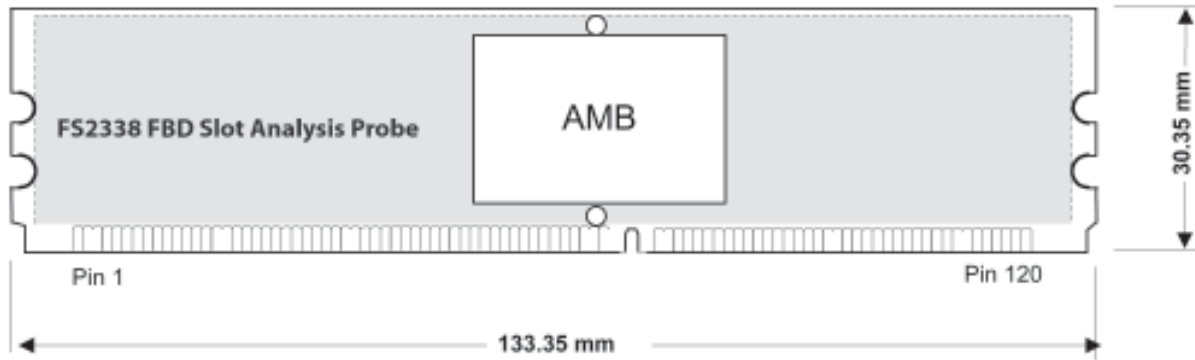
While the FS2338 and FS2343 probe the high-speed channel of an FBD memory system, the FS2340 FBD validation probe allows probing of DDR2 signals between the AMB chip and the SDRAMs on an FBDIMM. The FS2340 is based on the revision 0.3 FBDIMM Raw Card B (x8) design.

Embedded circuitry on the FS2340 routes signals to 100-pin Samtec connectors on the top edge of the probe. These connectors attach to termination adapters, which lead to Agilent 16700- or 16900-series logic analyzer modules.

Users may choose Timing or State mode. Using the logic analyzer's Dual Sample Mode allows simultaneous tracking of Read and Write data.

The FS2340 board is delivered unloaded so the user can build a custom probe from specific AMB chips and SDRAMs.

# Mechanical Drawings



FS2343 FBD Interposer Analysis Probe

## Supported Agilent Logic Analyzers

### Logic Analyzer Channel Requirements

#### FS2338 and FS2340

The FS2338 and FS2343 FBDIMM Probes require up to six logic analyzer cards depending on specific decode information requirements.

#### FS2340

The FS2340 requires up to four logic analyzer cards depending on whether protocol (double probed) or timing measurements are being used, and the type of logic analyzer card being used.

### Agilent 16900 Series

The FS2338, FS2340 and FS2343 are compatible with these Agilent 16900-series systems:

16900A, 16902A, 16903A

Supported Modules include the Agilent 16753A, 16754A, 16755A, 16756A and 16950A.

For the latest details about logic analyzer configurations, please contact FuturePlus Systems or see the System Requirements pages for these products at [www.futureplus.com](http://www.futureplus.com)

### Agilent 16700 Series

16700A/B, 16702 A/B

#### FS2340

The FS2340 is compatible with the Agilent 16700-series systems using the following supported Modules:

16753A, 16754A, 16755A, 16756A

#### FS2338 and FS2343

The FS2338 and FS2343 are not supported on the 1670/16700 logic analyzers.

## Ordering Information

### FS2338 and FS2343

FS2338.....FBD Slot Analysis Probe  
FS2343.....FBD Interposer Analysis Probe

### FS2340

FS2340.....FBD Validation DIMM Ver. B Probe  
FS1123.....Optional DDR2 Protocol Viewer License for 16700  
FS1124.....Optional DDR2 Protocol Viewer License for 16900

### Termination Adapters

FS1014.....Agilent E5378A, Samtec-to-Samtec  
FS1026.....Termination Adapter, Right-angle Egress, Samtec-to-Samtec, (FS2340 Only)

## Support

*We offer excellent technical support and quick delivery.*

Request a free subscription to our quarterly newsletter, *The Bus Analyzer*

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