LPDDR4 DDR Detective ®

For LPDDR4 Protocol, Compliance, Performance and Trace all in one tool!

Key Features

- Supports the NEW LPDDR4 bus protocol with options to add DDR3/4 and LPDDR3 to the same box!
- Analyzes bus speeds up to and including 3200MT/s
- 8GB Internal memory can stores up to 512M Captured States!
- Option for 1G Trace buffer
- Transactional Triggering makes triggering on commands EASY!
- 2D voltage and time Eye Detector guarantees valid data acquisition
- Protocol Violation Detector executes hundreds of simultaneous real time tests NOT slow post processing method
- Command Bus and Data Bus Performance and Power Management measurements
- Supports Multiple Frequencies dynamically
- Supports Auto-Clock rate detect, MRS capture / decode
- Connects to the target under test with flying lead, midbus probe, LPDIMM or custom connection scheme
- Trigger Out to a Scope or other test equipment
- By far the highest performance and most cost effective DDR analysis tool on the market!

LPDDR4 Detective FS2804

512M captured states with an option for 1G!
Hardware Filtering (storage qualification) gives 75% more!
Seconds of traffic can now be stored.

Helping you Design Tomorrow's Computers, Today
FuturePlus Systems is the technology leader in protocol analysis tools for the computer design industry. Our protocol, performance and power management analyzers combined with our Interposers and software help you monitor and verify complex activities on your advanced-technology computer bus design. FuturePlus Systems offerings include bus-analysis solutions for most popular computer buses. Visit www.futureplus.com for more information.
Easy Triggering and Storage Qualification

- Transaction storage increases effective memory depth by 75%!
- Store Seconds of information with this tool!

LPDDR4 uses 4 clock cycles to send Read and Write Commands.
No need to define 4 states to trigger on a command.
The DDR Detective® hardware does it for you!

Store by Transaction or see all the cycles that make up a transaction
JEDEC Protocol Violations

- Supports 56 LPDDR protocol parameters on all banks and ranks for *hundreds* of concurrent checks
- Analyzes LPDDR4 bus speeds up to 3200MT/s
- Compliance parameters preprogrammed but easily modified for unique configurations
- Ability to enable and disable each compliance test
- Monitors and displays running totals of the test failures once per second.
- Real time analysis, not post-processing

*Continuous monitoring of the LPDDR4 bus means never missing a clock cycle*  
Compared to the traditional trigger on violation, stop then trace
Trigger out to Logic Analyzer or scope

Find Problems Faster!
Waveform and State Listing

The FS2804 State Listing and Waveform displays 512M states

Trace around the trigger point.

Selecting which signals will be displayed

Decode of bus protocol.

See the violation on the exact state it occurs on

Hardware tracks Rank Power Status for Power Management Analysis

Waveform allows for notes to be added
Performance event reporting in real time all the time

On ever clock! Real Time All The Time Continuous Analysis

What does this mean? Currently available products capture a miniscule amount of DDR traffic, count the events in the trace and then display. Deadtime between traces and trace depth give only a small sampling of actual DDR events. The DDR3 Detective® and now the new DDR Detective® use new breakthrough architecture to accumulate events on EVERY clock tic! Thus no bus events are missed. This never been done before feature gives unprecedented insight into DDR bus activity for validation, system architects, software engineers and designers.
Connecting to the Target

- Flying lead to BGA Scope Interposers
- MidBus Footprint

FS2827 Flying Lead for use with Keysight Scope Interposers
FS2826 Flexible Midbus connection

Ordering Information

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<th>Description</th>
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<tr>
<td>FS2804</td>
<td>LPDDR4 DDR Detective</td>
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<tr>
<td>FS2805</td>
<td>ADD LPDDR4 FS2804 functionality to the FS2800</td>
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<td>FS2821</td>
<td>Add LPDDR3 to the DDR Detective</td>
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<td>FS2851</td>
<td>Add FS2800 DDR3/DDR4 Trace to the DDR Detective</td>
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<td>FS2820</td>
<td>Add DDR4 Violation Detection to the DDR Detective</td>
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<td>FS2850</td>
<td>Add DDR4 Performance Counters to the DDR Detective</td>
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<td>FS2809</td>
<td>DDR Detective Memory Upgrade Option of 1G states</td>
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LPDDR Probing Options

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<tr>
<td>FS2826</td>
<td>DDR Midbus A/C/C Connection for DDR Detective</td>
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<tr>
<td>FS2827</td>
<td>Flying Lead for use with Keysight scope interposers and FS2800</td>
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<tr>
<td>FS2824</td>
<td>DDR4 SODIMM A/C/C Interposer for FS2800 (supports LPDIMM)</td>
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See [http://www.futureplus.com/products](http://www.futureplus.com/products) for detailed requirements.

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