MPHY, UniPro and UFS Protocol Analyzer

Deep Capture, Powerful Trigger, In-depth Analysis
Key features

- Support MPHY 3.1/4.1, UniPro 1.61/1.8 and UFS version 2.1/3.0
- Support PWM G1 to G7 and HS G1,2,3,4 A and B Series
- Support one/two data lanes (2 TX and 2 RX)
- Flexibility to capture very large data using continuous streaming of Protocol data to host computer
- Soldered-down active probe provide high signal fidelity
- Decoding at MPHY, UniPro and UFS layer
- Trigger based on MPHY, UniPro, UFS layer packet content
- Support triggering in PWM and HS data rate speeds
- Trigger out signal at trigger event allows the triggering of other instruments such as oscilloscope
- Interface to host system using USB3.0 or Gigabit Ethernet Interface
- Flexibility to upgrade the hardware firmware using GE interface provides easy field upgradation of FPGA firmware
- Decoded data packets can be exported to txt file for further analysis
- Portable, could be easily deployed for on-site/field test applications

PGY-UFS3.0-PA, UFS Protocol Analyzer, value based analyzer in its class, offers capture and debug of data across MPHY, UniPro and UFS protocol layers. It allows for instantaneous decoding of UFS layer, UniPro layer and MPHY layer with flexibility to correlate decoded data across these protocol layers. PGY-UFS3.0-PA Support PWMG1 to HSG4B data rates and two TX, two RX lane decode. The active probe has minimum electrical loading on device under test (DUT) and captures protocol data without affecting the performance of DUT. PGY-UFS-PA protocol Analyzer can support two lane data. Comprehensive decoding of data, protocol tests and error analysis enables validation of communication between UFS host and device.

PGY-UFS3.0-PA, UFS Protocol Analyzer allows Design and Test Engineers to obtain deep insight into UFS host and device communication. MPHY/UniPro/UFS packet based triggering allows specific protocol data capture and analysis. PGY-UFS3.0-PA Protocol analyzer instantaneously provides decoding of UFS layer, UniPro layer and MPHY layer with a correlation to MPHY, UniPro and UFS layer.

Solder down active probes allows probing the MPHY test points. This allows the design and test engineers to capture UFS traffic between the host and UFS memory with high signal fidelity. Today’s test engineers need the ability to test use case scenarios in their labs that mimic real-life use cases. The PGY-UFS3.0-PA, UFS Protocol Analyzer has been designed to enable engineers to closely monitor and analyze the traffic between the host and the device while executing the various use case scenarios.

Windows based UFS protocol Analysis software, provides industry best protocol correlation between UFS layer to UniPro layer and MPHY layer. Time correlation between the different protocol layers significantly reduces debug time of designs. Floating window design of this software allows engineers to view UFS view, UniPro view and MPHY view on different computer monitors and automatically correlate the UFS packets to MPHY layer. This makes analysis very easy while analyzing gigabytes of Protocol information.
Product Setup

PGY-UFS-PA UFS Protocol Analyzer provides USB3.0 and GE interface for host computer connectivity. High-speed host connectivity enables continuous streaming of protocol data to host HDD and storage for long period of time. Floating window software architecture allows the user to view each protocol layer on separate monitors for easy debug. Autocorrelation of each selected packet from UFS layer to MPHY layer simplifies the debug activity.

Comprehensive Protocol Analysis using Multi-View

PGY-UFS Software offers multi-view MPHY view, UniPro view and UFS View. Each view lists the respective protocol packets and its details with correlation of each layer for easy debug.
Powerful Trigger Capabilities

PGY-UFS3.0-PA UFS Protocol Analyzer offers powerful hardware based trigger capabilities allowing design and test engineer to capture the protocol activity at specific event. Hardware based algorithm computes the CRC values in real time and can trigger on CRC error. Triggering on any of the UniPro layer protocol packet or Bad alignments (Improper marker values) reduces the debug time.

UniPro Protocol Layer View

PGY-UFS-PA UFS Protocol Analysis offers multilayer of protocol view with flexibility to link all views for easy correlation of data. Selected packets details are displayed in a format which is similar to specification document format for easy correlation. This view provides bit level information to analyze the communication between UFS host and UFS memory.
UFS Protocol layer view

UFS layer view has UFS view and UFS Frame view. UFS view list all the UFS packets and UFS Frame view provides selected packets decoding at UFS packet format.

Specification

Data Rates Supported
PWM G1 to G7, High Speed Gear 1, Gear 2, Gear 3, Gear 4 and Rate A and B Series

Link Width
Configurable for 1TX/1RX or 2TX/2RX

Probes
Solder Down Active Probes

Protocol Decode
MPHY 3.0/4.0, UniPro1.61/1.8 and UFS2.1/3.0 layer

Trace Capture Size
Support Continuous streaming of Protocol data to Host computer SSD/HDD.

Trigger
Based MPH, UniPro and UFS Packets

Front Panel Connectors
Interface for Active probes. Trigger in/out SMA connectors

Interface for Host Computer
USB3.0 and Gigabit Ethernet interface

Host Computer Requirements
Windows 7/8.0/8.1/10 64bit operating System. It requires RAM of 16GB but the product would give a faster response for a 32GB. The minimum storage capacity of 1GB should be available in the hard disk drive. User can use more storage based on trace storage requirement. Display resolution of the monitor is 1024X768. Host computer should support USB3.0 or GE interface.

Dimension (W x H x D)
(20.5cm x 5cm x 25cm)

Weight
Approx. 2.5Kg

Power Requirement
12V, 3A DC Power Supply (AC/DC Adapter Supplied along with Analyzer)
## Trigger Specifications

<table>
<thead>
<tr>
<th>Stack</th>
<th>Protocol Layer</th>
<th>Packet Type</th>
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<tbody>
<tr>
<td>UniPro</td>
<td>Link Start-up Sequence</td>
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<tr>
<td></td>
<td></td>
<td>Trig_UPRO1</td>
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<td></td>
<td></td>
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<td></td>
<td>UniPro</td>
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<td>Query Respond</td>
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Search and Filter

PGY-UFS-PA UFSProtocol Analyzer offers flexibility to search or filter for specific packets. This allows the easy location of specific packets in huge protocol packet data.

Analytics

PGY-UFS-PA UFS software would allow an engineer to quickly view the error conditions.

- Errors reported in packets
- Linking the error bit info to packets
- CRC errors
- Gear changing information
- Lane width
- Credit information
- Performance Analysis of packets

Ordering information

PGY-UFS2.1-PA UFS2.1 Protocol Analyzer (Support MPHY3.0, UniPro1.6, UFS2.1)
(Shipment includes Hardware, software CD, One set probe, USB3.0, Ethernet Cable and Power adapter)

PGY-UFS3.0-PA UFS3.0 Protocol Analyzer
(Shipment includes Hardware, software CD, One set probe, USB3.0, Ethernet Cable and Power adapter, Support MPHY4.1, UniPro1.6, 1.8 and UFS2.1, 3.0)

Upgrade Kit

UP-PGY-UFS2.1 to UFS3.0-PA
(upgrade PGY-UFS2.1-PA to PGY-UFS3.0_PA)

Warranty

Hardware and software carries a warranty of one year.
Probes are covered for a three month warranty for any manufacturing defects

Contact

Prodigy Technovations Pvt. Ltd.
Bangalore, India 560076, Phone: +91 80 42126100
Email: contact@prodigytechno.com

www.prodigytechno.com

About Prodigy Technovations

Prodigy Technovations is the leading provider of innovative protocol analysis solutions for mainstream and emerging technologies. We provide Protocol Decode, and PHY layer testing solutions on Test & Measurements equipment’s. The company’s ongoing efforts include successful implementation of innovative and comprehensive protocol Analysis solutions using latest hardware technologies.