

PGY-UFS3.0-PA UFS 3.0 Protocol Analyzer



UFS3.0 Protocol Analyzer

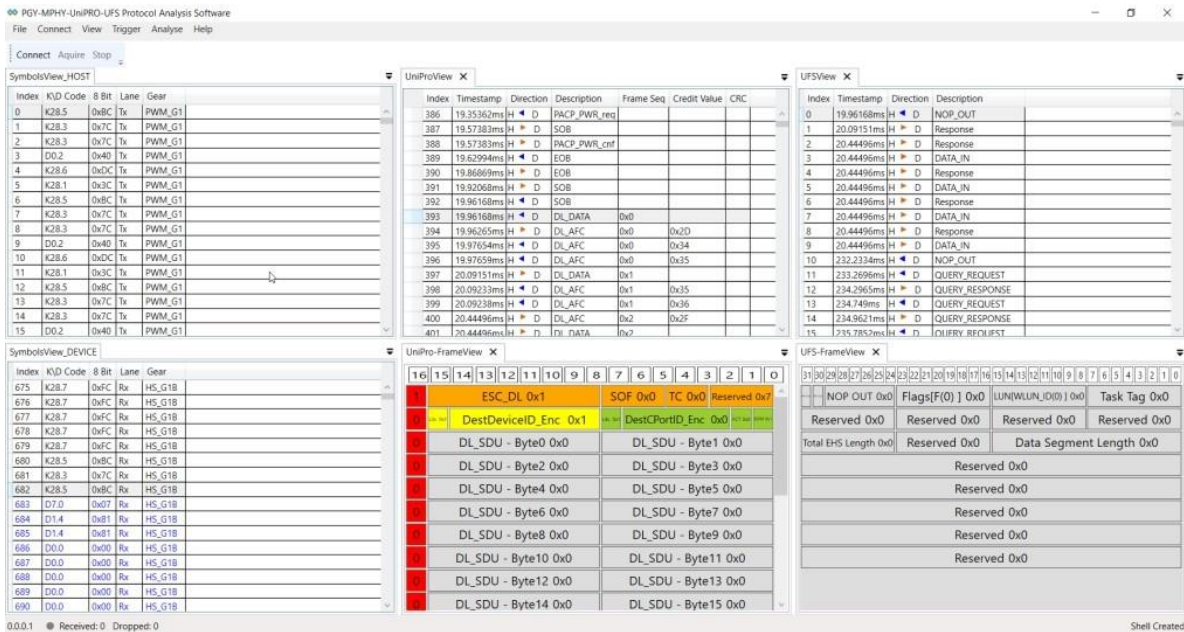
PGY-UFS3.0-PA, UFS3.0 Protocol Analyzer is a value-based analyzer in its class, offers capture and debug of data across MPHY, UniPro and UFS protocol layers. PGY-UFS3.0-PA support PWMG1 to HSG4B data rates and two TX, two RX lane decode. The active probe has minimum electrical loading on the device under test and captures protocol data without affecting the performance of the DUT. 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, UniPRO 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, UFS3.0 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.

Features:

- Support M P H Y 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 M P H Y, 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 up gradation 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



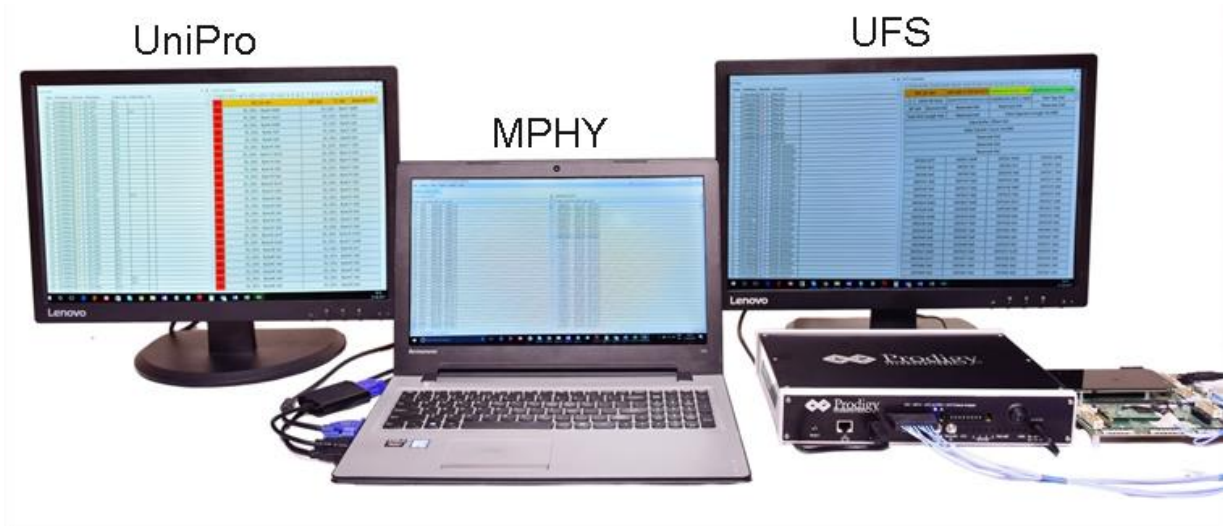
Windows based UFS protocol Analysis software, provides industry best protocol correlation between UFS to UniPRO and MPHY layer. Time correlation between the different protocol layers significantly reduces debug time of designs. Floating window design of this software allows engineers to view UFS view, UniPRO view and MPHY view on different computer monitors and automatically correlate the UFS packets to MPHY layer. Software does the continuous runtime error analysis for CRC errors, mismatch is UFS command to response, and notifying missing sequence of data packet in UniPRO layer, makes it convenient tool know the overall performance of protocol. This makes analysis very easy while analyzing gigabytes of Protocol information.

Product Setup



PGY-UFS3.0-PA UFS Protocol Analyzer provides USB3.0 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

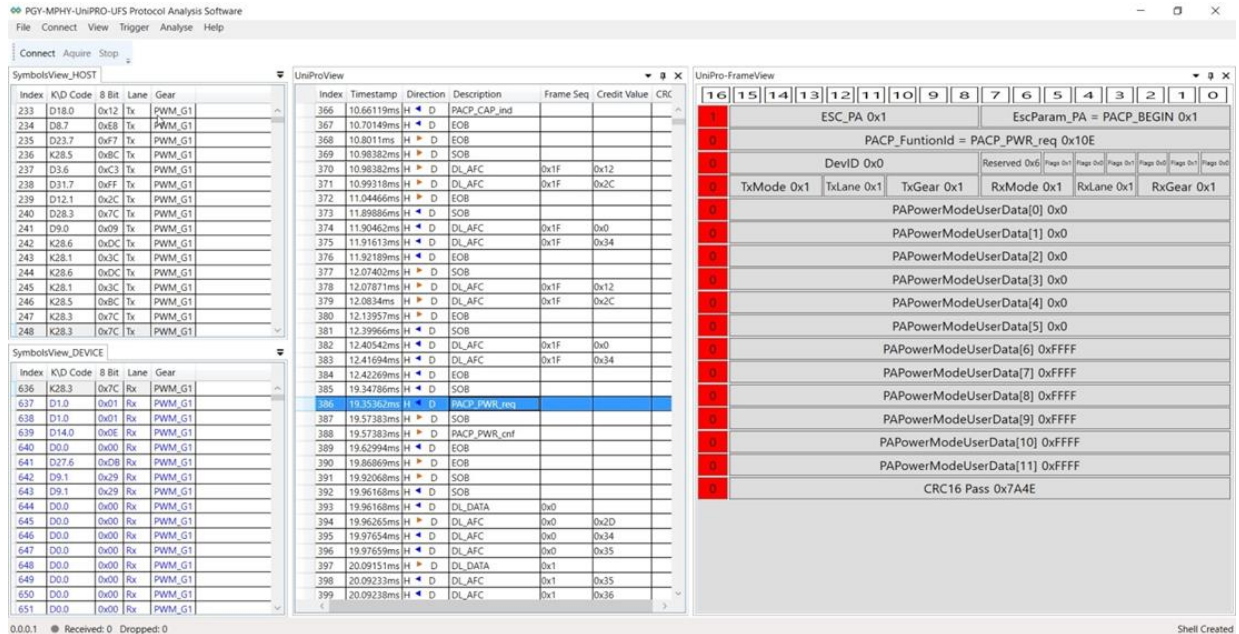
packets and its details with correlation of each layer for easy debug.

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

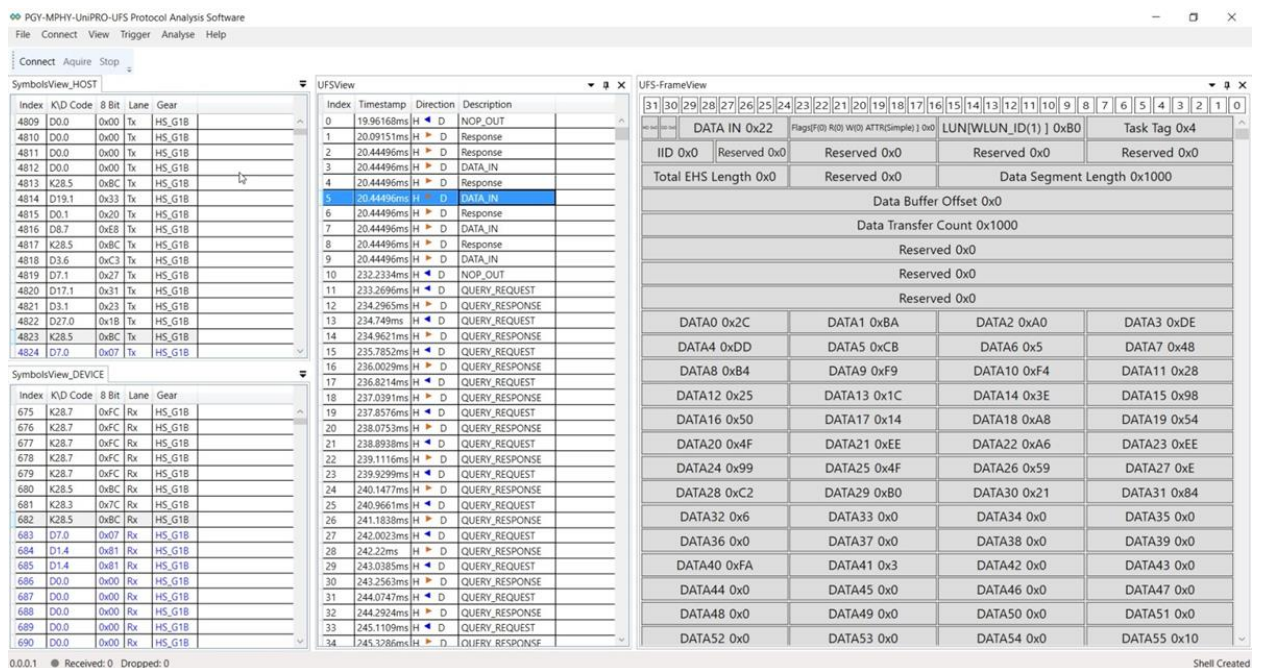


The screenshot displays the PGY-MPHY-UniPRO-UFS Protocol Analysis Software interface. The main window is divided into three panes:

- UniProView:** A table listing protocol packets with columns for Index, Timestamp, Direction, Description, Frame Seq, Credit Value, and CRC. Packet 366 is highlighted in blue.
- UniPro-FrameView:** A detailed view of the selected packet (Index 366), showing fields such as ESC_PA 0x1, ESCParam_PA = PACP_BEGIN 0x1, PACP_FuntionId = PACP_PWR_req 0x10E, DevID 0x0, TxMode 0x1, TxLane 0x1, TxGear 0x1, RxMode 0x1, RxLane 0x1, RxGear 0x1, and CRC16 Pass 0x7A4E.
- SymbolView_HOST and SymbolView_DEVICE:** Lists of symbols for the host and device, including K/D Code, 8 Bit, Lane, and Gear.

PGY-UFS3.0-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



The screenshot displays the PGY-MPHY-UniPRO-UFS Protocol Analysis Software interface. The main window is divided into three panes:

- UFSView:** A table listing UFS packets with columns for Index, Timestamp, Direction, and Description. Packet 5 is highlighted in blue.
- UFS-FrameView:** A detailed view of the selected packet (Index 5), showing fields such as DATA IN 0x22, LUN[W/LUN_ID(1)] 0xB0, Task Tag 0x4, and a grid of data segments (DATA0 to DATA55).
- SymbolView_HOST and SymbolView_DEVICE:** Lists of symbols for the host and device, including K/D Code, 8 Bit, Lane, and Gear.

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.

PGY-UFS3.0-PA Specification		Features
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 MPHY, 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
Dimension (W x H x D)		(20.5cm x 5cm x25cm)
Weight		Approx. 2.5Kg
Power Requirement		12V, 3A DC Power Supply (AC/DC Adapter Supplied along with Analyzer)
Trigger:		
Stack	Protocol Layer	Packet Type
UniPro	Link Start-up Sequence	Trig_UPRO0
		Trig_UPRO1
		Trig_UPRO2
	PHY Capability Adapter Packets (PACP)	PACP_PWR_reg
		PACP_PWR_cnf
		PAC_Cap_ind
		PACP_Cap_EXT1_ind
		PACO_EPR_ind
		PACP_TestMode_req
		PACP_Get_req
		PACP_Get_cnf
		PACP_SER_req
		PACP_SET_cnf
		PACP_TEST_DATA_0
		PACP_Test_DATA_1
		PACP_Test_DATA_2
	PACP_Test_DATA_3	
	Data Link packets	SOF
		EOF
		EOF_ODD
		EOF_EVEN
COF		
AFC/NAC		
Traffic Class 0/Traffic Class 1		
UFS	UFS layer Packets	NOP IN
		NOP OUT
		Command
		Response
		Task Management Request
		task Management Response
		Ready to Transfer
		Query Request
Query Respond		

Search and Filter

PGY-UFS3.0-PA UFS Protocol 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-UFS3.0-PA UFS software are 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 carry a warranty of one year.

Probes are covered for a three-month warranty for any manufacturing defects

Contact Information

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About Prodigy Technovations Pvt Ltd

Prodigy Technovations Pvt Ltd (www.prodigytechno.com) is a leading global technology provider of Protocol Decode, and Physical layer testing solutions on test and measurement equipment. The company's ongoing efforts include successful implementation of innovative and comprehensive protocol decode and physical Layer testing solutions that span the serial data, telecommunications, automotive, and defense electronics sectors worldwide.