

## PGY-JTAG-EX-PD Protocol Exerciser and Analyzer

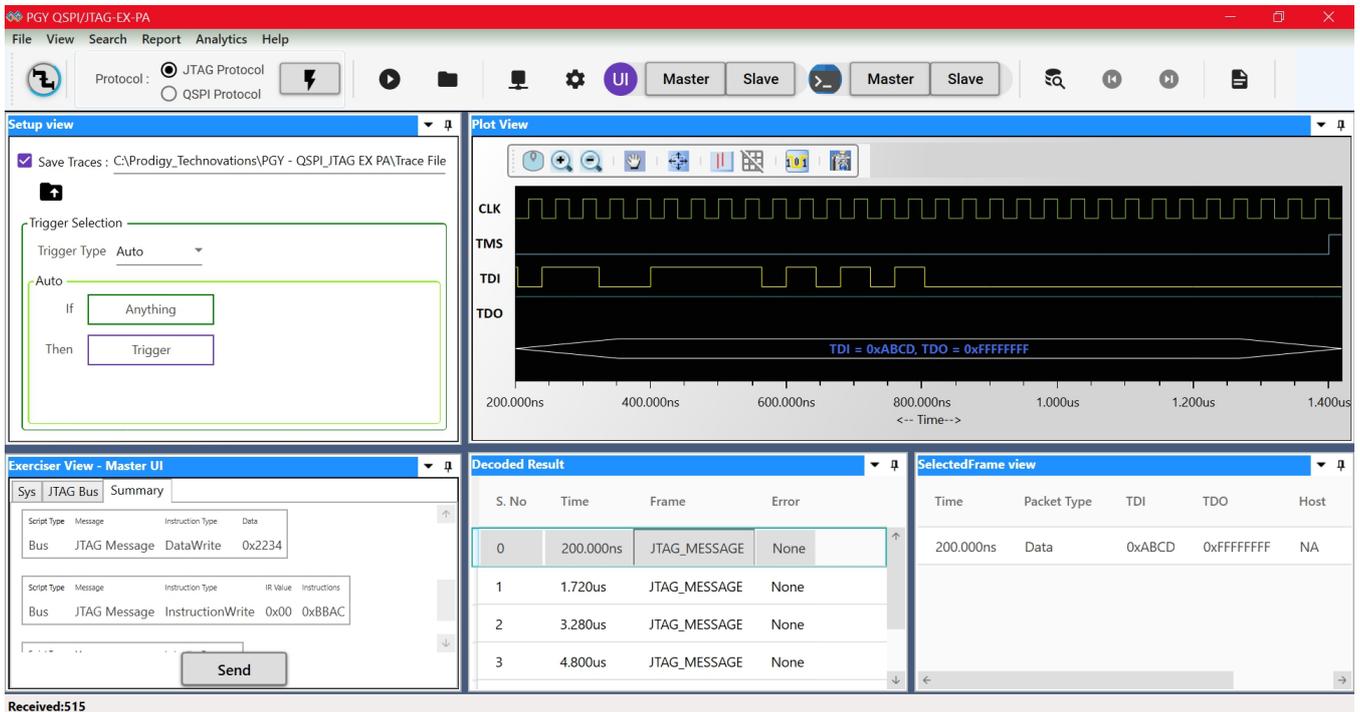


PGY-JTAG-EX-PD is the leading instrument that enables the design and test engineers to test the JTAG designs for its specifications by configuring PGY-JTAG-EX-PD as master/slave, generating JTAG traffic with error injection capability and decoding of JTAG Protocol packets.

### Features

- Supports JTAG frequencies of up to 25MHz
- Simultaneously generate JTAG traffic and Protocol decode of the Bus
- JTAG Master Capability
- Variable JTAG Data speeds and Duty cycle
- User defined TCK & TDI Delays
- Continuous streaming of protocol data to host computer to provides large buffer
- Timing diagram of Protocol decoded bus
- Listing view of Protocol activity
- Error Analysis in Protocol Decode
- Ability to write exerciser script to combine multiple data frame generation at different data speeds
- USB 2.0/3.0 host computer interface
- API support for automation in Python or C++

## Multi Domain view



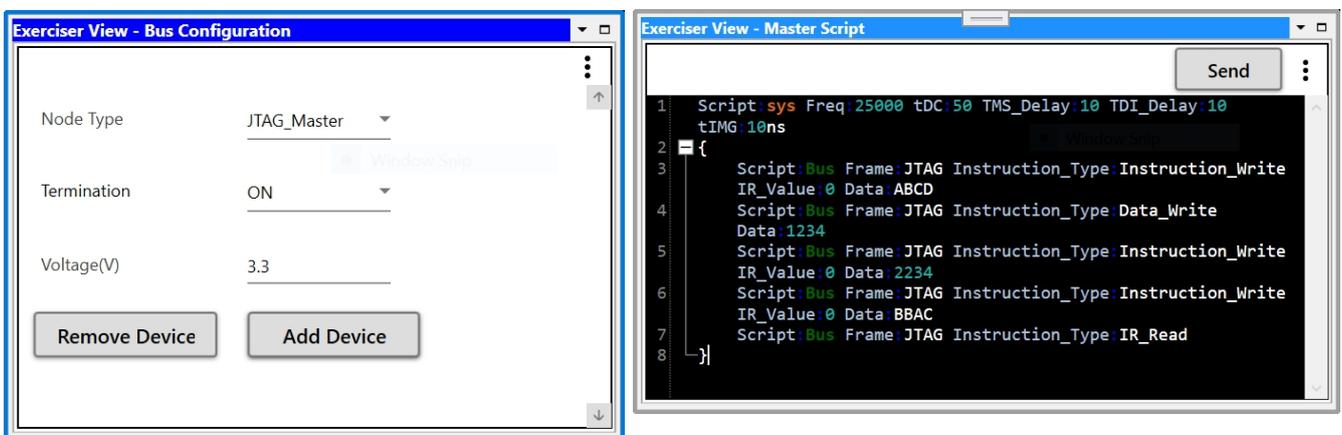
The screenshot displays the PGY QSPI/JTAG-EX-PA software interface with the following components:

- Setup view:** Shows trigger selection settings. Trigger Type is set to "Auto". The "If" condition is "Anything" and the "Then" action is "Trigger".
- Plot View:** A timing diagram showing CLK, TMS, TDI, and TDO signals over time (200.000ns to 1.400us). A specific event is highlighted with TDI = 0xABCD and TDO = 0xFFFFFFFF.
- Exerciser View - Master UI:** Shows a table of JTAG messages. The "Summary" tab is active, displaying a message with Instruction Type "DataWrite" and Data "0x2234".
- Decoded Result:** A table listing decoded JTAG messages. The first row is highlighted, showing a JTAG\_MESSAGE at 200.000ns with no error.
- Selectedframe view:** A table showing details for the selected frame, including Time (200.000ns), Packet Type (Data), TDI (0xABCD), TDO (0xFFFFFFFF), and Host (NA).

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Multidomain View provides the complete view of JTAG Protocol activity in single GUI. User can easily setup the analyzer to generate JTAG traffic using a GUI or script. User can capture JTAG Protocol activity at specific event and decode the transition on JTAG bus. The decoded results can be viewed in timing diagram and Protocol listing window with autocorrelation. This comprehensive view of information makes it industry best, offering an easy to use solution to debug the JTAG protocol activity.

## Exerciser



The screenshot shows two windows from the Exerciser View:

- Exerciser View - Bus Configuration:** Shows configuration for the JTAG Master. Node Type is "JTAG\_Master", Termination is "ON", and Voltage(V) is "3.3". Buttons for "Remove Device" and "Add Device" are visible.
- Exerciser View - Master Script:** Shows a script for generating JTAG traffic. The script includes parameters like Freq: 25000, tDC: 50, TMS\_Delay: 10, TDI\_Delay: 10, and tIMG: 10ns. The script body contains instructions for writing data (ABCD, 1234, 2234, BBAC) and reading IR.

PGY-JTAG-EX-PD supports JTAG traffic generation using GUI and Script. User can generate simple traffic generation using the GUI to test the DUT. Script based GUI provides flexibility to emulate the complete expected traffic in real world including error injections. In this sample script user can generate JTAG traffic as below:

Script Line #1: Set system Frequency 25MHz, Duty cycle to 50%, set TMS\_Delay to 10ns, set TDI\_Delay to 10 ns, set inter message gap to 10ns.

Script Line #3: Instruction\_Write

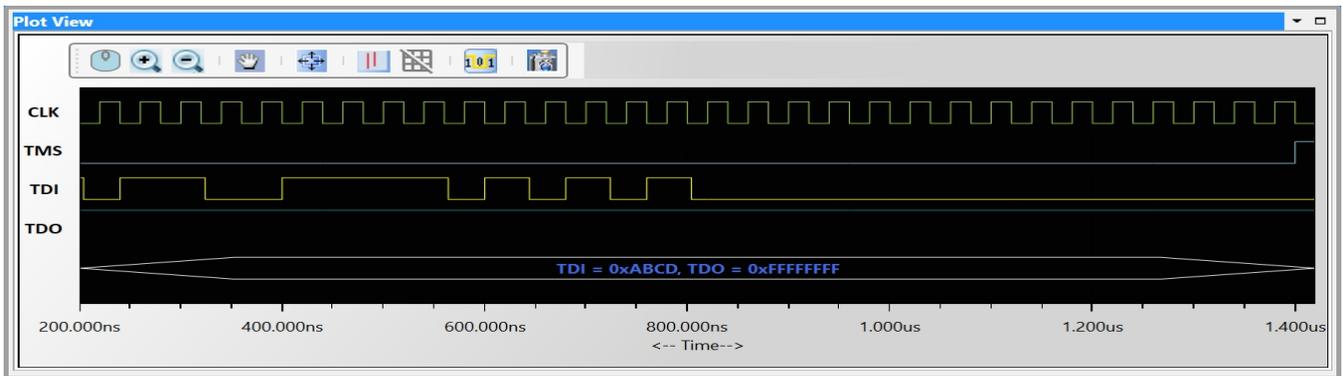
Script Line #4: Data\_Write

Script Line #5: Instruction\_Write

Script Line #6: Instruction\_Write

Script Line #7: IR\_Read

## Timing Diagram and Protocol Listing View



Timing view provides the plot of CLK, TMS, TDI and TDO signals with bus diagram. Overlaying of Protocol bits on the digital timing waveform will help easy debugging of Protocol decoded data. Cursor and Zoom features will make it convenient to analyze Protocol in timing diagram for any timing errors.

Decoded Result			
S. No	Time	Frame	Error
0	200.000ns	JTAG_MESSAGE	None
1	1.720us	JTAG_MESSAGE	None
2	3.280us	JTAG_MESSAGE	None
3	4.800us	JTAG_MESSAGE	None
4	6.360us	JTAG_MESSAGE	None
5	7.920us	JTAG_MESSAGE	None

SelectedFrame view				
Time	Packet Type	TDI	TDO	Host
200.000ns	Data	0xABCD	0xFFFFFFFF	NA

Protocol window provides the decoded packet information in each state and all packet details with error info in packet. Selected frame in Protocol listing window will be auto correlated in timing view to view the timing information of the packet.

## JTAG Specifications

PGY-JTAG Specification	Features	PGY- JTAG -EX-PD
<b>Exerciser:</b>		
Configurable	1 Master	✓
JTAG Traffic Generation	Custom JTAG traffic generation Simulate real world network traffic	✓
TCK Frequency	100KHz to 25MHz	✓
Voltage Drive Level	1.2V, 1.8V and 3.3V	✓
TCK Duty Cycle variation	25%, 50% and 75%	✓
TCK & TDI Delay	User Defined	✓
TCK & TMS Delay	User Defined	✓
Delay between two messages	User Defined	✓
API Support	Support for Automation of operation using Python or C++	✓
<b>Protocol Analysis:</b>		
Supports	JTAG protocol decode	✓
Protocol Views	Timing Diagram View Protocol Listing View Bus-Diagram to display Protocol packets with timing diagram plot	✓
Capture Duration	Continuous streaming Protocol Data to host HDD/SSD	✓
Host Connectivity	USB 3.0 / 2.0 interface	✓

## Ordering Information

PGY-JTAG-EX-PD JTAG Exerciser and Protocol Analyzer

## Deliverables for PGY-JTAG-EX-PD

PGY- JTAG -EX-PD Unit

USB 3.0 cable

PGY- JTAG -EX-PD Software in CD

12V DC adapter

Flying lead probe cable with female connector to connect to DUT

## Warranty Information

Hardware Warranty - 2 years

Software and Firmware Warranty - 1 year

Probes (covered under warranty for any manufacturing defect) - 6 months

## Contact Information



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## About Prodigy Technovations Pvt Ltd

Prodigy Technovations Pvt Ltd ([www.prodigytechno.com](http://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.