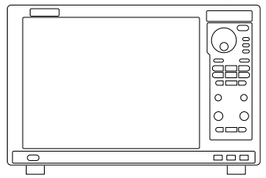
5 Steps to Successful PCI Express Data Capture

Before beginning these procedures, please refer to the *Tektronix Logic Protocol Analyzer Solutions for PCI Express 3.0 Instruction manual* (part number 077-0400-xx) to ensure that you have the proper module and probe type for the link width that you plan to use with your SUT.

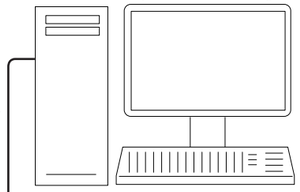
1 CONFIGURE

TLA7012 Portable mainframe configuration

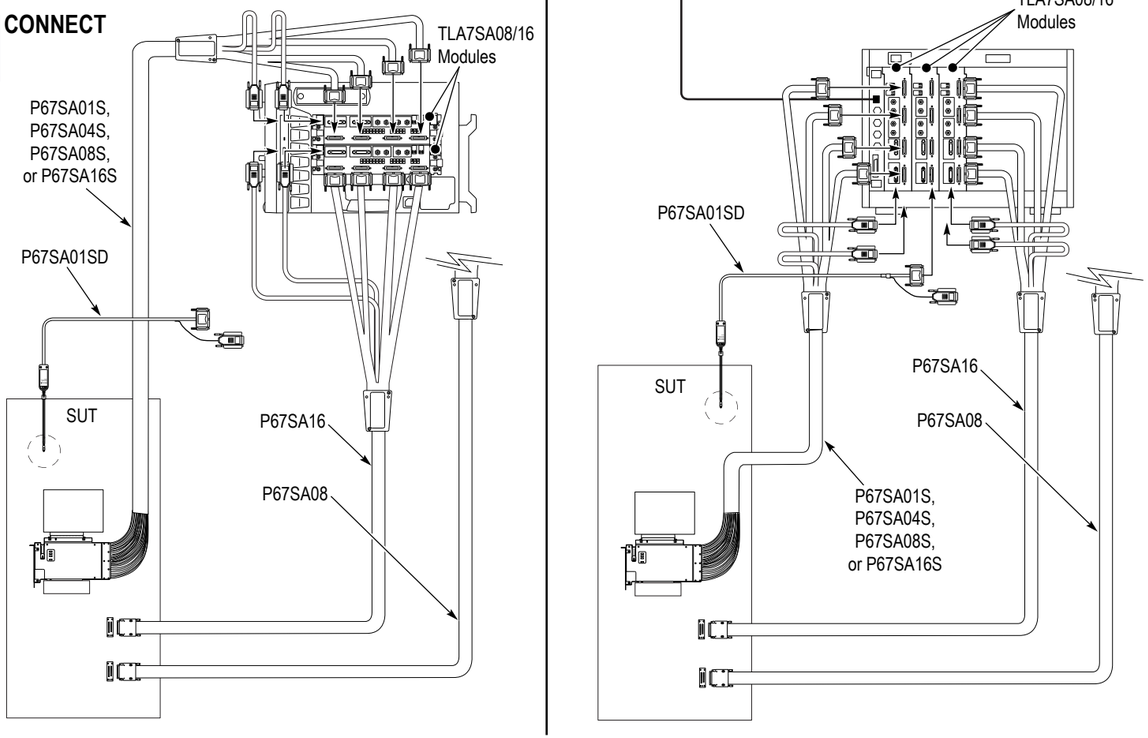


Install the TLA Application software V6.1+. Go to www.tek.com to download the latest software.

TLA7016 Benchtop mainframe configuration



2 CONNECT



NOTES: Tektronix recommends connecting the clock reference cable (part number 872-0594-XX) and enable it in the SUT (see CALIBRATE step #4), especially if Spread Spectrum or Active State Power Management (ASPM) is enabled. If using the clock reference cable with two TLA7SA08/SA16 modules, use the SMA-to-SMA clock jumper cable (part number 174-5392-XX).

If you don't have a 3-pin 100 MHz reference clock on your SUT, connect the clock reference cable directly to your slot interposer probe.

3 CALIBRATE

1. Power on the TLA mainframes and PC, if connected (make sure SUT is off or can be reset).

2. Launch TLA application and connect to the desired TLA instrument (mainframe).

NOTE: The following step is important because the probe might not be calibrated and may not capture training sets indicating the link speed, which is done automatically once the probe is calibrated.

3. In the Setup-SA Window, if using the clock reference cable, select "Connected at Front Panel." If using two modules, connect the clock reference cable to one module. Use clock jumper (part number 174-5392-XX) to connect between both modules.

4. Power on the platform (SUT).

5. In the Setup-SA Window, manually select the Link Rate to match your platform's current PCIe link rate.

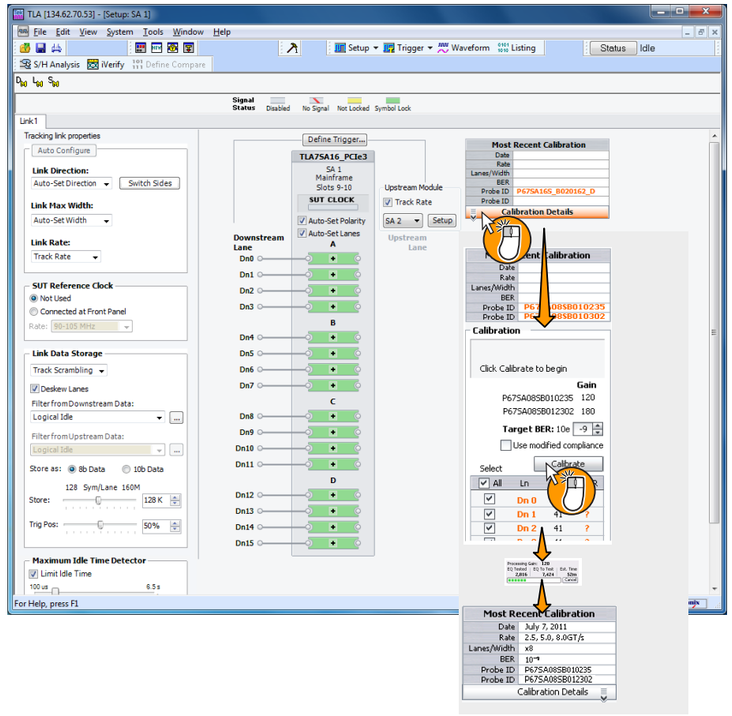
6. Configure the SUT for calibration by ensuring the SUT will operate on Reset with ASPM disabled and operating at PCIe maximum link speed with minimal traffic, such as, logical idle. If you made any changes to your SUT, reset it.

7. In the Setup-SA Window, click the "Calibrate" button.

8. Once calibration has successfully completed, manually change the link Rate back to "Track Rate."

9. Reset your SUT so that the TLA will capture the training sets indicating the link speed and width of your SUT.

10. After your SUT has passed its power-on self-tests, verify that the Setup-SA Window indicators are green for each lane, indicating successful symbol lock.



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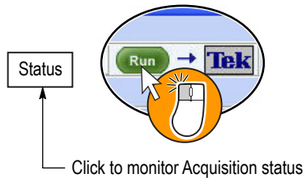
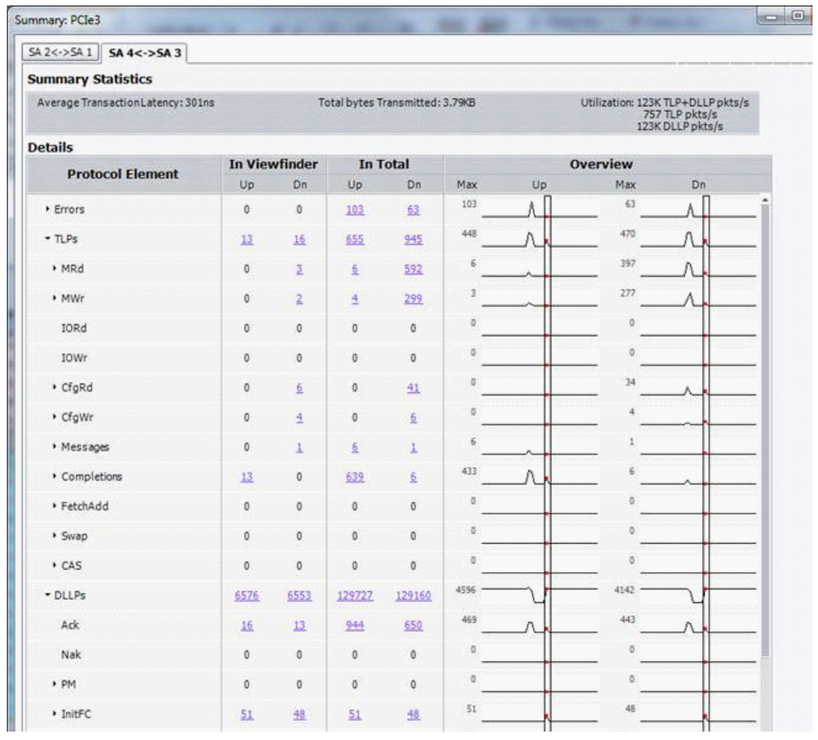
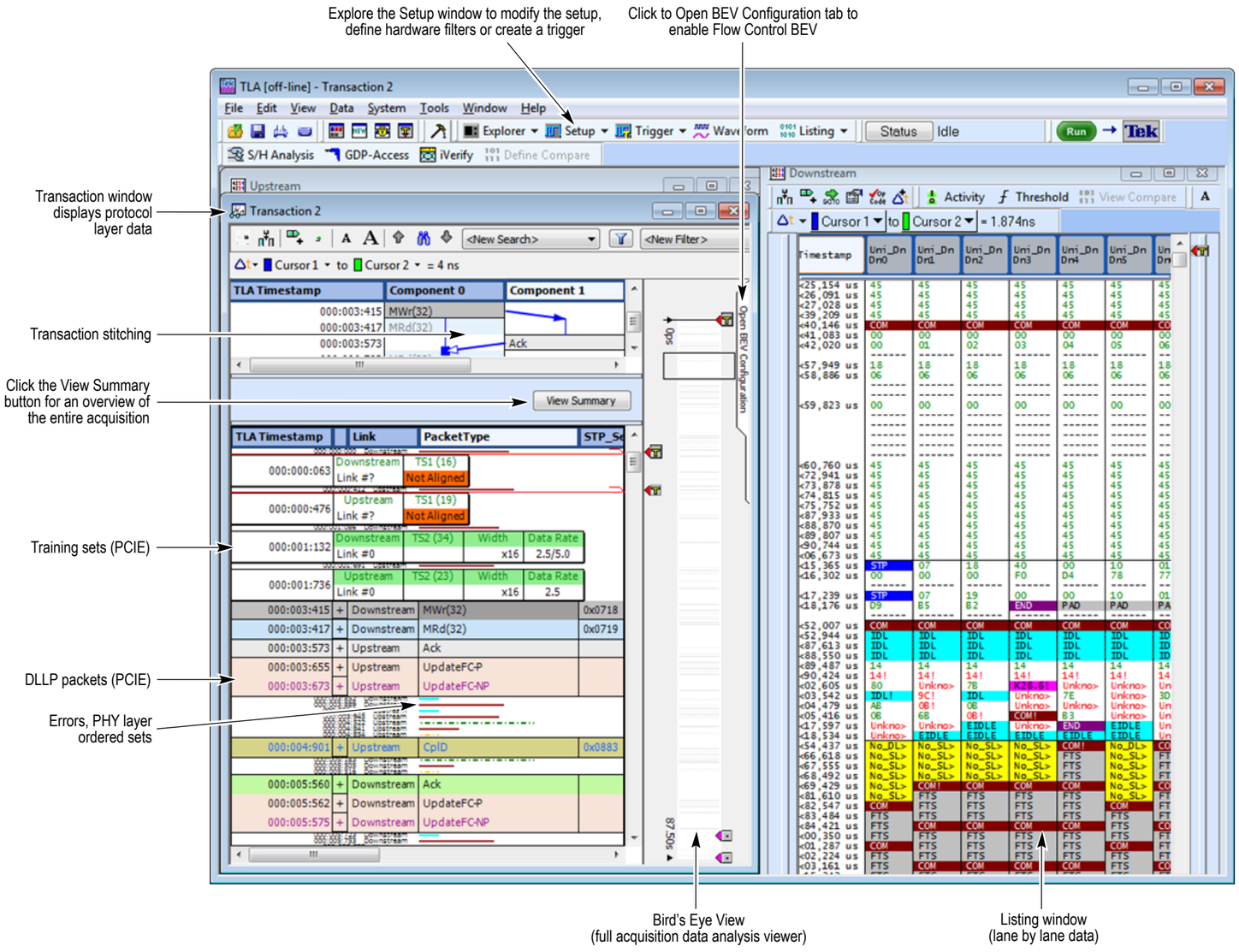
4 ACQUIRE



5 ANALYZE

After acquisition is complete, click “View Summary” to confirm that calibration was successful and to get an overview of the PCIe protocol elements acquired. Your screen should show no errors, similar to the screen below.





For further information, go to www.tek.com and download “Tektronix Logic Protocol Analyzer Solutions for PCI Express 3.0, Instruction Manual, Tek P/N: 077-0400-xx”. Includes design-in information, such as, probe load models and CAD layout files.