USB-3ZT
High Performance USB 3.0 Protocol Analysis

Salient Features

• Supports protocol analysis of USB 3.0 Superspeed (SS) & Legacy USB buses, alternatively SATA Gen1/2/3 & Legacy USB buses, when using a Tektronix logic analyzer

• Supports monitoring, triggering on, acquisition and real-time display of bus activity

• Front-panel connectors for SS/Legacy USB and SATA connections; back-panel SMA connectors for input and output of trigger signals

• Accurately monitors all SS USB LFPS spec-legal signaling, including Ping.LFPS bursts 40ns (or less) in duration

• PHY-boost #1 (PB1) enables monitoring of most SS USB packet activity following reduced-power link-state exit sequences, which may otherwise be unobservable due to analyzer PHYs' bit-lock delays; also facilitates recovery of monitoring following severe burst noise *

• PHY-boost #2 (PB2) significantly shortens the analyzer PHYs' average bit-lock time, reducing or eliminating the extent of unobservable SS USB bus activity following reduced-power link-state exit sequences **

• PHY-boost #3 (PB3) enables monitoring SS USB packet activity following reduced-power link-state exit sequences*

• PHY-boost #4 (PB4) permits monitoring of all SS USB bus signaling including: post-power-up behavior; reduced-power link-state exit sequences; marginal & non-compliant signaling sequences; signaling in the presence of SSC-modulation anomalies; etc. **

• Optional capabilities can be enabled prior to purchase for trial use, for about 10 hours or 20 debug sessions

• USB Vbus voltage/current values can be triggered on and acquired with bus data (12-bit precision, 63 MHz sampling rate)

• Supports SATA receiver-sensitivity bit error rate measurements

• Configuration and control via USB control connections and Windows applications

• TLA module requirements: 68 channels/2 P6960 probes for Legacy USB (module #1); 136 channels/4 P6960 probes for SS USB or SATA (module #2)

• TLA module clocking requirements (MHz): Legacy USB: 60; SATA: 150, +150 (10b data); SS USB: 250, +125 (10b data), +125 (Vbus data), +125 (bus-performance data); SS USB clocking minimum/ recommended/maximum: 250/375/625 MHz

• Legacy USB and SATA protocol analysis features are similar to those of CHS' USB-2XT and SATA-6G products (refer to products' datasheet and associated documentation)

• Compact 8.66" x 6.50" x 1.20" (220mm x 165mm x 30,5mm) extruded-aluminum case: small, sleek and quiet

  *: Optional functionality   **: Anticipated future-version optional functionality

TLA-based Protocol Analysis Software Features

• Graphical user interface support for complex multi-state logic analyzer trigger programs

• Powerful debug capabilities for triggering on and/or selective storage of USB events, packets and transactions

• Trigger on and/or selective acquisition of real-time bus anomalies as well as normal bus behavior

• System software supports time-coordinated display of multiple listing and waveform windows, along with window-linked cursor control

• Listing window high-level hierarchical display shows USB bus events and packets, transactions and control transfers, and targeted device class decoding, with support to search acquisitions for information of interest

• System software supports multiple acquisition modules, allowing time-coordinated probing and display of bus activity along with e.g. that of the USB device- or USB host-processor, or other buses on the host motherboard

• Off-line viewing of acquisitions using any Windows system

USB-3ZT Ordering Summary

• The USB-3ZT includes hardware probe adapter, DC power supply, AC power and data cables; software, documentation and related files are downloadable from the Crescent Heart Software website (www.c-h-s.com/USB.shtml)

• Part number USB-3ZT-1 denotes the base unit (with (#) option additionally required)

• Option USB-3ZT-2 adds TLA-based USB & SATA protocol analysis capability(#)

• Option USB-3ZT-8 adds SS USB PB1 capability (requires -2 option)

• Option USB-3ZT-16 adds SS USB PB2 capability (requires -8 option)**

• Option USB-3ZT-32 adds SS USB PB3 capability (requires -8 option)

• Option USB-3ZT-64 adds SS USB PB4 capability (requires -32 option)**

• A complete product part number is formed by summing base unit and option part numbers (e.g., USB-3ZT-1 + USB-3ZT-2 = USB-3ZT-3)

• USB-3ZT units can be shipped with options enabled, or options can be enabled for units already in the field. Add "-ITF" (In-The-Field) suffix to part numbers (e.g., USB-3ZT-32-ITF) when ordering options for in-the-field USB-3ZT units.

Contact Crescent Heart Software

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• Crescent Heart Software, a Tektronix® Embedded Systems Tools Partner and a member of the Tektronix® Logic Analyzer Third Party Developer team, is headquartered in Portland, Oregon USA.

• Crescent Heart Software has been a member of the USB Implementer's Forum (USB-IF), and has provided technical consultation and feedback regarding electrical signaling issues to the Version 1.1 and 2.0 USB specification definers.

• Information presented herein is subject to change without notice (datasheet Version 1.1, March 2014: added trial use; corrected -32 option to require -8 option)

• HARDWARE AND SOFTWARE PRODUCTS FOR USE WITH TEKTRONIX® LOGIC ANALYZERS AND OSCILLOSCOPES •