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Better Analysis.

Flying Probe for Inter-Chip USB

Model USBEX260A-IC

Getting Started Guide

PROTOCOL TEST SOLUTIONS

Version 1.0
August 11, 2008

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This manual is populated throughout with screens captured from a specific version of Ellisys Protocol Analyzer software. All the information contained in the screens are samples and serve as instructional purposes only.

Document Revision History

Date	Revision	Changes
August 11, 2008	1.0	Initial release.

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Chapter 1 Starting Out

Introduction

The USB Flying Probe Kit is intended to allow a functionally non-intrusive solder-in access (by an Ellisys protocol analyzer) to an embedded Universal Serial Bus (USB) link where standard USB connector access is not present.

Embedded USB links are typically used by embedded applications containing a microprocessor able to act as USB host. Peripherals are added to the microprocessor by using standard USB 2.0 physical connectivity, but are soldered onto the PCB and non-removable. Embedded links may either use the standard USB 2.0 electrical characteristics or the reduced voltages defined by the Inter-Chip USB (IC_USB) specification (Reference A).

An alternative use of the probe kit is to access a standard USB connection (involving Type A and Type B connectors) with the USB Test Board (see Figure 1), which provides a convenient 4-pin tap for access by the Flying Probe, along with jumpers on each line that can be removed for testing purposes and an in-line jumper to be used for current measurement.

The USB Flying Probe is specifically designed to operate with the Ellisys USB Explorer 260 Protocol Analyzer (not included) and is designed to support all IC_USB voltages supported by Reference (A). The probe supports all speeds defined by the USB 2.0 specification: Low-speed (1.5 Mbps), Full-speed (12 Mbps) and High-speed (480 Mbps).

Kit Contents

The probe kit consists of the following (see Figure 1):

1. USB Flying Probe Body Assembly
2. USB Test Board
3. Flying Leads connector assembly
4. 4-Pin-to-4-Pin Connector assembly.
5. USB Power Cable (Type A connector to 5.5mm Jack, Male)

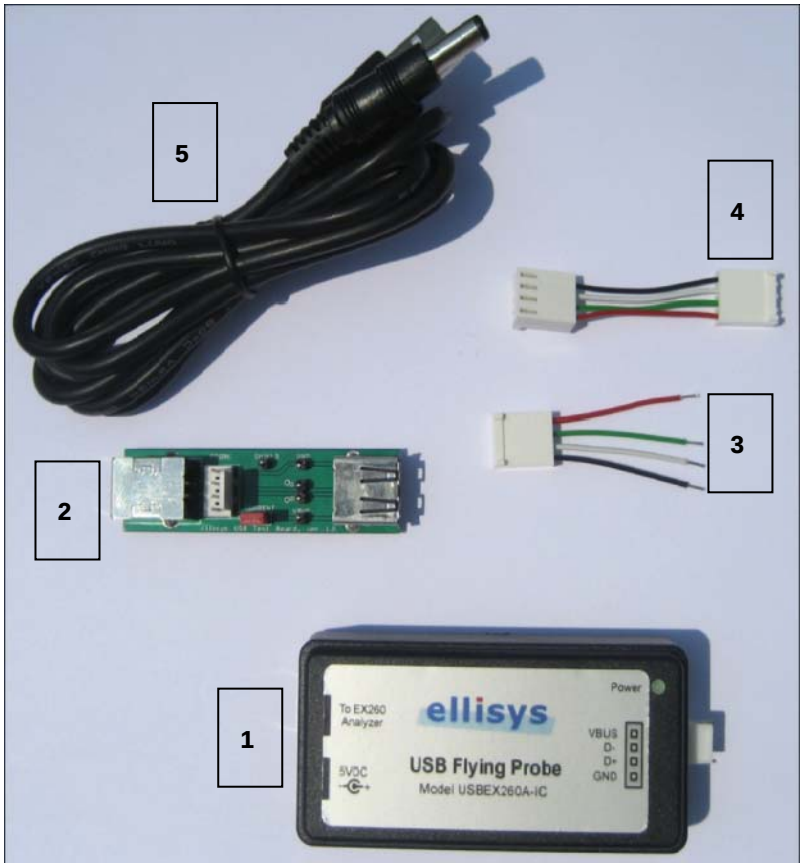

Figure 1 - Flying Probe Kit Contents

Reference Documentation

Various documentation may be useful in probing embedded USB implementations. Please refer to the documentation listed below as appropriate.

A) USB Serial Bus Specification, USB Implementer's Forum (USB-IF), http://www.usb.org/developers/docs/

B) Inter-Chip USB Supplement to the USB Specification, USB-IF, http://www.usb.org/developers/docs/

C) User Manual, Ellisys Explorer 260 Protocol Analyzer, http://www.ellisys.com/products/usbex260/download.php

Terminology

Note that VBUS and IC_VDD may be used synonymously in this document. D+ and DP, may be used synonymously in this document with IC_DP. D- and DM may be used synonymously with IC_DM.

Peripheral, peripheral device, and device may be used synonymously in this document.

USB Explorer 260 Protocol Analyzer

The Probe Kit is designed and optimized for use with the Ellisys USB Explorer 260 Protocol Analyzer (not included). The analyzer is shown below in Figure 2. For more information on the USB Explorer 260 Protocol Analyzer, please visit the Ellisys Website at the link shown here: http://www.ellisys.com/products/usbex260/index.php.

Figure 2 - USB Explorer 260 Protocol Analyzer

Chapter 2 Using the Probe

Basic Setup for Protocol Analyzer Access to an Embedded USB Link

To access an embedded USB link, see Figure 3 and follow the instructions shown below:

1. Connect the Flying Probe Body (see Figure 1, item 1) at the Type B port marked "To EX260 Analyzer" to an Ellisys USB Explorer 260 Protocol Analyzer (front-panel Type A Port) using a standard Type A-to-Type B USB Cable (not supplied).

2. On the Flying Probe Body, power the port marked "5VDC" using the supplied USB Power Cable (Figure 1, item 5) from any USB Type A connector.

3. Attach the Flying Leads Connector assembly (Figure 4) to the embedded USB link using best commercial soldering practices. Connect RED to VBUS, BLK to GND, WHT to D+, and GRN to D-.

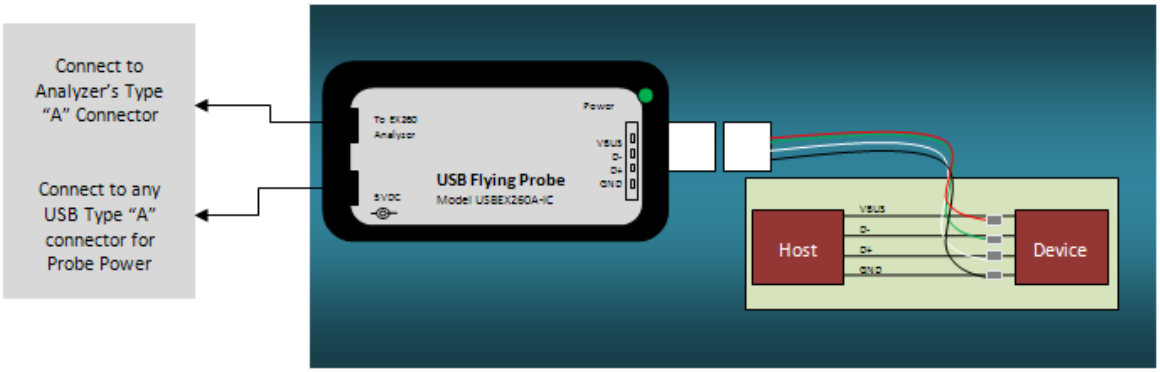

Figure 3 - Attaching Probe and Analyzer to an Embedded Link

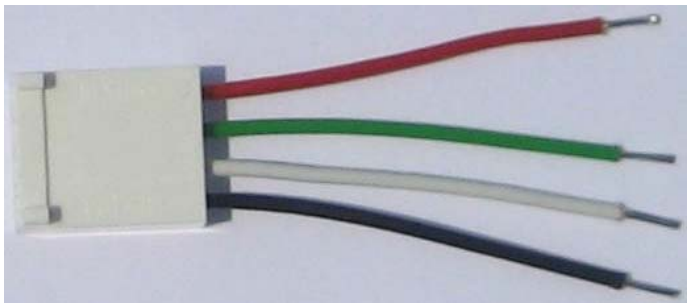

Figure 4 - Flying Leads Connector Assembly

Setting Up to Tap a Standard USB Link

In some cases, testing requirements may dictate that a standard (non-embedded) USB link be accessed by the Flying Probe Kit. To enable this, Ellisys provides a convenient USB Test Board with the Probe Kit (Figure 5).

The USB Test Board provides a direct connection, through jumpers, from the A connector to the B connector. A 4-Pin connector is installed between the A and B connectors, for access by the Probe Kit. A red jumper located on the VBUS line can be removed and replaced with an ammeter to make current measurements.

To connect the USB Test Board to the Probe Kit, use the 4-Pin-to-4-Pin Connector Assembly (Figure 6) supplied with the Probe Kit.

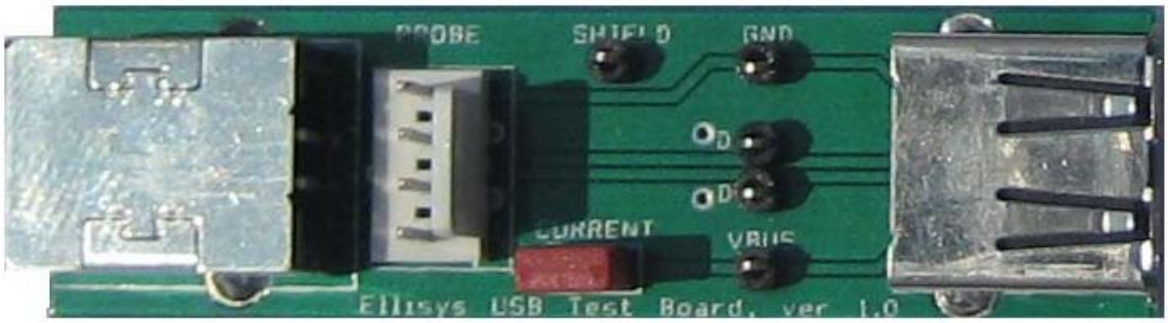

Figure 5 - USB Test Board

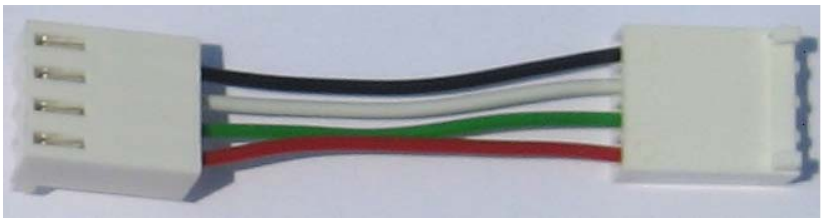

Figure 6 - 4-Pin to 4-Pin Connector Assembly

Chapter 3 Getting Support

Ellisys provides technical assistance at no charge.

For technical assistance with this product, please contact support@ellisys.com.

For sales information, please contact sales@ellisys.com.

Additionally, users may submit a technical support request through the Ellisys website at http://www.ellisys.com/support/contact.php.