Adrienne Electronics Corporation

*** PRELIMINARY ***

"AEC-IUSB Board User Guide"

For All AEC-IUSB Family Products

Introduction:
This document helps you properly install your AEC-IUSB board, which is normally mounted inside an Intel/AMD/IBM type personal computer (PC) chassis.

Default (Standard) AEC-IUSB USB Cable:
By default each AEC-IUSB board comes with a custom motherboard USB cable. On one end is a micro-B USB plug which gets plugged into the micro-B USB receptacle on the AEC-IUSB board. On the other end is a 1x5 (black plastic rectangular) connector which normally plugs into a motherboard USB header. As far as we know, these custom cables can only be obtained from our company, so take good care of them.

Alternate (Customer Supplied) USB Cable:
For software development purposes, it may be more convenient to plug the AEC-IUSB board into a standard USB type "A" receptacle on the outside of the host PC. The cable you need to do this can be obtained for about $5 from Amazon or DigiKey, or just about any other large electronics retailer. Search for something like "USB 2.0 Cable, USB-A to Micro-USB-B". Be careful not to purchase a mini-USB cable, which is a very different thing.

Board Installation Procedure:

1) <u>Observe proper anti-static handling practices at all times.</u>
   Tiny sparks, which you often cannot see or feel, are powerful enough to
   wound and/or kill modern electronic devices. Discharge all static
   electricity by touching a metal part on your PC, and/or the metal bracket
   on your AEC-IUSB board, while performing the following steps.

2) <u>Unplug your PC from its AC power source.</u>
   It is not sufficient to just "turn off" your PC, because modern PC's have a
   small power source which operates continuously, so that the PC can
   automatically "wake up" from its nominal power down state, and we do not
   want that to happen here.

3) Connect the AEC-IUSB motherboard cable to the AEC-IUSB board. It only goes
   together one way. Be gentle. Just slide the micro-B USB cable plug into
   the micro-B USB receptacle on the AEC-IUSB board. Performing this step now
   avoids stressing the AEC-IUSB board and/or its micro-B USB connector later.
   <u>Do not torque</u> or otherwise stress this connector to see how strong it is,
   because it <u>will</u> break off (at your expense).

4) Mount your AEC-IUSB board into any available chassis slot. The exact
   procedure varies from one PC chassis to the next. Usually there is a small
   screw at the top of the blank metal bracket (on your PC) which must first
   be removed, then remove the blank metal bracket, then install the AEC-IUSB
   board (with bracket) in its place, then use the small screw to gently
   secure the AEC-IUSB board into place.

5) Connect the 1x5 connector end of the USB cable to any available USB header
   on the motherboard. <u>Be sure that you are connecting to a USB header and
   not something else!</u> Each motherboard USB header is typically a 2x5 header
   (with one pin missing for polarity purposes), so the 1x5 header on the AEC-
   IUSB cable only takes up half of the motherboard connector. Be sure to
   align the <u>red wire</u> on the cable with the "<u>pin 1</u>" end of the motherboard USB
   connector, which is often marked with a triangle or dot on the motherboard
   legend, and is <u>opposite</u> the end with the missing pin. So keep the red wire
   away from the end with the missing pin. If you install the 1x5 connector
   backwards on the motherboard connector, in theory nothing will get damaged,
   but we cannot guarantee that, and it also won't work at all.

6) Put your PC back together, plug it in, turn it on, and look at the green
   status LED on the AEC-IUSB board bracket. If all is OK, it will be "on"
   most of the time, but will blink off about once per second to let you know
   that no valid input signal is attached (yet).

<u>Analog LTC Input Connection(s):</u>
Connect your analog LTC source to the analog LTC input of the AEC-IUSB board. Note that the analog LTC input connector may be an RCA jack, a black plastic (isolated) BNC connector, or a 3-pin mini-XLR connector, depending on what your ordered. In all cases the analog LTC input is a "differential" input, which is great for canceling out common mode (ground) noise, but which also means that some separate equipment grounding path is usually needed between your LTC source and your PC. This is usually accomplished via AC power system grounds. Some AEC-IUSB board models have more than one LTC input. Generally speaking, the connector closest to the green status LED is associated with the first LTC reader block found in the AEC-IUSB board internal memory. Experiment around if needed. An easy way to check your work is to run the Windows demo program provided on the AEC-IUSB CDROM, which displays "live" LTC on-screen. Another easy check is to look at the green status LED on the AEC-IUSB bracket. If it is blinking "off" about once per second, that means that no valid analog LTC input signal is present. If the LED is solid "on", then the analog LTC input signal is good, your cables are good, etc..

<u>User Guide Updates:</u>
Please check <www.adrielec.com/downloads> periodically for a PDF version of a proper (full) "AEC-IUSB Board User Guide" document, updated driver software, etc.. At the time this preliminary document was written, we were busy dealing with more important issues, and did not have time to generate a 40-page (approximate) document. As we know from experience, documentation takes a long time to do properly.

<u>Bootable Test/Demo Software:</u>
At the time this preliminary document was written, we do not have bootable (via CDROM) test/demo software for any of our USB products. The reason is that USB Host Controller (UHC) software is complex, often poorly documented, and there are now at least four(4) different UHC interface "standards" on the market. We do have one UHC interface completed already, but need to do at least one more. Along with better documentation, this is still on our "to do" list (sorry). Fortunately, in the world of USB, connection problems are pretty rare. For the most part, just plug it in and it works.

<u>Where To Go From Here:</u>
Once you have the AEC-IUSB board properly installed, put your PC back together, plug it in, turn it on, and proceed with the instructions contained within the separate "AEC-IUSB Windows Guide" document.

<u>In Case of Trouble:</u>
If you have honestly tried all the above, and something isn't working right, contact us at <support@adrielec.com>, or via the phone number found in the "Introduction" file in the root directory of the AEC-IUSB CDROM. We want you to be a happy customer who will order more boards and recommend us to your friends, so please give us a chance to fix problems and make improvements if and where needed.