Application Report
SLAA388A–July 2008–Revised September 2008

TLV320AIC3xEVM-PDK Series Troubleshooting Guide

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ABSTRACT

This application report describes the driver installation procedure for all TLV320AIC3xEVM product development kits and the different scenarios that may arise in the process. In general, the installation process is straightforward. A successful installation requires both hardware and software to be set correctly.

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1 Overview

The TLV320AIC3xEVM-PDK series uses a USB-based motherboard called the USB-MODEVM interface board. The USB-MODEVM motherboard allows communication of both audio and control data between the codec under evaluation and a Microsoft™ Windows™ XP-based personal computer (PC). Although this guide can be used for a first-time setup, it is designed to troubleshoot problems by minimizing the variables that can cause an unsuccessful installation.

2 Hardware Setup

The first step toward a successful installation is to ensure that the hardware is set correctly. The TLV320AIC3xEVM-PDK hardware is comprised of the TLV320AIC3xEVM board and the USB-MODEVM interface board. The USB-MODEVM has an onboard EEPROM which contains the firmware used by the onboard TAS1020B USB Streaming Controller (SLES025) device to communicate with the PC. For maximum flexibility, the TLV320AIC3xEVM board also has an onboard EEPROM. However, only one EEPROM with I^{2}C™ address *1010000b* can be present at a time. When powered up, the TAS1020B looks for firmware located at that I^{2}C address. Currently, the TLV320AIC3xEVM-PDK uses the firmware located at the USB-MODEVM's onboard EEPROM.

Follow these steps to ensure a proper hardware configuration:

1. Ensure that the TLV320AIC3xEVM's onboard EEPROM has the least significant bits of its I^2C address set to anything different than *000b*. Check the corresponding EVM User's Guide *Default Jumper Location* table for the appropriate jumper to remove. For example, JMP18 on the TLV320AIC33EVM (SBAU114) selects the onboard EEPROM as the firmware source; this jumper must be left open. This ensures that the TLV320AIC3xEVM's onboard EEPROM does not conflict with the USB-MODEVM's onboard EEPROM.
2. SW2 on the USB-MODEVM must be set as in Figure 1: SW2.8 (EXT MCLK) is set to HI (OFF) whereas all other switches (SW2.1-SW2.7) are set to LO (ON). This switch setting selects the USB-MODEM's EEPROM as the firmware source and is used for normal operation of the GUI using USB Audio. For external audio configurations, see the user's guide corresponding to the EVM being evaluated.

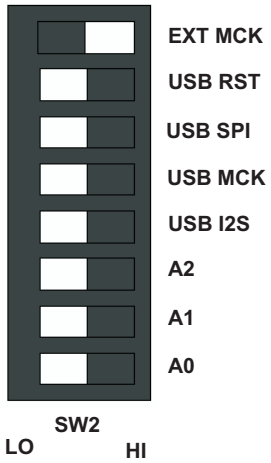


Figure 1. USB-MODEVM SW2 Settings

Table 1 lists the USB-MODEVM's default jumper and switch settings:

Table 1. USB-MODEVM Default Jumper and Switch Settings

Switch/Jumper	Setting	Label
SW1	SW1-2 ON	1.8VD EN
	SW1-1 ON	3.3VD EN
SW2	SW2-8 OFF (HI)	EXT MCK
	SW2-7 ON (LO)	USB RST
	SW2-6 ON (LO)	USB SPI
	SW2-5 ON (LO)	USB MCK
	SW2-4 ON (LO)	USBI2S
	SW2-3 ON (LO)	**A2 (USB-MODEM onboard EEPROM CHIP SELECT 2)**
	SW2-2 ON (LO)	**A1 (USB-MODEM onboard EEPROM CHIP SELECT 1)**
	SW2-1 ON (LO)	**A0 (USB-MODEM onboard EEPROM CHIP SELECT 0)**
SW3	SW3-8 OFF	1.2V
	SW3-7 OFF	1.4V
	SW3-6 OFF	1.6V
	SW3-5 OFF	1.8V
	SW3-4 OFF	2.0V
	SW3-3 OFF	2.5V

Table 1. USB-MODEVM Default Jumper and Switch Settings (continued)

Switch/Jumper	Setting	Label
	SW3-2 OFF SW3-1 ON	3.0V 3.3V
JMP1	Installed	+5V
JMP2	Installed	GND
JMP3	Removed	
JMP4	Removed	
JMP5	Connect 2 to 3 (FSX)	
JMP6	Connect 1 to 2 (USB)	+5VD
JMP7	Connect 2 to 3	MCKU
JMP8	Removed	

3 Device Driver Troubleshooting

3.1 *Is it a hardware problem?*

The following steps can most likely determine if the problem is being caused by an incorrect hardware configuration:

1. Connect a USB cable from between the USB-MODEVM and the PC. If a *Found New Hardware Wizard* window appears, click the *Cancel* button. An orange LED (D2) on the USB-MODEVM is lit.
2. Open the *Windows™ Device Manager*. Two new devices appear as Other devices > USB-MODEVM and Sound, video and game controllers > USB Audio Device as shown in Figure 2A. If the GUI software was previously installed, it may show up as in Figure 2B or Figure 2C. On cases 2A and 2B, proceed with step 4. Case 2C shows a successfully installed driver and no further troubleshooting is required.

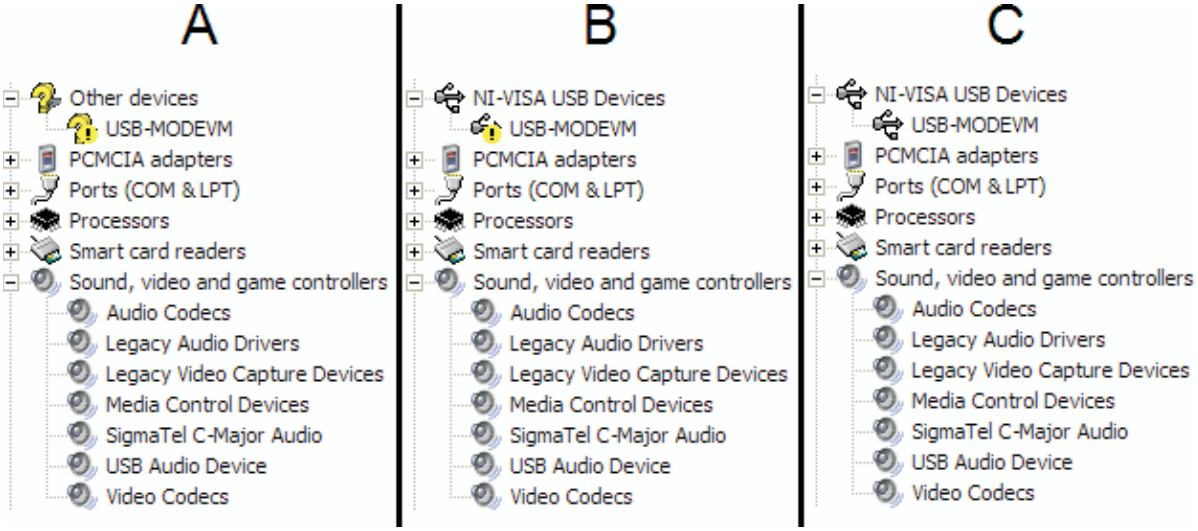


Figure 2. Device Manager – USB-MODEVM Detected

3. If the device manager does not show both devices as seen in columns A, B, or C of Figure 2 and the orange LED (D2) is unlit, the problem most likely is due to an incorrect hardware setup and might show in the *Device Manager* as in Figure 3. If this is the case, ensure that the hardware is set as described in the *Hardware Setup* section of this document. Another possible scenario might arise if an incorrect driver was installed initially. In that case, that driver must be uninstalled by right-clicking the device in the device manager and selecting *Uninstall*.

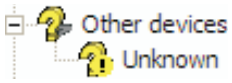


Figure 3. Device Manager – Unknown Device

4. Disconnect the USB cable, and proceed to the next section.

3.2 Device Driver Setup

Follow the next steps to ensure that the USB-MODEVM device driver is installed correctly.

1. Install the corresponding TLV320AIC3xEVM-PDK software.
2. After a successful installation, the following files are present on the hard drive:
   a. C:\WINDOWS\system32\drivers\NiViUsbK.sys
   b. C:\WINDOWS\inf\USB-MODEVM_WDM.inf
3. Connect a USB cable from the USB-MODEVM to the PC.
4. A *Found New Hardware Wizard* window appears. Select *No, not this time* and click *Next* >.
5. Select the radio button shown in the left window in Figure 4, and click *Next* >. After a few seconds, the right window in Figure 4 appears:

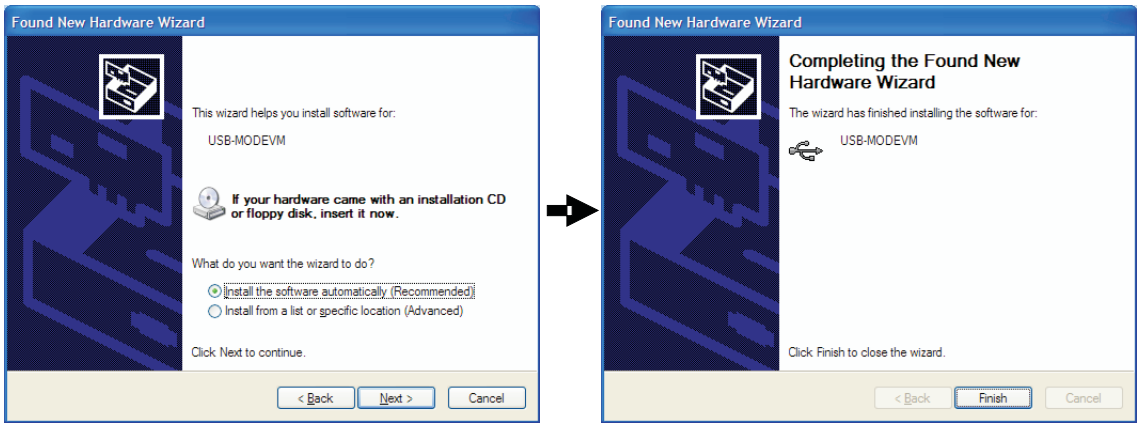


Figure 4. Found New Hardware Wizard

6. Click *Finish* and open the Device Manager. The USB-MODEVM driver is now installed as shown in Figure 5.

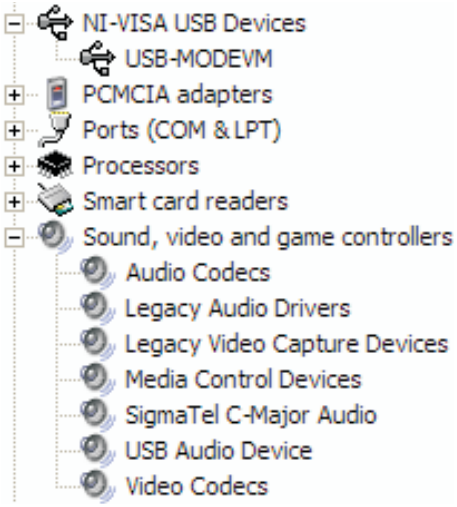


Figure 5. Device Manager – Successful Installation

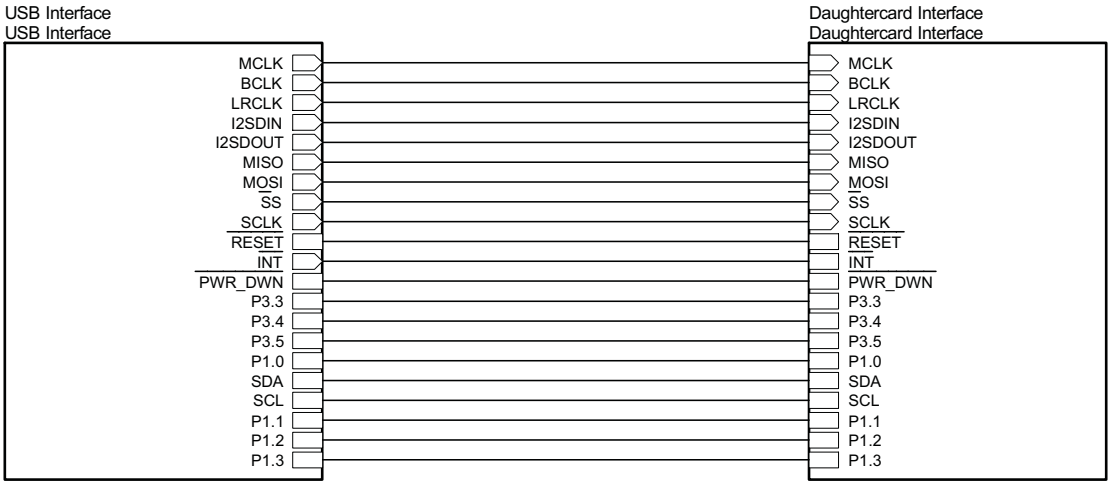
7. If the USB-MODEVM is still shown in the *Device Manager* as in column B of Figure 2, right-click the USB-MODEVM entry, and select *Update Driver*. Follow steps 4 to 6.

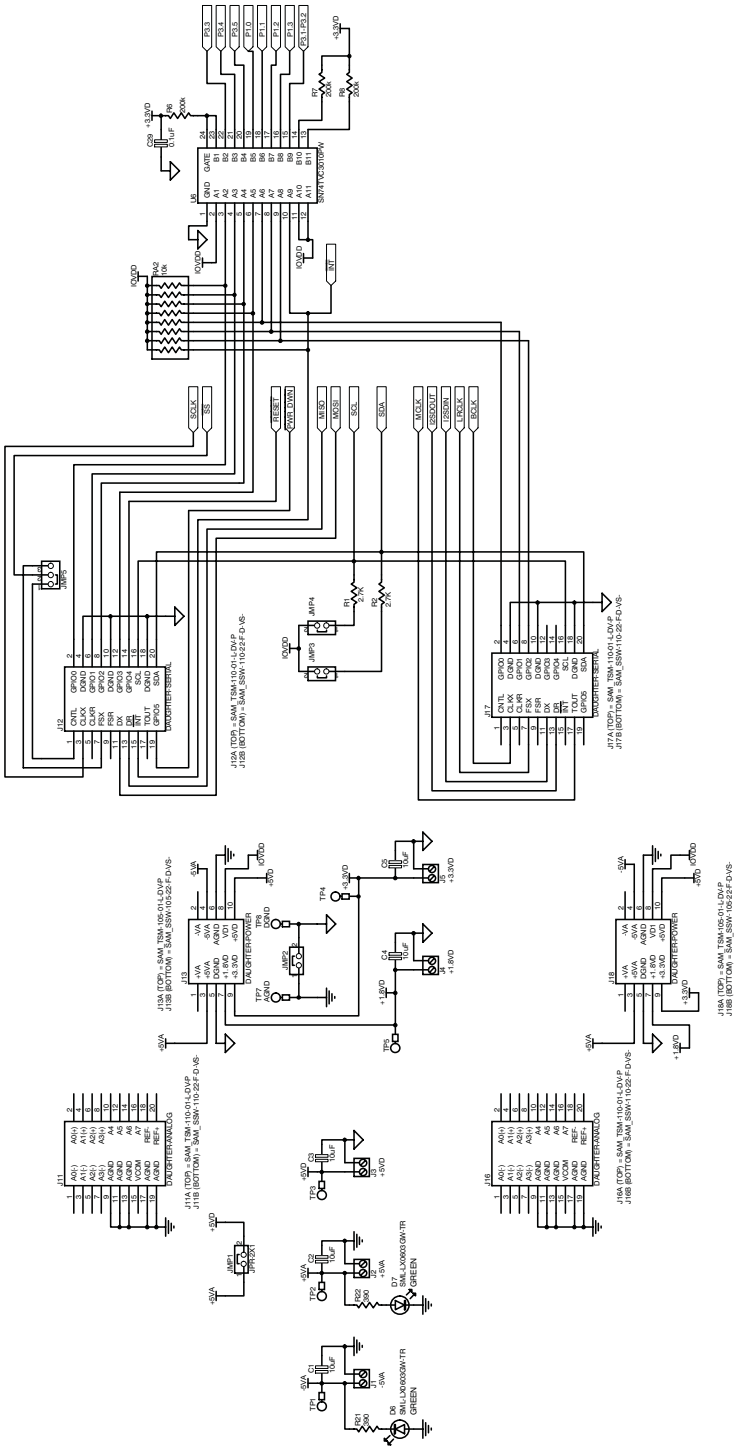
4 References

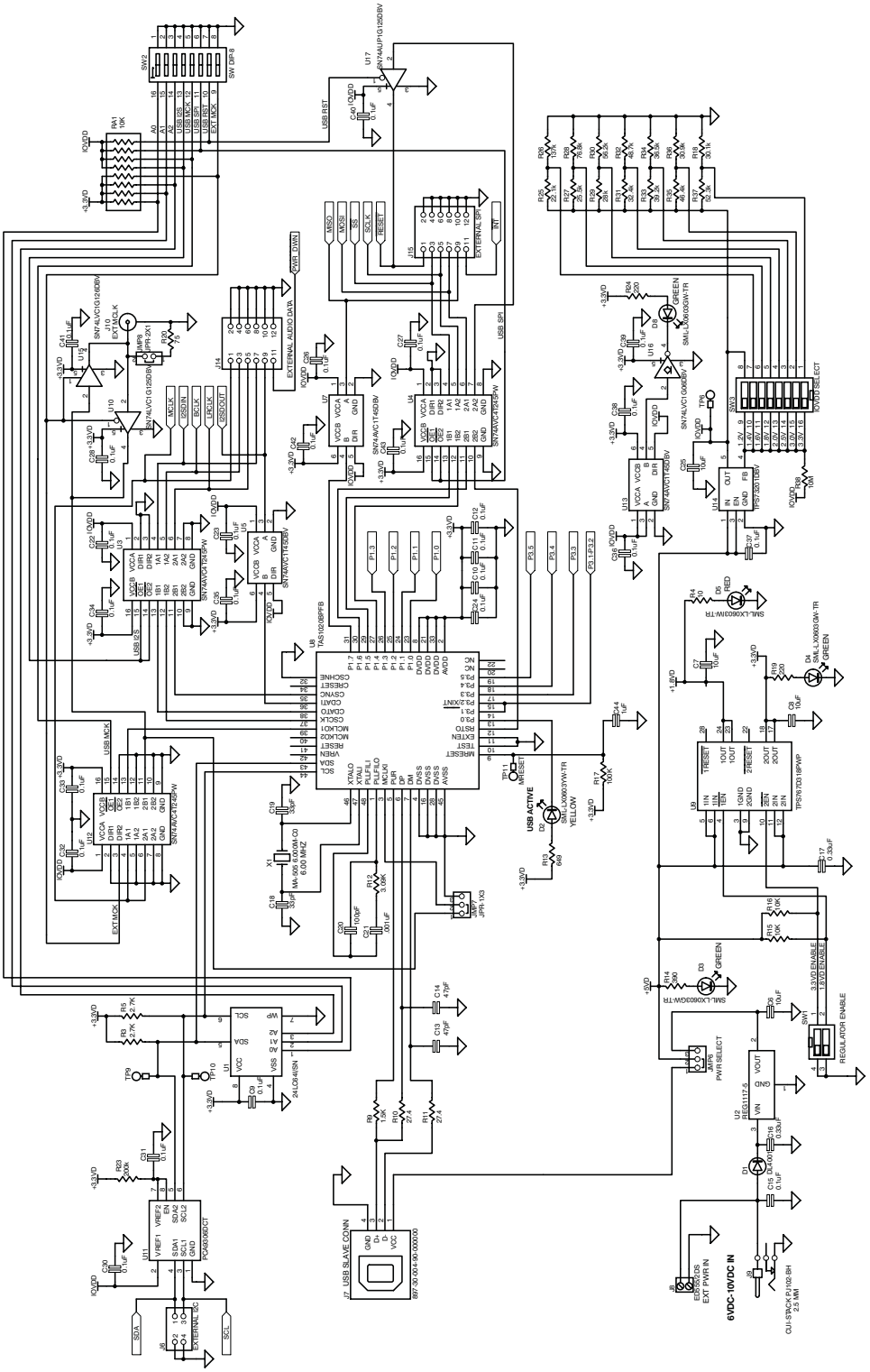
1. *TAS1020B, USB Streaming Controller* data manual (SLES025)
2. *TLV320AIC33EVM and TLV320AIC33EVM-PDK User's Guide* (SBAU114)

Appendix A USB-MODEVM Schematic

The schematic diagram is provided as a reference.







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