TVP5154EVM Quick Start Guide

1 Introduction

The TVP5154EVM refers to both the TVP5154 board and a professional encoder module when they are connected together. The TVP5154EVM evaluation module is a printed circuit board designed for evaluation of the TVP5154 quad video decoder and also includes the TMS320DM642 DSP. This quick start guide outlines the necessary hardware and software setup required to provide full evaluation of the TVP5154.

2 Overview

The TVP5154EVM allows the user to have up to two composite inputs or one S-video input for each of the four independent channels. The analog video outputs supported by the EVM include composite, S-video, and component video (YPbPr). The analog outputs are available simultaneously. The 5-V supply and the I^2C signals are shared across a common connector interface along with the necessary data and clocks. The TVP5154EVM uses the PC parallel port to emulate the I^2C bus, which provides communication with the TVP5154 video decoder, DM642 and the video encoder. The WinVCC application software that communicates with the devices via the I^2C is provided on the EVM CD-ROM.

3 Required Hardware and Equipment

The required hardware and equipment necessary to use the TVP5154EVM are:

- TVP5154EVM (provided)
- Universal 5-V power supply (provided)
- Parallel cable (provided)
- Windows-based PC with Win95 or later
- Composite or S-video cables for inputs
- Composite, S-video, or component cable for output
- Video sources (security camera, pattern generator, Quantum generator, DVD player, etc.)
- Display monitor that supports composite, S-video, or component video input

4 Hardware Setup

All connectors are labeled according to their function. To prepare the EVM for evaluation, connect the following:

1. TVP5154 module to encoder module
2. Parallel port cable from TVP5154EVM to the PC
3. Analog video sources to TVP5154EVM inputs
4. Analog video out from TVP5154EVM to monitor
5. 5-V power supply to the dc jack on the TVP5154 board. A green LED on each board should now be lit.

Each input has an anti-alias filter that can be in-circuit or bypassed by jumpers (JP1–JP8). To select the filter, the shunts need to be positioned to short positions 1-3 and 2-4. To bypass the filter, the shunts need to be moved to short positions 1-2 and 3-4. The boards are shipped with the filter bypassed.

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The I^{2}C slave address can be selected with jumpers JP9 and JP10. There are four possible addresses: B8, BA, BC, and BE. The default setting for these jumpers is for the shunt to short pins 2-3, which selects 0xB8. These are connected to pins 117 and 118, which are read at power up. If you move both the jumpers to positions 1-2 and reset the board, the video decoder now responds to I^{2}C slave address 0xBE.

NOTE: If the I^{2}C address is changed on either the TVP5154 board or the encoder board while the TVP5154EVM is powered up, that device does not recognize the new I^{2}C address. The reset button on the TVP5154EVM must be pressed, and WinVCC must be reconfigured for the new I^{2}C address.

5 Software Installation

WinVCC is a Windows application that uses the PC parallel port to emulate I^{2}C, providing access to each device on the I^{2}C bus. WinVCC makes use of CMD files, which are text editable files that allow preset video setups to be programmed easily.

This feature allows the user to easily set multiple I^{2}C registers with the press of a button. WinVCC also has property sheets for the TVP5154 that allow the user to control the I^{2}C registers with a GUI.

All necessary software for the TVP5154EVM is provided on the enclosed CD. Perform the following steps to install WinVCC:

1. Explore the provided TVP5154EVM Software CD.
2. Install Port95NT.exe. This is the parallel port driver used by WinVCC. This driver must be installed and the PC must be rebooted before WinVCC can operate correctly. This does not affect normal parallel port operation.
3. Install Setup.exe. Click Next at all prompts and click Finish to complete the installation process. This installs WinVCC onto the PC. No reboot is required.
4. Run WinVCC.exe

6 WinVCC Quick Start

Perform the following steps in order to get video from the TVP5154EVM.

1. Once WinVCC is executed, the WinVCC Configuration screen appears (see Figure 1). This dialog box configures the I^{2}C bus. Next to VID_DEC, select the TVP5154 and ensure the I^{2}C address is set to 0xB8. This must match the I^{2}C ADDR jumper on the TVP5154 board.
2. Next to VID_ENC, select the 7311 Encoder and ensure the I^{2}C address is set to 0x54. This must match the I^{2}C ADDR jumper on the encoder board.

Note: If WinVCC is running and the TVP5154 or Encoder board I^{2}C address is changed, then power must be cycled on the EVM.

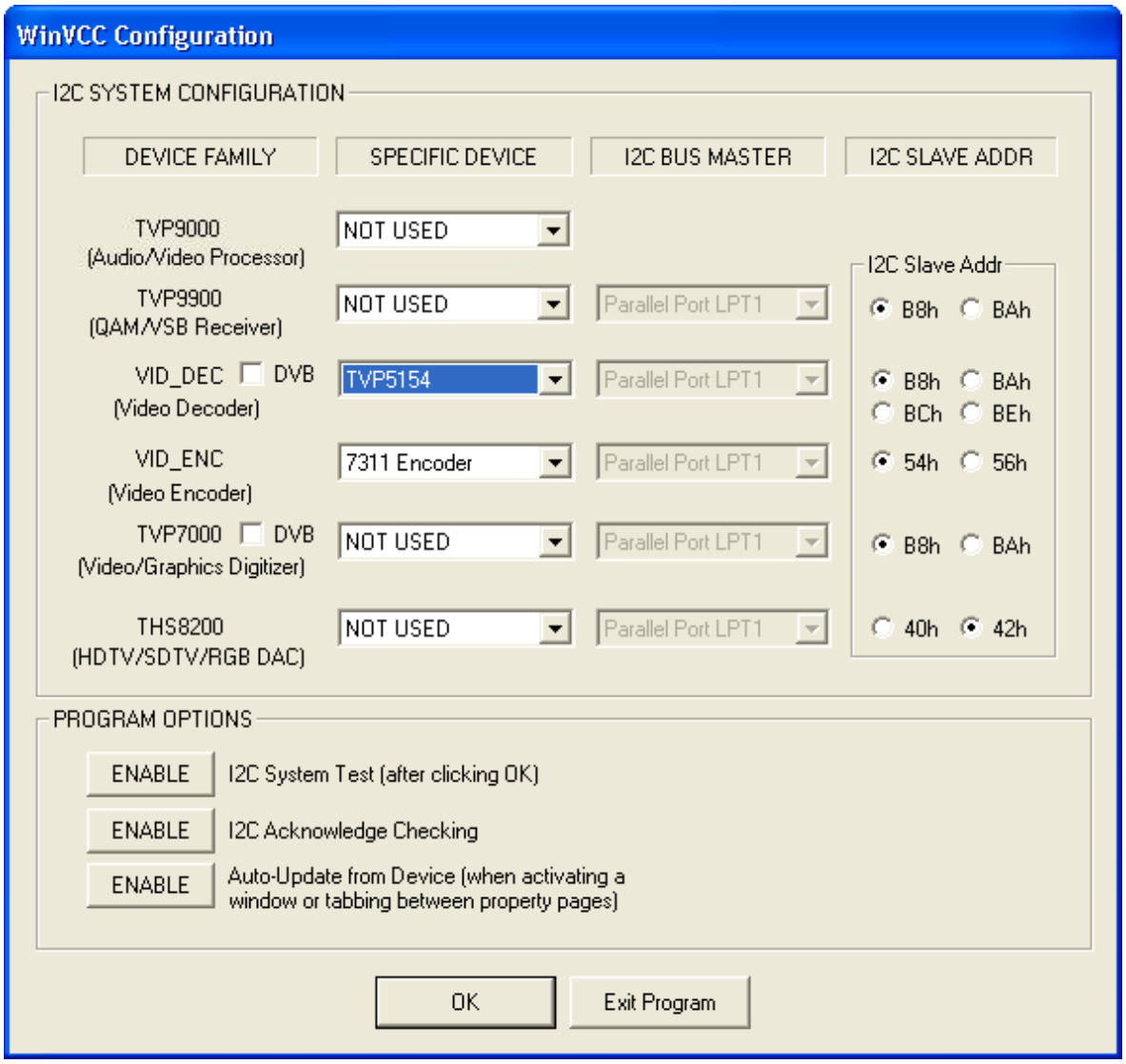


Figure 1. WinVCC – I²C Configuration Screen

3. Ensure that all other boxes are selected as “Not Used” and that all program options buttons are set to ENABLE. Click OK.
4. If there are no I²C communication issues, the Real-Time Polling dialog window displays next (see Figure 2). If there are I²C issues, an I²C Test Report dialog box displays. Completely exit out of WinVCC, double-check the parallel port cable connections, cycle power on the TVP5154EVM, and re-run WinVCC.

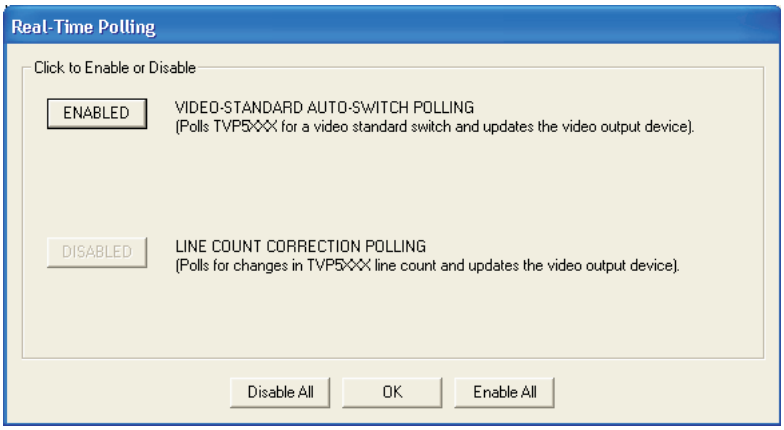


Figure 2. Real-Time Polling Dialog

5. When using the TVP5154 EVM with a composite output from the 7311 encoder, you must disable Auto-switch Polling in the Real-Time Polling dialog box by clicking on the Enable button. Click OK to display the Main Control Window (see Figure 3).



Figure 3. WinVCC – Main Screen

6. The TVP5154 I^2C Write Enable(s) and Read Enable pop-up window is displayed (see Figure 4). This window is used to select which decoder or decoders (any combination of all four) will receive I^2C Write commands and which decoder (only one) will receive I^2C Read commands. Decoder 1 is enabled by default; enable the other three decoders by clicking on each decoder's enable button.

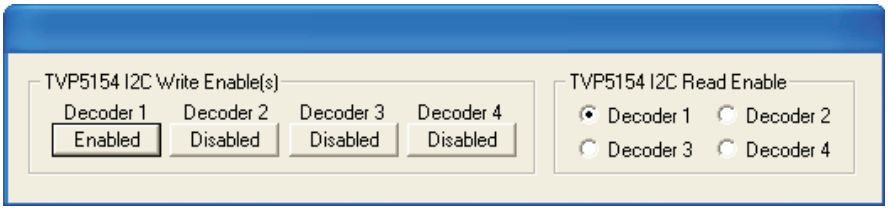


Figure 4. Decoder I^2C Write and Read Enable

7. Load the provided Initialization command (CMD) file into WinVCC by clicking on Tools > System Initialization > Browse. The default directory is C:\Program Files\Texas Instruments\TVP5154EVM\Initialization.
8. In the System Initialization window (see Figure 5), click "TVP5154 ROM – Initialize for NTSC . . ." or "TVP5154 ROM – Initialize for PAL . . ." dataset in the window, and then click "PROGRAM Device(s) Using Selected Dataset" to initialize the TVP5154EVM.

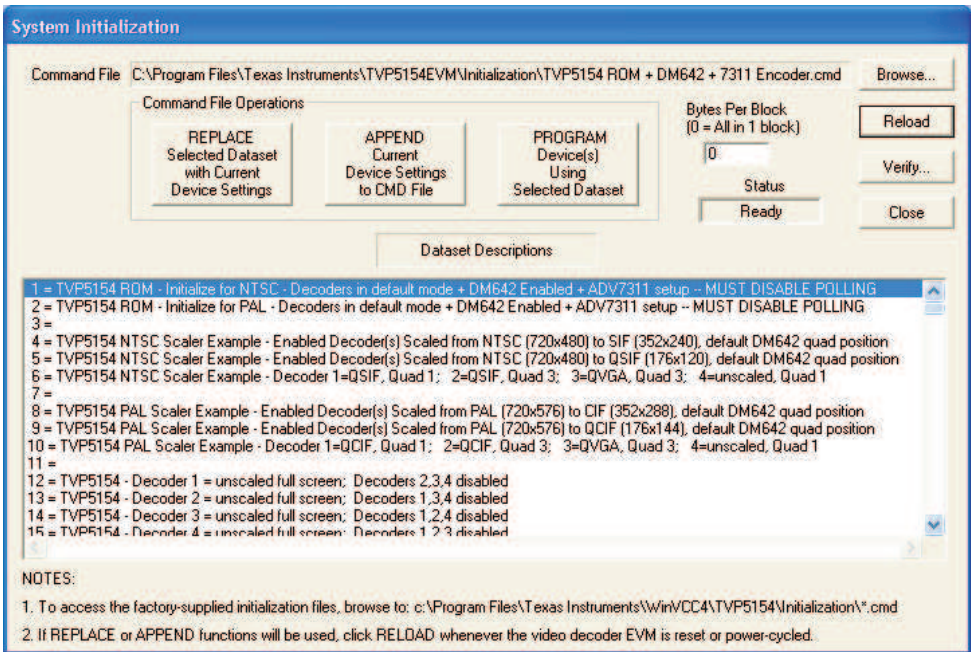


Figure 5. WinVCC – System Initialization

9. With video sources provided at the BNC connectors and the EVM output connected to a monitor, video from the source connected to CH1 should be viewable on the display monitor. If video is not visible on the monitor from the TVP5154EVM, ensure the following are correct:
    a. The input/output cables are connected correctly to the sources, EVM and monitor.
    b. The input source is configured for the selected video standard.
    c. The correct dataset is selected and programmed for the correct video input format.
10. The other datasets in the command file are provided to demonstrate examples of TVP5154 scaling performance. Refer to the TVP5154 data sheet (SLES163) for more details on programming the TVP5154 scaler. The DM642 settings can be controlled by using the DM642 Control Window, which is found by clicking on Tools > DM642 Control. Refer to Section 9 of the *TVP5154EVM User's Guide* (SLEU069) for details on programming the DM642 through this window or through the generic I^2C registers.

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