

**ADV7280**

**Installation Guide**

Rev. A

March 2013

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## **INTRODUCTION TO THE ADV7280 INSTALLATION GUIDE**

The ADV7280 Installation Guide describes the ADV7280 evaluation board; and provides instructions for setting up the ADV7280 evaluation board, installing the required ADV7280 software, and running the scripts needed to operate the ADV7280 evaluation board.

### **AUDIENCE**

The ADV7280 Installation Guide is intended for the use of the person installing an ADV7280 evaluation board.

### **DISCLAIMER**

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The content of this document is believed to be correct. If any errors are found within this document, or if clarification is needed, contact the local FAE.

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# 1. DESCRIPTION OF THE ADV7280 EVALUATION BOARD

The ADV7280 evaluation board consists of an ADV7280 video decoder and an ADV7391 video encoder. Analog video is fed into the analog inputs (Ain1 to Ain4). The ADV7280 evaluation board can be configured to receive many different analog video formats (refer to [Table 1](#)). The analog video from analog inputs is fed into the ADV7280 which converts it into an ITU656 digital stream.

*Table 1. Acceptable Analog Video Input Formats to ADV7280 Evaluation Board*

	<b>Ain1</b>	<b>Ain2</b>	<b>Ain3</b>	<b>Ain4</b>
<b>Single-ended CVBS (NTSC, PAL, SECAM)</b>	SE CVBS 1	SE CVBS 2	SE CVBS 3	SE CVBS 4
<b>Differential CVBS</b>	No	No	No	No
<b>S-Video (YC)</b>	S-Video 1 (Y)	S-Video 1 (C)	S-Video 2 (Y)	S-Video 2 (C)
<b>Component (YPbPr)</b>	Component (Y)	Component (Pb)	Component (Pr)	No

The digital output stream of the ADV7280 is fed to headers and into the ADV7391 video encoder (refer to [Figure 1](#)). The ADV7391 converts this digital stream into an analog YPbPr output. The analog YPrPb output from the ADV7391 is fed to the Video Output header of the evaluation board.

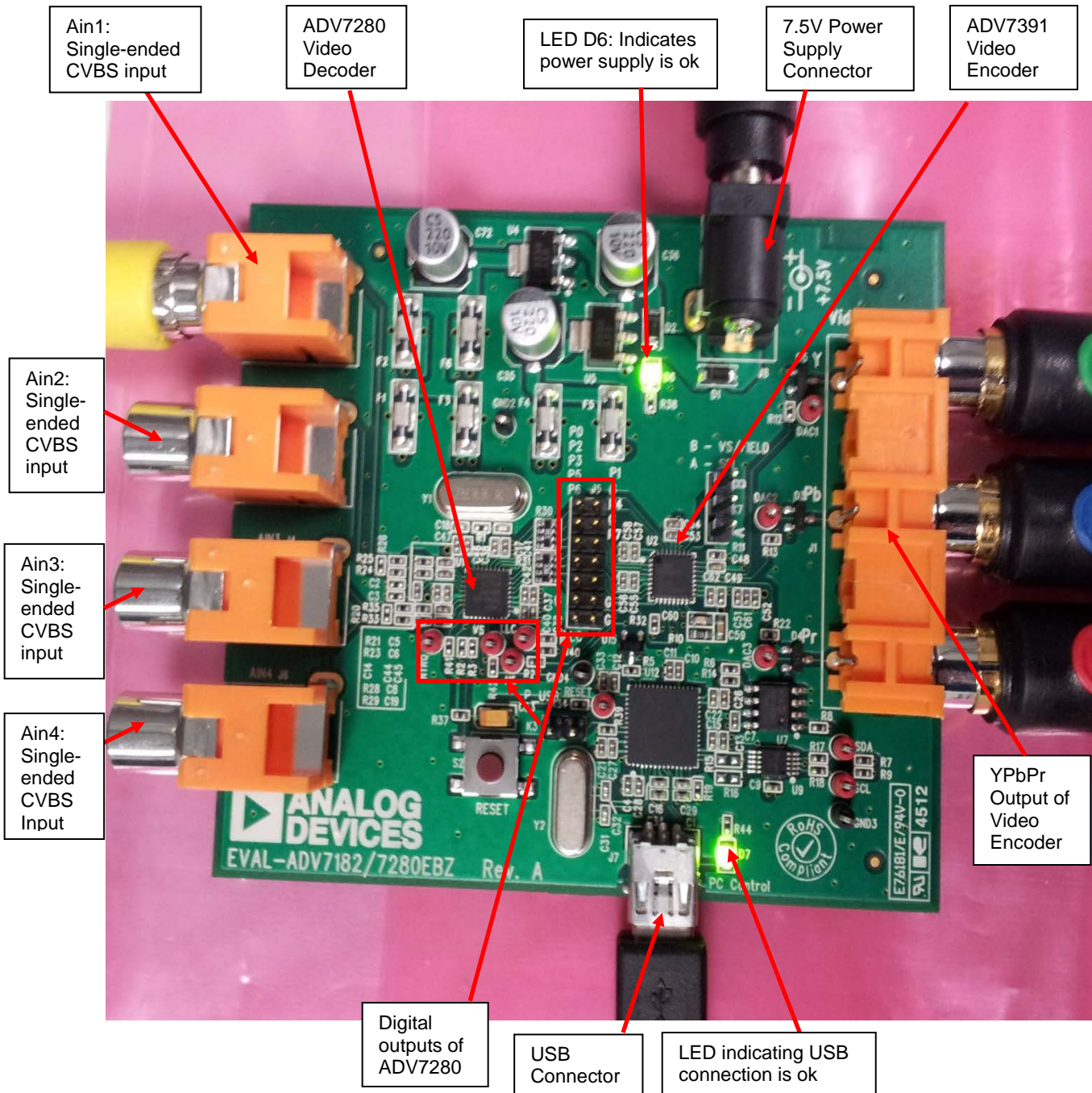


Figure 1. ADV7280 Evaluation Board

## 2. SETTING UP THE ADV7280 EVALUATION BOARD

The Analog Devices (ADI) DVP Eval program and ADV7280 script files are needed to operate the ADV7280 evaluation board. The DVP Eval program and ADV7280 script files are available on an ADI File Transfer Protocol (FTP) site.

The following setup process is recommended, and is described in detail in Section 2.1 to Section 2.6.

1. Download and install an FTP client.
2. Download the DVP Eval program and ADV7280 script files from the ADI FTP site.
3. Install the DVP Eval program.
4. Load the ADV7280 script files.
5. Power up the ADV7280 evaluation board.
6. Program the ADV7280 evaluation board.

### 2.1. DOWNLOAD AND INSTALL AN FTP CLIENT

Download and install an FTP client such as FileZilla in order to access the ADI FTP site.

1. Go to the <http://filezilla-project.org/download.php?type=client> website.
2. Download the FileZilla FTP client .exe installation file.
3. When the download is completed, run the .exe installation file and follow the onscreen instructions.

### 2.2. DOWNLOAD ADV7280 FILES FROM ADI FTP SITE

The DVP Eval program and ADV7280 script files are available on the ADI FTP site.

1. Open the FTP client, for example, FileZilla.
2. A quick connect bar appears near the top of the FileZilla client window. Enter the following information. (Note that the boxes are case sensitive.)
  - a. In the **Host** box, enter **ftp.analog.com**.
  - b. In the **Username** box, enter **adv728x**.
  - c. In the **Password** box enter **1dN62jy**.
  - d. Leave the **Port** box blank.
3. Press the **Quickconnect** button.

FileZilla then shows two panes (refer to Figure 2). The left pane displays the Local Site Pane (that is, your computer). The right pane displays the Remote Site Pane (that is, the ADI FTP site).

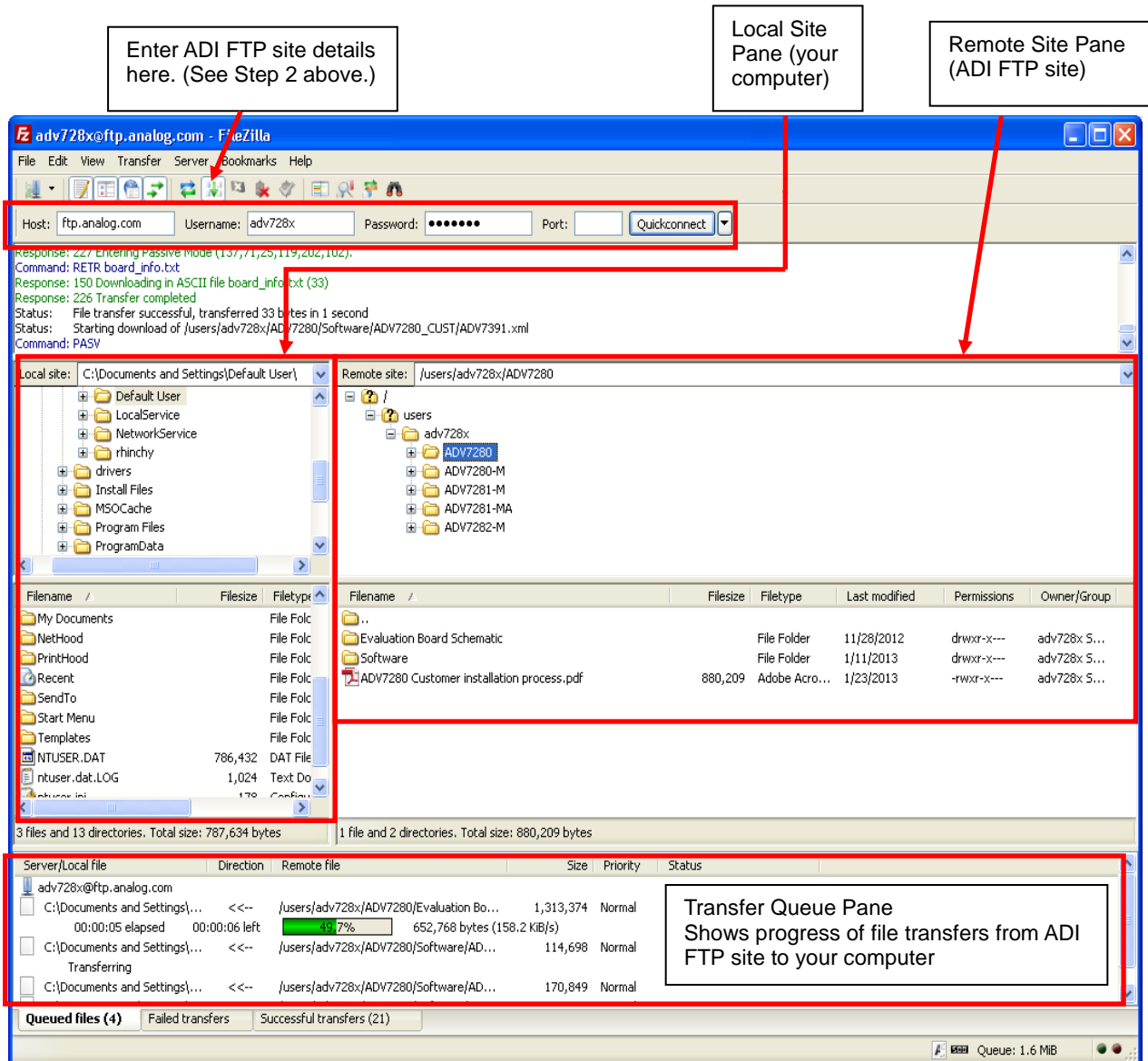


Figure 2. Image of ADI ADV7280 FTP Site

4. On the Local Site Pane, navigate to where you want to drop the ADV7280 files.
5. On the Remote Site Pane, select the ADV7280 folder.  
**Note:** Do not select the ADV7280-M folder.
6. Drag the ADV7280 folder to the desired location in the Local Site Pane.  
The files and folders on the ADI FTP site then copy to your computer.  
**Note:** The Transfer Queue Pane shows the progress of this copying.
7. On the Remote Site Pane, select the Install DVP Eval Latest Source 10-14-11.exe and drag it to the desired location in the Local Site Pane.

### 2.3. INSTALL THE DVP EVAL PROGRAM

1. When the transfer from the FTP site is complete (as described in Section 2.2), double click on the Install DVP Eval Latest Source 10-14-11.exe file.
2. A window appears showing a software license agreement. After you have read the agreement, press the **I Agree** button.
3. A new window appears asking if you want to add Desktop and Start Menu shortcuts. Press the **Next** button.
4. A new window (refer to Figure 3) appears, prompting to select the installation destination folder. Press the **Install** button.  
**Note:** It is strongly recommended to use the default destination folder. Selecting a different folder can cause the DVP Eval program to not install correctly in some versions of Windows.

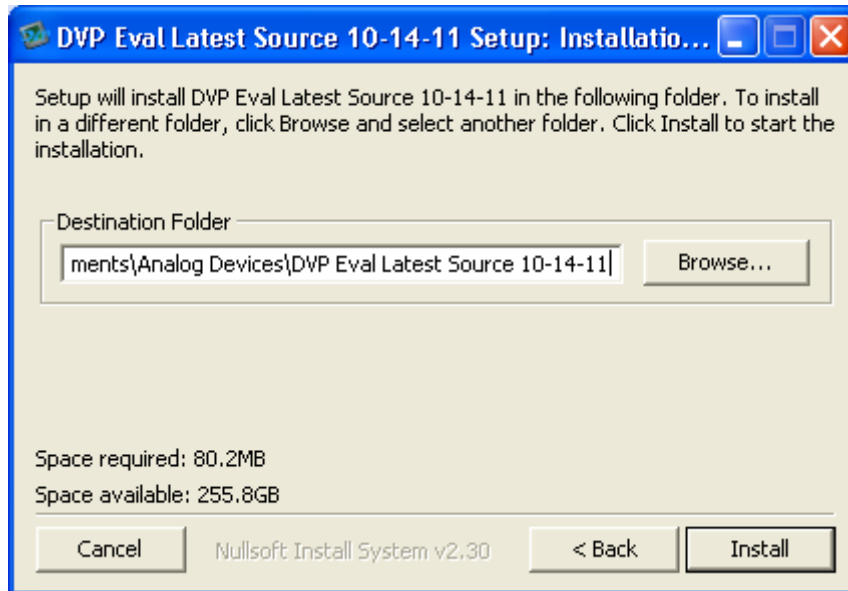


Figure 3. Installation Destination for DVP Eval Program

5. Restart your computer after the DVP Eval program is installed.

### 2.4. LOAD THE ADV7280 SCRIPT FILES

This section describes how to load the ADV7280 script files to the DVP Eval program.

1. Open the ADV7280 folder that you downloaded from the ADI FTP site.
2. Open the Software folder in the ADV7280 folder.
3. Copy the folder called ADV7280\_CUST to the following directory:  
C:\Documents and Settings\USER\_NAME\My Documents\Analog Devices\DVP Eval Latest Source 10-14-11\xml\New Boards.  
**Note:** This directory may be slightly different depending on where you installed the DVP Eval program.
4. To open the DVP Eval program, select Start -> Analog Devices -> DVP Eval Latest Source 10-14-11.
5. Select File -> Update Boards.

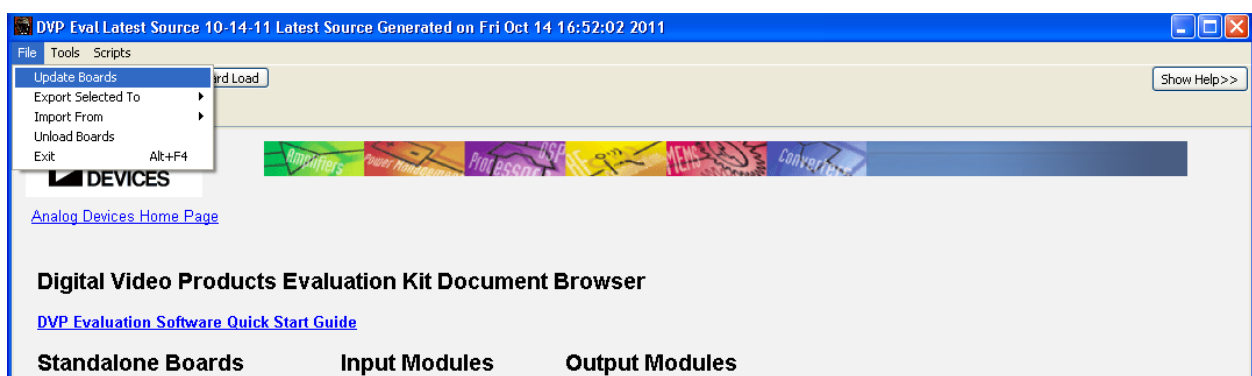


Figure 4. Update Board Files on DVP Eval Program



A number of black command prompt windows appear and then disappear. Finally, a window appears with the message “update boards successful”. Press the **OK** button.

The ADV7280 script files have been added to the DVP Eval program.

- Exit the DVP Eval program.

## 2.5. POWER UP THE ADV7280 EVALUATION BOARD

- Connect a mains cable to the 7.5 V supply cable included in the ADV7280 evaluation kit.
- Connect the 7.5 V supply cable to Jumper J8 on the ADV7280 evaluation board. When this is done correctly, LED D6 turns on (refer to [Figure 1](#)).
- Connect the USB cable included in the ADV7280 evaluation kit to the computer where you installed the DVP Eval program and ADV7280 script files. This cable is used to send commands from your computer to the ADV7280 evaluation board.
- Connect the other end of the USB cable to Jumper J7 of the ADV7280 evaluation board. When this is done correctly, LED D7 turns on (refer to [Figure 1](#)).
- Connect the analog video input(s) to the Ain inputs of the ADV7280 evaluation board. Refer to [Table 1](#) on how to connect these inputs.
- Connect a YPbPr cable to the Video Output connector, J1, of the evaluation board. Connect the other end of this YPbPr cable to a television or other sink device.

### Notes:

- The digital output of the ADV7280 can be probed with an oscilloscope or a digital grabbing device. The 8-bit pixel data is output to header J5. There are also headers for the LLC pin, HS pin and VS/Field/SFL pin. Refer to [Figure 1](#).
- Even after the ADV7280 evaluation board is powered up, the 28.63636 MHz crystal (Y1) will not oscillate until the ADV7280 is programmed (refer to [Section 2.6](#)).

## 2.6. PROGRAM THE ADV7280 EVALUATION BOARD

- To run the DVP Eval Latest Source application, select Start-> All Programs -> Analog Devices -> DVP Eval Latest Source 10-14-11.
- Press the **Choose Board** button on the top left of the DVP Eval program window and the Board Selector window appears (refer to [Figure 5](#)).

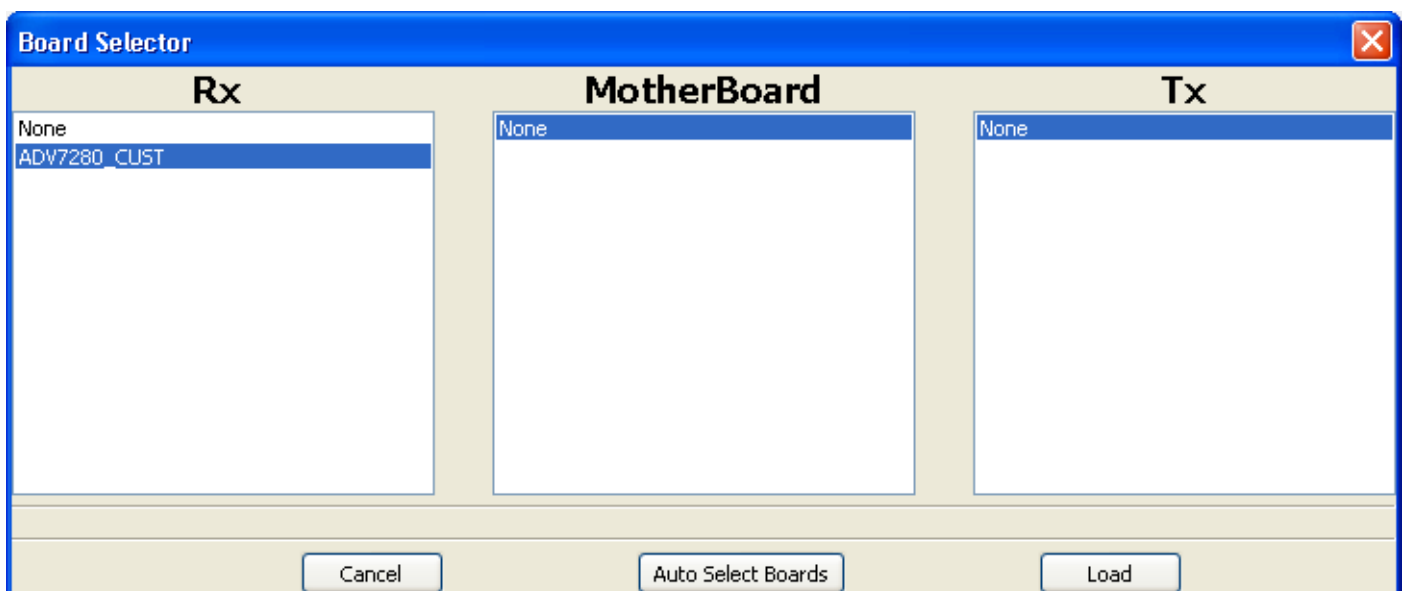


Figure 5. Board Selector Window of DVP Eval Program

- Select ADV7280\_CUST in the Rx section of the Board Selector window.
- Select None in the MotherBoard section.
- Select None in the Tx section.
- Press the **Load** button. A window similar to that shown in [Figure 6](#) appears.

Selects ADV7280
Selects ADV7391
Selects Main Map of ADV7280
Selects Interrupt/VDP Sub Map of ADV7280
Selects User Sub Map 2 of ADV7280
Selects Video Post Processing (VPP) Map of ADV7280

ALSB pin of ADV7280 tied high on evaluation board. Therefore, I<sup>2</sup>C device address of ADV7280 set to 0x42.

Device Address	0	1	0	0	0	0	1	0	0x42	Read	Write	Load Defaults
00 INSEL[4:0]	0	0	0	0	1	1	1	0	0x0E	14		
01 ENHSPLL	1	1	0	0	1	0	0	0	0xC8	1		
BETACAM										0		
ENVSPROC								1		1		
SQPE								0		0		
02 VID_SEL[3:0]	0	0	0	0	0	1	0	0	0x04	0		
YPM[2:0]								1	0	0		
03 VBI_EN	0	1	0	0	1	1	0	0	0x4C	0		
TOD								1		1		
OF_SEL[3:0]					0	0	1	1		3		
SD_DUP_AV								0		0		
04 BT656-4	0	0	1	1	0	1	0	1	0x35	0		
TIM_OE								0		0		
BL_C_VBI								1		1		
EN_SFL_PIN								0		0		
RANGE								1		1		
07 AD_SECS25_EN	0	1	1	1	1	1	1	1	0x7F	0		
AD_SECAM_EN								1		1		
AD_N443_EN								1		1		
AD_P60_EN								1		1		
AD_PALN_EN								1		1		
AD_PALM_EN								1		1		
AD_NTSC_EN								1		1		
AD_PAL_EN								1		1		
08 CON[7:0]	1	0	0	0	0	0	0	0	0x80	128		
0A BRI[7:0]	0	0	0	0	0	0	0	0	0x00	0		
0B HUE[7:0]	0	0	0	0	0	0	0	0	0x00	0		
0C DEF_Y[5:0]	0	0	1	1	0	1	1	0	0x36	13		
DEF_VAL_AUTO_EN								1		1		
DEF_VAL_EN								0		0		
0D DEF_C[7:0]	0	1	1	1	1	1	0	0	0x7C	124		
0E SUB_USR_EN[1:0]	0	1	0	0	0	0	0	0	0x40	2		
0F RES	0	0	1	0	0	0	0	0	0x20	0		
TRAQ								0		0		
PWRDN								1		1		
10 COL_KTU	1	1	1	1	0	1	0	1	0x95	1		

Figure 6. DVP Eval Program After Loading ADV7280 Board

7. Select Scripts-> ADV7280\_CUST to select the script you wish to run (refer to Figure 7).

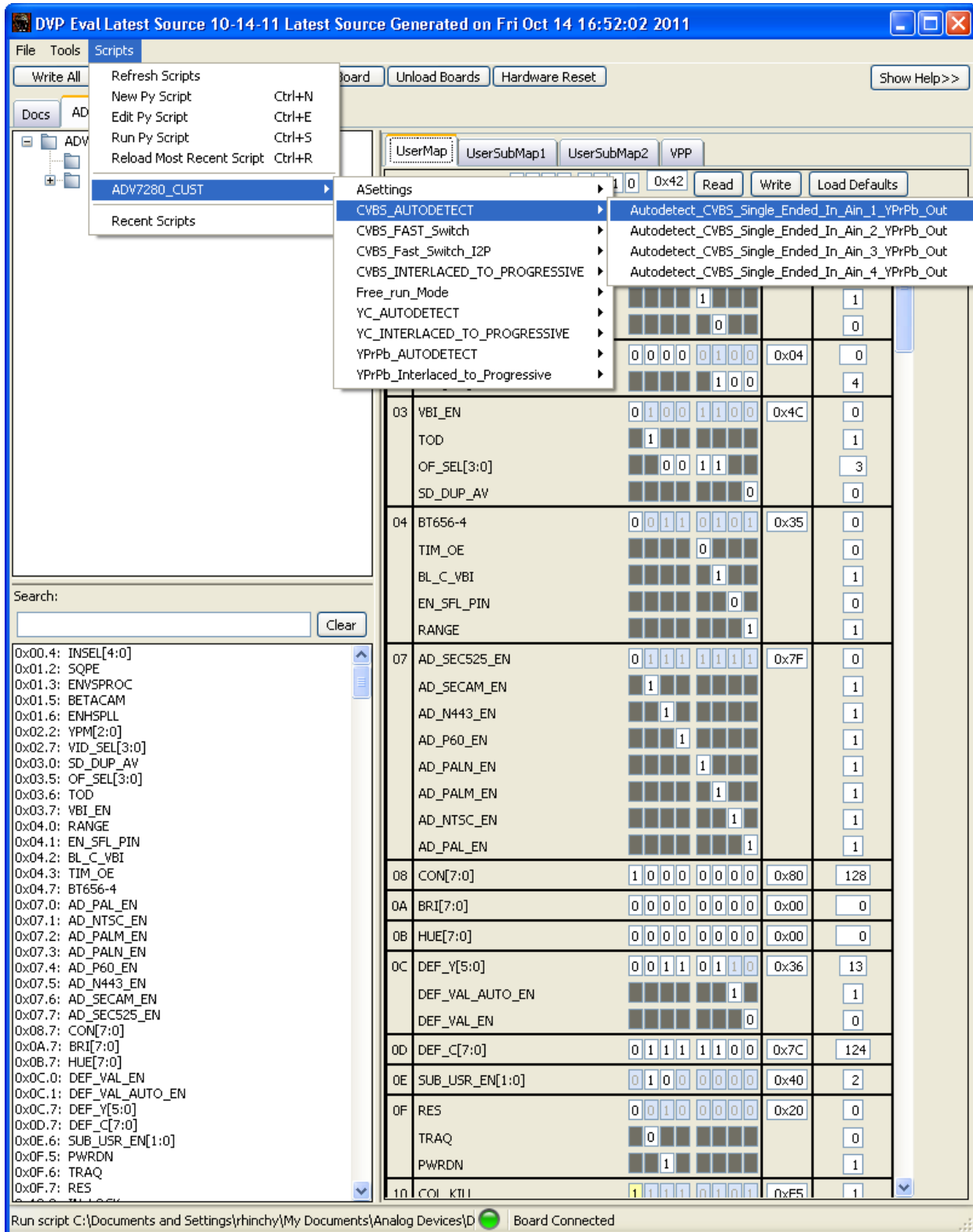


Figure 7. Running ADV7280 Script on DVP Eval Software

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## REVISION HISTORY

### March 2013 – Rev. A

Initial version.