# Welcome to the ADV7180 Evaluation Kit

Inside your evaluation kit, you should find the following:
- 1 x ADV7180 evaluation board                              - 1 x USB cable
- 1 x ADV7180 evaluation board power supply         - 1 x FTP quick start guide

Many different analog video formats can be fed into the ADV7180 evaluation board ( CVBS, YC, YPrPB). This analog video is fed into an ADV7180 video decoder which converts this analog video in digital ITU.656 data. There are test points on the evaluation board that allow the user to probe the digital ITU.656 video data.

The digital ITU.656 data is fed into a video encoder (an ADV7391 or ADV7393). The video encoder converts this digital ITU.656 data into analog CVBS or YPrPb video. This analog video is output from the evaluation board.

There are four different ADV7180 Evaluation Board models available (see Table 1 below). This guide can be used for each of these evaluation boards. This guide details how to setup the evaluation boards, how to install software, and how to run the scripts needed to operate these evaluation boards.

**Table 1. List of ADV7180 Evaluation Board Models**

| Evaluation Board Model | Description |
| --- | --- |
| EVAL-ADV7180-32EBZ | Evaluation Board for the 32-Lead LFCSP ADV7180 |
| EVAL-ADV7180LFEBZ | Evaluation Board for the 40-Lead LFCSP ADV7180 |
| EVAL-ADV7180-48EBZ | Evaluation Board for the 48-Lead LQFP ADV7180 |
| EVAL-ADV7180LQEBZ | Evaluation Board for the 64-Lead LQFP |

**Recommended setup method**:
1. Download and install an FTP client.
2. Download the ADV7180 Software from the Analog Devices FTP site.
3. Install the ADV7180 Software.
4. Power-up ADV7180 evaluation board and connect to your computer.
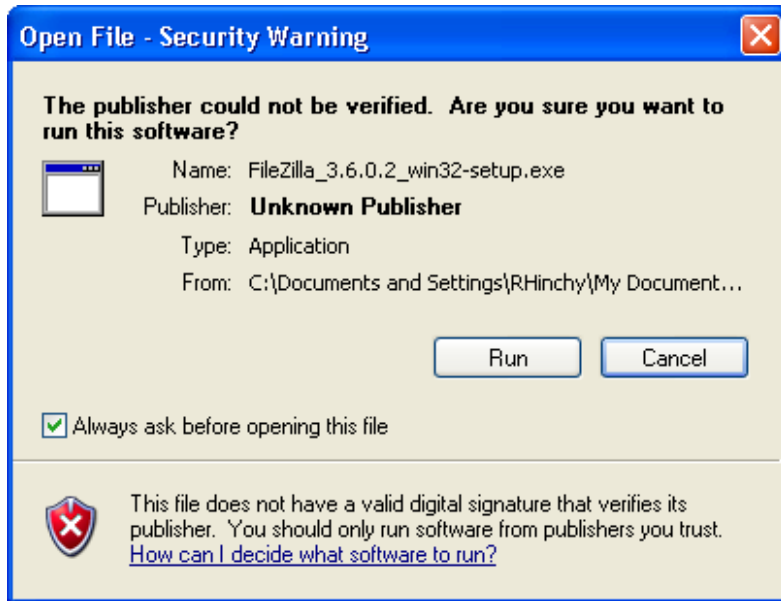5. Run ADV7180 Software.

# 1. Download and Install an FTP Client

1. Go to the website http://filezilla-project.org/download.php
   a. Alternatively do an internet search for: " Filezilla FTP client"
2. Download from the Windows recommended source.



**Figure 1. Filezilla FTP Client Download Website**

3. Download the Filezilla setup executable file to your computer (approximately 4.5 MB).
4. Double click on the Filezilla setup executable file.
5. If a security warning box appears click "Run".

**Figure 2. Security Warning Box That Can Appear While Installing Filezilla**

6. Follow the installation instructions for Filezilla.

## 2. Access the ADV7180 Software on the Analog Devices FTP Site.
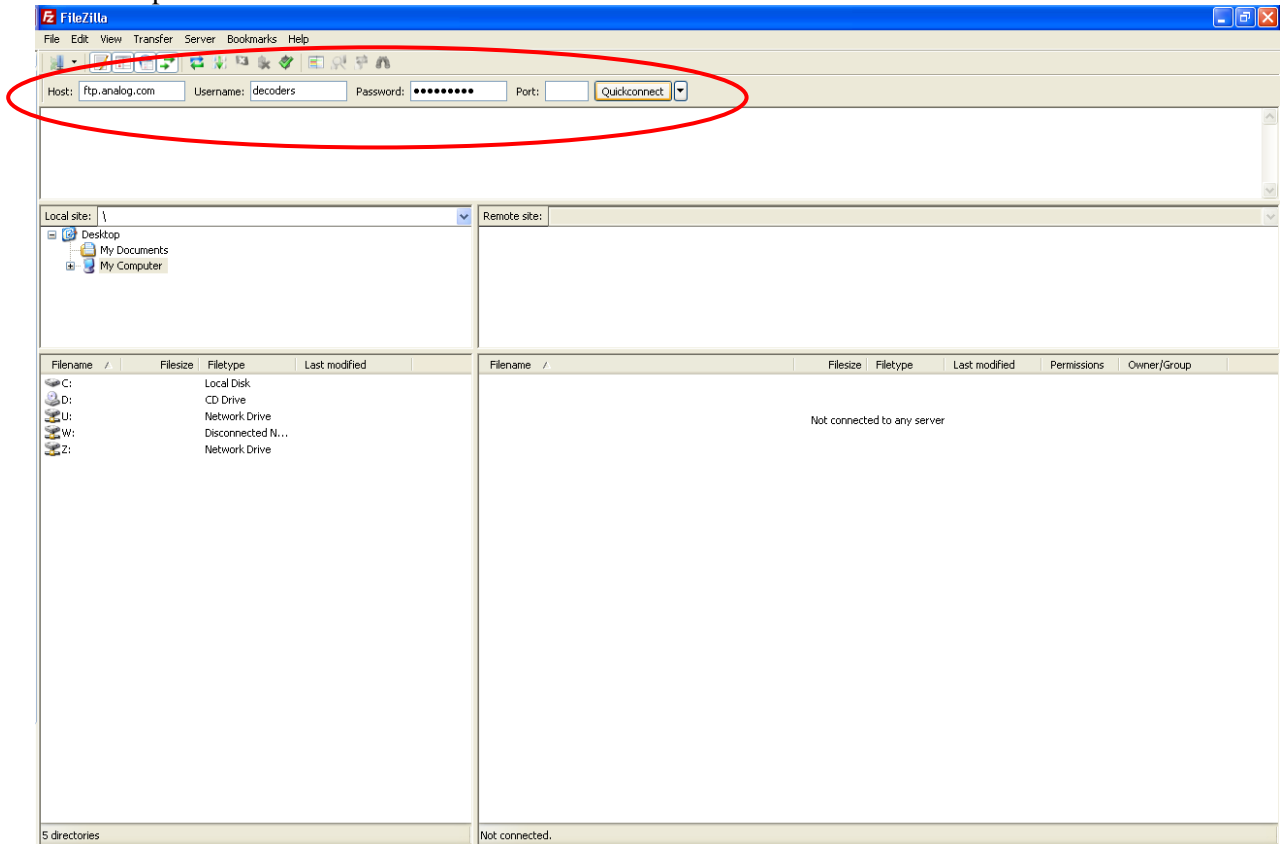
1. Open Filezilla FTP client.



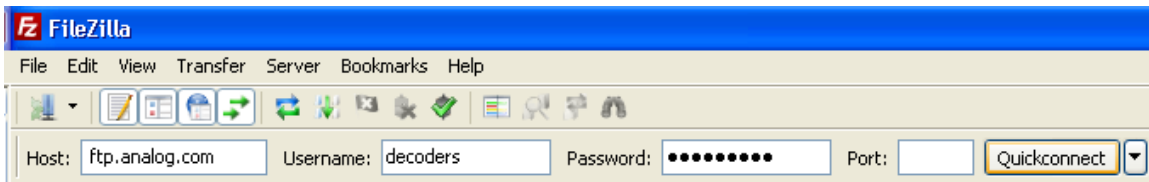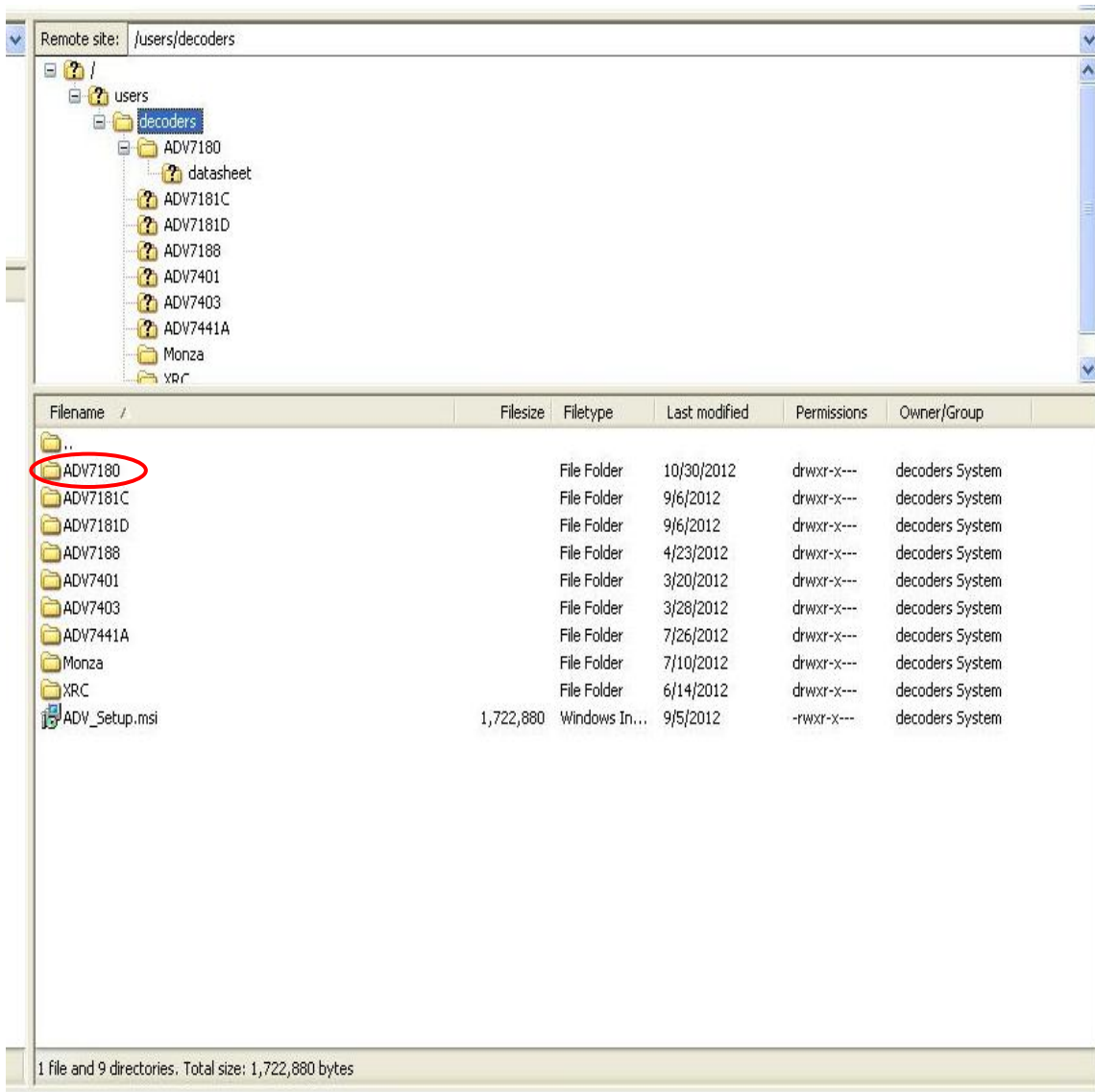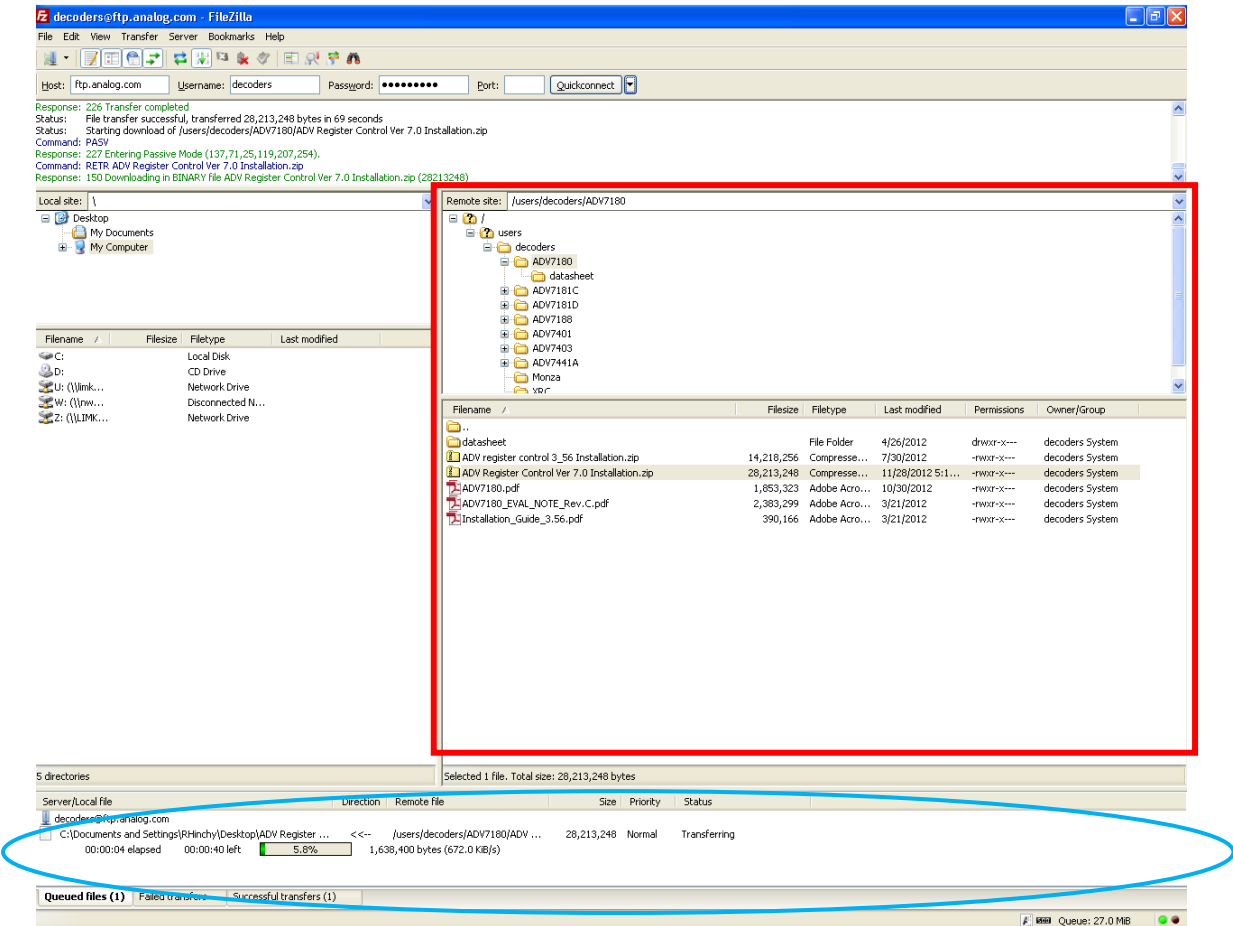**Figure 3. Filezilla FTP Client**



**Figure 4. Zoom-in of Area Highlighted in Figure 3**

2. Near the top of the Filezilla client window you will see four boxes. ( See Figure 3 and Figure 4)  Enter the following information in these boxes. Note that these are case sensitive.
   a. In the **Host** box enter**: ftp.analog.com**
   b. In the **Username** box enter**: decoders**
   c. In the **Password** box enter**: +s6jf8wHJ**
   d. Leave the **Port** box blank.
3. Click the Quickconnect button. You should now have access to the Analog Devices Decoders FTP site. See Figure 5 below.
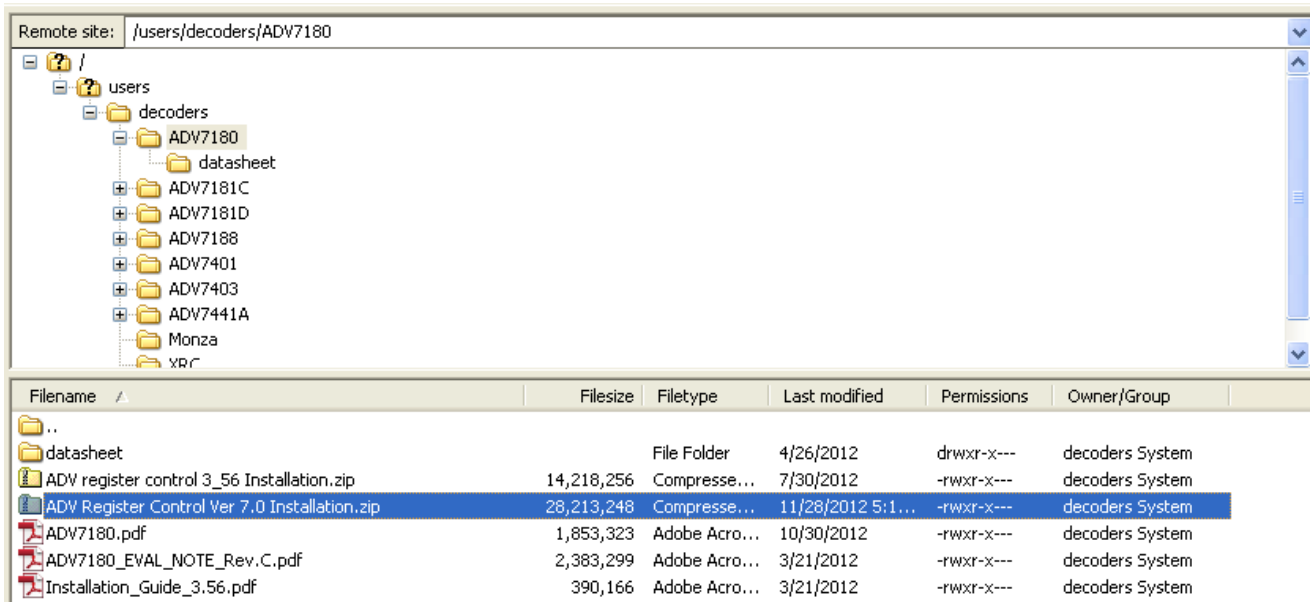
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**Figure 5. Analog Devices "Decoders" FTP Site**

4. On the FTP site open the "decoders" directory and then open the "ADV7180" sub-directory.
   a. This can be done by clicking on the ADV7180 folder highlighted in Figure 5 above).
5. The Filezilla screen should now look like Figure 6 below.
6. Download the "ADV Register Control Ver 7.0 Installation.zip" file to your computer
   a. This can be done by clicking and dragging the "ADV Register Control Ver 7.0 Installation.zip" file from filezilla to the desktop of your computer.

**Figure 6. ADV7180 Folder in the Analog Device "Decoders" FTP Site**



**Figure 7. Zoom-in of Area Highlighted with a Red Square in Figure 6**

7. Note that the "ADV Register Control Ver 7.0 Installation.zip" file is rather large (26.9 MB) so the download process can take a number of minutes.
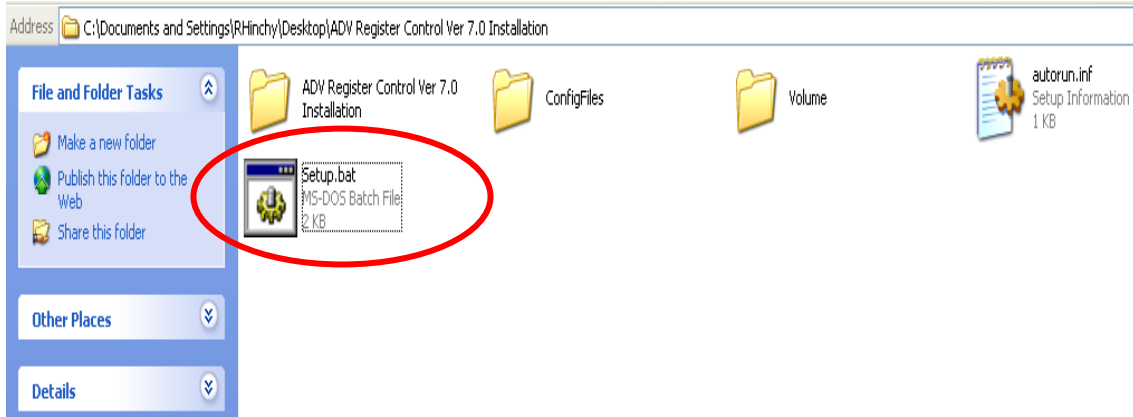   a. The Queued files tab at the bottom of the screen shows the download progress (see Figure 8).

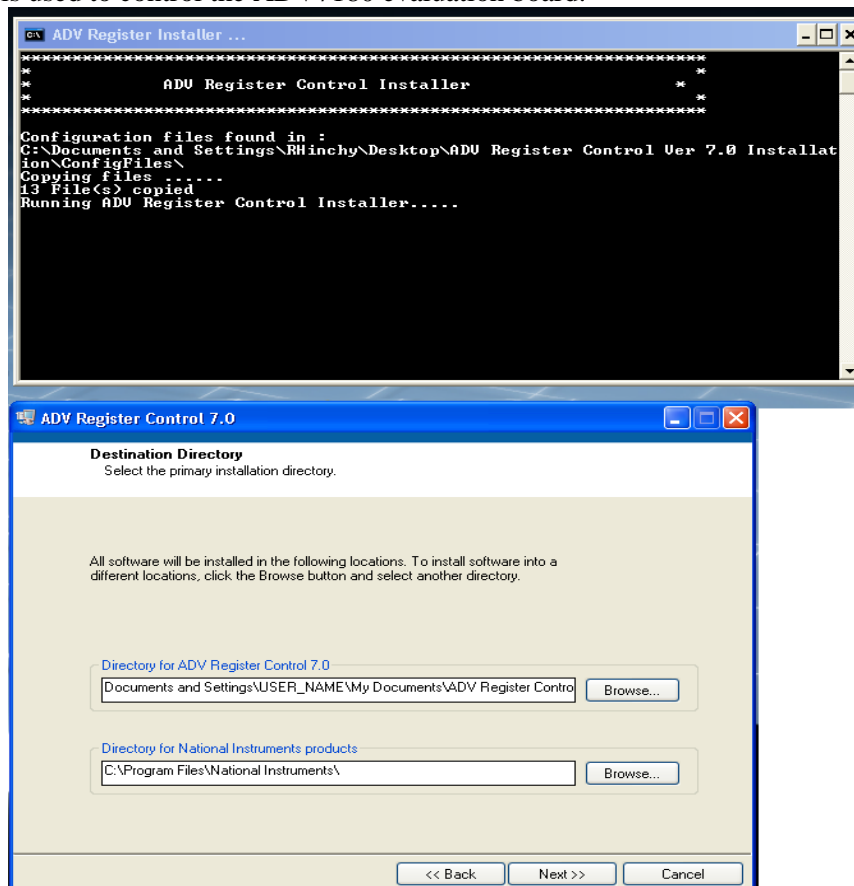**Figure 8. Zoom-in of Area Highlighted with a Blue Circle in Figure 6**

# 3. Install the ADV7180 Software

1. Unzip the "ADV Register Control Ver 7.0 Installation.zip" file when it has been fully downloaded from the Analog Devices FTP site.



**Figure 9. View of Folder Created by Unzipping "ADV Register Control Ver 7.0 Installation.zip"**

2. Open the Unzipped folder.
3. Double click on the "Setup.Bat" batch file (see Figure 9).
4. Follow the on screen installation process and press "Next" when prompted.
   a. It is strongly advised that the user uses the default installation directories.
5. Continue until the ADV Register Control 7.0 Software is installed. ADV Register Control 7.0 is used to control the ADV7180 evaluation board.



**Figure 10. Installation of ADV Register Control 7.0**

# 4. Power-up ADV7180 Board and Connect to Your Computer

1. Connect a mains power cable to the AC/DC Switching adaptor.
2. Connect the output of the AC/DC Switching adaptor to the "+8V DC" connector jumper on the ADV7180.
3. Flick the switch next to the "+8V DC" connector so that the nearby LED turns on. The ADV7180 board is now powered up.
4. Connect the Universal Serial Bus (USB) cable from your computer (the computer where ADV7180 software is installed) to the mini USB connector on the ADV7180 evaluation board. An LED near the USB connector on the ADV7180 evaluation board, should turn on.
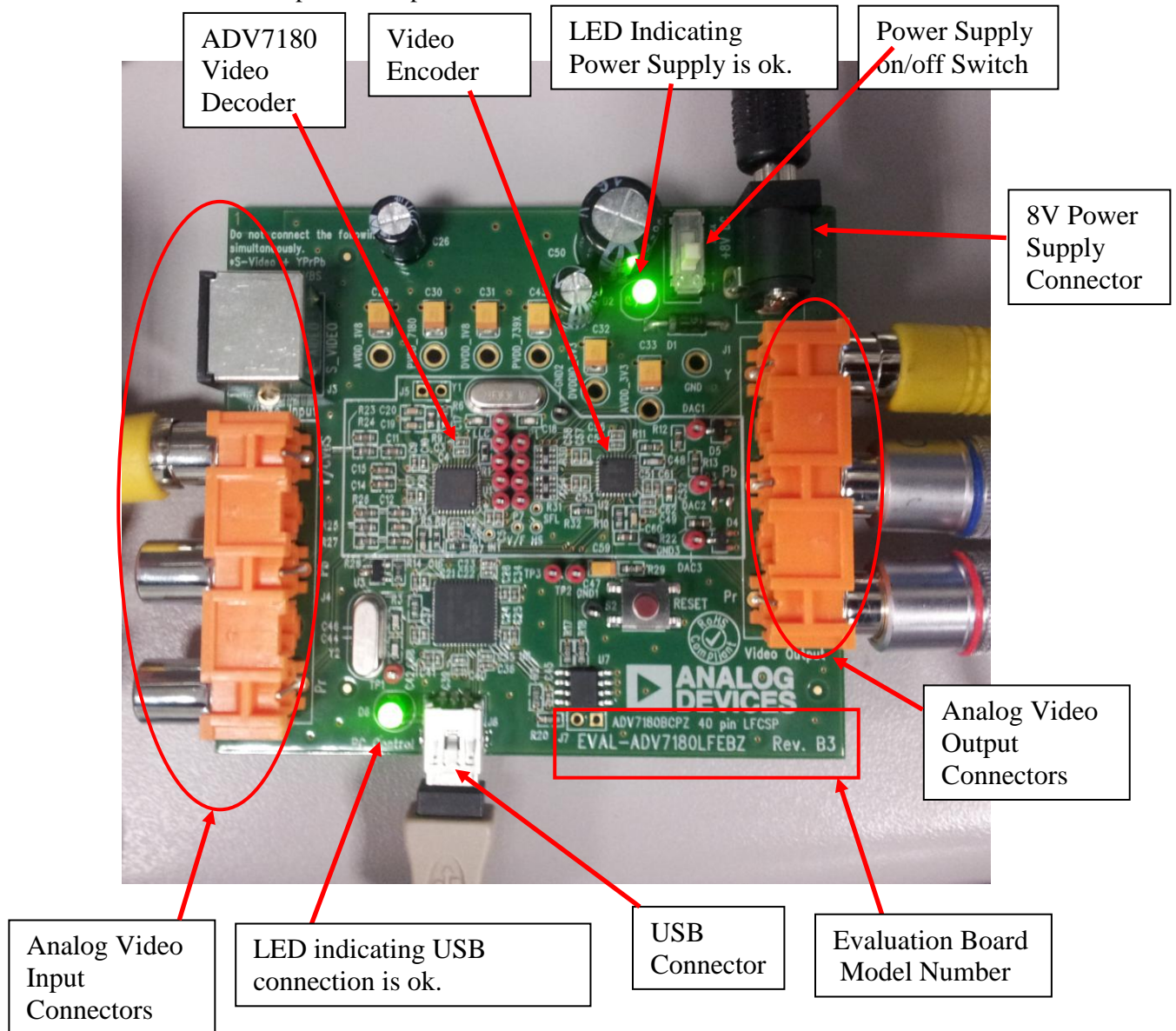5. Connect video input and output cables.



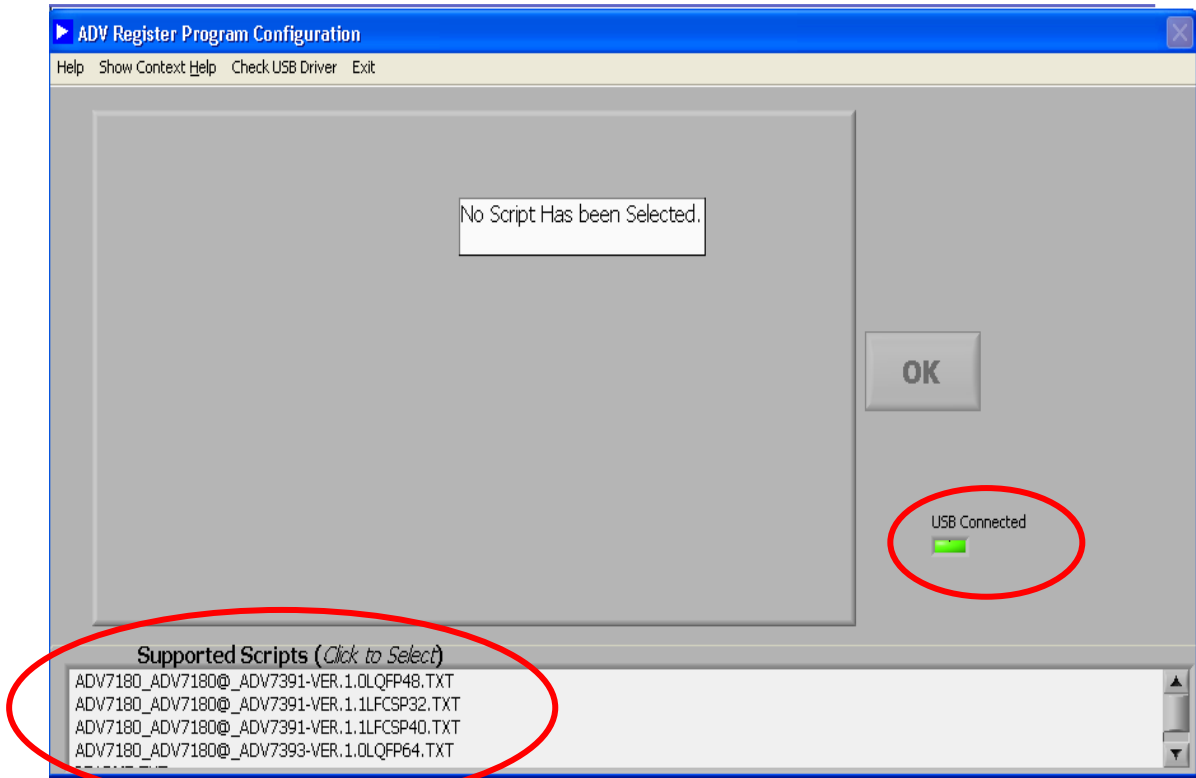**Figure 11. 40 Pin LFCSP ADV7180 Evaluation Board**

# 5. Run software

1. Open the ADV Register Control 7.0 Software
   a. In Windows press Start -> ADV Register Control 7.0 -> ADV Register Control 7.0
2. When the ADV Register Control 7.0 opens a window called ADV Register Program Configuration opens (see Figure 12). Make sure that the "USB Connected" indicator is green. If it is not, redo the steps in "Power-up ADV7180 Board and Connect to Your Computer" section of this document.
3. There are four different types of ADV7180 evaluation board. Each of these boards needs different software scripts.
   a. Read the model type of your ADV7180 evaluation board (see Figure 11).
   b. Use Table 2 to find the script name for your evaluation board.
   c. In the "ADV Register Program Configuration" window select the script for your evaluation board
   d. Click OK.
      **A window similar to that shown in Figure 12**

      e. Figure 13 will appear.
4. To program the ADV7180 evaluation board press Setting  -> Scripts
   Then select which script you wish to run on the drop down menu (see Figure 14). The desired script depends on the analog video inputted to the ADV7180, and the desired analog video output from the video encoder on the evaluation board.

**Table 2. Software Scripts Needed for Different ADV7180 Evaluation Boards**

| Evaluation Board Model | Description | Software Script Needed |
|---|---|---|
| EVAL-ADV7180-32EBZ | Evaluation Board for the 32-Lead LFCSP ADV7180 | ADV7180_ADV7180@_ADV7391-VER.1.1LFCSP32.txt |
| EVAL-ADV7180LFEBZ | Evaluation Board for the 40-Lead LFCSP ADV7180 | ADV7180_ADV7180@_ADV7391-VER.1.1LFCSP40.txt |
| EVAL-ADV7180-48EBZ | Evaluation Board for the 48-Lead LQFP ADV7180 | ADV7180_ADV7180@_ADV7391-VER.1.0LQFP48.txt |
| EVAL-ADV7180LQEBZ | Evaluation Board for the 64-Lead LQFP | ADV7180_ADV7180@_ADV7393-VER.1.0LQFP64.txt |

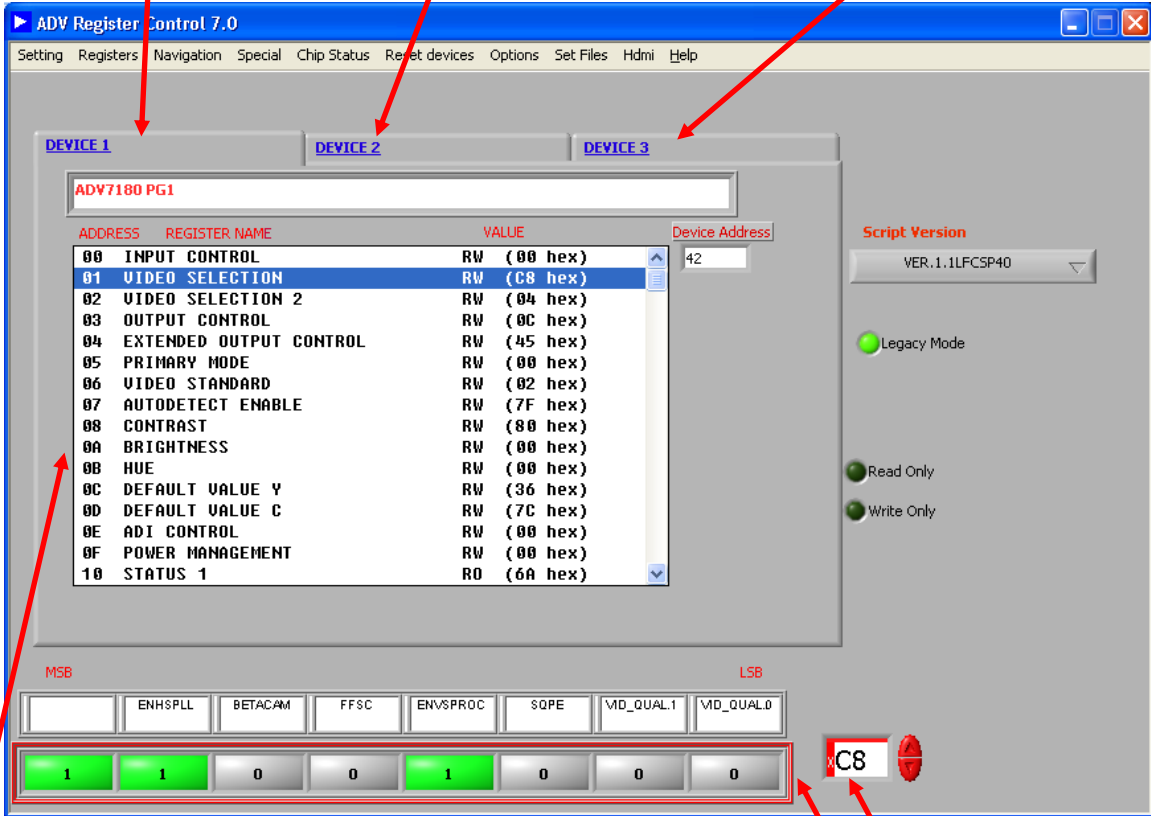**Figure 12. ADV Register Program Configuration Window**

Device 1 Tab selects the ADV7180 Normal Register Space.

See register programming section of ADV7180 datasheet.

The Device 2 Tab selects the ADV7180 Interrupt & VDP Register Space.

See register programming section of ADV7180 datasheet

Device 3 Tab selects the video encoder on the evaluation board

Register Selection:

This section allows the user to select a particular $I^2C$ register within a register space.

Bit Modification:

This section allows the user to modify the eight bits within the $I^2C$ register selected in the "Register Selection" section.
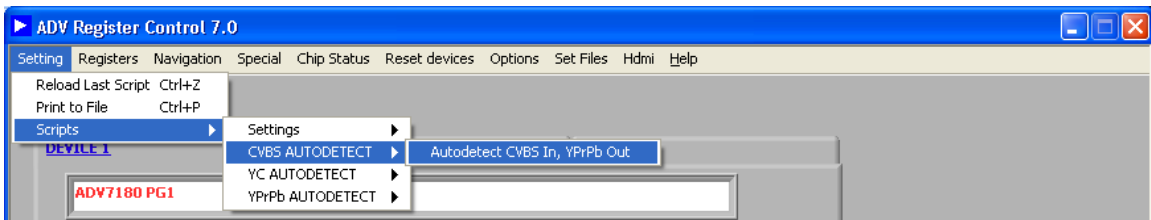
**Figure 13. ADV Register Control 7.0 with ADV7180 Board File Loaded**

**Figure 14. Running a Script in ADV Register Control 7.0**

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