

Palomar Scientific Instruments

DPD-3W-05C/DPD-3W-06C 3-Wave FIR Demodulator

Programming Guide

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Version 1.91

Palomar Scientific Instruments
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Document Revisions

Date	Version Number	Document Changes
07/17/2013	0.90	Initial Draft.
05/18/2015	1.90	Update using scripts and DIP switch settings.
06/02/2015	1.91	Added instructions for iMPACT GUI.

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1 Overview

This guide provides a basic guide on how to re-flash the firmware on the DPD.

2 Acquiring tools / files

In order to reprogram the DPD please visit <http://www.PalomarScientific.com/Downloads> and download the compressed archive (.zip) under **Programming Tools**. Within this archive, there is one file and a folder: **Xilinx.lic**, and the folder **Xilinx_LabTools_14.5**. Also download the appropriate compressed archive (.zip) under **Programming Files**. Within this archive, there should be three files; **EASTDPD_0xC_2r1.mcs**, **programDPD.bat**, **programDPD.sh**. Extract these archives to C: _EAST. Once the archives have been extracted, continue with this guide.

3 Xilinx iMPACT Installation

3.1 Windows

Launch xsetup.exe that is located within C:_EAST\Xilinx_LabTools_14.5. Once launched, the following screen should appear:

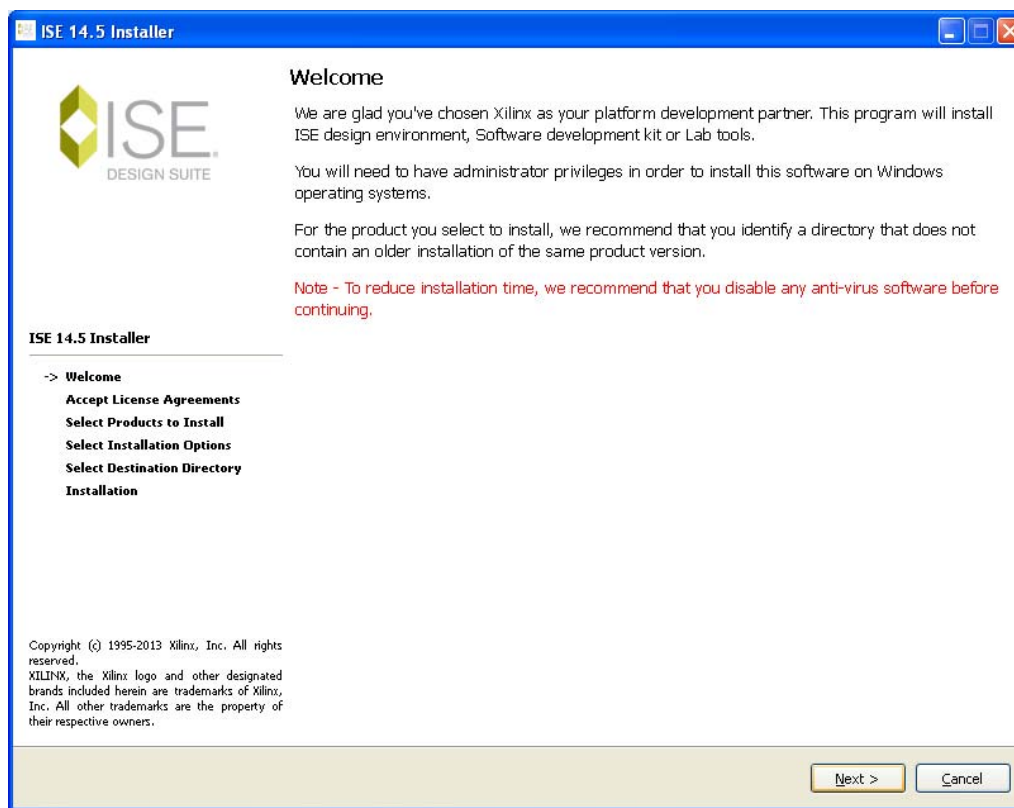


Figure 1

Click **Next** and agree to both License Agreements. After agreeing, an Installation Options window will appear. Set the options to the following screenshot and select **Next**:

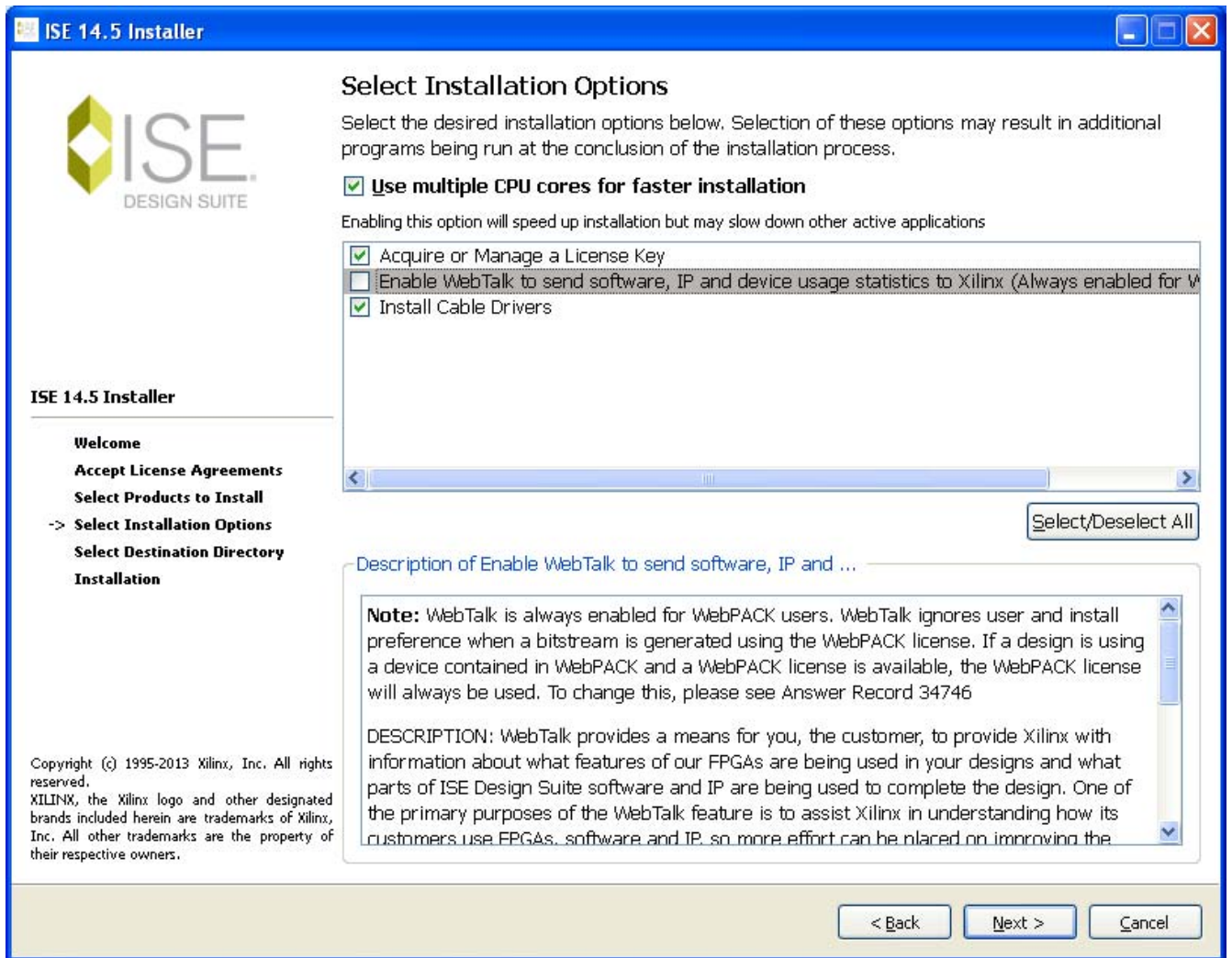


Figure 2

Select **Next** in the Destination Directory dialog and wait until it finishes installing. Once Finish is selected the Xilinx License Configuration Manager dialog should appear. Select **Locate Existing License** and select **Next**.

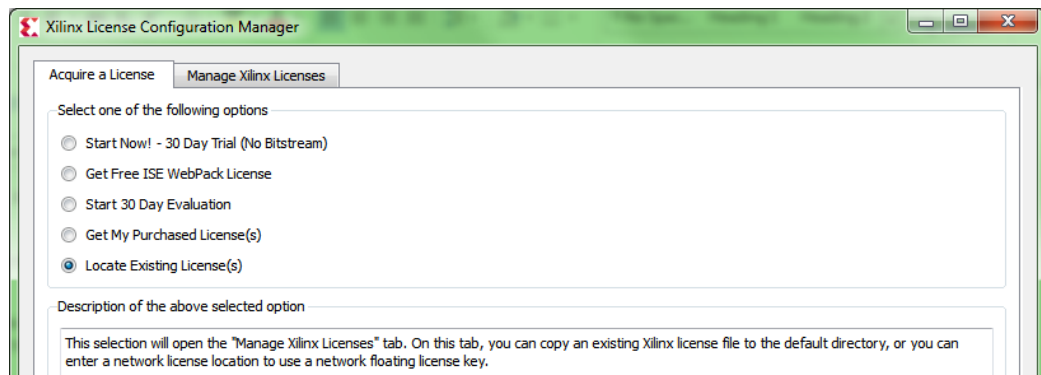


Figure 3

At the next screen click **Copy License**, browse to and select the provided license file (**Xilinx.lic**). iMPACT will now be accessible in the start menu.

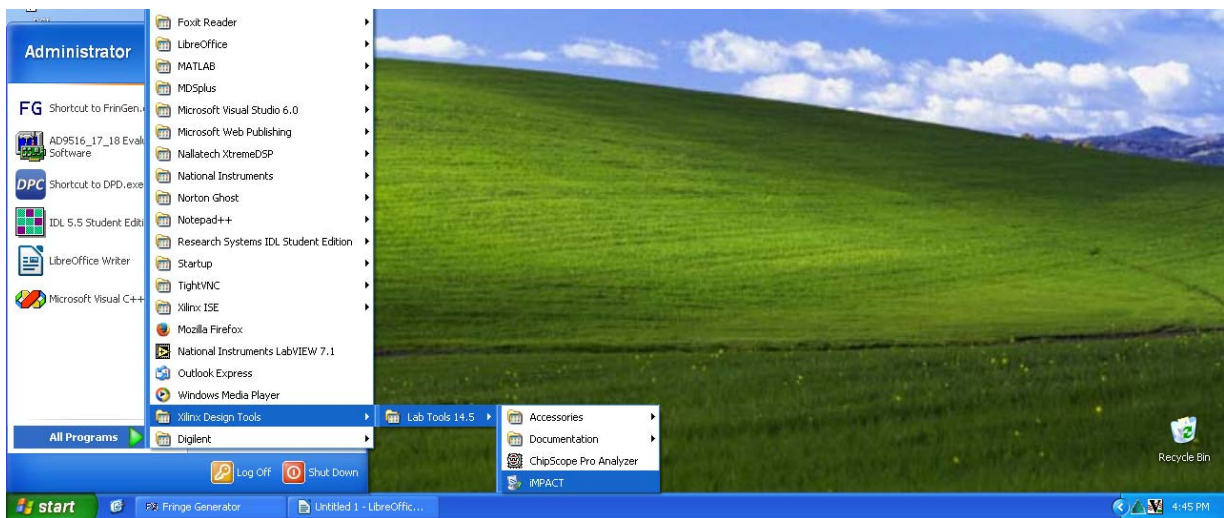


Figure 4

4 Hardware Setup

It may be necessary to adjust a physical DIP switch on the DPD.

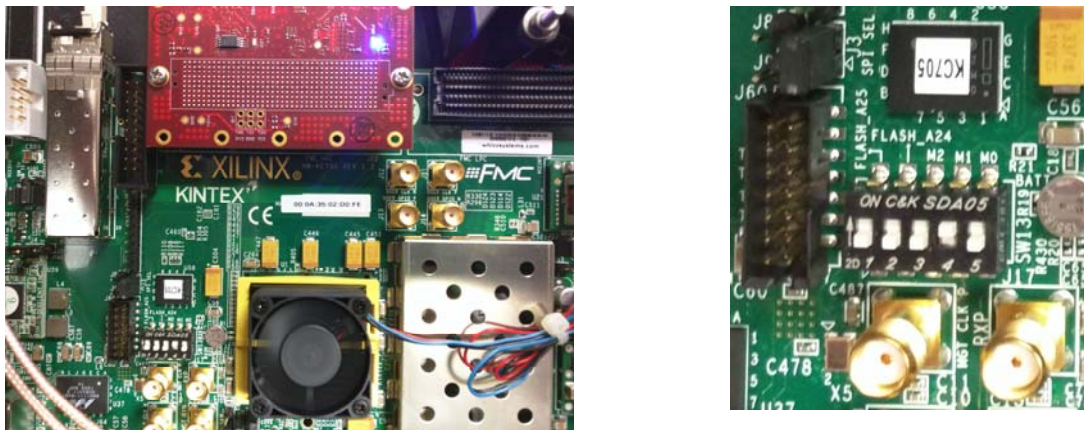


Figure 5

To do so; using a phillips screwdriver remove the 8 screws holding the top into place. There is a DIP switch on the middle left hand side of the DPD. The correct switch settings should appear like that of Figure 5. Notice that the settings are set to 00010, read from left to right. If not set as pictured, please modify. Once modified, reseal the DPD.

NOTE: This step may be skipped for the 6CH model.

5 Flashing

Available at <http://www.PalomarScientific.com/Downloads>, download and extract the needed updated files to a path with no spaces (ie. C:_EAST_Updates). Using the provided USB to USB-micro cable (JTAG), connect the DPD to the host computer.

5.1 iMPACT GUI

Launch iMPACT, and hit **Cancel** on the **New iMPACT Project** dialog. Double click the Boundary Scan option in the top upper left corner of iMPACT. This will cause the area of the right to turn white, right click any part of this area and select **Initialize Chain**. If successful, the screen should appear as follows:

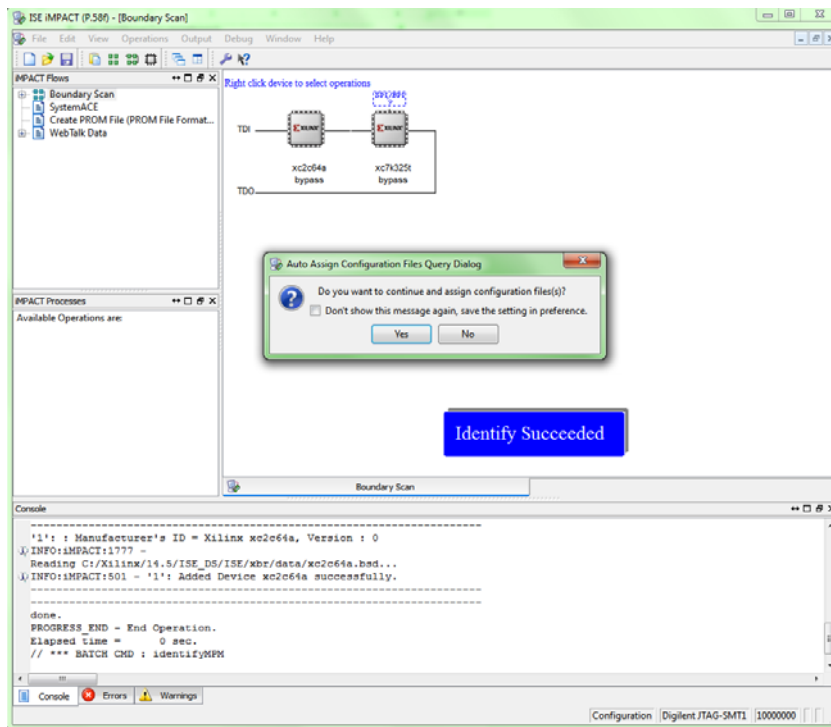


Figure 6

Select **No** and **Cancel** on the next dialogs that appear. Above the chip labeled as “xc7k35t” there is a blue outlined box, right click this and select **Add SPI/BPI Flash**.

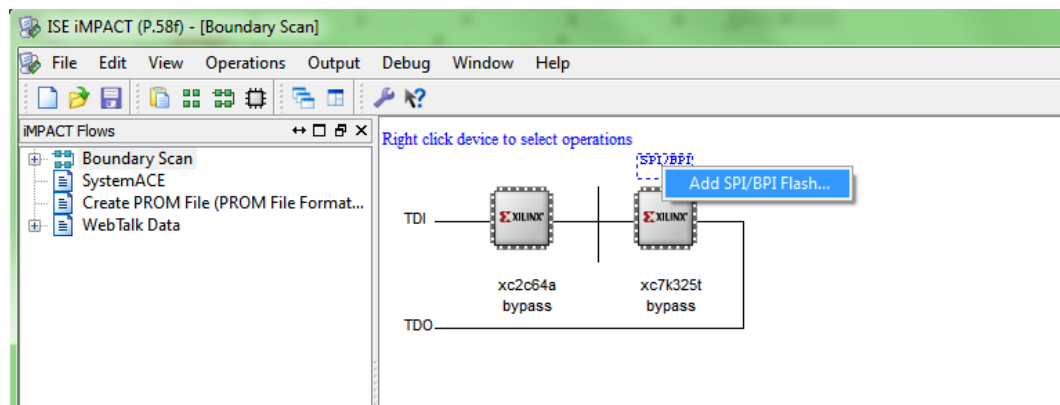


Figure 7

Navigate and select the provided .MCS file. Change the settings of the dialog to match Figure 8 and select **OK** to continue.

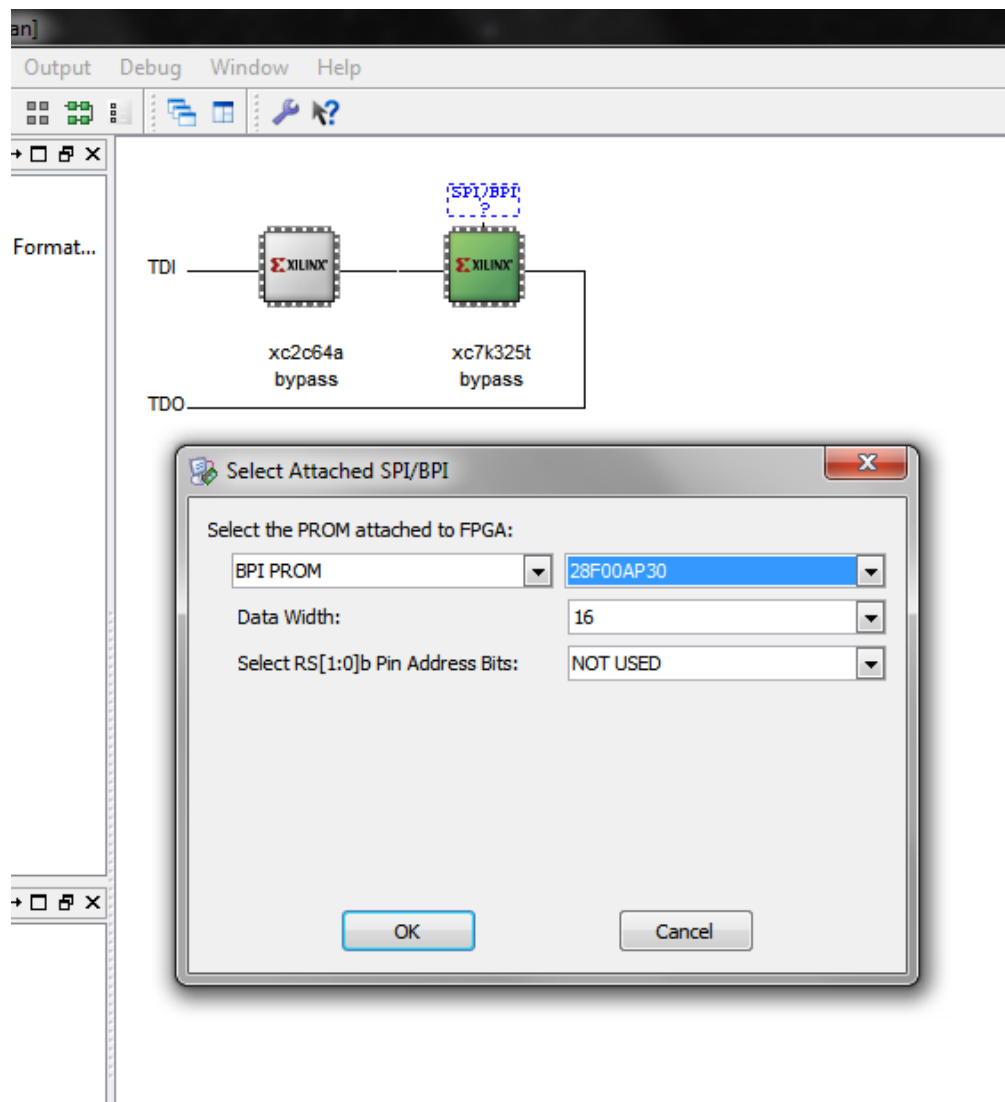


Figure 8

Right click the flash chip and select Program as in Figure 9.

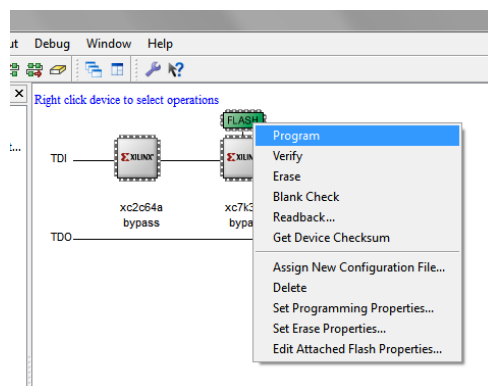
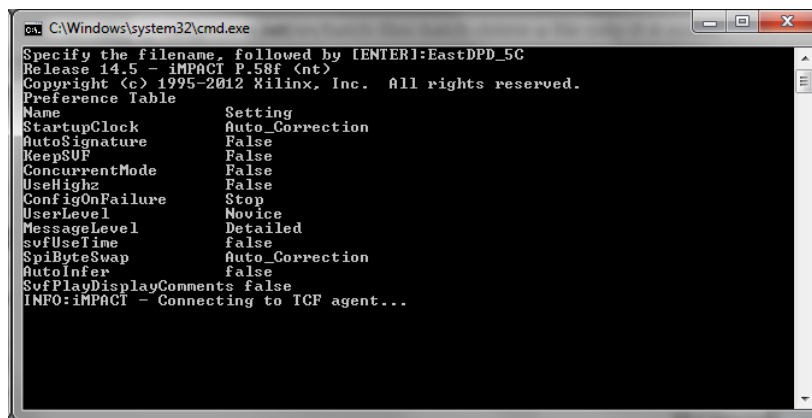


Figure 9

This can take up to 15min to complete. Once completed, you have successfully re-flashed the DPD with new firmware.

5.2 Script

Run either the provided script **programDPD.bat** or **programDPD.sh** (depending on your OS). Upon launching, the script will ask for the filename, enter it without the extension (ie, EASTDPD_05C) and the script will run, programming the DPD.



```
C:\Windows\system32\cmd.exe
Specify the filename, followed by [ENTER]:EastDPD_5C
Release 14.5 - iMPACT P.58f (nt)
Copyright (c) 1995-2012 Xilinx, Inc. All rights reserved.
Preference Table
Name          Setting
StartupClock  Auto_Correction
AutoSignature  False
KeepSUF       False
ConcurrentMode False
UseHighz      False
ConfigOnFailure Stop
UserLevel     Novice
MessageLevel  Detailed
sufUseTime    false
SpiByteSwap   Auto_Correction
AutoInfer     false
SufPlayDisplayComments false
INFO:iMPACT - Connecting to ICF agent...
```

Figure 10

This can take up to 15min to complete. Once completed, you have successfully re-flashed the DPD with new firmware.