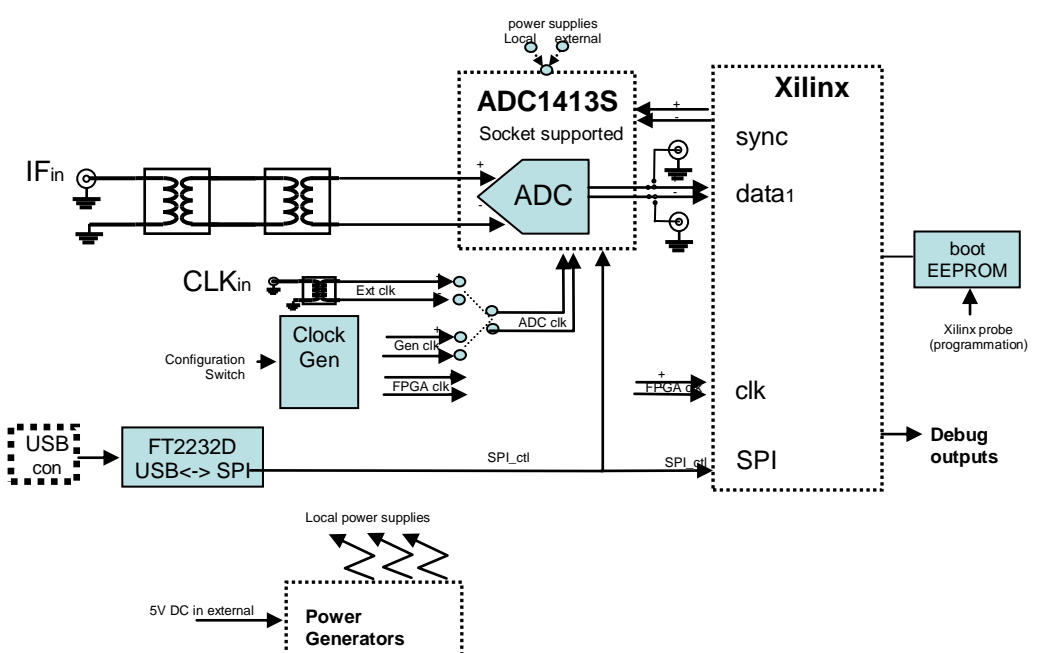


Document information	
Info	Content
Keywords	DEMO ADC1x13S, PCB2120-1, Demonstration board, ADC, Converter, ADC1613S, ADC1413S, ADC1213S, ADC1113S
Abstract	This document describes how to use the demonstration board DEMO
Block Diagram	 <p>The ADC1X13S digitalized the IF input signal, and transmits digital data to FPGA via the Jeduc JESD204A interface. The Clock Generator provides clocks to both the FPGA and the ADC. The SPI interface provides control and status of all programmable elements. The SPI bus is controlled by USB interface. The board includes LDO regulator in order to supply the board using a single 5VDC external power supply.</p>
Main features	<ul style="list-style-type: none"> • ADC sampling rate = 125MSPS max. • The ADC sampling clock provided by either on board clock generator or by an external clock generator • Maximum ADC analog input bandwidth will be 600MHz. • ADC, ADC clock generator and FPGA are controlled by PC application via SPI/USB interface • Single 5Vdc external power supply • In Option, all ADC1X13S power supply could be connected to 5 external lab power supplies. • External debug facilities connected to Xilinx (I/O connector, switches, Leds)

1. Quick start

1.1 Setup overview

The following figure presents the external connections of the ADC1x13S board.

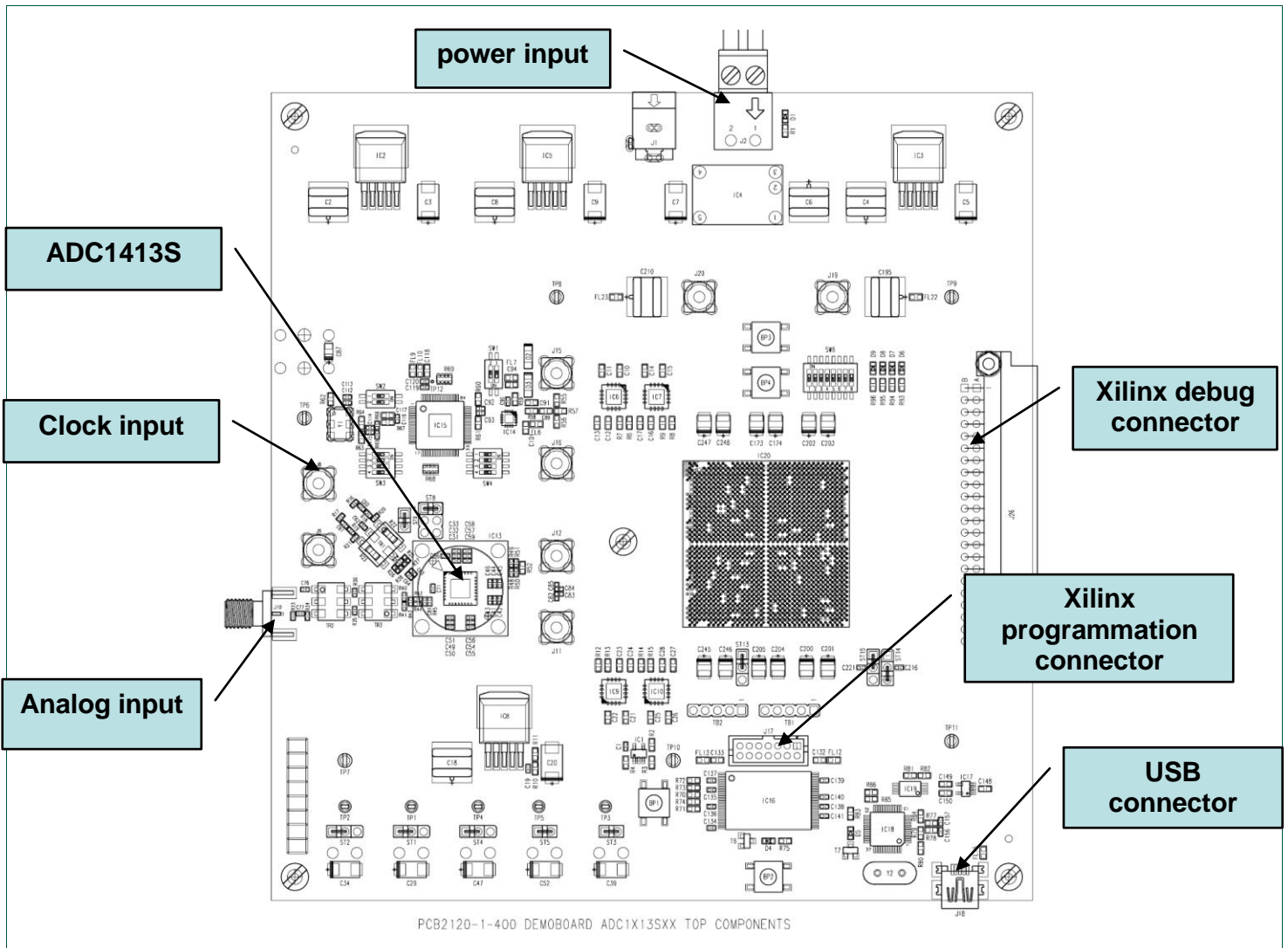


Fig 1. ADC1x13S setup

1.2 Power supply

The following figure presents the power supply input / test point of the ADC1x13S board:

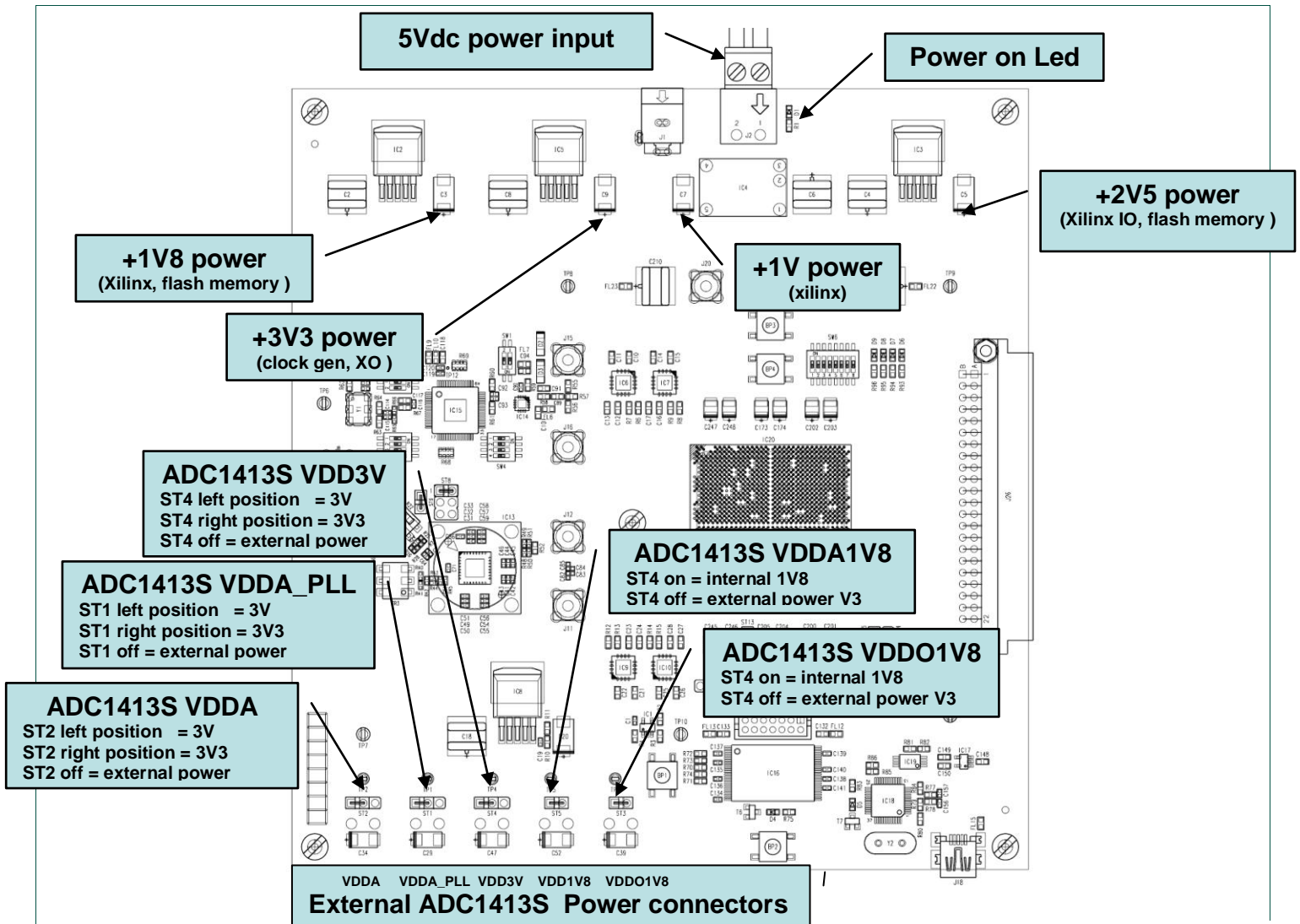


Fig 2. ADC1x13S power supply

1.3 Board configuration

The ADC1x13S board could be used in several configurations:

- ADC clock could be provided by on board clock generator or by an external clock.
- FPGA clock could be provided by on board clock generator or by an external clock.
- The clock frequency of the Clock generator is defined by micro-switch
- Jedec ADC output are normally connected to the FPGA but could be connected to SMA conector

The selection between above configurations is done using mounting options, jumpers or switches. The following figure enables to locate the components used in these different configurations. Following chapter give detail information about all these configurations.

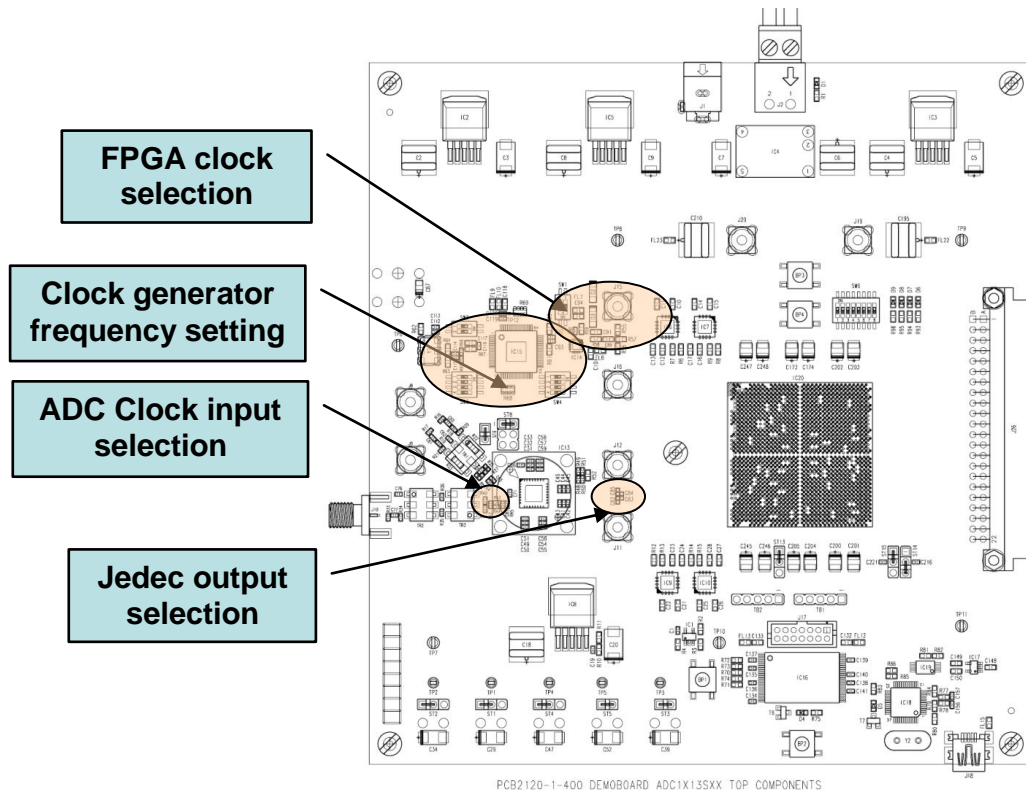
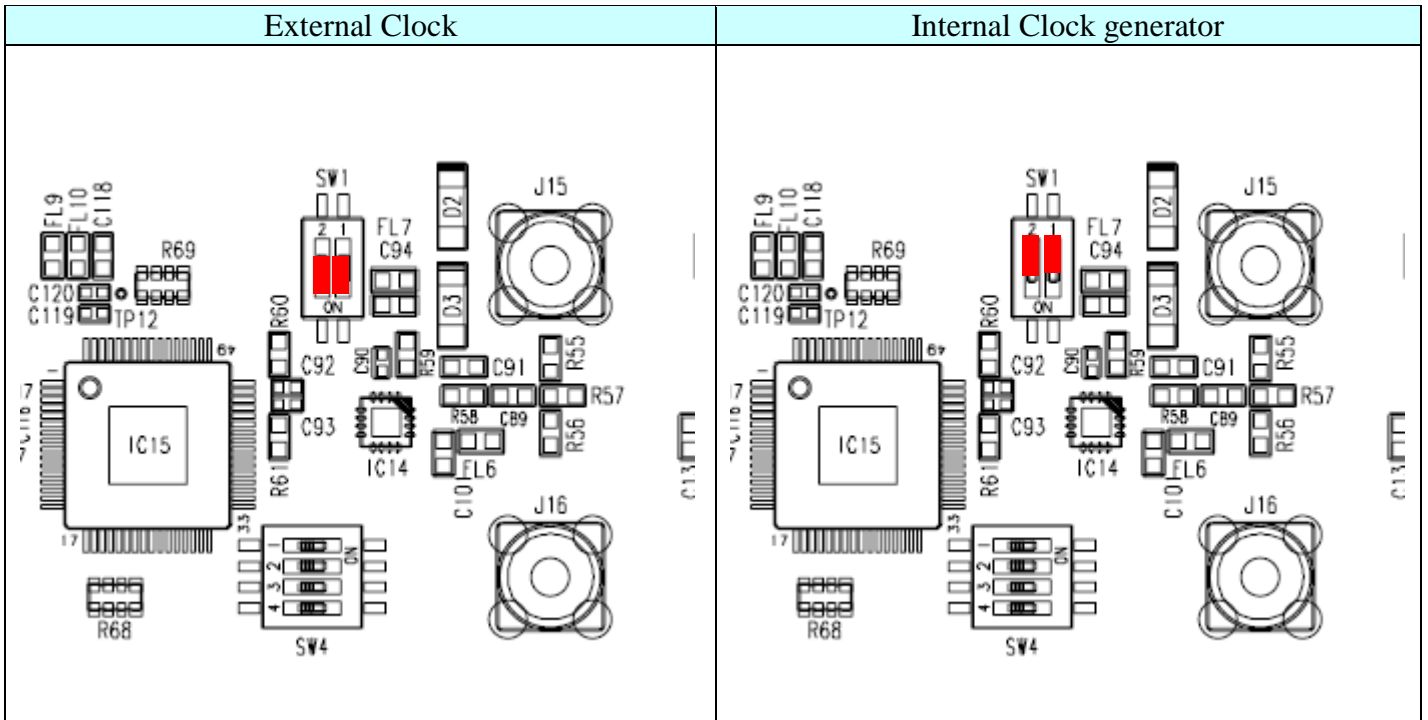


Fig 3. ADC1x13S configuration

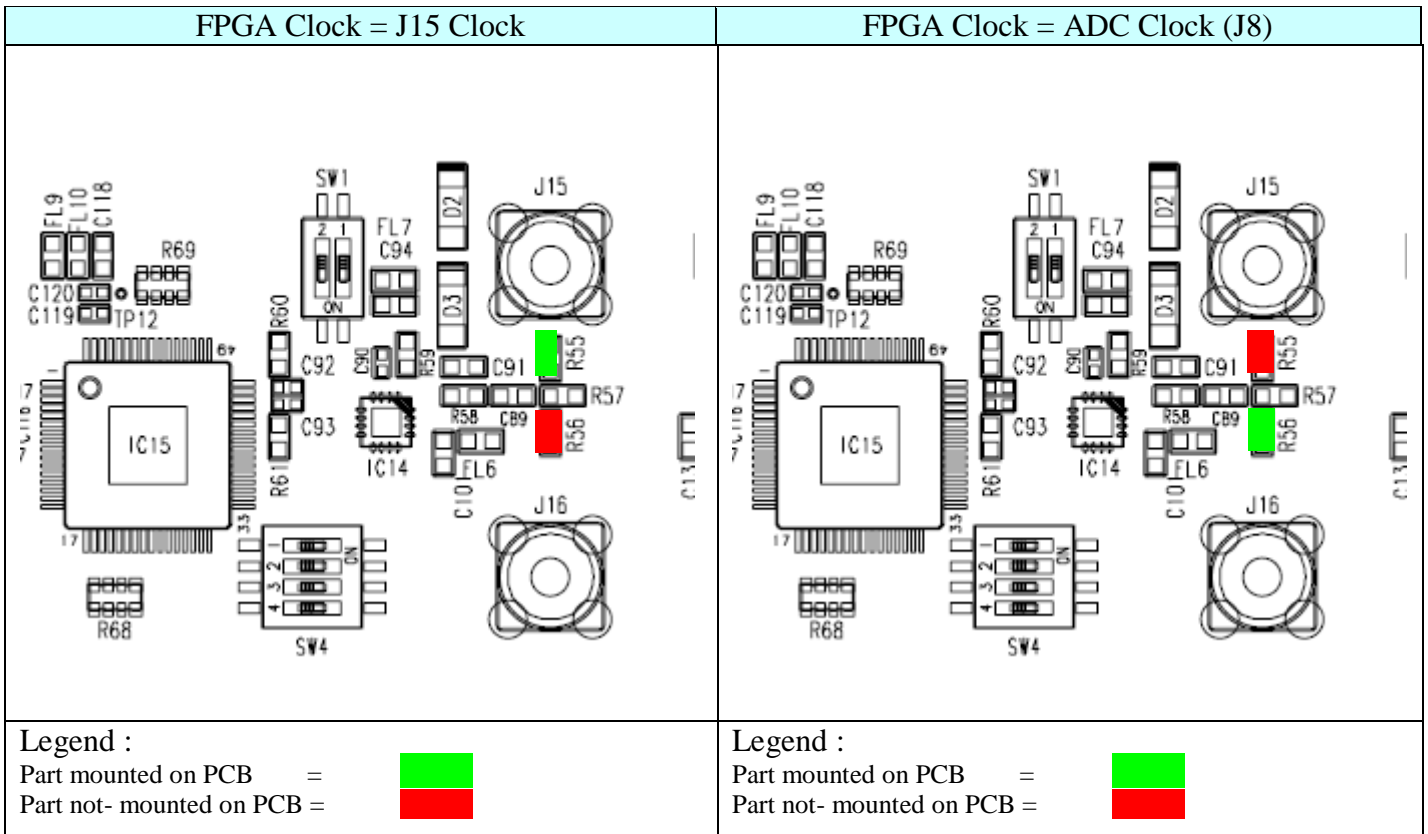
1.3.1 FPGA clock configuration

The FPGA could use an external clock or the internal clock provided by the clock generator .

The selection between these 2 modes is done using SW1

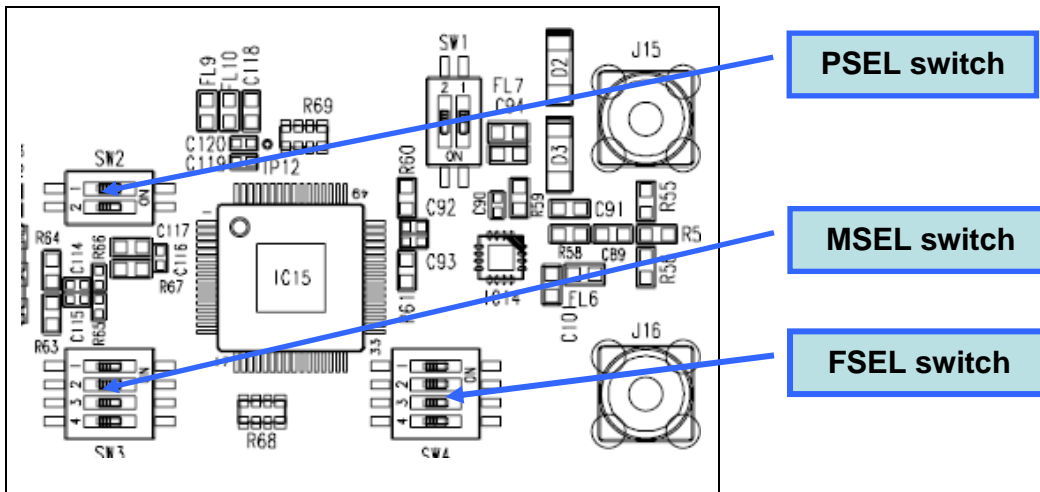


This external clock could be connected to J15 connector (=dedicated clock) or to the J8 connector (=external ADC clock).



1.3.2 Clock generation setting

The clock generated by on board clock generator is defined by the 3 following micro-switches (MSEL, PSEL and FSEL):



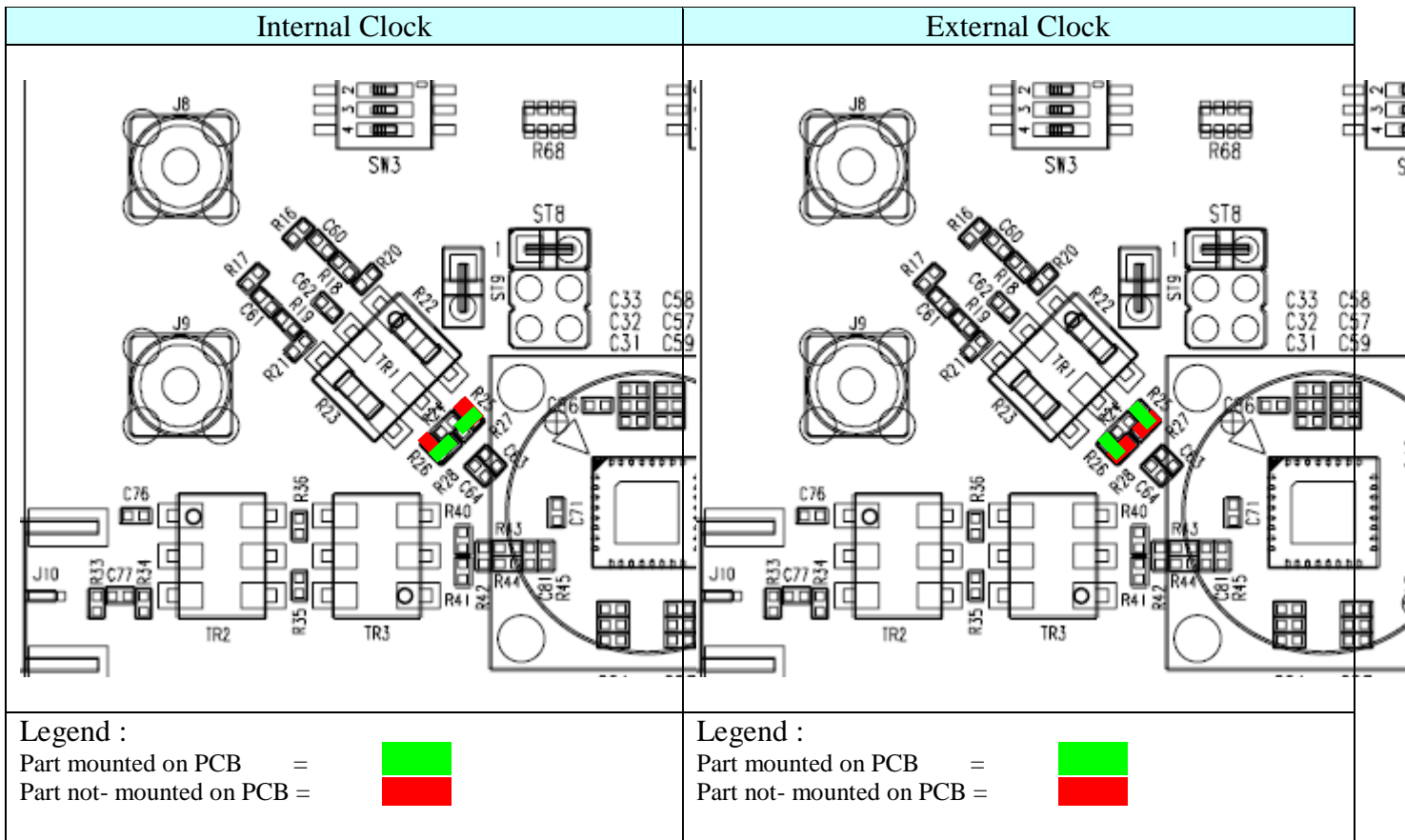
The table below shows the different possible setting for the clock generator:

psel1..0	Msel3..0	FSEL2..0	Frequency out
00	0110	110	62.5
00	0111	110	65.10417
00	0100	101	65.625
00	1000	110	67.70833
00	0101	101	68.75
00	1001	110	70.3125
00	1010	110	72.91667
00	0110	101	75
00	1011	110	78.125
00	1100	110	80.72917
00	1000	101	81.25
00	0100	100	82.03125
00	1001	101	84.375
00	0101	100	85.9375
00	1010	101	87.5
00	1011	101	93.75
00	1100	101	96.875
00	0111	100	97.65625
00	1000	100	101.5625
00	0011	011	104.1667
00	1001	100	105.4688
00	1010	100	109.375
00	0101	011	114.5833
00	1011	100	117.1875
00	1100	100	121.0938
00	0110	011	125

1.3.3 ADC clock configuration

The ADC could use an external clock or the internal clock provided by the on board clock generator.

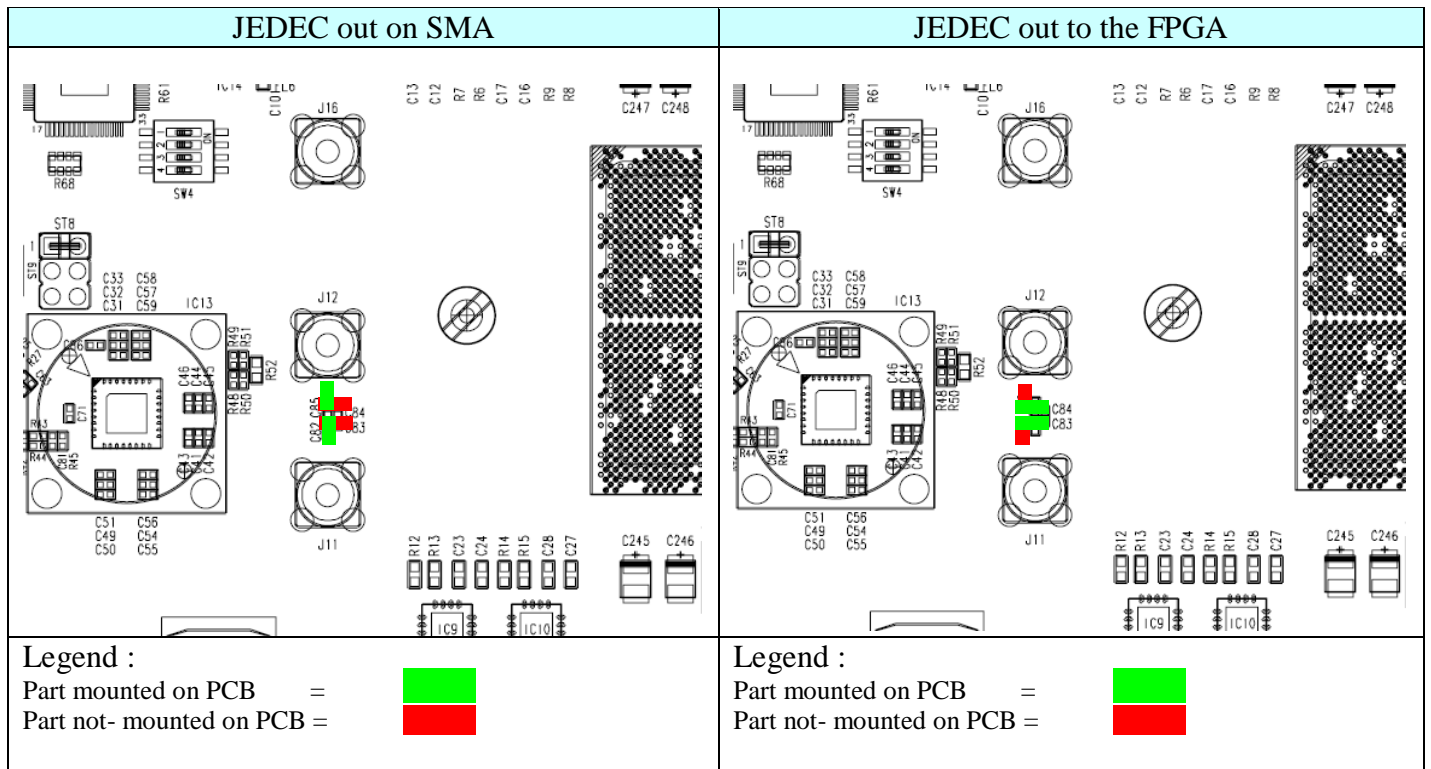
The selection between these 2 modes is done using mounting option



1.3.4 JEDEC output selection

The JEDEC could be connected either to the Xilinx FPGA or either to SMA connectors.

Selection is done using mounting option:



2. SPI quick start

2.1 Install

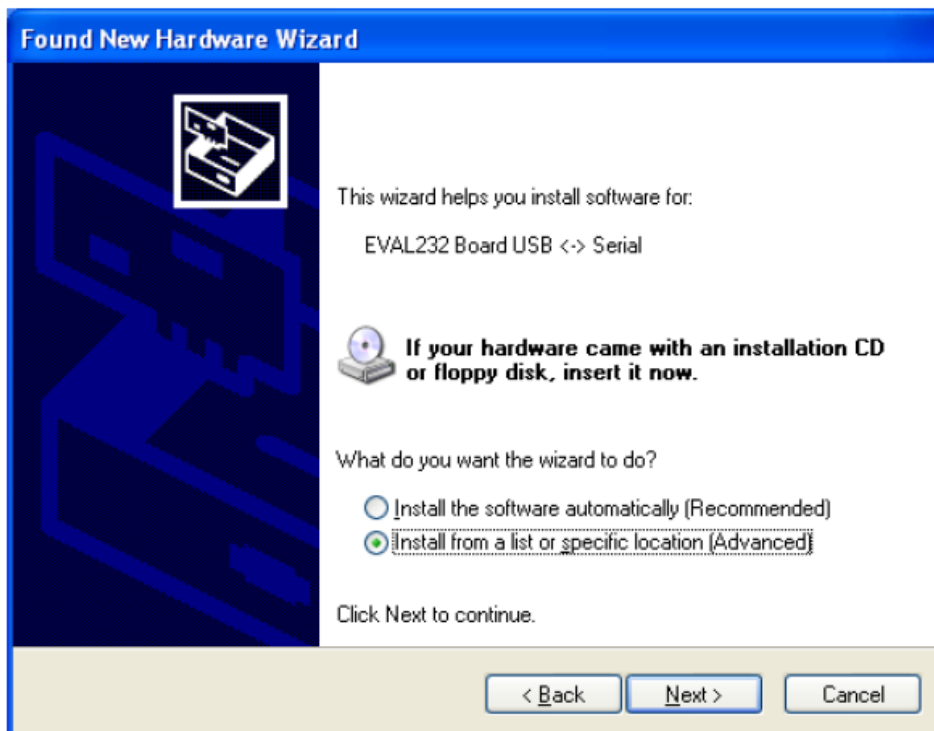
- Step 1

Connect the device to a USB port on your PC. Windows 'Found New Hardware Wizard' will be launched. Select '**No, not this time**' from the options available and then click '**Next**' to proceed with the installation.



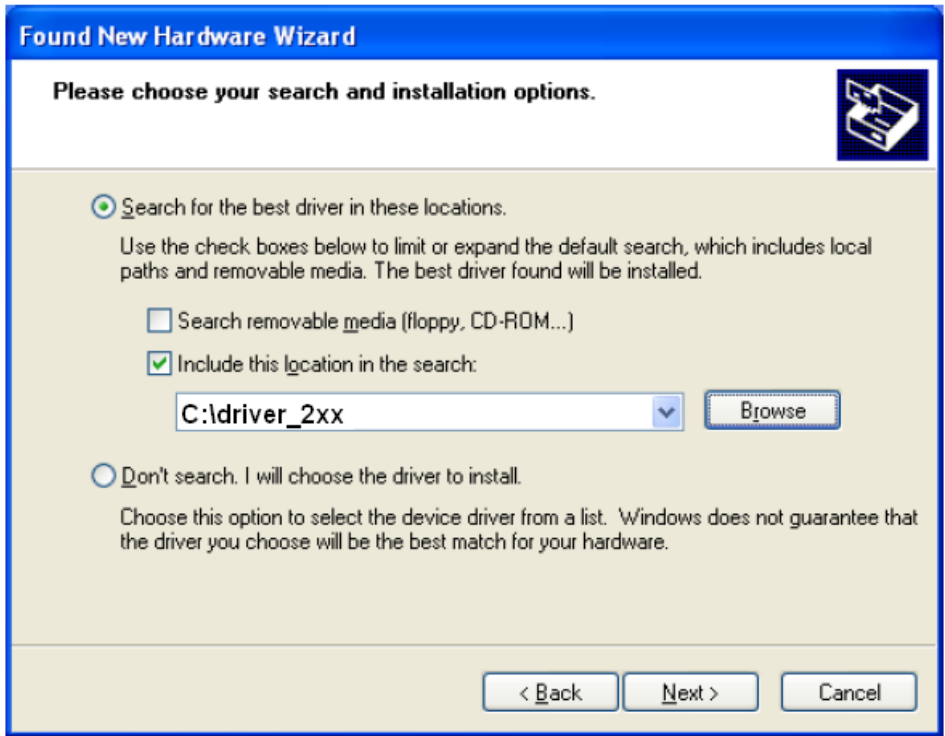
- Step 2

Select '**Install from a list or specific location (Advanced)**' as shown below and then click '**Next**'.



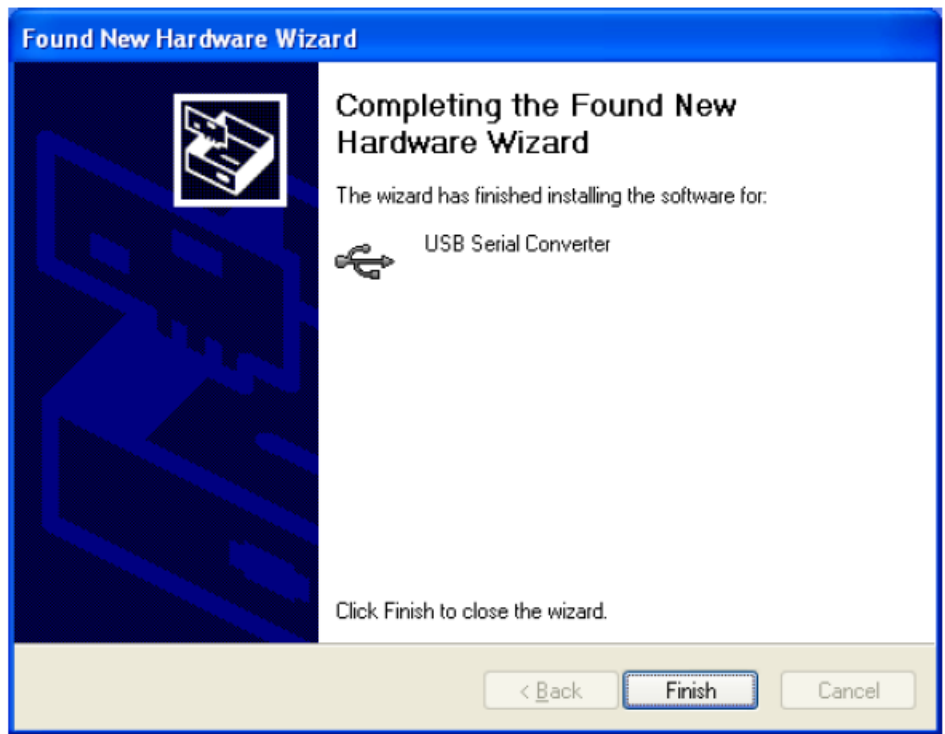
- Step 3

Select '**Search for the best driver in these locations**' and enter the file path of the folder '**driver_2xx**' in the combo-box ('C:\driver_2xx' in the example below) or browse to it by clicking the browse button. Once the file path has been entered in the box, click '**next**' to proceed.



- Step 4

Windows should then display a message indicating that the installation was successful. Click '**Finish**' to complete the installation for the first part of the device.



- Step 5

The Found New Hardware Wizard will continue by installing the USB Serial Converter driver for the second port of the device. The procedure for installing the second port is identical to that for installing the first port from the first screen of the Found New Hardware Wizard.

Once the second port is installed, the device should be ready to be used.

2.2 SPI interface

- Step 1

Install the LabVIEW Run-time Engine (if not already installed).

- Step 2

Start the LabVIEW application "ADC1413S.exe".