

# FPGA Software Installation

FPGA python software installation instructions.

## Document Transfer

Copy the contents of the “NIST FPGA GUI” folder to local storage. There are five components needed to create the environment for the Comb GUI:

1. WinPython 2.7.10.3
2. Opal Kelly API
3. Python GUI and FPGA firmware
4. PyVISA.whl file
5. Opal Kelly Front Panel driver

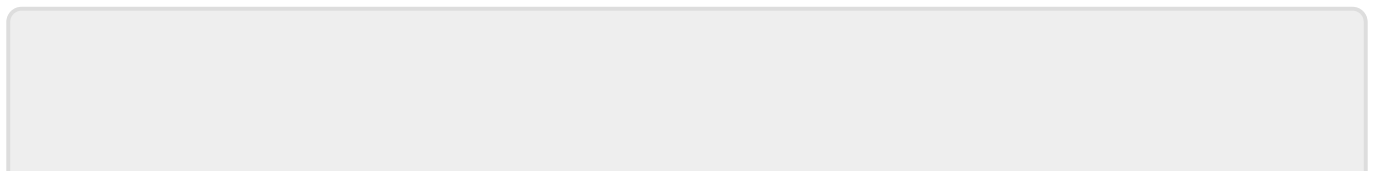
## Installation Process for SLICE-FPGA Software

1. Install WinPython 2.7.10.3 using the installer “WinPython-64bit-2.7.10.3”. Remember the installation directory.
2. Open a new file explorer window and navigate to the WinPython installation (wherever you just installed it) and open the folder \python-2.7.10.amd64\Lib\site-packages.
3. Copy the entire “ok” folder into the site-packages directory of the WinPython Installation.
4. Open a WinPython command prompt using the shortcut in the WinPython install directory. This provides a command prompt that has the proper path variables to run the GUI using the WinPython installation. Type the following:
  1. pip install {whl\_file\_dir}\PyVISA-1.8-py2.py3-none-any.whl.
  2. Press tab to cycle through the autocomplete options. Example:
  3. c:\users\osa\WinPython> pip install c:\users\osa\fpga\PyVISA-1.8-py2.py3-none-any.whl
  4. 3.5. Install the Opal Kelly Front Panel Windows Drivers by double-clicking “FrontPanelUSB-Win-x64-4.5.6”

## FPGA Control

The SLICE-FPGA dual-channel Offset Phase Lock Servo can be used to phase lock  $f_{\text{CEO}}$  and  $f_{\text{opt}}$ . Locking  $f_{\text{opt}}$  requires a reference CW laser and heterodyne setup (such as a 50:50 beam splitter and DWDM filter). The stability of the lock will depend on the reference laser used. All performance data is collected with a Rio Planex laser.

If you have not already done so, [install Python and the FPGA software](#) for controlling the SLICE-FPGA dual Offset Phase Lock Servo.



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