



The World's **Sixth Sense**®

Getting Started with OpenCV

Revised 2/2/2017

Applicable Products	2
Application Note Description	2
Preparing for Use	2
Install Open CV	3
Configure OpenCV in Visual Studio	4
Sample Code for OpenCV	7
Downloads and Support	7
Finding Information	8
Contacting Technical Support	8

Applicable Products

- All FLIR machine vision cameras

Application Note Description

OpenCV is an open-source computer vision library that allows you to perform image processing on FLIR machine vision cameras. This application note provides information on how to install and use OpenCV in Visual Studio. OpenCV does not support machine vision standards such as USB3 Vision and GigE Vision, therefore it is not recommended to grab images using OpenCV functions. Instead, we recommend using FlyCapture[®] 2 SDK or Spinnaker[®] SDK to grab images and convert them to OpenCV images.

Note: This document provides examples using [OpenCV 2.4.6](#). It also applies to newer versions.

Preparing for Use

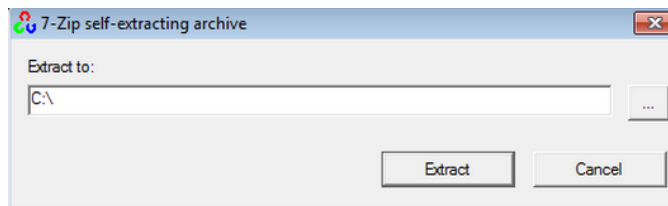
Before you use your camera, we recommend that you are aware of the following resources available from our [downloads page](#):

- **Getting Started Manual for the camera**—provides information on installing components and software needed to run the camera.
- **Technical Reference for the camera**—provides information on the camera's specifications, features and operations, as well as imaging and acquisition controls.
- **Firmware updates**—ensure you are using the most up-to-date firmware for the camera to take advantage of improvements and fixes.
- **Tech Insights**—[Subscribe](#) to our monthly email updates containing information on new knowledge base articles, new firmware and software releases, and Product Change Notices (PCN).

Install Open CV

This document describes the steps for OpenCV version 2.4.6, but it also applies to newer versions. For best results, download the latest version.

1. Download the latest version of OpenCV from <http://opencv.org/downloads.html>.
2. Extract OpenCV in C:\



3. From the Start Menu, right-click on Computer and select Properties.
4. In the System window left pane, click Advanced system settings.
5. In the System Properties dialog, from the Advanced tab, click Environment Variables.
6. From the System variables list, select the Variable called Path and click Edit.
7. At the end of the Variable value field, enter:

`;C:\opencv\build\x64\vc10\bin`

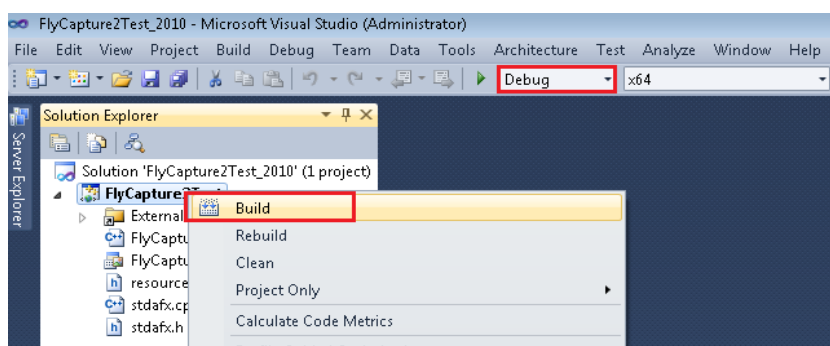
For 32-bit OpenCV version, replace x64 with x86.

8. Click OK.

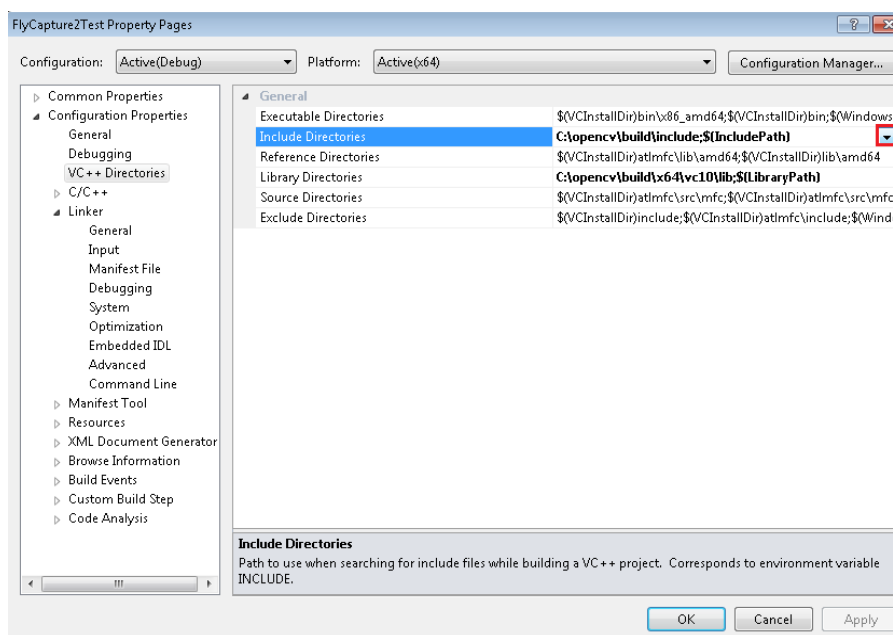
Configure OpenCV in Visual Studio

Add OpenCV to Visual Studio projects to perform image processing. The steps below outline how to prepare the Visual Studio settings in order to use OpenCV with Spinnaker, FlyCapture, LadybugCapPro, or Triclops SDKs. The example used is for the FlyCapture2 SDK.

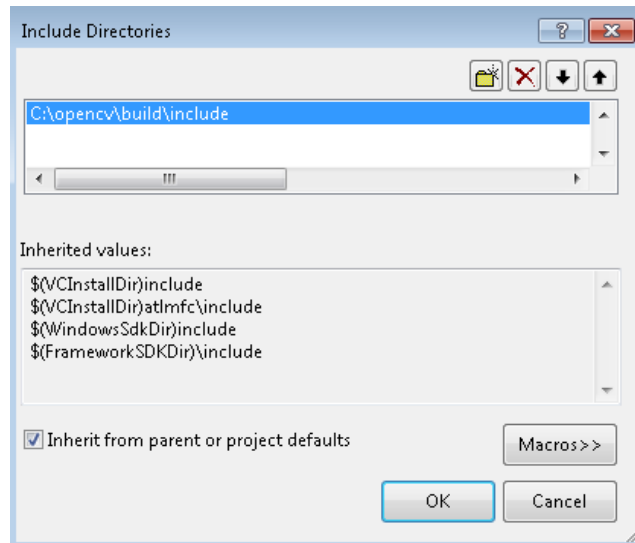
1. Download and install the SDK, in this example FlyCapture[®] 2, available from [our downloads page](#).
2. Open one of the example source code solutions in Visual Studio. These steps use FlyCapture2Test with Visual Studio 2010 as an example.
3. Ensure Debug is selected in the Solution Explorer's configuration.
4. Right-click on the project and select Build.



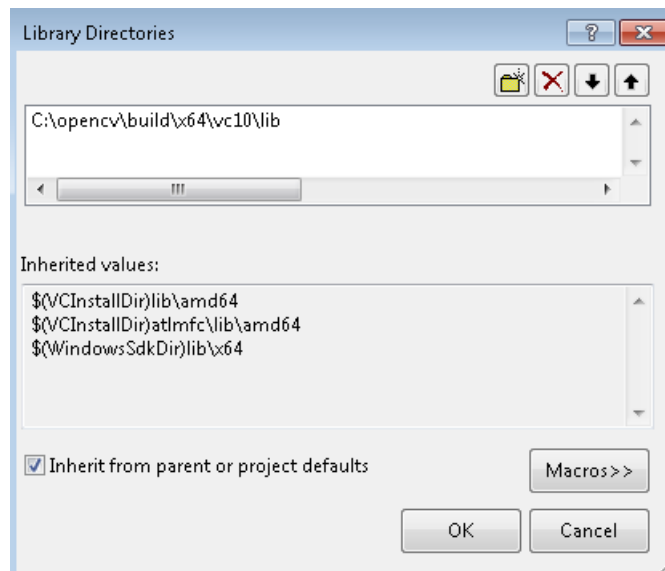
5. Right-click on FlyCapture2Test and select Properties.
6. In the Property Pages window, select VC++ Directories and from the Include Directories drop-down select Edit.



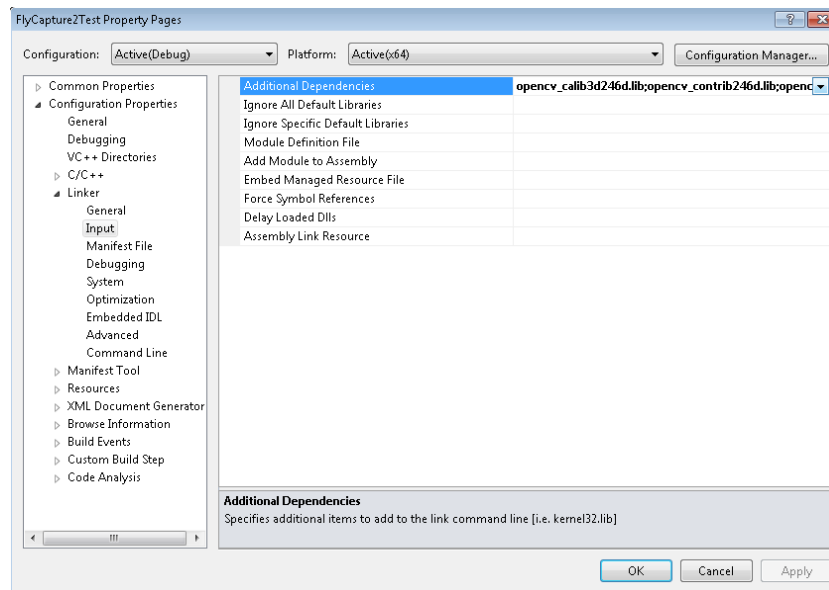
7. Add C:\opencv\build\include and click OK.



8. From the Property Pages window, from the Library Directories drop-down select Edit.
9. Add C:\opencv\build\x64\vc10\lib and click OK.
Note: For 32-bit systems, replace x64 with x86.



10. From the Property Pages window, select Linker-->Input, and from the Additional Dependencies drop-down select Edit.



11. Add the following library files and click OK.

```

opencv_calib3d246.lib
opencv_contrib246.lib
opencv_core246.lib
opencv_features2d246.lib
opencv_flann246.lib
opencv_gpu246.lib
opencv_highgui246.lib
opencv_imgproc246.lib
opencv_legacy246.lib
opencv_ml246.lib
opencv_nonfree246.lib
opencv_objdetect246.lib
opencv_photo246.lib
opencv_stitching246.lib
opencv_ts246.lib
opencv_video246.lib
opencv_videostab246.lib

```

Note: If you are using a different OpenCV version, replace 246 with your version.

12. Click OK to save all project settings.
13. For FlyCapture: open FlyCapture2Test.cpp and add `#include "cv.h"`.
For Spinnaker: open Spinnaker2CVMat.cpp and add `#include "opencv2/highgui/highgui.hpp"` and `"opencv2/imgproc/imgproc.hpp"`.

You can now add your own OpenCV code in FlyCapture2Test.cpp or Spinnaker2CVMat.cpp.

Sample Code for OpenCV

These [examples](#) demonstrate how to convert images from FlyCapture, FlyCapture2, and Triclops to OpenCV images.

FlyCapture®

FlyCap_to_IplImage.cpp provides the function to convert from FlyCaptureImage to IplImage.

Applicable: All FLIR machine vision cameras except Gazelle and Cricket.

FlyCapture® 2

FlyCap2_to_IplImage.cpp provides the function to grab images from your camera and convert them to IplImage using FlyCapture2 SDK.

FlyCap2_to_MatImage.cpp provides the function to grab images from your camera and convert them to Mat Image using FlyCapture2 SDK.

Applicable: All FLIR machine vision cameras except Gazelle and Cricket.

Triclops®

Triclops_to_IplImage.cpp provides the function to convert from TriclopsImage to IplImage.

Applicable: All FLIR stereo cameras.

Ladybug®

FC2_Ladybug_Image_to_IplImage.cpp provides the function to convert uncompressed Ladybug images.

Applicable: Ladybug cameras

Spinnaker®

Spinnaker2CVMat.cpp maps the Spinnaker ImagePtr class to OpenCV Mat container. The OpenCV version tested was 2.4.13 which has the same configuration file with dll extensions 2413. Note that imageptr to getData() method returns padding which must be taken into account when dumping data into a Mat container so the container does not overflow.

Applicable: All FLIR machine vision USB3 Vision cameras

Downloads and Support

FLIR endeavors to provide the highest level of technical support possible to our customers. Most support resources can be accessed through the [Support](#) section of our website.

The first step in accessing our technical support resources is to obtain a Customer Login Account. This requires a valid name and email address. To apply for a Customer Login Account go to our [Downloads](#) page.



Customers with a Customer Login Account can access the latest **software** and **firmware** for their cameras from our website. We encourage our customers to keep their software and firmware up-to-date by downloading and installing the latest versions.

Finding Information

FlyCapture SDK—The FlyCapture SDK provides API examples and the FlyCap camera evaluation application. Available from our [Downloads](#) page.

API Documentation—The installation of the FlyCapture SDK comes with API references for C++, C#, and C code. Available from Start Menu→All Programs→Point Grey FlyCapture2 SDK→Documentation

Product Documentation—The camera's *Getting Started Manual* provides information on installing components and software needed to run the camera. The *Technical Reference* provides information on the camera's specifications, features and operations, as well as imaging and acquisition controls. They are available from the [Downloads](#) page.

Knowledge Base—A database of articles and application notes with answers to common questions as well as articles and tutorials about hardware and software systems. Available from our [Knowledge Base](#).

Learning Center—Our [Learning Center](#) contains links to many resources including videos, case studies, popular topics, other application notes, and information on sensor technology.

Contacting Technical Support

Before contacting Technical Support, have you:

1. Read the product documentation?
2. Searched the Knowledge Base?
3. Downloaded and installed the latest version of software and/or firmware?

If you have done all the above and still can't find an answer to your question, contact our [Technical Support](#) team.