TELEDYNE DALSA
Everywhere**you**look™

G3-ANCX01-v1: Genie Nano-CXP Application Note

Configuring Genie Nano-CXP and Teledyne DALSA CXP Frame Grabbers

For Nano-CXP models with P/N: G3-Xxxx-xxxxx

Overview

Genie Nano-CXP (CoaXPress) cameras require a connection to a frame grabber to acquire images. This application note describes how to configure a Genie Nano-CXP with a Teledyne DALSA CoaXPress frame grabber.

The Nano-CXP supports the CoaXPress device discovery methodology providing plug and play capability and implements GenICam and associated GenCP allowing compatibility with Teledyne DALSA or third party CoaXPress frame grabbers.

Requirements & Installation

A frame grabber board such as the Teledyne DALSA Xtium-CXP PX8™ is the recommended computer interface. Follow the installation instructions from the board's User Manual for the computer requirements, installation and updating the board driver, as summarized below.

- Install the board hardware into an available PCI Express x8 Gen2 slot (part number: OR-Y8X0-XPX400). It's required that a computer power cable is connected to the board auxiliary power connector to supply the camera's power via PoCXP.

- Turn on the computer.

- Download and install the Sapera LT Development Library (**version 8.41 or later recommended**) or only its 'runtime library'.

- Download and install the Xtium-CXP PX8 Sapera board driver (**1.30 or later required**).

- Reboot the computer.

- Connect the Nano-CXP with 4 camera cables to the CXP frame grabber. The Teledyne DALSA grabber supports PoCXP (power over CoaXPress) for a simple camera power solution. The CoaXPress Link cables are for the DIN 1.0/2.3 connector supporting the CXP-6 maximum speed rating.

- The Nano-CXP status Led will indicate power and the Device / Host connection with a steady green color when the first two CoaXPress are connected. Refer to the section "Camera Status LED Indicator" in the camera manual for a complete list of Status LED indicators.

1. Start Sapera CamExpert

The Sapera CamExpert application is included as part of the Sapera LT SDK. It is Teledyne DALSA's camera and frame grabber interfacing tool that allows you to quickly validate hardware setup, change parameter settings, and test image acquisition. It is available from the Windows Start Menu or desktop shortcut.
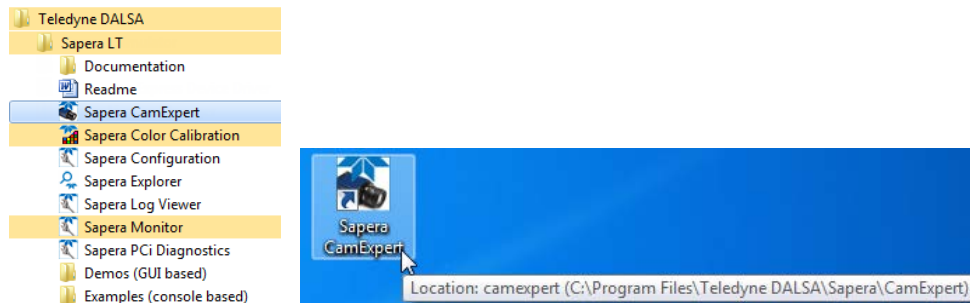

2. Select the Frame Grabber & Camera

If there is only one Teledyne DALSA frame grabber the Device Selector drop-down menu automatically has the Xtium-CXP PX8 selected and the connected Nano-CXP is also automatically detected as shown in the image below.
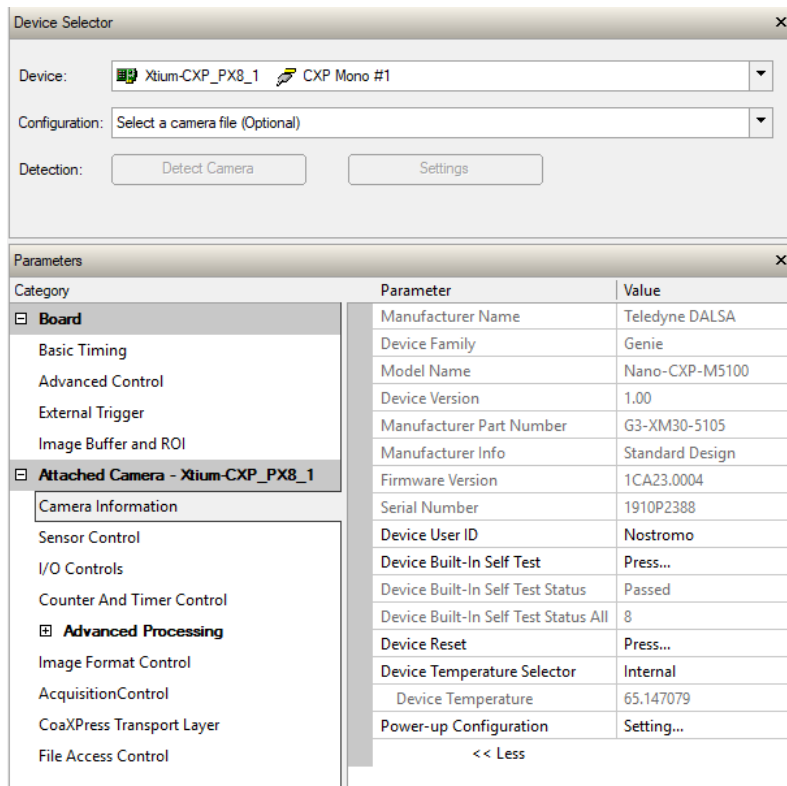

CamExpert also will indicate the status of the four data connections and signal integrity between the camera and frame grabber. The CamExpert lower right area – below the Message window has the connection status flags as shown below.
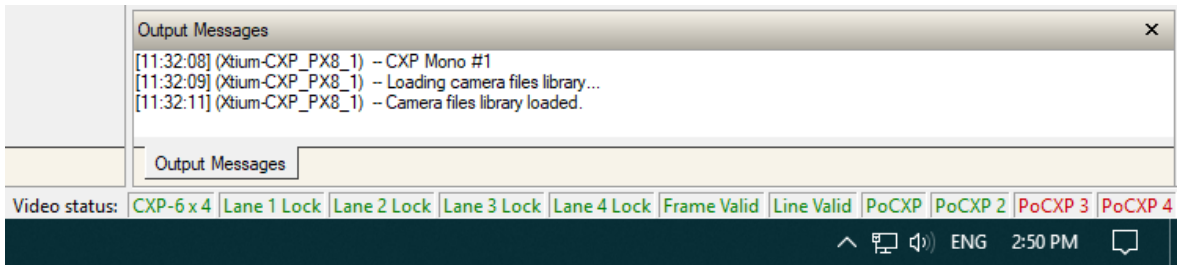
This screen capture shows that the 4 Data Lane signals (i.e. 4 cables) are correct, that Frame and Line Valid signals are active and that cable 1 and 2 carry camera power (POCXP). Cable 3 and 4 do not carry camera power for this Nano model.

If the Camera is not automatically Detected

Verify that the frame grabber has PoCXP enabled to power the camera as show below.
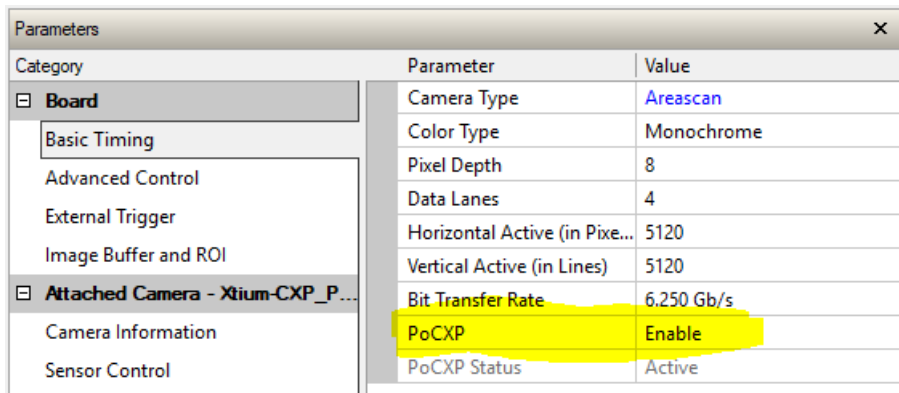

3. Uploading New Camera Firmware

With the Nano-CXP detected the user should upload new firmware if available. Using CamExpert, check the current camera firmware by selecting the "Camera Information" category and checking the "Firmware Version" feature.
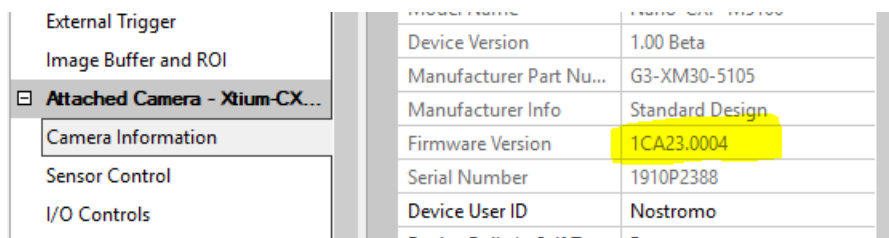
New firmware versions are available in the file download area of the Teledyne DALSA web site. Download the latest release to the computer used with the Nano-CXP.

Upload New Firmware
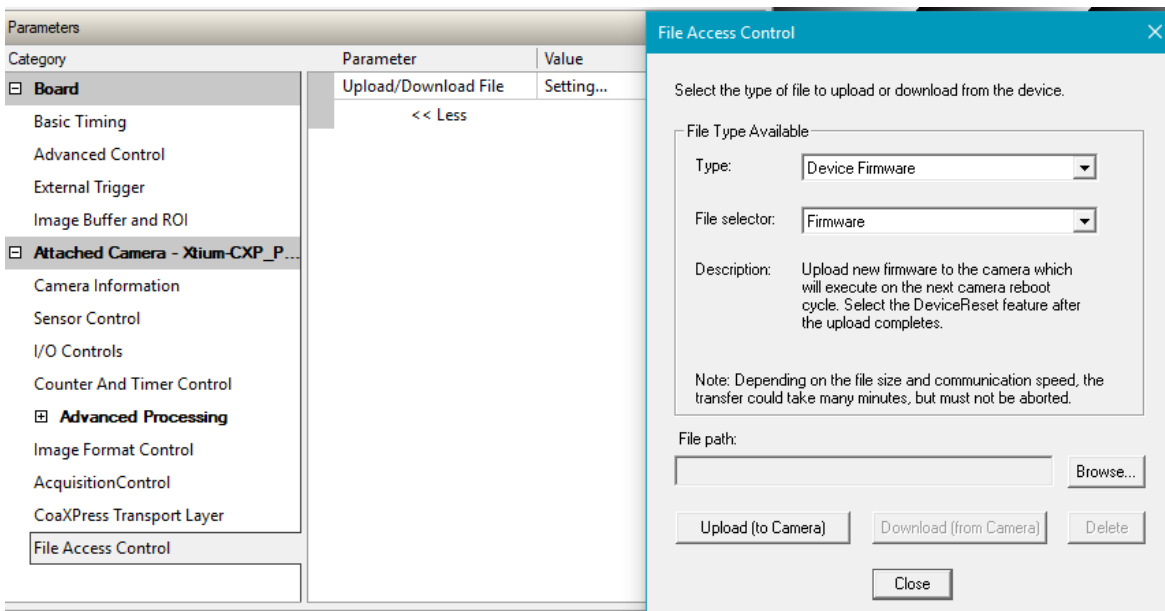
- Select "File Access Control" and click on Setting.
- On the new menu verify the file type is Device Firmware and click Browse to select the downloaded firmware file.
- Click the Upload button and restart the camera when prompted.
- Important: File upload rates are fixed (as per the CXP standard) at 20Mbits/s. As an example, a firmware file upload process will take about 2½ minutes.
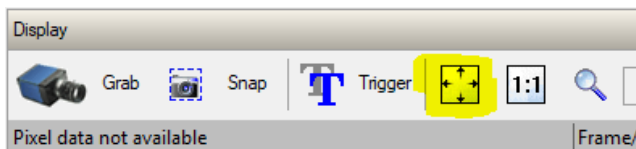
4. Verify Basic Acquisitions

With frame grabber and camera factory defaults the Nano-CXP is set to output a test pattern which is acquired by CamExpert.
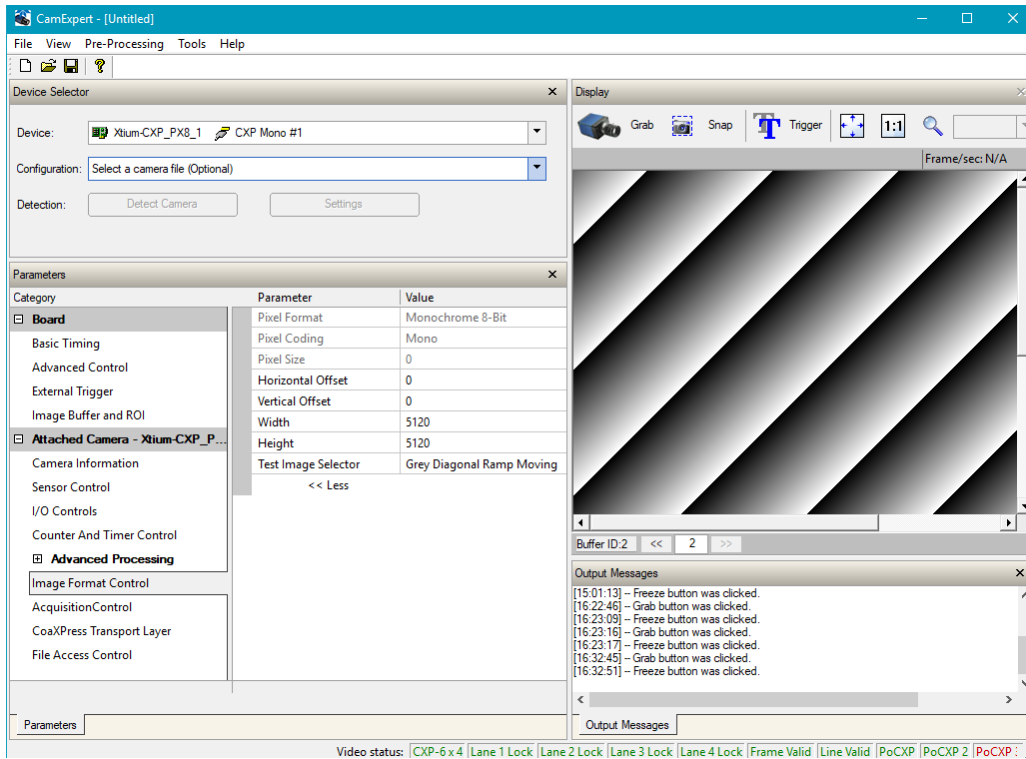
- Select the Test Image output – Diagonal Moving Ramp
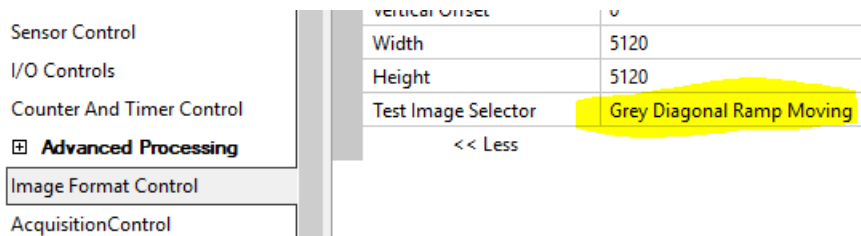
- Set CamExpert so that you view the complete acquisition in the display window (the actual acquisition data is unmodified).

- Click on the CamExpert "Grab" button to view the continuously moving ramp acquisition.

5. When FVAL & LVAL Flags turn RED

Typically the camera is constantly in acquisition mode and clicking the CamExpert "Grab" button instructs the frame grabber to transfer the image frames to the computer buffers. Changing camera features will stop the acquisition and then restart it automatically.

Under certain setup conditions with complex feature changes the camera will not automatically restart acquiring. This state is indicated with the FVAL and LVAL status flags turning red.

In such a case go to the Acquisition Control camera feature group and manually click on the acquisition start command. The Frame Valid and Line Valid flags will turn green again.
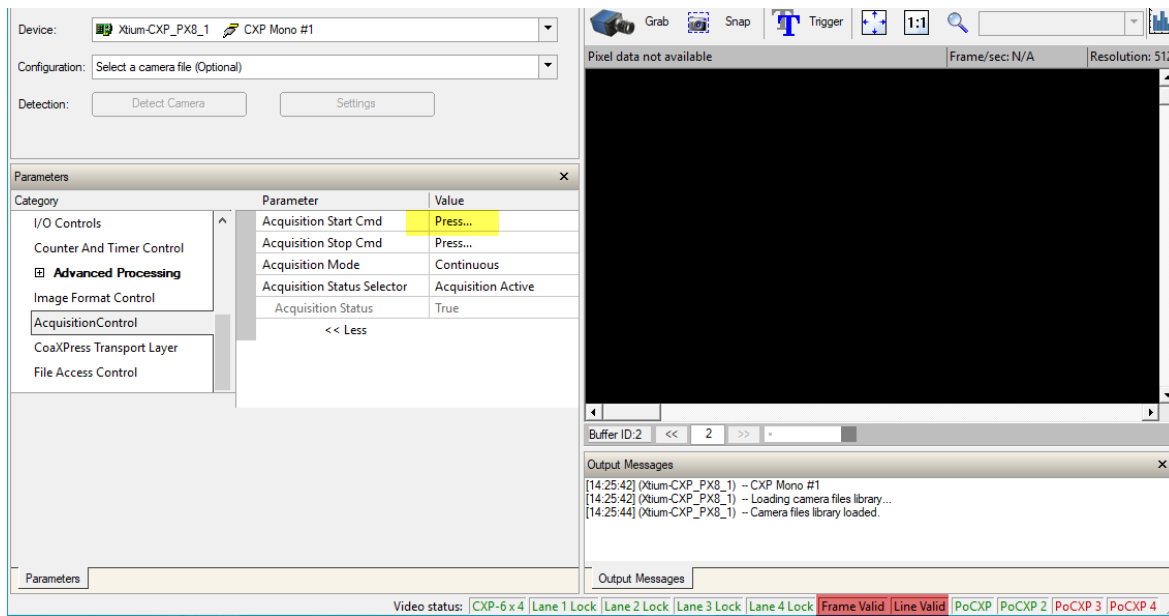
Nano-CXP and the Frame Grabber Work – Now What

- Use CamExpert to explore the Nano-CXP camera feature set and the Xtium-CXP PX8 parameter set.
- Use the individual product's User Manuals to explore the capabilities of this imaging system pair.
- Develop your custom imaging application with the Sapera LT API.