Technical Note

Camera Link Connection

Camera Link Connection:

Background and Purpose of this document:

We have been receiving questions asking how to connect JAI cameras to a PC through the Camera Link interface. A variety of frame grabber boards/drivers exist in the market. Sometimes they conflict with each other and cause cameras to be unrecognized. To solve these issues, this document describes basic settings to connect a camera to a PC through the Camera Link interface.

Setting Items:

The following steps are part of the configuration process for connecting a camera via Camera Link to a PC. Some of the items refer to settings in the user's PC environment.

A) PoCL

Some JAI cameras support PoCL (Power over Camera Link). For these models, the connection to the PC might also deliver power to the camera.

- **Go Series:**

GO-5000x-PMCL (not including the –EP option) is PoCL type only. Power must be supplied to the camera from the frame grabber.

GO-5000x-PMCL-EP, GO-5101x-PMCL and GO-2400x-PMCL models support both PoCL and power supplied via the camera's 4-pin connector.

When power is supplied, the LED on the rear side of the camera turns green. If not, check to see if the frame grabber supports PoCL and is properly configured to do so.

- **Spark/Apex/Sweep/Sweep+ Series:**

SP/AP/SW-xxxx-PMCL models support both PoCL and power supplied via the 12-pin connector.
In order to use PoCL, two PoCL cables should be used because a single PoCL connection is not enough for these cameras' power consumption requirements.

When power is supplied, the power LED on the rear side of camera turns green. If not, check to see if the frame grabber supports PoCL and is properly configured to do so.

If you cannot, or do not want to, supply power through PoCL, the camera can be powered via a separate power supply connected to the 12-pin connector.

- **Cameras without PoCL:**

These cameras can only be powered via a separate power supply connected to the 12-pin connector.

Note: SW-4000T-MCL and WA-1000D-CL are examples of non-PoCL cameras.

B) Serial communication DLL

Camera Link cameras require a set of DLL files on the PC. By registry editor (regedit), confirm the following setting (refer to Figure 1): HKEY_LOCAL_MACHINE->SOFTWARE->CameraLink has "CLSERIALPATH".

Then, check the folder specified in the "Data" field of "CLSERIALPATH", to see whether the folder has "clser***.dll" and "clallserial.dll" files.

- clser***.dll: Is for frame grabber port communication. "***" is defined by the frame grabber manufacturer.
- clallserial.dll: Is for COM port communication. The file is common for all frame grabber vendors.

If one of these DLL files does not exist there, place the DLL file into the above folder. The DLL files are supplied by the frame grabber manufacturer.

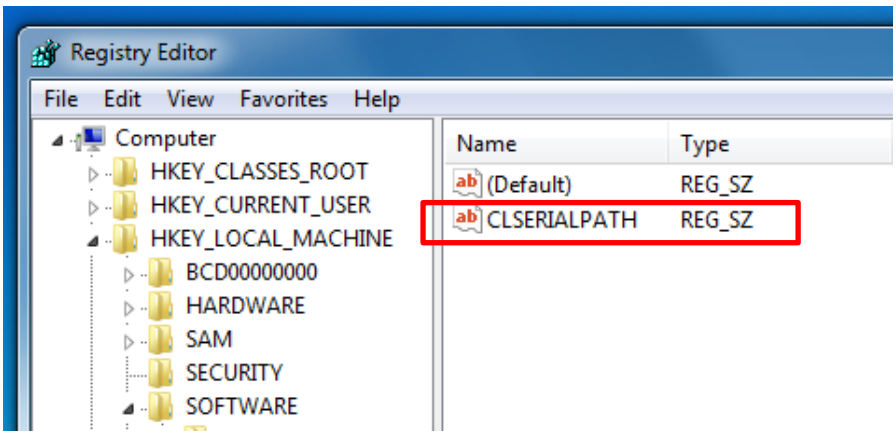

Fig.1

C) COM Port

To communicate with the camera using serial commands, a COM port should be allocated. With some frame grabbers, the allocated COM port is shown in Device Manager (Figure 2).

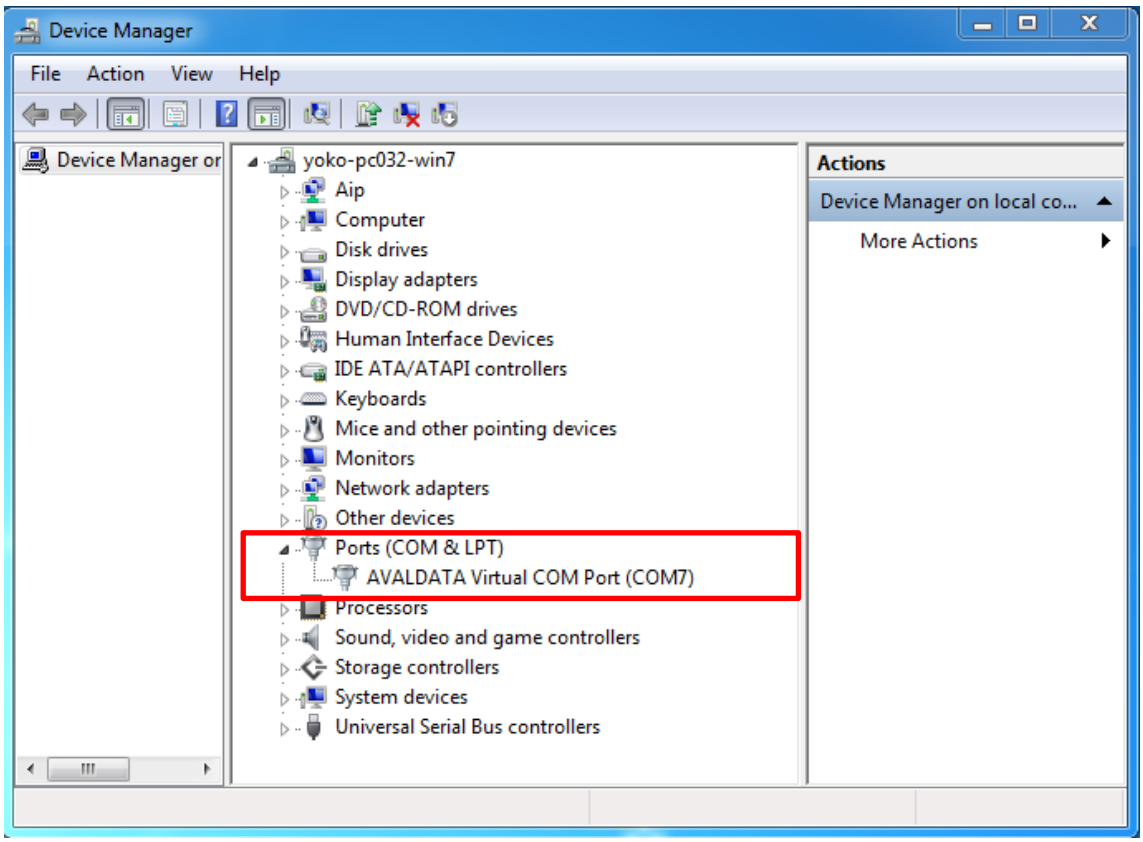

Fig.2

For instructions regarding how to allocate a COM port, please consult with the frame grabber manufacturer.

D) Connection through COM port by Serial Control Tool:

After the virtual COM port is allocated as a Camera Link port, the COM port number should be set in the Communication window of the Camera Control Tool.

Category: COM Port

Port Name: The virtual COM port number for the Camera Link port.

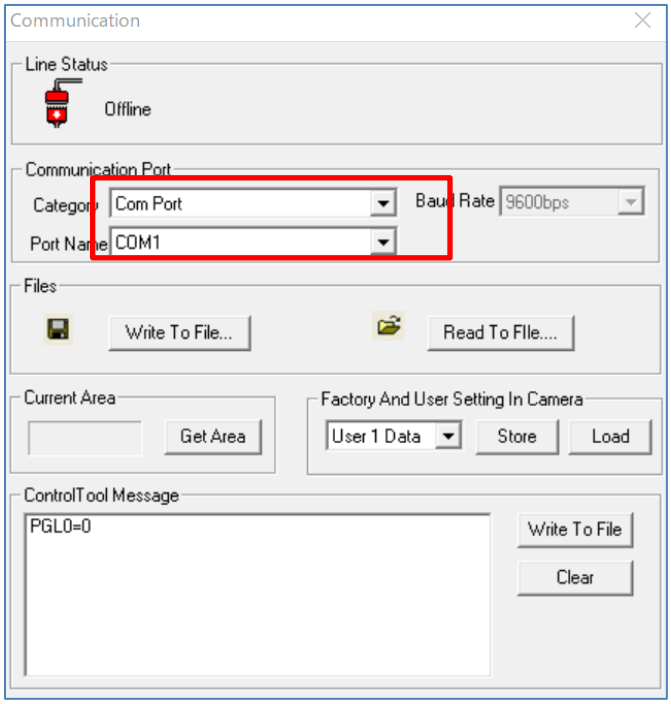

Fig.3

E) Connection with Camera Link specification

To establish serial communication with a camera via the Camera Link specification, the following settings are needed in the Communication window of the Camera Control Tool

Category: Camera Link spec ver.1.1

Port Name: Select from the list shown in the Port Name field

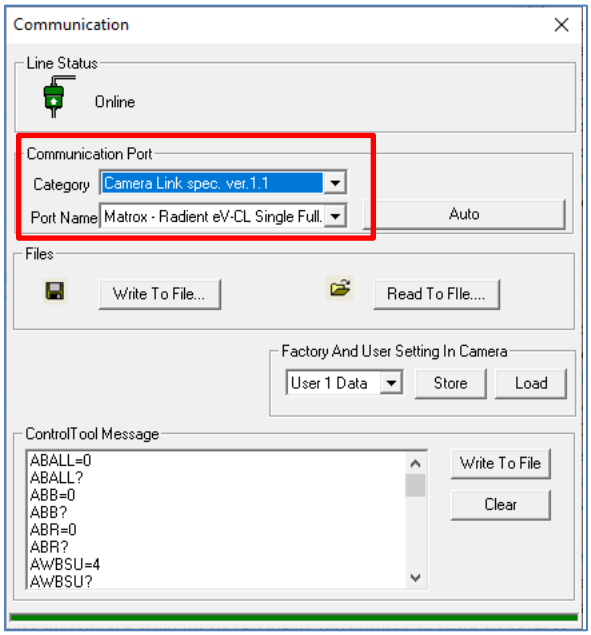

Fig.4

F) Tips for using Matrox frame grabbers

When using a Matrox frame grabber, communication is sometimes unstable. To solve this issue, some Matrox-specific settings are needed.

In the default settings of a Matrox frame grabber board, CC1 out is not stable. When a camera receives the unstable signal through CC1, the camera tries to react to the signal and becomes busy. As a result, the Control Tool shows "Resource In Use." To avoid this phenomenon, the CC1 signal from the frame grabber should be set.

If CC1 is actually being used as a trigger, the CC1 settings should be set as appropriate for the use case. But if the CC1 signal is not being used, the setting procedure should be as follows:

1) Click Feature Bowser on the Intellicam application.

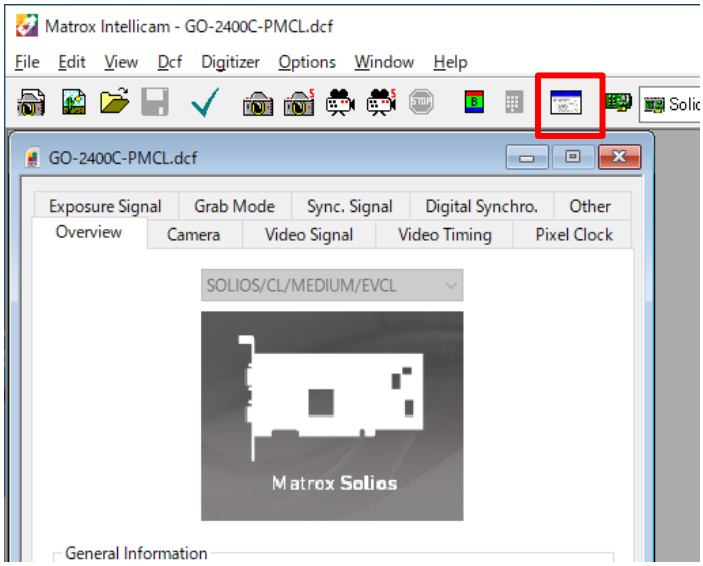

Fig.5

2) Select “CC IO 1” at “Selector For Specifying The Type And Number Of The I…”.

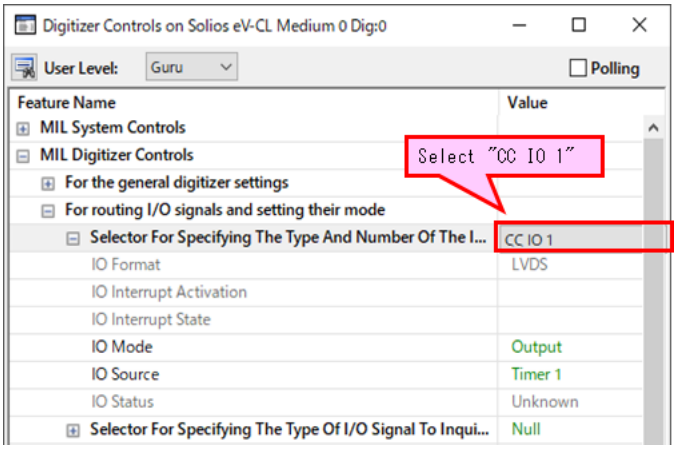

Fig.6

3) Select “User Bit 0” at “IO Source”.

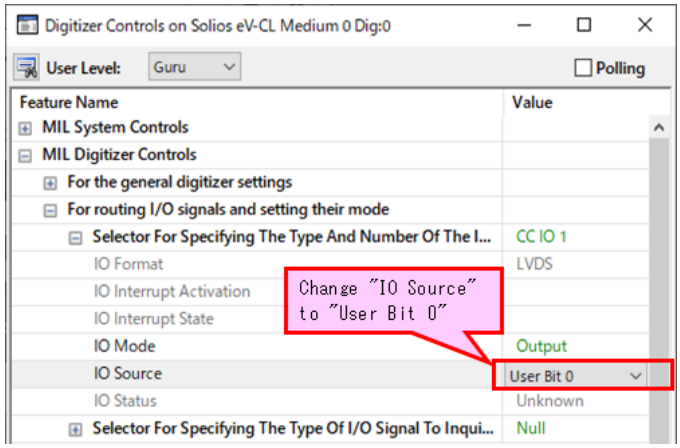

Fig.7

After setting the above settings, you can try steps D) and E) as described previously.

G) Control Tool folder location

In certain PC environments, even when the above settings are applied, communication still fails. In this case, change the location of the control tool: Move the control tool to the folder specified in the "Data" field of "CLSERIALPATH" (refer to section B).

Then, re-apply the settings as desribed in sections B-F.

End.

Technical Note

Camera Link Connection

Revision history

Revision	Date	Changes
1	2020/3/26	New release
2	2020/12/9	Added Section G)