

Matrox 4SightM, Solios and GEViCAM Cameras

GigE Drivers

GigE Vision cameras require an efficient GigE driver to transport the giga-bit data and to receive it reliably. Each API supplier provides its own drivers besides the original manufacturer's driver (Windows Stack). In general, the Windows stack drivers work with most APIs for image capture and demonstration. However, the performance and CPU utilization is not the best for demanding applications. Therefore, dedicated drivers are available and replace or are installed over the original Windows stack drivers. In this Tech-note, we will discuss the Matrox driver and the Pleora driver.

GEViCAM Driver

Since GEViCAM uses the Pleora GigE core, the drivers are the Pleora GigE drivers. The latest SDK ver. 2.3.1 contains different drivers and an installation tool. The main driver selections are

- Windows stack (original Ethernet adapter driver)
- eBus Universal driver
- eBus Optimal driver (Intel chipset)
- iPort High Performance driver (Intel chipset)

The eBus Optimal driver and the High Performance driver are the best performing drivers but must be installed only in GigE adapters with Intel gigE PHY chipset. Universal driver and Windows stack work with any GigE adapter card.

Matrox drivers are also dedicated drivers for general Ethernet adapter cards (NIC) and Matrox's Solios GigE card. The MIL-GigE drivers are similar in performance but cannot be mixed. Here we tested the latest (pre-released) versions of each driver (M800DU14_41 and Solios DU15_21).

GigE Driver Installation

Dedicated drivers attempt to replace or edit the original Windows stack driver and especially the Intel driver, which is commonly shared. If one driver is already installed in place of the Intel driver, any attempt to install another driver is likely to create a conflict and cause a serious driver crash of the computer. Quite often you may have to perform a rescue of the PC in order to restore the Ethernet adapter card functions.

Do not install High performance or Optimal drivers if the system has the Matrox driver already installed.

Likewise, do not install a Matrox driver if the system has a High performance or Optimal driver already installed. If two APIs are used in a system, we suggest maintaining the Universal driver for the Pleora SDK.

4SightM and Solios driver

If the latest version of this software is used, the GigE driver (GigE-MIL) is automatically installed in the Matrox file. There is no way to remove the driver independently from MIL software. In the 4SightM, MIL is embedded and the driver cannot be uninstalled. Therefore, we cannot install the Pleora High Performance driver or the Optimal driver into 4SightM or Solios that has the GigE driver installed. (With older version of 4SightM that are without the GigE driver, it is OK to install the High Performance driver, but functionality is impaired.)

We strongly recommend the use of the Universal driver with 4SightM and Solios applications.

4SightM with iPort-MIL Interface

4SightM operates with Windows XP embedded version and the update must use the rescue CD. In some of the older versions, Windows has a known deficiency of allowing some Ethernet installation tools. When the SP2 is not updated, PC goes to restart mode or warning screen. The latest rescue CD (ver. 2.5_B2) has all of these fixed and the GigE driver is built-in (similar to DU14). We can operate iPort SDK and MIL process in this environment using IP Engine and MIL. We must use the eBus Universal driver for this. Because of the latest fix of SP2, Pleora eBus driver installation tool works and we can select the correct driver for Pleora SDK. In case you need to use rescue CD, the first boot up dialog is tricky: We had to press F2 key multiple times while powering up the 4SightM. Because we cannot uninstall MIL from 4SightM, this process may be important.

GigE Vision

The new versions of both Solios and 4SightM with new version work well with GigE Vision compliant cameras. The only problems we saw were for advanced features, where we found some minor bugs. For DU14, it must be updated to the latest version. Also, XML saving and opening may encounter limitations of functions that save and restore from the XML.

We saw successful operation of GEViCAM-GEV (GigE compliant version) with both 4SightM and Solios.

Again, it must be noted that this test was completed successfully because:

1. We could update 4SightM with the latest rescue CD
2. We used the latest unreleased version of DU14_21
3. We used also the latest Solios DU15.

With these, we can implement part of advanced features and camera controls. It contains PLC programming functions but it may be difficult to implement them in the current version.