

GigE Vision Compliant Camera (part 2) ...Advanced Functions and MIL

GigE Vision API for GEV (GigE Vision)

GigE Vision compliant cameras are interfaced directly to GigE Vision compliant API software.

GigE Vision standard requires 7 mandatory features to be compatible.

These features are;

- Width Image width
- Height Image height
- PixelFormat Pixel format defined in GVSP
- PayloadSize Number of bytes transferred for each image on the stream channel
- AcquisitionMode Manner in which images are sequenced from the camera
- AcquisitionStart Starts image acquisition in the specified mode
- AcquisitionStop Stops image acquisition in the specified mode

However, these features are not enough for real applications and GEViCAM provides much more advanced functions to be interfaced.

Access GEViCAM (GEV version)

Since GEV version is GigE Vision compliant, it can be accessed from any GigE Vision compliant drivers and PC software.

GEViCAM's SDK (Coyote application) has GenApi access to open up GP series as GigE Vision. Please refer Tech Note TN-07005.

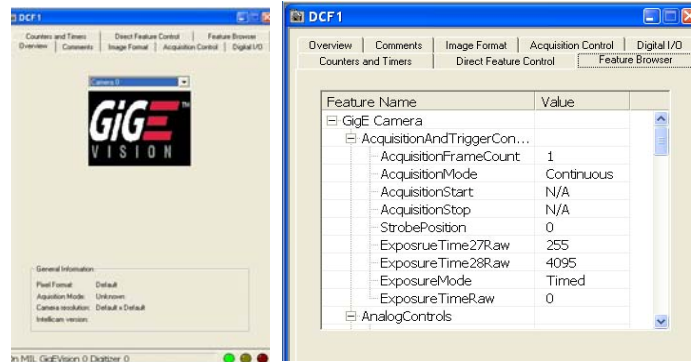
In this Tech Note, a popular Matrox MIL GigE Vision application is described as the third party interface.

MIL Intellicam and GigE Driver

GigE Vision interface driver is available from Matrox. The installation and the application procedure must follow Matrox instructions. MIL software must be installed for Serial bus driver. Additional GigE Vision driver (Milgige) is required to install. In this context MIL Lite 8.0 and milgige (m800du14) are used. Once MIL is operable and opens the Intellicam, it shows MIL GigE Vision 0 as the allocated system. The driver should detect existence of GigE interface. When press continuous grab button, it shows GigE Vision as the digitizer configuration format. When the OK button is pressed, GigE Vision dialog appears and live image should appear. In this stage, both monochrome and color image are black and white.

GenApi Explorer

Next, you can open up "Feature Browser" tab. Typical GigE Vision application software will show device configuration explorer window.



Controlling Functions

Controlling various functions in GenApi or GigE Vision feature dialog is straight forward. Click the function and adjust the additional windows. For example, GEViCAM GP series has many trigger and exposure functions.

Here, you can open up ExposureMode and select one of following.

Timed: Normal exposure without trigger. Use ExposureRaw to control the time (in unit of 1H).

TriggerWidth: Pulse width trigger and exposure control

TriggerControlled: Async trigger and exposure control

BtoBstrobe: Back to back strobe output mode

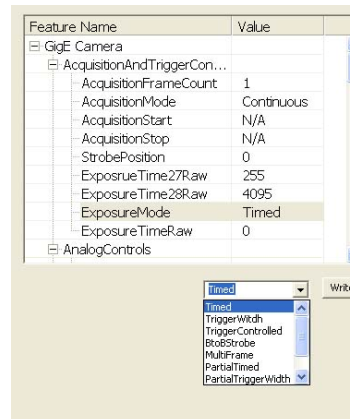
MultiFrame: ITS multi frame with each shutter control

Partialtimed: Partial scan with normal exposure control

PartialTriggerWidth: Partial scan with pulse width control

PartialTriggerControlled: Partial scan with async control

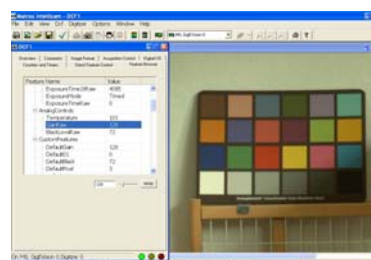
PartialMultiFrame: partial scan with ITS mode



With external trigger input (TTL as default), these advanced functions are controllable from MIL.

The most common functions are; Exposure-TimeRaw (shutter speed control by increment of 1H), GainRaw(gain control up to 42 dB), and Gamma/Linear selection. The color data is output as individual raw pixel data.

Color Interpolation:



API must process the color interpolation in PC. In MIL, there is a color interpolation selection button. By applying the proper Bayer pattern configuration, you will see the color reproduction.