

## 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.

The GigE Vision standard requires 7 mandatory features for compliance.

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 7 features are insufficient for actual applications and GEViCAM provides many more advanced functions that need to be accommodated.

### Accessing GEViCAM (GEV version)

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

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

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

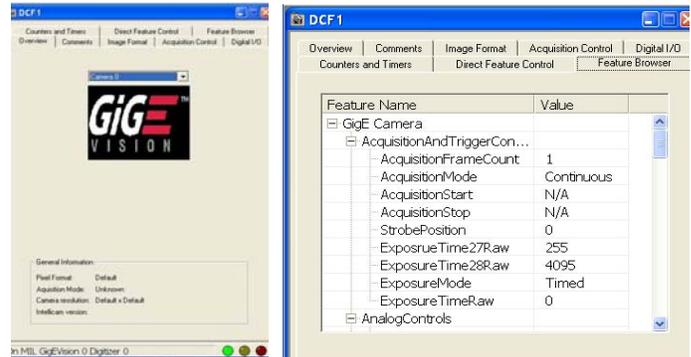
### MIL Intellicam and GigE Driver

A 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. An additional GigE Vision driver (Milgige) also must be installed. 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 the GigE interface. When the "Continuous Grab" button is pressed, it shows GigE Vision in the digitizer configuration format. When the OK button is pressed, the GigE Vision dialog appears and a live image should also appear. At this stage, both monochrome and color images appear as black and white.

### GenApi Explorer

Next, the "Feature Browser" tab may be opened. Typical GigE Vision application software will show the device

configuration explorer window.



### Controlling Functions

Controlling various functions in the GenApi or GigE Vision feature dialog is straight forward. Click the function and make changes in the additional windows. For example, the GEViCAM GP-series has many trigger and exposure functions. Here, you can open up Exposure-Mode and select one of the 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

**BoBStrobe:** Back to back strobe output mode

**MultiFrame:** Multiple frames with each shutter control (ITS mode)

**Partialtimed:** Partial scan with normal exposure control

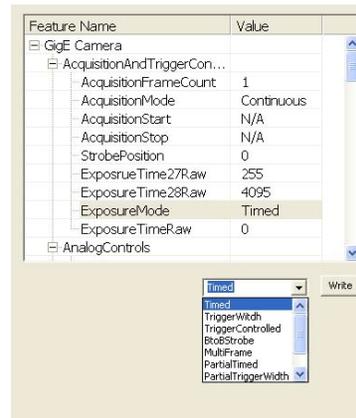
**PartialTriggerWidth:** Partial scan with pulse width control

**PartialTriggerControlled:** Partial scan with async control

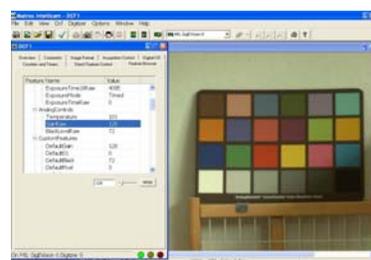
**PartialMultiFrame:** Partial scan with ITS mode

With external trigger input (TTL is 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:

The API must perform the color interpolation in the PC.

In MIL, there is a color interpolation selection button. By applying the proper Bayer pattern configuration, you will see the color image.