Technical Solutions

Scrambled Data When Using Andor SDK3 for sCMOS

Description of Error: When setting up the Andor Neo or Zyla to use an area of interest (AOI) the first portion of data returned appears to be scrambled (see *Figure 1*) or empty. When the camera is set up to use the full chip the image is retrieved correctly. The buffer size is always set to the value returned by the function ImageSizeBytes.

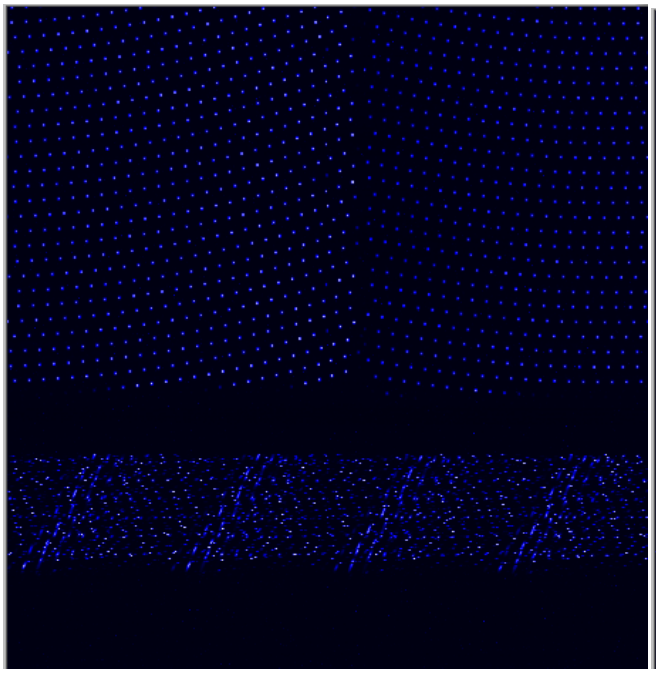

Figure 1 – Scrambled data using AOI

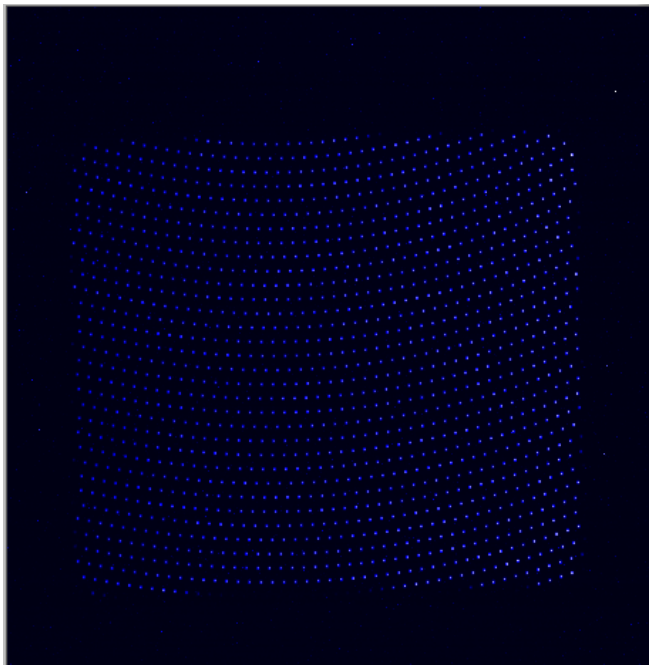

Figure 2 – Corrected data using AOIStride feature

Due to the transfer of data from the camera to the camera link card (3tap == packets of 3 bytes) and from the cameralink card into PC RAM (packets of 8 bytes) the data needs to be properly buffered to ensure alignment. This issue was not seen previously in early builds (before recent FPGA upgrade – Mar 2012) as the AOIs were predefined and processed on the cameralink card. The pre-defined AOIs were designed in such a fashion that the data transferred did not need buffered.

Since Release 3 of the Neo and Release 1 of the Zyla, the AOIs are no longer pre-defined and can be defined by the user. This implies the data needs buffered to ensure correct transfer. Once transferred, the user can then process the data to ensure only the pixel data is returned. However, this would impact frame rates.

The AOIStride is a SDK feature which indicates the number of bytes in each row of the image data. This value should be used when parsing through the pixels in an image to determine the starting point of each row in the image. This will not always be equal to the AOIWidth multiplied by the number of bytes per pixel as the underlying hardware interface may impose granularity restrictions on the row width, as is the case with Camera Link. If this is the case then extra padding bytes are added to the end of each row to ensure that the granularity limitations are met. The AOIStride feature is read only.

Please refer to the Andor SDK3 User manual for further information on using AOIStride.