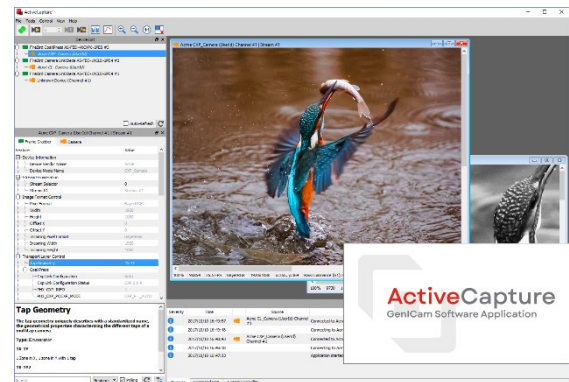# ActiveCapture
Capture, Analysis & Control

- Supports all FireBird Frame Grabbers
- GenICam Feature Control and GenTL Acquisition Control
- For CoaXPress, CLProtocol and GenCP Cameras
- Also supports non-GenICam Camera Link Cameras

FEATURES

- Optimized image acquisition and display.

- Support for CoaXPress and Camera Link cameras.

- GenICam feature browser.

- Comprehensive image display features such as zoom and color sampler.

- Image sequence capture and playback.

- High bit-depth color and greyscale histogram functions.

- Command line utility for direct register access to the camera for low-level debugging.

- Supports TIFF & JPEG image file formats.

OVERVIEW

ActiveCapture is the front-end software for Active Silicon FireBird frame grabbers. It allows the user to access and control cameras and frame grabbers installed, in a clear and intuitive way. It provides a simple and easy way to configure the hardware system, allowing control of various image acquisition features such as triggering, image resolution, etc.

ActiveCapture is a GenICam GenTL program that can be used with cameras supporting GenICam, such as CoaXPress, and Camera Link cameras using CLProtocol. It can also be used with non-GenICam Camera Link cameras. Additionally, it provides access to utilities including a firmware updater, bandwidth test and GenTL Camera Link setup.

A device tree provides quick access to any Active Silicon frame grabber products that are installed, and the cameras connected to them. With CoaXPress cameras, no manual setup of the camera or frame grabber is required, and images can be acquired by simply connecting to the camera and selecting the Live control.

ActiveCapture has several features to aid camera testing and integration. The histogram feature shows the distribution of pixels in the image - both 2D and 1D functions are provided. Image sequences can be acquired and played back within **ActiveCapture** or saved to disk for off-line analysis. A hardware events controller provides real-time feedback on asynchronous events that are generated by the hardware to aid system debugging and to speed up integration time.

SPECIFICATION SUMMARY

Feature Browser	Shows the GenICam features for the frame grabber and the camera and allows control of them. The documentation for the selected feature is extracted from the nodemap and shown at the bottom of the Feature Browser. A search box allows searching for a feature by name. Users can filter which features are visible by selecting their level of expertise (Beginner, Expert and Guru).
Integrated Tools	FireBird utilities are available from directly within the applications. • Bandwidth Test – measures the PCIe bandwidth available and tests if the speed of the PC is adequate for the respective acquisition board. • Flash Programming Utility – used to update the firmware of the board. • GenTL CL Setup Utility – used to enable access to CLProtocol or GenCP Camera Link cameras.
Configuration Files	Three configuration file formats are supported: 1. GCF – the GenICam Configuration File contains the values for the features of a particular GenTL module nodemap. 2. ZGCF – the Zipped GenICam Configuration File is a zip archive containing the collection of GCF files that store the values for the various GenTL modules' nodemaps. 3. PCF – the PHX Configuration File is an Active Silicon proprietary file format used to solely store the frame grabber's parameters. It can be loaded with the PHX library and the parameters are those of the PHX library and are documented in the PHX API User Manual.
Debugging Features	**Events Controller** – a dedicated user interface to control asynchronous events generated by the hardware, showing, for each, its timestamp and the number of times it occurred. **Command Line** – a built-in widget allowing to read and write registers in the camera, bypassing the GenICam features. **Image Sequence** – provides the ability to record and play back image sequences acquired from a camera; sequences can be stored to and loaded from disk, using various file formats (TIFF, JPEG, etc.).
Operating System Support	**ActiveCapture** is supported on 64-bit versions of Windows 10 and Windows 11.

THE USER INTERFACE

The user interface of **ActiveCapture** is depicted in Fig. 1. Several elements are numbered and described in more detail below.

*Fig. 1. The **graphic user interface** – the example shows three frame grabbers, each connected to one camera.*

1. The **Device List** shows the frame grabber(s) installed on the computer and all connected cameras.

2. The **Connect** and **Live** buttons, respectively, allow to select one of the cameras and acquire images from it.

3. The **Feature Browser** shows the GenICam features for the frame grabber and the camera and allows control of them (see Fig. 2).

4. The **Display** shows the live images as well as additional information such as framerate, image resolution, pixel color information etc.

5. **Zoom function**: The image can be zoomed in or out with "+ and –" keys on the keyboard, with the mouse wheel or with the help of the zoom controls.

6. Clicking the **Histogram button** displays a histogram and statistics for the selected image or part of this image (see Fig. 3). Similarly, the **1D Profile button** shows the intensity profile of all or part of a line or column (see Fig. 4).

7. The user interface also provides a console, a command line and an events controller. The **Console** shows status information and details of any error messages. The **Command line** is a debug tool that allows reading and writing registers in the camera, thus bypassing the Feature Browser. The **Events Controller** provides a dedicated user interface to control the asynchronous events that can be generated by the hardware.

*Fig. 2. **Feature Browser** – The documentation for the selected feature is extracted from the nodemap and shown at the bottom of the Feature Browser. A search box is provided. The user can choose to either automatically or manually refresh the Feature Browser.*
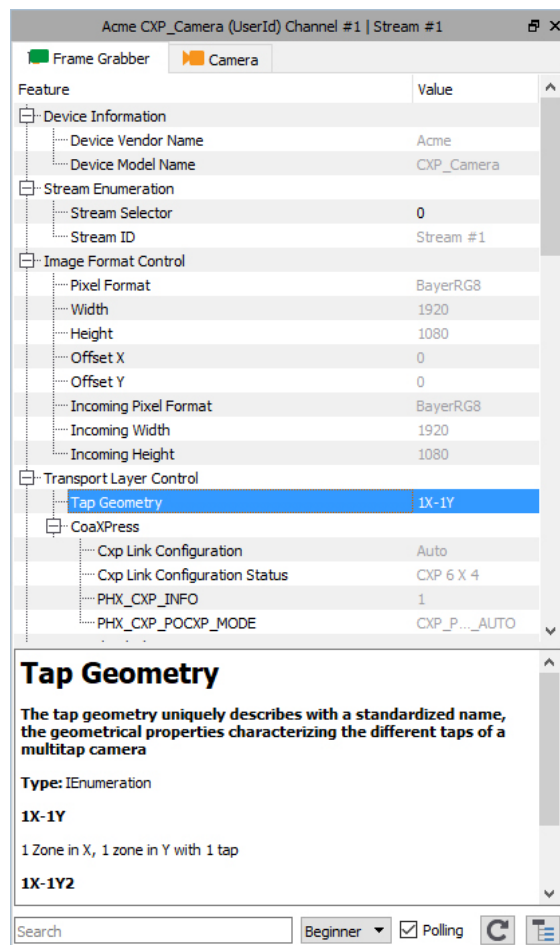

*Fig. 3. **Histogram** – Showing a histogram and statistics for a selected part of the image.*
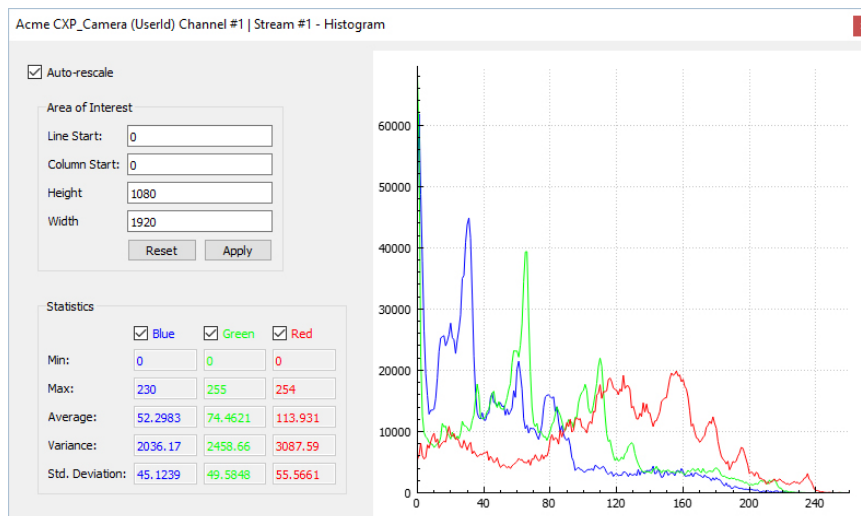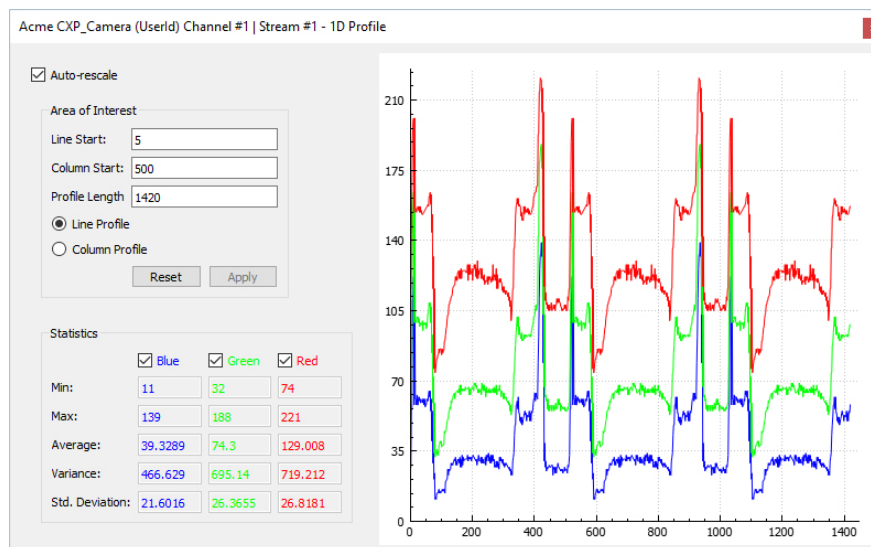
*Fig. 4. **1D Profile** – Showing an intensity profile of a chosen line or column.*

THE FIREBIRD RANGE

The following products are also available in the range:

- High performance CoaXPress CXP-12 and CXP-6 frame grabbers in single, dual and quad configurations.
- Camera Link frame grabbers in Base, Medium, Full and 80-bit (Deca) configurations.

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