DESIGN BRIEF
Scientific Microscopy

Reduce cabling complexity and system costs in microscopy applications by treating Camera Link cameras like plug-and-play USB 3.0 products

Pleora's **iPORT™ CL-U3 External Frame Grabbers** help designers cut the cost, improve the usability, and reduce the complexity of microscopy systems for a wide range of applications, including life sciences, measurement, and quality control, by converting Camera Link cameras into USB3 Vision® cameras. The external frame grabbers allow designers to retain existing cameras, sensors, and optics while leveraging the ubiquitous computing platform support and simplified cabling of USB 3.0.
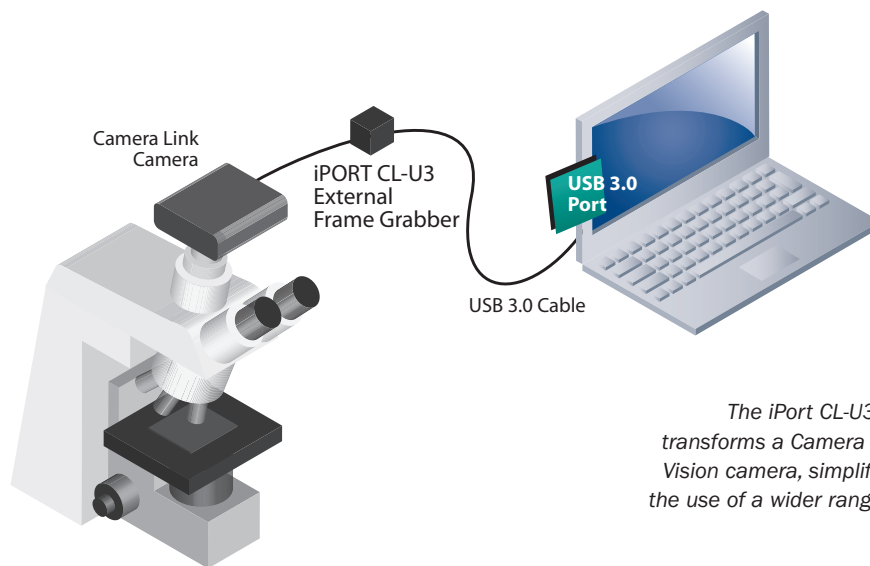
Microscopy systems often use a Camera Link camera to transmit microscopic images to a computer for analysis and observation. The Camera Link video interface requires bulky, specialized cabling and a PCIe frame grabber to capture images at the computer, resulting in more complex systems, higher costs, and limited component selection.

In comparison, the iPORT CL-U3 transmits images from the microscope camera over an off-the-shelf, thin, flexible USB 3.0 cable directly to an existing port on a laptop, single-board computer, or tablet. Integrated programmable logic converter (PLC) and GPIO capabilities allow end-users to control, trigger and synchronize the camera and other vision system elements.

In the diagram below, the image feed from a Camera Link microscopy camera is converted into USB3 Vision-compliant video by the iPORT CL-U3. The uncompressed video is transmitted with low, consistent latency over a USB 3.0 cable directly to an existing USB 3.0 port on a laptop used for analysis and display.

By eliminating the need for a Camera Link frame grabber in a PCIe slot, designers are free to choose from a broad selection of small form factor and low-power computing platforms, including laptops, embedded systems, and tablets. The thinner, lighter USB 3.0 cable is easier to route than bulky Camera Link cables, allowing faster setup and teardown of inspection stations. Leveraging the onboard PLC, the iPORT CL-U3 uses input signals to accurately and deterministically control and trigger the camera and other vision systems elements, such as area sensors and lighting sources.

At the computing platform, the iPORT CL-U3 is supported by Pleora's feature-rich **eBUS™ SDK** application tool kit and drivers. This software suite allows designers to rapidly prototype and deploy production-ready software supporting video transmission over 10 GigE, GigE, USB 3.0, and wireless using the same application programming interface (API).

Camera Link Camera

iPORT CL-U3 External Frame Grabber

USB 3.0 Port

USB 3.0 Cable

The iPort CL-U3 External Frame Grabber transforms a Camera Link camera into a USB3 Vision camera, simplifying cabling and allowing the use of a wider range of computing platforms for display and analysis.

For more information, visit
www.pleora.com

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