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PRESS RELEASE

<u>**Programmable External Image Acquisition and Processing Device**</u>

LightBridge 2 VCL as a Mobile Frame Grabber on Site

Mannheim (Germany), 7 February 2018 – Silicon Software GmbH, manufacturer of frame grabbers and intelligent image processing solutions, presents the external image acquisition and processing device LightBridge 2 VCL with double the bandwidth and flexible power supply requirements. Due to its compact size, the device can be installed on the factory floor for image acquisition, pre-processing and processing along with signal processing, while the image analysis can be accomplished on an industrial PC at a remote location. It is graphically programmable with VisualApplets using data flow diagrams. With this combination a large range of manufacturing as well as robotics and the non-industrial application areas are now achievable. Together with the device, smaller PCs and durable Thunderbolt^{TM} cables can be used, that lowers total system costs and installation footprint.

The Thunderbolt™ technology in LightBridge 2 VCL has been certified by Intel and behaves like a classic frame grabber, but it has been designed with its small size as a mobile external and industrial device. It is connected to the host PC by electrical or optical Thunderbolt^{TM} cable using standard PCI Express (PCIe) bus technology. With optical high-flex cables a fast and long (up to 60 meters) and noise immune connection is possible. The transmission capacity for image data has increased with Thunderbolt^{TM} 2 to 1,350 MB/s in constant operation for a single device or a daisy chain. The optical cables have low space requirements, are flexible and certified for a very high number of bending cycles and are highly torsion resistant. The fan less, dust protected device with low heat conduction is especially suited for image processing tasks in the manufacturing area. It can now operate with a flexible power supply between 7 and 24 Volts and is completely compatible with the previous version.

FPGA graphically programmable with VisualApplets

The FPGA (Field Programmable Gate Array) processor integrated into the device controls the image acquisition and pre-processing as well as the image and signal processing with repeatable deterministic performance. The execution of image pre-processing steps such as image enhancement, region-of-interest, scaling and color space conversion greatly reduces the CPU load of the host PC, which then has resources available for CPU-centric image analysis's. As the device is programmable, it is possible to graphically

create your own applications or easily adapt existing designs via VisualApplets's data flow diagrams – without special knowledge of hardware circuitry. Another device focused purely on image acquisition will be introduced to the market in mid-2018.

As camera inputs, two Camera Link connectors with Power over Camera Link (PoCL) for power delivery are provided. The device supports all formats of the Camera Link standard, with full bandwidth (up to 80bit full configuration data rate) transfers. LightBridge 2 VCL includes a secondary Thunderbolt™ connector to daisy chain up to six devices. An upgrade of the image acquisition or processing system by adding more Camera Link cameras is possible within the whole bandwidth of Thunderbolt™.

For communication between external devices and the camera as well as their synchronization, a trigger GPIO and an additional GPIO terminal block is provided for 4 opto-decoupled inputs and outputs. No other components such as optocoupler, converter or vision PC are required. LightBridge 2 VCL can be pre-configured and updated or replaced very quickly, reducing downtime. The device is supported with software adapters for image processing software from a variety of leading third-party manufacturers.

Image Material (Source: Silicon Software GmbH)

File name: SiliconSoftware_LB2_CMYK

Caption (suggestion): External frame grabber LightBridge 2 VCL with GPIO terminal block and Thunderbolt™ connections
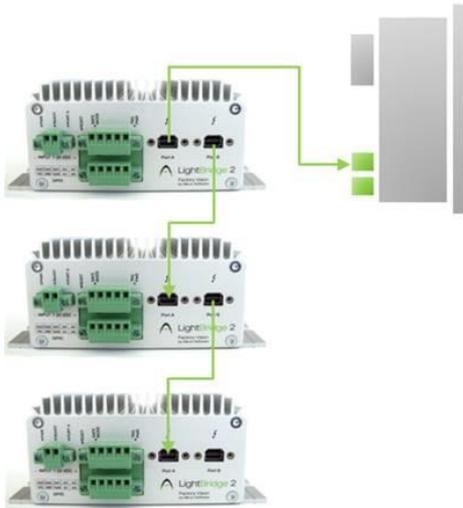
File Name: SiliconSoftware_LB2_DaisyChain_CMYK

Caption (suggestion): Daisy chain of the Thunderbolt™ connections for synchronization of up to 12 cameras

About Silicon Software GmbH:

Silicon Software, located in Mannheim/Germany, Nashua/USA and Laval/Canada, is a manufacturer of frame grabbers and intelligent image preprocessing solutions for industrial image processing based on reprogrammable FPGA technology. The company markets standard products as well as customer-specific OEM solutions for machine vision and inspection in automation. Further emphases include graphical programming environments and image processing libraries for real-time applications on FPGA vision processors. Hard- and software products are particularly distinguished by their high flexibility, high performance, and ease of use.