**xSWITCH**

Utilizing PCIe as a camera interface offers unique camera aggregation options, at extremely high bandwidths: multiple cameras can be efficiently connected and their respective data streams bundled into a single copper or fiber optic cable connection to a host computer, writing directly to memory (DMA) at 64 Gbit/s. Flat-flex cables between the cameras and the xSWITCH allow the most compact integration in tight spaces.

**xTECH**

As a xTECH category device, XIMEA offers a PCB design called xSWITCH, where quantity, type, location and orientation of PCIe connectors can be varied to optimize the building of multi-camera systems. Multiple reference instances of this PCB already exist based on this concept, which creates a solution space for rapid customization and enables customer applications.

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**COMPUTER TO CAMERA**

Flat-flex cables horizontal or vertical attached < 50 cm

- Optical cable > 100 m
- Copper cable < 7 m

**COMPUTER TO HOST**

- PCIe endpoint
- Switch
- Root complex
- Memory

**PERFORMANCE**

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**CONNECTION TO CAMERA**

- Supported camera models refer to document: xSwitch compatible cameras.

**CONNECTION TO HOST**

- Utilizing PCIe as a camera interface offers unique camera aggregation options, at extremely high bandwidths.

**HIGHLIGHTS**

- **Maximum compactness:** smallest form factor cameras and compact connectors allow closest sensor-to-sensor proximity
- **Aggregation into one high bandwidth upstream** (up to 64 Gbit/s)
- **Full utilization of PCIe architecture with point to point connection and direct memory access**
- Use of standard components allow simple assembly for the creation of a custom platform
- No need for external or additional expansion backplanes
- Support for Windows, Linux and MacOS
- Multiple reference instances of the xSWITCH already available
- Board shape can be tailored precisely to application requirements
- Benefit from XIMEA’s unique experience and expertise in the field of PCIe

**MIX AND MATCH**

- Connect multiple cameras to a single PC
- Select from wide range of sensor resolutions and frame rates
- Combine housed and board level camera types
- Choice of different number of PCIe lanes and PCIe standards (2, 4, 8 lanes / Gen2 or Gen3)
- Choice of various connectors: flat-flex option, board to board or iPass
- Choose between flat-flex connectors with vertical or horizontal orientation
- Bridge small or large distances of >100 m by selecting copper cable or optical fiber cable

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**OPTIMIZED INTEGRATION**