

# Frame Grabbers & Machine Vision Cameras

## Hi-End Frame Grabbers



| Model                  |                             | Axion-1xE                                                  | Axion-2xE    | Axion-4xB    | Claxon-CXP1     | Claxon-CXP2                                                                                 | Claxon-CXP4  |
|------------------------|-----------------------------|------------------------------------------------------------|--------------|--------------|-----------------|---------------------------------------------------------------------------------------------|--------------|
| Camera Interface       | Compatibility               | Camera Link 2.0                                            |              |              | CXP-12          |                                                                                             |              |
|                        | Configuration               | Base/Med/Full/79-Bit                                       |              | Base         | -               |                                                                                             |              |
|                        | Camera Number               | 1                                                          | 2            | 4            | 1               | 2                                                                                           | 4            |
|                        | Speed                       | -                                                          |              |              | 3/6/12 Gbps     |                                                                                             |              |
|                        | Connector                   | SDR Camera Link connectors                                 |              |              | Micro BNC       |                                                                                             |              |
|                        | Bus Interface               | PCIe x4 Gen 2.0 (also works in x8 and x16 slots)           |              |              | PCIe x4 Gen 2.0 | PCIe x8 Gen3                                                                                |              |
| Processor and Software | Processor Architecture      | x86, ARM64                                                 |              |              |                 |                                                                                             |              |
| Support Package        | Operating System            | Windows 7, 8, 10 (x86 only), Linux SDK C, C++, C#, Python  |              |              |                 | Windows 7, 8, 10 (x86 only), Linux SDK C, C++, C#, Python                                   |              |
| Power Requirements     | Input voltage               | 12 VDC direct from PCIe slot, or AT/ATX system power input |              |              |                 |                                                                                             |              |
|                        | Overload Current protection | Present                                                    |              |              |                 |                                                                                             |              |
|                        | Connection                  | AT/ATX Power Jack                                          |              |              |                 |                                                                                             |              |
|                        | Power Output                | Supports both PoCL and non-PoCL cameras with SafePower     |              |              |                 | up to 13W, 24 V <sub>DC</sub> each CXP link (total max. 52W with AT/ATX system power input) |              |
| Environment            | Operating Temperature       | 0 ~ 50°C (32 ~ 122°F)                                      |              |              |                 |                                                                                             |              |
|                        | Storage Temperature         | -20 ~ 80°C (-4 ~ 176°F)                                    |              |              |                 |                                                                                             |              |
|                        | Operating Humidity          | 5 ~ 95% RH                                                 |              |              |                 |                                                                                             |              |
| Mechanic               | Dimension (W x D)           | 174 x 106 mm                                               | 174 x 106 mm | 174 x 106 mm | 140 x 77 mm     | 174 x 106 mm                                                                                | 174 x 106 mm |
| Certification          | Compliance                  | FCC CE Class A                                             |              |              |                 |                                                                                             |              |

✓: supported, -: not supported, △: optional

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## Frame Grabber



|                      | Model                       | PCIE-1154-BE                                                                     | PCIE-1158 | PCIE-1672E                                                                                                   | PCIE-1674E | PCIE-1182                                         |
|----------------------|-----------------------------|----------------------------------------------------------------------------------|-----------|--------------------------------------------------------------------------------------------------------------|------------|---------------------------------------------------|
| Power Requirements   | Input voltage               | 12 V <sub>DC</sub> direct from PCIe slot with optional 12 V <sub>DC</sub> AT/ATX |           |                                                                                                              |            |                                                   |
|                      | Overload Current protection | Device auto recover after Fuse tripped when rated currents > 2A                  |           |                                                                                                              |            |                                                   |
|                      | Connection                  | AT/ATX Power Jack                                                                |           |                                                                                                              |            |                                                   |
|                      | Power Output                | 5 V <sub>DC</sub> power output, max. 4.5W per port                               |           | 48 V <sub>DC</sub> PoE Power output, Max. 25.4W (1 port) (total Max. 60W (2 ports) with AT/ATX System power) |            |                                                   |
| Environment          | Operating Temperature       | 0 ~ 60°C (32 ~ 140°F)                                                            |           | 0 ~ 50°C (32 ~ 122°F)                                                                                        |            | 0 ~ 60°C (32 ~ 140°F)                             |
|                      | Storage Temperature         | -20 ~ 80°C (-4 ~ 176°F)                                                          |           |                                                                                                              |            |                                                   |
|                      | Operating Humidity          | 5 ~ 95% RH                                                                       |           |                                                                                                              |            |                                                   |
| Mechanic             | Dimension (W x D)           | 153 x 106 mm (6.02" x 4.17")                                                     |           | 165 x 110 mm (6.49" x 4.33")                                                                                 |            | 167 x 68.9 mm (6.57" x 2.71")<br>PCIe low profile |
| Communication        | Communication               | USB 3.0                                                                          |           | GigE                                                                                                         |            | 10 GigE                                           |
|                      | Interface/Compatibility     | USB 3 Vision                                                                     |           | IEEE 802.3, IEEE 802.3u, IEEE802.3ab, IEEE802.3x, IEEE802.3af, IEEE802.3at                                   |            |                                                   |
|                      | Speed                       | 5Gbps                                                                            |           | 10/100/1000 Mbps                                                                                             |            | 10,000/5,000/1,000 Mbps                           |
|                      | No. of Ports                | 4                                                                                | 8         | 2                                                                                                            | 4          | 2                                                 |
|                      | Port Connector              | USB3 Type A                                                                      |           | 8-pin RJ45 copper                                                                                            |            |                                                   |
|                      | Bus Interface               | PCI Express Gen2 x4 (up to 2.0 GB/s)                                             |           |                                                                                                              |            | PCIe Gen3 x 4                                     |
|                      | Jumbo Frame                 | -                                                                                |           | 9KB                                                                                                          |            | -                                                 |
|                      | Controller                  | Renesas $\mu$ PD720202                                                           |           | Intel® Ethernet Controller I350                                                                              |            | Intel® Ethernet Controller X550                   |
| Safety               | ESD                         | 8KV (air), 4KV (contact)                                                         |           |                                                                                                              |            |                                                   |
|                      | EFT                         | 2 KV                                                                             |           |                                                                                                              |            |                                                   |
|                      | Surge Protection            | 1 KV                                                                             |           |                                                                                                              |            |                                                   |
|                      | Isolation Protection        | 2.5 KV                                                                           |           |                                                                                                              |            |                                                   |
| Digital Input/Output | No. of Channels             | -                                                                                |           | -                                                                                                            |            | 4 input and output                                |
|                      | Input/Output range          | -                                                                                |           | -                                                                                                            |            | 0-30V opto-isolated                               |
|                      | Max. Frequency              | -                                                                                |           | -                                                                                                            |            | 1KHz                                              |
|                      | Digital Input interrupt     | -                                                                                |           | -                                                                                                            |            | Falling and rising edge, normal and invert        |

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## Industrial Cameras (GigE)



| Model                 |         | QCAM-GM0640-121CE         | QCAM-GM0720-290CE | QCAM-GM1440-073CE | QCAM-GM2500-014DE | QCAM-GM2440-020CE | QCAM-GM5400-005CE |
|-----------------------|---------|---------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Resolution            |         | 659 x 494                 | 720 x 540         | 1440 x 1080       | 2590 x 1942       | 2448 x 2048       | 5472 x 3648       |
| Frame Rate            |         | 134                       | 291               | 73                | 14                | 23                | 5                 |
| Pixel Size (μm)       |         | 5.6 x 5.6                 | 6.9 x 6.9         | 3.45 x 3.45       | 2.2 x 2.2         | 3.45 x 3.45       | 2.4 x 2.4         |
| Mono/ Color           |         | Mono                      | Mono              | Mono              | Mono              | Mono              | Mono              |
| Sensor                | Company | SONY                      | SONY              | e2v               | Onsemi            | Onsemi            | SONY              |
|                       | Model   | ICX618 replacement        | IMX287            | EV76C570          | MT9P031           | MT9J003           | IMX183            |
|                       | Shutter | Global                    | Global            | Global            | rolling           | rolling           | rolling           |
|                       | Size    | 1/4"                      | 1/2.9"            | 1/2.9"            | 1/2.5"            | 2/3"              | 1"                |
|                       | Type    | CMOS                      |                   |                   |                   |                   |                   |
| Input                 |         | 1                         |                   |                   |                   |                   |                   |
| Output                |         | 1                         |                   |                   |                   |                   |                   |
| Power Requirements    |         | PoE or 12 V <sub>DC</sub> |                   |                   |                   |                   |                   |
| Power Consumption     |         | 2.7 W                     | 2.9 W             | 2.1 W             | 2.2 W             | 3.3 W             | 2.6 W             |
| Lens Mount            |         | C                         |                   |                   |                   |                   |                   |
| Dimension (W x H x D) |         | 42.0 x 29.0 x 29.0 mm     |                   |                   |                   |                   |                   |
| Weight                |         | 90 g                      |                   |                   |                   |                   |                   |
| Operating Temperature |         | 0°~50°C                   |                   |                   |                   |                   |                   |

## Industrial Cameras (USB)



| Model                 |         | QCAM-UC0640-750CE/QCAM-UM0640-750CE | QCAM-UC0720-520CE/QCAM-UM0720-520CE | QCAM-UC1300-200CE/QCAM-UM1300-200CE | QCAM-UC1440-220CE/QCAM-UM1440-220CE | QCAM-UC2440-035CE/QCAM-UM2440-035CE | QCAM-UC2590-060CE/QCAM-UM2590-060CE |
|-----------------------|---------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| Resolution            |         | 640 x 480                           | 720 x 540                           | 1280 x 1024                         | 1440 x 1080                         | 2488 x 2048                         | 2592 x 1944                         |
| Frame Rate            |         | 751                                 | 525                                 | 203                                 | 227                                 | 35                                  | 60                                  |
| Pixel Size (μm)       |         | 4.8 x 4.8                           | 6.9 x 6.9                           | 4.8 x 4.8                           | 3.45 x 3.45                         | 3.45 x 3.45                         | 2 x 2                               |
| Mono/ Color           |         | Color/Mono                          | Color/Mono                          | Color/Mono                          | Color/Mono                          | Color/Mono                          | Color/Mono                          |
| Sensor                | Company | Onsemi                              | SONY                                | Onsemi                              | SONY                                | SONY                                | Sony                                |
|                       | Model   | PYTHON 300                          | IMX287                              | PYTHON 1300                         | IMX273                              | IMX 264                             | IMX334ROI                           |
|                       | Shutter | Global                              | Global                              | Global                              | Global                              | Global                              | Rolling                             |
|                       | Size    | 1/4"                                | 1/2.9"                              | 1/2"                                | 1/2.9"                              | 2/3"                                | 1/2.8"                              |
|                       | Type    | CMOS                                |                                     |                                     |                                     |                                     |                                     |
| Input                 |         | 1                                   |                                     |                                     |                                     |                                     |                                     |
| Output                |         | 1                                   |                                     |                                     |                                     |                                     |                                     |
| Power Requirements    |         | Via USB3.0 interface                |                                     |                                     |                                     |                                     |                                     |
| Power Consumption     |         | 2.8 W                               | 3 W                                 | 3 W                                 | 3.3 W                               | 2.7W                                | 2.6W                                |
| Lens Mount            |         | C                                   |                                     |                                     |                                     |                                     |                                     |
| Dimension (W x H x D) |         | 29.3 x 29.0 x 29.0 mm               |                                     |                                     |                                     |                                     | 42.8 x 29 x 29 mm                   |
| Weight                |         | 80 g                                |                                     |                                     |                                     |                                     | 90g                                 |
| Operating Temperature |         | 0°~50°C                             |                                     |                                     |                                     |                                     | 0°~60°C                             |

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# Video Capture Cards



| Model                   |                        | DVP-7011HE-1                                                                                                                                | DVP-7011HEL                                                                                                                                 | DVP-7011MUHE                                                                                                                                | DVP-7012HEL                                                                                                                                 | DVP-7012UHEL                                                                                                                                | DVP-7017HE-1                                                                                                                                   | DVP-7019HE-1                                                                                                                                   | DVP-7024UHEL                                                                                                                                 | DVP-7025UHE                                                                                                                                  |
|-------------------------|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| Video                   | Compression            | SW                                                                                                                                          | SW                                                                                                                                          | SW                                                                                                                                          | SW                                                                                                                                          | SW                                                                                                                                          | SW                                                                                                                                             | SW                                                                                                                                             | SW                                                                                                                                           | SW                                                                                                                                           |
|                         | Channels               | 1                                                                                                                                           | 1                                                                                                                                           | 1                                                                                                                                           | 1                                                                                                                                           | 1                                                                                                                                           | 1                                                                                                                                              | 1                                                                                                                                              | 2                                                                                                                                            | 2                                                                                                                                            |
|                         | Host Interface         | PCIe x 1 (Gen2)                                                                                                                             | PCIe x 1 (Gen2)                                                                                                                             | M.2 (PCIex4)                                                                                                                                | PCIe x 1 (Gen2)                                                                                                                             | PCIe x 4 (Gen2)                                                                                                                             | Mini PCIe x 1 (Gen2)                                                                                                                           | PCIe x 1 (Gen2)                                                                                                                                | PCIe x 4 (Gen2)                                                                                                                              | PCIe x 4 (Gen2)                                                                                                                              |
|                         | Input Interface        | 1 x HDMI, 1 x DVI-I, 1 x YPbPr, 1 x SDI, 1 x CVBS, 1 x S Video                                                                              | 1 x DVI-I, 1 x SDI                                                                                                                          | 1 x HDMI 2.0                                                                                                                                | 1 x HDMI, 1 x S-Video, 1 x CVBS                                                                                                             | 1 x 12G-SDI, 1 x HDMI2.0                                                                                                                    | 1 x SDI                                                                                                                                        | 1 x SDI, 1 x DVI-I                                                                                                                             | 2 x HDMI 2.0                                                                                                                                 | 2 x 12G-SDI, 2 x 6G-SDI, 4 x 3G-SDI                                                                                                          |
|                         | Max. Resolution        | 1920 x 1080p @60/50fps                                                                                                                      | 1920 x 1080p @60/50fps                                                                                                                      | 4096 x 2160 @60/50/30/25/24fps                                                                                                              | 1920 x 1080p @60/50fps                                                                                                                      | 4096 x 2160 @60/50fps                                                                                                                       | 1920 x 1080p @60/50fps                                                                                                                         | 1920 x 1080p @30/25/24fps                                                                                                                      | 4096 x 2160 @60/50/30/25/24fps                                                                                                               | 4096 x 2160 @60/50fps                                                                                                                        |
| Watchdog                |                        | -                                                                                                                                           | Yes                                                                                                                                         | -                                                                                                                                           | Yes                                                                                                                                         | -                                                                                                                                           | -                                                                                                                                              | -                                                                                                                                              | -                                                                                                                                            | -                                                                                                                                            |
| Physical Characteristic | Operating Temperature  | -20 ~ 70°C (-4 ~ 158°F)                                                                                                                     | -20 ~ 70°C (-4 ~ 158°F)                                                                                                                     | -20 ~ 70°C (-4 ~ 158°F)                                                                                                                     | -20 ~ 70°C (-4 ~ 158°F)                                                                                                                     | -20 ~ 70°C (-4 ~ 158°F)                                                                                                                     | -20 ~ 70°C (-4 ~ 158°F)                                                                                                                        | -20 ~ 70°C (-4 ~ 158°F)                                                                                                                        | -20 ~ 70°C (-4 ~ 158°F)                                                                                                                      | -20 ~ 70°C (-4 ~ 158°F)                                                                                                                      |
|                         | Dimensions (W x H x D) | 94.43 x 101.01 mm                                                                                                                           | 96 x 68.9 mm PCIe Low Profile                                                                                                               | 22 x 80 mm M.2 Type M                                                                                                                       | 100 x 68.87 mm PCIe Low Profile                                                                                                             | 126.96 x 68.9 mm PCIe Low Profile                                                                                                           | 30 x 50.95 mm MiniPCIe                                                                                                                         | 104.91 x 68.9 mm PCIe Low Profile                                                                                                              | 139.71 x 68.9 mm PCIe Low Profile                                                                                                            | 153.95 x 101.01 mm                                                                                                                           |
|                         | Safety                 | CE/FCC                                                                                                                                      | CE/FCC                                                                                                                                      | CE/FCC                                                                                                                                      | CE/FCC                                                                                                                                      | CE/FCC                                                                                                                                      | CE/FCC                                                                                                                                         | CE/FCC                                                                                                                                         | CE/FCC                                                                                                                                       | CE/FCC                                                                                                                                       |
| Operating System        |                        | Windows 7/Windows 8/Windows 8.1/Windows 10 Linux 4.8 or Higher (32-bit and 64-bit) Linux ARM NVIDIA Jetson TX2, NANO, AGX Xavier, Xavier NX | Windows 7/Windows 8/Windows 8.1/Windows 10 Linux 4.8 or Higher (32-bit and 64-bit) Linux ARM NVIDIA Jetson TX2, NANO, AGX Xavier, Xavier NX | Windows 7/Windows 8/Windows 8.1/Windows 10 Linux 4.8 or Higher (32-bit and 64-bit) Linux ARM NVIDIA Jetson TX2, NANO, AGX Xavier, Xavier NX | Windows 7/Windows 8/Windows 8.1/Windows 10 Linux 4.8 or Higher (32-bit and 64-bit) Linux ARM NVIDIA Jetson TX2, NANO, AGX Xavier, Xavier NX | Windows 7/Windows 8/Windows 8.1/Windows 10 Linux 4.8 or Higher (32-bit and 64-bit) Linux ARM NVIDIA Jetson TX2, NANO, AGX Xavier, Xavier NX | Windows 7/Windows 8/Windows 8.1/Windows 10 Linux 2.6.14 or Higher (32-bit and 64-bit) Linux ARM NVIDIA Jetson TX2, NANO, AGX Xavier, Xavier NX | Windows 7/Windows 8/Windows 8.1/Windows 10 Linux 2.6.14 or Higher (32-bit and 64-bit) Linux ARM NVIDIA Jetson TX2, NANO, AGX Xavier, Xavier NX | Windows 7/Windows 8/Windows 8.1/Windows 10 Linux 4.8 or Higher (32-bit and 64-bit) Linux ARM NVIDIA Jetson, TX2, NANO, AGX Xavier, Xavier NX | Windows 7/Windows 8/Windows 8.1/Windows 10 Linux 4.8 or Higher (32-bit and 64-bit) Linux ARM NVIDIA Jetson, TX2, NANO, AGX Xavier, Xavier NX |



| Model                   |                       | DVP-7031HE-1                                                                                                                                | DVP-7031MHE                                                                                                                                    | DVP-7031UHE                                                                                                                                  | DVP-7033UHE                                                                                                                                  | DVP-7035HE                                                                                                                                     | DVP-7036HE                                                                                                                                     | DVP-7037HEL                                                                                                                                 | DVP-7044-HE                                                                                                                                 | DVP-7111UHE                                                                                                                                 |
|-------------------------|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Video                   | Compression           | SW                                                                                                                                          | SW                                                                                                                                             | SW                                                                                                                                           | SW                                                                                                                                           | SW                                                                                                                                             | SW                                                                                                                                             | SW                                                                                                                                          | SW                                                                                                                                          | SW                                                                                                                                          |
|                         | Channels              | 4                                                                                                                                           | 4                                                                                                                                              | 4                                                                                                                                            | 4                                                                                                                                            | 4                                                                                                                                              | 4                                                                                                                                              | 4                                                                                                                                           | 8                                                                                                                                           | 1                                                                                                                                           |
|                         | Host Interface        | PCIe x 4 (Gen2)                                                                                                                             | M.2 (PCIex4)                                                                                                                                   | PCIe x 8 (Gen2)                                                                                                                              | PCIe x 8 (Gen2)                                                                                                                              | PCIe x 4 (Gen2)                                                                                                                                | Mini PCIe x 1 (Gen2)                                                                                                                           | PCIe x 1 (Gen2)                                                                                                                             | PCIe x 4 (Gen2)                                                                                                                             | PCIe x 4 (Gen2)                                                                                                                             |
|                         | Input Interface       | 4 x HDMI 2.0                                                                                                                                | 4 x HDMI 2.0                                                                                                                                   | 4 x HDMI 2.0                                                                                                                                 | 4 x 12G SDI                                                                                                                                  | 4 x TVI                                                                                                                                        | 4 x TVI                                                                                                                                        | 4 x TVI                                                                                                                                     | 8 x GMSL                                                                                                                                    | 1 x HDMI 2.0                                                                                                                                |
|                         | Max. Resolution       | 1920 x 1080p @60/50fps                                                                                                                      | 1920 x 1080p @60/50fps                                                                                                                         | 3840 x 2160 @60/50/30/25/24fps                                                                                                               | 3840 x 2160p @60/50fps                                                                                                                       | 1920 x 1080p @30/25fps                                                                                                                         | 1920 x 1080p @30/25fps                                                                                                                         | 1920 x 1080p @30/25fps                                                                                                                      | 1920 x 1080p @60/50fps                                                                                                                      | 4096 x 2160p @60/50fps                                                                                                                      |
| Watchdog                |                       | Yes                                                                                                                                         | -                                                                                                                                              | -                                                                                                                                            | -                                                                                                                                            | Yes                                                                                                                                            | -                                                                                                                                              | Yes                                                                                                                                         | -                                                                                                                                           | Yes                                                                                                                                         |
| Physical Characteristic | Operating Temperature | -20 ~ 70°C (-4 ~ 158°F)                                                                                                                     | -20 ~ 70°C (-4 ~ 158°F)                                                                                                                        | -20 ~ 70°C (-4 ~ 158°F)                                                                                                                      | -20 ~ 70°C (-4 ~ 158°F)                                                                                                                      | -20 ~ 70°C (-4 ~ 158°F)                                                                                                                        | -20 ~ 70°C (-4 ~ 158°F)                                                                                                                        | -20 ~ 70°C (-4 ~ 158°F)                                                                                                                     | -20 ~ 70°C (-4 ~ 158°F)                                                                                                                     | -20 ~ 70°C (-4 ~ 158°F)                                                                                                                     |
|                         | Dimensions (W x H x ) | 111.74 x 101.01 mm                                                                                                                          | 22 x 80 mm M.2 Type M                                                                                                                          | 130.49 x 101.01 mm                                                                                                                           | 140.97 x 101.01 mm                                                                                                                           | 128 x 101.01 mm                                                                                                                                | 30 x 50.95 mm                                                                                                                                  | 96.49 x 68.9 mm PCIe Low Profile                                                                                                            | 162.95 x 96.53 mm                                                                                                                           | 120 x 68.9 mm PCIe Low Profile                                                                                                              |
|                         | Safety                | CE/FCC                                                                                                                                      | CE/FCC                                                                                                                                         | CE/FCC                                                                                                                                       | CE/FCC                                                                                                                                       | CE/FCC                                                                                                                                         | CE/FCC                                                                                                                                         | CE/FCC                                                                                                                                      | CE/FCC                                                                                                                                      | CE/FCC                                                                                                                                      |
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