Data sheet	microEnable III	microEnable III-XXL	microEnable IV AS1-PoCL	microEnable IV AD1-CL/ PoCL/mPoCL	microEnable IV AD4-CL	microEnable IV VD1-CL	microEnable IV VD4-CL	microEnable IV AQ4-GE	microEnable IV AQ4-GPoE	microEnable IV VQ4-GE	microEnable IV VQ4-GPoE
Profile	Intelligent frame grabber for highly precise image acqisition and pre-processing	Intelligent image preprocessing board for advanced acquisition and pre-processing	Scalable, intelligent frame grabber for image acquisition and OEM projects	Scalable, intelligent frame grabber for image acquisition and OEM projects	Scalable, intelligent frame grabber for highest require-ments on acquisition and preprocessing	Scalable, intelligent image processing board for applica-tions with high data input	Scalable, intelligent image processing board for highest requirements on acquisition and preprocessing	Scalable, intelligent image processing board for applica-tions with high data input	Scalable, intelligent image processing board for applica-tions with high data input	Scalable, intelligent image processing board for highest requirements to acquisition and preprocessing	Scalable, intelligent image processing board for highest requirements to acquisition and preprocessing
Board Equipment											
Interface	PCI64 (compatible to PCI32)	PCI64 (compatible to PCI32)	PCI Express x1 (single lane)	PCI Express x1 (single lane)	PCI Express x4 (quad lane)	PCI Express x1 (single lane)	PCI Express x4 (quad lane)	PCI Express x4 (quad lane)	PCI Express x4 (quad lane)	PCI Express x4 (quad lane)	PCI Express x4 (quad lane)
Bandwidth [depends on PC chipset]	125 MB/s at PCI32, app. 200 MB/s at PCI64	125 MB/s at PCI32, >200 MB/s at PCI64	app. 200 MB/s at PCIe x1	app. 200 MB/s at PCIe x1	app. 900 MB/s at PCIe x4	>200 MB/s at PCIe x1	app. 900 MB/s at PCIe x4	app. 760 MB/s at PCIe x4	app. 760 MB/s at PCIe x4	app. 760 MB/s at PCIe x4	app. 760 MB/s at PCIe x4
On-board Memory	96 MByte SDRAM	96 MByte SDRAM	128 MByte DDR-RAM	128 MByte DDR-RAM	256 MByte DDR-RAM	256 MByte DDR-RAM	512 MByte DDR-RAM	256 MByte DDR-RAM	256 MByte DDR-RAM	512 MByte DDR-RAM	512 MByte DDR-RAM
System Processor	Xilinx Spartan 2 FPGA	Xilinx Spartan 2 FPGA	Xilinx Spartan 3 FPGA	Xilinx Spartan 3 FPGA	Xilinx Spartan 3 FPGA	Xilinx Spartan 3 FPGA	Xilinx Spartan 3 FPGA	Xilinx Spartan 3 FPGA	Xilinx Spartan 3 FPGA	Xilinx Spartan 3 FPGA	Xilinx Spartan 3 FPGA
Vision Processor	Xilinx XC2S 300E FPGA (shared)	Xilinx XC2S 600E FPGA (shared)	n/a	n/a	n/a	Xilinx XC3S 1600E FPGA	Xilinx XC3S 4000 FPGA	n/a	n/a	Xilinx XC3S 4000 FPGA	Xilinx XC3S 4000 FPGA
Board Interfaces	Digital I/O, Trigger-IF, CLIO	Digital I/O, Trigger-IF, CLIO	Trigger/GPIO-IF	Trigger/GPIO-IF	Trigger/GPIO-IF	Trigger/GPIO-IF CLIO FULL, PixelPlant IF	Trigger/GPIO-IF CLIO FULL, PixelPlant IF	GPIO-IF	GPIO-IF	GPIO-IF, PixelPlant IF	GPIO-IF, PixelPlant IF
Special Features (Selection) [Feature enhancements by firmware updates* and by use of VisualAp-plets+]	DualCamera-Synchronisation, Bayer Conversion, Knee LUT, White Balancing, 1D/2D Shad-ing Correction, Fixed Pattern Noise Correction [*,+]	DualCamera-Synchronisation, HQ and Standard Bayer Con-version, Knee LUT, White Bal-ancing, 1D/2D Shading Correc-tion, FPN Correction, Multi-Tap Sorting, Serial RGB Formats, Internal 12bit Processing, Shaft Encoder [*,+]	Basis Acquisition Features [*]	Basis Acquisition Features [*]	DualCamera-Synchronisation, HQ/Standard Bayer Conversion, Knee LUT, White Balancing, 1D/2D Shading and FPN Cor-rection, Multi-Tap Sorting, Serial RGB Formats, Internal 12bit Processing, Shaft Encoder [*]	DualCamera-Synchronisation, HQ/Standard Bayer Conversion, Knee LUT, White Balancing, 1D/2D Shading and FPN Cor-rection, Multi-Tap Sorting, Serial RGB Formats, Internal 12bit Processing, Shaft Encoder [*,+]	DualCamera-Synchronisation, HQ/Standard Bayer Conversion, Knee LUT, White Balancing, 1D/2D Shading and FPN Cor-rection, Multi-Tap Sorting, Serial RGB Formats, Internal 12bit Processing, Shaft Encoder [*,+]	GigE Vision compliance, Multi-Camera-Synchronisation, Bayer Conversion, Knee LUT, White Balancing, Tap Sorting, Noise Reduction by Median Filter [*]	GigE Vision compliance, Multi-Camera-Synchronisation, Bayer Conversion, Knee LUT, White Balancing, Tap Sorting, Noise Reduction by Median Filter [*,+]	GigE Vision compliance, Multi-Camera-Synchronisation, Bayer Conversion, Knee LUT, White Balancing, Tap Sorting, Noise Reduction by Median Filter [*]	GigE Vision compliance, Multi-Camera-Synchronisation, Bayer Conversion, Knee LUT, White Balancing, Tap Sorting, Noise Reduction by Median Filter [*,+]
Add-On Products	TTL Trigger 3, Opto Trigger 3, CLIO 3	TTL Trigger 3, Opto Trigger 3, CLIO 3	TTL Trigger 4, Opto Trigger 4	TTL Trigger 4, Opto Trigger 4	TTL Trigger 4, Opto Trigger 4	TTL Trigger 4, Opto Trigger 4, CLIO 4, PixelPlant Series	TTL Trigger 4, Opto Trigger 4, CLIO 4, PixelPlant Series	TTL Trigger 4, Opto Trigger 4	TTL Trigger 4, Opto Trigger 4	TTL Trigger 4, Opto Trigger 4, PixelPlant PX200e	TTL Trigger 4, Opto Trigger 4, PixelPlant PX200e
Camera Support											
Interface	2*Camera Link	2*Camera Link	1*Camera Link, PoCL	2*Camera Link, opt. PoCL	2*Camera Link	2*Camera Link	2*Camera Link	4*GigabitEthernet	4*GigabitEthernet	4*GigabitEthernet	4*GigabitEthernet
Configuration	CL-BASE, CL-DualBASE	CL-BASE, Cl-DualBASE, CL-MEDIUM	CL-BASE	CL-BASE, CL-DualBASE, CL-MEDIUM	CL-BASE, CL-DualBASE, CL-MEDIUM, CL-FULL + 10tap	CL-BASE, CL-DualBASE, CL-MEDIUM, CL-FULL + 10tap	CL-BASE, CL-DualBASE, CL-MEDIUM, CL-FULL + 10tap	GigE Vision standard compliant cameras	GigE Vision standard compliant cameras	GigE Vision standard compliant cameras	GigE Vision standard compliant cameras
Camera Connector	MDR26	MDR26	MDR26	MDR26 / SDR26	MDR26	MDR26	MDR26	RJ45	RJ45	RJ45	RJ45
Pixel Clock	85 MHz	85 MHz	85 MHz	85 MHz	85 MHz	85 MHz	85 MHz	n/a	n/a	n/a	n/a
Camera types	Grayscale-/Color-Camera, Area-/Line Scan Camera	Grayscale-/Color-Camera, Area-/Line Scan Camera	Grayscale-/Color-Camera, Area-/Line Scan Camera	Grayscale-/Color-Camera, Area-/Line Scan Camera	Grayscale-/Color-Camera, Area-/Line Scan Camera	Grayscale-/Color-Camera, Area-/Line Scan Camera	Grayscale-/Color-Camera, Area-/Line Scan Camera	Grayscale-/Color-Camera, Area-/Line Scan Camera	Grayscale-/Color-Camera, Area-/Line Scan Camera	Grayscale-/Color-Camera, Area-/Line Scan Camera	Grayscale-/Color-Camera, Area-/Line Scan Camera
Combinations	Arbitrary (by VisualApplets)	Arbitrary (by VisualApplets)	n/a	n/a	n/a	Arbitrary (by VisualApplets)	Arbitrary (by VisualApplets)	n/a	n/a	Arbitrary (by VisualApplets)	Arbitrary (by VisualApplets)
Resolution [max.]	4k*8k Area Scan Camera 16k Line Scan Camera	16k*64k Area Scan Camera 16k Line Scan Camera	16k*64k AreaScanCamera 16k LineScanCamera	32k*64k AreaScanCamera 16k LineScanCamera	32k*64k AreaScanCamera 64k LineScanCamera	16k*64k AreaScanCamera 64k LineScanCamera	32k*64k AreaScanCamera 64k LineScanCamera	8k*4k AreaScanCamera 16k LineScanCamera	8k*4k AreaScanCamera 16k LineScanCamera	8k*4k AreaScanCamera 16k LineScanCamera	8k*4k AreaScanCamera 16k LineScanCamera
Bitdepth	8-16bit Grayscale, 24-48bit Color	8-16bit Grayscale, 24-48bit Color	8-16bit Grayscale, 24-48bit Color	8-16bit Grayscale, 24-48bit Color	8-16bit Grayscale, 24-48bit Color	8-16bit Grayscale, 24-48bit Color	8-16bit Grayscale, 24-48bit Color	8-16bit Grayscale, 24-48bit Color	8-16bit Grayscale, 24-48bit Color	8-16bit Grayscale, 24-48bit Color	8-16bit Grayscale, 24-48bit Color
CAM-Configuration	no CameraConfig file neccessary	no CameraConfig file neccessary	no CameraConfig file neccessary	no CameraConfig file neccessary	no CameraConfig file neccessary	no CameraConfig file neccessary	no CameraConfig file neccessary	supports XML CameraConfig file	supports XML CameraConfig file	supports XML CameraConfig file	supports XML CameraConfig file
Frame Rates	More than 10.000 fps (project dep. up to 75.000 fps)	More than 10.000 fps (project dep. up to 75.000 fps)	More than 10.000 fps	More than 10.000 fps	More than 10.000 fps	More than 10.000 fps	More than 10.000 fps	More than10.000 fps	More than 10.000 fps	More than10.000 fps	More than 10.000 fps
SW/OS-Support											
Windows OS	Windows XP, Vista, 7 (32 bit)	Windows XP, Vista, 7 (32 bit)	Windows XP, Vista, 7 (32/64 bit)	Windows XP, Vista, 7 (32/64 bit)	Windows XP, Vista, 7 (32/64 bit)	Windows XP, Vista, 7 (32/64 bit)	Windows XP, Vista, 7 (32/64 bit)	Windows XP, Vista, 7 (32/64 bit)	Windows XP, Vista, 7 (32/64 bit)	Windows XP, Vista, 7 (32/64 bit)	Windows XP, Vista, 7 (32/64 bit)
Linux based OS	Linux 2.6 based (32 bit)	Linux 2.6 based (32 bit)	Linux 2.6 based (32/64 bit)	Linux 2.6 based (32/64 bit)	Linux 2.6 based (32/64 bit)	Linux 2.6 based (32/64 bit)	Linux 2.6 based (32/64 bit)	Linux 2.6 based (32/64 bit)	Linux 2.6 based (32/64 bit)	Linux 2.6 based (32/64 bit)	Linux 2.6 based (32/64 bit)
Scope of Delivery	microDisplay, microDiagnostics, SDK, Documentation, Device Drivers	microDisplay, microDiagnosis, SDK, Documentation, Device Drivers	microDisplay, microDiagnostics, SDK, Documentation, Device Drivers	microDisplay, microDiagnostics, SDK, Documentation, Device Drivers	microDisplay, microDiagnostics, SDK, Documentation, Device Drivers	microDisplay, microDiagnostics, SDK, Documentation, Device Drivers	microDisplay, microDiagnostics, SDK, Documentation, Device Drivers	microDisplay, microDiagnostics, GigE Explorer, SDK, Documen-tation, Device Drivers	microDisplay, microDiagnostics, GigE Explorer, SDK, Documen-tation, Device Drivers	microDisplay, microDiagnostics, GigE Explorer, SDK, Documen-tation, Device Drivers	microDisplay, microDiagnostics, GigE Explorer, SDK, Documen-tation, Device Drivers
Applets/Runtime Licenses											
Acquisition related	AcquisitionApplets	AcquisitionApplets	AcquisitionApplets	AcquisitionApplets	AcquisitionApplets	AcquisitionApplets	AcquisitionApplets	AcquisitionApplets	AcquisitionApplets	AcquisitionApplets	AcquisitionApplets
Application related	n/a	n/a	n/a	n/a	n/a	SmartApplets Base pre-licensed	SmartApplets Base pre-licensed	n/a	n/a	SmartApplets Base pre-licensed	SmartApplets Base pre-licensed
Programmability	VisualApplets Base pre-licensed	VisualApplets Base pre-licensed	n/a	n/a	n/a	VisualApplets Base pre-licensed	VisualApplets Base pre-licensed	n/a	n/a	VisualApplets Base pre-licensed	VisualApplets Base pre-licensed
Compatibility											
MV Software	CVB, Halcon, Heurisko,LabView	CVB, Halcon, Heurisko,LabView	CVB, Halcon, Heurisko, Lab-View, InSight, MIL, Sapera	CVB, Halcon, Heurisko, Lab-View, InSight, MIL, Sapera	CVB, Halcon, Heurisko, Lab-View, InSight, MIL, Sapera	CVB, Halcon, Heurisko, Lab-View, InSight, MIL, Sapera	CVB, Halcon, Heurisko, Lab-View, InSight, MIL, Sapera	CVB, Halcon, Heurisko, Lab-View, InSight, MIL, Sapera	CVB, Halcon, Heurisko, Lab-View, InSight, MIL, Sapera	CVB, Halcon, Heurisko, Lab-View, InSight, MIL, Sapera	CVB, Halcon, Heurisko, Lab-View, InSight, MIL, Sapera
FPGA Software	VisualApplets	VisualApplets	n/a	n/a	n/a	VisualApplets	VisualApplets	n/a	n/a	VisualApplets	VisualApplets
Camera Compatibility	CameraLink	CameraLink	CameraLink, PoCL	CameraLink, PoCL	CameraLink	CameraLink	CameraLink	GigE Vision, Gen<i>Cam	GigE Vision, Gen<i>Cam, PoE	GigE Vision, Gen<i>Cam	GigE Vision, Gen<i>Cam, PoE
Camera Standards	CameraLink	CameraLink	CameraLink PoCL	CameraLink PoCL	CameraLink	CameraLink	CameraLink	GigE Vision	GigE Vision	GigE Vision	GigE Vision
PC-Interface Standards	PCI SIG	PCI SIG	PCI Express	PCI Express	PCI Express	PCI Express	PCI Express	PCI Express	PCI Express	PCI Express	PCI Express
Special Features			Power over Camera Link	Power over Camera Link	DMA900		DMA900		Power over Ethernet		Power over Ethernet
Operating Temperature	0°-45°C	0°-45°C	0°-50°C	0°-50°C	0°-50°C	0°-50°C	0°-50°C	0°-50°C	0°-50°C	0°-50°C	0°-50°C
Compliances	CE, ROHS	CE, ROHS	CE, ROHS	CE, ROHS	CE, ROHS	CE, ROHS	CE, ROHS	CE, ROHS	CE, ROHS	CE, ROHS	CE, ROHS
Size	Half Length PCI Slot Card	Half Length PCI Slot Card	Half Length PCI Slot Card	Half Length PCI Slot Card	Half Length PCI Slot Card	Half Length PCI Slot Card	Half Length PCI Slot Card	Half Length PCI Slot Card	Half Length PCI Slot Card	Half Length PCI Slot Card	Half Length PCI Slot Card