

BLACKFLY® S BOARD LEVEL

Industrial Machine Vision Cameras | BFS-U3-120S6-BD2

KEY FEATURES

12.3 MP global shutter with on-camera pre-processing

Sony IMX545 Pregius S sensor delivers distortion-free capture with color correction, gamma, lookup tables, sharpness, and lens shading correction to improve image uniformity and reduce host processing.

Precise, repeatable acquisition timing

Features such as sequencer, counters, timers, and logic blocks enable reliable triggering and synchronization with lighting and peripheral components to support precise acquisition control.

Compact USB3 Vision board-level integration

29 mm x 29 mm form factor with 240 MB onboard image buffer supporting stable image transfer under high data rates in space-constrained and multi-camera systems.

APPLICATIONS

- Biomedical and life sciences imaging
- Fluorescence microscopy, digital pathology
- Automated optical inspection
- Robotics and machine vision guidance
- Embedded vision systems

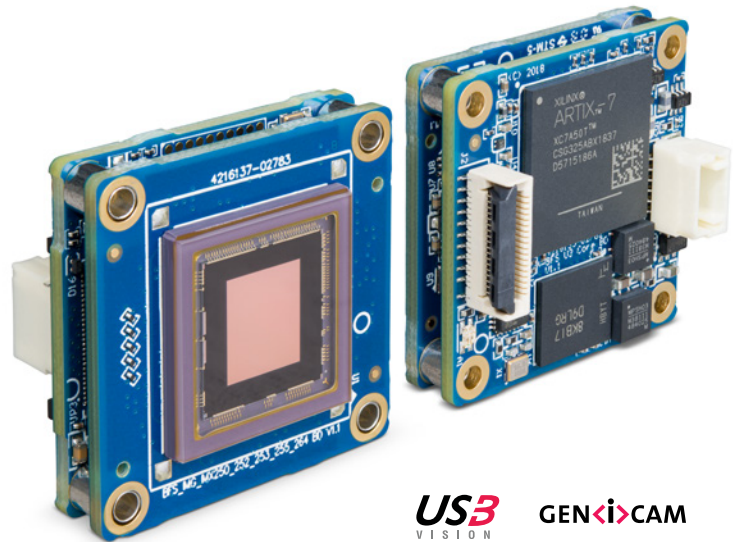
Small Package, Powerful Results

The Blackfly® S BFS-U3-120S6-BD2 board-level camera delivers high-resolution global shutter imaging in a compact form factor. Built on the Sony® IMX545 Pregius™ S sensor, it captures accurate, distortion-free images in high quality at consistent timing.

Integrated lens shading correction compensates for optic-related illumination drop-off, ensuring uniform image quality across the full field of view. This is important for high-resolution, space-constrained designs.

By combining on-camera image processing with precise, repeatable image timing, the camera reduces system complexity and simplifies integration in embedded systems.

Full USB3 Vision® and GenICam® compliance supports reliable deployment in single and multi-camera configurations, including synchronized systems with external trigger and I/O control.



USB VISION **GENiCAM**

SPECIFICATIONS

	BFS-U3-120S6M-BD2	BFS-U3-120S6C-BD2
Resolution	4096 x 3000	
Frame Rate	30 fps	
Megapixels	12.3 MP	
Chroma	Mono	Color
Sensor	Sony IMX545, CMOS, 1/1.1"	
Readout Method	Global shutter	
Pixel Size	2.74 μ m	
Lens Mount	Sold separately	
ADC	8-bit / 10-bit / 12-bit	
Minimum Frame Rate	1 FPS	
Gain Range	0 to 47 dB	
Exposure Range	14 μ s to 30 s	
Acquisition Modes	Continuous, Single Frame, Multi Frame	
Partial Image Modes	Pixel binning, decimation, ROI	
Image Processing	Gamma, lookup table, and sharpness	Color correction matrix, gamma, lookup table, saturation, and sharpness
Sequencer	Up to 8 sets using 6 features	
Image Buffer	240 MB	
User Sets	2 user configuration sets for custom camera settings	
Flash Memory	6 MB non-volatile memory	
Non-isolated I/O	4 bi-directional	
Auxiliary Output	3.3 V, 120 mA maximum	
Serial Port	Supported	
Interface	USB 3.1 Gen 1	
Interface Connector	Hirose TF38 FPC connector	
Power Requirements	5 V via USB3 interface	
Power Consumption	3.2 W maximum	
Dimensions/Mass	29 mm x 29 mm x 10 mm / 10 g	
Machine Vision Standard	USB3 Vision v1.0	
Compliance	CE, FCC, RoHS, REACH / ECCN is EAR099	
Temperature	Operating: 0°C to 50°C / Storage: -30°C to 60°C	
Humidity	Operating: 20% to 80% (no condensation) / Storage: 30% to 95% (no condensation)	
Warranty	3 years	

BLACKFLY S-U3-1206M/C-BD2 ACCESSORIES

Product Number	Product Number	Description	Accessories Photos
LENS	LENS-160E6C	Edmund Optics 16 mm 1" C-mount lens	
	LENS-120C7C	Computar V1228, 12 mm 1.1" C-mount lens	
	LENS-250C7C	Computar V2528, 25 mm 1.1" C-mount lens	
	LENS-080C7C	Computar V0828, 8 mm 1.1" C-mount lens	
FPC CABLES	ACC-01-2400	15 cm FPC Cable for Board-level Blackfly S	
	ACC-01-2401	30 cm FPC Cable for Board-level Blackfly S	
	ACC-01-2404	30 mm FPC Cable for Board-level Blackfly S	
	ACC-01-2406	8 cm FPC Cable for Sensor-to-Core board	
USB 3.1 HOST CONTROLLER CARD	ACC-01-1201	2 Port, USB3 Host Controller (Renesas uPD720202), PCIe Express 2.0 x1	
	ACC-01-1202	4 Port, USB3 Host Controller (Fresco FL1100), PCIe Express 2.0 x1	
	ACC-01-1205	4 Port, USB3 Host Controller (Fresco FL1100), PCIe Express 2.0 x4	
FRONT MOUNTS	ACC-01-5018	BFS Board-level: C mount (<i>Coming Soon</i>)	
	ACC-01-5019	BFS Board-level: C mount with IR filter (<i>Coming Soon</i>)	
MISC.	ACC-01-6002	4-Port TF38 to USB3.1 Gen1 Hub	
	ACC-01-3015	Board-level JST Connector Cable for Blackfly S GPIO	
	ACC-02-7000	Micro B Bulkhead BD – USB3 (TF38 compatible outline)	
	ACC-01-7000	Heatsink for Board-level Blackfly S	

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