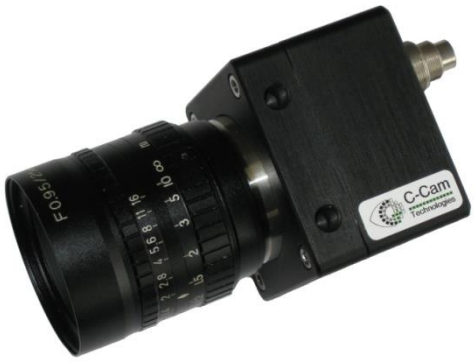
C-Cam Technologies

BCV1300 CMOS CAMERA

- **1280 x 1024 pixels (SXGA)**
- **Global Pipelined Shutter**
- **xx full-frames / sec.**
- **Monochrome or Color**
- **8, 10 -bit digital output**
- **USB 2.0 interface**
- **Opto-isolated trigger input/output**
- **Area-scan, line-scan and sub-sampled operation**
- **Multi-slope exposure for extended dynamic range**



The BCv1300 camera is a very compact, high resolution CMOS camera. The camera is equipped with the VITA 1300 image sensor with 4.8 µm square pixels producing up to 125 full frames per second.

Higher frame-rates can be achieved by defining up to 8 Windows-Of-Interest within the 1280 x 1024 pixel area, and/or specify sub-sampling.

The camera has an excellent signal-to-noise ratio in combination with superior contrast performance.
The sensor has a pipelined global shutter and also a rolling shutter mode. The digital camera can operate in single shot mode, which makes it ideal for machine vision applications. In this mode, the user has the freedom to decide when the camera has to capture an image, not the other way around as is the case with most analogue camera systems. Continuous capture mode is also supported. Frame-rates up to 150 fps can be achieved, or much higher using the programmable Window-of-Interest and subsampling modes.
In rolling shutter mode a Correlated Double Sampling (CDS) technique is used to reduce Fixed Pattern Noise (FPN) and increase dynamic range.

The image sensor has a Multi-Slope Exposure mode that prevents over-exposure of brighter parts of an image while preserving contrast in the darker areas. In this way the dynamic range is extended from the normal 60dB up to 90dB. The camera can be switched between normal and Multi-Slope mode.

The in-camera memory is used as image FIFO and can also be used with custom camera logic for other purposes, such as reference image, camera calibration data, etc.

C-Cam Technologies currently supplies only a standard USB 2.0 interface. All cameras have an isolated trigger input and output.

The BC family of cameras come with a complete Software Development Kit (SDK) including drivers, DLL files and sample code in high-level languages. Software engineers can easily adapt this code to integrate into their own applications. Application libraries are available for Windows and Linux.

BCV1300 CMOS CAMERA

Ordering Codes

Sensor Specifications

Imager type	CMOS integrating active pixel sensor (APS) Vita1300 Manufactured by On Semiconductor Corp. with On-chip FPN correction
Sensor types	Monochrome or Bayer colour
Total light-sensitive pixels	1.3 megapix (1280H x 1024V)
Window Of Interest (WOI)	Rectangle or line image format specified by the user.
Multiple WOI	Up to 8 windows-of-interest
Active image area	6.1mm (H) x 4.9mm (V)
Pixel pitch	4.8 x 4.8 µm
Optical Format	1/2 inch
Fill factor	80%
QE * FF	52% (QE * FF)
Sensitivity	4.64 V / lux.s (0.22 A / W)
Spectral Response Range	approx. 400-1000nm (t.b.d.)
Temporal noise	Rolling: 0.72 DN Synchronous: 1.88DN
Well capacity	17000 e^-
Dark current signal	133e^-/s @25°C
Parasitic Light Sensitivity	**<**1/500
Standard dynamic range	55dB linear
High dynamic range	90dB in multi-slope mode
Multi-slope Exposure	Up to 3 slopes, external reset voltages, fully programmable
Grey level	resolution 8 or 10 bits
MTF	t.b.d.
PRNU	2% of signal
Pixel rate	4 channel x 620 Mbps
Frame speed full resolution	125 fps (10-bit mode)
Shutter	On-chip electronic shutter Global (pipelined) and Rolling curtain type.
Shutter synchronisation	Remote via software or cable Local via I/O interface
Minimum exposure time	Global shutter: t.b.d. Rolling shutter: 1 line read time

In-camera Resources

Memory	32MB DDR2
FPGA Logic	15k Lut

Interface Specifications

Interface types	
max. 23 fps	USB 2.0
Interface connector	
USB 2.0	Mini-USB with screwlocks
Cable lengths	
USB 2.0	5m [2]
Local Trigger	Isolated, 1 input, 1 output
Local Trigger Connector	Binder 712 series 5-pole [1]

Mechanical Specifications

Dimensions	50 x 50 x 53 mm (not incl lens)
Weight	< 200 grams (not incl lens)
Housing	Aluminium, black anodised
Lens adapter	C-mount (standard)
Tripod mount	1/4 inch mount (1 off)
Machine mount	M6 x 1 (4 x 2 off)

Environmental Requirements

Operating temperature	0°C to +50°C
Storage temperature	-30°C to +80°C (non-condensing)

Power Requirements

USB	via interface cable
Power consumption	<2 Watt

[1] Trigger-cable 5m included in package
[2] USB-cable 5m included in package. Other lengths on request.
[3] Power-adapter with changeable input plugs for Europe , UK , USA and Australia.

BCv1300-U-x	USB2.0

X = M for Monochrome and B for Bayer Color

The BCcmv2000 camera is also available with customized housing or without housing for OEM.
Please contact C-Cam for more info

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