

**iCube** 

**USB2.0 CMOS Cameras**



Industrial and OEM Version

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NEW ELECTRONIC TECHNOLOGY

# iCube – Makes Tr

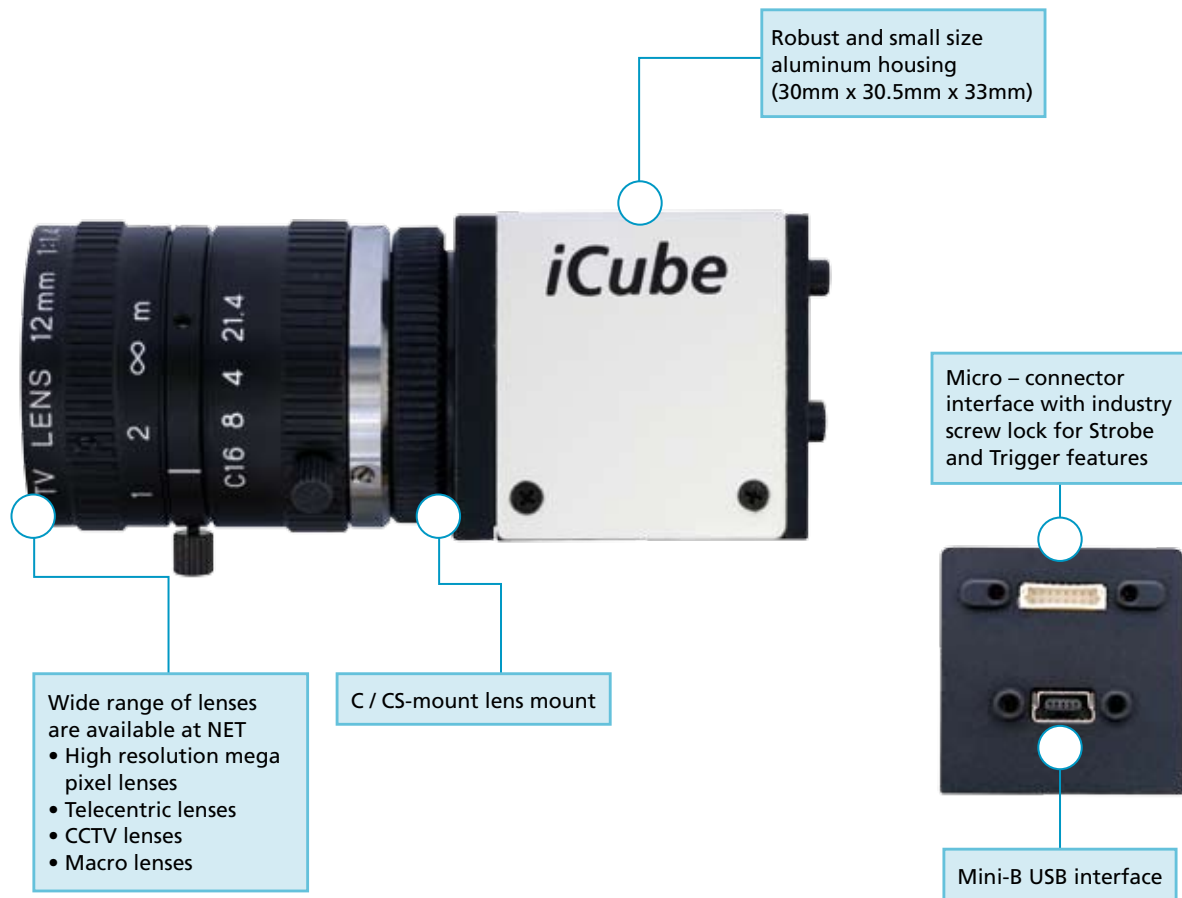
## Introduction

### *iCube USB2.0 Series*

NET has developed with the iCube family a competitive and extreme compact camera with an USB interface. iCube is dedicated for the integration into professional factory automation, quality inspection, surveillance and non-industrial applications. iCube cameras have been equipped with the latest available high performance APTINA CMOS image sensors to offer the best image quality that can be achieved with the camera process electronic. The iCube series supports monochrome and color image sensors, allowing a wide selection of resolutions and selectable frame rates. Furthermore the iCube series is offered as industrial and board-level versions.

Fast connection and power via USB port makes the iCube series to a universal plug and play camera for laptops, PC's and also for OEM board systems. A single cable connection, no additional power supply devices and inexpensive cabling makes this USB camera to a flexible solution which is also fast to implement due the user friendly interface.

The additional viewer software iControl allows a quick implementation, access and handling of all iCube cameras.



# ends Compatible

## Technical Data - CMOS Camera Line

### Product Overview

The iCube series consist of 2 monochrome and 5 color models in an industrial and OEM board version. The APTINA CMOS image sensors with resolutions from WVGA (0.36MP) up to QSXGA (5 MP) will provide for all types an efficient plug and play solution and an available high speed frame rate at full resolution of up to 86 fps. Higher frame rates are easily possible when using free scalable ROI, Binning or Sub-sampling mode. Needless to say iCube supports the Trigger and Strobe functionality.

CMOS sensors provide an excellent image quality combined with the full range of color indication. The benefits of a USB interface combined with CMOS technology and all of its advantages, like low power consumption, anti blooming technology and an economic price level, make the iCube family to a precise camera alternative for many image capturing and processing applications.

INDUSTRIAL	NS1044BU	NS1044CU	NS1130BU	NS1130CU	NS1201CU	NS1300CU	NS1500CU
OEM	KS1044BU	KS1044CU	KS1130BU	KS1130CU	KS1201CU	KS1300CU	KS1500CU
Image Sensor	1/3" CMOS MT9V032	1/3" CMOS MT9V032	1/2" CMOS MT9M001	1/3" CMOS MT9M131	1/3" CMOS MT9D131	1/2" CMOS MT9T001	1/2.5" CMOS MT9P001
Active Pixels	0.36MP, WVGA 752(H) x 480(V)	0.36MP, WVGA 752(H) x 480(V)	1.3 MP, SXGA 1280(H) x 1024(V)	1.3 MP, SXGA 1280(H) x 1024(V)	2 MP, UXGA 1600(H) x 1200(V)	3.2 MP, QXGA 2048(H) x 1536(V)	5.0 MP, QSXGA 2592(H) x 1944(V)
Pixel Size	6.00 x 6.00 µm	6.00 x 6.00 µm	5.2 x 5.2 µm	3.6 x 3.6 µm	2.8 x 2.8 µm	3.2 x 3.2 µm	2.2 x 2.2 µm
Image Area	4.51 x 2.88 mm	4.51 x 2.88 mm	6.66 x 5.32 mm	4.6 x 3.7 mm	4.73 x 3.52 mm	6.55 x 4.92 mm	5.70 x 4.28 mm
Frame Rate	86fps	86fps	25 fps	25 fps	15 fps	12 fps	6 fps
Exposure Time (Freerun & Trigger) Shutter	0,024 - 763ms	0,024 - 763ms	0,035 - 572ms	0,039 - 630ms	0,053 - 860ms	0,056ms- 50s	0,075ms - 50s
Dynamic Range	>55dB	>55dB	68.2dB	71dB	71 dB	61 dB	67.4 dB
Binning	2x2/4x4	2x2/4x4	-		2x2	2x2/4x4	2x2/4x4
Sub-Sampling Modes (Skipping)	320 x 192/ 128 x 64	320 x 192/ 128 x 64	640 x 512		768 x 576 / 384 x 256	1024 x 768 / 512 x 384	1280 x 960 / 640 x 448
Shutter	Global Shutter	Global Shutter	Rolling Shutter		Rolling Shutter with Global Reset	Rolling Shutter	Rolling Shutter with Global Reset
Aspect Ratio	14 : 9	14 : 9	5 : 4		4 : 3	4 : 3	4 : 3
Exact Real Diagonal	5,35mm	5,35mm	8,5 mm	5,9 mm	5,9 mm	8,2 mm	7,13 mm
Power Consumption	<1.0W	<1.0W	<1.0W		<1.5W	<1.5W	<1.5W
Gain	12dB		23,5 dB	24 dB	24 dB	18 dB	24 dB
Lens Mount	C- / CS- mount, optional S-mount						
Scanning System	Progressive Scan						
Trigger	External Trigger / Software Trigger						
Strobe	Yes						
GPIO	1x						
Interface/Transfer Rate	USB2.0 Interface / 480 Mbits/sec						
Dimension	Industrial: 30 (W) x 30.5 (H) x 33 (D) m, 44g OEM: 28 x 28 x 22 mm, 12g						
USB Connection	Mini - B USB Connector						
Digital I/O Connection	8 pin lockable						

Industrial and OEM Version

# iCube - Makes Trends Compatible

## Software

### Application Overview

The iCube family with USB2.0 interface is designed for a wide range of use and is suitable for many image capturing and processing solutions. The camera targets specific industries in rough environments like quality control or inspection, positioning or alignment, completeness, surface- and printing inspection, edge- or contour analysis, bar code and data matrix applications. Being also suitable for non industrial segments and solutions, like medicine applications and microscopy, security, document management, passport/ID-card identification, OCR solutions, access control and surveillance applications, the small and efficient iCube series is the versatile and reliable solution for your application requirements.

All iCube products are targeting reliable high performance applications to achieve small budget solutions in a short time. The camera is especially designed for the easy and quick implementation of a broad application range. The simple handling of cameras with USB interface allows an additional integration in an existing environment.

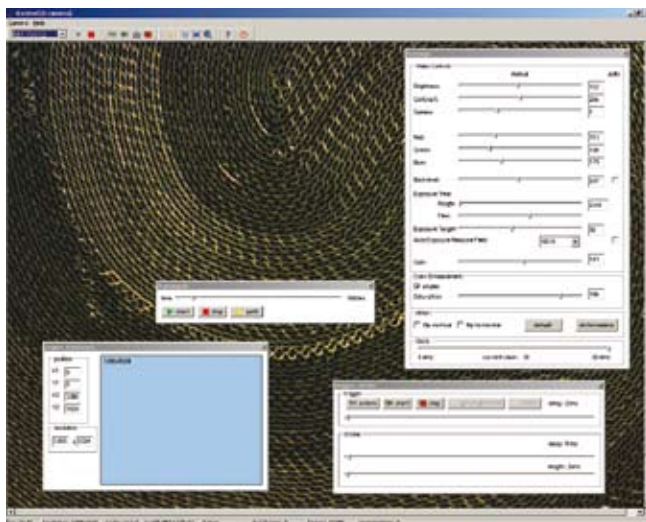
### OEM Application

The iCube series is also available without housing as small sized and lightweight board level cameras for OEM use. All advantages of the standard iCube camera with housing plus additional customer requirements can be implemented in a board camera at a competitive price level. Specific board level features for customized OEM solutions on request.



### Viewer Software

The iControl viewer software is an easy and quick access to all iCube cameras by computer for testing and evaluation. The iControl software allows to change camera settings very simple, save these in customer modes and viewing these live as well. The software also supports to store images in BMP or JPG format on a connected computer. The iControl software is part of the SDK software and is included within the package.



### Software Development Kit (SDK)

The flexible SDK software package from NET makes the integration into existing and customized image capturing and processing systems simple. The software allows an easy integration into many commercial systems. Programming samples are available for Microsoft Visual C++ 6.0

### Third Party Software - Application

The integration of iCube USB cameras is supported through a wide variety of common drivers and allows an easy handling of the camera. The iCube family is compatible to common software libraries with Direct-X/ Direct-Show interface.

## Contact

**NET GmbH**  
Lerchenberg 7  
D-86923 Finning

Fon +49-8806 92 34-0  
Fax +49-8806 92 34-77  
info@net-gmbh.com

[www.net-gmbh.com](http://www.net-gmbh.com)

**NET USA, Inc.**  
3037 - 45th Street  
Highland, IN 46322

Fon +1-219 934 9042  
Fax +1-219 934 9047  
info@net-usa-inc.com

[www.net-usa-inc.com](http://www.net-usa-inc.com)

**NET Japan Co., Ltd.**  
8F Shin-Yokohama Meguro  
Bldg, Yokohama - shi 222-0033

Fon +81-45 478 1020  
Fax + 81-45 476 2423  
info@net-japan.com

[www.net-japan.com](http://www.net-japan.com)

