CA378-AOIS_USB3-IFB
Camera Module I/F Board Specification

Product name : CA378-AOIS_USB3-IFB

Model name : CA378-AOIS_USB3-IFB-001

Editing History

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Contents

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General description and application

The CA378-AOIS_USB3-IFB consists of a 12MP OIS with camera module CA378-AOIS, and an interface board that converts the camera image (MIPI RAW10 4LANe) to the RGB888 format and outputs USB3.

This document describes the product specifications for the interface board.

Refer to the CA378-AOIS Camera Module Specification for product specifications of the camera module.

Please refer to the CA_ViewER application note for the image viewer application on PC.

For the latest information, please refer to CenturyArks website.

Functions and Features

◆ CA378-AOIS camera module connection
◆ I/O interface: USB 3.0 (Type-B μUSB)
◆ Input power: 5V (From USB connector)
◆ Internally generated power supply: 1.05V, 1.8V, 2.8V (2systems), 3.3V, 1.2V (CX3)
◆ Reading signal: MIPI 4Lane 10bit
◆ Maximum frame rate: 10 fps (12 MP)
◆ I / F Board Size: 18 mm x 50 mm x 4 mm (w/o camera)
◆ Driver: Built-in SPI Flash
◆ Boot function: SPI Flash
◆ Reset button (CX3 Reset)
◆ Consumption current (ave.): About 278mA   w/ camera
◆ Hardware PC (OS): Windows 10 32bit / 64bit
　　　　　　　　　　Camera: CA378-AOIS
◆ Other specifications conform to CA378-AOIS and CYPRESS CX3 specifications

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1 Summary of Specifications

1.1.   Table 1 List of Specifications

Item	Specification
Name	USB3 I/F Board for CA378-AOIS
Board Size	18mm x 50 mm x 4mm (w/o camera)
Input Data	MIPI 4Lane 10bit
Video Format	RGB24(RAW10)
USB	3.1 Gen 1 / 2.0
Operating Temperature	0 ~ +45°C (recommended)
Resolution(max)	4K3K(4056x3040)
Supported OS*	Windows10 32bit/64bit
UVC Compliant	Compliant with UVC Version 1.1
PID/VID (Hex)	Vendor ID : 31F7 Product ID : 0001

 *Confirmed PC1: CPU: Intel Celeron 1.6GHz 1.6GHz Memory: 4GB OS: 64bit Windows 10 Pro
   Confirmed PC2: CPU: Intel Core i5 1.7GHz 1.9GHz Memory: 8GB OS: 64bit Windows 10 Pro
 This product and the application provided by CA do not guarantee the operation for all Windows10 Computers.
 This product can not be used by connecting two or more.

1.2.   Table 2 List of Frame Rate(max*)

Resolution	Frame Rate(max*)	
	USB3	USB2
4K3K(4056x3040)	10fps	--
4K2K(3840x2160)	12fps	--
FHD(1920x1080)	48fps	--
HD(1280x720)	TBD	TBD
XGA(1024x768)	TBD	TBD
VGA(640x480)	60fps	30fps

* It is a reference value because it also depends on the PC SPEC etc.

1.3.   Table 3 List of USB pin description

Pin No.	Signal	Pin No.	Signal
1	VBUS	6	SSTX-
2	D-	7	SSTX+
3	D+	8	GND
4	NC	9	SSRX-
5	GND	10	SSRX+

1.4.   Table 4 List of LED Function

Power ON	Turn off after blinking 3 times
Operating (Streaming)	Lights ON
Transfer Error	Lights OFF

1.5.   Reset SW Function

RESET SW is connected to the CX3 RESET # pin.
Pressing RESET SW during operation resets the process.
If you press RESET SW while the CA_ViewER application is running, the CA_ViewER drawing window is closed.
To redraw, close CA_ViewER and restart it.

1.6.   Notes on writing to firmware

Firmware should not be written except for the method described in the software setup guide. If you write the firmware in the wrong way, it may not work.

2 Operating Temperature

Table 3 Temperature Specifications

Item	Conditions	Specification	Unit
Operating temperature	Image should be output.	-10～+60℃	℃
Storage temperature		-30～+80℃	℃
Recommended operating temperature		0～+45℃	℃
Operating humidity range		+80%RH or under	%RH

3 Operating Condition

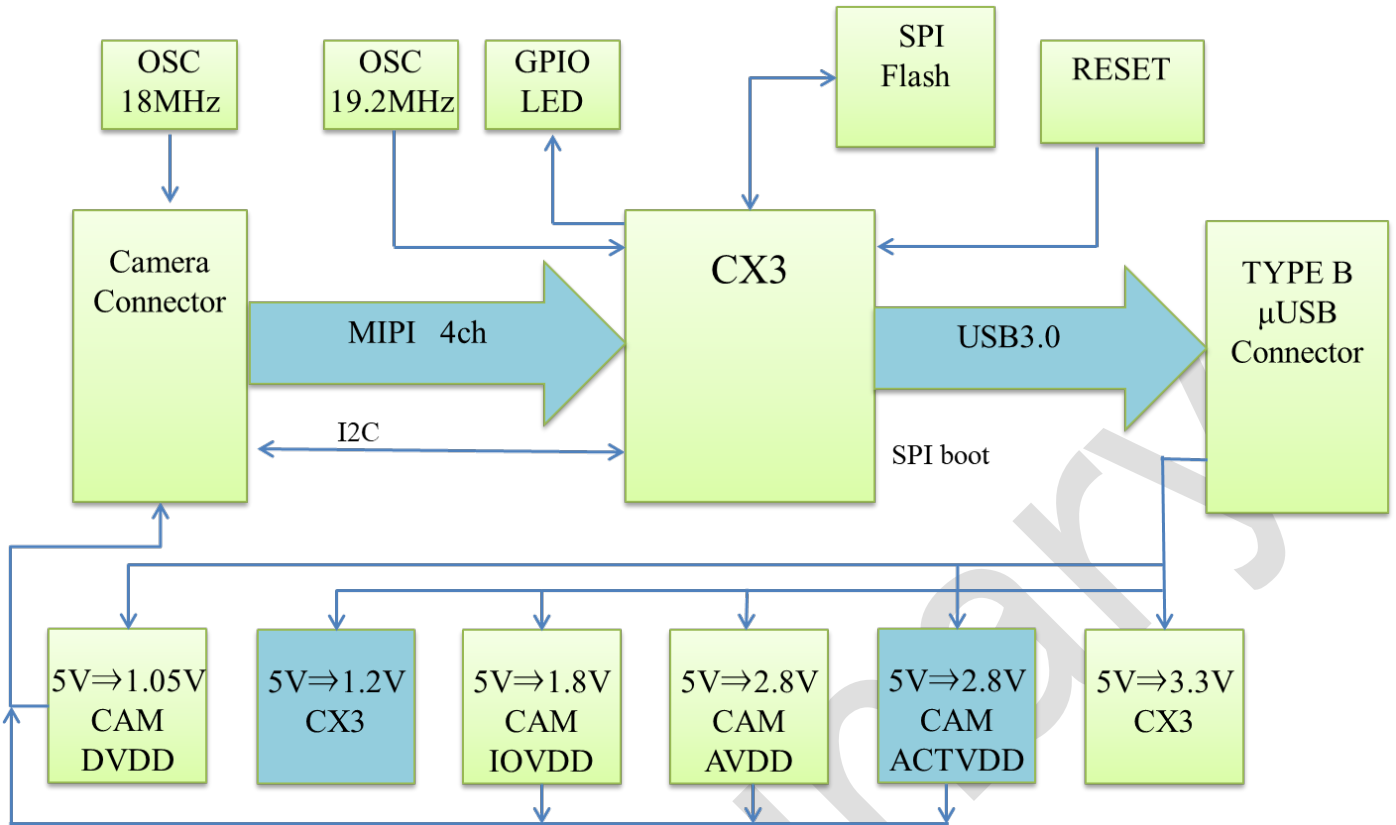|	
Input Voltage	5V±0.25V （From USB Connector）

The following table shows the consumption current of CA378-AOIS_USB3-IFB under each condition.
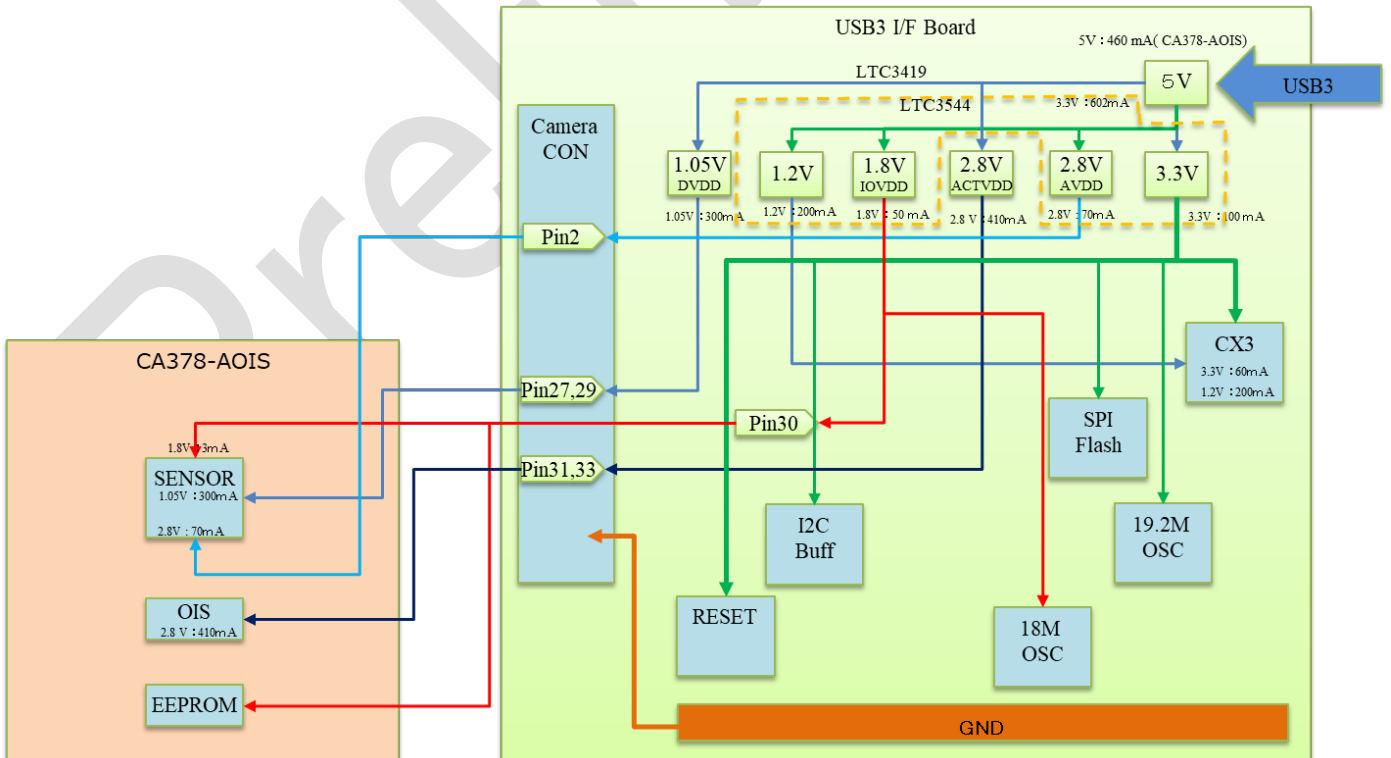These are the values in our measurement environment and are listed as a reference.
Values may change in your environment.

Resolution	Frame Rate	Current(mA) Ave.　w/ camera
－	Idle	31
4K3K(4056x3040)	10fps	278
4K2K(3840x2160)	12fps	273
FHD(1920x1080)	48fps	271

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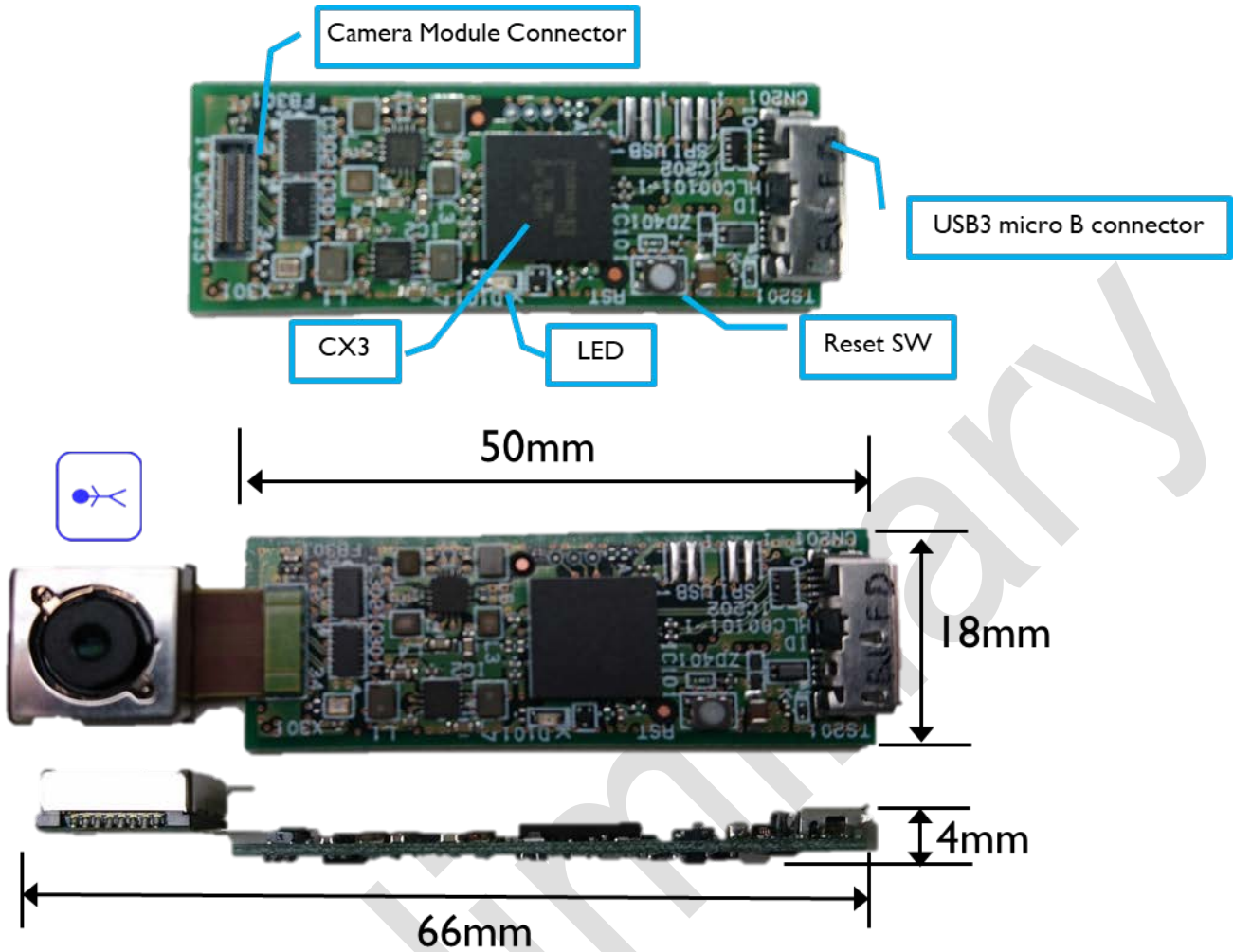
4 Block Diagram

5 Power Structure

6 Dimension

When using this product, secure the camera module's head with double-sided tape etc.

7 Notes on Handling and Assembly

7.1. Notes on Handling

This lens module and interface board was designed to be assembled into electronic products. When using it, ensure safe design by heeding the following precautions.

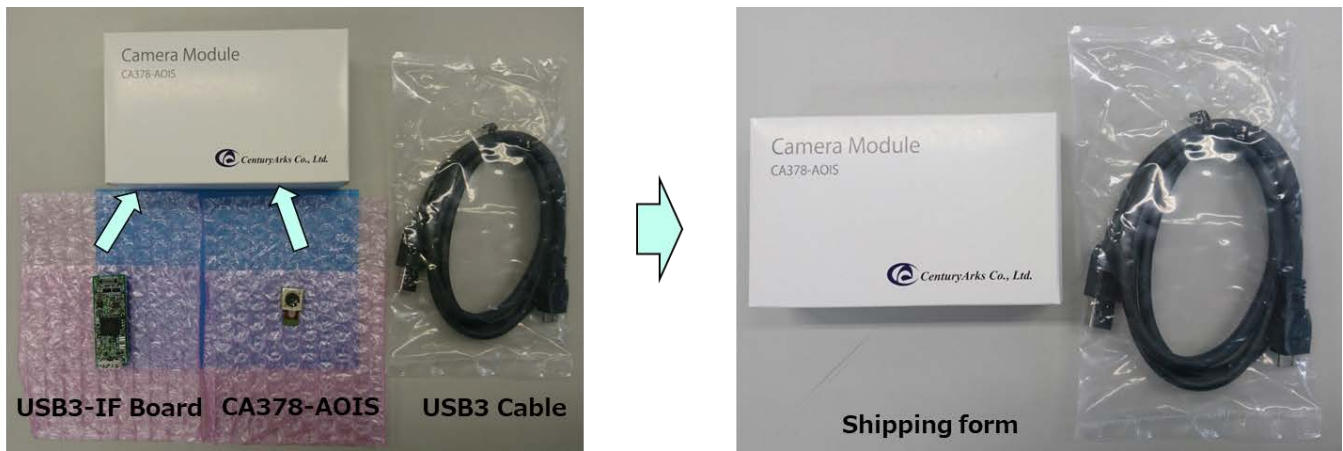**1. Prevention of Electrostatic Discharge (ESD)**

CMOS image sensors and other ICs can easily be damaged by static discharge. When handling these modules, take the following measures to prevent static discharge.

(1) Either use non-chargeable gloves, clothes or material. Also use conductive shoes.
(2) Use a wrist strap when handling directly.
(3) Install grounded conductive mats on the floor and working table to prevent the generation of static electricity.
(4) Ionized air is recommended for discharge when handling CMOS image sensors.
(5) For the shipment of mounted boards, use boxes treated for the prevention of static charges.

2. Notes on storage and operating environments

Do not store or use the lens modules in harsh environments with high temperatures, high humidity levels, and high concentrations of dust or in environments where condensation may form from moisture or dampness.

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8 Packing specification

For more than 50 sets, we pack the parts together in trays and boxes.