## Introduction:

C8282P is an advanced module for interfacing muC108 camera from COMedia. It has built in LED control circuit to provide the optimum lighting for camera illumination. It has also built in 2 GPIO such that user can use them for special function work with PC software. By using 2 key button on the handle, user can do snap image shot or video recording on PC side.
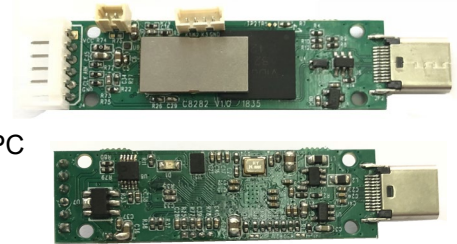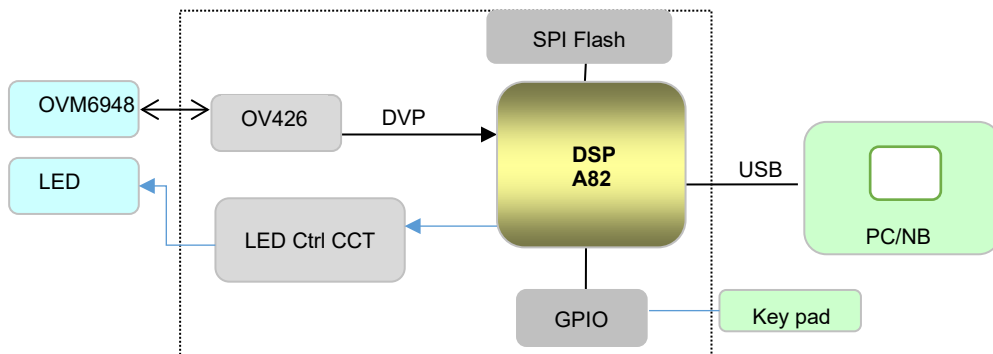
Key Features

- ✓ UVC compatible, no driver is needed for win7, win10
- ✓ Built in LED control circuit for illumination control
- ✓ Good for some kernel of Linux OS
- ✓ Output 384x384/192x192pixels at 30fps
- ✓ LED to indicate operation status
- ✓ GPIO for AWB Button
- ✓ Optional GPIO for PC program
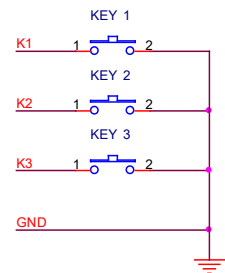- ✓ USB type C connector
- ✓ Powered by USB port
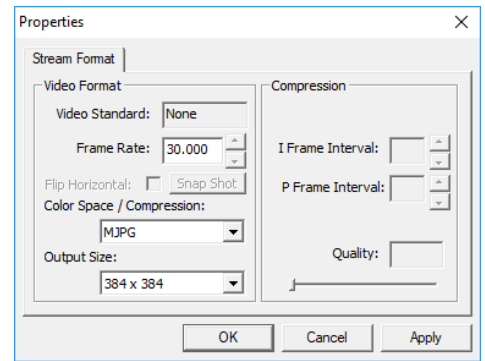
Block Diagram


GPIO and Keys Design

1. D1: Status LED to indicate the working status: ON - power on & standby, Blinking – video streaming
2. J6:   Key 1 - for AWB
              Key 2 –Recording start/stop
              Key 3 –Snap shot
              GND – common
3. J5 LED: output to connect external LED

Electrical Characteristics

	Condition	Typ.	Unit
Operation voltage	Supply by PC USB port	5	V
Operation current	Video streaming without LED	170	mA
	With power LED	330-1000	mA
Standby current	No streaming but plugged in PC	160	mA

Mechanical Dimension
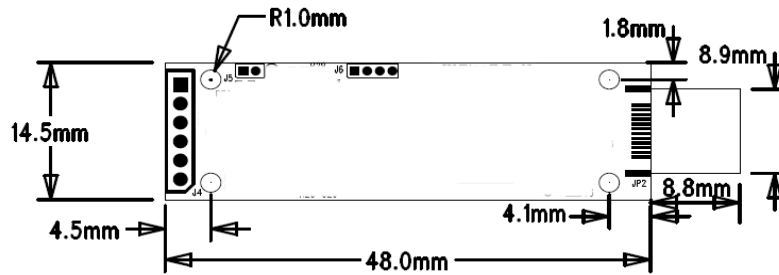
Functional Description

1. LED driver and selection of LED
   C8282P has built in power LED driver which can control power LED from 1-3W, supply constant current from 60mA to 900mA. This constant current will be changed according to the target image brightness. In simple, the darker the image, the brighter the LED (larger current). Due to the limitation of control range, minimum output for this module is 60mA. In other words, if the image is still over exposed in this case, a smaller LED is required.

2. Keyboard
   The module has provided 3 GPIO for external control. K1 has been defined for White Balance and K2&3 has been assigned for command which talk to PC thru USB channel. To make use of this 2 GPIOs, custom PC software is required. Contact COMedia technical support team for detail API.

3. Connectors
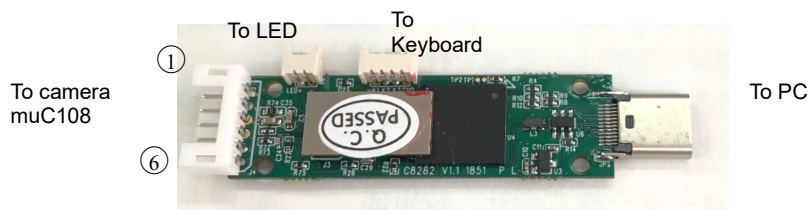
Connector for camera muC108
Pin assignment is listed as right

1	VDD	3.3VDC
2	NC	
3	NC	
4	VIN	Analog video in
5	CLK	Clock input
6	GND	Ground

Operation

1. Preparation
   a. Plug in camera muC108, note the orientation of connector. Wrong polarity may cause damage of camera.
   b. Plug in the LED, note the LED power should meet the requirement as abovementioned.
   c. Plug in the key board, if available.
   d. Connect to PC/NB thru USB cable with one end type C connector plug to the module
2. Preview in PC
   a. Before you can preview video on PC screen, you need to have PC cam viewer, such as Amcap from Microsoft.
   b. It is UVC compliance, no need to install driver manually but you need to wait a while when first time plug in the camera. It will install the right driver by itself. You will find there is USB camera listed in PC hardware manager after that.

      c.   When turn on the software, video will pop up on the screen, external LED will be on. If software stopped, LED will be off as well.

      d.   An on board LED indicator will be blinking when video streaming.

3. White balance calibration
   a. To do white balance calibration, point the camera to a white target, press K1, it will calibrate the color and make RGB channel balance. Release key after completion.
   b. If it is under or over exposure, it may not do the calibration correctly.
4. Take a picture or record a video clip (provide that you have custom software)
   a. Press once K2, PC software will get a trigger signal and store the current frame to the buffer and save if needed.
   b. Press once K3, PC software will get a trigger signal and start recording until there is another trigger from module, then stop, save to PC.

Note:
1. C8282P module will be little bit hot when turn on the external power LED, the real temperature will be dependent on LED type and actual current. Normally, it will not exceed 50 deg C. Take a note on the casing design to provide sufficient air circulating.
2. For power LED, please follow the LED data sheet for heat sink design.
3. It is suggested to turn off all other PC software when preview video, such that video will not be affected by PC background task.