



# **MIPI Monocular Camera**

## **AN5020**

### **User Manual**

	Author	Reviewer	Approver
Name			
Date			

## Table of Contents

1.	Introduction of AN5020 MIPI Camera Module .....	2
1.1	Parameter Description .....	2
1.2	Interface Definition .....	3
2.	Adaptive Development Boards .....	4
3.	Hardware Connection .....	5

## 1. Introduction of AN5020 MIPI Camera Module

AN5020 camera module uses OmniVision\_CMOS image sensor OS05A20. It supports MIPI \*4LANE interface, and achieves image transmission through the connection between MIPI x4LANE interface and FPGA.



### 1.1 Parameter Description

The following are the detailed parameters of the AN5020 module:

- Interface: 20pin FPC interface with 1.0mm spacing, 4LANE MIPI interface for communication
- Pixels: 2688x1944, 1080p(1920x1080), 720p (1280x720)
- Photosensitive chip: OS05A20
- Photosensitive size: 1/2.7" ;

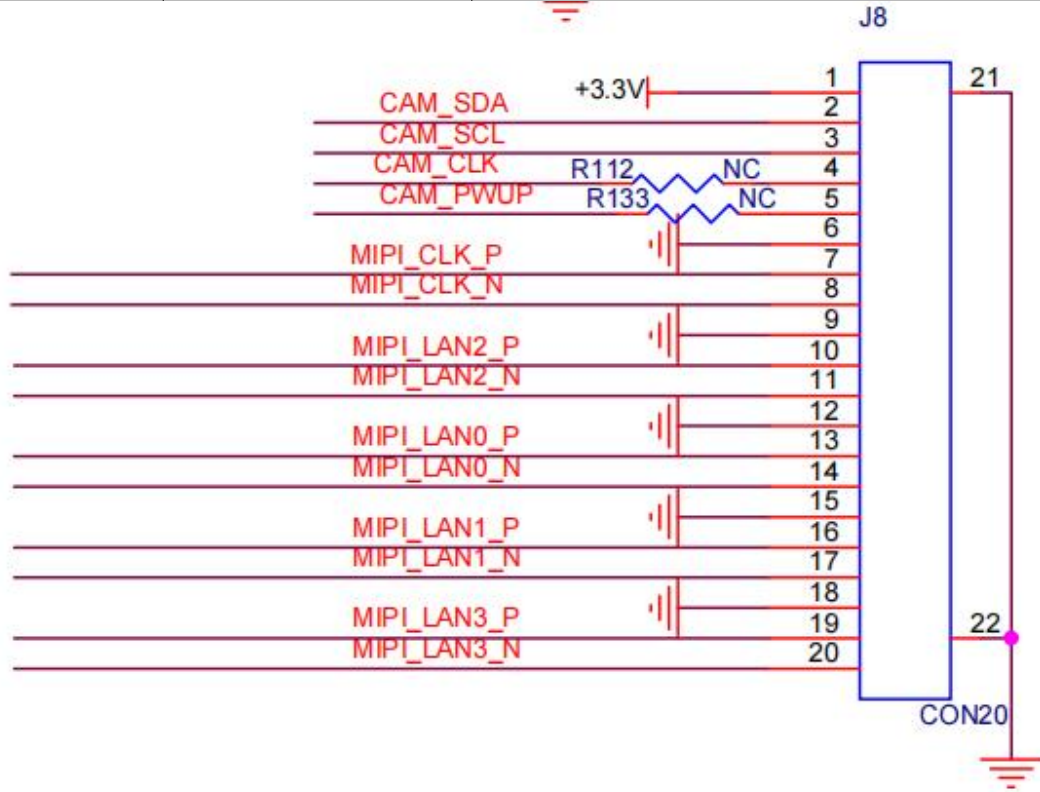
- Module content: contains OS05A20 power circuit and clock;
- Function: manual focus, automatic exposure control (AEC), automatic white balance (AWB);
- Image format: 12-/10-bit RAW RGB
- Captured images: QSXGA(2592x1944), 1080p, 1280x960, VGA(640x480),
- QVGA(320x240);
- Working temperature: -30~85°C, stable working temperature is 0~60°C

## 1.2 Interface Definition

The AN5020 module is connected to the development board through a 20-pin FPC flexible bar with 1.0mm pitch. The FPC connector on the module adopts the mode of up contact. Interfaces are defined as follows:

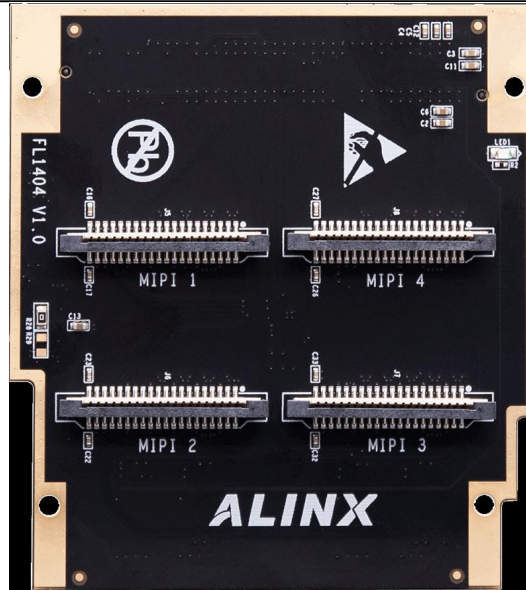
Pin	Signal Name	Description
Pin1	+3.3V	Power supply 3.3V
Pin2	CAM_SDA	Camera CMOS I2C data signal
Pin3	CAM_SCL	Camera CMOS I2C clock signal
Pin4	CAM_CLK	Camera CMOS input clock signal (reserved)
Pin5	CAM_PWUP	Camera CMOS power-on control signal
Pin6	GND	GND
Pin7	MIPI_CLK_P	Camera CMOS clock data positive output
Pin8	MIPI_CLK_N	Camera CMOS clock data negative output
Pin9	GND	GND
Pin10	MIPI_LAN2_P	Camera CMOS LANE2 data positive output
Pin11	MIPI_LAN2_N	Camera CMOS LANE2 data negative output
Pin12	GND	GND
Pin13	MIPI_LAN0_P	Camera CMOS LANE0 data positive output
Pin14	MIPI_LAN0_N	Camera CMOS LANE0 data negative output
Pin15	GND	GND
Pin16	MIPI_LAN1_P	Camera CMOS LANE1 data positive output
Pin17	MIPI_LAN1_N	Camera CMOS LANE1 data negative output
Pin18	GND	GND

Pin19	MIPI_LAN3_P	Camera CMOS LANE3 data positive output
Pin20	MIPI_LAN3_N	Camera CMOS LANE3 data negative output



## 2. Adaptive Development boards

Not all of ALINX development boards reserve 20Pin 4-lane\*4 FPC MIPI interfaces. At present, only the AXVE2302, AXKU5P and AXKU15P development boards have MIPI interfaces. Z7-P, AXAU15, Z19-P and Z19 development boards can achieve the MIPI camera acquisition and display by using FL1404 (FMC to 4-channel MIPI module). The photos of FL1404 module are as follows:



FL1404 module

Development boards that FL1404 is suitable to:

No.	DEV Board Model	FMC Connector
1	Z7-P	J13
2	Z19	J33
3	Z19-P	J18
4	AXKU5P	J10
5	AXAU15	J2

### 3. Hardware Connection

The AN5020 camera module and the FL1404 module are connected via the FPC flexible flat cable, and a 20PIN flexible flat cable has been supplied. Because the FPC socket of the module is in downward contact, the exposed metal side of the FPC cable should be facing down when inserting it. After inserting the FPC cable, fasten it tightly as shown in the following figure:



After that, connect the other end of the FMC cable to the FL1404 module. The following picture shows the connection with the FL1404 module:



The following picture shows the connection between the FL1404 module and the development board:

