MEDIATEK

camera_custom_stereo_setting 配置sop

Dual cam porting的时候，需要根据Module Info完成stereo基本设定。Before mt6771配置在《camera_custom_stereo.cpp》文件中完成;mt6771之后配置文件需要在《camera_custom_stereo_setting.h》文件中完成：需要配置的参数如下：

```
"\"Sensors\": ["
  "{"
    "\"UID\": \"0x20C8\","
    "\"Name\": \"S5K2L8SX_SENSOR_ID\","
    "\"Capture Size\": {"
      "\"4:3\": ["
        "\"4032x3024\""
      "],"
      "\"16:9\": ["
        "\"3840x2160\""
      "],"
      "\"1:1\": ["
        "\"3024x3024\""
      "],"
      "\"19:9\": ["
        "\"4032x1910\""
      "]"
  "},"

"\"IMGOYUV Size\": {"
  "\"4:3\": \"4032x3024\","
  "\"16:9\": \"4032x2268\","
  "\"1:1\": \"3024x3024\","
  "\"19:9\": \"4032x1910\""
"},"
"\"RRZOYUV Size\": {"
  "\"4:3\": \"2016x1512\","
  "\"16:9\": \"2016x1134\","
  "\"1:1\": \"1512x1512\","
  "\"19:9\": \"2016x954\""
"},"
"\"SensorScenarioZSD\": {"
  "\"VSDoF\": \"Capture\","
  "\"3rdParty\": \"Capture\","
  "\"MtkDepthmap\": \"Capture\""
"},"
"\"SensorScenarioRecording\": {"
  "\"VSDoF\": \"Preview\","
  "\"3rdParty\": \"Preview\","
  "\"MtkDepthmap\": \"Preview\""
"},"
"\"FOV\": {"
  "\"H\": 65.8,"
  "\"V\": 51.8"
"},"

"\"Sensor Combinations\": ["
  "{"
    "\"Main1 Name\": \"S5K2L8SX_SENSOR_ID\","
    "\"Main2 Name\": \"HI556_SENSOR_ID\","
    "\"Module Type\": 4,"
    "\"Baseline\": 0.885,"
    "Module Variation": 1,
    "Working Range": 20,
    "\"FOV Crop\": {"
      "\"Center Crop\": 0"
    "},"
    "\"Depthmap Size\": {"
      "\"4:3\": \"4032x3024\","
      "\"16:9\": \"4032x3024\","
      "\"1:1\": \"4032x3024\","
      "\"19:9\": \"4032x3024\""
    "},"
    "\"LDC\": ["
      "\"0\""
    "]"
  "},"
```

```
"\"Sensors\": ["
    "{"
        "\"UID\": \"0x20C8\","
        "\"Name\": \"S5K2L8SX_SENSOR_ID\","
        "\"Capture_Size\": {"
            "\"4:3\": ["
                "\"4032x3024\""
            "],"
            "\"16:9\": ["
                "\"3840x2160\""
            "],"
            "\"1:1\": ["
                "\"3024x3024\""
            "],"
            "\"19:9\": ["
                "\"4032x1910\""
            "]"
        "},"
```

UID	Sensor ID,定义在kd_imgsensor.h文件中，对应main /main2 camera sensor 的ID:如#define xxxx_SENSOR_ID 0x20C8
Name	Main/main2 sensor driver name，如：imxxxx_mipi_raw
Capture size	定义camera sensor capture size的大小比例，最大size不能超过sensor setting 输出的capture size；MTK stereo 算法要求capture size需要严格的4：3和16：9对齐

注意：在文件xxxxx_mipi_sensor.c文件中会定义sensor output raw Data size;
双摄capture size的配置需要注意以下几点：
1. 不要比sensor output raw data size大
2. width & height都要16-aligned
3. 不能小於FullHD, 不然refocus會當掉
4. MTK dual cam算法size严格要求4:3或16:9

```
.cap = {
    .pclk = 433300000,                     /* record different mode's pclk */
    .linelength = 4296,                    /* record different mode's linelength */
    .framelength = 3300,                   /* record different mode's framelength */
    .startx = 0,                           /* record different mode's startx of grabwindow */
    .starty = 0,                           /* record different mode's starty of grabwindow */
    grabwindow_width = 4032,               /* record different mode's width of grabwindow */
    grabwindow_height = 3016,              /* record different mode's height of grabwindow */
    /*     following for MIPIDataLowPwr2HighSpeedSettleDelayCount by different scenario   */
    .mipi_data_lp2hs_settle_dc = 85,
    /*     following for GetDefaultFramerateByScenario()  */
    .max_framerate = 300,
},
```

```
"\"IMGOYUV Size\": {"
    "\"4:3\": \"4032x3024\","
    "\"16:9\": \"4032x2268\","
    "\"1:1\": \"3024x3024\","
    "\"19:9\": \"4032x1910\""
"},"
"\"RRZOYUV Size\": {"
    "\"4:3\": \"2016x1512\","
    "\"16:9\": \"2016x1134\","
    "\"1:1\": \"1512x1512\","
    "\"19:9\": \"2016x954\""
"},"
"\"SensorScenarioZSD\": {"
    "\"VSDoF\": \"Capture\","
    "\"3rdParty\": \"Capture\","
    "\"MtkDepthmap\": \"Capture\""
"},"
"\"SensorScenarioRecording\": {"
    "\"VSDoF\": \"Preview\","
    "\"3rdParty\": \"Preview\","
    "\"MtkDepthmap\": \"Preview\""
"},"
"\"FOV\": {"
    "\"H\": 65.8,"
    "\"V\": 51.8"
"},"
```

IMGOYUV Size	YUV size output by Pass2, IMGO as input, for pure 3rd party flow
RRZOYUV Size	YUV size output by Pass2, RRZO as input, for pure 3rd party flow
SensorScenarioZSD	Zsd mode时，sensor driver需要跑的scenario
SensorScenarioRecording	Video mode时，sensor driver需要跑的scenario
FOV	FOV of the sensor;根据sensor module info进行配置,要求main2 的FOV 需要严格cover main 的fov

（示例）OHS0401 （Ov13855+s5k5e2）（13M+5M）

Camera Parameter	数据	数据
1.雙攝模組組態	4	
2.兩鏡頭中心間的水平距離 Baseline （mm）	12	
3.主鏡頭 sensor 型號	OV13855-GA5A-Z	
4.主鏡頭 sensor 影像 – Effective array (長,高)	4224	3136
5.主鏡頭 sensor 影像 – Bayer pattern 排列	BG_GR	
6.主鏡頭 lens 型號	50113A5	
7.主鏡頭 lens – FOV （水平方向、垂直方向）	65.9	51.5
8.主鏡頭 RI (Relative Illumination) 以百分比表示	34.30%	
9.主鏡頭 VCM 型號	TVC-673AKA	
10.副鏡頭 sensor 型號	S5K5E2	
11.副鏡頭 sensor 影像 – Effective array (長,高)	2560	1920
12.副鏡頭 sensor 影像 – Bayer pattern 排列	GR_BG	
13.副鏡頭 lens 型號	L40120A1	
14.副鏡頭 lens – FOV （水平方向、垂直方向）	72.2	57.3
15.副鏡頭 RI (Relative Illumination) 以百分比表示	29.50%	
16.副鏡頭 VCM 型號	FF	

```
"\"Sensor Combinations\": ["
    "{"
        "\"Main1 Name\": \"S5K2L8SX_SENSOR_ID\","
        "\"Main2 Name\": \"HI556_SENSOR_ID\","
        "\"Module Type\": 4,"
        "\"Baseline\": 0.885,"
        "Module Variation": 3,
        "Working Range": 20,
        "\"FOV Crop\": {"
            "\"Center Crop\": 0"
        "},"
        "\"Depthmap Size\": {"
            "\"4:3\": \"4032x3024\","
            "\"16:9\": \"4032x3024\","
            "\"1:1\": \"4032x3024\","
            "\"19:9\": \"4032x3024\""
        "},"
        "\"LDC\": ["
            "\"0\""
        "]"
    "},"
"},"
```

Main1 Name	Main sensor driver name，如：imxxxx_mipi_raw
Main2 Name	Main2 sensor driver name，如：imxxxx_mipi_raw
Module Type	Dual cam 模组的安装方式
Baseline	Distance of the center of the modules，从module info获取
Module Variation	Module install variation of each direction, default is 1.这个值会影响FOV的crop

（示例）OHS0401（Ov13855+s5k5e2）(13M+5M)

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1.雙攝模組組態	4	
2.兩鏡頭中心間的水平距離 Baseline（mm）	12	
3.主鏡頭 sensor 型號	OV13855-GA5A-Z	
4.主鏡頭 sensor 影像 – Effective array（長,高）	4224	3136
5.主鏡頭 sensor 影像 – Bayer pattern 排列	BG_GR	
6.主鏡頭 lens 型號	50113A5	
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16.副鏡頭 VCM 型號	FF	

Module Type：

根据主镜头位置，确认模组组态type

B+B： FOV较小的那一颗是主镜头
B+M：bayer 是主镜头
(预览时遮住主镜头，预览画面会变黑)

Recommended type:
Rear Camera,configuration **#1 and #4**
Front Camera,configuration #3

*M:主镜头；S:副镜头

The position of first pixel determines the readout order of an image. Therefore, the first pixel should be in the left-top corner of a phone.

Module Type：

根据主镜头位置，确认模组组态type

W+T：tele是main

Module Variation：

1）模组在安装的时候偏移的方向，默认值为1度；
2）为了保证main2 camera fov 完全cover住main camera fov ，在rrzo之前会根据配置参数选择是否进行fov crop，如果需要fov crop则会参考这个值：
3）这个值可以在module info里面拿，如果没有可以找模组厂要；
4）建议使用默认值1，如果对dual cam输出size和fov 有特殊要求，可以参考附件Excel 进行调整Module Variation的值

fov size crop 计算.r

```
"\"Sensor Combinations\": ["
    "{"
        "\"Main1 Name\": \"S5K2L8SX_SENSOR_ID\","
        "\"Main2 Name\": \"HI556_SENSOR_ID\","
        "\"Module Type\": 4,"
        "\"Baseline\": 0.885,"
        "Module Variation": 3,
        "Working Range": 20
        "\"FOV Crop\": {"
            "\"Center Crop\": 0"
        "},"
        "\"Depthmap Size\": {"
            "\"4:3\": \"4032x3024\","
            "\"16:9\": \"4032x3024\","
            "\"1:1\": \"4032x3024\","
            "\"19:9\": \"4032x3024\""
        "},"
        "\"LDC\": ["
            "\"0\""
        "]"
    "},"
```

Working Range	Dual Camera工作的最小距离，Default is 20.
Depthmap Size	Depthmap size output from GF, not workable for OCC output；这是给三方算法使用的，根据三方算法的要求进行配置

FOV Crop: (打完patch ALPS03872642以后才可以配置这个参数）

fov crop是在rrzo之前进行的，目的是为了保证当前模组安装状态下main2 camera的 FOV能完全cover main camera FOV，FOV crop的时候会参考Module Variation和 Working Range的值，如果这两个参数没有配置，这是使用默认值

```
1）如果三方算法需要disable fov crop，配置为以下值：
"\"FOV Crop\": {"
        "\"Disable Crop\": 1"
    "},"
2）如果是三方算法要求fov crop，则配置为：
"FOV Crop": {
     "Center Crop": 1,
   },
3）如果是mtk dual cam算法，则配置为：
"\"FOV Crop\": {"
        "\"Disable Crop\": 0"
    "},"
```

LDC:

模组lens畸变校准参数

1）"LDC": ["0"]表示走calibration 2.0，使用3[rd] party calibration
2） "LDC": "Calibration":"abcd…"：表示使用mtk calibration data，"adcb…"则配置
为mtk给出的data

有两种方法确认camera_custom_stereo_setting.h的配置

1. Dump stereo_setting.json
   - setprop debug.STEREO.custom_setting 1
2. Enable log
   - setprop debug.STEREO.log 1
   - setprop debug.STEREO.log.setting 1
   - grep StereoSetting